

RISK MANAGEMENT VIA DERIVATIVES

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Introduction

Derivatives can be used to transfer risk by taking the opposite position in the derivative (futures) market against the underlying assets. Derivatives are used both by speculators and hedger. Speculators may trade with other speculators as well as with hedgers. In most financial derivatives market, the value of speculative trading is far higher than the value of true hedge trading. As well as outright speculation, derivative traders may also look for arbitrage opportunities between different derivatives on identical or closely related underlying securities. Other uses of derivative are to gain an economic exposure to an underlying security in situations where direct ownership of the underlying security is too costly or is prohibited by legal or regulatory restrictions, or to create a synthetic short position. In addition to directional plays (i.e. simply betting on the direction of the underlying security), speculators can use derivatives to place bets on the volatility of the underlying security. This technique is commonly used when speculating with traded options.

OBJECTIVES OF THE STUDY

1. To examine the risk perceptions of derivative investors towards the factors for trading in select commodities.
2. To offer suitable suggestions for designing better programs for the growth and development of derivatives market.

METHODOLOGY OF THE STUDY

The study is based on both primary and secondary data. However, as the study is descriptive in nature it describes the behavioral aspects of derivative investors. The primary data is collected through a structured questionnaire. The questionnaire is designed to elicit the information about the socio-economic profile of the derivative investors, their awareness levels and behaviour about the commodity derivative market and their risk assessment behaviour. The questionnaire is designed keeping in view the objectives of the present research work and it is pre-tested by means of a pilot study. The relevant secondary data gathered from annual reports of FMC (Forward Market Commission) MCX, NCDEX, books, journals, periodicals, dailies, magazines and websites. The data and the information collected with the help of the questionnaire are processed and analyzed by using SPSS software.

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SAMPLE DESIGN

Theoretical Population: Theoretical population includes agricultural and non-agricultural derivative investors.

Study population: Agricultural and non-agricultural derivative investors of Anantapur, Kurnool, Kadapa and Chittoor districts of Andhra Pradesh.

Sampling Frame: The registered agri-cultural and non-agricultural derivatives investors at the derivative brokerage firms situated in Anantapur, Kurnool, Kadapa and Chittoor districts were taken as sample frame for the research.

SAMPLE

It is not feasible for the researcher to study the whole population due to time and resource constraints. Hence, by using a convenience sample, 600 samples were selected by covering 150 respondents from each district. The detailed sampling plan has been presented in the following table.

Table 1: Sample size

S.No.	District Name	Sample size
1	Ananthapuramu	150
2	Chittoor	150
3	Kurnool	150
4	Y.S.R.Kadapa	150
Total		600

The following criteria have been used for selecting select commodities

- 1) The commodities contracts based on the volume of trade in Rayalaseema region of A.P has been considered.
- 2) Based on the awareness level and volume of trade (highest in study area) Turmeric and Cotton from agricultural commodities and Gold & Silver from non-agricultural commodities have been chosen.

