

Investor Perception of Market-Based Financing for India's Energy Transition: A Comparative Study of Ongc, Ntpc and Coal India

Vunyala Pravalika¹, Dr. K. Famitha Begum²

¹Research Research scholar, Department of Management studies [Vels Institute of Science, Technology & Advanced Studies]

²Assistant Professor, Department of Management studies [Vels Institute of Science, Technology & Advanced Studies]

Abstract- Aims: To examine investor perception of market-based financing instruments such as green bonds, Qualified Institutional Placements, Offer for Sale disinvestment and ESG-linked bonds used by Oil and Natural Gas Corporation (ONGC), National Thermal Power Corporation (NTPC) and Coal India Limited (CIL) to fund India's energy transition. Evaluate the influence of government backing and disinvestment transparency on investor confidence. Assess the effect of dividend yield and return expectations on investor perception. Assess the influence of ESG and sustainability disclosures on investor confidence towards the three public sector energy undertakings. **Hypothesis:** Demographic variables are not significantly associated with investor perception towards market-based financing instruments of ONGC, NTPC and Coal India. **Approach:** The purpose of the research methodology is to resolve the research problem through a scientific evaluation of the research topic, namely investor perception of market-based financing for India's energy transition among ONGC, NTPC and Coal India investors. The term "required primary data" refers to data that is original, suitable for questionnaire-based survey procedures, and generates high accuracy through structured discussions with respondents. Secondary data for this study have already been collected for a specific purpose from annual reports, stock exchange filings, business journals, newspapers, websites and prior theses. **Examination:** The Test of Satisfaction towards market-based financing instruments and the Test of F values for investment amount and age furnished by the perception of investors towards ONGC, NTPC and Coal India. Nevertheless, this demonstrates that investors in the 36-45 years age group and those investing between Rs. 50,001 and Rs. 1,00,000 annually are more likely to be affected by the Test of Satisfaction regarding market-based financing instruments. In summary, market-based financing is becoming the most critical and closely watched avenue through which public sector energy undertakings raise capital for the energy transition. The "Investor Confidence Index" built on the perception of respondents towards green bonds, QIPs, disinvestment and ESG-linked instruments is the most frequently used parameter for assessing the market acceptance of PSU energy financing. Regulators and company managements are obligated to strengthen transparency and disclosure practices that optimise investor confidence. Nevertheless, market-based financing for the energy transition encounters a few obstacles during the structuring and implementation phases. The objective of this paper is to examine these obstacles in order to improve investor confidence and to determine strategies for overcoming them. Furthermore, it examines and compares investor perception across ONGC, NTPC and Coal India.

Keywords: Energy Transition, Market-Based Financing, Investor Perception, Green Bonds, ONGC, NTPC, Coal India, Disinvestment.

I. INTRODUCTION

India's commitment to achieving net-zero carbon emissions by 2070 has placed an enormous financing burden on public sector energy undertakings that must simultaneously sustain core operations and fund new-generation clean energy assets. The ongoing generation of adequate capital

is contingent upon the ability of these enterprises to access diversified, market-based sources of finance rather than relying solely on budgetary support, as a result of the widening gap between energy-transition investment requirements and available public funds. In this scenario, ONGC, NTPC and Coal India are particularly important, as they collectively account for a substantial share of India's energy value chain and are simultaneously being

repositioned as vehicles for renewable capacity addition, green hydrogen, and allied clean-energy investment. It is imperative for these public sector undertakings to meticulously structure market-based instruments like green bonds, Qualified Institutional Placements, Offer for Sale disinvestment and ESG-linked bonds in order to optimize the cost of capital while assuring investors of the credibility of their energy-transition strategy. In order to achieve sustainable financing outcomes, company management must also monitor investor sentiment and market perception to sustain demand for future issuances.

