

Full Length Research Paper

Perceptual gap and anatomy of investment risk decisions

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Mutual funds put forward a way out to investors to approach maximum number of financial securities and get a well-diversified portfolio. Investors are lured by mutual fund investment because along with small savings they neither have sufficient expertise nor the means for diversification. The value added services offered by mutual funds during last decade has definitely lured the untapped investors. Although, investors have shown their presence in mutual funds market by investing in various innovative funds than traditional risk-free securities, it still has not become the most preferred choice of investors. Thus, it becomes imperative here to study the perception gap as well as risk ambiguity which investors feel with reference to their mutual funds' investment decisions. Empirical research results provided that investors experience a significant difference in actual services offered by mutual fund than they have perceived. Moreover, research results have also revealed that investors perceive mutual funds as a risky investment but simultaneously the analysis of preferred score provides that they do not wish to take extreme low or high risk. These findings for investors' decision to assume risk level have implications similar to Simonson and Tversky, Benartzi and Thaler.

Key words: Return on investment (RoI), perception, risk, asset management companies (AMCs), volatility.

INTRODUCTION

Investors differ in their choice for various investment avenues as due to different demographic features they need to assume varied level of risk. Mutual fund investment offers promising solutions to investors that suit their social constraints. Most luring benefits offered by mutual funds are in term of maintaining a balance between risk return trade-off as they offer maximum return on investment (RoI) at calculated risk. The investors' develop their preference for investing in mutual funds when their personal abilities, lack of professional knowledge and limited resources restrict their actions. An exclusive benefit of diversification as offered by mutual funds possesses the ability to reduce unsystematic market risk which may not be approachable for an individual investor because of his personal resource constraints. Mutual fund investment is generally preferred by investors because of its ability to diversify funds in various sectors and thus reducing the possibility of unsystematic risk. Based on different investment objectives fund managers have to use their

specialized skills and adopt varied investment styles that give a composition to perfectly diversified portfolio. Existing literature on benefits of diversification is well documented in sample of work by Fisher and Lorie (1970), Elton and Gruber (1977), Statman (1987) and De Wit (1998) which provided that diversification can reduce the portfolio risk significantly than holding a single investment.

Investors may select momentum or contagion trading depending upon the market trends. Momentum trading refers to positive feedback trading that believe in purchasing the stocks that have performed well in the past and selling the stock that are facing downtrend in the recent past. In short, momentum trading believes in buying the winners and selling the loser. Contagion trading is a cross country phenomenon which follow sale of securities in one country when asset prices are falling in another country. Study by Jegadeesh and Titman (1993), Asness et al. (1997), Grundy and Martin (2001) and Griffin et al. (2003) found that strategy of buying past winners and selling losers generate significant positive return. They concluded that stocks that had performed well in the immediate past tended to perform well in the

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immediate future. Based on these historic trends, investors just keep on preferring the mutual funds that may have performed well in the recent past whereas their actual experience may differ when they find mutual funds not investing according to their investment style. This paper has privileged a unique initiative in the direction to understanding the investors' perception towards performance of mutual funds and furthermore, investigate the actual experiences of investors which they realize after investing their savings in mutual funds.

Existing Literature: A brief review

Investors are generally more careful while making investment decision and presence of rationality in every investor demands higher return at minimum risk but when markets are efficient it is not possible to gain abnormal returns. A common parameter used by investors while deciding to invest in mutual fund is the historic returns of mutual funds (Elton and Gruber, 1989; Kane et al., 1990; Patel et al., 1992); however, there is no support for this belief in the data (Fama and French, 1988). Mutual fund investment is subject to market risk which provides that RoI in mutual fund investment is related to stock market trends. Further, concept of efficient market hypothesis (EMH) as explained by Fama (1965) denies the scope of getting abnormal RoI by using some unique information. Thus, even mutual funds do not have any sophisticated tools to multiply the investment in short time. However, few research studies have also contradicted the unpredictable behavior of stock market (Hakkio and Rush, 1989; Baffes, 1994; Engle, 1996; Fluck et al., 1997). Lo et al. (2000) also supported this concept by applying nonparametric statistical techniques that explored and recognized patterns which can be used to predict market behavior. Risk is generally, associated with various applications differently but in common it means negative connotation such as harm or loss or some undesirable action. Although different literature available on risk define it variedly, in common the word risk refers to situations in which a decision is made whose consequences depend on the outcomes of future events having known probabilities. Simonson and Tversky (1992) proposed that people given choices A, B and C generally find B as more attractive than A and C whereas those given choice of B, C and D will prefer cover B and D. Benartzi and Thaler (2002) supported the earlier views and proposed that generally investors avoid extreme choices. They concluded that when people have three choices ranging from lowest risk to highest risk they generally follow middle option. Risk averse behavior of investors reflect the choice of investors to avoid risk or to assume negligible risk which provides that whenever an individual investor is given choice among the securities for securities with guaranteed return and probability of one and securities with speculative returns and probability less than one, he will prefer the former one.

