

Uncovering Equity Consumer's Perceived Risk With Respect To Commodity Trading In Jaipur City Using Logistic Regression

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ABSTRACT

Economy and inflation have become almost synonymous to each other, Investment decisions have become much more complex and less secured. Any Investment avenue which does not give returns more than the rate of inflation in a year's time will eventually end up depreciating the overall investment portfolio. Commodity trading offers an interesting avenue for spreading the risks. However, the equity consumers of major brokerage houses are observed to be averse to diversifying their portfolio. The following paper researches the various risks perceived by 100 High Net - worth Individuals in Jaipur city having a portfolio with leading brokerage houses of the city using logistic regression analysis.

Keywords : Commodity Trading, Perceived Risk, Jaipur, Logistic Regression

JEL Classification: M 31, M 30

INTRODUCTION

The Indian markets have recently thrown open an avenue for retail investors and traders to participate in: Commodity Derivatives. Until some months ago, this wouldn't have made sense as there was practically no retail avenue for participating in commodities. However, with the setting up of three multi-commodity exchanges in the country, retail investors can trade in commodities without having physical stock. The study named, "Is now the time to add commodities to your portfolio" suggested that commodities can serve as a valuable hedge against inflation. According to the Yale Study:

- ❖ Since 1959, commodities futures have produced better annual returns than stock returns and outperformed bond returns.
- ❖ During the 1970s, commodities futures outperformed stocks ; during the 1980's, the exact opposite was true –evidence of the negative correlation between stocks and commodities .
- ❖ The returns on commodities futures positively correlate with inflation. Higher commodity processes were leading on a wave of high prices in general (i.e. inflation), and that's why commodities return do better in inflationary times, while stocks and bonds perform very poorly.
- ❖ The return on commodities futures were “triple” the return on stocks in companies that produced the same commodities. Commodity return historically had low or negative correlation with the returns of other major asset classes . Other factors remaining same, diversified portfolios with low aggregate correlation tend to have lower volatility of returns. This fact was validated by de Roon ,Nijman Veld (2000) : "Commodity prices provide investors with a risk premium for commodity price risk." The equity market collapse of 2000 helped investors discover a small negative correlation between commodity returns & stock returns and build a belief that commodity derivatives could be used to reduce portfolio risk (Goorton, Rouwenhorst , 2006).
- ❖ Geopolitical events like wars & supply disruptions due to natural disasters like hurricanes, droughts and floods may impact supply of and increase demand for certain commodities.

The size of the commodities market in India is also significant. Of the country's GDP of ₹ 13,207.3 billion, commodities related dependent industries constitute about 58%. However, equity investors in Jaipur find commodities to be an unfathomable market. Though they are quite aware of the advantages of trading in commodities, very few are ready to diversify their trading portfolio into commodities. This paper analyzed 100 HNI clients of various brokering houses in Jaipur to understand the perceived risk with respect to commodities.

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The paper begins with section one that provides a structural outlay, while section two takes a look at conceptual issues to aid general contextual understanding of the paper. Research Methodology and results from the survey constitute the section three. The last section is on the conclusion. Essentially, the paper is exploratory in nature, and the study is confined to Jaipur district only.

SOME CONCEPTUAL ISSUES

❖ **What Are Commodities?** : Commodities are goods that are typically used as inputs in the production of other goods and services. Commodity prices are determined largely by supply & demand interaction in the global marketplace . Supply & demand conditions may be influenced by factors like weather, geo-political events & supply side shocks (e.g floods, wars). Some examples of commonly traded commodities are energy products like gold, copper, nickel ; and agricultural products like sugar, coffee & soyabean. For consumers, freedom often is expressed in terms of a wide range of product choices.

Thus, if there is almost always a choice, then there is almost always an opportunity for consumers to make a decision. However, experimental research reveals that providing consumers with a choice when there was originally none can be a very good business strategy, one that can substantially increase sales (Simonson, Howard & Sheth).

When consumers choose among competing products, they face quality & product performance uncertainty. So, they are likely to rely on heuristics to judge the quality across competitive products, since consumers have finite time horizons and no incentive to perform thorough comparative studies prior to purchase (Dawar & Parker, 1994). The economics and marketing literature have both found that signals serve mostly as heuristics in assessing product quality when there is a need to reduce the perceived risk of purchase (Jacoby, Olson; Olson, 1977) . Cox reckoned that getting to know the nature and range of the risk perceived by consumers enables a better understanding of some of the aspects of consumer behavior (Cox ,1967, p.15). Consumer risk is then the probability of negative consequences resulting from the decision taken & is important at the level perceived by the consumer. The range and type of reaction depends on the risk level perceived by the consumer and his or her level of tolerance for the taken risk (Schiffman & Kanuk). The researchers of consumer behaviour identified & described several types of risk (Refer to Table 1) perceived by the consumers namely : Physical risk, Financial risk, Social risk & Psychological risk (Bateson, 1989, p. 89).

