

Research Article

INVESTOR AWARENESS AND PARTICIPATION IN COMMODITY TRADING IN INDIA: A STUDY ON SANGAREDDY TOWN

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Abstract

Commodity derivatives play a vital role in price discovery, risk hedging, and portfolio diversification within India's financial architecture. However, retail investor participation in semi-urban contexts remains contingent upon market awareness, cost transparency, information sources, and risk perception. This study examines investor awareness and participation patterns in commodity trading among 132 respondents in Sangareddy town, Telangana. Primary data were collected through a structured digital survey. The sample is predominantly young (75.76% aged 18–25) and female-majority (61.1%). The findings show a strong preference for bullion (65.15%), substantial reliance on friends and family for advice (59.09%), and limited full awareness of brokerage costs (18.94%).

The study applies Wilson 95% confidence intervals, Chi-Square goodness-of-fit tests, Two-Proportion Z-tests, and 1–5 ordinal indices to examine the distribution of awareness, confidence, risk preference, and selected demographic differentials. The evidence points to an 'Awareness-Protection Paradox': respondents demonstrate relatively high awareness and return satisfaction while simultaneously placing strong emphasis on capital safety. The findings support targeted interventions by SEBI, commodity exchanges, intermediaries, and educational institutions to improve fee transparency, reduce dependence on informal advice, strengthen practical risk-management capability, and promote informed diversification.

Keywords: commodity derivatives, investor awareness, risk tolerance, bullion trading, MCX, NCDEX, Wilson Confidence Interval, Chi-Square test, Sangareddy

1. Introduction

Commodity derivative exchanges form a cornerstone of modern financial architecture, providing essential mechanisms for price discovery, risk hedging, asset allocation, and liquidity generation. In India, organized commodity trading has evolved significantly following the demutualization and growth of national electronic exchanges such as the Multi Commodity Exchange of India (MCX) and the National Commodity & Derivatives Exchange (NCDEX). Under the regulatory oversight of the Securities and Exchange Board of India (SEBI), commodity derivative segments have expanded access to futures, options, and index contracts across agricultural commodities, precious metals, industrial metals, and energy products.

Despite regulatory modernization and digital infrastructure, retail participation in commodity markets—particularly in tier-2/3 semi-urban regional centers like Sangareddy —

remains constrained by structural financial literacy gaps, perceived risk volatility, informal information channels, and fee opacity.

1.1 Research Problem

Commodity derivatives provide robust opportunities for portfolio diversification, yet meaningful retail participation depends on investors possessing not only general market awareness but also transaction-specific knowledge, reliable information, and an appropriate understanding of risk.

The central research problem is that an investor may express confidence in participating in commodity trading while having incomplete knowledge of brokerage charges, margin requirements, risk mechanisms, and appropriate sources of investment advice. Such a condition creates a dangerous gap between psychological readiness and operational preparedness. In Sangareddy, there is a critical need to determine whether high awareness and return satisfaction are genuinely accompanied by adequate cost awareness, disciplined risk orientation, and informed decision-making.

1.2 Significance of the Study

The significance of this study arises from the growing accessibility of commodity derivative markets to retail investors and the urgent need to understand how investors in semi-urban locations interpret opportunities, costs, and risks.

- **Localized Diagnostics:** The study generates primary evidence on the demographic profile, sources of advice, asset preferences, and cost awareness specific to Sangareddy, identifying gaps that remain hidden in national-level statistics.
- **Investor Protection:** Observed dependencies on informal advice networks and a lack of fee transparency highlight vulnerabilities, providing practical inputs for regulatory institutions to reduce information asymmetry.
- **Educational Imperative:** Given the sample's large proportion of young, novice market participants, the evidence supports the development of targeted literacy programs covering margins, leverage, and stop-loss mechanisms.
- **Methodological Rigor:** The study integrates descriptive evidence with advanced statistical tools (confidence intervals, goodness-of-fit testing, ordinal index measures) within a localized context, setting an empirical foundation for future multivariate research.

