The investment decision of Retail Participants Representing Tier II cities of Central India Towards Derivatives Segment of Capital Market - A Sociological View

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Abstract - This research paper empirically explores the investment decision of retail participants towards derivatives market with special reference to tier II cities of Central India. Since its inception, the progress of derivatives market has been splendid. Initially, the historical background and present turnover has been embraced with an explicit mention of the need for study. The turnover of derivatives market has surpassed the turnover of cash market. The chief objectives of this research include understanding the various sociological factors affecting a retail investors' decision to participate in derivatives market. Then, sequential of elaboration of critical literature review, followed by research methodology has been trailed. Descriptive research design has been adopted. Furthermore, the data has been gathered through survey using a questionnaire consisting of closed ended questions both online and through delivery and acquisition. The quantitative analysis has been undertaken with the aid of SPSS software and Reliability & Mean analysis, Cross Tab examination and One Way Anova has been carried out. The principal outcome that has been established is that there exists no relationship between gender, age & education with thirteen dependent variables. Derivatives market, thus, put forth diverse and magnificent potential for further research.

Key Words: Derivatives, Capital market, Retail Investor, Equity, Currency & Commodity.

I. INTRODUCTION

"Derivatives are those assets whose value is determined from the value of some underlying assets." (Kishore, 2011) This kind of financial instruments are liquid, traded around the world, facilitates discovery of price, risk management and also lessens the cost of transaction. (HS & PV, 2014) These may be broadly divided on the basis of following categories:

- On the basis of underlying assets- Equity, commodity and currency. (SEBI, n.d.)
- On the basis of type- Forwards, Swaps, Options and futures. (Vashishtha & Kumar, 2010)

The principal participants in the derivatives market include hedgers, arbitrageurs, speculators and investors. (HS & PV, 2014)

With the abolition of fixed exchange rate that was established after World War II, economies like India stepped forward towards opening up themselves which led to serious concern for businesses as the faced difficulty with fluctuating prices in estimating their expenses and income. Hence, derivatives emerged as an avenue for risk management. (Sarkar, 2006)

In the domain of commodities, futures' trading was present since 1875 but with ban on trading of options and settlement of cash by the Government, there was inclination towards market of forwards. But the promulgation of laws pertaining to derivatives in 1995 served as the plinth for the construction of edifice of derivatives. In June 2000, with SEBI's grant trading of derivatives initiated with the eventual consent on May 2001. (Gakhar & Meetu, 2013)

Present turnover

Equity: The acquaintance with derivatives (equity) has been highly favourable for India. The turnover in the market of equity has been surpassed by turnover of derivatives on NSE & BSE. F&O Total Turnover Stood At Rs 12,40,622.18 Crore On September 2018. (Indianivesh, 2018)

Commodity: The biggest platform for trading in commodities derivatives is the Multi Commodity Exchange (MCX), which revealed a severe drop in turnover from 55,000 thousand crores to average of 22 thousand crores in 2017. (Businessstandard, 2017)

Currency: As per The Hindu "the average daily turnover of the currency segment of NSE was ₹12,705 crore in 2014-15, which rose to ₹18,603 crore in 2015-16 and thereafter to

₹20,779 crore in 2017-18. In the current financial year till date, the average daily turnover is pegged at ₹29,008 crore". The Hindu (2018)

II.   LITERATURE REVIEW

Psychological dimension

A research undertaken in the Chi minh Stock exchange by Luong & Thu Ha demonstrated four crucial factors of behavioural nature impacting the decisions of individual investment, namely herding(following choices of others), prospect theory(regret and loss aversion), heuristics (overconfidence, anchoring) and market (price, trends, available information etc.).Whereas only three impacting the performance of the individual investment i.e. heuristic, herding and prospect theory. The research gave a critical literature review but suffered from sample size of 172, use of random sampling and was limited to the specific exchange. (Luong & Ha, 2011)

Jabes explored in Nairobi stock exchange in 2011 that investor psychology has a great relevance and significance with regards to decision of investment. Most respondents thought hard before deciding to invest and their initial intuition served as a major factor. Uncertainty compelled to take decision based on instincts and also served a major challenge in decision taking. 23 of them showed readiness to lose a pie and 22 were ready for bearing risk. But on the contrast, it suffered from collection of data in one day using questionnaire and small sample size of 50. Moreover, the exploration was limited to specific investors at NSE and Nairobi. (Jabes, 2011)

Economic dimension

Obamuyi in Nigeria conducted a research on investors and found that five important factors that influence decisions are past performance, expectation of earnings, policy of dividend, get-rich-quick and bonus. Most respondents' results reflected them to be rational and considered wealth maximisation. But the literature was not critically appraised and the findings were limited to Nigeria. (Obamuyi, 2013)

Das in the year 2011 explored Guwahati stock exchange and found that financial statement, profitability data, accounting information were crucial in selection decision of stocks. This was accompanied by financial ratios, risk, trends, return on investment and internal rate of return. But it was deficient in terms of segment of limitations, suggestions and further research. (Das, 2012)

Demographic dimension

Geetha and Ramesh carried a research in Nagapattinam (South Asia) and found notable association between investment frequency and gender, education, income, age, occupation. Also it elucidated association between awareness sources and demographic variables. But the research was deprived of suggestions segment, data presentation and was affected by use of convenience sampling. (Geetha & Ramesh, 2012)

Jain & Mandot studied the decision making of investors in Rajasthan and found that there exists positive association between risk undertaken and level of knowledge. Increment in knowledge leads to increased undertaking of risk by 0.104 points. Also, it eliminated the impact of gender and city on investment but explicitly reflected significant impact of factors like age, qualification, marital status, market knowledge, income and occupation. It lacked a summary of findings and was limited to few cities of Rajasthan. (Jain & Mandot, 2012)