The selection of ONGC, NTPC and Coal India as the research focus is justified by their large-scale character in comparison to other public sector energy enterprises, which allows for meaningful comparison of investor perception across upstream oil and gas, power generation and coal mining segments. Investor perception is fundamentally shaped by the perceived safety of government ownership, the transparency of the disinvestment process, the attractiveness of returns, and the credibility of each company's disclosed energy-transition roadmap. The relationship between market-based financing structures and investor confidence, as well as the demographic factors that influence it, will be comprehensively examined in this study. Revenue and financing costs for the energy transition of public sector operations are significantly influenced by investor perception, and the proper management of disclosure and transparency practices can considerably increase the market acceptance of these instruments.

II. REVIEW OF LITERATURE

Anandh and Subburaj (2026) examined the role of FinTech in enhancing operational efficiency and financial inclusion in the Indian banking sector. The study highlights how customer-focused business models, digital innovation, and automation have transformed banking operations and improved the accessibility of financial services. The authors note that the rapid development of FinTech has influenced areas such as operational efficiency, financial inclusion, and loan delivery. Using a mixed-

method approach based on both primary and secondary data, the study provides insights into how technology-driven financial services are reshaping the Indian banking sector. Although the study focuses on FinTech and banking rather than e-commerce recommendations, it demonstrates the broader role of digital technologies, automation, and customer-oriented systems in influencing service delivery and user experiences. This provides supporting evidence for examining how AI-enabled technologies can similarly influence consumer interactions and decision-making in digital commerce.

Hassan et al. (2025) examined the moderating role of personalized recommendations in the relationship between trust, satisfaction, and loyalty in AI-driven e-commerce. Using a quantitative research design and structural equation modelling, the study found that trust positively influenced consumer satisfaction and loyalty, while personalized recommendations strengthened these relationships. The findings demonstrate that personalization can play an important role in shaping consumers' perceptions and behavioural responses to AI-enabled e-commerce environments. The study is particularly relevant to the present research because it establishes the importance of personalization and trust in determining consumer responses to AI-driven recommendation systems.

Subburaj (2024) examined the influence of investors' emotional intelligence on investment decision-making. The study was conducted among 300 investors in Chennai City, using purposive sampling and a structured questionnaire based on a five-point Likert scale. The data were analyzed using descriptive statistics and simple linear regression. The findings revealed a significant positive relationship between emotional intelligence and investment decision-making. The study further indicated that self-awareness, self-motivation, and empathy contribute to investors' ability to manage emotions, overcome obstacles, and make sound investment decisions. The research highlights the importance of psychological and behavioural factors in shaping individual decision-making. Although the study focuses on investment decisions rather than e-

commerce, its findings provide relevant supporting evidence for understanding how individual perceptions, emotional responses, and cognitive factors can influence decision-making behaviour. This is relevant to the present study because consumer responses to AI-driven recommendations may similarly depend on factors such as trust, perceived usefulness, confidence, and willingness to act on recommended products.

Chua et al. (2023) developed and empirically tested an attitude–perception–intention model of AI recommendation acceptance using an experimental sample of 368 participants. The study examined attitude toward AI, trust, perceived accuracy, uncertainty, and behavioural intention to accept AI recommendations. The findings indicated that consumers' attitudes toward AI were associated with their acceptance of AI recommendations, while trust and perceived accuracy became particularly relevant under higher-risk conditions. The study demonstrates that acceptance of AI recommendations depends on both technological characteristics and consumers' psychological perceptions.

Xie and Yu (2022) examined consumers' responses to AI versus human recommenders in e-commerce, with particular attention to search and experience products. Their experimental research found that consumers exhibited less algorithm aversion when AI recommended search products than when it recommended experience products. The findings indicate that product type can influence consumers' willingness to rely on AI recommendations, suggesting that the effectiveness of AI recommendation systems is context-dependent.

