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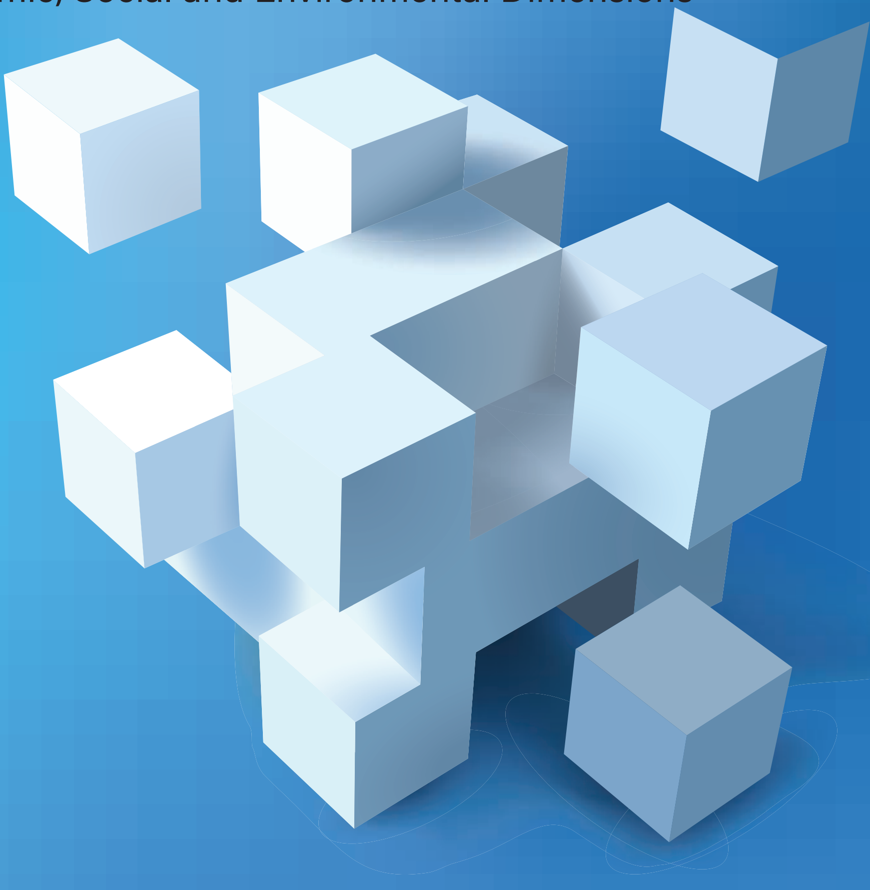
Special issue: Sustainability in Action: Integrating Economic, Social and Environmental Dimensions



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Recognizing the need for research for exploring new business models in the changing business scenario as well as developing new pedagogy in management, and for creating an influence on the academics as well as corporate thinkers, the institute embarked upon publication of its journal, *Review of Professional Management: A Journal of Management*, way back in 2003 and has been published regularly ever since. The Editorial Advisory Board of the journal comprises of eminent academics from universities and business schools from across geographies. It is a biannual peer-reviewed journal. It is an open access journal and all the publications of the journal are licensed under Creative Commons. The journal follows guidelines on publication ethics in accordance with The Committee on Publication Ethics (COPE).

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Aims and Scope

Review of Professional Management: A Journal of Management, a bi-annual peer-reviewed journal of New Delhi Institute of Management, provides a platform to academics, researchers, practitioners, and professionals from public, private and government sectors to share their original research, innovative practices and articles with Indian and international perspective that shape policy or governance or functioning of an organisation. The journal publishes conceptual, analytical, empirical, and perspective articles that significantly contribute to theory, practice or policymaking in all the functional areas of management and allied subjects.

The journal contains articles in the following functional areas of management:

- General Management
- Financial Management and Banking
- Organizational Behaviour and Human Resource Management
- Macroeconomic Issues and Business Environment
- International Business Management
- Marketing and e-commerce
- Operations Management
- Innovation and Entrepreneurship
- Socio-economic Issues: Health and Education

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Special issue: Sustainability in Action: Integrating Economic, Social and Environmental Dimensions

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Sustainability in Action: Integrating Economic, Social, and Environmental Dimensions

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Sustainability in action refers to the practical implementation of environmental, social, and governance (ESG) principles to create long-term value for organizations, stakeholders, and society. The environmental dimension measures an organization's impacts on the natural ecosystem which include: reducing carbon emission, efficient use of natural resources, waste minimisation or adoption of circular economy models, reducing pollution and protecting biodiversity. This is done by calculating carbon footprint which is a vital metric for assessing the environmental impact of activities. According to Britannica (2025) carbon footprints are the total amount of greenhouse gas (GHG) emitted (directly or indirectly) by a company and also the emissions of other greenhouse gases, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs). "It includes direct emissions, such as those that result from fossil-fuel combustion in manufacturing, heating, and transportation, as well as emissions required to produce the electricity associated with goods and services consumed (Britannica, 2025). A product's carbon footprint includes the emissions for the entire life cycle ranging from the production along the supply chain to its final consumption and disposal. By understanding and managing an entity's carbon footprints, one can contribute to mitigating climate change and promoting sustainability. The social dimension includes relations with multiple stakeholders such as employees, communities and society in a broader sense. Actions under this will include fair labour practices, diversity, equity and inclusion, employee safety and well-being, responsible supply chain and community welfare, education and health initiatives, among others. The governance dimension encapsulates ethical conduct and decision-making, disclosure and transparency, accountability, anti-corruption measures, compliance of regulations, cyber security, data privacy and ethical AI practices.

Hence, putting sustainability in action would require integrating ESG strategy in corporate strategy which can be observed in organisation's mission, values and policies and organisation's long- term growth plans. When put into practice it will reflect in sustainability reporting on various ESG matrices such as carbon footprint, energy and water consumption, diversity ratios among employees. Besides, it can also be seen in ethical sourcing policies and practices, use of low carbon material, use of renewable energy and adoption of green innovations etc. It will bring positive outcomes when policy makers, investors, customers, employees and communities strengthen ESG adoption and ensure shared accountability.

A study of integration of ESG metrices in performance evaluation by Sri Hondoko et.al, (2024) revealed a positive relationship between high ESG scores and improved financial performance and reputational outcomes. The governance dimension demonstrated the most significant influence on corporate sustainability. The environmental and social dimensions also contributed significantly with focus on energy efficiency, waste management, employee welfare and community development.

Emerging economies are increasingly embracing sustainable practices where cultural factors play an important role. ESG metrices can enhance strategic decision-making processes, hence ESG is no longer optional, it is a strategic imperative for sustainable progress.

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Radha R. Sharma
Editor-in- Chief

Research Paper

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Unveiling a Dynamic Relation Between Transport Emissions and Ecological Footprint in Growth-oriented Asian Economies

Rakesh Shahani[1] and Kartikay Ahluwalia[1]

Abstract

The study makes an attempt to investigate the long-term dynamic relation between CO_2 emissions from liquid fuel consumption by the transport sector (TR) and the ecological footprint (EFP) of two Asian emerging giants, namely, China and India. Four other variables, 'Urbanisation', 'Trade Openness', 'ICT' and 'GDP' have also been included under the study as control variables. The period of study is 30 years (1987–2016), and the data have been sourced from World Development Indicators and Global Footprints Network.

The methodology includes testing for co-integration amongst variables by applying the ARDL co-integration model (with a single breakpoint) and its non-linear counterpart, NARDL. The error correction, testing for asymmetric impact and long-run elasticity are other aspects considered under the study.

Co-integration was established at 1% level for both countries, both under the ARDL and NARDL models. The long-run impact of TR on EFP was positive for both countries, with elasticity between TR and EFP being highly inelastic for India and somewhat elastic for China. The asymmetric impact of TR on EFP was not seen in either of the two countries in the long run. The long-run adjustment process through the ECM(–1) term was found to be stable, but the speed of adjustment was moderate @7% p.a. for China and slow @0.3% p.a. for India. All three model diagnostics were found to be highly satisfactory.

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Keywords

ARDL, asymmetry, co-integration, ecological footprint, NARDL

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Introduction

Fossil fuels, central to manufacturing, are a major driver of economic growth in both resource-rich and resource-scarce economies. Transport, which serves as a catalyst in economic growth, has experienced significant expansion over recent decades, making this sector a leader in energy consumption, accounting for about 25% of global GHG emissions in 2021 (UN Fact Sheet, 2021). This surge, fuelled by globalisation, urbanisation, and trade, has intensified fossil fuel use and environmental degradation. With only 3.7% of its energy from renewables and 96.3% from fossil fuels, immediate regulatory actions and investment in sustainable infrastructure are highly critical, and hence the sector requires the highest priority (IRENA, 2021).

Global efforts to cut fossil fuel use in transport have shown promise but remain concentrated in developed nations. For example, a US study (1977–2007) by Brown-Steiner et al. (2016) found black carbon emissions from diesel trucks and trains dropped despite rising freight volumes, thanks to policies like transport clustering and regulatory enforcement. Nonetheless, such progress is limited in developing countries.

Despite evident environmental harm, many nations hesitate to act due to the substantial investment required for cleaner fuels and economic significance of the transport sector (TR) in enhancing productivity, employment, property values and other benefits (Pradhan et al., 2024). Scholars suggest non-conflicting policies, which demand understanding the interplay among growth, energy, and CO_2 emissions.

Beyond GHGs, transport also causes noise pollution and waste generation. According to OECD (2021), transport's energy share is highest in the US (37.5%), UK (33%), and Switzerland (31%), compared to 15% in India and China, which actually contradicts developed economies taking proactive measures to combat transport emissions. Within transport, road transport accounts for about 75% of CO_2 emissions, the rest being shared by air and rail (Saboori et al., 2014). In emerging economies, industrial energy use remains high—China (49%), Indonesia (37%), India (38%), while in developed nations it has fallen significantly—US (17%), UK (18%) (IRENA, 2021). This points to a relocation of energy-intensive industries from developed to developing countries.

Shifting the focus to the present study, leaving aside overall emissions, research reveals that sector-specific energy consumption remains largely unexplored. Although for emissions, most studies have considered CO_2 or SO_2 emissions as their proxy for environmental degradation, the sector-wise breakup of these emissions has been largely ignored, which becomes one of the motivations of the present study.

The study investigates the long-run relationship between transport emissions and environmental degradation in two emerging Asian economies, China and

India, the criterion for sample choice being their rapid economic growth amongst developing nations. The study employs ecological footprint (EFP) and liquid fuel consumption by transport as main proxies besides four control variables: Urbanisation, trade openness, ICT, and GDP. Including control variables prevents omission bias and aligns the study with previous studies (Frey et al., 2006; Hassan et al., 2019). A 30-year dataset, log-transformed, is used for analysis. EFP data from the Global Footprint Network (2023) covers six land categories and reflects the environmental cost of production and waste, adjusted for Earth's regenerative capacity (Nathaniel & Khan, 2020; Rashid et al., 2018).

Strand et al. (2021) report that rising global EFP is driven by poor natural resource management and weak environmental regulation. Innovation in technology is cited as a key solution to reversing ecological degradation. Santos (2017) links regulatory failure to the absence of a global enforcement body.

Before discussing methodology, the study reviews relevant literature, categorised into two groups: Studies analysing transport emissions and studies examining related control variables. The impact of some of the control variables on the environment has been found to be country-specific, for example, most studies find that urbanisation's environmental effects are country-specific—harmful in China and Qatar (Charfeddine, 2017; Sheng & Guo, 2016), but beneficial in the UAE and MENA countries (Charfeddine & Ben Khediri, 2016; Charfeddine & Mrabet, 2017). On the other hand, ICT, often measured by mobile usage or subscriptions, is generally linked to lower environmental degradation. For instance, Salahuddin et al. (2016) found mobile use was negatively related to CO_2 in OECD countries, while Asongu et al. (2017) found similar results in Sub-Saharan Africa. Hussain et al. (2023) showed that ICT combined with urbanisation and electricity use reduced EFP. Contrastingly, in Iran, ICT increased industrial CO_2 emissions (Shabani & Shahnazi, 2019). Then, the existence of an asymmetric impact of ICT on emissions was reported in a study on Tunisia (Amri et al., 2019).

Studies focusing on the main variable, transport emissions, include Brown-Steiner et al. (2016), who showed reduced emissions through policy and enforcement. Others, including Ayadi and Hammami (2015) and Sasana and Aminata (2019), stress that without strong regulation, environmental damage is unavoidable. Abbes and Bulteau (2018) found that transport accounted for 92% of Tunisia's GHG emissions.

Transport energy consumption was found to be closely linked to CO_2 emissions in many studies. A study by Nasreen et al. (2020) found bidirectional relationships between CO_2 and transport energy in 18 countries. Saboori et al. (2014) showed long-run, positive links among CO_2, economic growth, and road sector energy use across OECD countries. The study showed that impulses of road sector energy consumption towards CO_2 emissions lasted longer than impulses towards economic growth, implying long-run policies could be framed for shifting to renewable fuels and could benefit in mitigating GHG emissions.

With respect to the relation between transport and EFP, there have been only a handful of studies, like Hussain et al. (2023), which showed that a reduction in EFP was possible by increasing expenditure on transport infrastructure and through sustained economic growth. Then, Satrovic et al. (2024) concluded that transport energy and natural resource depletion were responsible for the rise in EFP, while technological innovation was seen as reducing the same.

Then, apart from emissions, another TR variant becoming popular amongst researchers is transport infrastructure and the same was considered in studies including Churchill et al. (2021), Pradhan et al. (2024), Acheampong et al. (2022), amongst others. The variable transport infrastructure with both positive and negative multiplier effects, positive in terms of saving travel time and costs, increasing employment (Pradhan et al., 2024), while negative being the use of environment-unfriendly products; cement, concrete and heavy-duty equipment by infrastructure projects themselves. Churchill et al. (2021) found that a 1% rise in transport infrastructure was associated with a 0.4% rise in CO_2 emissions.

Research Gap

The literature review revealed limited studies examining the role of control variables while modelling the transport-environment relation, particularly in emerging markets. This study fills the gap by including such control variables to bring out the deterministic role played by each and every control factor towards the environment, even though the study objective was to establish the relation between transport emissions and EFP. Furthermore, the review apprised us that the research area, transport emissions and EFP linkages was highly under-researched as the study could figure out only a few studies alongside developed economies. The study, which includes India and China, two developing economies, would try to compare the outcome of the current research with the outcome in developed economies.

A unique feature of this study was its dual modelling approach using both quasi-linear ARDL (with structural break) and non-linear NARDL models. This methodology choice stems from the BDS test results, which indicated non-linear behaviour in EFP. While ARDL models (Pesaran et al., 2001) would handle mixed-order integration, assuming linearity by incorporating structural breaks, NARDL tends to focus on nonlinearities (Shin et al., 2014), allowing better modelling of complex dynamics. To the best of our knowledge, no study has applied both ARDL variants to explore this relationship.

The rest of the article is structured as follows: The second section presents descriptive statistics, the third section explains the methodology employed, the fourth section provides empirical results, and finally, the fifth section presents a conclusion, study limitations and policy implications, followed by references in the sixth section.

Descriptive Statistics of the Variables

Table 1 summarises the six variables along with their units of measurement and data sources, and is shown under three columns, sources of data being the World Bank (2023) and Global Footprints Network (2023). Table 2 compares descriptive

Table 1. Summary Information About the Variables Included in the Study.

Sr No	Name of the Variable	Unit of Measurement	Source of Data
1.	Urbanisation (URB)	Urban pop (% of total pop)	World Development Indicators
2.	Economic growth (GDP)	GDP per capita constant 2015 prices	World Development Indicators
3.	Ecological footprint (EFP)	Global hectares per capita	Global Footprints Network GFN (2023)
4.	Trade openness (TO)	Merchandise {sum of exports and imports (% of GDP)}	World Development Indicators
5.	Mobile usage (MU)	Mobile cellular subscription (per 100 persons)	World Development Indicators
6.	CO_2 emissions from liquid fuel cons by transport (TR)	Liquid fuel consumption (kt)	World Development Indicators

statistics of these variables for India and China over the 30-year period (1987–2016). China's average EFP was four times India's, with CO_2 emissions from transport in China being about 2.2 times higher. For the four control variables, China also consistently reported higher averages.

Standard deviation, which indicates variability, was higher for China for five out of six variables. India showed more variability only in TR emissions, suggesting inconsistent trends compared to China's more stable emission control. Skewness results showed a strong positive skew for China's EFP, implying more years with values above the average. India's EFP also had a positive skew, but less pronounced, suggesting a more balanced distribution. India's TR skewness was much higher than China's, indicating frequent years of emissions above the average. Kurtosis values were negative for most variables, indicating flatter, more normal-like distributions, suggesting no large distribution asymmetries for either country.

In summary, Table 2 gives preliminary insight into the trends of two emerging economies. For India, TR emissions seem to be a major driver of EFP changes, while in China, other sectors such as industry and power may be more responsible. This aligns with findings by Shang et al. (2024), who observed that China's emissions reduction came from a gradual switch to low-carbon fuels, thereby taking the burden off the TR.

Research Methodology

The methodology revolves around two co-integration variants: ARDL with a single structural break and NARDL, choice being based upon results obtained under the BDS test statistics. Hence, before any discussion on the two variants, the study explores the methodology employed for the BDS test statistics.

Table 2. Statistical Description of Variables for the Period 1987–2016.

	EFP		Urbanisation		Trade Openness		ICT-mobile Subscriptions		GDP (Crores)		Emissions from Transport	
Parameter	India	China	India	China	India	China	India	China	India	China	India	China
Mean (μ)	0.50	2.17	8.51	38.99	24.340	42.306	20.79	29.64	102.8	442.3	3.11	7.43
Std. Dev. (σ)	0.143	0.759	2.508	10.206	10.379	9.994	30.21	34.806	5.52448E+11	3.39443E+12	1.34	1.1
Skewness (S)	0.118	0.474	0.307	0.212	0.519	0.825	1.042	0.805	0.722	0.804	0.750	0.373
Kurtosis (K)	–1.95	–1.35	–1.09	–1.256	–0.949	–0.256	–0.55	–0.799	–0.508	–0.544	0.201	–1.157

BDS Test

BDS test statistic (Brock et al., 1987) determines whether data is independently and identically distributed (I.I.D), and the study has applied BDS on raw data with '*m*' embedded dimension with histories being rolled over in the following manner:

$$y_1^m = y_1, y_2, y_3, \dots, y_m, y_2^m = y_2, y_3, y_4, \dots, y_{m+1}, y_3^m = y_3, y_4, y_5, \dots, y_{m+2} \text{ and so on.}$$

Null Hypothesis

H_0: I.I.D. time series data.
H_A: Time series data is not I.I.D.; hence, non-linear

Based upon the BDS results obtained (shown under Table 3), we decided to develop two models: ARDL with a single structural break and NARDL. Further, with non-linearity being proved, the study introduced a Dummy variable for the dependent variable in the ARDL model, thus making this model a quasi-linear model.

Model Representation (ARDL with Single Structural Break)

The section discusses the ARDL co-integration Model with a single structural break for the variable EFP; model representation for the same is given as Equation 1.

$$\begin{aligned}
&\Delta \ln.\text{EFP}_{i.t} = \beta_{1,i} + \beta_{1,i,BD_i}{}^{\#} D_{i,t} + \beta_{2,i} \ln.\text{EFP}_{i,\,t-1} + \beta_{3,i} \\
&\ln.\text{TR}_{i,\,t-1} + \beta_{4,i} \ln.\text{GDP}_{i,t-1} + \beta_{5,i} \ln.\text{TO}_{i,t-1} + \beta_{6,i} \ln.\text{URB}_{i,\,t-1} + \beta_{7,i} \\
&\ln.\text{MU}_{i,\,t-1} + \sum\nolimits_{m=1}^{r_1} \left(\beta_{8,i} \Delta \ln.\text{EFP}_{i,t-m}\right) + \sum\nolimits_{m=0}^{n_1} \left(\beta_{9,i} \Delta \ln.\text{TR}_{i,\,t-m}\right) + \\
&\sum\nolimits_{m=0}^{n_1} \left(\beta_{10,i} \Delta \ln.\text{GDP}_{i,\,t-m}\right) + \sum\nolimits_{m=0}^{n_1} \left(\beta_{11,i} \Delta \ln.\text{TO}_{i,\,t-m}\right) + \\
&\sum\nolimits_{m=0}^{n_1} \left(\beta_{12,i} \Delta \ln.\text{URB}_{i,\,t-m}\right) + \sum\nolimits_{m=0}^{n_1} \left(\beta_{13,i} \Delta \ln.\text{MU}_{i,\,t-m}\right) + e_{i,t}
\end{aligned} \tag{1}$$

For Equation 1, $\Delta\ln.\text{EFP}_{i,t}$ is the logarithmic change in EFP, model dependent variable, with '*t*' being the time period and '*i*' representing two countries; $i = 1, 2, 1$ (India) or 2 (China). Equation 1 has 'β_1'as intercept while '$\beta_{1,t}{}^{\#}$' slope coefficient of Intercept Dummy (D_1) reflecting structural break of dependent variable, EFP. As stated above, the inclusion of a structural break is based upon the BDS test results and applies Perron's Innovative Outlier Method (Perron, 1994), following asymptotic one-sided '*p*' values. Dummy Variable ($D_{i,t}$) takes the value as:

$$\begin{cases} 1 \; if \;\; t \geq BD_i \\ 0 \; if \;\; t < BD_i \end{cases} .\; BD: \text{Break Date for } i^{th} \text{country}$$

'β_2' is the slope coefficient of the first lag of dependent variable EFP, while next five terms, 'β_3' to 'β_7' are slope coefficients of first lag of five independent variables, namely, TR, GDP, URB, TO and MU, respectively. Five further independent variables at their first lags together with the dependent variable EFP make up the long-term relation under ARDL.

The term $\sum_{m=1}^{r_1}\left(\beta_{8,i}\ \Delta\ln.\text{EFP}_{i,t-m}\right)$ depicts log change in dependent variable EFP and has been included as a regressor, with 'r_1' being AIC determined lags. Similarly, the term for transport is $\sum_{m=0}^{n_1}\left(\beta_{9,i}\ \Delta\ln.\text{TR}_{i,t-m}\right)$, '$n_1$' being the lags (AIC), and the same goes for other independent variables. Further, with a limited number of observations under study, a restriction of Max '2' lags for both dependent and independent variables was considered, that is, m = Max of Lags (0,1,2) for independent and m = Max of Lags (1,2) for dependent variable. These terms are then summed up and collectively make up the short-run relation. Finally, $e_{i,t}$ is the stochastic error term of Equation 1.

Model Representation (NARDL)

NARDL model (Shin et al., 2014) is an asymmetric expansion of ARDL and decomposes our independent variable, TR, into positive and negative values, keeping rest of the variables unchanged as given under Equation 1. NARDL model for dependent variable EFP is given as Equation 2 below:

$$\begin{aligned}
\Delta\ln.\text{EFP}_{i.t} &= \lambda_{1,i} + \lambda_{1,i,BD_i}{}^{\#}D_{i,t} + \lambda_{2,i}\ln.\text{EFP}_{i,t-1} + \lambda_{3,i}^{+}\ln.\text{TR}_{i,t-1}^{+} + \lambda_{3,i}^{-}\ln.\text{TR}_{i,t-1}^{-} + \lambda_{4,i} \\
&\ln.\text{GDP}_{i,t-1} + \lambda_{5,i}\ln.\text{TO}_{i,t-1} + \lambda_{6,i}\ln.\text{URB}_{i,t-1} + \lambda_{7,i}\ln.\text{MU}_{i,t-1} + \sum_{m=1}^{r_1}\left(\lambda_{8,i}\ \Delta\ln.\text{EFP}_{i,t-m}\right) + \\
&\sum_{m=0}^{n_1(A)}\left(\lambda^{+}{}_{9,i}\Delta\ln.\text{TR}^{+}{}_{i,t-m}\right) + \sum_{m=0}^{n_1(B)}\left(\lambda_{9,i}^{-}\ \Delta\ln.\text{TR}^{-}{}_{i,t-m}\right) + \sum_{m=0}^{n_1}\left(\lambda_{10,i}\ \Delta\ln.\text{GDP}_{i,t-m}\right) + \\
&\sum_{m=0}^{n_1}\left(\lambda_{11,i}\ \Delta\ln.\text{TO}_{i,t-m}\right) + \sum_{m=0}^{n_1}\left(\lambda_{12,i}\ \Delta\ln.\text{URB}_{i,t-m}\right) + \sum_{m=0}^{n_1}\left(\lambda_{13,i}\ \Delta\ln.\text{MU}_{i,t-m}\right) + u_{i,t} \qquad (2)
\end{aligned}$$

where

$$\lambda_3^{+} = \begin{cases}\lambda_3 \ if\ \lambda_3 > 0\\ 0\ if\ \lambda_3 \le 0\end{cases} \text{and } \lambda_3^{-} = \begin{cases}\lambda_3 \ if\ \lambda_3 < 0\\ 0\ if\ \lambda_3 \ge 0\end{cases}$$

$$\lambda_9^{+} = \begin{cases}\lambda_5 \ if\ \lambda_5 > 0\\ 0\ if\ \lambda_5 \le 0\end{cases} \text{and } \lambda_9^{-} = \begin{cases}\lambda_5 \ if\ \lambda_5 < 0\\ 0\ if\ \lambda_5 \ge 0\end{cases}$$

As already stated, the variable TR in Equation 2 is decomposed as TR^{+} and TR^{-}, TR^{+} takes a positive value when variable TR is positive, while for all zero and negative values of variable TR, TR^{+} takes a value as '0'. Again, variable TR^{-} takes a negative value if TR is negative, while for all other values of TR, TR^{-} takes a value as '0'.

Test for Long-term Co-integration: Partial 'F' Bounds Test

The existence of co-integration under both models is tested by applying partial '*F*' bounds test (Pesaran et al., 2001). We set up two null hypotheses, one for ARDL and the second for NARDL, under '*F*' bounds test

HO_1: $\beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ (for ARDL Equation 1)
HO_2: $\lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 = 0$ (for NARDL Equation 2)

Null gets rejected if 'F' computed > Upper Bound critical (Table 5)

Long-term Relation: Elasticity and Asymmetry

The section discusses the long-run relation amongst the variables, which is established only when co-integration is proved. Since results from the partial 'F' bounds test confirm the establishment of co-integration both for ARDL and NARDL models and for both countries, India and China, we go ahead and establish Equation 3, the long-term relation.

$$\text{ln.EFP}_{i.t} = \delta_{1,i} + \delta_{1,i,\text{BD}_i}{}^{\#}\text{D}_{i,t} + \sum\nolimits_{m=1}^{g_1}\left(\delta_{2,i}\ \text{ln.EFP}_{t-m}\right) + \sum\nolimits_{i=0}^{g_2}\left(\delta_{3i,}\ \text{ln.TR}_{t-i}\right) + \sum\nolimits_{i=0}^{g_2}\left(\delta_{3i,}\ \text{ln.GDP}_{t-i}\right) + \sum\nolimits_{i=0}^{g_2}\left(\delta_{3i,}\ \text{ln.TO}_{t-i}\right) + \sum\nolimits_{i=0}^{g_2}\left(\delta_{3i,}\ \text{ln.UR}_{t-i}\right) + \sum\nolimits_{i=0}^{g_2}\left(\delta_{3i,}\ \text{ln.MU}_{t-i}\right) + v_{i,t} \tag{3}$$

Notation g_1, in Equation 3, represents lags of dependent variable EFP and g_2 lags for all five independent variables, all following the AIC criteria. Further, long-run elasticity of EFP with respect to TR is established by developing Equations 4 and 5. Considering 'L', as the backshift operator, we develop Equation 4.

$$A(L, g_1)\ \text{ln.EFP}_{1,t} = \delta_1 + \delta_{1,i,BD_1}{}^{\#}D_{i,t} + B(L, g_2)\ \text{ln.TR}_{t} + e_{1,t} \tag{4}$$

To obtain long-run elasticity, we make use of Equations 3 and 4 and develop Equation 5 as follows

$$\frac{A(L, g_1)}{B(L, g_2)} = \frac{1 - \delta_{2,1} - \delta_{2,2} - \ldots \delta_{2,g_1}}{\delta_{3,0} + \delta_{3,1} + \delta_{3,2} + \delta_{3,3} \ldots \delta_{3,g_2}} \tag{5}$$

Next, consider Equation 2 again, applying 'Wald' to test the asymmetric impact of TR on EFP with null (H_0): $\pi^+ = \pi^-$, where $\pi^+ = \frac{\lambda_3^+}{\lambda_2}$ and $\pi^- = \frac{\lambda_3^-}{\lambda_2}$ (from Equation 2).

Short-term Relation: Asymmetry and Error Correction Towards Equilibrium

The section discusses short-run relations among the variables and tries to build an Error Correction Model, which corrects for short-run disequilibrium and traces the path towards long-run equilibrium (Equations 6 and 7 below)

$$\Delta \ln.\mathrm{EFP}_{i,t} = \partial_{1,I} + \partial_{1,i,\mathrm{BD}_1}{}^{\#}\mathrm{D}_{i,t} + \partial_2 \mathrm{EC}_{i,t-1} + \sum_{m=1}^{r_2}\left(\partial_{3,i}\Delta \ln.\mathrm{EFP}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{4i,}\Delta \ln.\mathrm{TR}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{5i,}\Delta \ln.\mathrm{GDP}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{6i,}\Delta \ln.\mathrm{TO}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{7i,}\Delta \ln.\mathrm{URB}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{8i,}\Delta \ln.\mathrm{MU}_{t-m}\right) + e_{2,t} \quad (6)$$

Equation 6 provides the short-run equation under ARDL (with a single structural break) with r_2 being lags of EFP and n_2 as lags of independent variables TR, GDP, TO, URB and MU, both follow AIC criteria. The term $\mathrm{EC}_{i,t\text{-}1}$ with coefficient ∂_2 represents the error correcting term, while $\partial_{4,0}$ is the short-run price transmission elasticity coefficient from variable TR to EFP.

Equation 7 provides an error correction and adjustment mechanism under NARDL with the TR variable decomposition as TR^+ and TR^- under a short-run framework.

$$\Delta \ln.\mathrm{EFP}_t = \gamma_{1,i} + \gamma_{1,i,\mathrm{BD}_1}{}^{\#}\mathrm{D}_{i,t} + \gamma_2 \mathrm{EC}_{i,t-1} + \sum_{m=1}^{r_2}\left(\gamma_{3,i}\Delta \ln.\mathrm{EFP}_{t-m}\right) + \sum_{m=0}^{n_{2,A}}\left(\gamma_{4,i}^{+}\Delta \ln.\mathrm{TR}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\gamma_{4,i}^{-}\Delta \ln.\mathrm{TR}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{5i,}\Delta \ln.\mathrm{GDP}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{6i,}\Delta \ln.\mathrm{TO}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{7i,}\Delta \ln.\mathrm{URB}_{t-m}\right) + \sum_{m=0}^{n_2}\left(\partial_{8i,}\Delta \ln.\mathrm{MU}_{t-m}\right) + e_{3,t} \quad (7)$$

Further, for both equations, Equation 6 and 7, the term $\mathrm{EC}_{t\text{-}1}$ shows how fast the market would adjust to achieve long-run equilibrium, implying that a shock under the system has an adjustment mechanism as ∂_2 (ARDL) and γ_2 (NARDL). The '*n*' period shock adjustment being $1\text{-}(1-\partial_2)^n$ and $1\text{-}(1-\gamma_2)^n$ for two models, respectively.

NARDL also provides useful information on short-run asymmetry, with null defined as $\sum_{m=0}^{n_{2,A}}(\gamma_{4i,}^{+}) = \sum_{m=0}^{n_{2,B}}(\gamma_{4i,}^{-})$ (from Equation 7).

Analysis of Results

This section summarises findings from Tables 3 to 9. Tables 3 and 4 present BDS test results, indicating non-linearity in the EFP variable for both India and China. The rejection of the null hypothesis across all embedding dimensions supports the use of non-linear models; ARDL (with structural break) and NARDL.

Following this, Tables 5 and 6 display results from the Partial F-Bounds test for long-run co-integration. For both India and China, and under both ARDL and NARDL models, the computed F-statistics exceeded upper bound at 1% level, confirming long-run co-integration.

The co-integration established for India and China enabled long-run analysis. Table 7 shows that TR significantly and positively affects EFP in both countries, at 1% level for India and 10% for China. For India, ICT negatively impacts EFP, while in China, GDP, TO, and URB positively affect EFP, and ICT has a negative influence. These findings align with Hussain et al. (2023) and Salahuddin et al. (2016).

Table 3. BDS Results for Our Variable EFP (China).

Dimension	BDS Statistic	*p*	Result
2	0.186464	.0000	Null rejected, non-linearity is detected at all dimensions
3	0.300130	.0000	
4	0.369431	.0000	
5	0.406886	.0000	
6	0.420525	.0000	

Table 4. BDS Results for Our Variable EFP (India).

Dimension	BDS Statistic	*p*	Result
2	0.072266	.0000	Null rejected, non-linearity is detected at all dimensions
3	0.177897	.0000	
4	0.276653	.0000	
5	0.321174	.0000	
6	0.365332	.0000	

Table 5. Partial 'F' Bounds Test ARDL (with Dummy) Model.

