PERCEPTION OF MARKET PARTICIPANTS TOWARDS DERIVATIVE TRADING: A STUDY OF UTTARAKHAND

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ABSTRACT

Financial sector reforms in the decade of 1990's have transformed the Indian capital markets into a dynamic and extensive market among the world financial markets. The internalization of economic activity and the unparalleled currency and interest rate volatility, risk hedging techniques have grown at a rapid speed minimizing the effect of uncertain cash flows. The emergence of the market for derivative instruments can be traced back to the eagerness of risk avoiding economic agents to protect themselves against worries arising out of fluctuations in asset prices. Derivatives provide investors and issuers with a wider range of tools for overseeing risks and raising capital. Derivatives have shifted the speculative trading to a more controlled environment with risk containment measures like margining, monitoring of the performance of various participants. During the recent global recession derivative instruments were largely criticized on account of their speculative nature. Since the introduction of derivatives segment in the year 2000, it has led both interactions between the spot and derivative segment in Indian stock market and concern by regulators in controlling any possible harmful influences of this new trading segment. There are different opinions on impact of derivative segment on cash segment. Considering the short history of only a decade of futures and options trading in India and the presence of several market frictions and restrictions that might have hindered the efficient operation of Indian securities markets, a study was warranted to understand the opinion of investors at large towards derivative segment. This paper analyses the perception of market

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participants towards derivative trading, its relationship with the spot market and its role in Sub Prime crises. The study was conducted in the state of Uttarakhand, India to get an insight into the minds of investor and study how their age and risk profile influence their decision to invest in derivatives.

Introduction

Indian Financial sector has gone through various significant developments over the years. Introduction of financial derivatives has been one of them. Financial derivatives have entered Indian Capital Market as a financial innovation and risk management tool but it has raised lots of concern among market participants, policy makers and economists. The raised concerns relate to the economic impact of these new instruments as their introduction has created an environment where speculation has become a dominant activity. Derivative trading is also used for hedging purposes but the speculative activity associated with derivative trading has led to high volatility in the underlying markets. Frequent market crises during last three decades (1980-2010) have raised concerns about the impact of these new instruments among market participants, policy makers and economists. Still market participants especially brokers are massively dealing in derivatives even in states like Uttarakhand where general awareness about stock markets, their working and financial instruments is quite low. This study focuses on exploring the opinion of market participants towards derivative trading in the state of Uttarakhand with an objective to assess their perception on the eight related factors- Awareness, Participation, Product Innovation, Price Discovery, Return on Investment, Liquidity and Volume, Volatility and Risk Perception. For the purpose a questionnaire was administered to selected broker members of NSE/BSE operating in the state of Uttarakhand who have the experience and knowledge of derivative trading. The primary data, thus collected, was analysed using statistical package and the results were used to assess their opinion.

Literature Review

The existing behavioral studies are very few and very little information is available about investor perceptions, preferences, attitudes and behavior. Few researchers in the past have tried to study the investor behavior and their preference towards derivative markets.

According to Steiner (2000), derivatives are the dynamite of financial crises and their exponential growth in last few decades has made financial crises considerably more virulent. The opinion of Steiner (2000) is part of ongoing debate about the desirability and undesirability of derivative instruments which emphasizes that their use constitutes a threat to financial market stability. Derivatives are an effective vehicle for excessive and leveraged speculation which may cause financial instability by increasing financial market volatility and by creating new types of risks.

Avadhani (2000) stated that a derivative, an innovative financial instrument, emerged to protect against the risks generated in the past, as the history of financial markets is repleted with crises. Events like the collapse of the fixed exchange rate system in 1971, the Black Monday of October 1987, the steep fall in the Nikkei in 1989, the US bond debacle of 1994, occurred because of very high degree of volatility of financial markets and their unpredictability. Such disasters have become more frequent with increased global integration of markets.