Table 1: Types of Perceived Risk	
Functional Risk	Is the risk that a product will not perform as expected.
Physical Risk	Is the risk to self & others that a product may pose.
Financial Risk	Is the risk that a product will not be worth its cost.
Social Risk	Is the risk that a poor product choice may result in social embarrassment.
Psychological Risk	Is the risk that a poor product choice will bruise the consumer's ego.
Time Risk	Is the risk that the time spent in product search may be wasted if the product does not perform as expected.
Source : Schiffman & Kanuk (2005)	

Opportunity cost was also identified as a type of perceived risk by Zikmund & Scott (Zikmund & Scott 1973, pp. 406-416). Opportunity cost occurs when the consumer made the choice of purchasing the product or service & does not have any more funds to satisfy the same need in a different way. The different types of risk (as discussed above) in most situations of decisions appear together , creating a multi component structure of consumer risk (Simcock, Sudbury , Wright, 2006, pp. 370-371). Therefore, the overall risk perceived by consumers may be presented in the form of an equation, which is as follows :

$$R_k = R_{ph} + R_p + R_f + R_s + R_t + R_{oc}$$

Where:

R_k = Overall risk perceived by consumers ;

R_{ph} = Physical risk ;

R_p = Performance risk ;

R_F = Financial risk ;
 R_s = Social Risk ;
 R_T = Time Risk ;
 R_{oc} = Opportunity Cost

METHODOLOGY

The research was conducted using a questionnaire for personal interview. The sample comprised of 100 HNI (High Net Income) clients of top brokering firms in Jaipur. The study was conducted during March 2012. The tool used for the research was stratified random sampling technique. The method is based on the hypothesis that a sample is representative for the whole population if the structure of the sample in terms of important features is the same as the structure of the researched community (Schauffer, Kerster, Janardhan, 1980, pp. 157-163). To evaluate the reliability of the research tool for scales measuring the influence of particular types of risk in purchasing decision of commodities – the Cronbach coefficient was calculated as 0.59. The Table 2 presents the basic characteristics of the sample. The research data was analyzed on Minitab.

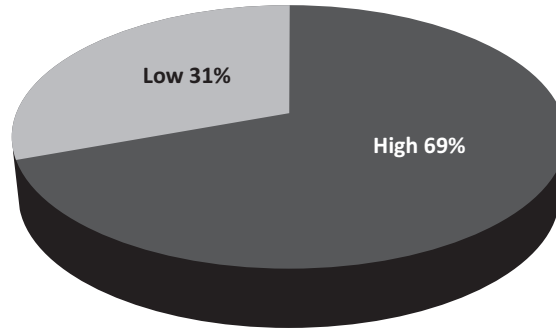
Table 2 : Basic Characteristics of The Respondents	
GENDER	
Male	85
Female	15
AGE	
20-29 Years	24
30-39 Years	26
40-49 Years	28
>49 Years	22
PROFESSIONAL ACTIVITY	
Employed (Salaried)	57
Business	43
NUMBER OF PERSONS IN THE HOUSEHOLD	
3 persons	26
4 persons	22
>5 persons	52
SUBJECTIVE EVALUATION OF RETURNS FROM INVESTMENTS	
Unsatisfactory	24%
Average	52%
Satisfactory	24%
Source: Primary Data	

HYPOTHESES

In order to understand the impact of various risks on the perception of consumers towards commodity trading , the following hypotheses were tested:

- ❖ **H1: The consumer's perceived level of risk in commodity trading is related to the age of the consumer.**
- ❖ **H2: The consumer's perceived level of risk in commodity trading is related to physical risk.**
- ❖ **H3: The consumer's perceived level of functional risk in commodity trading is related to the extent of investment in commodities .**

Figure 1 : Level of Perceived Risk In Commodity Trading



Source: Primary Data

Table 3 : Chi-Square Test: Knowledge 10 %, Knowledge 20 %, Knowledge 30 %

Expected counts are printed below observed counts

Chi-Square contributions are printed below expected counts

	Knowledge 10 percent	Knowledge 20 percent	Knowledge 30 percent	Total
1	2	3	26	31
	15.81	4.03	11.16	
	12.063	0.263	19.733	
2	49	10	10	69
	35.19	8.97	24.84	
	5.42	0.118	8.866	
Total	51	13	36	100

Chi-Sq =46.463,DF=2,P-Value= 0.000

1 cells with expected counts less than 5.

Source: Primary Data

Table 4 : Binary Logistic Regression: Perceived Risk Versus Physical Harm, Age

Link Function:Logit

Response Information

Variable	Value	Count			
Perceived Risk In Commodity Trading	Low	31	(Event)		
	High	69			
	Total	100			
Logistic Regression Table					
Predictor	Coef	SE Coef	Z	P	Odds Ratio
	6.88739	1.52623	4.51	0.000	
Constant					
Physical Harm due to loss Trade					
Yes	-13.2512	15096.7	0.00	0.999	0.00
Age	-0.209475	0.0433223	-4.84	0.000	0.81

Source: Primary Data

- ❖ H4: The consumer's perceived level of risk in commodity trading is related to the financial impact of failure in commodity trading and his social status.