				Critical Table Value at 5%* and 1%**		
Model Specification	Country	Dummy Date & '*p*' Value in Parenthesis	'F' Bounds (Computed Value)	Lower Bound I(0)	Upper Bound I(1)	Inference
EFP as f (TR, URB, TO, ICT and GDP)	India	1995 (.0084)	5.163	2.39* 3.06**	3.38* 4.15**	**Co-integration is established at 1% level**
	China	2002 (.0993)	8.229	2.39* 3.06**	3.38* 4.15**	**Co-integration is established at 1% level**

Notes: H_0: $\beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ (see Equation 1).
Table Result: Co-integration is established for both India and China.
Dummy Coefficients included in ARDL were significant for India at 1% and for China at 10% justifying inclusion of structural break for India and partially justifying for China. The significance levels are 5%(*) and 1 %(**).

The Wald F-test under NARDL confirmed no long-run asymmetry of TR on EFP in either country. Long-run elasticity of TR on EFP was highly inelastic for India (0.449) and fairly elastic for China (2.43), suggesting China's gradual transition toward alternative fuels, while India remains reliant on fossil fuels.

In the short run (Table 8), TR, TO, and ICT impact EFP in India; TR and TO positively, ICT negatively. In China, all variables influence EFP, with ICT again showing a negative effect, and the rest of the variables positively. Short-run elasticity of TR on EFP remained inelastic in both nations, showing limited flexibility. No evidence of short-run asymmetry was seen under the study. The

Table 6. Partial 'F' Bounds Test NARDL Model.

Model Specification	Country	'F' Bounds (Computed Value)	Critical Table Value at 5%* and 1%** Lower Bound I(0)	Upper Bound I(1)	Inference
EFP as f (TR, URB, TO, ICT and GDP)	India	7.72	2.27* 2.88**	3.28* 3.99**	**Co-integration is established at 1% level**
	China	11.41	2.27* 2.88**	3.28* 3.99**	**Co-integration is established at 1% level**

Notes: H_o: $\lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 = 0$ (see Equation 2).
Table result: Co-integration is established for both India and China. The significance levels are 5%(*) and 1 %(**).

Table 7. Long-run Results Under Both ARDL and NARDL Model.

Regressors (Long-run)	(EFP China) Coefficient	(EFP China) *p* Value	(EFP India) Coefficient	(EFP India) *p* Value
EFP(-1)	0.51	.0002	0.7207	.0058
TR(-1)	0.202	.0876	0.6208	.0208
GDP(-1)	3.304	.0001	–0.3492	.3008
TO(-1)	0.578	.000	–0.0655	.2426
ICT(-1)	–0.059	.0004	–0.0577	.0063
URB(-1)	–7.83	.0003	–12.73	.3697
Dummy for regressand	–0.0872	.0993	0.3083	.0093
$TR^+(-1)$ (λ_3^+)	–0.232796	.0674	–0.1395	.1960
$TR^-(-1)$ (λ_3^-)	–3.9157	.0022	0.2664	.1950
Coeff. of EFP(–1) from NARDL (λ_2) for testing asymmetry	0.614064	–	-0.7276	–
***Asymmetric impact of TR on EFP* $\pi^+ = \pi^- = 0$ (Null: No asymmetry: F Wald) where $\pi^+ = \left(\frac{\lambda_3^+}{\lambda_2}\right)$ and $\pi^- = \left(\frac{\lambda_3^-}{\lambda_2}\right)$; λ_3^+, λ_3^- and λ_2 are coeff. from Equation 2**	China F computed: 0.143, '*p*' statistics: .709, no long-run asymmetry. India F computed: 2.787, '*p*' statistics: .1336, no long-run asymmetry.			
Long-run elasticity of EFP with respect to TR	Highly inelastic for India at 0.449, fairly elastic at 2.43 for China			

Notes: 1. Model selection method: AIC.
2. Model selected: China: ARDL (2, 0, 2, 1, 1, 2); India ARDL (1, 1, 2, 0, 2, 2); China NARDL (1, 0, 1, 0, 2, 2, 0); India NARDL (2, 2, 2, 2, 1, 2, 1).
3. For long-run elasticity of EFP with respect to TR, the applicable formula from Equation 5 is given as: $\frac{A(L, g_1)}{B(L, g_2)}$.

ECM(-1) term confirmed stable but slow adjustment: Faster in China than in India.

Table 9 presents diagnostics: Breakpoint ADF tests showed mixed stationarity across variables, justifying ARDL modelling. Results from BG-LM and BPG tests indicated no serial correlation or heteroscedasticity. These diagnostics support the reliability of the results.

Conclusion and Implications

This study empirically examined the long-term dynamic relationship between CO_2 emissions from liquid fuel consumption in the TR and EFP in China and India, using ARDL and NARDL models. Co-integration was confirmed at a 1% significance level for both countries. In the long run, TR had a positive impact on EFP; highly inelastic for India and somewhat elastic for China. No asymmetric impact of TR on EFP was detected.

In the short run, TR also influenced EFP with inelastic elasticity in both countries. The ECM(-1) coefficient was negative and stable, indicating adjustment toward equilibrium; moderate (7% p.a.) for China and very slow (0.3% p.a.) for India.

Three key observations emerge: (a) the absence of asymmetry may stem from limited negative growth years in TR and the composite nature of EFP; (b) elasticity contrasts: India's inelastic versus China's elastic long-run TR-EFP link; and (c) different speeds of long-run adjustment.

Table 8. Short-run Results and Error Correction.

	(EFP China)		(EFP India)	
Regressors (Short run)	Coefficient	*p* Value	Coefficient	*p* Value
D(EFP(-1))	0.297	.007	0.35	.002
D(TR)	0.009	.023	0.596	.0005
D(TR(-1))	–	–	0.3	.000
D(GDP)	–	–	–	–
D(GDP(-1))	0.84	.001	–	–
D(ICT)	-0.08	.009	–0.004	.0126
D(ICT(-1))	–	–	–0.006	.0391
D(URB)	0.065	.04	–	–
D(URB(-1))			–	–
D(TO)	0.35	.00	0.09	.003
D(TO(-1))	–	–	0.08	.009
ECM(-1)	–0.07	.00	–0.0032	.00
Price transmission (elasticity)	Highly inelastic		Fairly inelastic	
Asymmetry (short-run)	Does not exist		Does not exist	

Notes: 1. Short-run elasticity of EFP w.r.t TR: We consider contemporaneous slope coefficients of the change variable TR.
2. Asymmetry is tested by equating the two terms: $\sum_{m=0}^{n_{2,A}}(\gamma_{4i}^{+}) = \sum_{m=0}^{n_{2,B}}(\gamma_{4i}^{-})$.
3. For error correction we consider lagged ECM term coefficient which must be negative and significant.

Table 9. Diagnostics.

	India		China	
Variable	Level	1st Diff	Level	1st Diff
EFP	–67.42803 (<.01)	–	–2.877 (.749)	–5.178 (.044)
URB	1.991784 (.9997)	–0.527839 (.08712)	–2.211453 (.2070)	–0.697107 (.08311)
GDP	1.244946 (.9977)	–4.690447 (.0008)	–0.410913 (.8942)	–2.46640 (.0340)
TO	–1.910244 (.3232)	–5.392260 (.0001)	–1.696647 (.4220)	–3.578047 (.0130)
ICT	–0.668531 (.8394)	–3.827251 (.0074)	–6.773738 (.0000)	–
TR	–0.021051 (.9485)	–4.011752 (.0048)	–0.562592 (.8642)	–6.354847 (.0000)
	ARDL model (India)		ARDL model (China)	
A. BPG heteroscedasticity test#				
Obs. R^2	8.473628		2.268307	
Probability χ^2	.6704		.3217	
B. BG-LM serial corr. test*				
Obs. R^2	4.467508		7.019348	
Probability χ^2	.1071		.8563	

Notes: 1. Break date; EFP China was in 2002, and EFP India was in 1995.
2. @$\Delta\ EFP_t = \beta_1 + \beta_1{*}\ D_{EFP,t} + (\beta_2 - 1)EFP_{t-1} + \Sigma^{m}_{t=i}\ \beta_{3i,}\ \Delta EFP_{t-i} + u_{t,\ldots,}$ is the Breakpoint ADF test equation for variable EFP with single break point, ΔEFP_t is change in EFP in period *t*, β_1, represents intercept, $\beta_1{*}\ D_{EFP,t}$ being single break intercept, and Dummy taking value of '1' for observations falling after break date of EFP and '0' before. The break is validated if $\beta_{1,}{*}$ is statistically significant. Term EFP_{t-1} tests for stationarity with (β_{2-1}) as coefficient, where '*t*' computed is compared with ADF '*t*' tau tables. Next term $\Sigma^{m}_{t=1}$ $\beta_{3i,}\ \Delta ERP_{t-i}$ removes serial correlation, and u_t is the random error term. Using a similar methodology, we construct the stationary equation for our other remaining variables.
#BPG Heteroscedasticity test first determines R^2 of auxiliary equation $u_t^2 = \gamma_1 + \gamma_2\ X_{2t} + \gamma_3\ X_{3t} + \ldots + \gamma_k\ X_{kt}$, followed by $n.R^2_{aux} \sim \chi^2_{m-1}$.; Null: No heteroscedasticity, that is, $\gamma_2 = \gamma_3 = \gamma_4, \ldots, = \gamma k = 0$.
*BG-LM serial correlation: The test also constructs an auxiliary equation: $u_{EFP} = \beta_1 + \beta_2\ EFP_{t-1} + \beta_3\ EFP_{t-2} + \ldots + \beta_p\ EFP_{t\text{-}p} + \rho_1\ u_{EFPt-1} + \rho_2\ u_{EFPt-2} \ldots + \rho m\ u_{EFPt-m} + e_t$, number of lags of regression and error term being '*p*' and '*m*', respectively, '*p*' > '*m*'. Null: $\rho_1 = \rho_2 = \ldots, \rho_m = 0$ (no serial correlation between residuals). Reject the null when $R^2\ (n\text{-}p) > \chi^2 m$.
Figures in parentheses are '*p*' values.

These findings do provide valuable policy insights. India's slower pace suggests time for planning sustainable transport policies. China's relatively elastic long-run response and faster adjustment indicate better readiness for energy transition. For both nations, inelastic short-run elasticity highlights challenges like poor substitutability and infrastructure gaps. Thus, long-term planning is essential, especially for India, where short- and long-run patterns show little divergence.

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Research Paper

Impact of Underwriters' Reputation on the Initial Return and Post-issue Stock Performance of SME IPOs in INDIA

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Abstract

Small and medium enterprises (SMEs) are crucial for economic development, contributing significantly to employment, innovation, and overall economic stability. However, SMEs face challenges such as asymmetric information and ex-ante uncertainty due to their relatively short operational histories, and also, SME exchanges have relatively fewer regulations and listing requirements as compared to mainboard exchanges. By leveraging various signals, such as the reputation of underwriters, these issues can be mitigated during the IPO process. This study aims to explore the signalling role of prominent underwriters and their effects on initial returns and post-issue stock performance of IPOs in India. This study includes the data of 298 IPOs of SME firms listed on the BSE SME platform and NSE EMERGE between April 2012 and March 2020, which were collected from CMIE Prowess. The signalling function of underwriters was tested using multiple regression analysis. The result shows that Underwriter reputation (UWR) positively affects underpricing, but in the long term, it does not have any impact on post-issue stock performance of an IPO Firm.

Keywords

Underwriter reputation, IPO returns, underpricing, BHAR, Information asymmetry

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Introduction

Small and medium enterprises (SMEs) are often considered the backbone of both developed and developing economies. SMEs contribute significantly to job creation, economic diversification, and innovation. In developing countries, they are particularly important in addressing unemployment and fostering inclusive growth of the nation. As stated by the World Bank, 'small and medium enterprises (SMEs) make up roughly 90% of all businesses globally and contribute over 50% to worldwide employment'. According to the Reserve Bank of India (RBI), 'SMEs are crucial to India's socio-economic progress, as they significantly contribute to the country's GDP, industrial development, job creation, and export activities'. Despite its importance, the sector faces significant challenges, such as insufficient and delayed access to credit, as well as limited availability of equity capital (SIDBI, 2013). A key challenge for the growth and development of SMEs today is securing access to external financing (Sestanovic, 2015). To offer a market-driven solution for equity resource mobilisation for SMEs, SEBI authorised the creation of dedicated platforms in 2012: the BSE SME and the NSE EMERGE to support these enterprises. However, SME exchanges are different from Main Boards in terms of their regulations and listing requirements, such as mandatory underwriting by investment banks, minimum participation of investors, market-making responsibilities by merchant banks, company characteristics required for listing, financial reporting and ongoing disclosure requirements.

The information gap arises from ex-ante uncertainty and asymmetric information between issuers and investors, primarily due to the issuer's limited operational history and fewer disclosure obligations, which puts shareholders' investments at risk. To minimise information asymmetry in SME IPOs, issuers employ various signalling mechanisms like selecting reputable underwriters, securing venture capital backing, engaging high-quality auditors, encouraging institutional investor participation, maintaining transparency, careful pricing strategies, issuing a prospectus, and strengthening board and management quality. These signals help build trust, attract investors, and enhance the perceived quality of the IPO, and by addressing the information gaps between issuers and investors, these measures help mitigate the 'winner's curse' and reduce the likelihood of underpricing.

A high-quality underwriter can act as a certification of the firm's credibility and stability. Reputable underwriters are selective in choosing which IPOs they support because their reputation is at stake. IPO issues backed by prestigious underwriters experience less underpricing, as underwriter reputation (UWR) signals firm quality to potential investors (Carter & Manaster, 1990). Many researchers attribute underpricing to information asymmetry, a theory proposed by several scholars, including Welch (1989), Beatty and Ritter (1986), Rock (1986), Allen and Faulhaber (1989), Ritter and Welch (2002), and Loughran and Ritter (2004).

A reputable underwriter signals the value of an issuing firm by conducting rigorous due diligence, which reassures investors about the firm's quality and reduces the likelihood of post-IPO issues such as accounting irregularities or operational issues. The underwriter's reputation acts as a certification of the IPO's quality (Carter & Manaster, 1990). Loughran and Ritter (2004), in their study, highlight that reputable underwriters help reduce information asymmetry, which can positively affect long-term returns

The main goal of this study is twofold. First, it will explore the connection between UWR and the degree of underpricing in Indian SME IPOs. Second, it will analyse the link between UWR and the post-issue stock performance of Indian SME IPOs.

The article is organised into multiple sections to fulfil its objective. The second section provides reviews of previous research, while the third outlines the research methodology, including data analysis and interpretations. The fourth section presents the conclusions and implications.

Literature Review

An IPO represents a crucial step for companies aiming to raise capital and expand their operations. According to Pagano et al. (1998), firms typically choose to go public to adjust their capital structure, secure funds for future investments, and improve their market visibility. Kim and Ritter (1999) highlight that IPOs come with substantial costs, such as underwriting fees, legal expenses, and the preparation of regulatory documents, which can present significant challenges for smaller companies, especially SMEs. Additionally, the timing of an IPO plays a pivotal role in its success. As Ljungqvist et al. (2006) found, companies often opt for IPOs when market conditions are favourable—such as during periods of investor optimism or bull markets.

IPO success is influenced by a combination of internal factors, such as the company's size, financial performance, governance, and external factors, such as market conditions, UWR, and institutional investor participation. UWR has long been recognised as a key factor influencing both the short-term and long-term outcomes of IPOs

Carter and Manaster (1990) introduced the concept of UWR as a significant determinant of IPO pricing. According to him, reputable underwriters provide a certification role, signalling to investors that the firm is of high quality, leading to reduced underpricing. Subsequent studies in developed markets, particularly in the US, consistently support this view, demonstrating that renowned underwriters decrease IPO underpricing by reducing information asymmetry between the issuing firm and investors (Beatty & Ritter, 1986; Carter & Manaster, 1990). Ljungqvist (2007) also reinforced this, noting that a strong UWR attracts institutional investors, reducing the need for significant price discounts.

However, studies in emerging markets such as India and China offer varying results. For instance, Katti and Phani (2016) found that while reputable underwriters play a role in reducing underpricing in India, the effect is not as pronounced as in developed markets due to differences in regulatory environments and investor behaviour. Similarly, Chen et al. (2004) observed that in the Chinese market, UWR had a limited impact on reducing underpricing due to less stringent disclosure requirements. Additionally, Michaely and Shaw (1994) noted that in high-risk or emerging industries, UWR does not significantly reduce underpricing, as market conditions and company-specific risks play a more prominent role.

According to Dhamija and Arora's (2017) study, the reputation of underwriters has been shown to have a negative impact on the degree of IPO underpricing. Similar findings have been observed in other research, including works by Johnson and Miller (1988), Sundarasen et al. (2018) and Reutzel and Belsito (2015), all of which identified a negative correlation between UWR and underpricing.

While UWR is often linked to short-term IPO success, its effect on long-term performance, measured by BHAR, is less conclusive, especially in emerging markets where institutional frameworks and investor protections differ from those in developed economies.

Research by Krigman et al. (1999) in the US indicated that IPOs backed by reputable underwriters typically outperform the market over the long term. Similarly, Boehmer and Fishe (2004) emphasise that IPOs backed by reputable underwriters tend to have better liquidity and market support, contributing to stronger long-term performance.

In contrast, studies in emerging markets report differing outcomes. In India, Sahoo and Rajib (2010) observed that although reputable underwriters reduce initial underpricing, they do not significantly affect three-year BHAR, indicating that market conditions and firm fundamentals are more influential in determining long-term success. A study by Bhabra and Pettway (2003) also reported similar findings in Japan.

The impact of UWR on IPO outcomes is well-documented in developed markets like the US and Europe, where mature IPO ecosystems, stringent regulations, and high institutional participation enhance the underwriter's certification role, reducing underpricing and improving post-issue performance (Carter & Manaster, 1990; Megginson & Weiss, 1991). However, in the Indian SME IPO context, these effects are less pronounced due to a retail-driven investor base and lower institutional involvement, which diminishes the perceived credibility of underwriters. Additionally, lenient regulatory norms and limited disclosure requirements, as outlined by SEBI (2012), further weaken the impact of UWR on IPO performance.

Liquidity constraints also play a significant role in shaping SME IPO performance in India. Unlike developed markets, where unrestricted secondary market trading allows organic price adjustments, Indian SME IPOs operate under mandatory market-making requirements for three years post-listing. While this stabilises prices, it also limits free price discovery and can distort long-term post-IPO stock performance (Pandey & Vaidyanathan, 2013). These differences create a unique IPO environment where UWR may not have the same long-term influence as observed in developed markets.

Information asymmetry significantly distinguishes Indian SME IPOs from those in developed markets. Due to lenient disclosure norms, Indian SME firms face higher information asymmetry, reporting only semi-annually with minimal corporate governance requirements, unlike developed markets where stricter quarterly reporting enhances underwriter credibility (Michaely & Shaw, 1994; SEBI, 2012). Additionally, while developed markets show that reputed underwriters reduce underpricing through rigorous due diligence (Booth & Chua, 1996), Indian studies (Katti & Phani, 2016; Sahoo & Rajib, 2010) reveal the opposite—reputed underwriters in India often experience higher underpricing, indicating that they might be leveraging market sentiment rather than mitigating information asymmetry.

While developed market studies provide a foundational understanding of IPO behaviour, their applicability to Indian SMEs is limited by structural differences, investor profiles, and market regulations. Unlike the NYSE or NASDAQ, Indian SME exchanges have lower liquidity and fewer regulatory obligations, which affects post-IPO stock behaviour. Additionally, market timing and regulatory influence play a crucial role in Indian SME IPO performance, as these firms are more susceptible to macroeconomic volatility and SEBI's changing regulatory policies compared to developed markets. By addressing these distinctions, this study aims to bridge the research gap and provide a more nuanced understanding of how UWR functions in the Indian SME IPO ecosystem, acknowledging the limitations of direct comparisons with developed markets.

Research Gap

The majority of research examining the effect of UWR on underpricing and BHAR (a measure of post-issue stock performance) has primarily focused on developed countries. As a developing nation, India offers a unique context for investigating whether the well-established link of UWR with initial return and BHAR of an SME IPO Firm holds true or not. Additionally, there is relatively limited research to the best of our knowledge that explores how UWR influences both the initial returns and post-issue returns of SMEs in India. Consequently, this study aims to fill this gap by investigating the signalling role of underwriters with a particular emphasis on India.

Hypothesis

H_1: The reputation of underwriters and the level of underpricing in IPOs of SME firms in India are positively correlated.

H_2: There is a positive relationship between UWR and BHAR of IPOs of SME firms in India.

Research Methodology

Data Collection Methods

This study focuses on Initial Public Offerings listed on the Bombay Stock Exchange SME platform and National Stock Exchange Emerge platform between April 2012 and March 2020, and data for the year March 2012 to June 2023 for the variables analysis were sourced from CMIE Prowess, prospectuses of IPO firms and the authorised website of Bombay Stock Exchange and National Stock

Exchange. The data includes a total of 298 IPOs that went public during this period. Data from financial companies is excluded from the sample, and also firms with extreme outliers and with missing data for certain variables have also been excluded.

Variable Measurement

Underpricing (Dependent Variable)

For measuring underpricing, market-adjusted excess return (MAER), that is, MAER, has been used in this study. It is used to evaluate the performance of IPO relative to the overall market and helps to determine whether the IPO outperformed or underperformed the broader market after adjusting for market movements.

$$\text{MAER} = R_{\text{IPO}} - R_M$$

Where,
R_{IPO} is the return of IPO stock calculated based on the percentage change between the offer price and the closing price on the listing day.
R_M is the return of the market index (S&P BSE SME INDEX) over the same period as the IPO.

Long-term Performance (Dependent Variable)

For measuring long-term performance, a 36-month period BHAR is viewed as the most appropriate method for the study. A 36-month period BHAR period begins in the fourth month after the completion of the initial fiscal year, subsequent to the Initial Public Offer of the firm. The S&P BSE SME INDEX has been used for calculating market return.

Formula for 36-month BHAR:

$$\text{BHAR} = \prod t = 1\text{T}\ (1 + R_{i,t}) - \prod t = 1\text{T}\ (1 + R_{m,t})$$

Where,
$R_{i,t}$ is the return of the IPO stock in month t,
$R_{m,t}$ is the return of the benchmark index in month t,
And t = 36-month period.

UWR (Independent Variable)

UWR is evaluated using its relative market share, based on the method proposed by Megginson and Weiss (1991).

UWR is calculated as: (IPO proceeds handled by the underwriter divided by total IPO size of all firms in the data) × 100.

Control Variables

Several control variables have been used in this study, which are as follows:

This study utilises a multiple regression model to examine the hypothesis and assess the effect of UWR on a firm's first day returns, that is, underpricing and post-issue stock performance, BHAR.

Multiple regression model for underpricing:

$$\text{Underpricing} = \alpha + \beta_1 \text{ issue size}_i + \beta_2 \text{ firm's age}_i + \beta_3 \text{ listing delay}_i + \beta_4 \text{ MKT}_i + \beta_5 \text{ underwriter reputation}_i + \varepsilon_i$$

Multiple regression model for BHAR:

$$\text{BHAR} = \alpha + \beta_1 \text{ issue size}_i + \beta_2 \text{ liquidity}_i + \beta_3 \text{ underpricing}_i + \beta_4 \text{ postleverage}_i + \beta_5 \text{ mktret}_{i} + \beta_6 \text{ B/M}_i + \beta_7 \text{ Ln(P/E)}_i + \beta_8 \text{ underwriter reputation}_i + \varepsilon_i$$

Table 1. Control Variables for Underpricing.

Issue size$_i$	The ln of the total amount raised by IPO firm *i*
Firm age$_i$	Natural logarithm of the number of years between the date of incorporation and the IPO issue date of firm *i*
Listing delay$_i$	The time span in days from the offer closing date to the listing date of IPO firm *iii*
MKT$_i$	The performance of the SME market index from the offering date to the listing date for IPO firm *i*

Table 2. Control Variables for Post-issue Stock Performance.

Issue size$_i$	The ln of the total amount raised by IPO firm *i*
Liquidity$_i$	The volume of shares traded by IPO firm *i* in relation to the total shares outstanding on the first trading day
UP$_i$	The percentage change between the offer price and the closing price on the listing day of firm *i*
Postleverage$_i$	The ratio of the book value of total debt to the book value of total assets for IPO firm *i* at the end of the IPO year
MktRet$_i$	The value-weighted buy-and-hold return over 36 months for the SME board market index
B/M$_i$	The ratio of the book value to the market value of IPO firm *i* at the end of the IPO year
Ln(P/E)$_i$	ln of the market price per share relative to the EPS of IPO firm *i* at the time of the offering

Data Analysis and Interpretation

Table 3 provides the descriptive statistics of all the factors included in the study. The average MAER is 5.91%, indicating that, on average, IPOs tend to be positively underpriced. However, the range is quite broad, from –27.21% to 127.23%, showing that while some companies experienced negative underpricing, others saw exceptionally high performance on the launch day of trading. The standard deviation of 15.83 reflects considerable variability, suggesting a wide dispersion in performance among different companies.

For BHAR, the average value is –1.87, indicating that, on average, companies underperformed relative to their expected returns. The BHAR ranges from –6.99 to 18.53, with some companies significantly underperforming, while others achieved much higher returns than anticipated.

The mean UWR score is 0.34, indicating a generally low average reputation for underwriters. This score ranges from 0.01 to 5.97, highlighting a substantial disparity in UWR across different companies, with some IPOs backed by very reputable underwriters while others are associated with underwriters of lower standing.

The correlation matrix presented in Table 4 provides insights into the factors influencing underpricing, measured by MAER. The analysis reveals that market conditions, as reflected by the Market UP Return, play the most significant role in explaining underpricing. When markets perform poorly, underpricing tends to increase, implying that companies may offer more substantial discounts to ensure the success of their IPOs. Control variables such as company age, issue size, and listing lag exhibit little to no relationship with underpricing, indicating that these factors may not strongly influence the level of underpricing. Overall, the analysis highlights that market return is the primary factor driving underpricing in this context, while other variables, including UWR, play a less prominent role.

Table 3. Descriptive Statistics.

Variables	*N*	Mean	Minimum	Maximum	Std. Deviation
MAER (UP)	298	5.9149	–27.21	127.23	15.82553
BHAR	298	−1.8744	–6.99	18.53	2.80426
UWR	298	0.3356	0.01	5.97	0.44097
Log issue size	298	2.2258	−1.14	5.52	0.90213
Log of age	297	2.2631	0.00	4.23	0.82717
Listing lag	298	13.70	7	741	45.973
Market return up (%)	298	0.5056	−100.00	22.77	9.26445
Post leverage	298	0.5883	0.01	1.49	0.33382
Liquidity	298	0.0536	0.00	.39	0.06958
Log of P/E	298	3.3394	–0.09	7.94	1.06389
B/P	298	0.7284	0.04	6.63	0.58679
36-month index return	298	2.1414	0.01	6.02	2.22904

Table 4. Correlation Matrix for Underpricing.

	MAER (Underpricing)	Underwriter Reputation	Log of Issue Size	Log of Age	Listing Lag	Market Up Return (%)
MAER (underpricing)	1.0***	0.09	–0.01	–0.04	–0.05	–0.49***
Underwriter reputation	0.09	1.0***	0.73***	0.04	–0.03	0.04
Log of issue size	–0.01	0.73***	1.0***	0.16***	–0.05	0.04
Log of age	–0.04	0.04	0.16***	1.0***	0.02	0
Listing lag	–0.05	–0.03	–0.05	0.02	1.0***	–0.01
Market up return (%)	–0.49***	0.04	0.04	0	–0.01	1.0***

Note: The correlation matrix table, along with the significance levels (*** for 1%, ** for 5%, and * for 10%).

Table 5 displays the correlation table for BHAR. The analysis shows that post-IPO leverage has a significant positive impact on BHAR, indicating that firms with higher leverage after going public tend to achieve better abnormal returns. Conversely, the 36-Month Index Return exhibits a strong negative and significant relationship with BHAR, suggesting that companies tend to achieve higher abnormal returns during periods of weaker market performance. Other variables, such as UWR, issue size, and various control factors, do not show any significant effect on BHAR.

The regression analysis presented in Table 6 examines the relationship between underpricing, as measured by MAER, and various factors, with UWR as the primary independent variable. The control variables included in this model are summarised in Table 1. The findings show that UWR has a significant and positive effect on MAER, with a coefficient of 7.3625 and p value .0056, showing significance at both the 1% and 5% levels. This suggests that companies working with more reputable underwriters tend to experience more underpricing on the first day of listing. These results align with the findings of Beatty and Welch (1986), Arora and Singh (2019), Gao et al. (2015) and Liu and Ritter (2011). We, therefore, fail to reject the first hypothesis that a significant positive relationship exists between UWR and initial market return, that is, underpricing.

In contrast, the log of IPO proceeds shows a negative effect on underpricing, with a coefficient of −2.3852. Although this variable is only marginally significant at the 10% level, the negative relationship suggests that larger IPO sizes tend to be associated with lower underpricing. This result aligns with Booth and Chua (1996), who discovered an inverse relationship between IPO size and underpricing, noting that larger firms, with their greater visibility and reputation, face less uncertainty and thus experience lower underpricing. The studies by Beatty and Ritter (1986), Ritter (1984), and Megginson and Weiss (1991) also present similar findings, highlighting a negative correlation between IPO size and underpricing.

Table 5. Correlation Matrix for Post-issue Stock Performance.

	BHAR	Underwriter Reputation	Log of Issue Size	MAER (Underpricing)	Post Leverage	Liquidity	Log of P/E	B/P	36-month Index Return
BHAR	1.0***	–0.02	–0.06	0.01	0.2***	0.05	–0.04	–0.05	–0.55***
Underwriter reputation	–0.02	1.0***	0.73***	0.09	–0.01	–0.04	0.05	–0.03	–0.04
Log of issue size	–0.06	0.73***	1.0***	–0.01	–0.06	–0.04	0.03	–0.04	–0.03
MAER (underpricing)	0.01	0.09	–0.01	1.0***	–0.05	0.18***	0	–0.04	–0.06
Post leverage	0.2***	–0.01	–0.06	–0.05	1.0***	0.06	–0.24***	–0.04	–0.09
Liquidity	0.05	–0.04	–0.04	0.18***	0.06	1.0***	–0.01	–0.06	–0.14**
Log of P/E	–0.04	0.05	0.03	0	–0.24***	–0.01	1.0***	0.05	–0.05
B/P	–0.05	–0.03	–0.04	–0.04	–0.04	–0.06	0.05	1.0***	0.09
36-month index return	–0.55***	–0.04	–0.03	–0.06	–0.09	–0.14**	–0.05	0.09	1.0***

Note: The correlation matrix table, along with the significance levels (*** for 1%, ** for 5%, and * for 10%).

Table 6. Multiple Regression for Underpricing.

Variables	Coefficient	*p* Value
(Constant)MAER	10.718	.000
Underwriter reputation	7.362	.006
Log of IPO proceeds	–2.385	.069
Log of age	–0.543	.580
Listing lag	–0.021	.233
Market return (%)	–0.844	.000
R^2	0.267	
Adjusted R^2	0.254	
F-statistics	21.157	.000
No of firms	298	

Table 7. Multiple Regression for Post-issue Stock Performance.

Variables	Coefficient	*p* Value
(Constant)	–0.202	.791
UWR significant (IPO proceed of the firm/total proceed×100	0.024	.958
Log of IPO proceeds	–0.215	.328
Liquidity	−1.646	.402
Underpricing %	0.000	.990
Post leverage	1.146	.007
36-month index return	–0.694	.000
B/P	–0.003	.990
LOG OF P/E	–0.090	.493
R^2	0.336	
Adjusted R^2	0.318	
F-statistics	18.321	.000
No of firms	298	

Other control variables, such as the log of the company's age and listing lag, do not show statistically significant effects on underpricing. Although the listing lag has a negative coefficient, suggesting that a longer lag may reduce returns, this effect is not statistically significant.

In summary, the analysis highlights that UWR is a key factor in determining IPO underpricing, while other factors like IPO size and company age have a weaker or less consistent impact on MAER.

The regression analysis in Table 7 provides a comprehensive understanding of the factors affecting long-term stock performance, measured through Buy-and-Hold Abnormal Returns (BHAR), following an IPO. The control variables used in this model are presented in Table 2. One of the most significant findings is the strong positive relationship between the 36-month index return and BHAR, with a highly significant *p* value close to zero. This suggests that the overall market performance in the three years post-IPO plays a crucial role in influencing a company's abnormal returns. In periods of positive market growth, companies tend to see better stock performance, while downturns can have a negative impact, highlighting the importance of broader market conditions on long-term returns.

In addition to market trends, company-specific financial decisions, particularly post-IPO leverage, have been found to exert a positive and significant influence on BHAR. The positive coefficient for post-IPO leverage suggests that companies with higher debt levels after going public often experience better stock performance. Investors may view increased leverage as a sign of the firm's growth potential and expansion plans, which can drive higher returns. This indicates that, aside from market conditions, strategic financial choices made by the company play a key role in determining its post-IPO success. This finding aligns with Campello (2006), who observed that post-IPO leverage, particularly in capital-intensive industries, enhances long-term performance by enabling investment in profitable projects. Similarly, Zhang (2008) found that firms with moderate leverage post-IPO tend to perform better over time, as debt financing supports growth initiatives like expansion and acquisitions while maintaining a balanced financial structure.