Kumar R. & Chandra A. (2000) critically examined arbitrage opportunities in derivative market. They concluded that individuals often invest in securities based on approximate rule of thumb, not strictly in tune with market conditions. Their emotions drive their trading behavior, which in turn drives asset (stock) prices. Investors fall prey to their own mistakes and sometimes other's mistakes, referred to as herd behavior. Markets are efficient, increasingly proving a theoretical concept as in practice they hardly move efficiently. The purely rational approach is being subsumed by a broader approach based upon the trading sentiments of investors.

Bose Suchismita (2006), in their study "The Indian Derivatives Market Revisited" examined derivative as a risk management tool. It was found that Derivatives products provide certain important economic benefits such as risk management or redistribution of risk away from risk-averse investors towards those more willing and able to bear risk. Derivatives also help price discovery, i.e. the process of determining the price level for any asset based on supply and demand. These functions of derivatives help in efficient capital allocation in the economy; at the same time their misuse also poses a threat to the stability of the financial sector and the overall economy.

Ravichandran, (2008) studied investors preferences towards various investment avenues in Capital Market with special reference to Derivatives. The study shows that in the current scenario, investing in stock markets is a major challenge ever for professionals. Derivatives acts as a major tool for reducing the risk involved in investing in the stock markets for getting the best results out of it. The study also focuses that investors should be aware of the various hedging and speculation strategies, which can be used for reducing their risk. Awareness regarding various uses of derivatives can help investors to reduce risk and increase profits.

Hvidkjaer S (2008) analysed the relationship between retail investor trading behaviour and the cross section of future stock returns. The result suggests that stocks favoured by retail investors subsequently experience prolonged underperformance relative to stock out of favour with them. This results link the systematic component of retail investor behaviour to future returns, i.e., informed investors might begin selling stocks that they believe to be overvalued. The overvaluation that these investors perceived could be driven by changes in firms fundamental.

Varadharajan.P and Vikkraman.P (2011) in their study has stated that an investor decides on an investment after getting opinion from family, friends and colleagues, broker's recommendation and also other professional advice. The investor also takes into consideration the market situations like financial results of the companies, bonus issue, price earnings ratio and the reputation of the company.

Arvid O.I. Hoffmann, Thomas Post and Joost M.E. Pennings (2012) in their research found out that investor perception during 2008-09 financial crisis fluctuate significantly with risk tolerance and risk perceptions being less volatile than return expectations. During the worst months of the crisis investors' return expectations and risk tolerance decrease while risk perception increase. Towards the end of the crisis, investor perceptions recover. They also documented substantial swings in trading and risk-taking behaviour that are driven by changes in investors' perceptions. Overall individual investors continued to trade actively and did not de-risk their investment portfolios during the crisis.

Gagan Kukreja(2012) has found in his research that age, educational qualification, tax advantages, liquidity and investment attributes are mediating factor for investors' perception. Investment influences and investment benefits are having high relevance.

Kousalya.P.R and Gurusamy.P (2012) in their research has concluded that investors make self-decision regarding their investment. Investments are made for a period of less than three years and there is a significant relationship between age and awareness.

Neel Kamal Purohit (2013) in his research has found out that income has significant impact on frequency of trading in stock market, selection of mode of trading and selection of market segments. Age and income has significant impact on taking exposure.

Tripathi (2014) studied investor's perception towards derivative trading. The study shows Indian investors mainly invest their money in real estates and insurance as they are the options offering great returns with minimum risk associated with it. He has found in his research that education, profession and gender do not affect the derivative investing behaviour. However income is found to have a significant role on derivatives. He also added that investors are using these securities for different purposes namely risk management, profit enhancement, speculation and arbitrage.

Supriya (2014) reviewed derivative as a tool for managing risk which comes out of uncertainty and makes it difficult for businesses to estimate their future production cost and revenues. The NSE figures reveal that in equity derivative almost 90% of activity is due to stock futures and index futures, whereas trading in options is still limited to few stocks, partly because they are settled in cash and not the underlying stock.