Risk attitude of individual investor have got growing attention from behavioral finance because investors differ in their investment decision with reference to their social base and opportunities available in the financial markets. Risk is a major factor that shapes investors' investment decision including financial and investment decisions (Yang and Qiu, 2005) because it is the risk that determines the probable return he can get.

A positive relationship between risk and return provide that investors who will assume high return will be compensated by the additional returns generated out of it. Investors generally have a wide range of choice while making investment decision (Kida et al., 2009) and they adopt different parameters to finalize their investment decision that may involve risk.

However, though more options may provide extensive choice to investors, it simultaneously increases the complexity of investment decision that may lead to 'decision paralysis' (Iyenger and Lepper, 2000). Moreover, existing literature provided that final level of risk assumed by any individual varies significantly with demographic features like gender (Slovic, 1996; Byrnes et al., 1999), age (Morin and Suarez, 1983; Bodie et al., 1992; Palsson, 1996; Heaton and Lucas, 2000), income (Blume, 1978; Cicchetti and Dubin, 1994; Bernheim et al., 2001) and marital status (Roszkowski, 1993; Lazzarone, 1996). Study by Haliassos and Bertaut (1995) and Schooley and Worden (1999) on influence of education and knowledge on risk taking behavior have also explained that educated investors are less risk averse.

Thus, investment decisions are definitely influenced by investors' knowledge which ultimately set a platform for developing the perception towards a particular decision. These gave reasoning to assess impact of investors' knowledge level on their perception towards performance of mutual funds that ultimately set their risk anatomy.

METHOD

Participants

Empirical research was conducted on total of 400 mutual fund investors who have experienced the actual working of mutual fund asset management companies (AMCs).

Total composition of participants included 69.7% married investors (41% active investor; age $\geq 30 \leq 50$). With regard to profession of investors although a mixed stuff was randomly selected but the major composition of investors included salaried employees (65.7%).

Design

The study primarily used exploratory research design for obtaining information on investors' risk perception and ambiguity regarding working of mutual fund AMCs.

For the purpose of convenience a 5 point Likert scale has been used that attempts to understand investors' psychology with varied degrees. A 5*5 research factorial has been designed to obtain investors' responses on how they perceive risk.

Procedures

A well-structured questionnaire was designed that seeks to obtain information regarding investors' perception and risk ambiguity. The designed questionnaire was duly validated and further, its reliability was also measured for consistency. Reliability of the questionnaire was found to be significant for perception gap ($\alpha = 0.834$), mutual funds working ($\alpha = 0.8153$) and risk ambiguity ($\alpha = 0.801$). Demographic information of investors was collected and they were debriefed about the core objective of the study. Finally, collected data was analyzed through SPSS 17.0 using appropriate statistical measures.

Hypothesis

As investors' knowledge level has a significant effect on their risk-taking decisions, the study was initiated with the following hypothesis:

H_0 : There is no difference in investors' perceived services and actual services offered by mutual funds.

H_a : Difference exists in investors' perceived services about and actual services offered by mutual funds.

H_0 : Differences in investors' knowledge does not influence their perception towards performance of mutual funds.

H_a : Differences in investors' knowledge does not influence their perception towards performance of mutual funds.

H_0 : Differences in investors' knowledge does not influence their risk perception.

H_a : Differences in investors' knowledge significantly influence their risk perception.