On the other hand, UWR, which is typically considered important in the IPO process, does not show any meaningful influence on long-term stock performance. The *p* values are well above common significance levels, indicating they do not significantly impact BHAR in this model. These findings are in line with Sahoo and Rajib (2010) and Bhabra and Pettway (2003). We, therefore, reject the second hypothesis that says there exists a positive relationship between BHAR and UWR.

Other variables, including the log of IPO proceeds, underpricing, the book-to-price ratio, and the log of price-to-earnings ratio, also do not exhibit significant relationships with BHAR. Therefore, the analysis emphasises that while general market conditions and post-IPO financial decisions are pivotal in driving long-term abnormal returns, factors like UWR and initial underpricing have minimal impact.

The results of this study provide valuable insights into the role of UWR in the Indian SME IPO market. One of the most significant findings is that while UWR has a positive and significant impact on underpricing, it does not have a meaningful influence on long-term stock performance as measured by BHAR over a 36-month period. This finding challenges conventional theories in IPO literature that emphasise the role of underwriters in certifying firm quality and reducing information asymmetry in both the short and long run (Carter & Manaster, 1990; Megginson & Weiss, 1991).

A possible explanation for this disconnect between short-term and long-term IPO outcomes lies in the signalling theory and its limitations in the SME context. According to signalling theory (Spence, 1973), reputable underwriters act as credible certifiers of firm quality by engaging in rigorous due diligence, thereby reducing ex-ante uncertainty about the IPO firm. This explains why SME firms backed by reputed underwriters experience higher initial underpricing. However, the results indicate that this signal does not extend into the long term, implying that UWR is a weak predictor of a firm's post-IPO performance.

Furthermore, the market-making requirements imposed on Indian SME IPOs further complicate the interpretation of long-term stock performance. Unlike developed markets, where stock prices adjust organically, Indian SME IPOs require mandatory market-making for three years post-listing, which creates artificial price support that may distort the true impact of UWR on stock performance in the long run.

Another theoretical perspective that supports this finding is the institutional voids theory (Khanna & Palepu, 2010), which suggests that emerging markets, like India, lack the mature financial infrastructure found in developed economies. Due to weaker investor protection laws, limited analyst coverage, and lower corporate transparency, the ability of underwriters to influence long-term stock performance is diminished. Instead, firm fundamentals, post-IPO financial strategies, and broader macroeconomic conditions play a larger role in shaping long-term returns. This theory provides a strong basis for understanding why the traditional certification role of underwriters, which works well in developed markets, does not hold the same weight in India's SME segment.

In conclusion, this study contributes to IPO literature by demonstrating that UWR in Indian SME IPOs is a short-term signal rather than a long-term performance predictor. This challenges traditional signalling and certification theories and highlights the unique structural challenges of the Indian SME market.

Conclusion

This study contributes to the literature on IPO underpricing and post-issue stock performance by analysing the role of UWR in the Indian SME IPO market. The results reveal that while UWR significantly influences initial underpricing, it does not have a lasting impact on long-term stock performance as measured by BHAR. This challenges traditional signalling and certification theories, which suggest that underwriters play a crucial role in reducing ex-ante uncertainty and improving firm credibility beyond the IPO stage (Carter & Manaster, 1990; Megginson & Weiss, 1991).

By focusing on SME IPOs in an emerging market like India, this study expands the understanding of how market-specific dynamics, regulatory structures, and investor composition influence IPO outcomes. Unlike developed markets where institutional investors dominate IPO subscriptions and post-listing governance, the Indian SME segment is heavily retail-driven, with lower institutional oversight. This weakens the long-term signalling effect of UWR, suggesting that firm fundamentals and market conditions play a more decisive role in post-IPO performance. These findings align with studies in other emerging markets (Katti & Phani, 2016; Sahoo & Rajib, 2010) that indicate UWR is a stronger predictor of short-term rather than long-term success in less developed financial ecosystems.

This study also highlights the influence of market-making regulations on SME IPO outcomes. Unlike developed markets, where IPO pricing and performance adjust through unrestricted market forces, Indian SME exchanges impose a three-year mandatory market-making requirement. This could distort price discovery and dampen the impact of UWR on long-term stock performance. By identifying this regulatory factor, the study offers new insights into how institutional voids

(Khanna & Palepu, 2010) and policy-driven mechanisms shape SME IPO trajectories in emerging economies.

Theoretical Contributions of the Study

This study challenges the universality of signalling theory by demonstrating that UWR's impact on long-term performance is context-dependent. In emerging markets like India, factors such as market conditions, firm fundamentals, and post-IPO financial decisions have a greater influence than UWR, unlike in developed markets. Additionally, the study bridges SME IPO research with institutional voids theory, highlighting that weaker investor protection, limited financial transparency, and lower institutional involvement reduce the traditional role of underwriters as certifying agents. Furthermore, it introduces market-making as a structural factor affecting IPO performance, noting that mandatory market-making in SME exchanges can disrupt long-term stock performance, diminishing the predictive power of UWR compared to free-market environments.

Implications

The results of this study hold valuable implications for a range of stakeholders, including investors, SME IPO issuing firms, researchers, and regulators.

For investors, the study emphasises the need to consider UWR, company-specific factors and market conditions before investing in an IPO. As an underwriter, Reputation only impacts IPOs' initial return and has little impact on long-term performance, so understanding the role of market trends and company-specific decisions can guide more informed investment choices in the SME sector.

For issuers, companies should be aware that while UWR is important, it may not be a decisive factor in IPO success. Instead, focusing on market conditions and strategic financial decisions before and after IPO could be more beneficial.

The policymakers can use the results of this study to formulate various rules and regulations for regulating SME IPOs.

For researchers, the study recommends that future research could investigate deeply into the aspects of market conditions and pre-IPO and post-IPO financial strategies to better understand their effects on IPO outcomes.

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Research Paper

Unveiling the Interplay: Integration of the Triple Bottom Line in Sustainable HRM Practices

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Abstract

Today's dynamic business world demands a shift from traditional HR practices to a more balanced HR system, integrating environmental, social and economic concerns. Termed as sustainable human resource management (SHRM), it is concerned with helping the organisation perform better while maintaining ecological parameters and ensuring the well-being of employees and the community. This article uses a systematic review of publications on SHRM to analyse the level of integration of the triple bottom line (TBL) into its philosophy. The article also contributes to the HR literature by consolidating the new roles of the HR team in an organisation to implement SHRM practices judiciously. This article proposes a model that integrates SHRM, HR roles and the TBL to achieve organisational sustainability.

Keywords

ESG, sustainable HRM, triple bottom line, organisational sustainability, HR roles

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Introduction

In the contemporary business landscape, organisations increasingly recognise the need for a sustainable approach to management and its functional areas, such as human resource management (HRM). Reflecting upon the emerging trends, Sharma (2024) summarised that sustainability has its focus on innovation, systemic change, accountability and leadership. It was observed that the new sustainability reporting frameworks led to greater accountability in organisations by an enhanced integration of sustainability into core business strategies, focusing on environmental and social responsibility.

Sustainable HRM (SHRM) as a concept first appeared at the onset of the new millennium (Kainzbauer et al., 2021). Initial discussions were held in countries such as Germany, Switzerland and Australia. Zaugg et al. (2001), Gollan (2000) and Wilkinson et al. (2001) were the main contributors to this concept. The conceptualisation of SHRM by Müller-Christ and Remer (1999) emphasised that the sustainable management of people has lasting access to qualified human resources. A broader definition was proposed by Zaugg et al. (2001), who explained this as methodological and instrumental approaches with the purpose of long-standing, equitable and economically efficient recruitment, training and employee retention.

While Elkington (1994) introduced the concept of triple bottom line (TBL) integrating three dimensions, namely, profit, people and planet, it is Cohen et al. (2012) who brought the TBL perspective to HRM. They considered the goal of SHRM to be ensuring the lasting survival of the organisation's stakeholders, with policies reflecting justice, progress and happiness, and supporting eco-friendly practices. Concurrently, the HRM field has undergone a transformative shift towards sustainability, recognising the pivotal role of human capital in achieving long-term viability and performance. Subsequently, many typologies have emerged on the sustainability dimension of HRM. These include corporate social responsibility (CSR), green HRM and TBL HRM. An emerging paradigm of sustainability is the ESG (environmental, social and governance) framework.

Authors like Kramar (2014) and Ehnert et al. (2016) have contributed to a more strategic focus of TBL goals. Focusing on the organisational outcomes and stakeholders' expectations, Järlström et al. (2016) adopted a TBL perspective on SHRM. While Cohen et al. (2012) focused on social responsibility, many others, like Bombiak and Marciniuk-Kluska (2018), highlighted HRM's environmental dimension, popularly known as green HRM. There are also usages like sustainable work systems and sustainable leadership (Avery, 2005). Scholars like Jackson et al. (2011) have integrated TBL in the HRM context, proposing the concept of 'triple bottom line HRM'. The same is true for the predominant conceptualisation of SHRM (Kramar, 2014), which seems to be more popular than the former. One of the related conceptualisations by Aust et al. (2020) is common good HRM, which is defined as orienting a firm towards using its resources toward resolving the 'grand challenges of our time' and prioritising an organisation's contribution to environmental and societal transition. In addition, some of the writings (Avery & Bergsteiner, 2010; Benn et al., 2007; Mariappanadar, 2012) acknowledged a rising apprehension about the impact of HRM policies on external dimensions, including environmental, social and human aspects of society. Some other studies reported the influence of HRM practices on employees (Jackson et al., 2011) and customers (Kramar, 2014).

Subsequently, there has been a substantial change in the role of HR professionals in organisations. As their role has changed to that of an organisational business partner, there is a greater realisation of the contribution of HRM systems and practices to sustainability initiatives. This happened mainly due to the increasing priority of sustainability among stakeholders like customers, communities, governments and civil society organisations.

Research Problem

The scope of sustainability initiatives has moved far from CSR to a new level of corporate sustainability. The emergence of a SHRM framework is a response to such a paradigm shift, which integrates the social, environmental, governance and economic dimensions of HRM practice. In addition, SHRM involves the integration of the TBL philosophy into the practice of HRM in organisations. Authors like Westerman et al. (2020) emphasised the need for HRM involvement in navigating the transition of business goals from mere economic focus to a multistakeholder TBL perspective. Studying SMEs, Purgał-Popiela (2024) observed mounting attention on sustainable HR practices post-2020. It highlighted the inadequate devotion to the TBL perspective while acknowledging the worthwhile effects of SHRM practices on employee competencies, behaviours and organisation-level outcomes. Although Stahl et al. (2020) acknowledged the role of HRM in supporting a firm's CS/CSR efforts, they contended that it has failed to deliver this effectively. A document analysis by Kainzbauer et al. (2021) showed that the evolving literature on SHRM is profoundly skewed toward ecological concerns. According to Anlesinya and Susomrith (2020) there is an over-concentration of the ecological perspective of SHRM. Piwowar-Sulej (2021) also supported this. Another systematic review by Macke and Genari (2019) showed that 29% of reviews focused on the ecological aspect of HRM, 19 percent on the economic and 44% on the social element. Amrutha and Geetha (2020) also found that social sustainability was a less-researched area compared to economic and green dimensions of sustainability. The results of Sayyadi et al. (2017) indicated that the environmental dimension was one of the effective factors of sustainability. In a study, Cerutti et al. (2023) evaluated the relationship between sustainable leadership factors and employee retention in Brazilian firms. According to the study, the economic aspect explained 27.60% of sustainability, while the social and environmental parameters explained 25.54% and 20.27%, respectively.

Naseer et al. (2023) argued that green HRM positively influences the TBL. Findings by Alwan and Al-Hisnawi (2023) concluded that sustainable HR strategies cover several key HR practices. They observed that organisations could take advantage of implementing green HRM measures and promoting sustainable HR practices to augment organisational performance and social accountability.

A study by Rajhans and Bhavsar (2023) also indicated that SHRM practices, CSR, and the financial performance of organisations are strongly correlated. Gupta (2017) explained the role of CSR in promoting SHRM practices in Reliance Industries Ltd. The author highlighted the role of SHRM practices as cost saving, risk reduction, enhanced reputation and employer branding. This article attempted to link recruitment and retention, training and career development and health and well-being as critical HR practices to ensure the sustainability of organisations.

Based on a systematic review, Saini et al. (2022) proposed a conceptual framework that consolidated 19 factors constituting the TBL dimensions. Westerman et al. (2020) also analysed articles covering the SHRM model with TBL perspective. Zaid et al. (2018) also established that green HRM practices positively affect the TBL of sustainability performance.

A critical review of research on SHRM reveals that this topic is in its progressive stage. Content-wise, most of these studies were limited to assessing the impact of SHRM on organisational outcomes and employee behaviours. Methodologically, many studies have adopted bibliometric analysis and systematic literature reviews. However, studies connecting SHRM and TBL philosophy appear to be limited. The role of HRM in SHRM practices is another grey area. This article is an attempt to explore this research gap. It attempts to provide a comprehensive and scientific discussion on the various dimensions of the TBL from the sustainability perspective of HRM practices. It explores the dynamics of TBL principles and HRM, investigating how integration can contribute to sustainable organisational practices. Hence, after considering the various typologies of the TBL and SHRM in the introductory section, this article focuses on the following research objectives in the subsequent sections:

- Tracing the bibliometric profile of SHRM.
- Analyse the level of integration of TBL principles in HRM practices in organisations.
- Propose a set of HR roles to enable effective implementation of SHRM practices in organisations.

Research Methodology

This article adopted bibliometric analysis in the initial phase, which is augmented through content analysis in the latter phase. The publication data for this article were collected from the Scopus database and were published in English from 2000 to 2024 (upto September). The year 2000 was fixed because the concept of SHRM was reflected in the literature during this time. The authors used keywords such as TBL and SHRM, economic dimension and SHRM, social dimension and SHRM, and environment and SHRM. The initial search resulted in a total of 231 records. These records were downloaded as a CSV file, including data on all the fields like authors, article title, year, source title, volume, issue, pages, cited by, DOI, link, authors' affiliation, abstract, keywords, publisher and ISSN/ISBN. All the research papers, conference proceedings and book chapters meeting the search criteria were

Table 1. Strategy Used for the Bibliometric Data Search.

Sl No.	Item	Criteria
1	Language	English
2	Database	Scopus
3	Publication type	Research papers, book chapters and conference proceedings
4	Time frame	2000–2024 (September)
5	Keywords used	Sustainable Human Resource Management, Triple Bottom Line, Economic, Social or Environmental orientation of HRM
6	Number of records	231 papers
7	Refined search, eliminating general records	157 papers
8	Content analysis	157 papers

included. These records revealed that many generic papers are irrelevant to the HRM context. These include papers on the sustainability of processes and products from a purely operational perspective, which is unrelated to HRM practice. Hence, these records were deleted from the database, resulting in refined data from 157 records. These data were used as input for the analysis through VOSviewer software.

In Stage 2, a content analysis of the 157 papers retrieved in the bibliometric analysis was performed to meet the objectives of this study, such as the integration of the TBL in SHRM (see Table 1). The thematic analysis of the data was adequately supplemented by the bibliometric patterns identified in the first stage. For example, after identifying the ten most cited papers, a detailed content analysis was performed to review the main focus and themes discussed in each of these papers to corroborate the central propositions. A similar approach is followed to address the other areas of exploration in this article.

Results

Results of the Bibliometric Analysis

The following section presents the results of the analysis of the data collected for the bibliometric data.

Number of Publications

Figure 1 presents the year-wise details of the publications, with a total of 157 publications reported.

The trend is clear from Figure 1. Although SHRM emerged at the beginning of the millennium, publications in this area became prominent only in 2008, and there was a substantial increase in publications from 2019 onwards; more than 83% of the publications happened after 2019. This shows a growing interest in sustainability in HRM after 2019.

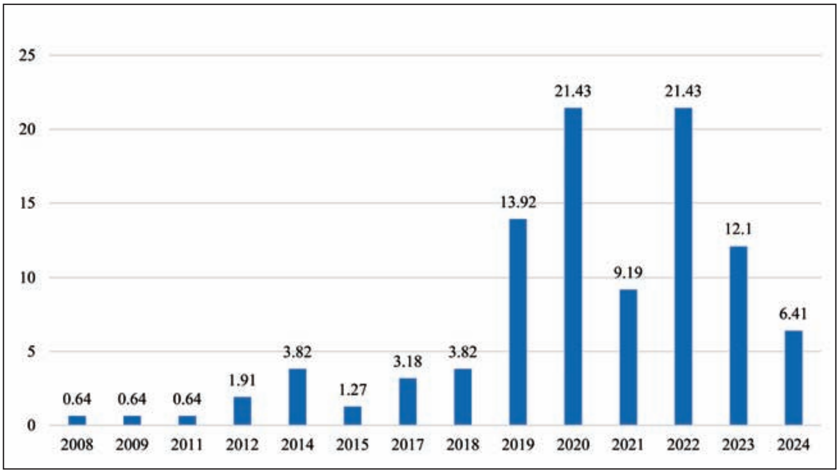

Figure 1. Year-wise Publications (%).

Source: VOSviewer.
Note: *2024 data up to September only.

Number of Citations

Figure 2 gives the year-wise citations (given in %).

It is clear from Figure 2 that nearly one-fourth (24.36%) of the citations were published in 2022, followed by 15.41% in 2019. The total of these two years comes to (39.77%) of the total citations (4236). Therefore, a resurgence in publications and citations of SHRM was visible in the post-2018 period.

Most Cited Papers

To obtain in-depth insight into the themes covered in the most cited papers, the authors have undertaken a content analysis, and the following is a description based on the thematic analysis (see Figure 3). The most cited article is 'Beyond Strategic Human Resource Management: Is Sustainable Human Resource Management the Next Approach?' which was published in 2014 in the *International Journal of Human Resource Management* and authored by Kramar.

The focus of the most cited paper was the features of SHRM by acknowledging organisational outcomes beyond financial ones. This article also categorised the outcomes of sustainable HR practices into three, namely capacity restoration, enhancing social and environmental health, and promoting networks. The emphasis was on the transition from strategic HRM to SHRM.

In the second most cited paper, Zaid et al. (2018) concluded that green HRM positively affects TBL of sustainability performance. The third in the list of most cited papers is by Jabbour and Santos (2008), who detailed how HRM practices contribute to TBL dimensions in organisations. The next paper is a systematic literature review by Macke and Genari (2019) on SHRM. They classified reviews into four categories: sustainable leadership, the relationship among HRM, environmental sustainability and organisational performance, conflicts between HRM and sustainability, and, finally, the linkage between HRM and the social pillar of sustainability. It was concluded that, beyond the TBL concept, leadership is an important factor influencing SHRM.

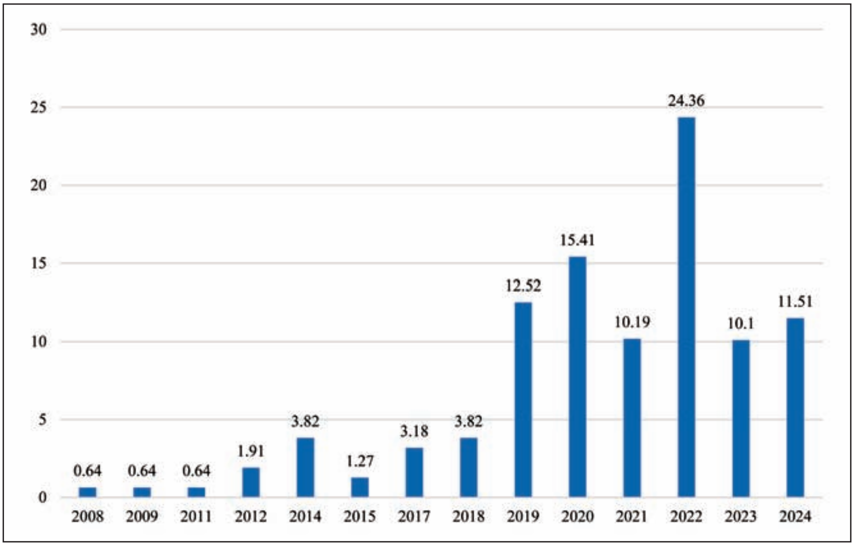

Figure 2. Year-wise Citations.

Source: VOSviewer.

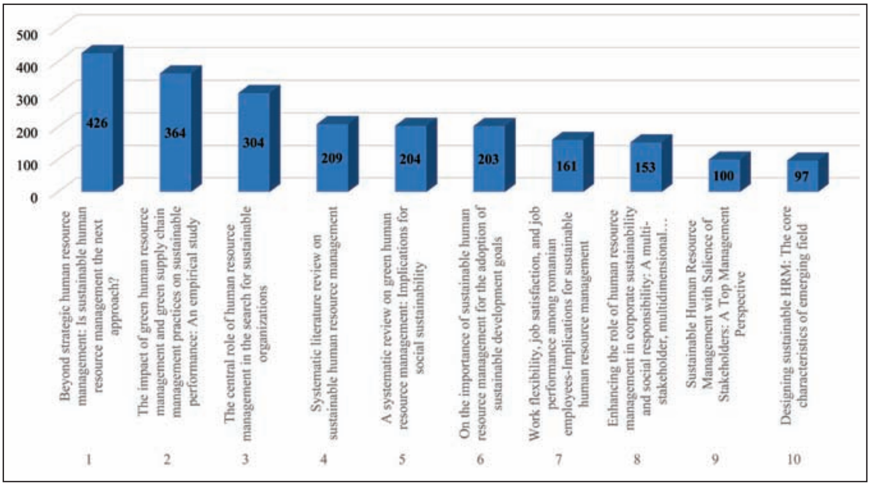

Figure 3. Most Cited Papers.

Source: VOSviewer.

The fifth paper in the list is also a systematic review by Amrutha and Geetha (2020), who analysed the mediating role of green employee behaviour in green HRM practices and organisational sustainability linkages. They concluded that social sustainability is the least attended area compared to sustainability's economic and environmental pillars. By examining the key role of SHRM in maintaining a sustainable workplace and enabling the attainment of SDGs, Chams and García-Blandón (2019) identified the antecedents of SHRM as green behaviours, green competencies and green values. They also listed the outcomes of SHRM.

Among the remaining most cited papers, Davidescu et al. (2020) investigated the links among employee development, work timing and workplace flexibility as pertinent features of SHRM. The focus of the paper by Stahl et al. (2020) was the role of HRM in contributing to a firm's CS/CSR efforts. The authors identified the TBL domains of SHRM. Through qualitative analysis, Järlström et al. (2018) revealed four domains of SHRM: 'justice and equality, transparent HR practices, profitability and employee well-being'. They provided a discussion of the roles played by diverse stakeholders like owners, managers, employees, customers and employee representatives in implementing SHRM. The last in the list of the ten most cited papers is by Stankevičiūtė and Savanevičienė (2018), who highlighted the characteristics of SHRM. Considering the emphasis on the three dimensions of the TBL, four of these papers covered all three dimensions, while another four papers discussed the green dimension alone. One paper mentioned social and environmental aspects.

Citation by Source

Figure 4 shows that the top two cited journals are *Sustainability* and *the Journal of Cleaner Production*, which are more connected with the discipline of environmental science.

The third most cited journal is the *International Journal of Human Resource Management*. It was also found that more than 50% of the top-cited journals are related to business or social sciences, whereas the rest are related to environmental or sustainability disciplines.

A source-wise citation map was created from the VOS Viewer software, which allows the generation of a visualisation map of the most cited journals (refer Figure 5).

Top-cited Author

The most cited single author is Kramar (2014). Another three coauthors who received the second most citations are Jaaron, Talib and Zaid (see Figure 6). This was followed by Santos and Jabbour. This also reveals that the authors treat the concept of sustainability in HRM with an inclination toward the environmental dimension.

Citation Network-countries

Figure 7 displays the citation network among the top 26 nations. Australia is the country with the most articles cited, followed by India, Spain and Malaysia.

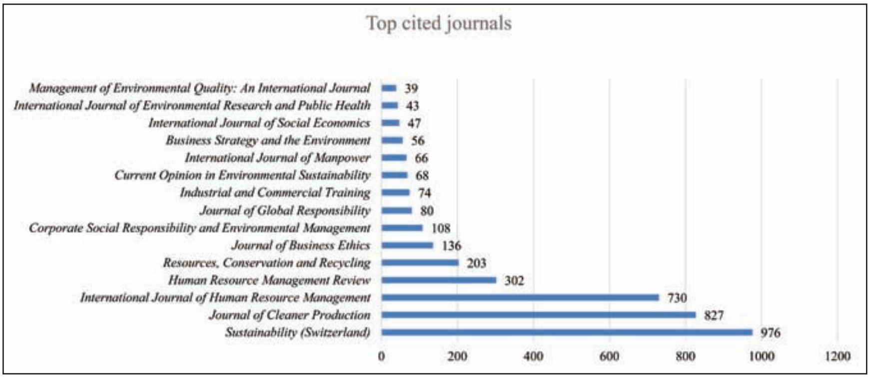

Figure 4. Citation by Sources.

Source: VOSviewer.

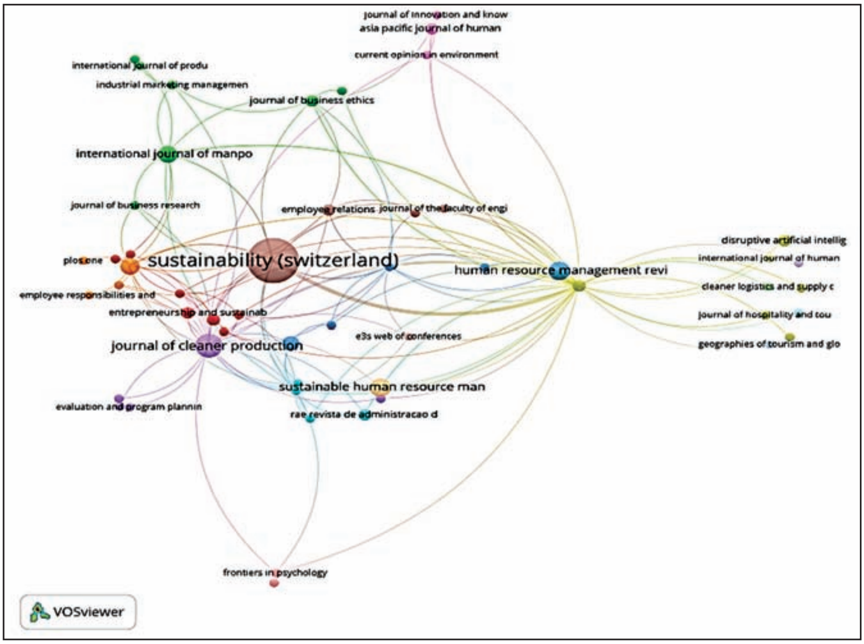

Figure 5. Citation Map-source.

Source: VOSviewer.

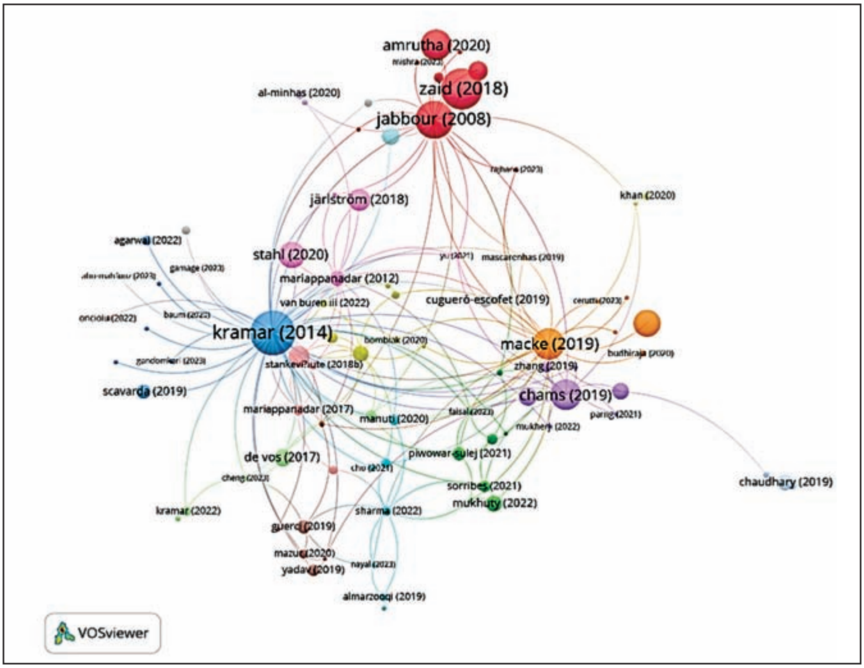

Figure 6. Citation map-author.

Source: VOSviewer.

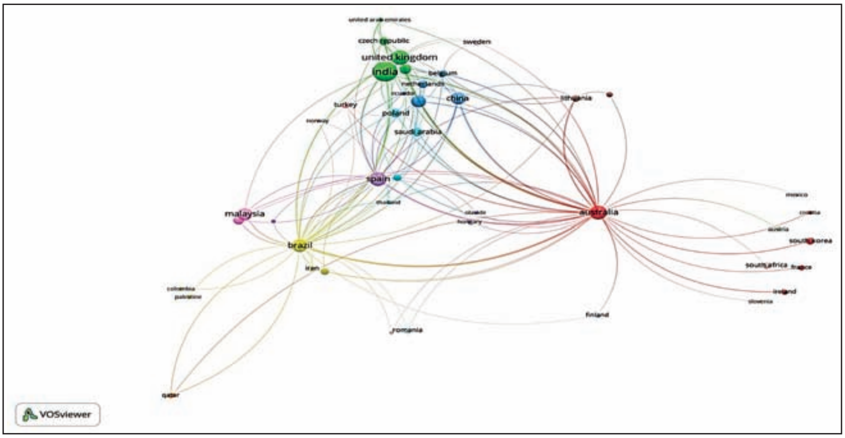

Figure 7. Citation Network-countries.

Source: VOSviewer.

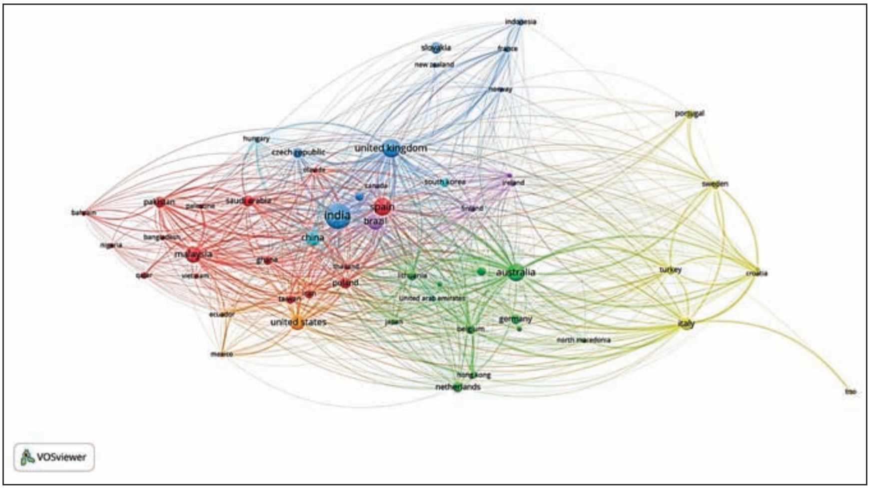

Figure 8. Bibliographic Coupling Countries.

Source: VOSviewer.

Bibliographic Coupling Countries

It is evident from the map that the intellectual structure between India and the UK is strong and the same, although the number of authorships per country is different (see Figure 8). There are eight countries in this cluster. The green cluster covers nine countries with a larger number of authorships from Australia, while the red cluster consists of 15 countries. The yellow cluster has six countries.

Results of the Content and Thematic Analysis

Table 2 presents the consolidated versions of the themes related to the TBL as covered in the bibliometric data. The keyword analysis was manually performed via Excel and

Table 2. Triple Bottom Line and SHRM—Keyword Analysis.

Social		Economic		Environment		Common Usages	
Corporate social responsibility (CSR)	11	Economic activities	1	Ecology	2	Sustainable development	30
Health and safety	1	Economics	2	Environmental aspects	1	Triple Bottom Line	7
Human engineering	2	Green economy	2	Environmental benefits	4	Economic and social effects	4
Social environment	1	Investment	2	Environmental development	1	Environmental and social sustainability	3
Social sustainability	1	Labour	1	Environmental sustainability	1	Sustainability	19
Social values	1	Social capital	1	Environmental variables	1	Empowerment	2
Workplace health	3	**Total**	**9**	Environmental-friendly	1	Social and environmental	2
Total	**21**			Environmental management	9	Sustainability objectives	2
				Natural resources management	4	Sustainable leadership	2
				Conservation of natural resources	2	Sustainable management	2
				Environmental protection	2	Sustainable performance	2
				Total	**28**	Social-economic	1
						Sustainability performance	1
						Sustainability policy	1
						Sustainable economics	1
						Sustainable HRM	3
						Sustainable operations	1
						Sustainable products	1
						Sustainable strategies	1
						Corporate sustainability	1
						Ergonomics	3
						Total	**89**

Source: Consolidated by the authors from bibliometric data.

Table 3. Organisational Outcomes of Sustainable HRM.