Social dimension

Dr Mohammad explored the field of investment of individual investors and found social factors like investment of others, opinion of friends and family have a major impact on decision. The research was based on review of previous works and did not include a segment for further research. (Shafi, 2014)

Aregbeyen & Mbadiugha investigated in 2011 amongst 2000 samples in Nigeria regarding influential factors in decision making of investment. The top key factors influential in decision making of the respondents were majorly social factors incorporating board of directors' constitution, personality profile of shareholders, company's structure of management, ownership and the consultancy by stock brokers. But this exploration did not take into account suggestions, limitations and efficient quantitative analysis. (Aregbeyen & Mbadiugha, 2011)

Derivatives

A research by Dr. Nagaraju & Reddy (2014) in Bangalore concluded majority of participants in derivatives market were graduates with income less than Rs. 5,00,000, investing 16%-20% surplus for meeting obligations in future, 62.2% actually participated, hedgers were the majority and 3 months contracts & index options were the most preferred. But it suffered for not identifying the peculiarities of the reason for non- investment with Bangalore being the radius, lacked suggestion section and did not define a path for further research. (Nagaraju & Reddy, 2014)

Shrikrishna investigated regarding the behaviour and awareness of small investors with regards to options and futures of equity in Mysore city amongst 50 investors. It was investigated that 21 had moderate knowledge and 30 were partially aware about derivatives. Investment in futures and options was backed by various objectives like income, gain, wealth etc. 24 investors agreed derivatives to be the opportunity of investment which is emerging and expectation of the return was the major influential factor and a large chunk wishing to experience mediocre risk. The

study, however, did not include suggestion for further research and constraints. (Shrikrishna, 2014)

Pasha studied the perception of retail investors in India in the year 2013 in Andhra Pradesh using the results of 500 respondents and uncovered 55% of the respondents viewed derivatives to be new, high tech and complex; 62% of respondents opined derivatives to be speculative completely with high leverage. 49% of them reflected derivatives as useful to only big organisations and meant only for risk takers. 43% were not known to the risk linked with the instrument. But it lacked literature review. (Pasha, 2013)

Hon explored the derivatives market of Hong Kong in the year 2012 and found that majority of the investors fell in between 18-34 years. A positive correlation exists between return on average and the experience of the investment. Being accessible was a significant influential aspect. 4/5 th of the respondents traded online. The study lacked suggestions segment and suffered from the disadvantages of use of sampling. (Hon, 2013)

Thamotharan & Prabakaran researched in Dharampuri district (2013) using the views of 150 investors which explicitly reflected occupation and age being prime influential in investment, drew concerns over influences grabbing a large chunk of 19% (share) in influencing, derivatives were 87.8% reliable in terms of quantifying investment benefit, 63.4 % reliable for liquidity. But it was afflicted by the complexity of quantitative measures and errors of systematic sampling. (Thmotharan & Prabakaran, 2013)

A finding by Ananganathan & Sivarethinamohan in the year 2013 amongst 60 investors of Trichy district revealed that 56.7% invested in metals followed by Agro, Bullions and Energy. Majority of them made decision on their self-analysis and experts. Albeit it reflects significant relationship between age and awareness; profession and awareness. Market knowledge, liquidity, return, maturity, risk and security were the crucial influential factors but it did not include limitations segment and critical review of literature. (Sivarethinamohan & Aranganathan, 2013)

An exploration in commodities future trading (Puducherry) by Kumar & Balaji amongst a sample of 200 respondents found that 70% considered commodities future trading an optimal investment avenue, 30% preferred gold, 40% invested weekly and held positions in medium term and concluded significant association between gender and investment . It encompassed in depth history but was deficient in terms of critical review, sampling method and analysis. (Kumar & Balaji, 2011)

A research conducted by Chandran in the city of Chennai reflected 31-40 age group were the major investors, friends followed by brokers being the crucial factors for decision making, most were of short term preference where credit and market risk were highlighted as the major risks. But it

did not take into account the quantitative measurement of risk; was limited to the Chennai region and suffered from the disadvantages of using convenience sampling method. (Ravichandran, 2008)

Khurana et al. explored about derivatives in the city of Indore. It was found that 22 respondents out of the total 50 were in between 31 and 40 years of age. 33 were males and major chunk of respondents were graduates. The most common income level was below Rs. 5 lakhs. Friends and relatives highly impacted 20 respondents. Risk was majorly minimised through newspapers and experts and the top preference was stock index futures. The study had constraints such as dynamic perception of individuals, small sample size and emphasis on equity derivatives only and poor communication due to deficiency of awareness. (Khurana et al., n.d.)

Analysis of literature survey

There has been substantial research and studies on derivatives but very few specific to central India, embarrassing all kind of factors that affect a participant's decision to invest and determination of the behaviour of a participant in a comprehensive way. Above mentioned research papers focused in one dimension like psychological, economic demographic or social. Very few hypothesis were tested and had very limited approach. Thus, this research aims to fulfil the aforementioned gaps. In this research paper there is a mix of 13 influencing variables which has been identified using above literature survey and will be analysed focusing demographic demission.

III.   RESEARCH METHODOLOGY

The research methodology has been elaborated below.

Research philosophy and Approach

The current management scenario is dynamic and distinct from the concrete laws of science. Generalisation would eliminate the complexity in this domain. Each organisation is not only heterogeneous but also one of its own kind. Hence, an absolute scientific or realistic philosophy would not be able to unearth the present situation and so, the research follows the philosophy of an **interpretivist** to understand the decision of participants to invest in the derivatives market. (Saunders et al., 2008)

The research has taken into account the **deductive** approach to study the participants' decision to invest in the derivatives market, for which the researcher has fabricated hypotheses and tested them through various tools. It has progressed from theory towards confirmation. (Saunders et al., 2008) This is distinct from the inductive approach which embraces bottom up passage, a broader outlook, that progresses from observation to theory. (Trochim, 2004)

Scope of Research

1. Geographic Scope: Retail/individual investor from Central India was considered for the study. Cities with population above 10 lacs were considered like Indore, Bhopal, Jabalpur and gwalior is considered.