DERIVATIVES AS THE TOOL OF RISK MANAGEMENT

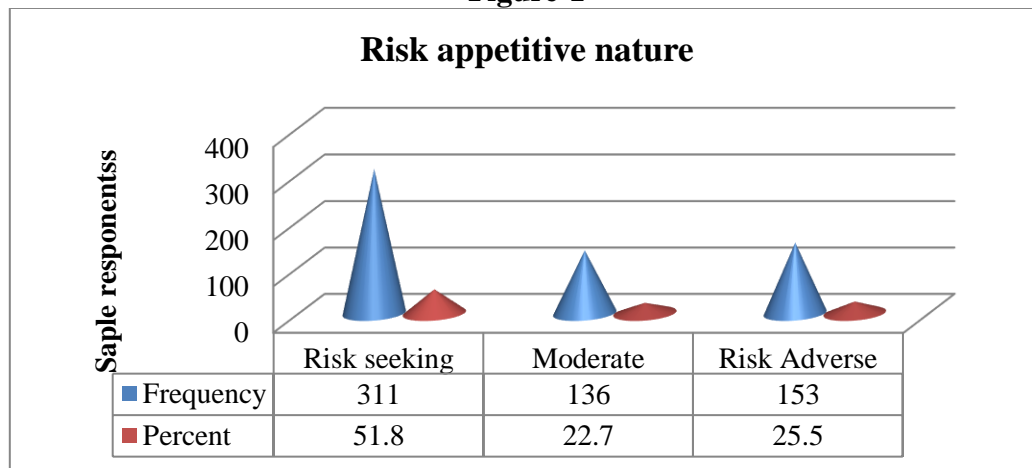
RISK APPETITIVE NATURE

Derivative is a significant tool of risk management. By nature investors can be classified as risk seekers, moderate risk seekers and risk averters. In the present study an attempt is made to know the attitude of derivative investors towards the risk. The sample respondents are asked to express their risk appetitive nature. The responses of the sample respondents are tabulated and presented in table 2 and figure 1

Table 2: Risk Appetitive nature of Derivative Investors

Risk nature of sample respondents	No. of respondents	Percent
Risk seeking	311	51.8
Moderate risk seekers	136	22.7
Risk averters	153	25.5
Total	600	100.0

Source: Field Study 2014

Figure-1

A close observation of the data from table 2 and figure 1 reveals that 51.8 percent sample respondents are risk takers followed by 25.5 percent of sample respondents are moderate risk takers and 22.7 percent of the sample respondents are risk averters. It can be conclude that the majority of respondents are risk takers.

TYPES OF RISK

There is risk in every business activity in this business world. One has to understand related risk to its business as risk differs from business to business. The kind of risks that are being faced by a financial institution or bank is not the same as faced by an auto manufacturing company or by a cement manufacturing company. Similarly the risk bearing capacity of the investors are differ from one with the other. For example investor X may ready to handle legal risk but investor Y may not ready to bear legal risk and may ready to bear market risk. Here, an attempt is made to know the risk perceptions of sample investors towards various kinds of risk; the analysis of data is tabulated and presented in table.3 and figure 2.

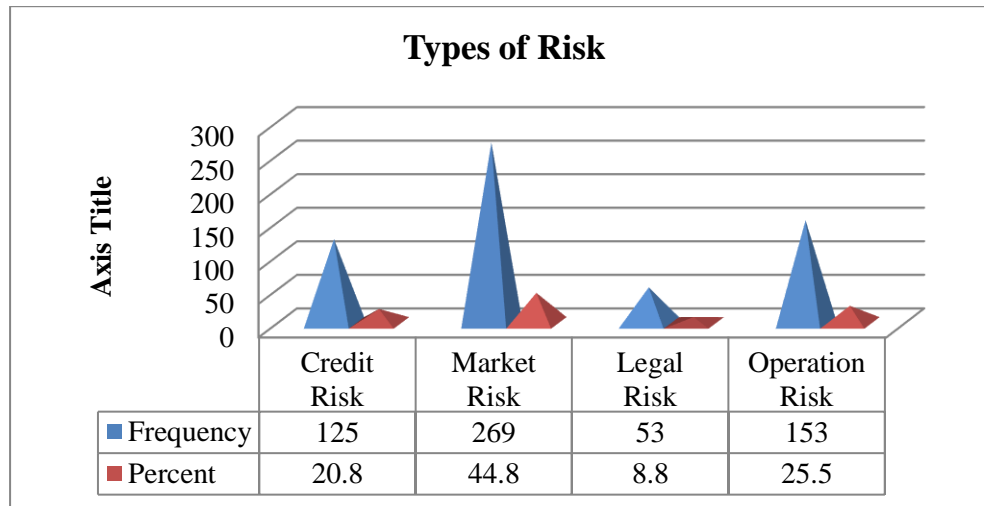
Table 3: Types of Risk

Type of Risk	No. of respondents	Percent
Credit Risk	125	20.8
Market Risk	269	44.8
Legal Risk	53	8.8

liquidity Risk	153	25.5
Total	600	100.0

Source: Field Study 2014

Figure-2



The above table makes it clear that the majority of the respondents' i.e. 44.8 per cent is willing to take market risk and followed by liquidity risk seekers are 25.5 per cent while 20.8 per cent are credit risk seekers and remaining 8.8 per cent are legal risk seekers in the derivative market. A conclusion can be drawn that more number of investors were taken market risk, however less number of investors were taken legal risk.