Organisational Outcomes	Authors
Sustainable performance	Khan et al. (2020), Awwad et al. (2022) and Zaid et al. (2018)
Waste management	Mitra (2022)
Quality, efficiency, flexibility, innovation, profits	Kramar (2022)
Organisational performance	Manuti et al. (2020)
Decent climate and a transparent culture	Chams and García-Blandón (2019)
Innovation, cultural diversity and environment	Jabbuor and Santos (2008)
Culture of innovation	Smith (2018)
Technological innovation and long-term business sustainability	Sharma et al. (2022)

SPSS software. The first three columns of the table give the keywords exclusively covering the three dimensions of the TBL, such as social, economic and, while the last column gives the combinations of keywords related to the TBL dimensions and general sustainability focus covered in the publications.

The table indicates the predominance of ecological or green dimensions in the literature on SHRM. Although social aspects have also received considerable attention, economic dimensions are still poorly covered in the keywords. Many other terms are used in publications to refer to sustainability, including integrating more than one dimension of the TBL.

SHRM and Organisational Outcomes

One focus area identified through the content analysis of the SHRM literature is the organisational impact of the practice of SHRM. Table 3 gives the gist of the studies in this regard.

Five papers refer to performance enhancement as the outcome in the publications retrieved, and different terms, such as sustainable performance (three papers), organisational performance and financial performance, were used to indicate this. Another dominant organisational outcome was innovation, which was found in three papers, as shown in Table 3.

SHRM and Employee Behaviours

Another focus area identified through the content analysis was employee behaviour manifestations as a result of SHRM practices. This is based on a thorough review of these papers by the authors to understand the interdynamics of SHRM and employee behaviours.

It is evident from the Table 4 that SHRM practices induce greater employee satisfaction, as reflected in five papers. The other major employee behaviours included OCB, commitment, well-being, enhancing competencies and bonding with the organisation.

Table 4. Employee Behaviours as a Result of Sustainability in HRM.

Employee Behaviours	Authors
Employees' satisfaction and commitment	Diaz-Carrion et al. (2018) Rubel et al. (2021)
Job satisfaction and customer orientation	Cho and Choi (2021)
Psychological capital and career growth	Cheng et al. (2024)
Health and safety, training and development and diversity	Schleich (2022)
Organisational trust and pride, organisational commitment, organisational citizenship behaviour (OCB)	Aggarwal and Singh (2022).
OCB	Choi et al. (2020)
Job performance	Manzoor et al. (2019)
Workplace well-being	Prince et al. (2022)
Employee-emotional bonding	Budhiraja and Yadav (2020)
Employee satisfaction and organisational performance	Davidscue et al. (2020)
Competency enhancement	Sharma et al. (2022)
OCB and employee performance	Newman et al. (2016)
Employee satisfaction and overall well-being	Roche et al. (2023)
Employee retention	Lee et al. (2021)

Discussions

This section covers the findings that emerged from the analysis, along with some pragmatic suggestions. There is a growing recognition of sustainability concerns in the publications covered in this study. This is expressed in different typologies, namely, environmental sustainability, sustainable leadership, sustainable management, sustainable performance and corporate sustainability. Two major arguments were proposed based on the analysis:

- The sustainability perspective in HRM is predominantly inclined to environmental or green dimensions: Though there is an increasing sustainability consciousness visible in publications, the sustainability perspective is often treated from a limited perspective of the environmental dimension alone. Findings by Macke and Genari (2019) and Sayyadi et al. (2017) strongly support this argument. This is an indication of the need for a more comprehensive perspective on sustainability among HR professionals. Since HR teams play a crucial role in organisational sustainability, their contributions need to be further strengthened.
- The involvement of HR professionals in implementing SHRM practices in organisations requires a unique set of HR roles: in contrast to the traditional roles of the HR team in an organisation, SHRM calls for a new set of roles from the perspective of progressive professionals. Proença (2022) had a similar observation and advocated for a strategic approach to ensure sustainability in HR practices. This contributes to enhanced employee wellness and organisational outcomes. Reflecting upon HR professionals' involvement with CSR, Podgorodnichenko et al. (2021) observed a lack of uniformity in this. The three diverse approaches of HR towards CSR

identified by these authors were: disengagement, peripheral involvement and embeddedness.

Future Directions: Role of HR Managers in SHRM

The reviews reveal that the role of HR managers in implementing SHRM practices is one of the least explored areas. One of the noteworthy contributions is a systematic literature review by Podgorodnichenko et al. (2020), who proposed three major HRM roles related to sustainability, namely, strategic support, employee advocacy and social support.

Inspired by this work, the authors propose a detailed set of roles useful for integrating sustainability in the practice of HRM in organisations. Practising the following roles will help HR professionals better address TBL concerns in their HR practices.

- Sustainability champion: This is a role in which the HR team in an organisation must promote sustainability values and culture. They can integrate sustainability dimensions in implementing each of the HR functions by synthesising the TBL dimensions in these functions. This can take the form of sustainable talent acquisition, sustainable talent development, sustainable performance management and sustainable compensation.
- Strategy enabler: Enabling the organisation to achieve sustainability goals is another important role of the HR team. The major contribution in this regard can be formulating a sustainability policy in the organisation and integrating the TBL dimensions in its strategies. The HR team can also support the proper implementation of sustainable business practices that address productivity and profitability concerns. Promoting intrapreneurship initiatives with a sustainability orientation also appears to be worthwhile in this context.
- Change facilitator: In this role, HR can facilitate the implementation of organisational changes in alignment with sustainability initiatives. These findings can guide various stakeholders in convincing them of the context of change and its positive outcomes.
- Employee supporter: Maintaining employee health and well-being is another important parameter of sustainability in the TBL paradigm. Accompanying employees who need support, designing programmes to ensure health, wellness, safety and promoting work-life integration are considered major forms of support. Moreover, promoting a sustainable career orientation and employee diversity are other measures that can complement this role. Empowering employees to take up initiatives for various welfare programmes can be another mechanism to augment this role.
- Social advocate: The HR team can lead in promoting the organisation's CSR initiatives. This is a role in which HR can reach the community by spreading the message of the relevance of gainful coexistence. HR teams can create an ecosystem in which social volunteering can be promoted.

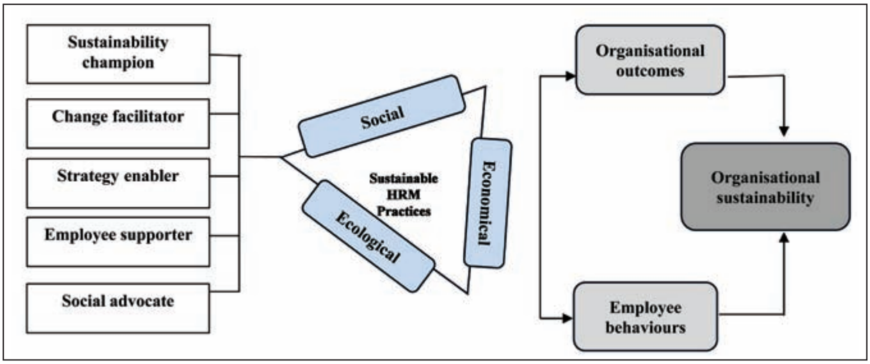

Figure 9. Proposed Model for Sustainable HRM.

> They can also play a constructive role in enhancing positive externalities by advocating for reducing pollution, exploiting natural resources and having a carbon footprint.

Figure 9 presents a model that synthesises the interplay of the triple bottom-line dimensions of sustainability with HR roles to achieve organisational sustainability. The five major HR roles to be played by HR professionals to achieve sustainability in HR practices are visualised in this model. The expected outcome of this framework is to emphasise the comprehensive role of the HR team in organisations by integrating the three dimensions of TBL to achieve organisational sustainability through enhanced employee behaviours and positive organisational outcomes.

Conclusion

This study provides a scientific analysis of the literature on SHRM. Sustainability perspectives have gained momentum in scientific publications over the last three years. However, the concept of sustainability, especially from an HRM perspective, requires a more comprehensive understanding. As shown by the findings of this article, the environment dimension still dominates from the sustainability perspective of HRM. According to a TBL paradigm, the economic and social dimensions need more integration in HRM practices. This demands that HRM practitioners play a different set of roles, which will help the stakeholders in the organisation have meaningful work and life.

Declaration of Conflicting Interests

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Research Paper

Indian Microfinance Institutions' Business Models: Evaluating Value Creation, Deliverance and Value Capture Dimensions

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Abstract

The research aims to evaluate the business models of microfinance institutions (MFIs). The major research question is as to what the performance of the MFI Business Model in India was during the COVID-19 situation. The secondary data from 2018 to 2021 is taken across the legal form of MFIs operating all over India. The variables studied include gross loan portfolio (GLP), operating expense ratio (OER), capital adequacy ratio (CAR), finance cost ratio (FCR), active borrower per credit officer (ABCO), return on assets (ROA), return on equity (ROE), YIELD, debt-to-equity ratio (DER) and active borrowers (AB). The statistical technique implemented in the research includes Kolmogorov-Smirnov, Shapiro-Wilk and Levene statistic for testing normality and homogeneity, one-way ANOVA and post-hoc multiple comparisons. The NBFC-MFI (Non-Banking Financial Company-Microfinance Institution) business model is found to be performing well as far as the value creation is concerned. On other dimensions of business model evaluation, that is, value deliverance and value capture, business models of all the categories of MFIs are similar. The result reveals status of

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business model on value creation, deliverance and capture dimensions during COVID-19.

Keywords

Business models, legal forms, value creation, value deliverance, value capture, NBFC-MFI and COVID-19

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Introduction

The COVID-19 pandemic exposed the financial fragility of businesses globally, particularly smaller ones, due to sharp cash flow disruptions from lockdowns (Brown & Rocha, 2020). No sector or economy was spared, including microfinance, where microfinance institutions (MFIs) saw major operational setbacks. Loan collections plummeted in April–May 2020, with a modest recovery beginning in June. By Q3, the sector showed signs of rebound, yet many small and medium MFIs faced acute liquidity crises. Despite national efforts, full crisis control remained elusive. As FY 2020 ended, MFI clients' livelihoods began recovering. MFIs must support this recovery while addressing their liquidity stress. The pandemic has brought critical lessons, urging MFIs to be more client-centric. Strong client relationships are essential, as cooperation post-crisis depends on trust. Encouragingly, most MFIs have shown patience and empathy toward clients' challenges despite their own financial constraints. COVID-related losses led to higher credit costs for most MFIs. Additionally, the cost of funds rose due to increasing interest rates in the country (Nandi et al., 2023).

The microfinance sector in India comprises various legal forms, including Non-Banking Financial Companies (NBFC-MFIs), Section 8 Companies, Societies & Trusts and Cooperatives. These institutions cater to low-income borrowers through diverse lending models such as self-help groups (SHGs) and joint liability groups (JLGs). The pandemic-induced economic downturn tested the sustainability of these business models, necessitating an evaluation of their value creation, deliverance and capture capabilities.

Research Objectives

The study aims to assess the performance of MFI business models in India across three dimensions:

1. Value creation: Evaluating MFIs' ability to generate value for their clients.
2. Value deliverance: Analysing the efficiency of credit disbursement and operational effectiveness.
3. Value capture: Assessing MFIs' profitability and financial sustainability.

Literature Review

Business Model Dimensions

Teece (2010) defines a business model as how an organisation delivers value and earns profit. Rappa (2010) sees it as a method for sustaining operations through revenue generation, explaining how a firm profits based on its position in the value chain. Osterwalder and Pigneur (2009) describe it as the rationale behind how a firm creates, delivers and captures value. Frank (2008) views production as transforming inputs into outputs or utility. Watson (2005) adds that a business model encompasses all organisational activities that incur costs and create customer value. Afuah (2003) identifies four profitability determinants: industry factors (competition, barriers, clients), resources (value creation), cost (low-cost model) and positioning (finding a unique market space). Together, these elements shape an effective and competitive business model. The analysis on service quality among MFIs indicates a significant disparity across the dimensions of tangibility, reliability, responsiveness, assurance and empathy (Badruddin, 2024). Therefore, it is essential to identify the most impactful business model of MFIs.

Understanding Business Models in Microfinancing

Definition of Microfinance

Nandi et al. (2018) define microfinance as the provision of small-scale thrift, credit and financial services to the poor in rural, semi-urban, or urban areas to enhance income and living standards. Microfinance Gateway views it as financial services for low-income earners, aiming for permanent access to quality, affordable services to fund income-generating activities, stabilise consumption and mitigate risks. Initially linked to microcredit, it now includes savings, insurance, payments and remittances. Asian Development Bank (2000) defines it as a range of financial services—deposits, loans, transfers and insurance—for small enterprises and households. CGAP (2009) describes it as a credit method using collateral substitutes to deliver and recover short-term loans to micro-entrepreneurs. Nandi et al. (2018) identify MFIs as non-bank institutions offering microfinance. MicroRate (2014) proposes a tier system based on institutional maturity using three indicators: sustainability return on assets (ROA), size (total assets) and transparency (regulation/reporting level).

Microfinance Business Models

Srinivas (2015) identified 14 microfinance models across India, Thailand, the Philippines, Indonesia and Sri Lanka through literature review, fieldwork and interviews. These include associations, bank guarantees, community banking, cooperatives, credit unions, Grameen, group and individual lending, intermediaries, NGOs, peer pressure, ROSCAs, small business and village banking models. Most MFIs adopt elements from multiple models, many of which are formalised versions of informal financial systems. Badruddin and Anees (2018) conducted ratio analysis to assess the outreach and portfolios of small, medium and large NBFC-MFIs. MFIs are classified based on Gross Loan Portfolio (GLP) as per MFIN. Ratio analysis shows smaller MFIs face greater challenges, especially in debt funding, as reflected in their higher debt-to-equity ratios (DER). However, operating self-sufficiency benefits all MFI categories. Kumar (2015) studied SHG Federations in five states and found that federation SHGs performed better in financial management than non-federated ones. Both types were similar in general management practices like meeting frequency, participation and awareness. However, non-federated SHGs showed better governance and record-keeping. Batra and Sumanjeet (2012) noted that while government-led SHG microfinance initiatives are promising, they have gaps and must focus on expanding outreach to the lowest income groups.

Banks, RRBs, cooperatives and NGO-linked SHGs are key players in microfinance. Focus should be on three inclusive growth strategies: scaling quality financial services to reach large populations, targeting the lowest income segments, and reducing costs for clients and providers. Kanayi (2009) found that MFIs typically follow a three-tier structure—Field Officer, Branch and Head Office. He highlighted innovative models such as Mexico's corner shop banking for basic services and the rise of Islamic microfinance, blending microfinance with Islamic finance, especially in South Asia, the Middle East and Africa. He also noted that diverse entities—insurance firms, money exchanges, mobile operators, property developers and retail shops—alongside NGOs, banks and NBFCs, are increasingly delivering microfinance services. El Gamal et al. (2014) suggested an alternative microcredit model built on the Rotating Savings and Credit Association (ROSCA) model (which does not involve interest rate payments), but with payments of individual borrowers guaranteed by a bank for a fee. In a laboratory experiment in rural Egypt, they find that this model attracts more clients than the traditional Grameen group lending model. Thus, it can be used to expand microfinance in Islamic countries also.

Issues and Challenges

EDA Rural Systems Pvt. Ltd. (2005), in a SIDBI-sponsored study of 20 MFIs across SHG, Grameen and Individual Banking/cooperative models, observed a perceived trade-off between outreach to the poor and operational self-sufficiency. Individual Banking MFIs showed high self-sufficiency but low outreach depth, while SHG and Grameen MFIs demonstrated broader outreach. Notably, two SHGs and two Grameen MFIs achieved both sustainability and significant outreach. Badruddin (2017) examined fintech advancements, highlighting the role of technology in microfinance delivery, key distribution tools for financial inclusion and related challenges. The transition from traditional institutions to mobile/e-banking enhances outreach. Uddin et al. (2022) noted that systemic business risk may limit MFIs' services to the poor, but effective asset-liability monitoring with donor funds can mitigate this. Collaboration between banks and MFIs supports SDG achievement and promotes financial inclusion.

Research Gap

The literature review indicates that while global studies explore various microfinance models, few focus on business models. In India, most analyses compare SHGs and JLGs, with some attention to the Grameen model. However, no study examines MFIs' business models across legal forms using the dimensions of value creation, delivery and capture.

Contribution and Motivation

This research contributes to the existing literature by analysing business models beyond traditional SHG and JLG frameworks. Unlike previous studies that focus solely on financial sustainability, this study incorporates business model dimensions that address financial viability and social impact. The findings are expected to inform policymakers, practitioners and MFIs on best practices for enhancing financial inclusion in the post-pandemic era.

Research Methodology

This section of the article focuses on the research design based on the identification of variables, development of hypotheses depending upon the variables identified, and the statistical tools utilised in the research.

Variables Identification and Hypotheses Development

The study adopts the definition by Osterwalder and Pigneur (2009): 'A business model describes the rationale of how an organisation creates, delivers and captures value'. The three aspects explored are: (a) How an organisation creates value: Value creation focuses on offering a value proposition tailored to a customer segment's needs. For MFIs, this involves women's empowerment through financial inclusion by providing collateral-free microloans. Proxies for value creation include the number of active borrowers (ABs) and GLP. (b) How an organisation delivers value: MFIs distinguish themselves by offering doorstep financial services, primarily through credit officers who reach borrowers. Alongside credit delivery, they provide financial education and training for income-generating activities. Delivery channel effectiveness is assessed using proxies such as capital adequacy ratio (CAR) and DER (financing structure), active borrowers per credit officer (ABCO) (staff productivity), finance cost ratio (FCR) (expense ratio) and operating expense ratio (OER) (operational efficiency). (c) How an organisation captures value: MFIs generate recurring revenues through interest income and fees for delivering value or customer support. Value capture is measured using ROA and return on equity (ROE) (overall performance) and YIELD on the loan portfolio (revenue stream). Secondary data from Nandi et al. (2019, 2020) covers various MFIs in India, including NBFC-MFIs, Section 8 Companies, Societies & Trusts and Cooperatives.

The variables undertaken for study are GLP, OER, CAR, FCR, ABCO, ROA, ROE, YIELD, DER and AB.

Selection of Variables

The variables selected for this study align with critical performance indicators for MFIs as reported by Sa-Dhan (Nandi et al., 2022):

- GLP & AB (value creation): Indicate outreach and borrower engagement.
- OER, CAR, FCR, DER, ABCO (value deliverance): Measure operational efficiency, capital structure and lending capacity.
- ROA, ROE, YIELD (value capture): Assess profitability and financial sustainability.

Time Period Selection

The study period (2018–2021) covers pre-pandemic, peak-pandemic and recovery phases. While more recent data is available, this timeframe offers a comparative analysis of the business model performance before and during COVID-19.

Post-COVID Challenge

The pandemic exposed MFIs to new risks, including higher default rates, reduced liquidity and shifts in borrower behaviour. Post-pandemic recovery strategies, such as digital transformation and regulatory interventions by NABARD and RBI, have been crucial in stabilising the sector.

Research Questions

The major research question that needs to be dealt with is: What is the performance of the MFI Business Model in India during COVID-19? Therefore, the research questions framed under various variables to be answered constitute the following question: Is there a significant difference in GLP, OER, YIELD, FCR, ROA, ROE and AB across categories of MFIs?

Formulation of Hypotheses

The alternate hypotheses are formulated as follows:

H_1: There is a significant difference in GLP across categories of MFIs.
H_2: There is a significant difference in OER across categories of MFIs.
H_3: There is a significant difference in YIELD across categories of MFIs.
H_4: There is a significant difference in CAR across categories of MFIs.
H_5: There is a significant difference in DER across categories of MFIs.
H_6: There is a significant difference in FCR across categories of MFIs.
H_7: There is a significant difference in ABCO across categories of MFIs.
H_8: There is a significant difference in ROA across categories of MFIs.
H_9: There is a significant difference in ROE across categories of MFIs.
H_{10}: There is a significant difference in AB across categories of MFIs.

Statistical Tools

The study employs a range of statistical methods tailored to meet its research objectives. To assess the normality of the data distribution, both the Kolmogorov-Smirnov and Shapiro-Wilk tests are applied. Levene's test is used to evaluate the homogeneity of variances among groups. For comparing different business models, a one-way ANOVA is conducted, followed by Tukey's Honestly Significant Difference (HSD) test to perform post-hoc analysis and identify specific group differences.

Data Analysis and Interpretation

Tests of Normality

To test the normality hypothesis, the Kolmogorov-Smirnov and Shapiro-Wilk tests are applied. The p value must be greater than .05 to meet the normality assumption. The GLP, AB and FCR were transformed using a log transformation in order to meet the normality assumption. The normality tests for each variable provide insight into whether the data follows a normal distribution in Table 1. For GLP, both the Kolmogorov-Smirnov and Shapiro-Wilk tests yield significance values above 0.05 (0.200 and 0.088, respectively), indicating that the data likely conform to a normal distribution. AB shows similar results, with both tests producing high significance values (0.200 for both), also suggesting normality. In contrast, FCR has a Shapiro-Wilk significance value of 0.047, which is below the 0.05 threshold, implying that its data may not be normally distributed. ABCO, with significance values of 0.200 (Kolmogorov-Smirnov) and 0.127 (Shapiro-Wilk), appears to follow a normal distribution. OER and YIELD both show strong indications of normality, as evidenced by their high significance levels in both tests. Similarly, CAR and DER meet the assumptions of normality, with Shapiro-Wilk values of 0.600 and 0.940, respectively. The case of ROA is borderline,

Table 1. Test of Normality.

	Kolmogorov-Smirnova			Shapiro-Wilk		
	Statistic	*df*	Sig.	Statistic	*df*	Sig.
GLP	0.195	12	0.200*	0.880	12	0.088
AB	0.198	12	0.200*	0.908	12	0.200
FCR	0.239	12	0.057	0.859	12	0.047
ABCO	0.175	12	0.200*	0.892	12	0.127
OER	0.149	12	0.200*	0.938	12	0.468
YIELD	0.154	12	0.200*	0.956	12	0.719
CAR	0.182	12	0.200*	0.947	12	0.600
DER	0.139	12	0.200*	0.973	12	0.940
ROA	0.238	12	0.059	0.885	12	0.101
ROE	0.241	12	0.053	0.936	12	0.451

Note: *This is a lower bound of the true significance.

Table 2. Test of Homogeneity of Variances.

	Levene Statistic	df^2	df^2	Sig.
GLP	6.305	3	8	0.017
AB	10.888	3	8	0.003
FCR	2.061	3	8	0.184
OER	1.054	3	8	0.420
YIELD	2.040	3	8	0.187
CAR	0.475	3	8	0.708
DER	2.609	3	8	0.124
ABCO	2.065	3	8	0.183
ROA	0.243	3	8	0.864
ROE	0.152	3	8	0.926

with a Kolmogorov-Smirnov significance of 0.059 and a Shapiro-Wilk value of 0.101—suggesting a potential deviation from normality, though not a strong one. Lastly, ROE shows a significance level just above the threshold in both tests (0.053 and 0.451), indicating mild deviation from normality, but not conclusively so. Overall, most variables appear to be normally distributed, with the possible exceptions of FCR and, to a lesser extent, ROA and ROE.

Test of Homogeneity of Variances

The Levene's test results in Table 2 evaluate the assumption of homogeneity of variances, which is important in ANOVA to ensure that the variances across groups are equal. A significance (sig.) value less than 0.05 indicates that the variances are not equal (i.e., the assumption of homogeneity is violated), while a value above 0.05 suggests the variances are homogeneous. The results depict that GLP has a Levene statistic of 6.305 with a significance value of 0.017, and AB shows a statistic of 10.888 with a sig. of 0.003. Both values are below the 0.05 threshold, indicating that the assumption of equal variances is violated for these two variables—the group variances differ significantly. For all other variables—FCR (0.184), OER (0.420), YIELD (0.187), CAR (0.708), DER (0.124), ABCO (0.183), ROA (0.864) and ROE (0.926)—the significance values are above 0.05. This means that the assumption of homogeneity of variances holds for these variables, and the differences in group variances are not statistically significant.

In summary, Levene's test results suggest that most variables meet the homogeneity assumption necessary for ANOVA, with the exception of GLP and AB, where group variances differ significantly and may require alternative statistical approaches or corrections (e.g., Welch's ANOVA) for accurate analysis.

One-way ANOVA

Table 3 shows that the assumption of normality and homogeneity is satisfied, so one-way ANOVA is used. From the table, it is seen that sig < 0.05. Hence, the null

Table 3. ANOVA.

		Sum of Squares	*df*	Mean Square	*F*	Sig.
GLP	Between groups	3.901	3	1.300	64.448	0.000
	Within groups	0.161	8	0.020		
	Total	4.062	11			
AB	Between groups	0.233	3	0.078	21.874	0.000
	Within groups	0.028	8	0.004		
	Total	0.261	11			
FCR	Between groups	0.034	3	0.011	0.932	0.469
	Within groups	0.099	8	0.012		
	Total	0.133	11			
OER	Between groups	6.998	3	2.333	0.619	0.622
	Within groups	30.127	8	3.766		
	Total	37.125	11			
YIELD	Between groups	4.000	3	1.333	0.162	0.919
	Within groups	66.000	8	8.250		
	Total	70.000	11			
CAR	Between groups	102.393	3	34.131	1.632	0.257
	Within groups	167.298	8	20.912		
	Total	269.691	11			
DER	Between groups	8.730	3	2.910	2.519	0.132
	Within groups	9.240	8	1.155		
	Total	17.970	11			
ABCO	Between groups	66160.667	3	22053.556	18.452	0.001
	Within groups	9561.333	8	1195.167		
	Total	75722.000	11			
ROA	Between groups	0.280	3	0.093	0.167	0.916
	Within groups	4.475	8	0.559		
	Total	4.755	11			
ROE	Between groups	23.576	3	7.859	0.551	0.662
	Within groups	114.118	8	14.265		
	Total	137.695	11			

hypotheses are not accepted in case GLP, ABCO and AB. The null hypothesis is accepted in case of OER, CAR, FCR, ABCO, ROA, ROE, YIELD and DER as the sig > 0.05. The ANOVA results provide a detailed analysis of each variable to determine whether significant differences exist between the groups. For the GLP variable, the between-groups sum of squares (SS) is 3.901 with 3 degrees of freedom (*df*), resulting in a mean square (MS) of 1.300 and an *F*-value of 64.448. The significance level (sig.) is 0.000, indicating a statistically significant difference among the groups. Similarly, AB shows a between-groups SS of 0.233, *df* of 3, MS of 0.078 and *F*-value of 21.874, with a sig. value of 0.000, also pointing to a significant difference. In contrast, FCR has a sig. value of 0.469, which is above the 0.05 threshold, suggesting no significant difference between the groups. The same applies to OER (sig. = 0.622), YIELD (0.919), CAR (0.257), DER (0.132), ROA (0.916) and ROE (0.662), all of which do not show statistically significant differences.

However, ABCO stands out with a between-groups SS of 66,160.667, MS of 22,053.556, F-value of 18.452 and sig. value of 0.001, confirming a significant difference across groups. Overall, the ANOVA analysis reveals that the variables GLP, AB and ABCO exhibit significant variation among the groups, indicating different group behaviours, whereas the other variables suggest similarity across groups.

Post-hoc Multiple Comparison-Tukey HSD

The multiple comparison shows the analysis across different business models of MFIs on the dimensions of value creation, value deliverance and value capture in the purview of variables undertaken against each dimension.

Value Creation

The variable GLP and AB show multiple comparisons of value creation dimension of business model. The result of analysis of these variables follows below:

- GLP: GLP is the outstanding principal balance of a loan given to a client by an MFI. Table 4 shows that the mean difference is significant in the case of NBFC-MFI when compared with NBFC, SEC.8CO and OTHERS. Also, a significant difference is observed in case of NBFC and OTHERS and OTHERS are significantly different from NBFC-MFI, NBFC and SEC.8CO as sig < 0.05. There is no significant difference in mean when NBFC is compared with SECTION8CO on the GLP variable.
- AB: Table 4 shows the multiple comparisons of AB across all categories of MFIs. A significant mean difference is between NBFC-MFI and NBFC, SECTION8CO and OTHERS. The mean difference between NBFC and SEC.8 CO and OTHERS are not significant.

Value Deliverance

The variables FCR, OER, ABCO, CAR and DER show multiple comparisons of value deliverance dimension. The result of the analysis of these variables follows below:

- FCR: Finance cost here refers to the interest and other expenses incurred on average bank loan outstanding in the books of MFIs. This does not include the notional cost of utilising the equity fund. Table 5 shows no significant mean difference amongst all forms of MFIs as the $p > .05$, which means FCR is the same across all categories of MFIs.
- OER: Staff, travel, administration costs, other overheads and depreciation charges of MFIs (non-financial costs) as a percentage of the average loan portfolio over a year. Table 5 shows no significant mean difference amongst all forms of MFIs as the $p > .05$, which means the Operation Expense Ratio is the same across all categories of MFIs.
- CAR: Capital adequacy is a method of measuring MFI solvency, which is an important indicator of the entity's risk-bearing ability. It is the proportion of an MFI's capital/own fund to its total assets. The multiple comparisons

Table 4. GLP and AB-multiple Comparisons-Tukey HSD.

Dependent Variable			Mean Difference (I–J)	Std. Error	Sig.
GLP	NBFC-MFI	NBFC	1.416*	0.115	0.000
		SEC.8CO	1.359*	0.115	0.000
		OTHERS	0.786*	0.115	0.001
	NBFC	NBFC-MFI	–1.416*	0.115	0.000
		SEC.8CO	–0.057	0.115	0.959
		OTHERS	–0.630*	0.115	0.003
	SEC.8CO	NBFC-MFI	–1.359*	0.115	0.000
		NBFC	0.057	0.115	0.959
		OTHERS	–0.573*	0.115	0.005
	OTHERS	NBFC-MFI	–0.786*	0.115	0.001
		NBFC	0.630*	0.115	0.003
AB	NBFC-MFI	NBFC	0.344*	0.048	0.000
		SEC.8CO	0.336*	0.048	0.001
		OTHERS	0.205*	0.048	0.012
	NBFC	NBFC-MFI	–0.344*	0.048	0.000
		SEC.8CO	–0.008	0.048	0.998
		OTHERS	–0.139	0.048	0.081
	SEC.8CO	NBFC-MFI	–0.336*	0.048	0.001
		NBFC	0.008	0.048	0.998
		OTHERS	–0.130	0.048	0.104
	OTHERS	NBFC-MFI	–0.205*	0.048	0.012
		NBFC	0.139	0.048	0.081
		SEC.8CO	0.130	0.048	0.104

Note: *The mean difference is significant at the 0.05 level.

in Table 5 show that there is no significant mean difference in CAR across all categories of MFIs, with sig > 0.05 in all cases compared.

- DER: The debt-equity ratio is the ratio of total debt borrowed to total equity held at any given time. Table 5 shows multiple comparisons of DER across categories of MFIs. There is no significant mean difference in DER across all categories of MFIs, with sig > 0.05 in all cases compared.
- ABCO: ABCO is an abbreviation for Average Borrower per Credit Officer, which is a measure of the client-staff ratio. Case Load is another name for it. In Table 5, the mean difference between NBFC-MFI and NBFC is significant as sig < 0.05. In case of OTHERS, the mean difference is seen to be significant when compared with NBFC and SECTION8CO., as sig < 0.05. No significant mean difference is seen between and NBFC-MFI, NBFC and SECTION8CO on the ABCO dimension.

Value Capture

The variables ROA, ROE and YIELD show multiple comparisons of value capture dimension of business model. The result of the analysis of these variables follows below:

- ROA: ROA is a widely accepted profitability metric that, in essence, is the percentage net income earned from the total average assets deployed by MFIs over a given period, say a year. Table 6 shows the multiple comparisons of ROA across all categories of MFIs. There is no significant mean difference seen in ROA across all categories of MFIs, as sig > 0.05.
- ROE: The net income earned from the average equity of MFIs held by MFIs during the given period is referred to as the ROE. Table 6 shows the

Table 5. FCR, OER, CAR, DER & ABCO-multiple Comparisons-Tukey HSD.