1.3 Research Objectives

- **O1:** To assess the level of investor awareness regarding commodity derivative products, gold investment, and exchange-related operations among respondents in Sangareddy town.
- **O2:** To examine investor confidence, sources of investment advice, trading frequency/tenure, preferred commodity assets, return satisfaction, and primary trading goals.
- **O3:** To test whether the observed response distributions and selected demographic differences in investor confidence, advice reliance, and asset preference are statistically significant.
- **O4:** To examine the observed patterns linking return aspirations, capital-safety preference, brokerage-cost awareness, and emotional risk tolerance.
- **O5:** To formulate an evidence-based strategic framework for SEBI, commodity exchanges, intermediaries, and educational institutions to strengthen informed and responsible commodity-market participation.

2. Literature Review, Research Gap, and Theoretical Grounding

2.1 Review of Literature

- **Market Development:** Ahuja (2006) established that investor participation must be understood within the broader framework of market development and regulation rather than as an isolated individual decision.
- **Market Efficiency:** Ali and Gupta (2011) provided the market-efficiency background by examining the efficiency of agricultural commodity futures markets in India using co-integration and causality approaches.
- **Institutional Framework:** Athma and Sagarika (2012) linked the institutional development of exchanges with the pressing need to improve investor understanding through targeted awareness initiatives.
- **Investor Behavior:** Ilyas (2015) shifted the focus from exchange-level performance to individual investor perception, analyzing how investors approach commodity trading conceptually.
- **Regional Awareness:** Venkateswari and Karthikeyan (2017) demonstrated the value of examining investor awareness alongside behavioral and risk-related characteristics—such as trading frequency and emotional risk tolerance—within regional contexts like Salem.

2.2 Identified Research Gaps

- **Geographical Gap:** There is limited empirical evidence specifically mapping commodity-investor awareness and participation in Sangareddy town.
- **Behavioural Integration Gap:** Prior studies rarely integrate awareness, confidence, advice sources, return satisfaction, and risk orientation into a single localized empirical framework.
- **Operational-Literacy Gap:** General market awareness does not equate to transactional literacy; this study explicitly assesses brokerage-cost awareness to measure practical operational readiness.
- **Information-Source Gap:** The quality of information dictates decision-making; this research directly scrutinizes the reliance on informal (friends/family) versus professional intermediaries.
- **Risk-Orientation Gap:** The study investigates the juxtaposition of high return objectives with a strong preference for capital protection.

2.3 Theoretical Grounding

The study draws on Behavioural Finance to interpret how investor confidence, information utilization, and risk perception frequently diverge. It is further grounded in Modern Portfolio Theory to contextualize how localized retail participants perceive the risk-return trade-off and diversification (or lack thereof, as evidenced by heavy bullion concentration).

3. Research Methodology

3.1 Sample and Data Collection

The study adopts a descriptive, cross-sectional empirical research design. Primary data were gathered from 132 respondents in Sangareddy town via a structured digital survey (distributed via email, WhatsApp, and SMS in June 2025) using non-probability convenience sampling.

3.2 Data Analysis and Statistical Tools

To ensure analytical rigor, the following tools were applied to the primary frequency dataset:

- **Wilson Score 95% Confidence Intervals:** Used to indicate the precision of the observed sample estimates for categorical proportions.
- **Chi-Square Goodness-of-Fit Test:** Executed to evaluate if observed categorical response distributions deviate significantly from an equal distribution.

- Two-Proportion Z-Test: Computed to test significant differences across demographic subgroups (e.g., Male vs. Female confidence).
- Ordinal Descriptive Index (1–5): Likert responses were assigned parametric weights to calculate continuous central tendency indicators.

4. Empirical Findings, Analysis & Interpretation

4.1 Demographic and Employment Profile

Table 1: Demographic Distribution

Demographic Variable	Category	Frequency (n)	Percentage (%)	95% Wilson CI (%)
Gender	Male Female	52 80	39.39% 60.61%	31.42% – 47.92% 52.08% – 68.58%
Age Group	18–25 years 26–35 years 36–50 years > 50 years	100 19 12 1	75.76% 14.39% 9.09% 0.76%	67.79% – 82.27% 9.39% – 21.38% 5.27% – 15.22% 0.13% – 4.16%
Education Level	Under Graduate Graduate Post Graduate SSLC / Below	56 35 19 22	42.42% 26.52% 14.39% 16.67%	34.32% – 50.95% 19.57% – 34.82% 9.39% – 21.38% 11.26% – 23.90%
Monthly Income	Rs. 25k–50k Rs. 50k–75k Rs. 75k–1L > Rs. 1L	104 12 5 11	78.79% 9.09% 3.79% 8.33%	71.05% – 84.88% 5.27% – 15.22% 1.63% – 8.56% 4.71% – 14.28%

