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TRADERS PERCEPTION ON COMMODITY DERIVATIVE MARKETS: A STUDY

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ABSTRACT

Derivatives are primarily concerned with managing risk rather than eliminating it. There are a variety of derivative instruments available, such as index futures, stock futures, commodity futures, and stock options. Interest rate futures, interest rate futures, and currency options are also available on these exchanges. The purpose of this study is to gain insight into the perceptions of traders in the commodity derivatives market, with particular emphasis on the Rayalaseema region in Andhra Pradesh. The main focus of the study is to identify the factors that influence traders' perceptions, as well as gain insight relating to traders experience, commodities trading, and the level of risk that traders are willing to take. After conducting a factors analysis and path analysis, it was found that the influence of commodity-related factors on traders' perceptions, market and exchange-related factors, and risk and return factors had a positive impact on traders' perceptions.

***KEYWORDS**: Traders Perception, Commodity, Derivative Markets, Index Futures, Stock Futures.*

Introduction

India is one of the top producers of a large number of agricultural commodities and also has a long history of trading in commodities and related derivatives. Commodity markets have existed in India for centuries, with references in the Koutialya Arthasaastra. The “Bombay Cotton Trade Association” is the first organized futures market in India; it was established in 1875. Later in 1900, “The Gujarathi Vyaparamandali” began to trade in oil seeds. Subsequently, Calcutta Hessian Exchange Ltd. was started in 1919. Many commodity exchanges were established and are still in operation in North India. They traded in wheat, groundnuts, raw jute, oil seeds, gold, and silver.

Indian markets are the best and most secure avenue for retail investors and traders to participate. For those who want to diversify their funds from shares, bonds, gold, and real estate, commodities and their derivatives are the best platforms to do investment. Retail investors should understand the risks and benefits of commodity future trading before investing. The price volatility of commodity futures is lower compared with equities and bonds. The commodity market is an important constituent of the financial markets of any country. It is important to develop a vibrant, active, and liquid commodity market. This would help investors hedge their commodity risk, take speculative positions in commodities, and exploit arbitrage opportunities in the market.

After independence, the Indian government took action to develop and regulate commodity futures markets. A bill on forward contracts headed by Prof. A. D. Shroff has taken two successive parliaments, and finally it became the Forward Contracts (Regulation) Act in 1952. And in 2003, three online-based commodity futures exchanges were established: the National Commodity and Derivatives Exchange of India (NCDEX), the Multi Commodity Exchange of India (MCX), and the National Multi Commodity Exchange of India (NMCE). This exchange provides secure and transparent trade mechanisms with online trading and clearing settlement. MCX offers more than 40 commodities across various segments, such as bullion, ferrous and non-ferrous metals, energy, and a number of agricultural commodities, on its platform.

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Benefits of Commodity Markets

Commodity market is essential market in the financial markets of any country. It is the market where a wide range of products. viz., precious metals, crude oil, energy and agriculture commodities traded.

- Potential returns
- Hedging
- Diversification
- Cushioning against market fluctuations
- Trading on lower margin and low initial investment
- Participants of commodity markets
- Price discovery and Predictability

Market Participants

- *Hedgers* are the producers, farmers, processors, merchandisers, exporters, importers, etc. They use derivative markets to reduce or eliminate the risk associated with the price of the commodity.
- *Speculators* are the traders; they purchase assets for a short period of time to gain profit from price fluctuations.
- *Arbitrage* refers to the traders who simultaneously purchase in lower price markets and sell in higher price trading markets.

Review of Literature

Chellasamy, P., and Deepakarunya, C., (2023) have studied the behavior of the investors regarding the stock market to determine the impact of investors behavioral influences on risk- return management for effective investment decision-making. The primary data collected using a Google Form questionnaire from 100 individual investors found that the age of the respondents had no significant relationship with their stock market perception, awareness, risk-rerun management, or decision-making.

Cirappa, I.B., and Tejashwini, K.C., (2022) have focused on determining the level of awareness towards derivatives with respect to retail investors and also assessing the relationship between awareness and investment intention among investors. The study is based on primary and secondary data collected from retail investors who have been investing in the stock market. A chi-square test is used to establish a relationship between the variables. The study concludes that there is a significant link between awareness and investment intention. And it was also found that the majority of the respondents had poor understanding regarding derivative markets.