2. Demographic Scope: Individual investor of different demographic profile considered like age (above 18) , gender, income, occupation, qualification (Graduates & above) and marital status.

3. Period Scope: Data from respondents were collected between November 2018-January 2019.

Research Strategy

There has been considerable and significant research in the field of derivatives and the present research is an extension to the previous exploratory studies. (Saunders et al., 2008) This research tends to explore the specific characteristics of the retail participants towards derivatives market. The reason behind this stands the need to understand the behavior of retail participants, i.e., the need is explicitly reflected. (Bajpai, 2011) (Chisnall, 2001) So, a **descriptive** research, a variant of conclusive research has been taken into account. (Panneerselvam, 2006) The various and diverse research questions formed have been answered by collection of data through **survey** and its analysis. Due to the nature of research of derivatives, a segment of business research; it was found appropriate, viable and feasible to deploy this strategy. It allows covering a colossal geographic area economically and facilitates comparison if questionnaire is used. (Tull & Hawkins, 2000)(Saunders et al., 2008)

IV.   DATA COLLECTION AND ANALYSIS

Population size is only likely to be a factor when researcher work with a relatively small and known group of people.(surveysystem, 2019). **Confidence interval** also called margin of error and **confidence level** are two measure that affect the accurateness of the data (Dessel,2013) . Researcher decided to keep a margin of error of 5% and a confidence level of 95% for this research work. Based on above table, as population size is not

Hypothesis

52 hypothesis were tested

Table 1

Hypothesis	Statement
H 1.1 to H 1.13	There is no significant difference between mean of gender and influencing variables
H 2.1 to H 2.13	There is no significant difference between mean of age and influencing variables
H 3.1 to H 3.13	There is no significant difference between mean of education qualification and influencing variables
H 4.1 to H 4.13	There is no significant difference between mean of income and influencing variables

<u>**Data Interpretation**</u>

<u>**Descriptive Statistics**</u>

known or large, sample size comes to be 384. Researcher cross verified using same data on online sample calculator given on website surveysystem.com.

The total number of questionnaire distributed was 680 through online mode.457 questionnaire were received out of which 443 fully responded questionnaire were identified. Response rate of 65.14% was recorded.

The sample population for the research comprises of investors of capital market. A sample of 443 investors in capital market has been incorporated. The variant of non-probability sampling, snowball sampling has been put to use. This specific method of sampling has been chosen due to its wide acceptability and use. The area for sampling has been major cities of central India with population above 10 lakhs. Respondents from cities like Indore Bhopal, Jabalpur & Gwalior were asked to participate.

Types of data collected

<u>Research choice</u>

This primary information (quantitative data) has been assembled by surveying through questionnaire which has been self-administered by the researcher both online (Google Drive) and through delivery & acquisition (offline),that is, using a **mono** method (questionnaire). (McBurney, 2003)(Appendix 21& 22)The questionnaire has the following characteristics:

- Closed Ended
- Likert scale

<u>Secondary and tertiary data</u>

The secondary and tertiary data have been gathered through academic journals, books, newspapers etc.

Data Analysis

Statistical Analysis was performed using tools like Cross Tabulation, Reliability analysis, Mean analysis and ANOVA. Data Analysis was conducted on SPSS 20.0 version. (Aaker& Kumar& Day, 2001)

Some information about the respondents background was gathered using demographic variable like gender, age, education, and annual income. Distribution of respondents on the basis of their demographic profile is illustrated in Table 2. The collected information shows that research sample consist of 318 males and 125 females belonging to tier 2 cities (Indore, Bhopal. Jabalpur, Gwalior & Ujjain) of Central India. Majority of respondents belong to young people as large sample represented 26-35 years age group followed by 18-25 age category. About 35.4% graduates, 41.8% post graduates & 12.4% undergraduates majorly participated in research survey. The above data indicates that majority of the sample represents highly educated class. On the income level, sample information shows that 72.5% of the respondents have annual income less than or equal to Rs. 5 lakhs, followed by income category 10 to 25 lakhs.

Table 2

Demographic Details					
		Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Male	318	71.8	71.8	71.8
	Female	125	28.2	28.2	100.0
	Total	443	100.0	100.0	
Age	18-25 yrs	130	29.3	29.3	29.3
	26-35 yrs	183	41.3	41.3	70.7
	36-45 yrs	98	22.1	22.1	92.8
	46-55 yrs	22	5.0	5.0	97.7
	Above 55 yrs	10	2.3	2.3	100.0
	Total	443	100.0	100.0	
Educational qualification	Undergraduate	55	12.4	12.4	12.4
	Graduate	157	35.4	35.4	47.9
	Post-graduate	185	41.8	41.8	89.6
	Professional	46	10.4	10.4	100.0
	Total	443	100.0	100.0	
Income	Below Rs. 5,00,000	321	72.5	72.5	72.5
	Rs. 5,00,000- Rs. 10,00,000	57	12.9	12.9	85.3
	Rs. 10,00,000- Rs. 25,00,000	65	14.7	14.7	100.0
	Total	443	100.0	100.0	

Reliability Analysis

To check the internal consistency reliability analysis was carried out, Cronbac's Alpha was applied on instrument. Value of alpha was .807 which is above .6 so it can be safely concluded that instrument's consistency is acceptable.