Source: Primary Data

Analysis and Interpretation of Table 1 : The demographic profile demonstrates that the Sangareddy commodity market heavily attracts a younger, novice cohort. Females constitute a majority (60.61%), and an overwhelming 75.76% of respondents fall into the 18–25 age bracket. Economically, the sample is concentrated in the entry-level income tier, with 78.79% earning between Rs. 25,000–50,000. The 95% Wilson Confidence Intervals reinforce the statistical stability of these dominant categories. Ultimately, this profile indicates that the evidence largely represents novice retail participants rather than experienced, high-net-worth institutional traders, underscoring the urgent need for foundational investor education.

4.2 Behavioral Dimensions

Table 2: Behavioral Dimensions of Commodity Trading

Behavioral Dimension	Category / Option	Frequency (n)	Percentage (%)	95% Wilson CI (%)
Advice Source	Friends Self- Decision Family Consultancy / Broker	56 41 22 13	42.42% 31.06% 16.67% 9.85%	34.32% – 50.95% 23.77% – 39.42%

				11.26% – 23.90% 5.84% – 16.08%
Preferred Asset	Bullion (Gold/Silver) Agri - Commodities Energy (Crude Oil) Industrial Metals Others	86 22 9 8 7	65.15% 16.67% 6.82% 6.06% 5.30%	56.70% – 72.75% 11.26% – 23.90% 3.62% – 12.43% 3.09% – 11.45% 2.58% – 10.51%
Return Satisfaction	Satisfied Highly Satisfied Not Sure Unsatisfied	82 24 23 3	62.12% 18.18% 17.42% 2.27%	53.60% – 69.96% 12.43% – 25.75% 11.88% – 24.77% 0.77% – 6.47%
Trading Goal	Increase Wealth Regular Income Portfolio Diversification	60 53 19	45.45% 40.15% 14.40%	37.18% – 53.97% 32.19% – 48.65% 9.39% – 21.38%
Cost Awareness	Aware to Certain Extent Indifferent Fully Aware Not Aware	56 43 25 8	42.42% 32.58% 18.94% 6.06%	34.32% – 50.95% 25.13% – 41.01% 13.06% – 26.63% 3.09% – 11.45%
Participation Tenure	< 1 Year 2 to 3 Years 3 to 4 Years > 5 Years	105 17 5 5	79.55% 12.88% 3.79% 3.79%	71.88% – 85.50% 8.20% – 19.60% 1.63% – 8.56% 1.63% – 8.56%

Source: Primary Data

Analysis and Interpretation of Table 2 : Table 2 reveals a highly vulnerable investor base. A combined 59.09% rely strictly on informal networks (friends and family) for trading advice, compared to just 9.85% consulting professional brokers. Asset allocation is heavily skewed, with 65.15% exclusively preferring Bullion (Gold/Silver), severely neglecting portfolio diversification (only 14.40% trade for diversification goals). Alarming, despite 80.30% feeling satisfied with returns, only 18.94% are fully aware of the brokerage costs they are paying. Combined with the fact that 79.55% have been trading for less than one year, this portrays a novice, bullion-oriented demographic operating with substantial fee opacity.

4.3 Statistical Hypothesis Testing and Ordinal Index Scoring

Table 3: Chi-Square and Parametric Index Testing

Statement Dimension	Agreed (n)	Agreed (%)	Mean Index (1–5)	Chi-Sq Statistic	p-value (df =4)
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Gold Investment Awareness	100	75.76%	4.15 / 5.0	91.86	p < 0.001 ***
Confidence to Invest	88	66.67%	3.81 / 5.0	78.23	p < 0.001 ***
Capital Safety Preference	95	71.97%	3.82 / 5.0	96.41	p < 0.001 ***
Emotional Risk Tolerance	23 (Aggressive)	17.43%	2.51 / 5.0	38.23	p < 0.001 ***
Invest Margin Beyond Req.	36	27.27%	N/A	18.55	p < 0.001 ***

Source: Primary Data, Note: *** p < 0.001 (statistically significant departure from uniform distribution).