Dr. Y. Nagaraju (2014) studied investors' perception towards derivative instruments and markets. The study shows that even though most people look at derivatives with fear, they should understand the fact that derivatives help in shifting the risk to the other party. There are many myths that surround derivative market. All these can be done away with proper system in place. Derivative instruments and derivative markets are not so popular among individual investors.

Only educated investors with the help of friends and brokers are investing in this market. The reasons for not investing in this market are lack of knowledge and very complex nature of instruments. Some people have a wrong perception about derivatives. The study suggests that measures should be taken to make sure that the investors get a right picture of the instruments and their risk factors.

A number of studies have examined the effect of futures trading on the volatility of underlying market. Ryoo and Smith (2004); Pok and Poshakwale (2004); Gulen and Mayhew (2000); Antoniou and Holmes (1995);Kamara, Miller and Siegel (1992); Damodaran(1990);Lockwood and Linn(1990)among others report a positive relation between derivative trading and variances of the stock returns, implying volatility has increased after derivative trading began. On the contrary, Liu (2009), Alexakis(2007), Drimbetas, Sarianidis, Porfiris(2007), Maniar (2007), Baklaci and Tutek(2006), Srivastava, Yadav and Jain (2003), Nath(2003) found that the spot volatility has reduced post introduction of futures. The reasons cited are improvement in quality and speed of information flow; migration of speculative traders to derivative market and liquidity of underlying asset (Floros and Vougas, 2006).

Further there are studies which report insignificant impact of derivative trading on spot market volatility (Kanagaraj, Rao and Tripathy; 2009; Debasish, 2009; Mallikarjunappa and Afsal, 2008; Kumar and Mukhopadhyay,2007; Spyrou, 2005).These studies accept the stabilization hypothesis and support the view that futures market plays an important role of price discovery, and have a beneficial effect on the underlying cash markets.

Another issue which is closely related is the effect of derivative expiration on volume, return and volatility of the underlying market. Derivative contracts call for cash settlement on expiration day. The trading and manipulative activities of speculators and unwinding of cash positions by arbitrageurs in the cash markets sometimes cause distortion to price, volume and volatility near the expiration day. The severity of these effects partially depends on the stock market procedures for accommodating order imbalances. Many previous studies have pointed towards significant expiration effects in terms of high volume and volatility. Dobano(2011); Debasish (2010); Tripathy (2010); Fung and Yung (2009); Bodla and Kiran (2008); Jindal and Bodla(2007);

Vipul(2005) and Alkebak and Haglin (2004) found significant volume effects on account of expiration days. In case of Indian , most of the studies are reporting significant expiration effect during a period of 4-6 years after introduction of derivatives in 2000.Indian researches also agree on volume effects while the results regarding price effects and volatility effects is mixed.

Since researchers in India and abroad are not unanimous about volatility and other effects, and most of them have used secondary data for their studies, this study aims at exploring the opinion of market participants towards derivative trading and its effects through primary data collection.

Research Methodology

A survey was undertaken to study and understand the perception of market participants who trade in derivatives. The study was conducted using a non probability purposive judgmental sample due to limited availability of high level derivative market officials who have long experience of trading in both cash and derivative market. For this purpose a structured questionnaire with thirty close ended questions has been used. The questions were taken from theoretical and empirical review on the subject. The questionnaire was finalized after conducting factor analysis and was presented to 150 broker members of NSE/BSE operating in the state of Uttarakhand, who had the requisite knowledge and experience in derivative trading. Questionnaires were filled by taking personal interviews of few members and rest was contacted through email and phone. Depending on their availability about 115 responded out of which 5 questionnaires were omitted as they were incomplete.The data has been checked for any outliers as they can affect the subsequent analysis but there are no such cases to be considered. The normality of the data has also been checked by the use of skewness and kurtosis and it was determined that all items had normal distribution.