Cross Tab Analysis

Table 3

Gender									
		Which derivatives Product is preferred?							
		Equity	Currency	Commodity	All	Equity & Commodity	Equity & Currency	Not investing in derivatives	Total
Male	Count	95	6	34	7	31	19	126	318
	Expected Count	94.8	4.3	33.0	6.5	22.3	13.6	143.6	318.0
	% of Total	21.4%	1.4%	7.7%	1.6%	7.0%	4.3%	28.4%	71.8%
Female	Count	37	0	12	2	0	0	74	125
	Expected Count	37.2	1.7	13.0	2.5	8.7	5.4	56.4	125.0
	% of Total	8.4%	0.0%	2.7%	.5%	0.0%	0.0%	16.7%	28.2%
	Count	132	6	46	9	31	19	200	443
	Expected Count	132.0	6.0	46.0	9.0	31.0	19.0	200.0	443.0
	% of Total	29.8%	1.4%	10.4%	2.0%	7.0%	4.3%	45.1%	100.0%
Age									
18-25 yrs	Count	29	6	3	0	13	0	79	130
	Expected Count	38.7	1.8	13.5	2.6	9.1	5.6	58.7	130.0
	% of Total	6.5%	1.4%	.7%	0.0%	2.9%	0.0%	17.8%	29.3%
26-35 yrs	Count	41	0	21	9	15	13	84	183
	Expected Count	54.5	2.5	19.0	3.7	12.8	7.8	82.6	183.0
	% of Total	9.3%	0.0%	4.7%	2.0%	3.4%	2.9%	19.0%	41.3%
36-45 yrs	Count	57	0	8	0	3	6	24	98
	Expected Count	29.2	1.3	10.2	2.0	6.9	4.2	44.2	98.0
	% of Total	12.9%	0.0%	1.8%	0.0%	.7%	1.4%	5.4%	22.1%
46-55 yrs	Count	0	0	14	0	0	0	8	22
	Expected Count	6.6	.3	2.3	.4	1.5	.9	9.9	22.0
	% of Total	0.0%	0.0%	3.2%	0.0%	0.0%	0.0%	1.8%	5.0%
Above 55 yrs	Count	5	0	0	0	0	0	5	10
	Expected Count	3.0	.1	1.0	.2	.7	.4	4.5	10.0
	% of Total	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	2.3%
	Count	132	6	46	9	31	19	200	443
	Expected Count	132.0	6.0	46.0	9.0	31.0	19.0	200.0	443.0
	% of Total	29.8%	1.4%	10.4%	2.0%	7.0%	4.3%	45.1%	100.0%
Education									
Undergraduate	Count	3	0	6	0	7	0	39	55
	Expected Count	16.4	.7	5.7	1.1	3.8	2.4	24.8	55.0
	% of Total	.7%	0.0%	1.4%	0.0%	1.6%	0.0%	8.8%	12.4%
Graduate	Count	40	6	19	0	12	6	74	157
	Expected Count	46.8	2.1	16.3	3.2	11.0	6.7	70.9	157.0
	% of Total	9.0%	1.4%	4.3%	0.0%	2.7%	1.4%	16.7%	35.4%
Post-graduate	Count	77	0	19	0	12	13	64	185
	Expected Count	55.1	2.5	19.2	3.8	12.9	7.9	83.5	185.0
	% of Total	17.4%	0.0%	4.3%	0.0%	2.7%	2.9%	14.4%	41.8%
Professional	Count	12	0	2	9	0	0	23	46
	Expected Count	13.7	.6	4.8	.9	3.2	2.0	20.8	46.0
	% of Total	2.7%	0.0%	.5%	2.0%	0.0%	0.0%	5.2%	10.4%
	Count	132	6	46	9	31	19	200	443
	Expected Count	132.0	6.0	46.0	9.0	31.0	19.0	200.0	443.0
	% of Total	29.8%	1.4%	10.4%	2.0%	7.0%	4.3%	45.1%	100.0%
Income									
Below Rs. 5 Lakh	Count	96	6	31	0	15	19	154	321
	Expected Count	95.6	4.3	33.3	6.5	22.5	13.8	144.9	321.0
	% of Total	21.7%	1.4%	7.0%	0.0%	3.4%	4.3%	34.8%	72.5%
5 Lakh-10 Lakh	Count	16	0	5	0	9	0	27	57
	Expected Count	17.0	.8	5.9	1.2	4.0	2.4	25.7	57.0
	% of Total	3.6%	0.0%	1.1%	0.0%	2.0%	0.0%	6.1%	12.9%
10 Lakh- 25 Lakh	Count	20	0	10	9	7	0	19	65
	Expected Count	19.4	.9	6.7	1.3	4.5	2.8	29.3	65.0
	% of Total	4.5%	0.0%	2.3%	2.0%	1.6%	0.0%	4.3%	14.7%
	Count	132	6	46	9	31	19	200	443
	Expected Count	132.0	6.0	46.0	9.0	31.0	19.0	200.0	443.0
	% of Total	29.8%	1.4%	10.4%	2.0%	7.0%	4.3%	45.1%	100.0%

Retail investors prefers to invest more in equity and commodity segment of derivative product. Currency space is not so popular among investors. Although majority of males and females respondents confessed that they don't like to invest in derivative segment, still 21.4% males and 8.4% females like to invest in equity derivatives. Further analysis suggest that investor between age range 18-35 years normally don't prefer to invest in derivative product, while few agreed to invest in equity derivatives, negligible takers for currency derivative. Mainly graduates and post graduates interested in equity derivatives. Overall close to 30% respondents agreed to invest in equity derivative product while 10% said they like to invest only in commodity. About 45.1% said they don't like to invest in any derivative product