Zhang et al. (2021) reviewed the application of artificial intelligence in recommender systems and explained how AI-based systems learn from users' previous behaviours to predict preferences and provide personalized recommendations. The study reviewed AI approaches including neural networks, deep learning, evolutionary algorithms, transfer learning, and other computational techniques. It provides an important technological foundation for

understanding how modern AI recommendation systems generate personalized product suggestions. Cabrera-Sánchez et al. (2020) examined the factors influencing consumers' adoption and use of online recommendation systems in e-commerce using an extended UTAUT2 model. The study surveyed 448 users and incorporated technology fear and trust as additional factors. The findings highlighted the importance of performance expectancy, hedonic motivation, trust, and technology fear in determining consumers' intention to use recommendation systems. The study established that consumers' acceptance of AI-enabled recommendation systems depends not only on their technological capabilities but also on perceptions of usefulness, trust, and psychological concerns.

Subburaj et al. (2018) examined the development of finance and marketing systems based on artificial intelligence in their study, Research in Finance and Marketing System Develop Based on Artificial Intelligence. The study highlights the emerging role of artificial intelligence in transforming traditional finance and marketing activities through technology-enabled systems. The authors discuss the potential of AI to support the analysis of business information, improve marketing processes, and facilitate more systematic decision-making. The integration of AI into finance and marketing can enable organizations to process large volumes of information and develop technology-based approaches for understanding market conditions and consumer-related activities. The study provides an early foundation for understanding the application of artificial intelligence in marketing and business decision-making, which is particularly relevant to subsequent developments in AI-driven personalization and recommendation systems in e-commerce.

Statement of The Problem

Public sector energy undertakings, including ONGC, NTPC and Coal India, are currently confronted with a competitive capital-raising environment as a result of the growth of green and sustainability-linked financial markets and the liberalization of investment norms. Investor confidence has been examined in relation to activities such as green bond issuance,

disinvestment through Offer for Sale, Qualified Institutional Placement and ESG disclosure. Nevertheless, it appears that these market-based financing practices have not been examined in their entirety as factors that influence investor perception in public sector energy undertakings such as ONGC, NTPC and Coal India. For example, green bond issuance is one of the fundamental instruments that guarantees the attainment of the energy-transition financing objective. Limited comparative evidence across the three companies is an indicator of the gap in existing literature on investor-perception management in this sector. Market-based financing practices have been associated with enhanced investor confidence, according to scholars. Nevertheless, there is a lack of information available regarding the comparative application of the aforementioned market-based financing practices to improve investor perception towards ONGC, NTPC and Coal India.^[^3] The study researches, in a comparative discussion, investor perception of market-based financing for India's energy transition among ONGC, NTPC and Coal India.

Objectives of the Study

1. To ascertain the influence of return expectations and government backing on investor perception of market-based financing instruments.
2. Assess the influence of disinvestment transparency on investor perception. Evaluate the impact of dividend yield and ESG disclosure on investor confidence.
3. Compare investor perception of market-based financing across ONGC, NTPC and Coal India.
4. Hypothesis:

Investor perception of market-based financing instruments of ONGC, NTPC and Coal India is not significantly correlated with demographic variables.

Sample Design

The primary data was obtained through the use of random samples. A field survey was conducted using a structured Questionnaire administered to retail and institutional investors. A simple random sampling technique is employed to determine investor perception of market-based financing for India's energy transition, with a sample size of 150.

Statistical Tools

The ANOVA, Descriptive and Simple Percentage analyses have been used to analyse the influence on investor perception of market-based financing instruments of ONGC, NTPC and Coal India.

III. RESEARCH METHODOLOGY

The objective of the research methodology is to resolve the research issue; it is the scientific examination of the scientific approach to a research topic, namely the influence on investor perception of market-based financing instruments for India's energy transition. The term "required primary data" denotes data that is original, suitable for survey procedures, and produces high accuracy through discussions with respondents. The secondary data for this study are those that have already been collected for a specific purpose from annual reports, stock exchange disclosures, magazines, newspapers, websites, theses, and other sources.