The study focused on the members of NSE/BSE and the demographic information of the respondents is indicated in the Table 1

Table 1: Demographic Profile of the Respondents

Characteristics	Measuring Group	Number of Valid responses	Valid percentage

Age Group	<=40	26	23.6
	>40 and <=55	51	46.4
	>55	33	30.0
Risk Return Profile	High Risk High Return(HRHR)	49	44.6
	Moderate Risk Moderate Return (MRMR)	37	33.6
	Low Risk Low Return(LRLR)	24	21.8

Descriptive statistics

The data collected was used to calculate mean and standard deviation for all the items along with the skewness and kurtosis of these items summarized in Table 2. The overall results indicate a good dispersion of the results. The means of the thirty statements ranged from 4.65 to 1.93 with standard deviation ranging from 1.37 to 0.54.

Table2 Descriptive Statistics of the Statements

Factors	Statements	Mean	Std. Dev.	Skew.	Kurt.
Awareness	1.	4.02	1.37	-0.34	-1.20
	2.	3.60	1.25	-0.41	-1.00
	3.	3.36	1.23	-0.94	-0.43
Participation	4.	4.36	1.11	-0.74	-0.43
	5.	4.28	0.97	-1.26	1.90
	6.	3.21	1.35	-0.18	-1.19
	7.	4.23	1.06	-1.65	2.35
Product innovation	8.	3.93	1.02	-0.86	-0.32
	9.	4.33	0.86	-1.66	3.29
	10.	1.93	0.99	1.05	0.19
Price discovery	11.	4.19	0.93	-0.78	-0.56
	12.	4.11	0.66	-1.37	2.26
	13.	2.22	1.22	0.53	-1.14
Return on investment	14.	4.34	0.84	-1.51	2.55

	15.	3.37	0.92	-1.31	1.31
	16.	3.98	0.94	-1.43	2.28
	17.	2.10	1.15	0.68	-0.86
Liquidity/volume	18.	4.58	0.54	-0.78	-0.50
	19.	4.65	0.54	-1.58	3.01
	20.	2.97	0.81	-0.23	-0.28
	21.	4.41	0.73	-1.34	2.07
Volatility	22.	2.85	1.10	-0.15	-0.84
	23.	4.06	1.06	-0.84	-0.56
	24.	4.19	0.69	-1.05	2.91
	25.	4.28	0.75	-1.38	3.08
Risk perception	26.	4.30	0.62	-0.51	0.56
	27.	4.33	0.64	-0.60	0.39
	28.	3.33	0.99	-0.18	-0.56
	29.	4.27	0.63	-0.28	-0.64
	30.	2.57	0.94	-0.13	-0.85

Using ANOVA

ANOVA is conducted to see the significance of the relationship between the independent and dependent factors. The differences in mean values are closely observed and the differences identified in the analysis are tested using one way ANOVA tests. The objective is to find out if the differences in the mean values are significant. The test is employed for 'Age Group' and 'Risk Return profile' variables.

Examining Differences in Means with respect to Age Group

The observations presented in the Table 3 suggest that respondents of all age groups have increased participation in the derivatives market and have hence contributed positively in increasing Volumes and liquidity. The current level of product innovation is sufficient but more stocks derivatives may be added. Derivative trading has, in general, reduced volatility. Price

discovery takes place on expiration day but volatility is high during this time. Respondents strongly agree that volatility was also high in India during crises period of 2008.

Table 3: Mean Values of all Factors according to Age Groups

Age Groups	<=40	>40 and <=55	>55
Awareness	4.03	3.78	2.86
Participation	4.15	4.27	4.22
Product Innovation	3.43	3.99	3.86
Price Discovery	4.21	3.92	4.03
Return on Investment	4.42	3.84	2.67
Liquidity/Volume	4.10	4.16	4.15
Volatility	4.05	4.16	3.97
Risk Perception	2.82	3.58	4.24

The results in Table 3 show that there are differences n the age groups with respect to the 'Awareness', 'Return on investment' and 'Risk Perception' factors. Hence one way ANOVA tests with post-hoc Scheffe test were employed to investigate the mean differences in the age groups. Table 4 shows that the differences are highly significant.