Mean Analysis and Hypothesis testing

Mean analysis – Gender with influencing variables

Table   **4**

Mean Analysis- Gender with Influencing factors						
Is your investment in derivative instrument influenced by	**Gender**	**N**	**Mean**	**Std. Deviation**	**Hypothesis**	**ANOVA at 5% Significance**	**Remark**
Return	Male	318	2.9497	1.70654			
	Female	125	3.6400	1.67236			
	Total	443	3.1445	1.72338	H1.1	0.000	Hypothesis Rejected
Concept of wealth maximisation	Male	318	3.0189	1.66414			
	Female	125	3.6000	1.73205			
	Total	443	3.1828	1.70187	H1.2	0.001	Hypothesis Rejected
Liquidity	Male	318	2.8962	1.75967			
	Female	125	3.6880	1.64325			
	Total	443	3.1196	1.76226	H1.3	0.000	Hypothesis Rejected
Risk involved	Male	318	3.4560	1.40850			
	Female	125	3.7920	1.54657			
	Total	443	3.5508	1.45491	H1.4	0.029	Hypothesis Rejected
current high performance	Male	318	3.0472	1.67020			
	Female	125	3.8160	1.56259			
	Total	443	3.2641	1.67501	H1.5	0.000	Hypothesis Rejected
Instinct	Male	318	3.4119	1.44841			
	Female	125	3.9680	1.39085			
	Total	443	3.5688	1.45261	H1.6	0.000	Hypothesis Rejected
Market Prediction	Male	318	3.1761	1.54852			
	Female	125	3.7360	1.56650			
	Total	443	3.3341	1.57221	H1.7	0.001	Hypothesis Rejected
Familiarity with Derivative instrument	Male	318	3.0220	1.71176			
	Female	125	3.7440	1.60093			
	Total	443	3.2257	1.71064	H1.8	0.000	Hypothesis Rejected
Declining Phase of Market	Male	318	3.3868	1.41580			
	Female	125	3.8720	1.39108			
	Total	443	3.5237	1.42418	H1.9	0.001	Hypothesis Rejected
Rate trends of the underlying asset	Male	318	3.3899	1.42272			
	Female	125	3.7280	1.59321			
	Total	443	3.4853	1.47885	H1.10	0.030	Hypothesis Rejected
Investment of other investors	Male	318	3.6164	1.32579			
	Female	125	3.9920	1.32285			
	Total	443	3.7223	1.33424	H1.11	0.008	Hypothesis Rejected
Professional recommendation	Male	318	3.3302	1.49903			
	Female	125	3.7760	1.50732			
	Total	443	3.4560	1.51306	H1.12	0.005	Hypothesis Rejected
recommendations from friends and family	Male	318	3.5755	1.29265			
	Female	125	3.9120	1.36793			
	Total	443	3.6704	1.32149	H1.13	0.016	Hypothesis Rejected

Higher mean = less influencing

13 influencing variables were identified using past research papers. Mean analysis conducted between gender and these variables. Mean analysis suggest that females in comparison to males are less influenced by all factors. Hypothesis H1.1 to H1.13 are rejected as values is less than .05 ,which means that there is significant difference between gender and influencing variable

Mean analysis – Age with influencing variables

Table 5

Mean Analysis- Age with Influencing factors						
Is your investment in derivative instrument influenced by	**Age**	**N**	**Mean**	**Std. Deviation**	**Hypothesis**	**ANOVA at 5% Significance**
Return	18-25 yrs	130	3.6308	1.73937		
	26-35 yrs	183	3.2568	1.63903		
	36-45 yrs	98	2.3061	1.60160	H 2.1	0.000 Hypothesis Rejected
	46-55 yrs	22	3.0000	1.57359		
	Above 55 yrs	10	3.3000	1.82878		

	Total	443	3.1445	1.72338		
Concept of wealth maximisation	18-25 yrs	130	3.6846	1.67070	H 2.2	0.000 Hypothesis Rejected
	26-35 yrs	183	3.3115	1.60912		
	36-45 yrs	98	2.2857	1.63089		
	46-55 yrs	22	3.0000	1.57359		
	Above 55 yrs	10	3.5000	1.58114		
	Total	443	3.1828	1.70187		
liquidity	18-25 yrs	130	3.7077	1.67261	H 2.3	0.000 Hypothesis Rejected
	26-35 yrs	183	3.0765	1.81406		
	36-45 yrs	98	2.3980	1.57126		
	46-55 yrs	22	3.0909	1.47710		
	Above 55 yrs	10	3.4000	1.83787		
	Total	443	3.1196	1.76226		
Risk involved	18-25 yrs	130	3.9231	1.49218	H 2.4	0.000 Hypothesis Rejected
	26-35 yrs	183	3.6284	1.40785		
	36-45 yrs	98	2.8878	1.36134		
	46-55 yrs	22	3.5455	1.18431		
	Above 55 yrs	10	3.8000	1.31656		
	Total	443	3.5508	1.45491		
Current high performance	18-25 yrs	130	3.9308	1.43699	H 2.5	0.000 Hypothesis Rejected
	26-35 yrs	183	3.2404	1.73430		
	36-45 yrs	98	2.4592	1.53427		
	46-55 yrs	22	3.0909	1.47710		
	Above 55 yrs	10	3.3000	1.82878		
	Total	443	3.2641	1.67501		
Instinct	18-25 yrs	130	3.9923	1.37810	H 2.6	0.000 Hypothesis Rejected
	26-35 yrs	183	3.5902	1.43017		
	36-45 yrs	98	3.1633	1.30577		
	46-55 yrs	22	2.7273	1.85631		
	Above 55 yrs	10	3.5000	1.58114		
	Total	443	3.5688	1.45261		
Market Prediction	18-25 yrs	130	3.8692	1.42725	H 2.7	0.000 Hypothesis Rejected
	26-35 yrs	183	3.2787	1.67198		
	36-45 yrs	98	2.7857	1.34892		
	46-55 yrs	22	3.0909	1.47710		
	Above 55 yrs	10	3.3000	1.82878		
	Total	443	3.3341	1.57221		
Familiarity with Derivative instrument	18-25 yrs	130	3.9538	1.47780	H 2.8	0.000 Hypothesis Rejected
	26-35 yrs	183	3.1967	1.70796		
	36-45 yrs	98	2.4490	1.56721		
	46-55 yrs	22	2.6364	1.86562		
	Above 55 yrs	10	3.2000	1.93218		
	Total	443	3.2257	1.71064		
Declining Phase of Market	18-25 yrs	130	3.9769	1.37229	H 2.9	0.000 Hypothesis Rejected
	26-35 yrs	183	3.4317	1.49522		
	36-45 yrs	98	3.0510	1.25487		
	46-55 yrs	22	3.6364	1.09307		
	Above 55 yrs	10	3.7000	1.41814		
	Total	443	3.5237	1.42418		