LEVEL OF RISK PREFERENCE TO INVEST

The principal amount which is supposed to provide potential returns may rise with an increase in the risk. Low levels are associated with low potential returns, where as higher levels are associated with higher potential returns. According to the risk return trade-off invested money can render for higher profits only if it is subject to the possibility of being lost. In the light of its significance an enquiry has been made into respondents' risk-return trade-off and presented in table 4.

Table 4: Level of risk preference to invest

Risk preference	No. of respondents	Percent
High Risk, High Return	301	50.2
Medium Risk, Medium Return	211	35.2
Low Risk, Low Return	88	14.7
Total	600	100.0

Source: Field Study 2014

It is observed from the table 4 that the sample respondents' level of risk preference to invest reveals that 50.2 per cent respondents are preferred high risk and high return, while

35.2 percent of respondents preferred medium risk and medium return and 14.7 percent of investors preferred low risk and low returns.

AVERAGE RETURNS ON DERIVATIVE INVESTMENT

The investor may take a number of decisions in the process of investment. The derivative investor has to decide about his/her risk tolerance and frequency of expected returns. Usually, derivative investors confine to a particular time frame to expect returns. It is important to know the frequency of return in which the derivative investors expects. An attempt is made to know the returns earned by the sample respondents based on their previous investment experiences in derivatives commodity market. To extract information, a question is placed before the sample respondents asking to mention the percentage of return availed by them during the investment period. The data is tabulated and presented in table 5

Table 5: Average Return on Derivative Investments

Return on an average	No. of respondents	Percent
Less than 15%	367	61.2
16-25 %	136	22.7
26-35%	36	6.0
36 & above	16	2.7
Negative return	45	7.5
Total	600	100.0

Source: Field Study 2014

It is observed from the table 5 that 61.2 percent of sample respondents have got less than 15 % of returns, while 22.7 percent of sample respondents have got the returns in between 16-25%. And the rest of the respondents (52) have got less than 8.7% returns which may be considered as negligible returns. It is important to note that out of 600 only 45 respondents incurred negative returns. It shows that derivative contracts are risk minimizing instruments.

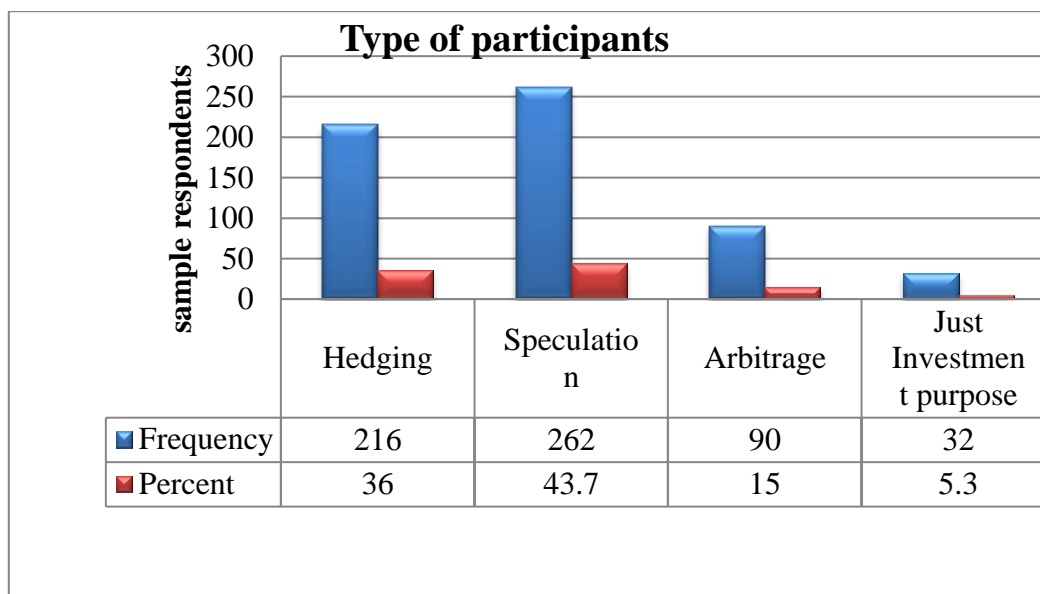
PURPOSE OF PARTICIPATION IN DERIVATIVE MARKET

Derivative instruments are used for varied purposes i.e. managing risk by managing funds, making profits by taking risk, and taking advantages of price differentiation in different market at any given point of time. Accordingly there are three major participants. Those are Hedgers, Speculators, and Arbitragers. An attempt is made to know the actual purpose of present sample respondents for participation in derivative market. They were asked to express their purpose of participation in the market and to identify their type of participation. The analysis of the data is tabulated and presented in table 6 and figure 3.