Age of the Investors

Age is a vital characteristic of the analysis of investor practices used to determine the perception of the respondents regarding the extent to which they are represented across the sample.

Table 1 Age of the Investors

S. No.	Age Group	Number of Investors	Percentage
1.	Up to 25 years	18	12.00
2.	26 – 35 years	45	30.00
3.	36 – 45 years	62	41.33
4.	Above 45 years	25	16.67
	Total	150	100.00

Primary Data

Table 1 shows that out of 150 respondents, 41.33 percent of the respondents are identified as the 36-45 years age group. This category of investor is the predominant age group. Among the 26-35 years, 30.00 percent of respondents; up to 25 years, 12.00 percent of respondents; and above 45 years, 16.67 percent of respondents.

The investor age group of 36-45 years (41.33 percent) is determined to be the most prevalent

because of investor participation in the market-based financing of the energy transition.

Annual Investment of the Investors

Annual investment amount is a necessary characteristic to analyse investor attitude regarding market-based financing instruments of ONGC, NTPC and Coal India.

Table 2 Annual Investment of the Investors

S. No.	Annual Investment in PSU Instruments	Number of Investors	Percentage
1.	Up to Rs. 50,000	40	26.67
2.	Rs. 50,001 – 1,00,000	55	36.67
3.	Rs. 1,00,001 – 2,00,000	40	26.67
4.	Above Rs. 2,00,000	15	10.00
	Total	150	100.00

Primary Data

From Table 2, the researcher infers that 36.67 percent of the respondents invest between Rs. 50,001 and Rs. 1,00,000 annually; 26.67 percent of them invest up to Rs. 50,000; 26.67 percent of the respondents invest between Rs. 1,00,001 and Rs. 2,00,000; and only 10.00 percent invest above Rs. 2,00,000 annually.

Preferred Market-Based Financing Instrument

Factor identification and percentage distribution based on investor preference among the market-

based financing instruments used by ONGC, NTPC and Coal India.

Table 3 Preferred Market-Based Financing Instrument

S. No.	Preferred Financing Instrument	Number of Investors	Percentage
1.	Green Bonds	55	36.67
2.	Qualified Institutional Placement (QIP) / FPO	35	23.33
3.	Disinvestment / Offer for Sale (OFS)	30	20.00
4.	ESG-linked / Sustainability Bonds	30	20.00
	Total	150	100.00

Primary Data

Table 3 shows that out of 150 respondents, 36.67 percent of the respondents prefer Green Bonds. This category is the predominant preference among investors. Among the remaining respondents, 23.33 percent prefer Qualified Institutional Placement/FPO, 20.00 percent prefer Disinvestment/Offer for Sale, and 20.00 percent prefer ESG-linked/Sustainability Bonds.

Level of Expectations towards Market-Based Financing Instruments

Investor expectations were measured across six key variables on a five-point scale ranging from Very High (VH) to Very Low (VL).

Table 4
Level of Expectations towards Market-Based Financing Instruments

S. No.	Variables	VH	H	M	L	VL	Total
1.	Return on green bonds and market-based instruments is attractive	62	48	20	12	8	150
		41	32	13	8	5	100.00
2.	Government backing assures the safety of investment in PSU instruments	70	42	18	12	8	150
		47	28	12	8	5	100.00
3.	Disinvestment / OFS process is transparent	40	55	30	15	10	150
		27	37	20	10	7	100.00
4.	Dividend yield of ONGC, NTPC and Coal India is satisfactory	30	60	35	15	10	150
		20	40	23	10	7	100.00
5.	ESG and sustainability disclosures build investor confidence	48	52	28	14	8	150

		32	35	19	9	5	100.00
6.	The company's energy transition strategy is credible	35	66	28	13	8	150
		23	44	19	9	5	100.00

Source: Primary Data

Table 4 shows that the highly expected variables among investors are: government backing assures the safety of investment, rated very highly by 70 (47 percent) respondents; return on green bonds and market-based instruments is attractive, rated very highly by 62 (41 percent) respondents; ESG and sustainability disclosures build investor confidence, rated highly by 52 (35 percent) respondents; the

energy-transition strategy is credible, rated highly by 66 (44 percent) respondents; disinvestment/OFS process is transparent, rated highly by 55 (37 percent) respondents; and dividend yield is satisfactory, rated highly by 60 (40 percent) respondents.