	18-25 yrs	130	4.0769	1.23650		
	26-35 yrs	183	3.3443	1.56070		
Rate trends of the underlying asset	36-45 yrs	98	3.0102	1.40320	H 2.10	0.000 Hypothesis Rejected
	46-55 yrs	22	3.1818	1.43548		
	Above 55 yrs	10	3.7000	1.41814		
	Total	443	3.4853	1.47885		
	18-25 yrs	130	4.0692	1.26484		
	26-35 yrs	183	3.6339	1.42673		
Investment of other investors	36-45 yrs	98	3.4184	1.23458	H 2.11	0.005 Hypothesis Rejected
	46-55 yrs	22	3.7273	.98473		
	Above 55 yrs	10	3.8000	1.31656		
	Total	443	3.7223	1.33424		
	18-25 yrs	130	3.8769	1.50974		
	26-35 yrs	183	3.3333	1.57359		
Professional recommendation	36-45 yrs	98	3.1020	1.33540	H 2.12	0.002 Hypothesis Rejected
	46-55 yrs	22	3.6364	1.09307		
	Above 55 yrs	10	3.3000	1.82878		
	Total	443	3.4560	1.51306		
	18-25 yrs	130	4.0692	1.24632		
	26-35 yrs	183	3.6667	1.33562		
Recommendations from friends and family	36-45 yrs	98	3.2551	1.19545	H 2.13	0.000 Hypothesis Rejected
	46-55 yrs	22	3.2727	1.45346		
	Above 55 yrs	10	3.5000	1.58114		
	Total	443	3.6704	1.32149		

Higher mean = less influencing

As per Table 5 mostly young investors are less influenced by these attributes. If we closely analyse the data it is evident that for variables like return, concept of wealth maximisation, liquidity, risk involved, current high performance, instinct, market prediction & familiarity with derivative instrument respondents from age range 36-45 are comparatively more influenced and these variables distract their decision making. It was further found that investor below 25 years of age are least influenced by above variables. Further familiarity with derivative instrument is less with investors less than 35 years of age. Variables which are least influencing to all age range in decision making are declining phase of market, rate trends, investment of other investors, professional recommendation & family friends advice.

Hypothesis H2.1 to H2.13 are rejected, as values is less than .05   which means that there is significant difference between age and influencing variable.

Mean analysis – Education with influencing variables

Table 6

Mean Analysis- Education with Influencing factors						
Is your investment in derivative instrument influenced by	**Education**	**N**	**Mean**	**Std. Deviation**	**Hypothesis**	**ANOVA at 5% Significance**
	Undergraduate	55	4.0727	1.47641		
	Graduate	157	3.1274	1.81067		
Return	Post-graduate	185	2.8054	1.64679	H 3.1	0.000 Hypothesis Rejected
	Professional	46	3.4565	1.57348		
	Total	443	3.1445	1.72338		
	Undergraduate	55	4.0727	1.47641		
	Graduate	157	3.1529	1.78730		
Concept of wealth maximisation	Post-graduate	185	2.8270	1.63930	H 3.2	0.000 Hypothesis Rejected
	Professional	46	3.6522	1.43322		

	Total	443	3.1828	1.70187			
liquidity	Undergraduate	55	4.1273	1.37510	H 3.3	0.000 Rejected	Hypothesis
	Graduate	157	3.2420	1.73723			
	Post-graduate	185	2.7243	1.71461			
	Professional	46	3.0870	1.95307			
	Total	443	3.1196	1.76226			
risk Involved	Undergraduate	55	4.3636	1.02494	H 3.4	0.000 Rejected	Hypothesis
	Graduate	157	3.6306	1.46010			
	Post-graduate	185	3.2054	1.47846			
	Professional	46	3.6957	1.36414			
	Total	443	3.5508	1.45491			
Current high performance?	Undergraduate	55	4.0182	1.56928	H 3.5	0.000 Rejected	Hypothesis
	Graduate	157	3.5159	1.58359			
	Post-graduate	185	2.8378	1.62041			
	Professional	46	3.2174	1.87276			
	Total	443	3.2641	1.67501			
Instinct	Undergraduate	55	4.4364	1.01404	H 3.6	0.000 Rejected	Hypothesis
	Graduate	157	3.5350	1.46554			
	Post-graduate	185	3.3568	1.41892			
	Professional	46	3.5000	1.64317			
	Total	443	3.5688	1.45261			
Market Prediction	Undergraduate	55	4.1818	1.30655	H 3.7	0.000 Rejected	Hypothesis
	Graduate	157	3.4522	1.51254			
	Post-graduate	185	2.9892	1.54986			
	Professional	46	3.3043	1.74953			
	Total	443	3.3341	1.57221			
Familiarity with Derivative instrument	Undergraduate	55	4.4364	1.01404	H 3.8	0.000 Rejected	Hypothesis
	Graduate	157	3.2229	1.74532			
	Post-graduate	185	2.8054	1.68270			
	Professional	46	3.4783	1.66985			
	Total	443	3.2257	1.71064			
Declining Phase of Market	Undergraduate	55	4.4364	1.01404	H 3.9	0.000 Rejected	Hypothesis
	Graduate	157	3.4777	1.47451			
	Post-graduate	185	3.2270	1.40354			
	Professional	46	3.7826	1.28085			
	Total	443	3.5237	1.42418			
Rate trends of the underlying asset	Undergraduate	55	4.3091	1.12006	H 3.10	0.000 Rejected	Hypothesis
	Graduate	157	3.6051	1.48392			
	Post-graduate	185	3.1135	1.46446			
	Professional	46	3.5870	1.45413			
	Total	443	3.4853	1.47885			
Investment of other investors	Undergraduate	55	4.5455	.76541	H 3.11	0.000 Rejected	Hypothesis
	Graduate	157	3.5987	1.44940			
	Post-graduate	185	3.5243	1.30247			
	Professional	46	3.9565	1.21026			
	Total	443	3.7223	1.33424			
Professional recommendation	Undergraduate	55	4.4364	1.01404	H 3.12	0.000 Rejected	Hypothesis
	Graduate	157	3.4650	1.56700			
	Post-graduate	185	3.1459	1.47269			