Prekshna, S., and Pratibha, S., (2022) have examined the investors' awareness of and perception of the commodity market. The study is based on descriptive data and concludes that most of the investors are satisfied with commodity trading and have a positive attitude towards the commodity market. Furthermore, the majority of respondents strongly preferred crude oil, gold, silver, and natural gas, while zinc, copper, and lead were less preferred.

Venkatragavan, V., and Sivasakkaravarthi, P. (2022) have studied to find out the perception of farmers, their level of involvement, and problems regarding the functioning of commodity markets in India. The sample was selected from pepper and cardamom cultivators in the Idukki district. Except for price-related impacts, the study discovered that pepper and cardamom cultivators have differing perspectives on operations.

Vidhyashree., (2021) has investigated the relationship between awareness and satisfaction with the market with the help of bivariate correlation and regression tools. They find a positive relationship between the investor's behavior and decision. This means that as behavior improves, so will decisions about the commodities market. Based on regression, there is a positive impact of investor behavior and investment decisions on the problems faced by investors.

A study by Satinder Kaur., (2019) says that no significant differences existed among gender and reasons for choosing the commodity market as an investment and also found a significant difference among respondents' age, qualification, occupation, and income with reason for investment. The majority of respondents have ranked MCX as the number one exchange because of its high volume compared to other exchanges.

Dhandayuthapani, S.P., and Sudha, H., (2018) have focused on the trading practices and performance of the Multi Commodity Exchange (MCX) and the present regulations on commodity derivative markets. The study was focused on measuring the impact of other markets on commodity markets. This analysis will help investors invest in commodity markets.

Harihara, R., and Karunakara Reddy, B.A. (2018) have examined the growth and organizational structure of commodity exchanges, as well as their impact on commodity markets. According to one study, multi-commodity exchanges have the highest trade volume when compared to other exchanges. In addition, the gradual decline of futures markets in 2008–09 due to government bans on chickpea, potato, rubber, and soy oil is being examined. Furthermore, weather conditions, crop product demand and supply, and consumer preferences all influence agricultural product prices, resulting in market volatility.

Thirunarayanasamy, and P. Jeyakumar., (2017) have studied the trends and practices of the commodity market and tried to find socio-economic factors, which influences the investors' behavior. They found 500 respondents from the top ten active stockbroking institutions as part of the study. According to the researchers, the majority of investors is focused on capital appreciation in the short term and considers the return aspect more before investing.

Surobhi Mukherjee., (2016) has studied the role of the agricultural commodity futures market in India and highlighted the behavior of export and import crop prices. The researcher analyzed price discovery with the use of the Granger causality test and, with the help of statistical analysis, studied the spot and futures price differences.

Asim Ilyas., (2015) has focused on exploring factors influencing the behavior of investors towards the commodity market in India. A questionnaire has been prepared with 15 items to measure the investor's behavior. The principal component of a method of factor analysis with varimax is used to study which factors have the greatest impact on investors. The results of this study find there are four major factors that influence the behavior of investors: low risk, informational asymmetry, high return, and objective knowledge.

Periasamy, P., and Satish, R., (2014) have studied the price volatility of selected non-agricultural products and tried to analyze future price movements on them as well as the reasons for real price volatility. The study used the Simple Moving Average (SMA). To determine the investor's buy and sell signals over the selected period, the RSI, moving average convergence, and divergence tools are used. The researchers find that with the help of the above tools, investors are predicting and investing when there is positive price movement and waiting until the end of a bear market for good returns.

Need of the Study

In India, many studies are conducted on stock market-related areas only, related to equity, debt, and bond markets. And in the derivatives market, most of the researchers are doing research on energy and metal commodities. There are some research gaps in the existing literature relating to the derivative market.. The present study mainly focuses on traders perceptions towards the commodity derivative market in India with reference to the Rayalaseema region of Andhra Pradesh. The present study has based on both primary and secondary data.

Objectives of the Study

- To study the level of risk tolerance of derivative traders.
- To analyze the traders perceptions towards commodity derivative markets.

Research Methodology

The research design applied for this study is descriptive in nature. Both primary and secondary data were used in this study. The primary data was collected from traders of derivatives market in the Rayalaseema region of Andhra Pradesh. By conducting multistage sampling method, the data was collected through a structured questionnaire from 320 respondents. The secondary data was collected in the form of reports, newspapers, reports, magazines, periodicals. Factors analysis and Structural equation models were used with help of SPSS and AMOS software's.