Dependent Variable			Mean Difference (I–J)	Std. Error	Sig.
FCR	NBFC-MFI	NBFC	–0.113	0.090	0.619
		SEC.8CO	–0.134	0.090	0.489
		OTHERS	–0.045	0.090	0.959
	NBFC	NBFC-MFI	0.113	0.090	0.619
		SEC.8CO	–0.022	0.090	0.995
		OTHERS	0.068	0.090	0.873
	SEC.8CO	NBFC-MFI	0.134	0.090	0.489
		NBFC	0.022	0.090	0.995
		OTHERS	0.090	0.090	0.758
	OTHERS	NBFC-MFI	0.045	0.090	0.959
		NBFC	–0.068	0.090	0.873
		SEC.8CO	–0.090	0.090	0.758
OER	NBFC-MFI	NBFC	–0.700	1.584	0.969
		SEC.8CO	–1.573	1.584	0.758
		OTHERS	–1.963	1.584	0.622
	NBFC	NBFC-MFI	0.700	1.584	0.969
		SEC.8CO	–0.873	1.584	0.944
		OTHERS	–1.263	1.584	0.854
	SEC.8CO	NBFC-MFI	1.573	1.584	0.758
		NBFC	0.873	1.584	0.944
		OTHERS	–0.390	1.584	0.994
	OTHERS	NBFC-MFI	1.963	1.584	0.622
		NBFC	1.263	1.584	0.854
		SEC.8CO	0.390	1.584	0.994
CAR	NBFC-MFI	NBFC	–6.613	3.733	0.352
		SEC.8CO	–3.513	3.733	0.785
		OTHERS	0.663	3.733	0.998
	NBFC	NBFC-MFI	6.613	3.733	0.352
		SEC.8CO	3.100	3.733	0.839
		OTHERS	7.277	3.733	0.282
	SEC.8CO	NBFC-MFI	3.513	3.733	0.785
		NBFC	–3.100	3.733	0.839
		OTHERS	4.177	3.733	0.689
	OTHERS	NBFC-MFI	–0.663	3.733	0.998
		NBFC	–7.276	3.733	0.282
		SEC.8CO	–4.176	3.733	0.689

(Table 5 continued)

(Table 5 continued)

Dependent Variable			Mean Difference (I–J)	Std. Error	Sig.
DER	NBFC-MFI	NBFC	2.066	0.877	0.164
		SEC.8CO	0.666	0.877	0.870
		OTHERS	1.866	0.877	0.223
	NBFC	NBFC-MFI	–2.066	0.877	0.164
		SEC.8CO	–1.400	0.877	0.432
		OTHERS	–0.200	0.877	0.995
	SEC.8CO	NBFC-MFI	–0.666	0.877	0.870
		NBFC	1.400	0.877	0.432
		OTHERS	1.200	0.877	0.551
	OTHERS	NBFC-MFI	–1.866	0.877	0.223
		NBFC	0.200	0.877	0.995
		SEC.8CO	–1.200	0.877	0.551
ABCO	NBFC-MFI	NBFC	113.000*	28.227	0.017
		SEC.8CO	86.333	28.227	0.061
		OTHERS	–75.333	28.227	0.106
	NBFC	NBFC-MFI	–113.000*	28.227	0.017
		SEC.8CO	–26.667	28.227	0.783
		OTHERS	–188.333*	28.227	0.001
	SEC.8CO	NBFC-MFI	–86.333	28.227	0.061
		NBFC	26.667	28.227	0.783
		OTHERS	–161.667*	28.227	0.002
	OTHERS	NBFC-MFI	75.333	28.227	0.106
		NBFC	188.333*	28.227	0.001
		SEC.8CO	161.667*	28.227	0.002

Note: *The mean difference is significant at the 0.05 level.

multiple comparisons of ROE across all categories of MFIs. There is no significant mean difference seen in ROE across all categories of MFIs, as sig > 0.05.

- YIELD: YIELD represents total income from microfinance operations (interest, processing fee/service charge) earned from the average loan portfolio outstanding. Investment income is not included. It works well as a proxy or surrogate for the loan interest rate. In Table 6, there is no significant mean difference in YIELD across all categories of MFIs, with sig > 0.05 in all cases compared.

Summary of Findings

The results (Table 1: Normality & Table 2: Homogeneity of variances) confirm data suitability for ANOVA analysis. The analysis finds significant differences exist for GLP and AB (value creation), as shown in Table 3. Other variables show

Table 6. ROA, ROE& YIELD-multiple Comparisons-Tukey HSD.

Dependent Variable			Mean Difference (I–J)	Std. Error	Sig.
ROA	NBFC-MFI	NBFC	0.040	0.611	1.000
		SEC.8CO	–0.303	0.611	0.958
		OTHERS	0.087	0.611	0.999
	NBFC	NBFC-MFI	–0.040	0.611	1.000
		SEC.8CO	–0.343	0.611	0.941
		OTHERS	0.047	0.611	1.000
	SEC.8CO	NBFC-MFI	0.303	0.611	0.958
		NBFC	0.343	0.611	0.941
		OTHERS	0.390	0.611	0.917
	OTHERS	NBFC-MFI	–0.087	0.611	0.999
		NBFC	–0.047	0.611	1.000
		SEC.8CO	–0.390	0.611	0.917
ROE	NBFC-MFI	NBFC	3.853	3.084	0.616
		SEC.8CO	2.317	3.084	0.874
		OTHERS	2.723	3.084	0.814
	NBFC	NBFC-MFI	–3.853	3.084	0.616
		SEC.8CO	–1.537	3.084	0.957
		OTHERS	–1.130	3.084	0.982
	SEC.8CO	NBFC-MFI	–2.317	3.084	0.874
		NBFC	1.537	3.084	0.957
		OTHERS	0.407	3.084	0.999
	OTHERS	NBFC-MFI	–2.723	3.084	0.814
		NBFC	1.130	3.084	0.982
		SEC.8CO	–0.407	3.084	0.999
YIELD	NBFC-MFI	NBFC	0.000	2.345	1.000
		SEC.8CO	1.333	2.345	0.939
		OTHERS	0.000	2.345	1.000
	NBFC	NBFC-MFI	0.000	2.345	1.000
		SEC.8CO	1.333	2.345	0.939
		OTHERS	0.000	2.345	1.000
	SEC.8CO	NBFC-MFI	–1.333	2.345	0.939
		NBFC	–1.333	2.345	0.939
		OTHERS	–1.333	2.345	0.939
	OTHERS	NBFC-MFI	0.000	2.345	1.000
		NBFC	0.000	2.345	1.000
		SEC.8CO	1.333	2.345	0.939

Note: *The mean difference is significant at the 0.05 level.

uniform trends across MFI categories. The results of the analysis in Tables 4, 5 and 6 show multiple comparisons revealing that:

- Value creation: NBFC-MFIs outperform other categories in GLP and AB. NBFC-MFIs lead in value creation due to their expansive borrower base and higher loan portfolios. NBFC-MFIs perform best in value creation but need improvements in value deliverance and capture.

- Value deliverance: No significant differences in FCR, OER, CAR and DER across categories. Value deliverance remains consistent across MFI categories, suggesting similar operational efficiencies.
- Value capture: ROA, ROE and YIELD remain similar across MFI types. Value capture indicates financial parity among MFIs, implying stable revenue generation mechanisms.

Conclusion

The business model analysis of MFIs in India during COVID-19 covered NBFC-MFIs, NBFCs, Section 8 Companies, and OTHERS. NBFC-MFIs performed best in value creation (ABs and GLP). For value delivery (CAR, DER, ABCO, FCR, excluding OER) and value capture (ROA and YIELD, excluding ROE), all MFI categories showed similar performance. NBFC-MFIs show strong value creation and have the potential to improve in delivery and capture by enhancing ROE, ROA, OER, FCR, DER, CAR and YIELD compared to other MFI forms. Other MFIs—NBFCs, Section 8 Companies and OTHERS—are advised to improve GLP, ABCO, FCR, DER, CAR, ROE, ROA, OER, YIELD and AB to enhance their performance in value creation, delivery and capture.

MFIs using SHG and JLG delivery models can enhance their performance with support from NABARD, self-regulatory organisations like Sa-Dhan and MFIN and the RBI's Regulatory Framework for Microfinance Loans introduced in March 2022. The COVID-19 pandemic affected all forms of MFIs. In response, NABARD launched initiatives to support the microfinance sector post-pandemic. Notably, 12.8 lakh SHGs across 281 districts in 26 states and 2 UTs were digitised under Project E-Shakti. In 2020, NABARD introduced a Business Model Scheme for RRBs/RCBs to promote and finance JLGs. During the pandemic, Hewa-Wellalage et al. (2022) found that female-led enterprises faced greater challenges, with women being up to two percentage points more likely to rely on debt financing than men, solely due to gender. Reserve Bank of India (2021) highlighted Project E-Shakti as a key digital inclusion initiative. By 2022, SHGs grew from 255 (₹29 lakh in bank credit, 1992) to 67.40 lakh (₹1.51 lakh crore), and JLGs from 285 (₹447 lakh, 2005) to 188 lakh (₹3.27 lakh crore). NABARD has led the SHG movement by offering policy support, training, capacity building and refinancing for SHG loans. Initiatives include simplified account opening procedures, relaxed collateral norms, the 1993 Bulk Lending Scheme, support for SHG promotion, livelihood training, research and awareness programmes (Status of Microfinance, 2020–2021). Hence, it can be concluded that the role of Government and Non-Government organisations is significant for various forms of MFIs to cope with the post-COVID-19 scenario in value creation, value deliverance and value capture.

Policy Implications

- Enhancing capital adequacy: Strengthening financial reserves to mitigate economic shocks.
- Digital transformation: Technological integration, alternative financing and policy support are crucial for MFIs' sustainability. The study suggests promoting fintech adoption for efficient credit disbursement.
- Regulatory support: Post-pandemic, regulatory interventions have helped, but liquidity concerns persist. The study recommends leveraging RBI and NABARD frameworks to stabilise MFI growth.

Limitations of the Study

The current study is based on the COVID-19 period, which restricts its scope in analysing long-term changes in MFIs' business models and their post-pandemic recovery strategies.

Future Research Directions

Future research could focus on:

- Analysing post-2021 data to evaluate the prolonged effects of the pandemic, including economic recovery patterns, shifts in consumer behaviour and structural transformations across various sectors.
- Investigating innovative business models that utilise fintech advancements and digital lending, exploring their role in enhancing financial inclusion, market dynamics and regulatory implications.
- For future research, there is potential to explore more advanced methodologies such as machine learning and financial modelling, which offer deeper insights and predictive capabilities. However, traditional statistical techniques like one-way ANOVA and post-hoc tests continue to hold value, particularly in analysing structured financial data and identifying significant differences across business models. Integrating both conventional and modern approaches could enhance the robustness and depth of future analyses.

Abbreviations

AB: Active borrowers

ABCO: Active borrower per credit officer

ANOVA: Analysis of variance

BRICS: Brazil Russia India China South Africa

CAR: Capital adequacy ratio

COVID-19: Coronavirus disease-2019

DER: Debt-to-equity ratio

FCR: Finance cost ratio

GLP: Gross loan portfolio

JLG: Joint liability group

MFI: Microfinance institution

NABARD: National Bank for Agriculture and Rural Development

NBFC: Non-banking financial company

NBFC-MFI: Non-banking financial company-microfinance institution

NGO: Non-governmental organisation

OER: Operating expense ratio

ROA: Return on assets

ROE: Return on equity

RRBs: Regional rural banks

SEC.8CO.: Section 8 company

SHG: Self-help group

YIELD: Yield on portfolio

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Research Paper

Employees' Perceptions of the Effectiveness and Authenticity of Corporate Social Responsibility (CSR) Initiatives

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Abstract

This study investigates how employees from different organisations perceive the efficacy and sincerity of corporate social responsibility (CSR) efforts carried out by businesses. The main goal is to comprehend how employees view the significance and legitimacy of CSR initiatives and how these views affect their involvement and dedication to such projects. Eight interviews with workers from various organisations were conducted to collect data, and NVivo 14 was used as a qualitative data analysis tool.

The results of the interviews shed important light on how the employees assess the effectiveness and sincerity of CSR. Employees stressed the significance of precise metrics and open reporting while discussing evaluating and measuring the impact of CSR projects. Employees value programmes that result in positive social and environmental benefits, which strengthens their faith in the legitimacy and efficacy of these initiatives.

The use of NVivo 14 made it possible to analyse the interview data methodically and identify recurrent themes and trends. The software offered an organised method for gathering, compiling, and analysing qualitative data, which improved the accuracy and reliability of the study's conclusions.

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Keywords

CSR, stakeholder, qualitative, effectiveness and authenticity

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Introduction

Since businesses have realised the need to address social and environmental challenges while retaining profitability and competitiveness, corporate social responsibility (CSR) has grown in importance as a component of company strategy (Klettner et al., 2021). Customers, employees, investors, and community members are among the stakeholders who are becoming more conscious of how company operations affect society and the environment. As a result, they expect businesses to show a commitment to CSR (Glavas, 2021). In order to establish trust, improve reputation, and cultivate long-lasting relationships with their stakeholders, organisations must understand stakeholder perceptions of the efficacy and authenticity of their CSR programmes (Gond et al., 2017).

Schaefer et al. (2024) claim that organisational pride functions as a mediator in the favourable outcomes that employees' positive opinions of a firm's CSR activities generate for both the company and its employees. Taking into account the moderating impacts of CSR scepticism and authenticity in the manufacturing sector, Latif et al. (2022) evaluated the link between perceived CSR and employee pro-environmental behaviour (PEB). According to the study, perceived CSR has a favourable effect on PEB; CSR authenticity improves this link, while CSR scepticism weakens it. Kim and Lee (2022) investigated the multilayered link between employees' perceptions of CSR authenticity and external CSR activities to find a favourable association. They also demonstrated that perceived CSR authenticity mediates the positive impact of outside CSR on employees' emotional commitment.

In the context of CSR, effectiveness is defined as the degree to which a company's CSR initiatives address pertinent social and environmental concerns, produce favourable results for stakeholders, and enhance the performance of the firm as a whole (Epstein et al., 2015). The perceived sincerity and alignment of a company's CSR initiatives with its core values, mission, and business strategy, on the other hand, is referred to as authenticity (Chaudhri, 2021). For stakeholders to view a company's CSR programmes as credible and significant, both effectiveness and authenticity are required (Fatma et al., 2020).

Using both quantitative and qualitative research approaches, a number of studies have examined stakeholders' perceptions of the viability and authenticity of organisations' CSR programmes (e.g., Binder & Scherer, 2015; Chanda & Ganesh, 2019; Lundgren & Nilsson, 2014; Sarker & Macdonald, 2018). These studies (Glozer et al., 2018; Piacentini et al., 2019; Wang et al., 2016) have identified a number of variables that affect stakeholder perceptions, including the company's commitment to social and environmental issues, the integration of CSR into the core business strategy, stakeholder engagement, and transparent communication.

For instance, a qualitative study on stakeholder perceptions of CSR in the UK and Sweden by Lundgren and Nilsson (2014) found that when CSR initiatives are incorporated into a company's core business strategy, they show a long-term commitment to social and environmental issues and involve stakeholder engagement; stakeholders perceive them as genuine and effective. Similarly, Sarker and Macdonald (2018) used in-depth interviews to examine stakeholder perceptions of CSR in the Australian mining sector. They found that when CSR initiatives address the particular social and environmental issues pertinent to the mining sector, involve stakeholder engagement, and show a commitment to continuous improvement, stakeholders view them as genuine and effective.

Since it is closely tied to stakeholder trust and the legitimacy of a company's CSR operations, authenticity in CSR has drawn attention in recent studies (Chanda & Ganesh, 2019). Chanda and Ganesh (2019) found in their qualitative study of Indian businesses that when CSR initiatives are in line with the company's values, integrated into the core business strategy, and show a long-term commitment to addressing social and environmental issues, stakeholders will view them as genuine. Similar to this, Binder and Scherer (2015) looked into how stakeholders felt about CSR in small and medium-sized businesses (SMEs) in Germany. They discovered that when CSR initiatives are adapted to the unique requirements and resources of SMEs, involve stakeholder engagement, and show a commitment to social and environmental issues, stakeholders see them as genuine and effective.

Literature Review

CSR can be defined as a flexible concept with many interpretations depending on the fields of its application. CSR might be defined as the company's activities to go beyond its legal requirements, performing the social and environmental responsibilities (Carroll, 1999). CSR can be dated back to the early 1950s when companies started accepting social responsibilities (Bowen, 1953). CSR development can be seen as a shift from charity done in a CSR context to a component of a company's operation (Porter & Kramer, 2019).

As for a receiver-oriented perspective, the receiver's perception of CSR can be defined as a view or standpoint that the stakeholders, primarily the employees of an organisation, have towards the CSR activities carried out by that particular organisation. Other factors include transparency, communication and the extent to which CSR initiatives match an organisation's values and organisational mission as posited by Collier and Esteban (2007). Employees react positively to the company's CSR initiatives when they consider such activity to be real, recurrent, and co-aligned with their personal values (Gond et al., 2017). In contrast, genuine but weak, or 'ritualistic' activities involving mere tokenism can lead to organisational scepticism and decreased employee engagement in CSR initiatives (Du et al., 2010).

CSR perception has a close relationship with both authenticity and effectiveness. Credible CSR is when a business organisation charts its value system and the actions it takes towards the community. CSR exercises that are incorporated as core strategic business strategies and are sustainable cover genuine CSR (Chaudhri, 2015). On the other hand, the effective CSR establishes a way of evaluating the outcome of CSR activities, which is on both the firm and its culture. If the employees determine the CSR activities as genuine and efficient, then they are likely to support the cause of the company and hence support the attainment of CSR goals (Porter & Kramer, 2019).

Carroll (1991) developed one of the most valuable models of CSR, which is called Carroll's Pyramid of CSR. This model outlines four levels of responsibility that businesses should fulfil: economic, legal, ethical and philanthropic. Economic responsibility is the generation of revenue for the organisation, while legal responsibility is the adherence to the laws and policies. Ethical responsibility is defined as doing business ethically, while philanthropic responsibility deals with the social clauses about how business enhances the welfare of people. This multi-dimensional approach underscores the objective of achieving a sustainable social-economic and environmental performance by managing the company's financial performance.

Other contemporary definitions of CSR stress its managerial or strategic orientation. Following the European Commission (2011), CSR is 'the activity of companies managing the impact of their decisions and actions on the society'. This definition goes to map the new CSR paradigm focusing on sustainable development, ethical corporate governance, and stakeholders. Moreover, creating shared value (CSV) by Porter and Kramer (2019) argues that a firm can have a strategic advantage through executing CSR initiatives, creating economic and social value at the same time.

Freeman (1984) has called the neoliberal model of business management that begins the analysis of CSR with the duties and responsibilities of the shareholders as 'stakeholder theory'. The theory proceeds from the idea that firms and organisations should balance benefits for all the links in the supply chain, clients, employees, providers, and inhabitants, rather than concentrating on the shareholders' value. This viewpoint concurs with the emerging approach, which notes that CSR perception by employees is rather crucial for CSR strategy effectiveness and the credibility of the accompanying practices (Gond et al., 2017).

Since managers and companies are increasingly grasping the opportunity to address and solve social and environmental problems and, at the same time, remain profitable and competitive, CSR has become an essential aspect of today's business strategies. Based on the stakeholder theory proposed by Freeman in 1984, a business organisation is required to work towards accommodating the needs of everyone involved, such that they are an influential force championing the destiny of the firm. In the context of CSR, this viewpoint has become more relevant as companies strive to enhance stakeholders' trust and reputation, together with building sustainable relationships (Brammer & Millington, 2005). This literature study will focus essentially on the extent to which the CSR initiatives and activities of firms are effective and genuine, weighed by the employee-consideration factor. Stakeholder views and their significance for the review of CSR practice will also be discussed using qualitative research methodologies.

CSR and Stakeholder Theory

Stakeholder theory, as defined by Freeman (1984), focuses on the interests and obligations due to all the stakeholders within the organisation. These relationships state that the concept of managing stakeholders is key in achieving the organisational objectives of strategic growth and success. Stakeholder theory is useful for appreciating how organisations operating under the CSR disclose their ability to address various stakeholder issues, such as the employees and society. Applying the stakeholder theory, the firms will be able to relate their CSR activities to the expectations of various stakeholders, which will improve the overall image of the company and promote cooperation.

Stakeholder Perceptions of CSR Authenticity and Effectiveness

More and more, both theoretical and empirical works stress checks by multiple stakeholders to examine the effectiveness and genuineness of CSR practices. The credibility of all CSR initiatives is generally determined by stakeholders and measured by the transparency, consistency, and relevance to the organisational values. That is why practical CSR initiatives are not only aimed at the solution of social and ecological problems but also included in the overall company's strategic context (Du et al., 2010; Morsing & Schultz, 2006).

According to research, CSR perceptions are informed by organisational communication of goals and objectives and meaningful stakeholder participation. Morsing and Schultz (2006) further revealed that clear and honest messages about a company's CSR activities and involving stakeholders engaging with the company's messages also influence enhanced perceived authenticity and heightened CSR communicated effectiveness. Similarly, Du et al. (2010) show that where organisations provide regular and accurate information about their operations to stakeholders, the CSR results are positive because trust and loyalty increase. Wang et al. (2016) have taken forward this understanding by showing how government regulation plays a part in promoting CSR transparency and accountability, which in turn affects the stakeholder trust in CSR programmes.

CSR: Authenticity Perspective and Effectiveness from the Perceptions of the Employees

Some of the key assumptions made within the broad knowledge and appreciation of CSR include that organisational performance can be influenced greatly by the perception of key stakeholders, such as employees. A study established that CSR is more credible and efficacious when the organisation's CSR fits with the business strategic value proposition, employee engagement is involved, and CSR engagement is a long-term one (Gond et al., 2017).

Gond et al. (2017) identified psychological antecedents of CSR perceptions to clarify that the involvement of employees in CSR activities improves perception of CSR legitimacy and authenticity, thus strengthening organisational commitment. Farooq et al. (2014) supported this thinking by showing that organisations can develop an understanding of CSR perceptions, as employees who deem the CSR activities as genuine will be loyal to the company. This goes further in supporting the view that genuine and sincere CSR programmes not only positively impact the workers' morale, but also lead to a more stable workforce, especially when the objectives of the companies align with those of the programmes that are initiated.

Exploratory Techniques to Analyse Stakeholder Views and Attitudes Towards CSR

Interviews, focus groups and case studies, which are more frequently used in qualitative research, have provided better insights into the context dependencies of stakeholder CSR perceptions. Through such approaches, it is easy for researchers to capture the experience and anticipations of stakeholders, a sort of information that may easily be missed if quantitative research methods are used (Chanda & Ganesh, 2019; Lundgren & Nilsson, 2014).

Lundgren and Nilsson (2014) surveyed stakeholders in large Swedish companies on their beliefs concerning CSR while insisting on integration of CSR policies into strategic business processes to develop sustainable and strong relationships with stakeholders. From their results, the authors hypothesise that stakeholders respond positively to CSR initiatives that are deemed to be more strategic and authentic. Similarly, Chanda and Ganesh (2019) used an online survey and semi-structured interviews with scholars to examine CSR transparency in Indian enterprises to identify corporate values, mission, and stakeholders as critical to CSR credibility.

Stakeholder Perception Analysis Based on Stakeholder Theory

Extending stakeholder theory into the notion of employee perception on CSR also reemphasises the link between CSR organisational practices and employee outcomes. Another internal stakeholder group, namely the employees, determines the effectiveness of the implemented CSR programmes, thanks to their advocacy, engagement, or feedback. For instance, Aguinis and Glavas (2012) showed that mere CSR practices increase the level of employee commitment, motivation and organisational outcomes. Similarly, Jones et al. (2014) established that a positive attitude towards CSR authenticity by employees of an organisation explains a direct positive relationship of job satisfaction, retention and organisational commitment.

Kim and Park (2011) examined organisational level CSR perception by conducting a survey of employees in South Korean organisations to establish how CSR employing, communicating and organising values and engaging employees in decision making affects impressions of authenticity and concomitant organisational success. This resonated with Glavas (2016), who also found that the commitment to CSR meant that it had to permeate the corporate culture and employee engagement in the process, at all levels, fostering trust.

From the above literature, it is evident that stakeholder theory, employee perceptions and CSR results are interrelated. Inviting employees as key informants and adopting qualitative methods of research can therefore enrich the CSR strategies of organisations. This holistic approach not only helps build organisational reputation, but it also promotes employee engagement for the organisation's sustainable development and ethical practices (Deephouse, 2000). Subsequent studies should seek to understand the progressive shifts in these employee roles as a way of sustaining CSR strategic relevance to the ever-emerging and changing needs of stakeholders and society. These results are consistent with past research that demonstrates how CSR programmes, when paired with sustainable HRM practices, can dramatically enhance employee engagement and moral behaviour in firms (Gupta, 2017).

Research Gap

While the literature on stakeholder perception of CSR is gradually growing larger, there are still many limitations on how employees perceive CSR authentically and effectively across industries, cultures, and organisational size (Kim & Lee, 2022; Wang et al., 2024). Such articles reveal an increased interest of the employees in CSR, although recognising that there are discrepancies in how diverse actors apprehend CSR initiatives and indicating that there is a need for more sensitive, contextual examinations (Chaudhary, 2020). Furthermore, social and environmental issues remain dynamic, and so evaluating how stakeholders' expectations change over time matters in the perception of the effectiveness of CSR efforts (Fatma et al., 2020).

Previous research has presented overviews of stakeholder attitudes in the past; however, recent literature advocates for stakeholder studies to incorporate qualitative investigations into the actual experiences and perceptions of CSR as espoused by Gond et al. (2017) and Glavas (2021). To this end, this study aims to respond to this research question to help fill the gap in the literature on CSR strategy and communication: How do current and former employees at multiple organisations perceive the effectiveness and authenticity of CSR communication by their employers? In other words, the study lacks the aspiration to present a systematic view of the stakeholder perceptions, and yet it is expected to present essential information. It is used as a platform to build on for the next step in researching the level of engagement of employees with CSR activities in other organisations and cultures.

Objectives:

1. To explore the key factors that influence employee perceptions of the authenticity and effectiveness of CSR initiatives within various organisations.
2. To assess the relationship between employee awareness of CSR initiatives and their level of engagement and commitment to CSR projects.

Research Methodology

Using a qualitative research methodology, this study intends to investigate how employees view the effectiveness and authenticity of CSR. Eight semi-structured interviews with personnel from various organisations served as the study's foundation. Thematic analysis, a qualitative data analysis method, was used to gather and examine the interview transcripts.

The qualitative technique employed in this study was semi-structured interviews. This method was chosen because it allows for a balance between structured questioning and open-ended exploration, enabling participants to elaborate on their experiences while ensuring that the key themes of CSR authenticity and effectiveness were consistently addressed across all interviews. Semi-structured interviews are widely recognised in qualitative research for their flexibility and depth, making them suitable for capturing the nuanced and context-specific factors that influence stakeholder perceptions of CSR.

The interview transcripts were developed by conducting a comprehensive review of existing literature on CSR initiatives and SMEs (e.g., Chanda & Ganesh, 2019; Lundgren & Nilsson, 2014). Questions were framed to align with the key dimensions of CSR effectiveness and authenticity, ensuring that the data collected would be relevant to the study objectives. To ensure validity, the transcripts were pilot-tested with two participants prior to the full study. This process helped refine the wording of questions to ensure clarity and appropriateness, minimising the risk of misinterpretation. Reliability was enhanced by using consistent interview guides across all sessions, ensuring that each participant responded to similar core questions, thereby facilitating comparability of responses.

Rationale for Eight Interviews

The decision to conduct eight interviews was grounded in the concept of data saturation, which occurs when no new information or themes emerge from additional data collection. This principle is supported by qualitative research literature (Guest et al., 2006), indicating that six to twelve interviews are often sufficient to achieve saturation in exploratory studies. By the eighth interview, recurring patterns and themes regarding employee perceptions of CSR initiatives were observed, confirming that the sample size was adequate to address the research objectives.

Participant and Company Selection

Participants were purposively selected from companies known for their active CSR engagement. The employees chosen were those directly involved in CSR projects or had significant knowledge of their organisation's CSR activities. This selection ensured that the participants could provide informed insights, maximising the relevance of the data collected. Selecting employees from multiple companies added diversity to perspectives and enhanced the generalizability of the findings, allowing the study to capture a broader understanding of CSR perceptions across various organisational contexts.

Research Approach

This study's research style, which takes a qualitative approach, enables a thorough examination of how employees see the effectiveness and sincerity of CSR. This method is appropriate for comprehending the nuanced and context-specific aspects that affect how employees perceive their work and interact with it.

Data Gathering

To gather data for this study, eight semi-structured interviews with employees from various organisations of information technology-enabled service sectors were conducted. The purpose of the interviews was to collect specific information about the employees' opinions and experiences with the CSR programmes implemented by their companies.

Unlike quantitative research, which focuses on the large sample size and data, the quality of the data is an aspect that is emphasised in qualitative research. In this study, the sample was drawn through purposive sampling, where only participants with firsthand interaction with their respective organisations' CSR programmes were chosen. This sampling technique guarantees that the collected data is concise, meaningful, and aligned with the core research themes.

The interviewees were selected from different sectors encompassed within the CSR working environment to have a rich population of respondents. This increases the generalisability of the work; the findings can apply across many organisations, instead of being bound by industry alone. Actually, the process of generalisation is not the aim of the qualitative research, but the samples from different sectors were involved in the study to make the results more credible and suitable for a wider context.

The study's results should be especially relevant to companies that heavily incorporate CSR into their operations, including manufacturing, retailing, and service industries. Due to such a conscious recruitment of participants only from organisations with CSR activities, the information gathered is useful and based on best practices in CSR. Further, the geographic context was restricted to only the regions/provinces where CSR regulation and consciousness were very significant, thus enhancing the material applicability of the study to the societal organisations' environments that place a high priority on CSR.

To this end, this study aims to offer contextual insight into practical CSR best practices and measure CSR's effectiveness based on genuine experience, from participants actually involved with CSR-related tasks, in tandem with useful suggestions for academic research and practical application.

The selection of themes for the data collection process is guided by the objectives of the study in relation to the main dimensions, which attempt to measure the extent of CSR perception by employees. The guidelines selected include awareness, success, commitment, and engagement; these themes have been obtained based on the preliminary analysis of the relevant CSR frameworks using the existing literature (Carroll & Shabana, 2010; Gond et al., 2017).

The following themes were the focus of the interview questions:

- Employee awareness of CSR
- Employees' perceptions of the success of CSR activities within their organisations
- Employees' perceptions of their organisation's commitment to CSR efforts
- The contribution of CSR to employee commitment and engagement

To ensure accuracy in the data analysis, the interviews were audio-recorded and verbatim transcribed.

Analysis of Data

The content of the semi-structured interviews was analysed using thematic analysis, which is a well-recognised qualitative method that helps one to discover, describe and classify patterns (themes) within the data as depicted by Braun and Clarke (2006). This method was chosen since it accommodates flexibility in a number of qualitative research methods and can be useful in measuring the perception that employees have of CSR initiatives. Thematic analysis provides a comprehensive understanding of data findings through the incorporation of comprehensive coding frames and hierarchical classes of categories that give profound information concerning the participation of the participants (Nowell et al., 2017).

For coding and categorising the data, this research relied on the software known as NVivo 14 as the major data analysis software. Based on Woolf and Silver (2018), NVivo shines for qualitative research as it allows managing extensive databases, simplifying the coding, and presenting the relations between topics. The coding framework organisation of this software helps in keeping a systematic plan of codes and sub-themes well planned, and hence making the analysis more rigorous and reliable. In order to maintain rigour, objectivity, and replicability of the qualitative data analysis, the decision was made to use NVivo computer software according to the findings of Edhlund and McDougall (2019).

Thematic Analysis Process

Thematic analysis was done, and it followed the approach described by Braun and Clarke (2006), which has been among the commonly cited approaches to thematic analysis in qualitative research. The analysis was conducted in the following phases to ensure rigour and transparency:

1. Familiarisation with the data: To tune into and develop an understanding of the data, the researchers read and reread the interview transcripts, where initial ideas and patterns could be easily identified. This approach helped

in coming up with some sort of a feel for the attitudes that employees held towards CSR activities.

2. Generating initial codes: In the first coding phase, codes were developed from patterns recognised before, during the familiarisation of data. The participants' transcription was made with the help of NVivo 14 software, according to which each piece of text was effectively coded and associated with several aspects that refer to the ineffectiveness or mere organisational façade of CSR. This stage was important to guarantee that the whole coding process had been detailed and, therefore, can be replicated.
3. Searching for themes: After coding, the data were sorted in NVivo 14 so that similar codes were grouped into potential themes. It made it possible to spot broader trends that captured significant facets of what it looked like to be an employee. Min themes arose, therefore, as they gave finer details to accommodate the data.
4. Reviewing and defining themes: A measure of convergence between the emerging themes and sub-themes and the raw data was also assessed. These included activities such as condensation to ensure that there was coherence with the general themes that had to be removed. Hence, each of the themes was identifiable and described in simple terms, which captured the participants' responses appropriately.
5. Interpretation and analysis: The last process was analysing the themes with regard to stakeholder theory and CSR perceptions by the previous researchers, including Aguilera and Van den Berghe (2012) and Aguinis and Glavas (2012). By using a comparative structure, the study enabled the contextualisation of the work and illustrated the organisational consequences of employees' perceptions of CSR effectiveness and sincerity.

Other available qualitative data analysis tools were not selected because NVivo 14 offers the rich functionality needed in the management and analysis of large quantities of such data. Cut and paste coding or ATLAS.ti has limited visualisation features and can only manage three codes at a time, compared to NVivo, which intertwines hierarchical codes and assists in making structured analysis, thereby enhancing reliability (Woolf & Silver, 2018). This is especially beneficial in studies where the researcher conducts multiple interviews, and managing the data can be challenging, making NVivo 14 especially beneficial for such a study, as it saves a lot of time and makes it easier to have very tight control over multiple interviews, while at the same time outlining the different ways that the data has been analysed.

Citations and Methodological Alignment

Thematic analysis was conducted according to the guidelines suggested by Braun and Clarke (2006) with additional assistance from the recent qualitative research frameworks developed by Nowell et al. (2017). Such methodological integration helps the study meet the guidelines set by qualitative research to increase the credibility and reproducibility of the findings. Through the inclusion of NVivo as the main tool of analysis, the study complies with best practices when analysis is done on qualitative data, as indicated by Woolf and Silver (2018).