Table 6 : Purpose of participation in derivative market

Purpose of Participation	No. of respondents	Percent
Hedging	216	36.0
Speculation	262	43.7
Arbitrage	90	15.0
Investment purpose	32	5.3
Total	600	100.0

Source: Field Study 2014

Figure-3

The above table depicts the respondents' behaviour on reason to participate in commodity market. The majority of respondents participating in derivative market with speculative purpose are 43.7 percent, followed by with hedging purpose 36.0 percent, and with arbitrage purpose 15.0 percent and remaining 5.3 percent are for investment purpose in commodity derivative market. It can be inferred that the distribution of respondents on reason to participate will influence the investor behaviour in derivative market and the large size of respondents were traded speculatively. It speaks their risk appetitive nature, and it is proved that majority of derivative investors are risk oriented.

WHETHER COMMODITY TRADING HELPS FOR HEDGING

Hedging is the process of eliminating or minimizing the risk. To know the significance of hedging in practice a question is placed before the sample respondents to express their experience at hedging in practice. The responses of the sample investors are tabulated and presented in table 7.

Table 7: Whether Commodity trading helps for hedging

Helpful for Hedging	No. of respondents	Percent
Yes	366	61.0
No	234	39.0
Total	600	100.0

Source: Field Study 2014

It is observed from the table 7 that 61 per cent of the respondents are opined investing in commodities helps in hedging and the remaining 39 percent of respondents are opined investing in commodities do not help in hedging. It can be concluded that the respondents are preferred in investing commodity derivatives because it helps for hedging.

Hypotheses Test

Further, hypotheses were formulated to test the relationship between objectives of investment and nature of risk, risk taking aptitude nature & types of risk, returns and satisfaction. The details are furnished below.

H₁ There is a significant relationship between nature of risk and objective of investment on agricultural commodities

Risk of derivatives	Objective of investment on agricultural commodities						Total
	Hedging-price risk management by risk mitigation	Speculation-take advantage of favorable price movements	Leverage-pay low margin to enjoy large exposure	Liquidity-ease of entry and exist of market	Price discovery-for taking farming and business decisions	Not applicable	
High Risk,	57	77	32	27	15	93	301
Medium Risk,	36	48	22	23	11	71	211
Low Risk,	14	21	8	11	3	31	88
Total	107	146	62	61	29	195	600

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.015 ^a	10	.981
Likelihood Ratio	3.047	10	.980
Linear-by-Linear Association	1.203	1	.273
N of Valid Cases	600		

a. 1 cells (5.6%) have expected count less than 5. The minimum expected count is 4.25.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.071	.981
	Cramer's V	.050	.981
	Contingency Coefficient	.071	.981
	N of Valid Cases	600	

Inference: A chi-square test for independence indicated no significance of association between nature of risk and objective of investment on agricultural commodities in derivative market. Hence, null hypothesis is accepted and alternative hypothesis is rejected.

H₀ Accepted and H_a Rejected

H₂ There is a significant relationship between nature of risk and objective of investment on non-agricultural commodities

Risk of derivative	Objective of investment on non-agricultural commodities						Total
	Hedging-price risk management by risk mitigation	Speculation-take advantage of favorable price movements	Leverage-pay low margin to enjoy large exposure	Liquidity-ease of entry and exist of market	Price discovery-for taking farming and business decisions	Not applicable	
High Risk,	61	67	35	31	24	83	301
Medium Risk,	36	53	24	24	18	56	211
Low Risk,	17	30	9	10	5	17	88
Total	114	150	68	65	47	156	600

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.249 ^a	10	.702
Likelihood Ratio	7.191	10	.707
Linear-by-Linear Association	1.683	1	.195
N of Valid Cases	600		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.89.