Analysis and Interpretation

Demographic Profile

Table 1: Demographic details of the Respondents

Demographic Factor		Frequency	Percentage
Gender	Male	302	94.4
	Female	18	5.6
Age	20-30	117	36.6
	31-40	111	34.7
	41-50	62	19.4
	51-60	27	8.4
	Above 61	3	.9
Educational Qualifications	SSC	12	3.7
	Intermediate	27	8.4
	Graduate	170	53.2
	Post Graduate	54	16.9
	Professional	37	11.6
	Others	20	6.2
Marital Status	Married	305	95.3
	Un Married	15	4.7
Occupation	Agriculturist	40	12.5
	Entrepreneur	118	36.9
	Govt. Employees	13	4.1
	Private Employees	107	33.4
	Others	42	13.1
Monthly Income	Bellow Rs 20,000	43	13.4
	Rs 20,000 – 40,000	115	35.9
	Rs 40,000 – 60,000	127	39.7
	Rs 60,000 – 80,000	22	6.9
	Above 80,000	13	4.1
Trading Experience	Below 5 Years	168	52.5
	6 – 10 Years	105	32.8
	11 – 15 Years	33	10.3
	16 – 20 Years	11	3.4
	Above 20 Years	3	.9
Trading Commodity	Bullion	39	12.2
	Metal	73	22.8
	Energy	16	5.0
	Agriculture Commodities	192	60.0
Decision Making	Fundamental Analysis	44	13.8
	Technical Analysis	51	15.9
	Fundamental and Technical Analysis	110	34.4
	Expert opinion	41	12.8
	Own decision	42	13.1
	Family and Friends	32	10.0
Risk Tolerance	Risk Averse	68	21.3
	Less Risk taker	108	33.8
	Moderate risk taker	59	18.4
	More risk takes	85	26.6

Source: Field Survey and SPSS Output

The table 1 shows the demographic profile of the respondent traders. In this study, most of the participants are male (302), and 18 respondents are female. According to the age factor, 117 respondents are between 20 - 30 years, 111 respondents are between 31 – 40 years, 62 respondents are between 41 - 50 years, 27 respondents are between 51 - 60 years, and only three respondents are above 61 years. As per educational qualification, 170 respondents are graduates, 54 respondents are postgraduates, 37 respondents have professional qualifications, 27 respondents have intermediate qualifications, and the remaining 12 respondents have SSC. 305 respondents of the 320 respondents are married, while the remaining 15 respondents are unmarried. Regarding the occupation of the respondents, 118 respondents are entrepreneurs, 107 respondents are private employees, 42 respondents are other occupations, 40

respondents are agriculturists, and only 13 respondents are government employees. As per monthly income, 127 respondents income ranges between Rs. 40,000 - 60,000, 115 respondents income ranges between Rs. 20,000 - 40,000, 43 respondents income is below Rs. 20,000, 22 respondents income ranges between Rs. 60,000 - 80,000, and 13 respondents income is above Rs. 80,000 per month. As per trading experience, a major portion of respondents have below 5 years of experience, i.e., 168 traders have below 5 years of experience. 105 respondents have 6–10 years of experience; 33 respondents have 11–15 years of experience; 11 respondents have 16–20 years of experience; and only three respondents have more than 20 years of experience. According to the type of commodity traded, 192 respondents are trading in agriculture commodities, 73 respondents are trading in metal commodities, 39 respondents are trading in bullion, and the remaining 16 respondents are trading in energy commodities. Regarding the decision-making process, most of the respondents (110) use both fundamental and technical analysis; 51 respondents use technical analysis; 44 respondents use fundamental analysis; 42 respondents trade based on their own decisions; 41 respondents seek an export opinion; and the remaining 32 respondents depend on their family and friends for their decision-making. As per level of risk tolerance, 108 respondents are less risk takers, 85 respondents are more risk takers, 68 respondents are risk averse, and 59 respondents are moderate risk takers.

Reliability and Factor Analysis

Table 2: KMO and Bartlett's Test

Cronbach's Alpha	KMO Measure of Sampling Adequacy.		.894
.886	Bartlett's Test of Sphericity	Approx. Chi-Square	3435.872
Number of Items		Degrees of freedom	120
16		Sig.	.000

Source: SPSS Output.

Cronbach's alpha is a measure of internal consistency, that is, how closely related the items are as a group. Table No.2 shows the Cronbach's alpha value of sixteen items for perception factors relating to commodity markets. The calculated Cronbach alpha value is 886. The KMO test is a measure of how well that data fits factor analysis; it measures sampling adequacy for each variable in the model. In this study, the KMO sampling adequacy is 894. The Bartlett's test of sphericity shows a chi-square value of 3435.872, which tells us that the data are suitable for factor analysis.