The steps for data analysis were as follows:

1. To become comfortable with the data and spot the first patterns and themes, the researchers read and reread the interview transcripts.
2. Developing first codes: Based on the themes discovered during the familiarisation phase, the researchers used NVivo 14 to develop a coding framework. Using this framework, the interview transcripts were then coded, with each code designating a distinct component of the employees' perceptions of the effectiveness and authenticity of CSR.
3. Finding themes: The researchers utilised NVivo 14 to find overarching themes and sub-themes that emerged from the coded data. To provide a thorough and cohesive picture of employee perceptions of CSR effectiveness and authenticity, these themes were then further developed and organised.
4. Examining and defining themes: The researchers checked that the themes and sub-themes they had identified accurately reflected the data by carefully reviewing them. The themes were subsequently identified and given names, along with a succinct and unambiguous description of each topic.
5. Interpretation: The discovered themes and sub-themes were compared to the body of knowledge on stakeholder theory and employee views of CSR in order to interpret the findings. Through this procedure, it was possible to gain a greater understanding of both the organisational effects of employee perceptions of the effectiveness and authenticity of CSR.

Validity and Reliability

Triangulation and reflexivity are effective processes to increase the credibility, dependability and reliability of the qualitative study (Berger, 2015; Carter et al., 2014). These methods enable the data interpretation to be not restricted by the researchers' biases, but by validating it from multiple sources and different perspectives, thus giving a more typical portrayal of participants' experiences.

Triangulation is a process of checking the consistency or otherwise of data gathered from different sources or research methods (Denzin, 1978). Sharing the results of eight interviews shows similar conclusions, contribute to validity of results. It helps in improving the overall reliability of the conclusions drawn from qualitative research as they are supported by various other findings.

Reflexivity is the result of understanding that the researchers themselves and their contexts, values, and biases are part of the research process (Berger, 2015). It also requires ongoing critical examination of how these factors influence the accrual, analysis and interpretation of data. By using reflexivity, the researchers were also able to recognise existing preconceptions and thus, control them during interviews, coding and analysis processes to prevent bias.

Member checking, in turn, increases the credibility of the research by entrusting participants with validation and elaboration of the study's conclusions (Birt et al., 2016). By doing this, biased data from participants is minimised, and this aids in the dependability and confirmability of the data retrieved.

Explaining the use of triangulation, reflexivity, and member checking, the current study adheres to the best practices in qualitative research in the ways described below: These methods have been confirmed in other qualitative research and support the reliability of the methods used in this study.

As presented in the above Tables 1–3, key working employees' sentiment data related to CSR has been summed up based on subheadings derived from the

Table 1. Data Analysis with Code and Theme.

Sr No.	Quote	Code	Theme
1	'I can share that the objective of conducting CSR activities is to create a positive impact on society and the environment'	Positive impact on society and the environment	Evaluation and measurement of CSR effectiveness
2	'So in community development we aim to contribute towards the development of communities in which we operate by providing access to education'	Access to education	Alignment of CSR initiative with company values and mission
3	'we strive to minimise our impact on environment and promote sustainable through various initiatives like waste reduction'	waste reduction	Evaluation and measurement of CSR effectiveness
4	'We aim to promote inclusive growth as we claim to promote individual growth by creating opportunities for under the underprivileged sections of the society. Through skill development, livelihood and enhancement programmes'	Inclusive growth	Impact and outcome of CSR initiatives
5	'And also we do employee engagement quite a bit. So employee engagement is a must because through employee engagement'	Employee Engagement	Stakeholder involvement and engagement in CSR initiatives
6	'We also provide assistance in the disaster relief efforts and time in need'	Disaster relief	Evaluation and measurement of CSR effectiveness

analysis. These themes can be identified as the first two major ways in which employees can address CSR initiatives within their workplaces. To expand from these findings, the subsequent section presents a deeper grounding in the overall trends that emerged from the data. More precisely, it is concerned with the assessment and evaluation of CSR performance as well as the measurement of key characteristics of that performance, such as leadership commitment and the effects of CSR on overall staff retention and organisational commitment. One reason for moving from literal quotes and reference codes to centrally, thematically defined interpretation concepts is to link case-specific experience to the contextual analysis, for a global impression of the results.

Because the ensuing analysis is based on participant feedback, the discussion not only elucidates the current best practices in CSR initiatives but also notes the perceived spaces by the employees. Such an approach helps to prevent the deviation of the story from the real data and increases the credibility of the study's conclusions.

Table 2. Data Analysis with Code and Theme.

Sr No.	Quote	Code	Theme
1	'Some of the ways through which communication strategy can impact stakeholders is building trust'	Building trust	Stakeholder trust and credibility
2	'So we follow initiatives to ensure ethical business practices such as its code of Conduct, anti corruption policy and human rights policy'	Code of conduct	Stakeholder awareness and understanding of CSR initiatives
3	'So the company uses social media platform to communicate CSR initiatives with the audience and company'	Social media platforms to communicate CSR initiatives	CSR communication and story telling
4	'So it demonstrates companies commitment towards the sustainability and transparency of the working of the company'	Sustainability and transparency	Impact and outcome of CSR initiatives
5	'Yes, and employee well-being is a must in company. Company has implemented various initiatives to promote employee well-being, such as its Wellness programme, diversity and inclusion in children and employee engagement programmes'	Wellness programme	Impact and outcome of CSR initiatives
6	'Give open innovation and collaborate with startups, social entrepreneurs, and community-based organisations'	Collaborations	Stakeholder involvement and engagement in CSR initiatives

Table 3. Data Analysis with Code and Theme.

Sr No	Quote	Code	Theme
1	'the objective of our organisation behind conducting CSR to give back to the society in all so like to fulfil our old social responsibilities towards the different communities in which we operate'	Giving back to society	Stakeholder awareness and understanding of CSR initiatives
2	'So we have tie up with the local pub clubs and NGOs over there. So they helped a lot in like setup in our own camps on weekends. So what we do, we set up a weekend camps for the literacy programme of the underprivileged students or of like you can talk about a chawls or slum areas basically we look forward to'	Measure and monitor	Evaluation and measurement of CSR effectiveness
3	'So like to ensure that CSR initiative was sustainable and have a lasting impact as you said like on the communities that we serve and companies can take several measures like what we have taken kind of measures are like I can talk about like first is a lying our own CSR initiative with the company serve business like when CSR initiative were aligned with the poor business'	Align the CSR initiative with the company's core business	Alignment of CSR initiative with company values and mission
4	'So company approach approaches towards collaboration in partnership with other businesses or as you talk about non profit or community organisation like it has a key strategy is to maximise the impact of CSR effort'	Maximise CSR effort	Impact and outcome of CSR initiatives
5	'And if I talk about like challenges which company tries to face is resource constraint to CSR initiative quite often significant financial, human as well as technological resources it requires right. So which can be challenged for any company not just for a correct can be challenged for any company in operating in competitive market'	Use of technology in a competitive market	Evaluation and measurement of CSR effectiveness
6	'Energy consumption and promote the use of renewable energy sources such as like solar panels and wind turbines and all'	Energy consumption	Evaluation and measurement of CSR effectiveness

Evaluation and Measurement of CSR Effectiveness

Evaluation and measurement of CSR programmes within organisations can have an impact on employees' perceptions of CSR efficacy. This theme investigates how employees see the techniques used to judge the success of CSR programmes and how well these assessments match their own assessments of efficiency. In order for organisations to properly evaluate their CSR initiatives, research by Epstein and Buhovac (2014) emphasises the significance of generating thorough and trustworthy indicators of CSR performance (Tables 1 and 3).

Alignment of CSR Initiative with Company Values and Mission

Employee opinions of the sincerity of CSR are significantly influenced by how well CSR programmes match the mission and values of the firm. When CSR activities align with the organisation's basic values and mission, employees are more likely to view them as sincere and successful. According to a study by Kim and Park (2011), employees' opinions of CSR's dedication and authenticity are favourably impacted by the alignment of CSR programmes with organisational principles (Tables 1 and 3).

Impact and Outcome of CSR Initiatives

The real-world effects and results of CSR programmes might affect employees' opinions of its efficacy and sincerity. This theme investigates how much employees believe CSR programmes are improving social and environmental conditions (Rangan et al., 2012). According to Aguinis and Glava's (2012) research, staff members are more willing to participate in CSR programmes when they believe those programmes have a positive impact on society and the environment (Tables 1–3).

Stakeholder Involvement and Engagement in CSR Initiatives

Employee perceptions of the efficacy and authenticity of CSR programmes can be influenced by stakeholder participation and involvement in CSR initiatives. This theme investigates the level of employee engagement in the creation and execution of CSR activities inside their respective organisations. Morsing and Schultz's (2006) study emphasises the significance of involving employees in CSR activities to raise their perceptions of CSR commitment and authenticity (Tables 1 and 2).

Stakeholder Trust and Credibility

Employee perceptions of CSR effectiveness and authenticity are greatly influenced by elements like trust and credibility. This theme investigates how much employees believe in and trust the CSR programmes of their employers. According to a study by Du et al. (2010), employee engagement and commitment are positively impacted by trust in a company's CSR operations (Table 2).

Stakeholder Awareness and Understanding of CSR Initiatives

Employee opinions of CSR's efficacy and authenticity may be influenced by their knowledge of and understanding of CSR efforts. This theme investigates the degree to which staff members are informed of and comprehend CSR initiatives within their organisations. According to Collier and Esteban's (2007) research, raising employee awareness and comprehension of CSR activities can improve their judgements of the sincerity and dedication of CSR (Tables 2 and 3).

CSR Communication and Storytelling

Employee impressions of the effectiveness and authenticity of CSR can be shaped through good CSR communication and storytelling (Gill, 2014). This theme examines the importance of storytelling for including employees in the organisation's CSR objectives as well as the role that communication plays in doing so. According to a study by Gill (2015), good CSR storytelling and communication can raise employee perceptions of CSR commitment and authenticity (Table 2).

Framework

Mediating Variables (to IV and DV)

1. Employee engagement in CSR initiatives
2. Employee commitment to CSR initiatives

Moderating Variables: (to IV and DV)

1. Organisational culture
2. Organisational size
3. Industry sector

The moderating variables can affect the intensity and direction of the correlations between the independent, mediating, and dependent variables (DV).

The key structures under research are shown by the circles, and the potential linkages between them are illustrated by the connecting lines. This image depicts how independent factors (IV), DV, and mediating and moderating variables interact to determine how employees evaluate the efficacy and sincerity of CSR.

- Independent variable (IV): Indicates elements like leadership involvement, organisational CSR commitment, and employee awareness. It is hypothesised that these characteristics determine how successful and genuine CSR projects are judged to be.

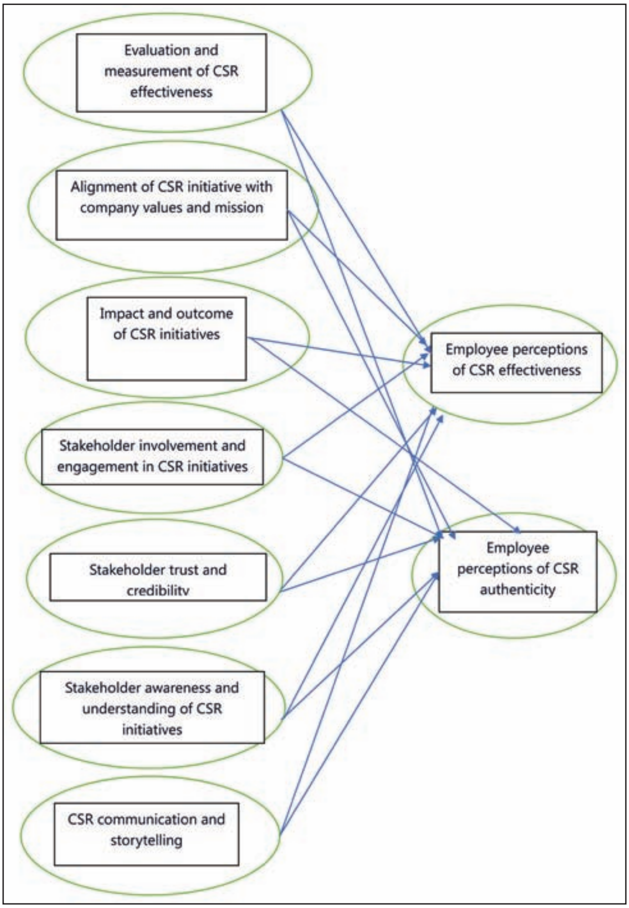

Figure 1. Model for the Effectiveness and Authenticity of a Company's CSR Initiatives.

- Dependent variable: Indicates the desired result, particularly commitment, business loyalty, or staff involvement as impacted by CSR programmes.
- Mediating variables: Show the techniques or mechanisms by which the independent variables influence the dependent variable. The relationship between CSR commitment and employee engagement, for instance, may be mediated by employee trust or work pleasure.
- Moderating variables: List the elements that alter the direction or strength of the IV-DV relationship. Leadership transparency, communication channels, and organisational culture are a few examples.

As depicted in Figure 1: The conceptual framework illustrated in Figure 1 was constructed by combining the results of prior CSR studies with the corpus of current literature (Aguinis & Glavas, 2012; Gond et al., 2017). Recurring themes observed during the data collection and thematic analysis stages are mirrored in the choice of independent, dependent, mediating, and moderating variables.

According to this paradigm, employees' views of CSR's efficacy and authenticity are influenced by the independent variables, which in turn are moderated by employees' commitment to and involvement in CSR programmes (Figure 1). Organisational culture, size, and industrial sector are a few examples of the moderating factors that might affect how these variables relate to one another (Figure 1). Researchers can better understand the elements that affect employees' opinions of the effectiveness and authenticity of CSR by researching the interactions between these variables, and they can create plans to improve these perceptions (Figure 1).

On the basis of past CSR research and prior literature regarding the field, Figure 1 outlines the conceptual framework proposed for this study. The decision made over independent, dependent, mediating, and moderating variables entails certain trends that emerged during the data collection and thematic analysis process. Most importantly, although engagement and commitment interacted as the key mediating variable, employee awareness of CSR appeared as the major independent variable. On the other hand, organisational culture and leadership accountability emerged as the mediating factors that could strengthen or draw out the above unidirectional relationships. The trust and satisfaction constructs emerged most often as moderators, suggesting that compliance with CSR activities should adhere to expectations. It is from this framework that the analysis and subsequent discussion of the relationship between CSR activities and the employee-related outcomes is performed.

Discussion

According to this study, CSR programmes are considered more successful by the employees if there are marked communication plans in the CSR frame and if efficiency indicators are linked to these ventures. Some of the participants pointed out that those CSR operations, which were consistent with organisational values that are inherent to the organisation's mission statements, were appreciated as being more authentic and truthful. Some of the respondents explained that organisational authentic commitment to CSR improves the organisational fabricated commitment to the initiatives.

However, the fact that there was enhanced reporting and disclosure of the progress of CSR programmes enhanced the confidence of employees in such practices. It emerged from the study that employees valued involvement in CSR project formulation and execution, indicating higher perceived organisational CSR effectiveness where employees were involved. Some of the key topics that were identified during the interviews included ethical leadership, dialogue, and co-creation with stakeholders (Freeman, 2022).

These insights are in line with prior research noting communication clarity (Lozano, 2015) as well as engaging stakeholders in CSR activities to influence the perceptions of CSR. However, the findings contradict the conventional belief that employer-led, umbrella CSR programmes are enough to enhance employee trust (Porter & Kramer, 2019). However, the study shows that there is a great need to take an employee engagement approach to CSR, as more focus is shifted to the engagement models (Ghosh, 2019).

The study also established that perceived CSR programmes are more genuine when they are seen to have concrete social and environmental effects within their organisations. It is consistent with the previous literature (Chaudhri, 2015; Lyon & Montgomery, 2013) but adds to it by revealing that even minor and locally performed CSR initiatives may indeed affect employee perceptions. In addition, participants suggested that the lack of correspondence between the principles declared by a company and the actual CSR initiatives depicting corporate legitimacy might have negative implications for image authenticity. Though not using the word authenticity, the participants' ideas echo what Bhattacharya et al. (2009) proposed.

Conclusions

All the objectives of this study were achieved through the use of qualitative semi-structured interviews to understand the employees' perception of CSR effectiveness and authenticity. The primary research aim of this study, which sought to identify the factors that affected employee perception of CSR programmes, was realised, and the results reveal that communication, leadership involvement and participatory programmes played a crucial role in the success of CSR (Boutilier & Thomson, 2011).

The second research question, which sought to find out the extent to which awareness plays a central role in CSR perception among employees, was achieved. The findings confirmed that there is a positive and significant relationship between employees' awareness and understanding of CSR and engagement and trust in their organisations' CSR exertions.

In summary, the article raises awareness of the need to integrate CSR commitments with organisational culture and include employees in multiple phases of company CSR processes. Thus, these research findings complement the knowledgebase by providing actionable recommendations to improve employee engagement and genuine, destined CSR initiatives for organisations.

Limitations

However, it is pertinent to acknowledge specific limitations in this present study. First, the number of participants was small, which was enough to obtain data saturation, but it may not allow for understanding what representatives of all industries or regions have about employee value. This reduces the generalizability of the findings to a larger population; hence, the findings may not be used to generalise in the future.

Second, data was obtained primarily via semi-structured interviews, hence involved the collection of qualitative data that tends to contain deep and detailed information but could be influenced by factors such as the interviewer's bias and participants' self-reported bias. Another disadvantage of qualitative analysis is that the fact that it is subjective allows for the results of coding and further theme development to be distorted.

Further, the study targeted employees from organisations that are involved in CSR activities, and this kept out the perception from organisations that had no or little engagement in CSR activities. This could prove to reduce the likelihood of extending the results obtained to organisations that are yet to embrace CSR programmes.

Future research could overcome these limitations through a larger population of participants, increased variability of participants, the use of both qualitative and quantitative data, and, in addition, extending the research to organisations of different levels of CSR development.

Future Research and Implications

The results of this study can be used as a starting point for continuing the discussion about the possibilities of CSR for increasing the employees' interest and defining the organisational culture. Future research could also involve a longitudinal survey of these studies to establish how employee perception of CSR changes with time and how companies' long-term CSR efforts affect organisational performance and retention of employees. Research in the hospitality industry further emphasises how important it is to align CSR initiatives with stakeholder expectations and business identity (Sharma & Mishra, 2018).

Besides, cross-sectional research in different sectors and countries might provide a list of cultural and industry-specific factors affecting CSR opinions. This would improve the generalisation of the findings that are made, and global organisations would benefit from better recommendations.

From a managerial perspective, the findings of this research can be used to design specific CSR campaigns which consider employees' engagement, clear communication, and shared values with the company. Regarding the trustworthiness of CSR activities, it is critical to discuss the importance of employee engagement in the realisation of CSR initiatives, since the genuine and purposeful involvement of the workforce in change acts as an effective mechanism to strengthen employees' loyalty to the organisation.

In addition, these results can be helpful for policymakers and heads of business companies to start pressing for less ambiguous rules for Companies' CSR activities that should include specific involvement of the employees in the process. Therefore, this research calls for CSR to be not only adopted as a marketing strategy (Maignan & Ferrell, 2004), but as a framework that can be employed in boards of directors, corporate management and ethical leadership (Kotler et al., 2002).

Some of the limitations of the present study that should be considered include the following Despite the contribution to knowledge that this study has offered, the following limitations are noteworthy: However, there are few limitations which could have influenced the results: first, due to the limitation of generalising, the selecting participants were only eight in number although, the data collected was sufficient to reach the saturation point. This is because they do not allow for generalising to other people in the population under study.

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Perspective Article

What Instigates a Consumer to Complain? A Study of Consumer Complaint Behaviour

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Abstract

Most of the companies do not encourage complaints or grievances; therefore, customers are hesitant to address their concerns directly to the company. This research article is an attempt to investigate and understand the various factors affecting consumer complaint behaviour. After thorough literature review, the eight factors (consumer dissatisfaction, cognitive dissonance, psychological factors, sociocultural factors, consumer's personality and consumer's Trust over a company, complaint intention and complaint behaviour) were incorporated in the formation of a research model. Data was collected from consumers of household electronics (like washing machines, microwaves, televisions and refrigerators) through a structured questionnaire. All the tested relationships were found to be significant and research model passed the predictive relevance test. The findings show that cognitive dissonance, customer dissatisfaction, attitude towards complaining and socioculture factors have greater impact over intention to complaint as compared to other independent factors.

Keywords

Consumer complaint behaviour (CCB), customer dissatisfaction, cognitive dissonance, customer relationship, consumer psychology

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Introduction

The electronic industry is one of the sectors that contributes towards growth of the Indian economy. Economic policy reforms in India have expanded opportunities for both domestic and foreign manufacturers. The study of customer expectations and perceptions has become necessary due to the ongoing changes in people's lifestyle and the increasing level of consumer awareness (Ahamed, 2022). The aggressive competition in market has flourished the electronic industry with many undesirable products (Kim et al., 2007). To penetrate into the market, these companies hold the path of false promises, which later disappoints the consumers. There have been many cases where consumers approached court for their grievances instead of settling issues directly with the company (Singhal, 2018). When a court finds a firm guilty of false claims or fraud, the company not only pays compensation but also incurs the expense of a ruined image.

In India, most of the decisions are made jointly by families, due to which a single product is never able to meet expectations of every family member. Consumer electronics may have multiple users; thus, the buyer and user may be two distinct people (Mowen, 1993). This urges the need for the study of different consumers' satisfaction levels and complaint behaviour. It is challenging to determine whether a customer's intention to complain is related in any way to his or her career, age, gender and educational background or not. Because each consumer has a unique personality and set of interests, it is critical to understand consumer psychology. An introvert customer may not explicitly complain to the company, instead may prefer to spread negative word of mouth. Instead of choosing for an 'out of court settlement', a highly aggressive consumer may choose to pursue a legal case against the corporation. Also, there is insufficient literature to support any claim concerning differences in communication channels followed for expressing dissatisfaction across different educational levels. There is difference between consumer behaviour and complaint behaviour which makes consumer behaviour models irrelevant in the study of complaint behaviour.

Research Objectives

1. To understand the concept of CCB.
2. To identify the various factors influencing CCB.
3. To investigate the relationship of psychological factors, consumer dissatisfaction, cognitive dissonance, consumer's trust, intention to complain with CCB.

Review of Literature

Consumer Behaviour

Solomon (2008) has defined consumer behaviour as a study of individuals or groups with respect to purchase, sale behaviour, need, desires and expectations.

Consumer behaviour is related to psychology, sociology, socio-psychology, anthropology and economics etc. (Schiffman et al., 2010). Consumer behaviour is a broader concept which encompasses CCB. The root factors emerge from the various discipline of consumer behaviour.

Consumer Complaint Behaviour

Jacoby and Jaccard (1981) have defined CCB as an action taken by any individual to express his/her negative experience directly or indirectly to the company. Complaints that are made directly to the company are known as direct complaints and all those complaints that do not reach the company first may be classified as indirect complaints. Broadbridge and Marshall (1995) categorised consumer dissatisfaction into public action and private action. The private action where dissatisfaction is conveyed to family and friends is more harmful for the company. The public action is a direct action against the seller which may include legal proceedings.

Chaudhari (2006) listed various reasons responsible for complaint action, that is, past experience, personality, degree of urgency and product importance.

After in-depth study of previous research, the following factors have been incorporated to form a contemporary research model.

Intention to Complain

A complaint action is dependent on the consumer's intent to make a complaint. An intention plays a crucial role in determining human behaviour (Kim et al., 2020). However, whether higher intention increases the likelihood of filing a complaint remains to be determined. Consumers who are less committed to a brand will have weaker intentions to complain if the hurdles are more in the complaining process (Cheng & Lam, 2008). Zhao and Othman (2010) studied relationship of consumer learning and product experience with intention to complaint. They found that intention plays a role of mediator between consumer learning and CCB. Thus, following alternate hypothesis may be tested:

H_1**:** Consumer's intention impacts CCB (action).

Customer Satisfaction and Dissatisfaction

Howard and Sheth (1969, p. 145) stated that a consumer may be dissatisfied with the product but may be satisfied with the company overall. Such a complicated situation may resist a consumer to make a complaint. Dissatisfaction is one of the factor/variable responsible for complaint action (Tronvoll, 2007). Greater the dissatisfaction, greater would be the chances of consumer complaints.

H_{2a}**:** Consumer's dissatisfaction affects consumer's intention to complain.
H_{2b}**:** Consumer's dissatisfaction impacts CCB (action).

Cognitive Dissonance

Festinger (1957) defined it as a difference in perception and attitude of human behaviour. While evaluating a purchase decision, a consumer compares his/her expectations with actual performance. If the expectations are not met, the consumer faces dissonance or disturbance in his mind. To reduce this dissonance, consumer might complaint directly to company or to his family and friends. A model of complaint behaviour is incomplete without the mental, calculative and critical part, that is, cognitive memory processes.

H_{3a}: Consumer's cognitive dissonance affects consumer's intention to complain
H_{3b}: Consumer's cognitive dissonance impacts CCB (action)

Consumer Trust

Garbarino and Johnson (1999) defined trust as a relationship where buyer and seller feel secure while transacting. When customers have low faith in a company's support system, the likelihood of negative 'word of mouth' increases (Kim et al., 2020). In this competitive scenario, one cannot take a risk to lose a profitable customer due to mishandling of complaints (Sheth & Parvatiyar, 1995). More the consumer trusts the company, greater would be the expectations of consumer regarding result or an outcome (Doney & Cannon, 1997; Gummesson, 1995). Thus, trust plays a crucial role in the final decision to file a complaint with the company.

H_{4a}: Consumer's trust over company affects consumer's intention to complain.
H_{4b}: Consumer's trust impacts CCB (action).

Psychological Factors

Psychological factors are those factors that are internal to a human mind, where cognitive thinking takes place. Maxham and Netemeyer (2002) studied relationship between consumer perceptions and satisfaction. Based on studies following psychological factors were considered to study CCB, that is, attitude, perception, learning and motivation.

Attitude

It can be displayed through an object or action that reflects the beliefs and opinions about a person possessing that object (Ajzen, 1985). The attitude of a consumer towards complaining might influence his/her intention to complaint directly to the company.

H_{5a}: Consumer's attitude towards complaining affects consumer's intention to complain.
H_{5b}: Consumer's attitude towards complaining impacts CCB (action).

Perception

It is the way of interpreting various stimuli present in the environment (Schiffman et al., 2010). Since perceptions are built over a period of time, it may take years to transform negative image into positive image. How a perception leads to an action of complaining should be studied from a consumer's perspective.

H_{6a}: Consumer's perception towards complaining affects consumer's intention to complain.
H_{6b}: Consumer's perception towards complaining impacts CCB (action).

Learning

It implies a relative permanent change in the behaviour of a consumer. The marketers can include positive and negative reinforcement to increase the purchase behaviour of consumers and direct complaining behaviour of consumers. The past experiences or learning about consumer's right and duties also influences the decision of consumer to complain (Jain & Goel, 2012). The awareness regarding complaint mechanism also triggers complaint behaviour.

H_{7a}: Consumer's learning towards complaining affects consumer's intention to complain.
H_{7b}: Consumer's learning towards complaining impacts CCB (action).

Motivation

It is an internal force or drive that encourages a person to do something or restrain from doing something (Maslow, 1943). Motivation behind non-complaining nature includes the negative perception towards the company, company's poor complaint management system, negative attitude towards complaining, lower trust over legal system of country and high loyalty status (Heung & Lam, 2003).

H_{8a}: Consumer's motivation affects consumer's intention to complain.
H_{8b}: Consumer's motivation impacts CCB (action).

Personality

Personality of an individual has primary effect on CCB which changes with the variations in environment and other situational conditions from time to time. The personality theories like big five personality, type A and type B personality and Sigmund Freud theory are fully applicable in predicting complaint behaviour of consumers. A highly open-minded person will not hesitate in trying new things; highly extrovert individual will like to be more socially active; highly agreeable individual will try to adjust with the situation and other people; highly neurotic individual gets easily troubled and worried (Goldberg, 1990). Prasetyo et al. (2016) found a positive relationship between courageous, risk taker consumer and his complaint behaviour.

***H*$_{9a}$:** Consumer's personality affects consumer's intention to complain.
***H*$_{9b}$:** Consumer's personality impacts CCB (action)

Social Factors

These include influence of reference groups, family, role and social status. If a consumer belongs to a group that discourages complaints, he or she may be discouraged from filing complaints (Sama & Trivedi, 2019). Ursic (1985) studied relationship between social class and consumer's probability to look for legal action. He concluded that consumers belonging to upper social class perceive themselves as more competent and qualified for winning court cases.

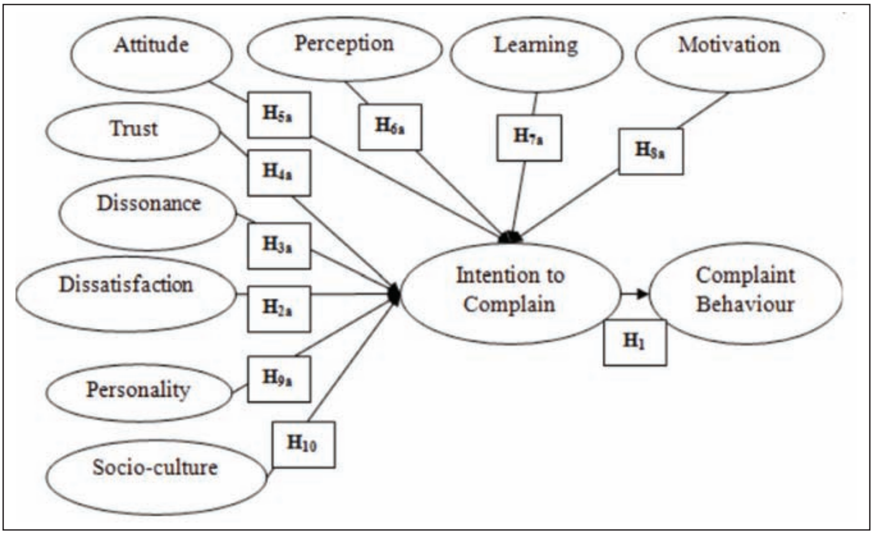
***H*$_{10a}$:** The sociocultural factors affect consumer's intention to complain.
***H*$_{10b}$:** The sociocultural factors impact CCB (action).
***H*$_{11}$:** Intention to complain mediates the relationship between independent variables (customer dissatisfaction, cognitive dissonance, consumer Trust, psychological factors, personality, social factors) and dependent variable (CCB)

Demographics

Demographics play an important role in consumer preferences and decision-making process which includes age, gender, income, education, occupation and marital status of an individual**.** Younger people have different needs as compared to older ones and hence they have different product demand (Hoyer & Maclnnis, 2008). Elder ones do not respond to product failures because they feel helpless, weaker in health and less motivated, whereas young consumers are more rebelling, aggressive (Donoghue & Klerk, 2009). Kim et al. (2007) and Chan et al. (2016) studied the role of demographics in consumer complaints and found significant relationships in different situations. Thus, it is crucial to understand the role of demographics in study of complaint behaviour.

***H*$_{12}$:** There is significant difference across different age groups of consumers.
***H*$_{13}$:** There is significant difference in male and female consumers.
***H*$_{14}$:** There is significant difference in consumers having different marital status.
***H*$_{15}$:** There is significant difference with different educational backgrounds.
***H*$_{16}$:** There is significant difference in across different occupation categories of consumers.
***H*$_{17}$:** There is significant difference in across different income levels of consumers.

Thus, following model should be tested that would provide a base for many marketing and managerial decisions of a company.



Source: Developed from literature review.

Research Methodology

Information was gathered through secondary sources (research articles and books) and structured questionnaire (close ended). The details are as follows:

Questionnaire

The questionnaire two sections where first part was related to respondents' demographics and second part related to complaint behaviour. The statements related to each construct were formed and measured through Likert scale, that is, '7—Strongly disagree, 6—Disagree, 5—Somewhat disagree, 4—Neither agree nor disagree, 3—Somewhat agree, 2—Agree, 1—Strongly agree'. The respondents were asked about their recent purchases of household electronics like televisions, air conditioners, water coolers, washing machines, microwaves, to understand the complaint behaviour of consumers when they faced any issue with the product.

Sample Size

Convenience sampling (non-probability) method was followed to collect data. The information was gathered from buyers of household electronic items (past 5 years) such as televisions, air conditioners, water coolers, washing machines, microwaves (items not intended for personal use but for joint use by all household members). Around 1500 consumers were approached, out of which 1102 responses were received from Delhi-NCR(India) region. The response rate was 73.4%. The responses were collected via online google form. KMO and bartlett's test (also meant for 'significance of all correlations') was also done for sample adequacy.

Table 1. Scale Items for Questionnaire.

Construct	Statements	Source
Consumer dissatisfaction	Advertisements about product matches with the actual performance of product*	(Lee & Ferrer, 1999)
	I am dissatisfied with the services of company	
	I am dissatisfied with the product	(Oliver, 1993)
	I am completely dissatisfied with the offerings of company.	(Heller et al., 2003)
Cognitive dissonance	I should have searched for more alternatives before purchase	(Lee & Ferrer, 1999)
	It is doubtful that I am happy with My purchase	(Richins, 1997); (Reynolds & Harris, 2006)
	I regret being associated with the company	
Consumer trust	I trust the brand and its product	(Simon, 2013)
	'Company is honest and truthful'	(Simon, 2013); (Gregoire et al., 2009)
Learning (about complaints)	I know that we should complain to company in case of any problem	(Richins, 1980)
	The expression of dissatisfaction compel firm to take an action	
	It is important to give feedback to the company	
Attitude towards Complaining	I am not interested in making complaints*	(Voorhees et al., 2006); (Voorhees & Brady, 2005)
	I cannot resist without complaining	
	'I avoid the hassle of complaining for changing or returning the product'*	(Blodgett et al., 1993
Perception towards complaining	Companies have orientation towards profit making and may not give adequate compensation on complaining*	(Allison, 1978)
	After sales, firm becomes less interested in handling complaints*	
Consumer personality	I am always ready to take risk	(Bodey & Grace, 2007)
	I am not afraid of difficulties	
	I believe in work than luck	
	I do not leave things easily	
	I may prefer buying from unknown brands also	
	I am open to people for sharing knowledge	(Prasetyo et al., 2016)
Motivation	To seek replacement	(Nimako & Mensah, 2012)
	To seek free repair service	
	To seek compensation for damages	
	To seek some benefit for next purchase like discounts and freebies.	