ANOVA for Investment Amount and Level of Expectations

Table 5 ANOVA - Investment Amount and Level of Expectations

Variables	Investment Amount	N	Mean	S.D.	F Value	Sig.
Return on green bonds and market-based instruments is attractive	Up to Rs. 50,000	40	4.28	1.23	4.21 0.05*	
	Rs. 50,001–1,00,000	55	4.52	1.53		
	Rs. 1,00,001–2,00,000	40	3.25	0.93		
	Above Rs. 2,00,000	15	3.55	1.02		
	Total	150	4.05	1.26		
Government backing assures the safety of investment	Up to Rs. 50,000	40	4.63	0.56	3.86 0.05*	
	Rs. 50,001–1,00,000	55	4.56	0.46		
	Rs. 1,00,001–2,00,000	40	3.27	0.66		
	Above Rs. 2,00,000	15	3.35	0.53		
	Total	150	4.10	0.62		
Disinvestment / OFS process is transparent	Up to Rs. 50,000	40	3.36	0.86	1.36 0.44	
	Rs. 50,001–1,00,000	55	3.55	0.79		
	Rs. 1,00,001–2,00,000	40	3.36	1.00		
	Above Rs. 2,00,000	15	3.36	1.03		
	Total	150	3.43	0.91		
Dividend yield is satisfactory	Up to Rs. 50,000	40	3.36	1.06	1.69 0.44	
	Rs. 50,001–1,00,000	55	3.66	1.05		
	Rs. 1,00,001–2,00,000	40	3.19	1.22		
	Above Rs. 2,00,000	15	3.33	0.50		
	Total	150	3.39	1.06		
ESG disclosures build investor confidence	Up to Rs. 50,000	40	3.89	0.49	3.69 0.05*	
	Rs. 50,001–1,00,000	55	4.26	1.03		
	Rs. 1,00,001–2,00,000	40	3.73	1.23		
	Above Rs. 2,00,000	15	3.36	1.11		
	Total	150	3.88	0.99		
Energy transition strategy is credible	Up to Rs. 50,000	40	4.21	1.00	3.22 0.11	
	Rs. 50,001–1,00,000	55	3.86	1.51		
	Rs. 1,00,001–2,00,000	40	4.26	0.47		
	Above Rs. 2,00,000	15	4.62	0.48		
	Total	150	4.14	1.06		

Based on Primary Data * Sig.@5%

The calculated F values of 4.21, 3.86, 1.36, 1.69, 3.69 and 3.22 indicate that four of the six variables — return expectations, government backing, ESG disclosures significant at the five percent level. These values signify that there is a significant difference between investment amount and investor perception for these variables. Therefore, the stated null hypothesis is rejected for these variables. For

disinvestment transparency and dividend yield, the calculated F values are not significant, and the stated null hypothesis is accepted for those variables. However, this clearly shows that investors with an annual investment of Rs. 50,001 to Rs. 1,00,000 display comparatively stronger perception towards market-based financing instruments than other investment categories.