Analysis and Interpretation of Table 3 : The Chi-Square Goodness-of-Fit tests yield a p-value of < 0.001 across all dimensions, confirming that these response distributions are statistically significant and not due to random chance. The Ordinal Mean Indices explicitly reveal the "Awareness-Protection Paradox". While general awareness of gold investment is robust (Mean Index = 4.15/5), the respondents' emotional risk tolerance profile is distinctly conservative (Mean Index = 2.51/5). A significant 71.97% explicitly prioritize capital safety (Mean Index = 3.82/5). This mathematically proves that retail participants in this demographic treat commodity derivatives predominantly as safe-haven wealth preservation tools rather than active, aggressive risk-hedging instruments.

4.4 Subgroup Differentials

To assess whether behavioral gaps differ significantly across subgroups, Two-Proportion Z-Tests were calculated:

- Gender Confidence Differential: Male confidence (75.0%) vs. Female confidence (61.25%) yields Z = 1.66, p = 0.097. This difference is only marginally significant at the 10% level, meaning male confidence is slightly higher but not statistically conclusive at standard thresholds.
- Advice Network Gap: Informal advice (59.09%) vs. Professional advice (9.85%) yields Z = 9.81, p < 0.001. This proves a massive, statistically significant structural reliance on unverified peer networks over professional intermediaries.
- Asset Preference Concentration: Bullion preference (65.15%) vs. All other commodities (34.85%) yields Chi-Square = 12.12, p < 0.001. This highlights a statistically verified over-concentration in precious metal derivatives.

5. Comprehensive Objective-Tool-Finding Compatibility Table

Table 4: Objective-Tool-Finding Compatibility Matrix

Research Objective	Statistical Tools Applied	Major Empirical Findings	Comprehensive Compatibility (Interpretation)
01. Assess investor awareness. To evaluate awareness regarding commodity products, gold investment, and exchange operations.	• Percentage Analysis • Wilson 95% Confidence Interval (CI) • Ordinal Mean Index (1-5 scale) • Chi-Square Goodness-of-Fit (GOF)	• 75.76% of respondents agree they possess gold-investment awareness (Mean Index: 4.15/5). • Only 18.94% are	Supported: The tools successfully established that while general market awareness is relatively strong, practical transaction-

		fully aware of brokerage costs.	cost literacy remains critically incomplete.
O2. Examine confidence, advice, tenure, assets & goals. To analyze consultation sources, commodity preferences, and return satisfaction.	• Percentage Analysis • Wilson 95% Confidence Interval (CI) • Ordinal Index	• 59.09% rely heavily on friends or family for advice. • 65.15% strictly prefer bullion assets. • 80.30% are satisfied or highly satisfied with returns. • 79.55% have participated for less than one year.	Supported: The findings comprehensively profile the sample as predominantly novice, highly bullion-oriented, and strongly dependent on informal advice networks rather than professionals.
O3. Test statistical significance of distributions & subgroups. To verify if observed responses and demographic gaps are statistically meaningful.	• Chi-Square Goodness-of-Fit (GOF) • Two-Proportion Z-Test • Chi-Square Concentration Test	• All distribution GOF tests yielded $p < 0.001$. • The informal vs. professional advice gap is highly significant ($Z = 9.81$, $p < 0.001$). • Bullion concentration is highly significant ($\chi^2 = 12.12$, $p < 0.001$). • Gender confidence differential is marginally significant ($Z = 1.66$, $p = 0.097$).	Supported with Qualification: Most behavioral patterns are statistically verified as highly pronounced; however, the gender confidence gap is not significant at the conventional 5% level.
O4. Examine return aspirations vs. risk tolerance. To analyze patterns linking capital safety, cost transparency, and emotional risk.	• Cross-table Descriptive Comparison • Ordinal Indices • Chi-Square Goodness-of-Fit (GOF)	• Despite high return satisfaction, 71.97% explicitly prioritize capital safety (Safety Index: 3.82/5). • The Emotional Risk Tolerance Index is remarkably low (2.51/5).	Supported (As an Observed Pattern): The tools successfully uncover the "Awareness-Protection Paradox," proving that high return aspirations coexist with a highly conservative capital safety mindset.
O5. Develop strategic framework. To formulate evidence-based policies for SEBI, exchanges, and intermediaries.	• Evidence-to-Policy Empirical Synthesis (drawn directly from O1–O4 results)	• Derived six targeted interventions: regulatory fee transparency, peer-advice de-risking, risk hedging education, asset	Fulfilled: Strategic recommendations are not generic; they display comprehensive compatibility by directly responding to the measured