(Table 1 continued)

(Table 1 continued)

Construct	Statements	Source
Socioculture	My family and friends support complaining It is common in our culture to complain against frauds I do follow the advices of my family and friends in case of any issue or problem	(Moschis & Churchill, 1978)
Intention to complain	When I faced the problem, I immediately decided to take some action	(Voorhees & Brady, 2005)
	I thought to ignore and didn't want to complain company* I intended to complain personally through store visit or via telephone/e-mail	(Singh J., 1990)
	I did not want to leave the matter without complaining I had high intention to seek solution I usually seek solution to problems by complaining	(Singh J., 1989)
	I wanted to 'cause inconvenience to firm as well' by complaining	(Gregoire et al., 2009)
Consumer complaint behaviour	I asked the company for some solution to my problem I complained to company via email/telephone/social media/visiting personally	(Bougie et al., 2003)
	I asked company to compensate for the damages	(Lee & Ferrer, 1999)
	I did not take any initiative to make complaint to company*	(Singh J., 1989)

Source: Derived from literature review (The items with * mark have been reverse coded for analysis).

Statistical Tools

Smart PLS-2 (Ringle et al., 2005) software was used to construct the model and analyse the results. The IBM SPSS.20. version (IBM, 2011) was also used to run a few tests that were not possible to run in the Smart PLS.2 software.

Results and Analysis

Demographics (Respondent's Profile)

Approximately 45% respondents were male and 55% were females (Table 2). The total responses were 1102. The number of respondents who were dissatisfied with their purchase and decided not to report directly to the company were 506.

Model Estimation

The PLS algorithm was conducted using smart PLS-2 Figure 1 depicts the software results, where customer dissatisfaction, cognitive dissonance, consumer

Table 2. Respondents Profile (Delhi-NCR).

	Frequency	Percentage
Age		
(18–28 years)	238	21.6
(29–39 years)	382	34.7
(40–50 years)	304	27.6
(Above 50 years)	178	16.2
Gender		
Male	494	44.8
Female	608	55.2
Education		
Postgraduation	395	35.8
Graduation	568	51.5
Higher secondary (12th pass)	74	6.7
Senior secondary (10th pass)	65	5.9
Occupation		
Service	533	48.4
Business	317	28.8
Student	83	7.5
Homemaker	92	8.3
Retired	43	3.9
Unemployed	34	3.1
Family monthly income		
Less than ₹10,000	153	13.9
(₹10,000–₹50,000)	231	21
(₹50,001–₹1,00,000)	241	21.9
(₹1,00,001& above)	477	43.3
Marital status		
Married	775	70.3
Unmarried	272	24.7
Separated	55	5

Source: Primary data.

trust, personality, sociocultural factors and psychological factors are independent variables, while intention to complain and complaint behaviour are dependent variables. The mediation effect of intention to complain over CCB was investigated.

Reflective Measurement Model

Figure 1 shows result of the PLS algorithm and it shows that 64.40% of variance in complaint behaviour is explained through customer. It was also tested whether 'intention to complain' mediates the relationship between other independent variables and complaint behaviour or not. The R^2 value is larger, that is, 64.40 and, therefore, it can be inferred that R^2 has high explanatory power.

Also, 63.40% of variance in intention to complain is explained through Table 3 indicating that composite reliability is met. Convergent validity is determined by comparing AVE readings to a threshold value, such as 0.50.

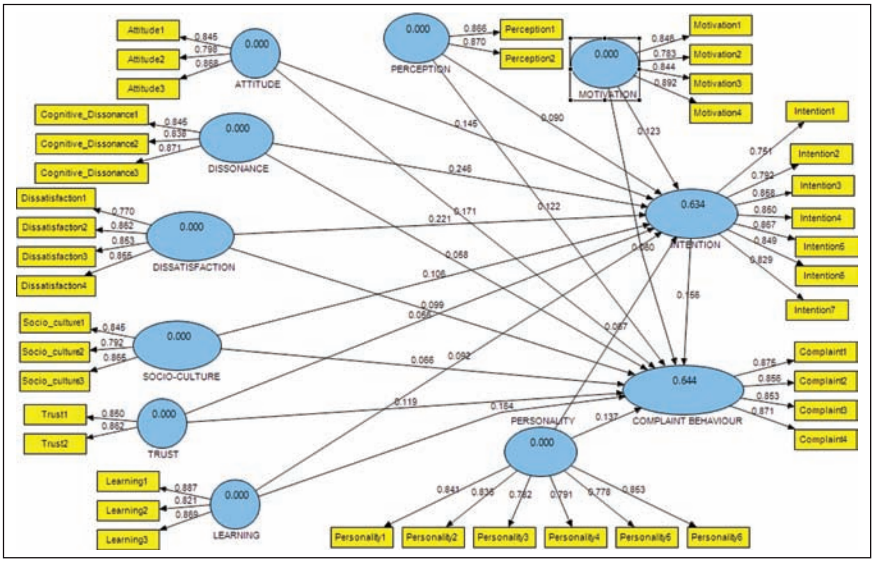


Figure 1. PLS Path Model.

Source: PLS path model (drawn in smart-PLS 2.0 version).

Table 3. Convergent Validity and Composite Reliability.

	AVE	Composite Reliability	R Square	Cronbach Alpha
Attitude	0.7017	0.88	0	0.79
CCB	0.7461	0.92	0.644	0.89
Dissonance	0.7252	0.89	0	0.81
Intention	0.6872	0.93	0.6336	0.92
Learning	0.7382	0.89	0	0.82
Motivation	0.7091	0.91	0	0.86
Perception	0.7538	0.86	0	0.67
Personality	0.6625	0.92	0	0.89
Dissatisfaction	0.6984	0.90	0	0.85
Socioculture	0.6961	0.87	0	0.78
Trust	0.7327	0.85	0	0.63

Source: Primary data.

The criterion for checking individual indicator reliability is that all the values of outer loadings under reflective construct must be above 0.70. Table 4 shows that all values are above 0.70; thus, individual indicator reliability is also verified.

Discriminant validity was checked through Fornell-Larcker criteria. A all the diagonal values are greater than corresponding rows and column values (Pearson correlations), and hence discriminant validity is also verified.

Table 4. Individual Indicator Reliability.

	A	D	CCB	I	LG	M	PR	P	DS	SC	T
A_1	0.85										
A_2	0.79										
A_3	0.86										
D_1		0.84									
D_2		0.83									
D_3		0.87									
CCB1			0.87								
CCB2			0.85								
CCB3			0.85								
CCB4			0.87								
I_1				0.75							
I_2				0.79							
I_3				0.86							
I_4				0.85							
I_5				0.87							
I_6				0.85							
I_7				0.83							
LG_1					0.88						
LG_2					0.82						
LG_3					0.86						
M_1						0.84					
M_2						0.78					
M_3						0.84					
M_4						0.89					
PR_1							0.86				
PR_2							0.87				
P_1								0.84			
P_2								0.83			
P_3								0.78			
P_4								0.79			
P_5								0.77			
P_6								0.85			
DS_1									0.77		
DS_2									0.86		
DS_3									0.85		
DS_4									0.85		
SC_1										0.84	
SC_2										0.79	
SC_3										0.86	
T_1											0.85
T_2											0.86

Legends:
VR: Variable
A: Attitude
DS: Dissatisfaction
D: Dissonance
T: Trust
CCB: Consumer Complaint Behaviour I: Intention
SC: Socioculture
M: Motivation PR: Perception P: Personality
LG: learning

Source: Primary Data.

Structural Model Measurement

To assess the validity of structural model various parameters were checked, that is, collinearity, significance and relevance of structural model relationships, coefficient of determination (R^2), effect size (F^2) and predictive relevance (Q^2).

Multicollinearity

Variance inflation factor (VIF) value is tested for such concerns, and VIF value for each construct should be less than five to avoid multicollinearity issues (Wong, 2013). The collinearity is tested in two sets, where in the first set complaint behaviour is dependent variable and in the second set intention to complain is the dependent variable.

Significance and Relevance of Structural Model Relationships

Table 7 demonstrates that every relationship is significant at the 5% threshold of significance.

According to Table 7, customer dissatisfaction, cognitive dissonance, motivation and sociocultural factors have a stronger influence over complaint intention.

Coefficient of Determination (R^2)

R^2 shows the predictive accuracy of a structural model (Hair et al., 2009) and it is squared correlation between actual and predicted values. R^2 values ranges between 0 and 1 and value closer to one depicts higher predictive accuracy. A value of R^2 equals to 0.75 or above indicates substantial predictive accuracy, 0.50 displays moderate accuracy and 0.25 or above value displays lowest accuracy (Hair et al., 2016). The results show moderate predictive accuracy as R^2 value is below 0.75 but above 0.50.

Effect Size (F^2)

Effect size shows the change in R^2 when any exogenous construct (independent variable) is removed from the model, so as to see whether the removed construct had substantive impact over endogenous construct (dependent variable) or not.

Table 8 shows that cognitive dissonance, customer dissatisfaction, attitude towards complaining and socioculture factors have greater impact over intention to complain as compared to other independent factors.

Predictive Relevance (Q^2)

Q^2 explains the predictive relevance whereas R^2 explains predictive accuracy. It is also called as construct cross validated redundancy. The value of Q^2 should be greater than ‘0’ (Chin, 1998). The value of Q^2 is calculated as follows:

Table 5. Discriminant Validity (Fornell-Larcker Criteria).

Variable	Attitude	CCB	Dissonance	Intention	Learning	Motivation	Perception	Personality	Dissatisfaction	Socioculture	Trust
Attitude	0.84										
CCB	0.64	0.87									
Dissonance	0.60	0.61	0.85								
Intention	0.62	0.68	0.66	0.83							
Learning	0.53	0.61	0.56	0.57	0.86						
Motivation	0.58	0.61	0.61	0.63	0.56	0.84					
Perception	0.53	0.57	0.48	0.53	0.50	0.54	0.87				
Personality	0.54	0.58	0.53	0.53	0.47	0.57	0.49	0.81			
Dissatisfaction	0.33	0.43	0.34	0.50	0.35	0.37	0.26	0.23	0.83		
Socioculture	0.30	0.36	0.34	0.38	0.28	0.30	0.27	0.29	0.17	0.83	
Trust	0.19	0.33	0.22	0.27	0.19	0.26	0.18	0.20	0.19	0.10	0.85

Source: Primary Data.

Table 6. Collinearity Statistics.

	Complaint Behaviour		Intention to Complain	
	Tolerance	VIF	Tolerance	VIF
Attitude	0.475	2.104	0.489	2.046
Cognitive dissonance	0.444	2.254	0.479	2.089
Learning	0.547	1.828	0.554	1.805
Motivation	0.442	2.263	0.450	2.222
Perception	0.584	1.712	0.592	1.690
Personality	0.555	1.801	0.559	1.789
Dissatisfaction	0.730	1.369	0.809	1.236
Socioculture	0.829	1.207	0.850	1.176
Trust	0.907	1.103	0.914	1.094
Intention	0.366	2.729	–	–

Source: Primary Data.

Table 7. Bootstrapping Analysis.

	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)
Attitude → CCB	0.17	0.04	0.04	4.78
Attitude → Intention	0.15	0.03	0.03	4.46
Dissatisfaction → CCB	0.10	0.02	0.02	4.10
Dissatisfaction → Intention	0.22	0.02	0.02	9.17
Dissonance → CCB	0.06	0.03	0.03	2.05
Dissonance → Intention	0.25	0.03	0.03	7.37
Intention → CCB	0.16	0.04	0.04	4.38
Learning → CCB	0.16	0.03	0.03	5.39
Learning → Intention	0.09	0.03	0.03	3.17
Motivation → CCB	0.06	0.03	0.03	2.07
Motivation → Intention	0.12	0.03	0.03	3.90
Perception → CCB	0.12	0.03	0.03	3.57
Perception → Intention	0.09	0.03	0.03	3.47
Personality → CCB	0.14	0.03	0.03	4.46
Personality → Intention	0.07	0.03	0.03	2.67
Socioculture → CCB	0.07	0.02	0.02	3.01
Socioculture → Intention	0.11	0.02	0.02	5.01
Trust → CCB	0.12	0.03	0.03	4.49
Trust → Intention	0.06	0.02	0.02	2.51

Source: Primary Data; Significance *P* >.05.

$$Q^{2} = 1-(SSE/SSO)$$

Where, SSE = Sum of squared prediction errors; SSO = Sum of squared observations

Table 8. Effect Size (F2).

	Effect Size (F^2) Dependent: Intention	Effect Size (F^2) Dependent: CCB
Attitude	0.0284	0.0394
Dissonance	0.079	0.004
Intention	–	0.022
Learning	0.013	0.041
Motivation	0.019	0.004
Perception	0.013	0.024
Personality	0.007	0.029
Dissatisfaction	0.106	0.020
Socioculture	0.026	0.010
Trust	0.008	0.036

Source: Primary Data.

Table 9. Cross-Validity Redundancy Value.

Construct	SSO	SSE	1-(SSE/SSO)
CCB	4408	2301	0.478
Intention	7714	4375	0.4328

Source: Primary data.

In Table 9, the value of Q^2 is greater than '0'; therefore, tested model has predictive relevance.

Mediation Analysis

If the variance accounted for (VAF) value ranges between 0.20 and 0.80, then there is partial mediation (Hair et al., 2009); if value is above 0.80, then there is full mediation and if value is below 0.20, then there is no mediation effect. In Table 10, VAF value is between 0.20 and 0.80; therefore, there is partial mediation effect of 'intention to complain'.

The result summary in Table 11 shows that all the hypotheses have been accepted which means that all the independent variables affect the dependent variable.

Multi Group Analysis

Age

The four age groups were considered, that is, 18–28 years, 29–39 years, 40–50 years and above 50 years. It was observed that the influence of sociocultural factors, dissonance level, perception of complaining, attitude toward complaining, personality and complaint behaviour differs significantly across four age groups. As compared to other age groups, sociocultural elements have a greater impact over elder consumers (over 50 years). Furthermore, it was found that young customers

Table 10. Mediation Effect Summary.

Path	Direct Effect	a	b	Indirect Effect (a*b)	Total Effect	VAF	Mediation Type
Attitude → CCB	0.360	0.6178	0.4549	0.281	0.641	0.438	Partial
Learning → CCB	0.335	0.4854	0.5714	0.277	0.612	0.453	Partial
Motivation → CCB	0.319	0.4758	0.6287	0.299	0.618	0.483	Partial
Perception → CCB	0.295	0.5207	0.5307	0.276	0.571	0.483	Partial
Personality → CCB	0.309	0.513	0.533	0.273	0.582	0.469	Partial
Dissonance → CCB	0.282	0.6642	0.4887	0.324	0.607	0.534	Partial
Dissatisfaction → CCB	0.123	0.6137	0.5019	0.308	0.431	0.714	Partial
Socioculture → CCB	0.121	0.6294	0.3887	0.244	0.365	0.668	Partial
Trust → CCB	0.159	0.6335	0.2742	0.173	0.332	0.522	Partial

a: Path coefficient from independent variable → mediator (intention to complain).
b: Path coefficient from mediator → CCB (dependent variable).
VAF: Variance accounted for.

Source: Primary Data; Significance *P* >.05.*

Table 11. Result Summary.

Hypothesis	Path Coefficient	*T*-Value	Result
H_1	0.16	4.38*	Accepted
H_{2a}	0.22	9.17*	Accepted
H_{2b}	0.10	4.10*	Accepted
H_{3a}	0.25	7.37*	Accepted
H_{3b}	0.06	2.05*	Accepted
H_{4a}	0.06	2.51*	Accepted
H_{4b}	0.12	4.49*	Accepted
H_{5a}	0.15	4.46*	Accepted
H_{5b}	0.17	4.78*	Accepted
H_{6a}	0.09	3.47*	Accepted
H_{6b}	0.12	3.57*	Accepted
H_{7a}	0.09	3.17*	Accepted
H_{7b}	0.16	5.39*	Accepted
H_{8a}	0.123	3.90*	Accepted
H_{8b}	0.06	2.07*	Accepted
H_{9a}	0.07	2.67*	Accepted
H_{9b}	0.14	4.46*	Accepted
H_{10a}	0.11	5.01*	Accepted
H_{10b}	0.07	3.01*	Accepted
H_{11}	Partial		Accepted

Source: Primary Data.
*Significant at *P* <.05.

(18–28 years) experiences less dissonance than elder consumers (above 50 yrs). This means that aged consumers regret more, if the product does not meet their expectations. The late adulthood consumers (40–50 years) have a more positive perception towards complaining as compared to young consumers (18–28 years). This implies that young customers have less faith on company's complaint system.

Marital Status

It was found that there is significant difference in the attitude towards complaining, learning towards complaining, personality, intention to complain and complaint behaviour across three categories of marital status (married, unmarried, separated). There was no significant difference between unmarried and married consumers in terms of attitude toward complaining, CCB, learning and intention to complain. Separated consumers have a negative attitude towards complaining, as well as a negative intention to complain and negative complaint behaviour.

Education

It was found that there is significant difference in all the factors across four categories of education (senior secondary, higher secondary, graduation, postgraduation). Consumer behaviour in the 'Higher secondary' category differed from that of the 'postgraduate' and 'graduate' categories. In the terms of complaint behaviour, graduate consumers are more risk-taking and confident than other categories. Graduates hold more positive attitude towards complaining as compared to other educational categories.

Table 12. Multi-Group Analysis Summary.

Categorical Variable Factors	Age (H_{12})	Gender (H_{13})	Marital Status (H_{14})	Education (H_{15})	Occupation (H_{16})	Income (H_{17})
Dissatisfaction	Not accepted	Accepted	Not accepted	Accepted	Accepted	Not accepted
Dissonance	Accepted	Accepted	Not accepted	Accepted	Accepted	Not accepted
Trust	Not accepted	Accepted	Not accepted	Accepted	Accepted	Not accepted
Attitude	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
Learning	Not accepted	Accepted	Accepted	Accepted	Accepted	Accepted
Motivation	Not accepted	Accepted	Not accepted	Accepted	Accepted	Accepted
Perception	Accepted	Accepted	Not accepted	Accepted	Accepted	Accepted
Personality	Accepted	Accepted	Accepted	Accepted	Accepted	Accepted
Socioculture	Accepted	Accepted	Not accepted	Accepted	Accepted	Accepted
Intention	Not accepted	Accepted	Accepted	Accepted	Accepted	Not accepted
Consumer complaint behaviour	Accepted	Accepted	Accepted	Accepted	Accepted	accepted

Source: Primary Data.

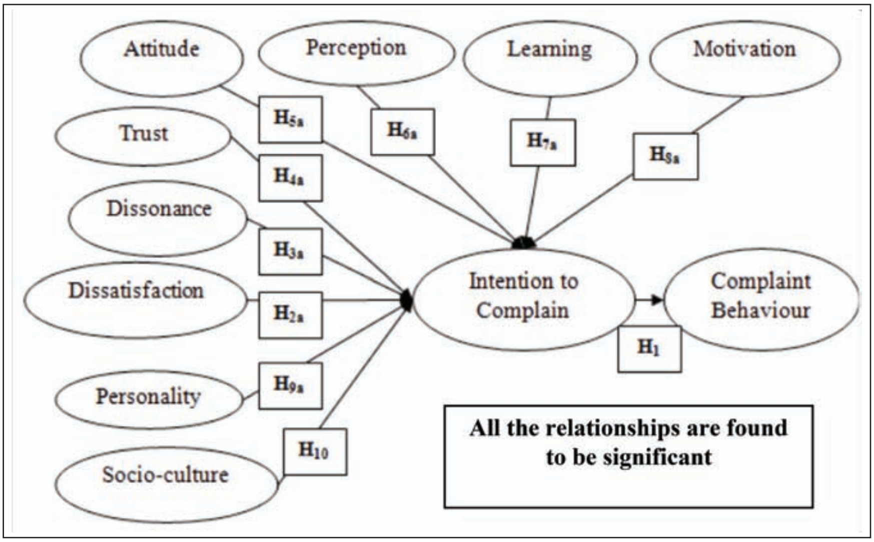


Figure 2. Factors Affecting Consumer Complaint Behaviour.

Occupation

It was found that the psychology of consumers differs across different occupation categories (service, business, student, homemaker, unemployed, retired). The divergence in attitude, learning, perception and motivation is greater among the homemakers, service class, unemployed and students. The service class consumers have a lower risk averse attitude than business person and unemployed consumers.

Monthly Family Income

Income groups were divided into four categories, that is, less than ₹10,000(< 10k), between ₹10,000 and ₹50,000 (10,001–50k), between ₹50,000 and ₹1 lakh (50,001–1L) and more than ₹1 lakh (>1). There is a significant difference in psychology, personality, sociocultural factors and complaint behaviour of lower income groups (< 10k and 10,001–50k) and higher income groups (50,001–1L and >1L). Lowest income group (< 10k) have risk averse personality, that is, they have fear of complaining directly to the company. Lowest income group is least motivated through monetary compensation for complaining directly to the company.

Gender

The males have positive attitude towards complaining and thereby greater intention to complain as compared to females. The level of dissonance is lower among female consumers as the level of learning is also low (as compared to male consumers). Male consumers have a courageous and risk-taking personality, due to which they are more inclined to make direct complaints to the company. The motivation to seek monetary compensation is higher among male consumers.

Findings

- Customer dissatisfaction, cognitive dissonance, motivation and sociocultural factors have greater impact over complaint intention.
- The factors like attitude, learning, perception, personality and trust have greater impact over CCB.
- Similarly, a married and unmarried consumer is more interested in making complaints as compared to separated consumers. Graduate consumers have more risk taking and fearless personality than other categories in relation to complaining behaviour.
- The influence of sociocultural factors, dissonance level, perception of complaining, attitude toward complaining, personality and complaint behaviour differs significantly across four age groups.

Implications

- *The study would help the electronic household industry in devising a proper strategy and complaint mechanism.*
- *The findings of the research have contributed to the literature and would help academicians to base their research on this model.*
- *The study has definitely contributed to consumerism. Higher level of learning about complaints may lead to higher complaining behaviour and a higher chance for company to make up their mistake.*

Discussion

This article would help companies in formulating different strategies like- encouraging consumers to give true feedback, setting a good complaint management system, handling consumers (through better training of employees), reviewing competitors' strategy and analysing issues related to different departments. Retention of consumers is possible through proper handling of complaints. The combination of issues can be discussed and related solutions can be planned in advance. For example, women generally avoid or feel shy in complaining, therefore companies can focus on encouraging women to come forward and complain.

The following model is found be fit and relevant:

Conclusion

Consumer dissatisfaction, cognitive dissonance, psychological factors, sociocultural factors, consumer's personality and consumer's trust over a company have major influence over the intention to make a complaint and take action against the company. Intentions may or may not result in an action; thus, the gap between intention and action is affected by many factors like motivation, attitude and personality (Ajzen, 1985). In this study, the attitude and learning of consumer have been found to be more influential in relation to their complaint action.

The company can similarly assure and make consumers to trust their complaint management system. Encouraging consumers to complain can help company to improve its products so that successive iterations are better. For this, it is important to study target market attitude and expectations for building trust among consumers. It is important for the marketers and complaint handler to understand and address consumers issues timely.

Limitations

There are many questions that are still unanswered and which can be taken up in the future research. The studied model may be applied in other industries to check any difference in results. There is a possibility that few more variables could have been incorporated. There is a need to understand the new challenges that businesses face while dealing with complaints.

Declaration of Conflicting Interests

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Financial Distress vs. Financial Strength: A Comparative Study of Delhi and Kerala Financial Corporations

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Abstract

Financial institutions play a pivotal role in India's economic development by offering loans, advances and asset management services. This study conducts a comprehensive comparative analysis of the financial performance of the Delhi Financial Corporation (DFC) and the Kerala Financial Corporation (KFC) over a five-year period, emphasising liquidity, profitability, solvency and asset utilisation. Using secondary data extracted from annual reports and official financial disclosures, the study employs a series of financial ratios—including current ratio, quick ratio, return on assets, return on equity, debt-to-equity and asset turnover—to evaluate the fiscal health of both institutions. The findings reveal a stark divergence in financial trajectories: DFC exhibits declining liquidity, substantial accumulated losses, high leverage and inefficient asset utilisation, signalling financial distress and long-term sustainability risks. In contrast, KFC demonstrates consistent profitability, stronger liquidity management, healthier solvency ratios and superior operational efficiency, indicating financial resilience. The comparative insights underscore the need for strategic restructuring, improved credit risk management and operational optimisation in DFC, while positioning KFC as a benchmark for stability among state-level financial corporations. This study contributes to institutional financial analysis literature by highlighting how structural, policy and operational differences shape financial outcomes across public-sector financial institutions in India.

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Financial performance (inter-firm) comparison, solvency, efficiency, liquidity and profitability

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Introduction

Financial institutions are considered fundamental drivers of economic development, serving as conduits for capital formation, industrial expansion and entrepreneurial growth. The financial institutions assist in the proper allocation of resources and ensure the continuing circulation of money. In India, state-level financial institutions (SLFIs) such as state financial corporations (SFCs) were established to fulfil the credit gap for small and medium enterprises (SMEs), a segment often ignored by commercial banks (Mohan, 2021). Undoubtedly, these institutions enhanced balanced regional development through the provision of long-term loans, working capital, refinancing and advisory services. Their performance has a direct impact on regional industrialisation, job creation and overall socio-economic progress (Bhoi & Sahoo, 2020). This process subsequently ensures earning on the investments and savings.

Among all these SLFIs, the Delhi Financial Corporation (DFC) and the Kerala Financial Corporation (KFC) hold a strategic role as they support MSMEs, service sectors and local industries in two distinctly different economic environments. DFC operates in a metropolitan industrial cluster characterised by service-dominant economic activity, while KFC functions within a more diversified economy integrating tourism, manufacturing and agro-based industries. Examining these institutions provides important comparative insights into how regional variations influence financial performance and institutional resilience. Other financial institutions include Export Credit Guarantee Corporation of India (ECGC) Ltd. and Deposit Insurance and Credit Guarantee Corporation.

Prior studies evaluating Indian development finance institutions highlight ongoing challenges such as rising non-performing assets, liquidity constraints and pressures on profitability (Chattopadhyay, 2020; Rao & Anwar, 2020). Research also emphasises that financial sustainability and developmental performance must be analysed together, as DFIs operate with mixed objectives—balancing commercial viability with developmental mandates (Pandey, 2019). Comparative financial analyses of public-sector institutions demonstrate that inter-firm evaluations provide richer insights than isolated case studies, as they reveal structural differences arising from governance practices, economic contexts, and credit management strategies (Kumar & Joseph, 2021; Mishra & Singh, 2020). The SFCs provide loans mainly for the acquisition of fixed assets like land, buildings, plants and machinery.

The study is all about the main issues with SFCs, such as making decisions all from one place, not having a corporate culture, high transaction costs, a rise in non-performing assets (NPAs) and high NPAs that happen because of a lot of assets being moved from the standard assets category to the NPAs category, which cancels out the effect of extra provisioning that made cash flow tight. This, in turn, resulted in the restructuring of liabilities. However, focusing specifically on SFCs, particularly DFC and KFC, is limited. Existing studies tend to examine broad national trends or single-institution performance without conducting systematic inter-state comparison or multi-year trend analysis. This creates a research gap that the present study aims to address.

DFC and KFC were selected because they are among the most prominent and functionally active SFCs in India, with extensive loan portfolios and consistent annual reporting, which ensures the availability of reliable secondary data. Their geographical and economic contrasts also make them ideal candidates for inter-firm evaluation, enabling a deeper understanding of how institutional performance varies across different regional economic contexts. Analysing these corporations helps identify operational strengths, structural constraints and areas requiring policy intervention.

A five-year timeframe is methodologically appropriate because it captures medium-term trends, minimises short-term fluctuations and reflects the impacts of economic cycles, policy changes, and managerial strategies (Sharma & Bansal, 2022). Financial indicators such as profitability, solvency, liquidity, and asset quality show meaningful shifts only over extended periods, and a five-year span is widely used in financial performance research for ensuring reliability and consistency (Gitman & Zutter, 2018). This duration also aligns with the reporting practices of public-sector financial institutions, making comparisons robust and credible. This research will follow the objectives:

1. To evaluate the financial performance of DFC and KFC over the past five years.
2. To conduct an inter-firm comparative analysis to identify trends, similarities and differences in financial stability, profitability, solvency and asset quality.
3. To assess the internal strengths and weaknesses of each institution through ratio analysis and trend examination.
4. To provide actionable insights for policymakers, institutional managers and stakeholders for improving operational efficiency and financial sustainability.

Given the developmental importance of SFCs and the limited availability of comparative research on DFC and KFC, this study contributes to both academic literature and practical policy discourse. By analysing five-year financial data of two regionally distinct institutions, the study provides a brief understanding of their financial health, operational patterns and strategic opportunities for improvement.

Literature Review

A literature review is typically undertaken to gauge the current state of specific research. Research papers, articles, books, journals, magazines and other related resources were reviewed to access relevant literature. Financial institutions play a crucial role in fostering industrial and entrepreneurial growth, especially in emerging economies like India. SLFIs such as DFC and KFC are established as development finance institutions (DFIs) to support MSMEs, small businesses and regional industrialisation. The literature on DFIs, financial performance analysis and regional development finance highlights several conceptual and empirical insights relevant to this study.

Development Financial Institutions and Their Economic Role

Development finance institutions are designed to fill credit gaps not adequately served by commercial banks, especially for small and medium enterprises. According to Bhoi and Sahoo (2020), DFIs contribute significantly to regional socio-economic advancement by providing long-term capital and promoting industrial diversification. Similarly, Mohan (2021) emphasises that state-level DFIs in India have historically acted as catalysts in industrial expansion by supporting infrastructural and entrepreneurial activities. These institutions not only extend credit but also provide advisory and developmental services, making them essential agents of balanced regional development. Gopakumar (2005) investigated the impact of institutional finance on small-scale industries in Kerala, analysed KFC's role in the MSME sector and identified challenges in its recovery and advocacy to enhance KFC's current status.

Financial Performance Evaluation in DFIs

Financial evaluation of DFIs often relies on profitability, solvency, liquidity and asset quality metrics. Pandey (2019) notes that performance assessment must incorporate both financial sustainability and developmental impact because DFIs operate with hybrid objectives. Studies on Indian DFIs highlight recurring challenges such as high NPAs, declining profit margins and capital adequacy concerns (Rao & Anwar, 2020). These issues underscore the need for continuous evaluation to ensure institutional health and policy alignment. However, Rawat (2017) proposes that the government should take decisive action to eliminate the SFCs.

Comparative Financial Analysis

Comparative financial analyses enable a deeper understanding of how similar institutions respond differently to external conditions. Mishra and Singh (2020) argue that inter-firm comparison reveals structural strengths and weaknesses emerging from governance quality, lending strategies and regional economic characteristics. For SLFIs, inter-state comparisons help determine how local economic climates shape financial outcomes. Comparative studies on state industrial development corporations and state finance corporations (SFCs) show substantial heterogeneity in profitability and asset management, influenced by political, administrative and market conditions (Kumar & Joseph, 2021). This literature supports the need for evaluating DFC and KFC together to understand region-specific performance dynamics.

Financial Ratio Analysis in Public Financial Institutions

Ratio analysis is widely accepted for assessing financial efficiency and stability. According to Gitman and Zutter (2018), profitability ratios indicate managerial effectiveness, while liquidity and solvency ratios reflect financial resilience. In public-sector institutions, ratio fluctuations often mirror economic cycles, government support and loan recovery conditions. Studies by Sharma and Bansal (2022) on Indian financial corporations show that consistent analysis over five-year periods provides meaningful insights into operational sustainability. The literature emphasises that longitudinal data (minimum five years) is essential for capturing trends and minimising distortions caused by short-term volatility. Furthermore, it has been observed that the proper capital ratios and loan portfolios account for bank performance.

Challenges Faced by SFCs

SFCs in India face several structural and operational challenges. High NPAs remain a persistent issue due to weak recovery mechanisms and sectoral downturns (Chattopadhyay, 2020). Policy shifts, competition from commercial banks and limited capital infusion have further affected their operational capacity. According to Narasimham (2021), DFIs must strengthen governance systems, adopt technology-driven credit appraisal and diversify revenue sources to remain sustainable. Such challenges underscore the importance of reviewing institutional performance over time to identify improvement pathways.

While significant research exists on Indian DFIs and SFCs broadly, specific comparative analyses of DFC and KFC are limited. Most studies focus either on national-level policy reforms or on individual institutions without a systematic five-year inter-firm evaluation. The limited availability of region-specific comparative studies presents a research gap, which this study aims to address through comprehensive ratio-based and trend-based analysis of two prominent SLFIs.