Factor Extraction

Table 3: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.585	41.155	41.155	6.585	41.155	41.155	4.265	26.656	26.656
2	2.906	18.165	59.320	2.906	18.165	59.320	2.932	18.327	44.983
3	1.561	9.758	69.078	1.561	9.758	69.078	2.533	15.833	60.816
4	1.173	7.329	76.407	1.173	7.329	76.407	2.495	15.591	76.407
5	.570	3.566	79.972						
6	.432	2.700	82.672						
7	.406	2.537	85.210						
8	.357	2.229	87.439						
9	.322	2.009	89.448						
10	.312	1.952	91.400						
11	.282	1.765	93.165						
12	.258	1.612	94.778						
13	.238	1.484	96.262						
14	.225	1.405	97.667						
15	.194	1.210	98.877						
16	.180	1.123	100.000						

Extraction Method: Principal Component Analysis
Source: SPSS Output.

Table 3 shows that total variance explains the number of significant factors. It is understood that the total of eigenvalues refers to the variance accounted for in terms of the number of items. It found that 76.407 per cent of the variance is explained with the help of four newly generated components.

Rotated Component Matrix

Table 4: Rotated Component Matrix[a]

Factor Name and Total Variance	Statements	Component			
		1	2	3	4
Commodity Factors, 9.758 % if Variance	• Product Quality			.823	
	• Warehouse Facility			.878	
	• Availability of Various Commodities			.873	
Exchange Market Factors, 18.165 % of variance	• Transparency		.837		
	• Easy to Trade		.863		
	• Settlement Mechanism		.868		
	• Availability of Information		.836		
Risk and Return Factors, 41.155 % of Variance	• Potential Return	.796			
	• Low brokerage	.796			
	• Volatility	.782			
	• Price Fixation	.774			
	• Hedging	.823			
	• Diversification	.756			
Perception 7.329 % of Variance	• Useful for risk management				.847
	• Better price for commodities				.816
	• Liquidity, transparency and market efficiency				.835

Source: SPSS Output
Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

Table 4 explains the factors that were extracted using principal component analysis and varimax rotation with Kaiser Normalization. From this, four factors are derived for 16 statements. The factors are grouped according to similarity, i.e., Potential return, low brokerage, volatility, price fixation, hedging, Diversification is grouped under Risk and Return factors, as explained. 41.155 per cent of variance. Transparency, ease of trade, settlement mechanisms, and availability of information are grouped under Exchange and Market factors. 18.165 per cent of variance. Product quality, warehouse facility, and availability of various commodities are grouped under the Commodity Factors factor. 9.758 per cent of the variance. Useful for risk management, better prices for commodities, liquidity, transparency, and market efficiency are grouped under satisfaction, as explained 7.329 per cent of the variance.

Analysis of Hypothesis Using Structural Equation Modeling

Table 5: Model Fit Indices

CMIN/df	P Value	GFI	AGFI	CFI	TLI	RMSEA
1.965	.000	.929	.899	.973	.966	.055

Source: Authors calculation using Amos.21

Table 5 shows that the minimum discrepancy (*CMIN/df*) is 1.965, and the P-value is 0. This means that the model is acceptable. The goodness of fit index (GFI) is.929, the adjusted goodness of fit index (AGFI) is.899 (nearly to.9), the comparative fit index (CFI) is.973, the Tucker-Lewis coefficient (TLI) is.966, and the root mean square error of approximation (RMSEA) is.055. These values are in the range of threshold limits, which indicates the model is perfectly fit.