ANOVA for Age and Level of Expectations

Table 6
ANOVA - Age and Level of Expectations

Variables	Age Group	N	Mean	S.D.	F Value	Sig.
Return on green bonds and market-based instruments is attractive	Up to 25 years	18	4.25	1.36	6.52 0.00*	
	26–35 years	45	4.66	1.20		
	36–45 years	62	4.79	1.13		
	Above 45 years	25	4.39	1.46		
	Total	150	4.60	1.25		
Government backing assures the safety of investment	Up to 25 years	18	4.69	1.06	4.02 0.05*	
	26–35 years	45	4.16	1.19		
	36–45 years	62	4.37	1.29		
	Above 45 years	25	3.96	0.83		
	Total	150	4.26	1.14		
Disinvestment / OFS process is transparent	Up to 25 years	18	4.15	1.13	2.89 0.09	
	26–35 years	45	3.65	1.26		
	36–45 years	62	3.85	1.00		
	Above 45 years	25	4.14	0.69		
	Total	150	3.90	1.04		
Dividend yield is satisfactory	Up to 25 years	18	4.03	1.16	2.03 0.13	
	26–35 years	45	3.55	0.79		
	36–45 years	62	3.60	1.05		
	Above 45 years	25	3.39	0.51		
	Total	150	3.61	0.95		
ESG disclosures build investor confidence	Up to 25 years	18	4.56	1.16	7.30 0.00*	
	26–35 years	45	4.25	1.05		
	36–45 years	62	4.44	1.12		
	Above 45 years	25	3.99	0.83		
	Total	150	4.30	1.05		
Energy transition strategy is credible	Up to 25 years	18	3.61	1.28	4.85 0.05*	
	26–35 years	45	3.42	1.06		
	36–45 years	62	4.14	1.10		
	Above 45 years	25	4.42	0.62		
	Total	150	3.90	1.08		

Based on Primary Data * Sig.@5%

The test of F values for age and the Test of Satisfaction towards market-based financing instruments furnished by investor perception of ONGC, NTPC and Coal India are 6.52, 4.02, 2.89, 2.03, 7.30 and 4.85. Four of these values are significant at the five percent level. Therefore, the stated null

hypothesis is rejected for these variables. However, this clearly shows that investors aged 36–45 years and those above 45 years demonstrate comparatively higher satisfaction on the Test of Satisfaction towards market-based financing instruments used for the energy transition.

Findings

1. The investor age group of 36-45 years (41.33 percent) is identified as the most prevalent due to active investor participation in market-based financing of the energy transition.
2. It concludes that investors with an annual investment of Rs. 50,001 to Rs. 1,00,000 (36.67 percent) form the predominant investment category participating in the market-based financing of ONGC, NTPC and Coal India.
3. The most prevalent instrument preference among investors is Green Bonds (36.67 percent), attributed to their perceived safety and attractive returns.
4. It indicates that government backing (47 percent very-highly rated) is the strongest driver of investor confidence towards market-based financing of the energy transition.
5. Respondents expressed a high level of confidence with 70 (47 percent) that government backing assures the safety of investment in market-based instruments issued by ONGC, NTPC and Coal India.
6. The calculated F values of 4.21, 3.86, 1.36, 1.69, 3.69 and 3.22 indicate significant differences between investment amount and investor perception for return expectations, government backing and ESG disclosures at the five percent level. Consequently, the null hypothesis is rejected for these variables, while it is accepted for disinvestment transparency and dividend yield. Nevertheless, this plainly demonstrates that investors with mid-range annual investment amounts display distinctly stronger perception of market-based financing instruments than other investment categories.
7. The F values for age and the Test of Satisfaction towards market-based financing instruments demonstrate significant differences at 6.52, 4.02, 2.89, 2.03, 7.30 and 4.85. Consequently, the null hypothesis is rejected for the significant variables. Nevertheless, this demonstrates that investors aged 36-45 years and above 45 years are more likely to respond favourably to the Test of Satisfaction regarding market-based financing instruments used for the energy transition.