	Professional	46	3.5000	1.51658		
	Total	443	3.4560	1.51306		
Recommendations from friends and family	Undergraduate	55	4.5455	.76541	H 3.13	0.000 Hypothesis Rejected
	Graduate	157	3.6752	1.33597		
	Post-graduate	185	3.4000	1.32370		
	Professional	46	3.6957	1.36414		
	Total	443	3.6704	1.32149		

Higher mean = less influencing

As per Table 6 majority of respondents are from post graduate category followed by graduates, undergraduates and professional. Undergraduates are less influenced by all influencing variables and likely to take misinformed decisions . It was observed that post graduates are influenced with variables like return, concept of wealth maximisation, liquidity, current high performance, market prediction. It was further observed that post graduates are familiar with derivative instruments in comparison to other education category. Probably they are aware of the risk involved. Variables like risk, instinct declining phase of market, rate trends, investment of other investors, professional recommendations & advice from friends and families does not influence decision making of all education class.

Hypothesis H3.1 to H3.13 are rejected, as values is less than .05   which means that there is significant difference between education and influencing variable.

Mean analysis – Income with influencing variables

Table 7

Mean Analysis- Income with Influencing factors						
Is your investment in derivative instrument influenced by	Income	N	Mean	Std. Deviation	Hypothesis	ANOVA
						at 5% Significance
Return	Below Rs. 5 Lakh	321	3.2243	1.74450	H 4.1	0.100 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.1754	1.78408		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.7231	1.51562		
	Total	443	3.1445	1.72338		
Concept of wealth maximisation	Below Rs. 5 Lakh	321	3.2555	1.71305	H 4.2	0.230 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.1404	1.84622		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.8615	1.48826		
	Total	443	3.1828	1.70187		
liquidity	Below Rs. 5 Lakh	321	3.2305	1.75974	H 4.3	0.003 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.2807	1.67710		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.4308	1.71363		
	Total	443	3.1196	1.76226		
Risk Involved	Below Rs. 5 Lakh	321	3.4953	1.56948	H 4.4	0.284 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.8246	1.25531		
	Rs. 10 lakh- Rs. 25 Lakh	65	3.5846	.91672		
	Total	443	3.5508	1.45491		
Current high performance	Below Rs. 5 Lakh	321	3.3427	1.68106	H 4.5	0.003 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.5439	1.59318		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.6308	1.58675		
	Total	443	3.2641	1.67501		
Instinct	Below Rs. 5 Lakh	321	3.7165	1.35000	H 4.6	0.000 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.7895	1.31932		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.6462	1.70872		
	Total	443	3.5688	1.45261		
Market Prediction	Below Rs. 5 Lakh	321	3.4579	1.53061	H 4.7	0.013 Hypothesis

	Rs. 5 Lakh- Rs. 10 Lakh	57	3.1930	1.79721		Rejected
	Rs. 10 lakh- Rs. 25 Lakh	65	2.8462	1.48146		
	Total	443	3.3341	1.57221		
Familiarity with Derivative instrument	Below Rs. 5 Lakh	321	3.4206	1.62618	H 4.8	0.000 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.1754	1.78408		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.3077	1.77591		
	Total	443	3.2257	1.71064		
Declining Phase of Market	Below Rs. 5 Lakh	321	3.5950	1.43978	H 4.9	0.206 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.4035	1.55678		
	Rs. 10 lakh- Rs. 25 Lakh	65	3.2769	1.19252		
	Total	443	3.5237	1.42418		
Rate trends of the underlying asset	Below Rs. 5 Lakh	321	3.6449	1.41809	H 4.10	0.000 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.2807	1.72952		
	Rs. 10 lakh- Rs. 25 Lakh	65	2.8769	1.37509		
	Total	443	3.4853	1.47885		
Investment of other investors	Below Rs. 5 Lakh	321	3.7882	1.35738	H 4.11	0.242 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.5439	1.46471		
	Rs. 10 lakh- Rs. 25 Lakh	65	3.5538	1.06111		
	Total	443	3.7223	1.33424		
Professional recommendation	Below Rs. 5 Lakh	321	3.5234	1.52896	H 4.12	0.09 Hypothesis Accepted
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.5088	1.52506		
	Rs. 10 lakh- Rs. 25 Lakh	65	3.0769	1.38415		
	Total	443	3.4560	1.51306		
Recommendations from friends and family	Below Rs. 5 Lakh	321	3.7850	1.27741	H 4.13	0.004 Hypothesis Rejected
	Rs. 5 Lakh- Rs. 10 Lakh	57	3.5614	1.45182		
	Rs. 10 lakh- Rs. 25 Lakh	65	3.2000	1.32524		
	Total	443	3.6704	1.32149		

Higher mean = less influencing

As per table 7 majority of respondents represents income range below 5 lakh on an annual basis. Investors from this income category seems to get less influenced with all variables. Respondents from income range 10 lakh to 25 lakh comparatively more influenced with variables like return, concept of wealth maximisation, liquidity, high performance, instinct, market prediction & rate trends. Variables like risk, Market phase, investment of other investors, recommendation from professional & friends are influencing to all category.