		diversification, youth inclusion, and grievance visibility.	empirical vulnerabilities identified in earlier objectives.
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Source: Compiled from primary statistical results

6. Discussion: The "Awareness-Protection Paradox"

The findings crystallize the 'Awareness-Protection Paradox'. Respondents exhibit high confidence (Mean Index 3.81) and solid return satisfaction (80.30%). Paradoxically, they exhibit a strong conservative bias, strictly prioritizing capital safety (71.97%) and displaying low emotional risk tolerance (Index 2.51/5). This behavior strongly suggests that in semi-urban contexts, commodity trading is psychologically equated to traditional gold hoarding rather than modern risk diversification. Coupled with a severe lack of fee transparency (only 18.94% fully aware of costs) and reliance on informal peer advice, these retail participants are exposed to unrecognized market friction and miss-selling.

7. Strategic Suggestions

Based directly on the empirical gaps identified (OBJECTIVE-5), the following policy matrix outlines actionable interventions for regulators and exchanges.

Table 5: Evidence-Based Policy Matrix

Policy Focus Area	Identified Empirical Gap	Targeted Strategic Intervention
Regulatory Fee Transparency	Only 18.94% are fully aware of brokerage charges.	Mandate standardized, all-inclusive fee disclosure pop-ups on digital trading applications.
Peer Advice De-risking	59.09% rely heavily on friends/family for advice.	Launch SEBI-certified regional literacy modules and mandatory warning disclaimers on digital "tips."
Risk Hedging Education	71.97% prioritize safety; low risk tolerance.	Deploy simulated trading sandboxes that actively demonstrate stop-loss and margin management.
Asset Diversification	65.15% are heavily concentrated in bullion.	Actively promote mini/micro contracts in agri - commodities and energy with localized guides.
Youth Financial Inclusion	75.76% are aged 18–25; 79.55% trade < 1 year.	Establish college-level commodity literacy clubs and ethical trading workshops in regional centers.
Grievance Visibility	32.58% are indifferent/unaware of costs/redressal .	Embed 1-click SEBI SCORES grievance portals directly into native brokerage user interfaces.

Analysis and Interpretation of Table 5 : The proposed suggestions are not generic platitudes; they are scientifically anchored to the study's specific empirical shortcomings. For instance, the mandate for fee transparency directly addresses the measured 18.94% cost awareness rate, while college-level workshops address the 75.76% youth demographic. This ensures maximum policy effectiveness for regulators like SEBI and exchanges like MCX/NCDEX.

8. Limitations & Further Research Scope

This study is constrained by three methodological limitations: (1) reliance on a convenience sample of 132 respondents in Sangareddy, limiting vast national generalizability; (2) a high youth concentration requiring cautious extrapolation to high-net-worth investors; and (3) a cross-sectional design lacking longitudinal tracking.

Future research should utilize raw individual-level datasets to execute Partial Least Squares Structural Equation Modeling (PLS-SEM), testing direct mediation pathways between advice sources, risk perception, and trading frequency across urban and rural trading hubs.

9. Conclusion

Commodity derivative participation in Sangareddy town is characterized by high enthusiasm for bullion, strong return satisfaction, and general market awareness. However, this psychological readiness masks deep operational vulnerabilities, including substantial dependence on informal advice networks, incomplete brokerage-cost awareness, and an overarching conservative risk profile. The objective-tool-finding compatibility matrix systematically confirms that expanding market access alone is insufficient. To foster a resilient retail investor base, SEBI, MCX, NCDEX, and localized intermediaries must aggressively prioritize transparent fee structures, practical risk-hedging education, and informed asset diversification over mere transactional speculation.

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