IV. RESULTS & DISCUSSION

The purpose of this investigation is to examine the relationship between market-based financing structures and investor perception towards the energy transition undertaken by ONGC, NTPC and Coal India. The factor analysis and the results indicate that government backing and transparent disinvestment practices have a considerable positive impact on investor confidence. The findings of the present investigation indicate that market-based instruments customised to investor expectations of safety, transparency and returns improve overall investor perception. When the results of the ancillary hypotheses concealed within the investor-perception model are considered, "return expectation" and "government backing" have the most significant relationship with favourable investor perception.

Consequently, company management and capital-market regulators should establish specific, measurable, transparent and time-targeted disclosure practices for market-based financing instruments, as retail and institutional investors constitute the largest proportion of demand in the majority of PSU bond and equity issuances. This assertion is corroborated by the research conducted in the comparative discussion of investor perception of market-based financing for India's energy transition across ONGC, NTPC and Coal India. Furthermore, signalling theory argues that in order to obtain sustained investor confidence, it is essential for issuing companies to be transparent about the expectations they are expected to meet. Furthermore, ESG disclosure is a critical factor that is defined as the communication of environmental, social and governance performance as a result of structured sustainability reporting and third-party assurance.

The comparative perception of investors towards ONGC, NTPC and Coal India in the context of market-based financing for the energy transition is powerfully discussed in the research. Regulators, who are accountable for the implementation of appropriate disclosure norms to improve the transparency and credibility of issuing companies,

will find this information to be especially pertinent. Furthermore, the perception model suggests that the most significant factors influencing investor confidence are government backing and return expectations. Return expectation is the term used to describe the anticipated financial benefit that an investor seeks to attain from a market-based instrument relative to its perceived risk. The research is a compelling examination of investor perception of market-based financing for India's energy transition among ONGC, NTPC and Coal India.

Market-based financing is the most critical and closely monitored avenue through which public sector energy undertakings raise capital for the energy transition. The "Investor Confidence Index" built on investor perception of market-based financing instruments of ONGC, NTPC and Coal India is the most frequently used parameter for assessing the market acceptance of PSU energy financing. Company management is required to develop and execute a market-based financing strategy that optimises investor confidence and cost of capital. However, the market-based financing framework faces a few challenges during the structuring and implementation phases. This paper aims to investigate these challenges in order to enhance investor confidence and to identify strategies for overcoming them. Additionally, it has investigated and compared investor perceptions of market-based financing for the energy transition across ONGC, NTPC and Coal India.

V. CONCLUSION

The comparative analysis of ONGC, NTPC, and Coal India highlights the complex relationship between investor perception and market-based financing in India's energy transition. The three enterprises occupy different positions within the energy system and therefore face distinct expectations concerning financial performance, environmental responsibility, transition risk, and future investment opportunities. Their comparison demonstrates that access to market-based finance depends not only on financial capacity but also on the credibility and transparency of an enterprise's transition strategy.

Investor perception is increasingly shaped by a combination of conventional financial indicators and non-financial considerations, including climate-related risks, governance practices, environmental disclosures, and the ability to demonstrate credible progress toward long-term transition objectives. For energy companies operating in carbon-intensive sectors, communicating how existing assets, revenues, and capabilities will support a changing energy system can therefore be an important component of maintaining investor confidence.

Market-based financing can complement public funding and corporate internal resources by expanding the pool of capital available for transition-related investments. However, effective mobilization of such finance requires reliable disclosure, transparent use-of-proceeds frameworks, credible sustainability targets, and consistent communication with investors. The experiences and market perceptions associated with ONGC, NTPC, and Coal India can therefore provide useful insights into the opportunities and constraints facing India's broader energy-financing landscape.

Future research could strengthen this analysis by combining investor surveys with financial-market data, including stock-price responses, bond yields, institutional ownership, ESG disclosures, and the pricing of green or sustainability-linked instruments. Such evidence would help establish more precisely how investor perceptions influence the cost and availability of capital for energy-transition investments. Overall, the study underscores the importance of aligning financial-market mechanisms with credible corporate transition strategies to support the long-term financing requirements of India's energy transition.

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