Table 4: One way ANOVA results for 'Awareness', 'Return' and 'Risk Perception' Factors for three different Age Groups

		Sum of Squares	df	Mean Square	F	Sig.
Awareness	Between Groups	15.30	2.00	7.65	7.54	0.00
	Within Groups	109.14	107.00	1.02		
	Total	124.44	109.00			

Return on Investment	Between Groups	1.34	2.00	0.67	2.96	0.04
	Within Groups	24.61	107.00	0.23		
	Total	25.95	109.00			
Risk Perception	Between Groups	21.32	2.00	10.66	31.89	0.00
	Within Groups	35.31	107.00	0.33		
	Total	56.63	109.00			

The means in Table 4 indicate that high age respondents think derivatives are risky and investors are not aware enough to use them advantageously while younger and middle aged respondents do not agree with this. High Age respondents are of the opinion that individual investors should be trained to take advantage of derivatives. They should be educated so that they understand the relationship of derivatives with their underlying instruments and know about complexities involved in derivative trading. Younger respondents, on the other hand, do not agree with this. This implies that they are pointing towards highly aware and skilled investors who are ready to take risk and probably use technical tools to predict the market and earn profits.

Examining Differences in Means with respect to Risk Return Profile

The mean of different risk return profile respondents with respect to the eight factors are shown in Table 3. Observations from this table suggest that respondents of all risk return profile agree that the introduction of derivatives has led to an increase in the awareness. Volumes and Liquidity has also increased .All respondents agree that volatility increases during scams and Sub Prime crisis. However they think that despite high volatility during Sub Prime crises, derivatives are not responsible for the crisis. The results in Table 5 below show that there are differences in the risk return profile with respect to 'Participation', Product Innovation' and 'Return on investment 'factors.

Table 5 Mean Values of all Factors according to Risk Return Profile

Risk Return Profile	HRHR	MRMR	LRLR
Awareness	3.93	3.71	3.94
Participation	2.49	3.03	4.01
Product Innovation	2.36	2.97	3.89
Price Discovery	3.86	4.12	3.94
Return on Investment	4.29	3.87	3.14
Liquidity/Volume	4.19	4.08	4.14
Volatility	4.00	3.88	3.92
Risk Perception	4.33	4.17	4.45

Further one way ANOVA tests with post–hoc Scheffe test were employed to investigate the mean differences in the profiles. Table 6 shows that the differences are highly significant.

Table 6 One way ANOVA results for 'Participation', 'Product Innovation' and 'Return' Factors for three different Risk Return Profiles

		Sum of Squares	df	Mean Square	F	Sig.
Participation	Between Groups	3.55	2.00	1.78	2.78	0.02
	Within Groups	68.48	107.00	0.64		
	Total	72.03	109.00			
Product innovation	Between Groups	5.53	2.00	2.76	5.89	0.00
	Within Groups	50.29	107.00	0.47		
	Total	55.82	109.00			
Return on investment	Between Groups	5.53	2.00	2.76	5.89	0.03
	Within Groups	50.29	107.00	0.47		
	Total	55.82	109.00			

The means in Table 6 indicate that the respondents of HRHR and MRMR profiles i.e, risk takers think that investors lack knowledge and do not participate in the markets, hence they don't get returns either. They themselves take high risk and feel that it is possible to earn high profits. Due to their high risk appetite they want more complex range of derivative products/instruments to be added to the Indian market along with more derivatives on stocks. The LRLR respondents and their clients, on the other hand, participate in a limited way and so get lower returns. They are satisfied with current level of product innovation in the country.