Symmetric Measures

		Value	Approx. Sig.
Nominal by Nominal	Phi	.110	.702
	Cramer's V	.078	.702
	Contingency Coefficient	.109	.702
	N of Valid Cases	600	

Inference: A chi-square test for independence indicated no significance of association between nature of risk and objective of investment on non-agricultural commodities in derivative market. Hence, null hypothesis is accepted and alternative hypothesis is rejected.

H₀ Accepted and H_a Rejected

Findings of the study:

1. The study revealed that 51.8 percent sample respondents are risk takers followed by 25.5 percent of sample respondents are moderate risk takers and 22.7 percent of the sample respondents are risk averters. It can be conclude that the majority of respondents are risk takers.
2. It was found that the majority of the respondents' i.e.44.8 per cent is willing to take market risk and followed by liquidity risk seekers is 25.5 percent while 20.8 per cent are credit risk seekers and remaining 8.8 percent are legal risk seekers in the derivative market. A conclusion can be drawn that more number of investors were taken market risk, however less number of investors were taken legal risk.
3. An analysis of information revealed that, the sample respondents' level of risk preference to invest reveals that 50.2 percent respondents are preferred high risk and high return, while 35.2 percent of respondents preferred medium risk and medium return and 14.7 percent of investors preferred low risk and low returns.
4. Return is the reward for risk taker. In order to know the returns obtained by the derivative investors. A question is placed before them stating that how much return you have got so for. It is observed that 61.2 percent of sample respondents have got less than 15 % of returns, while 22.7 percent of sample respondents have got the returns in between 16-25%. And the rest of the respondents (52) have got less than 8.7% returns which may be considered as negligible returns. It is important to note that out of 600 only 45

respondents incurred negative returns. It shows that derivative contracts are risk minimizing instruments.

5. A close observation of the derivatives market reveals that there are four types of participations who actively involves in the market. Those are speculators, hedgers, arbitrages and investors. The majority of respondents participating in derivative market with speculative purpose are 43.7 percent, followed by with hedging purpose 36.0 percent, and with arbitrage purpose 15.0 percent and remaining 5.3 percent are for investment purpose in commodity derivative market. It can be inferred that the distribution of respondents on reason to participate will influence the investor behaviour in derivative market and the large size of respondents were traded speculatively. It speaks their risk appetitive nature and it is proved that majority of derivative investors are risk oriented.
6. An investigative question placed before the sample respondents that whether commodity trading helps for hedging or not. It may be noted that 61 per cent of the respondents are opined, investing in commodities helps in hedging and the remaining 39 per cent of respondents are opined investing in commodities do not help in hedging. It can be concluded that the respondents are preferred in investing commodity derivatives because it helps for hedging.

SUGGESTIONS

SUGGESTIONS TO REGULATORS

1. The derivative market regulator should undertake educative and informative mechanisms through print and electronic media so as to create investment awareness among the public. In order to facilitate the investors to participate actively in derivative market operations, these informative sources must be strengthened.
2. The regulating authority should take proper steps to regulate the derivative market operations and protect the derivative investors from the unethical and illegal practices.
3. It is observed from the study that most of the investors in the study area opined that the trading in derivative market is risky and complex. It is mainly due to the over speculative strategy and ineffective risk management policies of the investor. It is suggested that the SEBI should take supervisory measures and it should provide sound risk management guidelines.
4. Derivatives are the financial instruments whose value is derived from the underlying assets. The volatility of the stock market highly affects the derivative market also. Most of the investors in the study region opined that volatility is the major disadvantage of the

derivative trading. So, the regulatory authorities should take necessary measures to control the volatility of the market to protect retail investors. The stock exchanges should also frame effective regulatory strategies to control the rapid movements in the price of stocks.

5. It is observed during the course of research that the investors in the study region facing some problems in the course of investment in derivatives. Some of them are execution of trade by the brokers without the consent of the investors; failure to provide timely information and non-receipt of margin deposit given to member etc. So the Exchanges are required to set up arbitration and investor grievances redressed mechanism operative from different regions of the country. This will enable the investor to be redressed their grievances immediately.