Hypothesis H4.3, H 4.5, H 4.6, H4.7, H4.8,H4.10 & H4.13 as values is less than .05 are rejected which means that there is significant difference between education and influencing variable. Hypothesis H4.1, H4.2, H4.4, H4.9,H4.11, & H4.12 is accepted as value is more than .05 which means there is no significant difference between education and influencing variables

V. CONCLUSION

The market for derivatives is vast, complex and diverse but with an equivalent potential for growth. In current scenario this study has great importance as retail investors participation in derivative segments has dropped in last few years. About thirteen influencing variables were identified from past studies which were analysed using mean analysis and ANOVA. Through this research the behaviour of participants towards derivatives market has been reflected. This was carried out by explicitly understanding the various socialogical factors affecting an investor's decision to invest or not in the derivatives segment which was accompanied by analysing the various participants and their preference for derivatives in Tier II cities of Central India.

Major Findings: In derivative segment equity and commodity are popular destination for investment. Traders don't like to invest in currency derivatives. Investors between age range 18-35 dont like to invest in derivatives. Almost 45% of respondents said they don't prefer to invest in any derivative instruments. Further it was observed through data analysis that males are less influenced by factors and like to speculate while females like to take informed decisions. Respondents between age range36-45 are slightly more influenced and like to consider these factors before taking investment decision. Also those who are highly educated are likely to take informed decision and consider multiple factors before taking any investment decisions in derivative segment. Respondents representing

income range between 10-25 lacs takes investment decision after analysing multiple factors. An important conclusion that has come to light is that there exists no association between gender age and education with identified dependent variables.

VI. RECOMMENDATIONS

Derivative is less popular as it is considered very risky segment. Brokers must educate investors who are investing in capital markets to use these instruments as hedging tool. Currency derivative is very important tool as it will reduce the impact of dollar movement on investment portfolio. Brokers can customise these instrument based on portfolio of clients and can use equity, commodity and currency derivatives for reducing risk of investors.
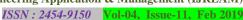
Limitations of Study

1. The geographical area is restricted to Tier II, cities can be studied to generalise the findings

2. Non probabilistic convenience sampling and snowball sampling used to collect data is although widely used but data can be biased and less accurate

3. Respondent's lack of conscientious responses may some time affect the accuracy of study

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Appendix 1

Current Trends in Equity Derivative

Year	Index Futures		Vol Futures		Stock Futures		Index Options		Stock Options		Total	
	No. of contracts	Turnover (₹ cr.)	No. of contracts	Turnover (₹ cr.)	No. of contracts	Turnover (₹ cr.)	No. of contracts	Premium Turnover** (₹ cr.)	No. of contracts	Premium Turnover** (₹ cr.)	No. of contracts	Turnover* (₹ cr.)
2018-19	26614017	2429416.93	0	0	114959265	7901049.72	887385428	258310	83370603	93955.9	1112329313	105097494.3
2017-18	57674584	4810454.34	0	0	214758366	15597519.71	1515034222	460654	126411376	148218	1913878548	164984859.1
2016-17	66535070	4335940.78	1	0.09	173860130	11129587.14	1067244916	350022	92106012	95570.1	1399746129	94370301.61
2015-16	140538674	4557113.64	94	10.23	234243967	7828606	1623528486	351221	100299174	61118.4	2098610395	64825834.3
2014-15	129303044	4107215.2	11274	2256.43	237604741	8291766.27	1378642863	265316	91479209	61732.6	1837041131	55606453.39
2013-14	105252983	3083103.23	17546	2193.24	170414186	4949281.72	928565175	244091	80174431	46428.4	1284424321	38211408.05
2012-13	96100385	2527130.76	-	-	147711691	4223872.02	820877149	184383	66778193	34288.6	1131467418	31533003.96
2011-12	146188740	3577998.41	-	-	158344617	4074670.73	864017736	253068	36494371	19612.9	1205045464	31349731.74
2010-11	165023653	4356754.53	-	-	186041459	5495756.7	650638557	192638	32508393	20475	1034212062	29248221.09
2009-10	178306889	3934388.67	-	-	145591240	5195246.64	341379523	124417	14016270	15272.9	679293922	17663664.57
2008-09	210428103	3570111.4	-	-	221577980	3479642.12	212088444	91715.6	13295970	8250.53	657390497	11010482.2
2007-08	156598579	3820667.27	-	-	203587952	7548563.23	55366038	29286.1	9460631	13581.8	425013200	13090477.75
2006-07	81487424	2539574	-	-	104955401	3830967	25157438	17650.9	5283310	5904.31	216883573	7356242
2005-06	58537886	1513755	-	-	80905493	2791697	12935116	5770.52	5240776	4895.23	157619271	4824174
2004-05	21635449	772147	-	-	47043066	1484056	3293558	2356.98	5045112	4948.95	77017185	2546982
2003-04	17191668	554446	-	-	32368842	1305939	1732414	991.48	5583071	8054.86	56886776	2130610
2002-03	2126763	43952	-	-	10676843	286533	442241	112.7	3523062	3033.97	16768909	439862
2001-02	1025588	21483	-	-	1957856	51515	175900	1299	1037529	1305.23	4196873	101926
2000-01	90580	2365			-	-					90580	2365