Findings

The survey was carried out to gather the opinion of NSE/BSE members operating in the State of Uttarakhand, on the implications of derivative trading for Indian Capital Market. In total 110 respondents shared their views through the questionnaire and were classified into three groups according to age namely young group (age<=40) with 23.6% respondents, middle aged group (age>40 & <=55) with 46.4% respondents and old group (age >40) with 30.0% respondents. The respondents are also classified on the basis of risk return profile, namely HRHR profile with 44.6% respondents, MRMR with 33.6% and LRLR with 21.6%. This shows that majority of respondents in first set are middle aged and in the second set are risk takers.

All respondents completely agree that volumes have increased exponentially after derivatives. Derivatives facilitate price discovery and the possibility of earning good returns. They promote product innovation. Volatility is related of derivatives and increases during expiry. It was also high during Sub Prime crisis.

There is no complete agreement on three factors with respect to different age groups, viz, 'Awareness, 'Return on investment', and 'Risk perception'. Old age respondents feel that derivatives are risky instruments and investors in India, especially retail investors, are not fully aware of various types of derivative instruments traded, their working and relationship with the underlying and thus these investors do not get returns in trading of derivatives instead are frequently booking losses. Middle aged group feels that derivatives are risky, investors are aware and do get return. They probably are pointing towards institutional investors who are skilled and have knowledge of derivative trading and do not earn good returns. The young group, on the

other hand feels that derivatives are not risky and investors are well aware and they get good returns also. This group is probably referring to highly skilled arbitrageurs who use algorithmic trading to earn high returns. The perception of the three age groups is different. This could be due to their experience. Old respondents have seen the crisis and scams happening due to derivative trading in last one to two decades. Hence they are safe players and do not run after returns by taking excessive risk. The middle aged and young respondents, on the other hand, are less experienced but more skilled. They take the help of computer technology and keep themselves up to date on latest information and keep their clients aware.

While analysing the responses of respondents on the basis of risk return profile we found that most of the risk takers (HRHR & MRMR profiles) were young respondents whereas the risk averse (LRLR profile) respondents were comparatively older. There is no consensus on three factors with respect to risk return profile, viz, 'Participation', Return on Investment', and 'Product Innovation'. The risk takers feel that although it is possible to earn good returns in derivative trading but investors do not participate in the market. These respondents like to take risk themselves; hence they are not satisfied with the current level of product innovation. They want more variety and more complex instruments to maximize their profits. On the other hand, risk averse (LRLR) respondents feel that investors should participate in a limited way and thus returns cannot be high. These respondents only trade in known products hence are happy with the level of product innovation. The difference in perception of respondents could be due to their own different risk appetites. HRHR respondents want their clients to take risk but due to limited participation clients earn limited returns while LRLR respondents do not force the clients to take risk and hence the clients keep holding the assets for a long time and do not play in the market for fear of losing.

Conclusion

Finally it is concluded that the first impact of derivative trading is seen in the form of huge volumes and liquidity in the Indian market. Price Discovery is taking place and volatility has reduced in general. Experienced derivative traders consider derivatives as risky instruments and are, therefore, safe players.

According to them, it is not possible to earn high returns with them. They strongly feel that individual investors need to be trained on variety of derivative instruments available and their working. Investors should be made aware of inherent complexities involved in derivative trading. With respect to Sub Prime Crisis, they feel that it has no concrete association with derivative trading.

Further, young derivatives traders are smart, are fully aware of potential of derivatives and are risk takers. They want the pace of product innovation to increase. They want the role of financial advisors to be legalized so that they can advise the investors to participate in the markets. They are completely in favour of derivatives and feel that they are not responsible for Sub Prime crises rather it was the result of other regulatory and enforcement lapses. The current level of volatility is sufficient for growth of markets in India and it is not very high to cause instability. Hence there is no need for more regulation of derivative trading.

The discussion during pretesting highlighted that the respondents think that high transaction costs lack of training, malpractices adopted by illegal financial advisors and shorter trade timings are few impediments to derivative trading in India. Factors such as reduction in transaction costs, product innovation, investor awareness, training and participation, legalization of financial advisors and extension of trade timings can pave the path for further growth of derivative markets in India.

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