RESULTS AND DISCUSSION

The main objective of this research was to find out the critical perception gaps that mutual fund investors face when they find that mutual fund AMCs are not responding to their investment objective. For this purpose, the questionnaire analysis provided the following results:

Perceptual gap

Working on the first hypothesis of the study, investors' responses were collected for their perceived services about mutual funds along with their experienced services. Perception of mutual fund investors has been judged for quality of services provided by mutual fund AMCs. Responses of investors were obtained on a 5-point Likert scale about their experience with mutual fund service providers both before and after investment. Investors were asked to give their responses on 1-5 points for various aspects of mutual fund services, where 1 signifies minimum score and 5 signifies maximum score. Average Perceived Score (APS) of investors and Average Experienced score (AES) were calculated to find out the perception gap. Table 1 depicts the perceptual gap which investors actually experience once they invest in mutual funds. Actual experience of investors which they realized with the difference in mutual fund services through their

post-sale behavior has been measured using five parameters namely: transparency, responsiveness, communication, commitment and assurance. Negative results of perception gap on all these parameters highlight the level of dissatisfaction among investors which signifies that investors believe mutual funds have different orientation towards customer services once the investment deal is finalized. Analysis of these scores clearly shows that for all the parameters of service, quality of mutual funds $AES < APS$ which highlights that investors are lured by highly promising results with extreme service quality offered by mutual fund AMCs while their actual experience does not provide satisfactory results. These results explain that although with regard to transparency, a significant gap is not reflected with $AES = 3.34$, but a significant gap which investors encounter are in terms of assurance ($AES = 2.42$), and commitment ($AES = 2.65$). These results reject the null hypothesis H_0 : There is no difference in investors' perceived services and actual services offered by mutual funds and conclude that a significant gap exists in investors' perceived services and actual services offered to them.

Perception towards MF's working

Perception of investors towards working style of mutual fund AMCs is a strong determinant of investors' risk perception. Responses of investors' on their experience with mutual funds' ability to yield expected return, hidden costs, AMCs' ability to respond to volatility, investment style picked by AMCs to suit investors' objective and AMCs' ability to protect investors' interest have been studied in order to extract exact information on how investors perceive the working of mutual funds. Responses of investors pertaining to mutual funds' working ability are presented in Table 2.

The overall mean score of respondents ($M = 1.87$) for their opinion on actual returns delivered by mutual funds does not match with expected returns, revealing that investors agree on this statement.

Majority of investors ($n = 183$) agree on poor working style of mutual funds whereby they are not able to deliver expected returns. $\chi^2 = 35.722$ is significant ($p = 0.003$) at 1% level which highlights that investors' knowledge and their perception towards mutual funds' ability to yield expected returns are strongly associated. Among the various responses on mutual funds' ability to respond to market volatility, it has been observed that although overall investors agree that mutual funds do not perform efficiently to tackle market volatility ($M = 2.05$, $n = 180$), showing their consent but responses of investors with very less knowledge ($M = 2.05$) significantly differ from investors with extensive knowledge ($M = 1.1$).

The result of chi-square reveals that an association exists between investors' knowledge and their perception towards mutual funds' ability to respond to market volatility ($\chi^2 = 42.083$, $p = 0.003$).

Table 1. Analysis of perceptual gap.

Variable	Average perceived score(APS)	Standard deviation	Average experienced score(AES)	Standard deviation	Perceptual gap
Transparency	4.03	0.97	3.34	1.08	-0.69
Responsiveness	4.20	0.88	3.15	1.02	-1.05
Communication	4.3	0.834	2.99	1.02	-1.31
Commitment	4.24	0.85	2.65	1.07	-1.59
Assurance	4.24	0.83	2.42	1.04	-1.82

Analyses of Table 2 on hidden costs charged by mutual funds reveal that overall investors agree that mutual funds charge hidden costs on their investments which are not earlier disclosed at the time of investment ($M=1.92$). Majority of investors ($n=153$) strongly agree that mutual funds charge hidden costs. Significance of Chi-square provides association between investors knowledge and hidden costs charged by mutual funds ($\chi^2=30.158$, $p=0.017$). Further, overall mean score of investors on their response to whether mutual funds invest funds in accordance to investors objectives provide that investors ($n=162$, $M=2.16$) agree. The result of $\chi^2=29.042$ is significant at 5% level ($p=0.024$). Investors also show their consent on agents of mutual funds are not well informed ($M=2.10$, $n=177$) which indicates that investors realized mutual fund investors are not informed enough to bestow thorough information to investors. However, chi square is not found to be significant in this case. Analysis of investors' responses on their perception towards mutual funds ability to protect investors' interest also provide that investors agree ($M = 2.19$, $n = 189$) that mutual fund AMCs do not take some special steps in order to protect investors' interest. The result of Chi-square reveals that there is a strong association between investors' knowledge and their perception towards mutual funds' working style ($\chi^2=28.846$, $p=0.025$). Finally, investors also positively affirm that mutual funds do not possess strong network ($M= 2.24$, $n=146$). $\chi^2=15.382$ is not significant for investors' knowledge and investors' perception on mutual funds possess strong network.