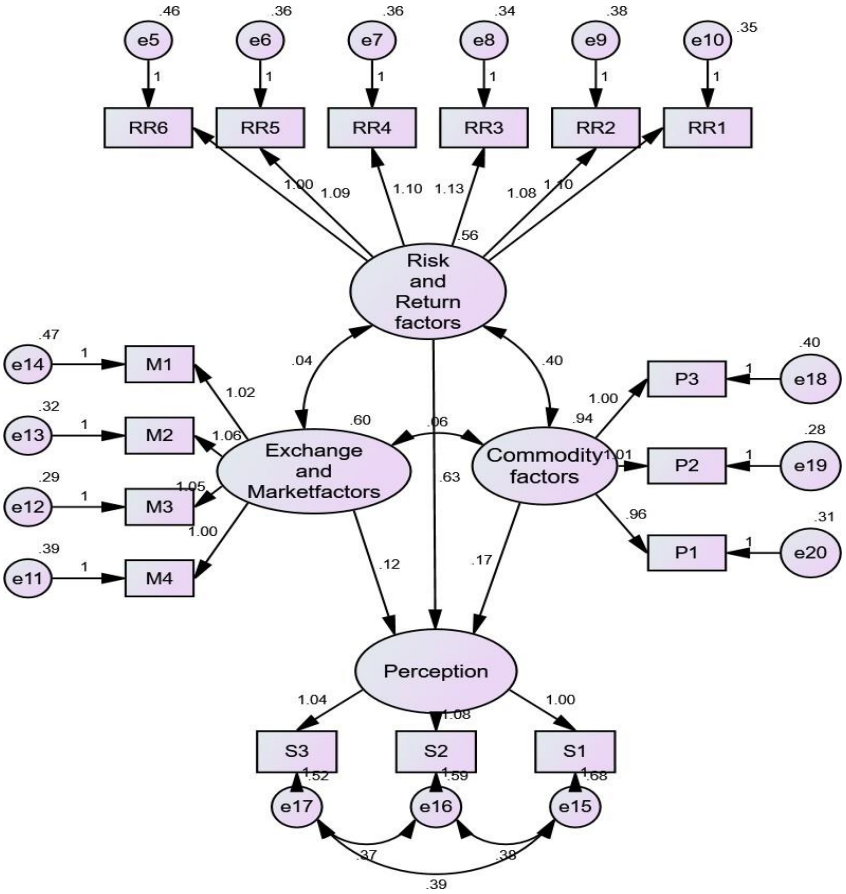

Figure 1: Structural Equation Model

Source: AMOS Output

Table 6: Regression Weights: (Group Number 1 - Default Model)

			Estimate	S.E.	C.R.	P
Perception	←	Commodity factors	.167	.050	3.314	***
Perception	←	Risk and Return factors	.630	.078	8.110	***
Perception	←	Exchange and Market factors	.116	.051	2.273	.023
RR6	←	Risk and Return factors	1.000			
RR5	←	Risk and Return factors	1.089	.075	14.532	***
RR4	←	Risk and Return factors	1.101	.075	14.628	***
RR3	←	Risk and Return factors	1.127	.075	14.939	***
RR2	←	Risk and Return factors	1.085	.075	14.372	***
RR1	←	Risk and Return factors	1.099	.075	14.732	***
M4	←	Exchange and Market factors	1.000			
M3	←	Exchange and Market factors	1.045	.070	15.028	***
M2	←	Exchange and Market factors	1.065	.071	14.903	***
M1	←	Exchange and Market factors	1.023	.075	13.647	***
S1	←	Perception	1.000			
S2	←	Perception	1.083	.074	14.659	***
S3	←	Perception	1.042	.065	15.941	***
P3	←	Commodity factors	1.000			
P2	←	Commodity factors	1.012	.054	18.600	***
P1	←	Commodity factors	.962	.053	18.141	***

Source: Authors calculation using Amos.21

Table 6 explains that all independent variables (commodity factors, exchange and market factors, and risk and return factors) are showing a significant positive effect on trader's perceptions.

Table 7: Hypothesis Testing

Dependent Variable		Independent Variable	Path Coefficient	C.R	Sig.
Perception	←	Commodity Factors	0.16	3.314	***
Perception	←	Risk and Return Factors	0.63	8.110	***
Perception	←	Exchange and Market Factors	.11	2.273	.023

Source: Authors calculation using Amos.21

***H_0*:** There is no influence of Commodity factors on Perception.

***H_a*:** There is an influence of Commodity factors on Perception.

Table 7 shows that, as per path analysis, the path coefficient is 0.16 regression weight, as the value of CR is 3.314 and the p value is less than.05, and the null hypothesis is rejected.

***H_0*:** There is no influence of Risk and Return factors on Perception.

***H_a*:** There is an influence of Risk and Return factors on Perception.

Table 7 shows that, as per path analysis, the path coefficient is 0.63 and the regression weight is 8.110. If the value of CR is 8.110 and the p value is less than.05, then the null hypothesis is rejected.

***H_0*:** There is no influence of Exchange and Market factors on perception.

***Ha*:** There is an influence of Exchange and Market factors on perception.

Table 7 shows that, as per path analysis, the path coefficient is 0.11, the regression weight is 2.273, and if the p value is less than.05, then the null hypothesis is rejected.