Table 5 : Ordinal Logistic Regression: Perceived Risk Versus Performance, Level of Investment						
Link Function: Logit						
Response Information						
Variable	Value			Count		
Perceived Risk In Commodity Tr_1	Moderate			25		
	Severe			53		
	Very Severe			22		
	Total			100		
Logistic Regression Table						
Predictor	Coef	SE Coef	Z	P	Odds Ratio	95%CI Lower
Const(1)	-0.884153	0.957511	-0.92	0.356		
Const(2)	2.64763	1.02795	2.58	0.010		
Performance Risk _1	0.938104	0.510662	1.84	0.066	2.56	0.94
Level of Investment (Lacs)						
3	-0.146471	1.02747	-0.14	0.887	0.86	0.12
4	-1.04776	1.13086	-0.93	0.354	0.35	0.04
5	0.200986	1.00403	0.20	0.841	1.22	0.17
6	-2.23395	1.03276	-2.16	0.031	0.11	0.01
7	-3.78415	1.23671	-3.06	0.002	0.02	0.00
8	-3.24409	1.04183	-3.11	0.002	0.04	0.01
9	-3.21099	0.998435	-3.22	0.001	0.04	0.01
Source: Primary Data						

Table 6 : Binary Logistic Regression: Perceived Risk Versus Time Risk, Opportunity Risk							
Link Function: Logit							
Response Information							
Variable		Value			Count		
Percieve Risk In Commodity Tr_1		Low			31 (Event)		
		High			69		
		Total			100		
Logistic Regression Table							
Predictor	Coef	SE Coef	Z	P	Odds Ratio	95% CI	
Constant	-7.16548	2.28555	-3.14	0.002		Lower	Upper
Time Risk	3.21478	1.08185	2.97	0.003	24.90	2.99	207.51
Opportunity Risk							
Yes	2.88073	1.32518	2.17	0.03	17.83	1.33	239.39
Log-Likelihood = -53.672							
Test that all slopes are zero: G =16.477, DF =2, P-Value = 0.000 Source: Primary Data							

ANALYSIS AND DISCUSSION

More than two-thirds of the respondents (69%) perceived commodity trading as a high-risk venture (Refer to Figure 1).

The conducted research showed that the variables such as age, financial status, and consumer's attitude to novelty may influence the consumer's risk perception towards commodity trading. Together with age, the percentage of consumers who perceived risk in commodity trading is growing, as confirmed by statistically important Pearson correlation coefficient = .588.

On the other hand, the better the consumer understands the commodity market or the more knowledgeable a consumer is about trading in stocks, the more often he/she perceives risk as a chance to earn profits (Refer to Table 3 : ($\chi^2 = 46.463$, DF = 2, P-Value = 0.000).

Table 7 : Binary Logistic Regression: Perceived Risk Versus Social Risk, Financial Implications							
Link Function: Logit							
Response Information							
Variable		Value			Count		
Perceived Risk In Commodity Trading		Low			31 (Event)		
		High			69		
		Total			100		
Logistic Regression Table							
Predictor	Coef	SE Coef	Z	P	Odds Ratio	95% CI	
Constant	0.972250	0.928335	1.05	0.295		Lower	Upper
Social Risk_1							
Yes	1.90251	0.958477	1.98	0.047	6.70	1.02	43.87
Financial Impact	-1.03264	0.513687	-2.01	0.044	0.36	0.13	0.97
Log-Likelihood = -59.467							
Test that all slopes are zero: G =4.887, DF = 2, P-Value =0.087 Source: Primary Data							

The respondents did not show any correlation between physical risk due to commodity trading (Refer to Table 4: $p = .999$ at 95 % level of confidence).

The respondents perceived a greater degree of performance risk with respect to investments in commodity trading (Refer to Table 5 : $z = 2.58$, $p = .010$ at 95% level of confidence).

It was also noticed that the investors whose investments exceeded ₹ 6 lakhs in commodities perceived a high amount of risk in commodity trading ($p < .05$).

Time risk and Opportunity risk turned out to be very significant for the equity customers with $Z_T = 2.97$ & $p_T = .003$ & $Z_{OR} = 2.17$ & $p_{OR} = .03$ respectively for each at 95% confidence interval (Refer to Table 6).

Social risk was found to be having a significant impact on the perceived risk in commodity trading with $Z = 1.98$, $p = .047$ at 95% confidence level (Refer to Table 7).

A focus group discussion with ten HNI clients revealed that the negative impact on financial status was perceived to be impacting the social status also. Hence, the risk of making significant losses in commodity trading was being related to fall in the social status of the individuals.

CONCLUSION

Overall risk perceived in commodity trading by the equity consumers in Jaipur district was found to be correlated with performance risk, financial risk, time risk, opportunity risk and social risk. Brokerage houses who want to offer services of commodity trading and need to expand their share of wallet have to recognize the significant risks perceived by the consumers. The paper hopes that it will enable them to apply their marketing strategies more efficiently and as a result, achieve a competitive advantage.

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