Research Methodology

DFC and KFC

DFC and KFC were selected for this study due to their longstanding contributions as SLFIs dedicated to promoting industrial, commercial and entrepreneurial development. These institutions play an essential developmental role by supporting MSMEs, start-ups, small traders and service sectors—segments that significantly influence regional economic growth. DFC and KFC operate under similar statutory frameworks but function within markedly different socio-economic environments, making them ideal for inter-firm comparative analysis.

However, studying these two institutions provides a unique opportunity to understand how regional policies, governance structures, demographic profiles and local economic conditions impact financial performance. Additionally, both corporations have publicly accessible, reliable financial records, enabling transparent and verifiable analysis. Their contrasting geographic contexts—DFC functioning in a metropolitan industrial cluster and KFC operating within a more diversified, semi-urban economic setting—offer meaningful insights into how location-specific dynamics influence financial sustainability. Thus, the selection of DFC and KFC is purposefully designed to yield comprehensive, comparative and policy-relevant conclusions.

Selecting a Five-year Period

For this study, a five-year period is chosen because it provides an optimal timeframe to identify financial trends, detect performance patterns and evaluate long-term stability without being distorted by short-term fluctuations. Considering the financial indicators such as profitability, liquidity, solvency and asset quality exhibit meaningful changes only over an extended period. The reason being, a one- or two-year study would not adequately capture cyclical economic effects, policy impacts or internal organisational shifts.

Moreover, most financial institutions undergo strategic reconstructions, loan restructuring cycles and asset reclassification within a five-year horizon; therefore, considering this span allows for a more accurate assessment of managerial effectiveness and institutional resilience. No doubt that, five-year dataset ensures sufficient variability for comparative analysis while maintaining manageable data consistency and comparability. It also aligns with standard academic and industry practices in financial performance evaluation, making the findings more credible, generalisable and relevant for stakeholders.

Research Design

This study adopts a quantitative, descriptive and analytical research design based entirely on secondary data. Furthermore, financial performance analysis is conducted through established accounting ratios and trend evaluation tools, consistent with standard practices in financial statement analysis (Gitman & Zutter, 2018). The objective is to compare the financial health of the DFC and KFC over a five-year period using systematic ratio analysis and brief graphical interpretation.

Source of Data

The study relies exclusively on secondary data gathered from authentic and verifiable institutional-based sources:

- For DFC data: Collected manually from the published annual reports available at the registered office of Delhi Financial Corporation (various years), New Delhi.
- For KFC data: Extracted from the official Kerala Financial Corporation website, which provides publicly available audited financial statements.

Secondary data are widely used in financial research because these are cost-effective, reliable and drawn from audited records, ensuring accuracy and credibility (Johnston, 2017).

Data Processing and Classification

The collected data were edited, verified, categorised and tabulated before analysis. The data were then organised according to major financial indicators of DFC and KFC. Data cleaning steps included:

- Removing inconsistencies,
- Standardising financial terms across institutions and
- Grouping values into relevant performance categories such as liquidity, profitability, solvency and efficiency.

Such systematic preprocessing enhances data quality and supports rigorous financial analysis (Kothari, 2004).

Tools of Analysis

Ratio analysis is the primary analytical tool used in the study, as it is universally accepted for evaluating the financial performance of institutions over time (Pandey, 2019). The following ratios were computed: liquidity ratios (current ratio and quick ratio), profitability ratios (return on assets (ROA), return on equity (ROE), net profit ratio, return on capital employed (ROCE), solvency ratio, debt-to-asset ratio and efficiency ratios (total asset turnover ratio and fixed asset turnover ratio) (Table A1). These ratios help evaluate operational strength, financial stability, profitability efficiency and long-term solvency—key dimensions for comparing two SFCs (Rao & Anwar, 2020).

Trend Analysis Using Line Graphs

To visualise the performance patterns across five years, line graphs were used. Line graphs are particularly effective for:

- Presenting quantitative changes over time,
- Highlighting trends, fluctuations, and growth patterns,
- Detecting small variations not easily visible in other chart types (Few, 2012) and
- Ensuring clarity and ease of interpretation for stakeholders.

Each ratio was plotted across five financial years to compare DFC and KFC visually. Line graphs also allow comparison of slope patterns, representing the rate of improvement or decline.

Selected Analytical Methods

Ratio analysis combined with trend graphs is a widely recommended approach for longitudinal financial performance evaluation (White et al., 2003). This mixed analytical method:

- Simplifies complex financial data,
- Allows comparison between institutions with different asset sizes,
- Highlights operational and financial efficiency variations and
- Strengthens interpretation through visual analytics.

Therefore, the combined use of ratios and graphical tools provides a comprehensive and insightful financial assessment.

Scope and Period of Study

The study covers five financial years, which is methodologically appropriate because multiple-year data help identify sustained patterns, minimise short-term distortions and reveal meaningful financial movements (Sharma & Bansal, 2022).

Methodological Framework Summary

1. Data collection: Secondary data from DFC annual reports and the KFC official website.
2. Data processing: Cleaning, classification and categorisation.
3. Data analysis: Ratio analysis + line graph trend analysis.
4. Interpretation: Comparison of DFC and KFC performance across liquidity, profitability, solvency and efficiency indicators.

This structured methodology ensures the analytical rigour, objectivity and reliability in evaluating the financial performance of DFC and KFC.

Results

The comparative financial analysis of DFC and KFC over three years reveals significant divergence in liquidity, solvency, profitability and operational efficiency. The findings highlight a pattern in which KFC consistently demonstrates financial strength, whereas DFC shows growing signs of financial strain and operational underperformance.

The analysis of liquidity ratios, illustrated in Figures A1 and A2 in the Appendix, reveals the substantial differences between DFC and KFC in their ability to meet short-term obligations. As shown in Figure A1, the current ratio for DFC has steadily declined over the three-year period—from 1.33 in 2020–2021 to 1.04 in 2022–2023—indicating weakening liquidity caused by rising current liabilities and shrinking current assets. In contrast, KFC demonstrates a stronger and more stable liquidity trend, with its current ratio fluctuating from 1.51 to 1.18 and rising again to 1.48 in 2022–2023, reflecting improved ability to cover short-term debts. The quick ratio trends in Figure A2 show that although DFC holds more cash and near-cash assets (quick ratio = 1.00 in 2022–2023), KFC continues to maintain operational liquidity even with a lower quick ratio (0.04), suggesting more efficient short-term asset management. These liquidity figures collectively indicate that DFC is experiencing annual deterioration in liquidity, whereas KFC retains stronger short-term financial health.

Profitability measures, presented in Figures A6–A9, further highlight the widening financial gap between the two corporations. The ROCE in Figure A6 shows that KFC consistently performs better, maintaining 0.07 in 2022–2023, whereas DFC's ROCE sharply declines to 0.01, indicating minimal earnings from capital employed. Similarly, the ROA displayed in Figure A7 reveals that DFC's asset base generates negative returns (–0.15), while KFC maintains a positive return (0.01). Figure A8 shows an alarming trend in ROE for DFC: its ROE drops to –0.64, reflecting substantial losses incurred by shareholders, whereas KFC's ROE improves moderately to 0.12. The net profit ratio, shown in Figure A9, provides the most striking contrast—DFC records a massive net loss of –258.71%, indicating that expenses far exceed revenue, while KFC records a healthy and improving net profit of 7%. These profitability findings make it evident that KFC operates in a financially sustainable manner, while DFC is unable to convert its operations into profit and faces ongoing financial distress.

The solvency indicators in Figures A3–A5 shed light on the long-term financial risk associated with each institution. Figure A3 shows that DFC's debt-to-equity ratio has worsened dramatically, rising from 6.29 in 2020–2021 to 8.62 in 2022–2023, indicating high financial leverage and excessive dependence on borrowed funds. KFC, although leveraged, maintains a much healthier debt-to-equity level of 3.35 in 2023. The debt-to-asset ratio in Figure A4 indicates that both corporations finance a substantial portion of their assets through debt (0.76 for DFC and 0.83 for KFC); however, KFC's stronger profitability allows it to manage this debt more effectively. The interest coverage ratio in Figure A5 shows that DFC's ability to pay interest has improved slightly to 2.01, but this improvement is overshadowed by its overall poor profitability. KFC's interest coverage ratio has declined to 0.79, indicating a rising interest burden; however, given its positive earnings, KFC remains less vulnerable than DFC. Collectively, the solvency figures indicate that DFC is in a high-risk zone with long-term financial instability, while KFC maintains manageable leverage supported by operational profits.

The efficiency ratios shown in Figures A10 and A11 provide insight into how effectively each corporation utilises its assets to generate revenue. Figure A10 shows a dramatic contrast in fixed asset turnover: KFC's ratio climbs to 93.67 in 2022–2023, demonstrating exceptionally efficient use of fixed assets, while DFC remains at a low 4.07, indicating underutilisation of physical resources. This pattern continues in Figure A11, where the total asset turnover ratio for DFC declines to 0.06, reflecting poor revenue generation from its overall asset base, whereas KFC's total asset turnover increases to 0.11, showing stronger productivity. These findings clearly indicate that KFC is far more efficient in utilising both fixed and total assets, whereas DFC struggles to generate adequate revenue from its asset base despite rising liabilities.

The financial analysis of DFC and KFC reveals a clear divergence in performance across liquidity, profitability, solvency and efficiency indicators over the three-year period. As shown in Figure A1, KFC consistently maintains a stronger liquidity position than DFC, with its current ratio rising to 1.48 in 2023 while DFC declines to 1.04, and Figure A2 further shows that although DFC holds more liquid assets, KFC manages its current liabilities more effectively. The profitability ratios from Figures A6–A9 highlight substantial losses for DFC—its ROA (–0.15), ROCE (0.01), ROE (–0.64) and net profit ratio (–258.71%) indicate deep financial distress—while KFC's corresponding ratios remain positive (ROA 0.01; ROCE 0.07; ROE 0.12; net profit 7%), demonstrating stronger financial health. Considering solvency indicators in Figures A3–A5 reveals that DFC carries significantly higher financial risk, with a debt-to-equity ratio of 8.62 and a debt-to-assets ratio of 0.76, reflecting heavy leverage and declining net worth, whereas KFC's ratios (3.35 and 0.83) indicate a more balanced capital structure despite a lower interest coverage ratio of 0.79 during 2023. The efficiency ratios presented in Figures A10 and A11 further reinforce the performance gap: KFC's fixed asset turnover (93.67) and total asset turnover (0.11) far outperform DFC's 4.07 and 0.06, evidencing KFC's superior ability to convert assets into revenue. Taken together, Figures A1–A11 depict a consistent pattern in which DFC struggles with liquidity shortages, mounting losses, high debt dependence and inefficient asset utilisation, while KFC demonstrates stable liquidity, positive profitability, manageable leverage and strong operational efficiency.

Overall, the comprehensive examination of Figures A1–A11 reveals a consistent and widening performance gap between DFC and KFC. DFC's declining liquidity, severe losses, rising financial leverage, and inefficient use of assets indicate that the corporation is operating under significant financial stress and faces a risk of long-term insolvency if corrective measures are not taken. In contrast, KFC displays superior financial health, stable liquidity, consistent profitability and efficient asset utilisation, positioning it as a stronger, more sustainable institution. The findings emphasise that DFC requires immediate strategic intervention, while KFC's financial strategies can serve as a benchmark for operational improvement.

Discussion

The comparative analysis of DFC and KFC over the five-year period reveals significant differences in their financial performance, liquidity position, profitability, solvency and asset utilisation. Findings across all ratios consistently demonstrate that KFC is financially stronger and more operationally efficient, while DFC exhibits persistent financial distress, weak liquidity and low profitability.

Liquidity and Short-term Stability

As indicated by the current ratio (Figure A1), KFC maintains a stronger liquidity position, signifying its superior ability to settle short-term liabilities. In contrast, DFC shows a downward trend in current assets coupled with rising current liabilities, reflecting strained liquidity and weakening short-term solvency. These findings are consistent with prior studies suggesting that liquidity stress undermines financial institutions' operational flexibility and increases vulnerability to external shocks (Pandey, 2019; White et al., 2003).

The quick ratio findings (Figure A2) show that DFC holds more cash and cash equivalents relative to KFC, yet this does not translate into stronger overall liquidity or profitability. KFC's declining quick ratio reflects higher investment outflows and greater reliance on operating cash flows, which may support long-term growth. Strong operational cash flow is often viewed as a positive indicator of institutional resilience (Gitman & Zutter, 2018).

Solvency and Capital Structure

The debt-to-equity ratio trend (Figure A3) clearly indicates that DFC is heavily leveraged, with rising dependence on borrowed capital. High leverage increases financial risk, reduces creditworthiness and exposes the corporation to solvency challenges. Literature on public financial institutions associates excessive debt and rising NPAs with long-term insolvency risk and erosion of stakeholder confidence (Chattopadhyay, 2020; Rao & Anwar, 2020). Conversely, KFC's debt-to-asset ratio (Figure A4) shows a healthier capital structure with assets consistently exceeding liabilities. This indicates more prudent debt management and a stable solvency profile. A favourable capital structure enables institutions to sustain operations and pursue growth strategies without excessive financial strain (Kumar & Joseph, 2021).

Interest Servicing Ability

The interest coverage ratio (Figure A5) shows declining performance for KFC, indicating increased interest burden and reduced ability to meet debt obligations through earnings. DFC, despite overall weaker financial performance, shows a comparatively higher interest coverage ratio, although not strong enough to offset broader solvency issues. Declining interest coverage is widely recognised as an early warning sign of financial distress (Sharma & Bansal, 2022).

Profitability and Return Measures

Figures A6–A9 highlight KFC's consistently superior profitability across multiple measures:

- ROCE (Figure A6) confirms KFC's stronger ability to generate profits from its capital base, aligning with findings in DFIs where efficient capital allocation correlates with sustained performance (Bhoi & Sahoo, 2020).
- ROA (Figure A7) illustrates DFC's inability to utilise its assets efficiently due to rising NPAs and operating expenses, whereas KFC maintains positive revenue generation capacity.
- Net profit ratio (Figure A8) and overall profitability (Figure A9) further confirm KFC's stable earnings and cost efficiency, compared to DFC's losses and operational inefficiencies.

Research on public-sector financial institutions consistently emphasises the importance of profitability as a determinant of long-term survival, especially in competitive lending environments (Mishra & Singh, 2020).

Asset Utilisation Efficiency

Asset turnover ratios (Figures A10 and A11) demonstrate that DFC underutilises both fixed assets and total assets, resulting in lower revenue generation. KFC, on the other hand, displays strong asset utilisation efficiency, suggesting superior management practices and operational productivity. According to established financial theory, higher asset turnover implies effective deployment of resources and greater operational success (Gitman & Zutter, 2018).

Taken together, the findings paint a consistent picture:

- DFC is financially stressed, facing liquidity constraints, high leverage, poor profitability and inefficient asset utilisation.
- KFC exhibits financial strength, with better liquidity, profitability, solvency and operational efficiency.

These insights align with existing literature, which shows that performance gaps among SFCs stem from governance quality, NPA management effectiveness and regional economic support structures (Mohan, 2021; Rao & Anwar, 2020).

Conclusion

The financial assessment of the DFC over the past five years reveals clear signs of financial stress, declining stability and weakening operational strength. Persistent liabilities, rising debt obligations and an alarming increase in NPAs have severely undermined the corporation's profitability and its ability to manage financial risks effectively. The declining net worth further indicates that the corporation has been unable to generate adequate returns, with losses being absorbed by outstanding liabilities, ultimately reflecting a state of financial vulnerability and near-insolvency. The reduction of interest-earning capacity to 8%–10% further highlights DFC's constrained revenue base and diminished competitiveness within the financial market. Unless these structural weaknesses are addressed, the corporation risks long-term erosion of shareholder value and continued deterioration of its financial health. The findings of the study underscore the urgent need for a comprehensive turnaround strategy. Enhancing operational efficiency, reducing NPAs, strengthening credit appraisal mechanisms, diversifying revenue streams and exploring strategic collaborations—such as mergers or partnerships with financially stronger institutions—are critical for restoring the corporation's long-term viability. Effective loan recovery mechanisms, along with stringent cost control and optimised asset utilisation, will be essential to rebuild financial resilience.

Overall, the study contributes actionable insights that can support DFC in safeguarding its net worth, improving governance practices and re-establishing financial stability. Implementing these recommendations will enable the corporation to reposition itself competitively, better serve its stakeholders and pursue sustainable growth in the future.

Declaration of Conflicting Interests

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Appendix

Table A1. Computation of Financial Ratios of Delhi Financial Corporation and Kerala Financial Corporation for the Last Three Years.

	KFC			DFC		
Particulars	2020–2021	2021–2022	2022–2023	2020–2021	2021–2022	2022–2023
Current ratio	1.51	1.18	1.48	1.33	1.17	1.04
Quick ratio	0.08	0.07	0.04	1.28	1.13	1.00
Debt to equity	6.29	6.24	8.62	3.18	3.2	3.35
Debt-to-asset ratio	0.8	0.82	0.83	0.76	0.76	0.77
Interest coverage ratio	0.96	0.88	0.79	0.48	1.3	2.01
Return on capital employed	0.09	0.07	0.07	0.03	0.09	0.01
Return on assets	0.00	0.00	0.01	0.09	0.11	0.15
Return on shareholder's equity	0.02	0.03	0.12	0.35	0.48	0.64
Net profit margin	1%	3%	7%	−119.76%	−163.21%	−258.71%
Fixed turnover	54.90	70.56	93.67	4.08	4.42	4.07
Total assets turnover	0.11	0.10	0.11	0.07	0.07	0.06

Source: Compiled from DFC Annual Reports (2019–2023) and KFC Official Website Data (2019–2023).

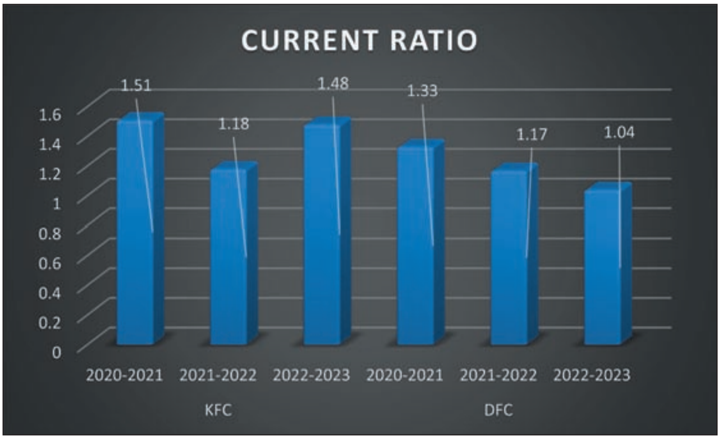

Figure A1. Current Ratio of KFC and DFC.

Source: Delhi Financial Corporation Annual Report (2023).

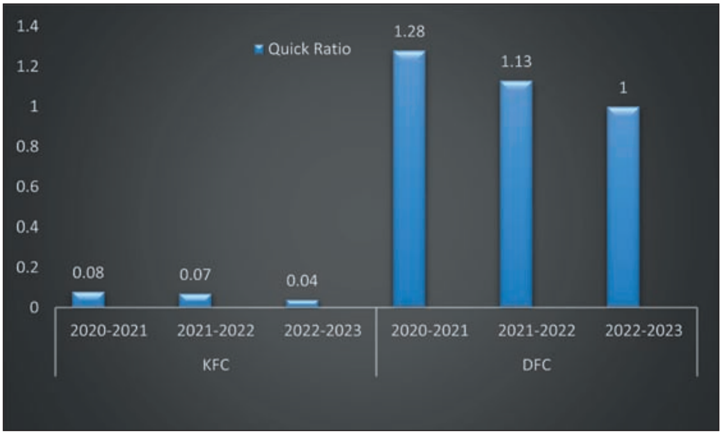

Figure A2. Quick Ratio of KFC and DFC.

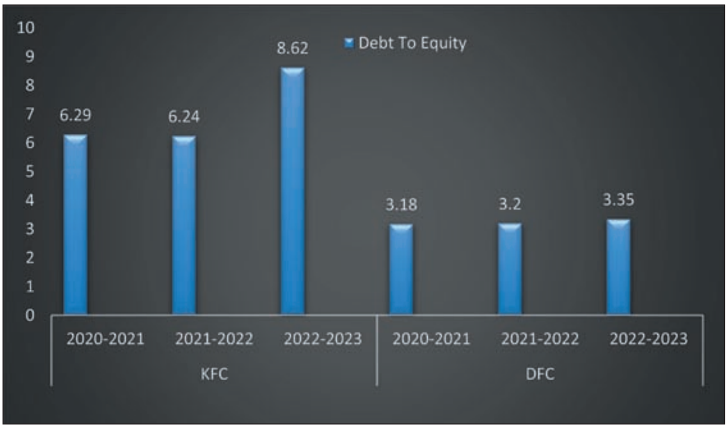

Figure A3. Debt-to-equity Ratio of KFC and DFC.

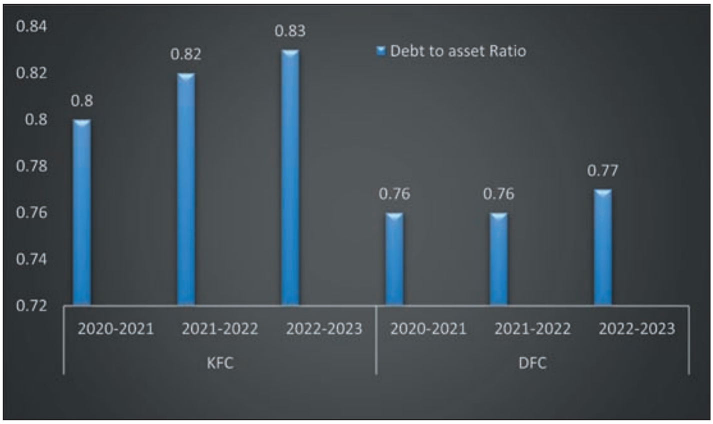

Figure A4. Debt-to-asset Ratio of KFC and DFC.

Source: Author's analysis based on secondary data from DFC and KFC annual reports.

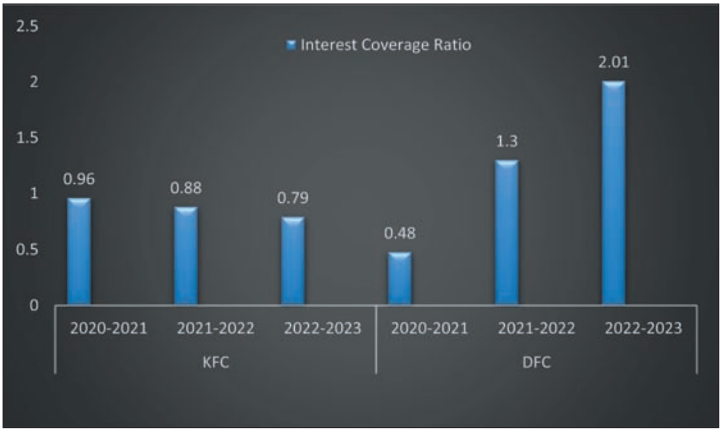

Figure A5. Interest Coverage Ratio of KFC and DFC.

Figure A6. ROCE Ratio of KFC and DFC.

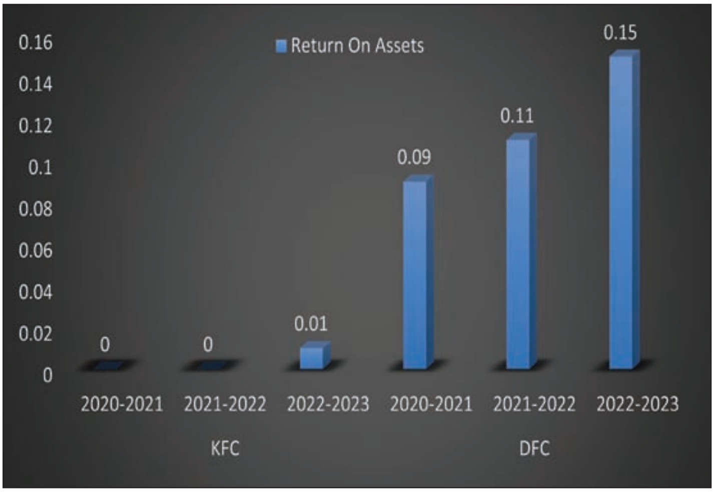

Figure A7. ROCE Ratio of KFC and DFC.

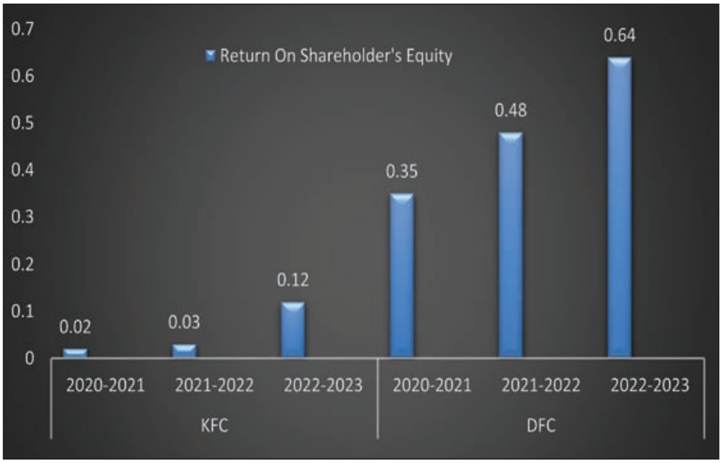

Figure A8. Return on Shareholders' Equity of KFC and DFC.

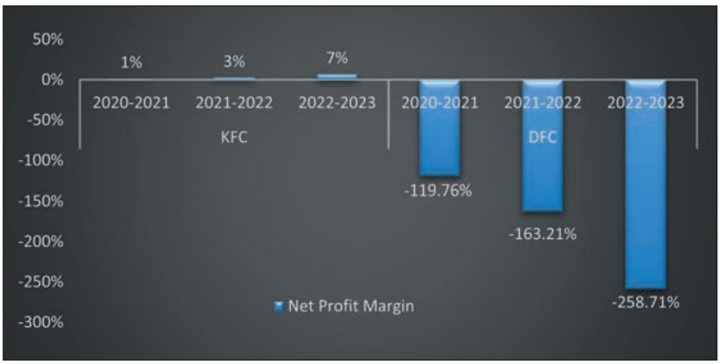

Figure A9. Net Profit of KFC and DFC.

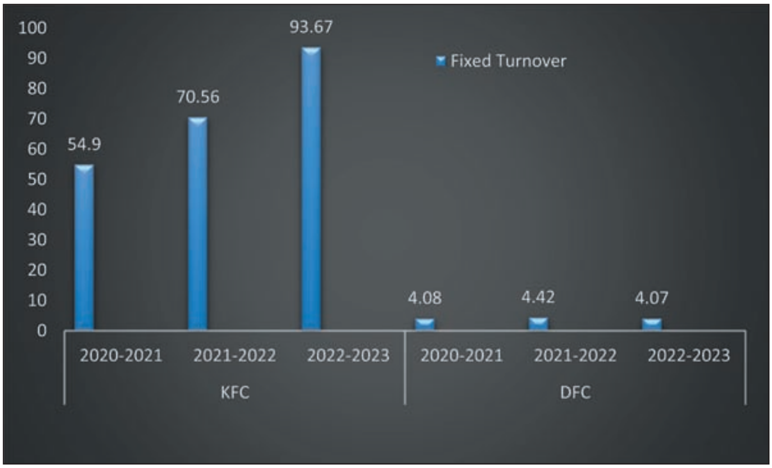

Figure A10. Fixed Assets Turnover of KFC and DFC.

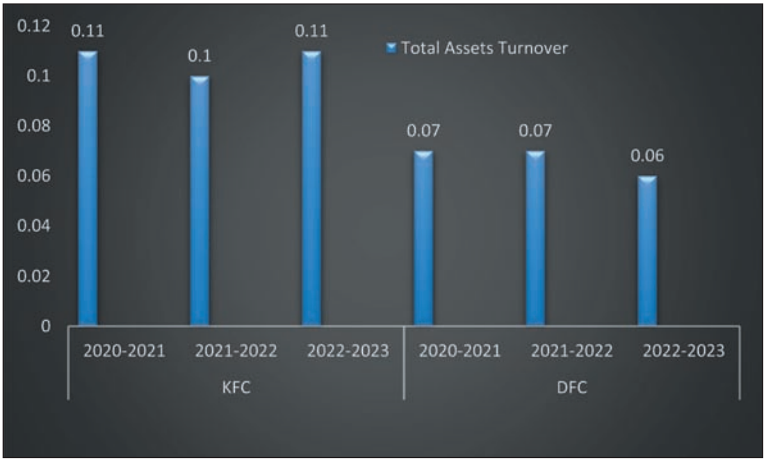

Figure A11. Total Asset Turnover of KFC and DFC.

Book Review

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Ginie Servant-Miklos, *Pedagogies of Collapse: A Hopeful Education for the End of the World as We Know It*. Bloomsbury Academic, 2024, 282 pp., ₹4,131. ISBN 978-1-3504-0049-8, ISBN 978-1-3504-0048-1.

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"We are staring collapse in the face"

That's the sentence with which Virginie (Ginie) Servant-Miklos begins her book *Pedagogies of Collapse: A Hopeful Education for The End of the World as We Know It*.

Climate crisis and collapse became the buzzwords only in the 21st century. But the predictions of rising temperature began almost 200 years ago with Joseph Fourier discovering in 1824 that the Earth's atmosphere traps heat. Eunice Foote further added in 1856 that water vapour and carbon dioxide could be causes for the temperature increase. In 1896, Svante Arrhenius discovered that the burning of fossil fuels emanates carbon dioxide, which could lead to climate change. We had enough time, if not to stop the climate crisis, but to slow it down.

The 20th century also witnessed discoveries related to greenhouse gases, which include the Calendar effect and the Keeling curve. The Meadows Report of 1972 warned us of a potential societal collapse if unsustainable growth continued. Yet, those who went through education since the 70s never heard of the term climate crisis, let alone being taught the knowledge and skills to address it. Even when the signs of climate crisis are evident, learning in denial seems to be the norm, with little concern for the catastrophe ahead of us. The extreme weather conditions would eventually spiral into pandemics, wars and socio-economic inequalities, leading to a systemic collapse, warns the author.

The book is a wake-up call, especially for those on the frontlines of witnessing the impact of collapse. The discourses on the climate crisis revolve around plastic recycling rather than a ban on producing plastic items. We still discuss gross domestic product and economic growth when our global consumption stands at 1.76 planets per year. The COP29 dispersed with decisions to pour currencies from the Global North to the Global South and the carbon credit trade. These narratives depict the chasm between the ignorant present and the horrific future.

The continued preference for a capitalist economy over individual and societal well-being makes the education system incapacitant to address the crisis. Moving beyond traditional models of knowledge acquisition and standardised testing is a necessity. The book introduces a new educational paradigm, Pedagogies of Collapse, and a new educational framework, Experimental Pedagogies (XP), for educators to emulate, adapt or be inspired by to design new frameworks and techniques relevant to their specific contexts.

Pedagogies of Collapse emphasises existential awareness, emotional resilience and critical thinking. The four key dialogues for Pedagogies of Collapse include Speak the Truth to provide students with an honest understanding of the ecological and social crisis we face; Make Space for Grief to recognise and acknowledge the profound grief and anxiety as a response to collapse; Take Appropriate Action Now to develop skills for survival, community building and social change; and Imperfect Solidarities to overcome individualism and encourage a shared responsibility.

XP framework discusses five interconnected dimensions, viz. Cognitive, Individual, Group, Societal and Global, as lenses in critical pedagogy. Jigsaw Learning, Problem-oriented Project approach and the card game COLLAPSE are some of the other techniques shared by the author to help students understand the depth of the impact.

The discord she feels of being part of the intergenerational injustice is evident in her writing. She was part of a privileged generation that benefitted from consumption while shifting the burden of climate mitigation and adaptation to the generations to come. She warns us of our cognitive biases, attachments to destructive systems and collective bargains to maintain the status quo. The educator, activist and builder in her is unable to remain dormant amidst the reality. In her present capacity as Assistant Professor of Clinical Psychology at the Erasmus School of Social and Behavioural Sciences, as the Chair of Fair Fight Foundation, a women's empowerment charity, as a contributor to the Design Impact Transitions Platform through the Master's Programme in Societal Transitions and European University of Post-Industrial Cities (UNIC) consortium of European Universities through the Master's Programme in Superdiversity, Ginie shares her expertise in environmental and social education, environmental psychology and experimental pedagogics. The book is one more step in using her full capacity to meet the challenge.

Finally, the author reminds us that living in a world marked by collapse and committing to make a positive difference in the world is not easy. Self-care is the only immunity against burnout and compassion fatigue, according to her. She also directs us to Learn through dialogic engagements, Love compassionately and Live lightly. Controlled degrowth, doing less, buying less, building less and travelling less are a few steps we could collectively take.

Unlike other books that discuss the climate crisis and the role of education, what differentiates this one is the practitioner's voice and the personal touch shared through lived experiences. A must-read for anyone associated with the education system and genuinely concerned about climate change. To enliven a drive to action, read word by word from cover to cover. The book is accessible freely through Bloomsbury Open Access Publications.

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