Findings

- 94.4 per cent of the respondents are male, and 5.6 per cent of the respondents are female.
- It was observed that 36.6 per cent of the respondents are in the age group of 20–30 years, 34.7 per cent of the respondents are in the age group of 31–40 years, 19.4 per cent of the respondents are in the age group of 41–50 years, and 8.4 per cent of the respondents are in the age group of 51–60 years. 0.9 per cent of the respondents are above 61 years.
- 53.2 per cent of respondents are graduates, 16.9 per cent are postgraduates, 8.4 per cent of respondents are intermediate, and only 3.7 per cent of the respondents are SSC.
- Most of the respondents 36.9 per cent of the respondents are entrepreneurs, 33.4 per cent are private employees, 13.1per cent of respondents are other than listed, and 12.5 per cent are agriculturists, 4.1 per cent of respondents are government employees.
- 39.7 per cent of the respondents are earning between Rs 40,000 - 60,000, 35.9 per cent of the respondents are earning between Rs 20,000 - 40,000, 13.4 per cent of the respondents are earning below Rs 20,000, 6.9 per cent of the respondents are earning between Rs 60,000 - 80,000, and 4.1 per cent of the respondents are earning above Rs. 80,000. It shows that nearly 50 per cent of respondents are earning more than 40,000; they have surplus money for investing in commodity derivatives.
- 52.5 per cent of the respondents are having below 5 years of trade experience, 32.8 per cent of the respondents are having 6-10 years of experience, 10.3 per cent of the respondents are having 11-15 years of experience, 3.4 per cent of the respondents are having 16-20 years of experience, and only 0.9 per cent of the respondents are having more than 20 years of experience. The majority of the respondents have less than 10 years of experience, which means they are relatively new to the market.
- 60 per cent of the respondents are trading with agricultural commodities; 22.8 per cent of the respondents are trading with metal; 12.2 per cent of the respondents are trading with bullion; and 5 per cent of the respondents are trading with energy commodities.
- 34.4 per cent of the respondents are using fundamental and technical analysis before investing; 15.9 per cent of the respondents are using technical analysis; 13.8 per cent of the respondents are using fundamental analysis; 13.1 per cent of the respondents are investing based on their own decisions; 12.8 per cent of the respondents are taking expert opinions; and 10 per cent of the respondents are taking suggestions from family and friends.
- 33.8 per cent of the respondents are less risk-takers, 26.6 per cent are more risk- takers, 21.3 per cent are risk-averse, and 18.4 per cent are moderate risk-takers.

- In PCA, four new factors are extracted: factor 1 is named the risk and return factor, and it explained 41.16 percent of the variance; factor 2 is named the exchange and market factors, and it explained 18.17 percent of the variance; factor 3 is named commodity factors, and it explained 9.75 percent of the variance; and factor 4 is named as perception factors, and it explained 7.32 percent.
- There is an influence of commodity factors, exchange and market factors, and risk and return factors on perception of the traders.

Suggestions

- The analysis found that the majority of traders are new to the market, so there is a need to conduct more awareness programs.
- Traders are ready to take moderate-to-high risk investments in commodity markets; they need of export opinion to safeguard their investment and also for a higher return.
- There is a need to educate traders about fundamental and technical analysis; it will help them get potential returns from trading.
- The study found that there is a significant influence of commodity factors, risk and return factors, exchange and market factors on traders perceptions; hence, regulatory bodies need to form stringent norms for smoothing trading activities.
- Male traders only participate in trading; there is need to encourage female to participate in trading.
- Improving financial literacy to people irrespective of gender, income level, educational qualification, or occupation, will help Indian markets; it will generate a huge amount of investments.
- The government should allow a maximum number of agricultural commodities in the derivative market.
- Government and regulatory bodies should increase warehouse facilities.
- Exchanges should make efforts to minimize market risk; it will help attract new investors.

Conclusion

The transformation of individual savings into investments will help generate additional income for investors and new capital flow into the economy. The study mainly focused on investors' perceptions of commodity trading in the Rayalaseema region of Andhra Pradesh. Many traders are entering for potential returns, hedging, transparency of the market, and for quality of the products. The researcher concludes that investment in the derivatives market is high-risk and safe. If the traders used better strategies before choosing commodities, they could gain more profits. Long-term future contracts will be suggestive for new traders. Traders need to improve their knowledge regarding derivative contracts.

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