Investors' own knowledge has been assumed to play a significant role in determining investors' perception towards any financial avenue. One way ANOVA has been performed to analyze if investors' perception differ significantly for mutual funds working with their knowledge on finance. The analysis of ANOVA reveals that there is a significant difference in responses of investors, for their perception towards mutual funds are not able to deliver expected returns which yield F ratio of $F(4.395)=3.082$, $p=0.016$. Further, ANOVA results are also found significant for investors' knowledge and their perception towards mutual funds' ability to respond to volatility which yield F ratio of $F(4.395)=2.623$, $p=0.034$. However, ANOVA is not found to be significant for hidden costs, investors' objective, AMCs ability to protect investors'

interest and MFs possess strong network that provides there is no significant difference in means of less knowledgeable or extensive knowledge investors. As the second objective of study was to test null hypothesis H_0 : Differences in investors' knowledge does not influence their perception towards performance of mutual funds, which has been rejected by the results that highlighted investors' knowledge has shown significant association with their perception towards mutual funds' performance.

Risk ambiguity and choice

Relationship between risk and return is assumed to be high which provides that higher the risk, higher the return. For this purpose, investors were given few statements with 1-5 scale where 1 signify the minimum level and 5 signify the maximum level. Results of investors' responses on risk in mutual funds have been presented in Table 3 Analysis of investors' responses on risk in mutual fund reveals that majority of investors ($n=184$) have shown their positive node to accept risk if it is clearly disclosed ($M=2.13$, $\sigma=0.84$). ANOVA results for knowledgeable investors' responses vary significantly for willingness to assume disclosed risk which yield F ratio of $F(4.395)=4.040$, ($p \leq 0.01$). However, investors preferring to take extreme low risk ($n=41$) and extreme high risk ($n=30$) are found to be very few. Majority of investors have shown their intermediate preference for assuming risk level ($n= 148$) ($M=2.95$, $\sigma=1.08$). F ratio of $F(4.395)=33.96$ ($p \leq 0.001$) signify that investors' knowledge definitely influence their decision to assume risk level in investment avenue.

Results of investors' responses on AMCs ability to estimate and control risk in mutual fund reveals that investors do not have very high degree of notion about AMCs ability to estimate market risk ($M= 3.18$, $\sigma=1.13$). A very small group of investors ($n= 50$) have shown complete faith in AMCs ability to estimate risk. Similar results are found for investors' notion on AMCs ability to control risk ($M=3.14$, $\sigma = 1.19$). ANOVA results for AMCs ability to estimate risk in mutual funds, yield F ratio of $F(4, 395)= 11.234$ ($p \leq 0.001$) which signify that investors with updated knowledge understands that AMCs have ability to estimate risk present in mutual funds whereas

Table 2. Investor's knowledge and perception towards mutual funds ability.

Variable	Mean	X ²	F	p
Actual return does not match with expected returns				
Very less knowledge	1.59			
Some knowledge	1.87			
Moderate knowledge	1.937	35.722*	3.082*	0.016
Good knowledge	2.0	(df:16, p=0.003)		
Extensive knowledge	1.30			
Mutual funds are poor to respond to market volatility				
Very less knowledge	2.05			
Some knowledge	2.04			
Moderate knowledge	2.07	42.083*	2.623**	0.034
Good knowledge	2.16	(df:16, p=0.003)		
Extensive knowledge	1.1			
High hidden cost				
Very less knowledge	1.96			
Some knowledge	1.98			
Moderate knowledge	1.89	30.158**	0.683	0.604
Good knowledge	1.85	(df:16, p=0.017)		
Extensive knowledge	2.1			
Funds not invested according to investor's objective				
Very less knowledge	2.15			
Some knowledge	2.14			
Moderate knowledge	2.22	29.042**	0.113	0.978
Good knowledge	2.09	(df:16, p=0.024)		
Extensive knowledge	2.10			
AMCs are not able to protect investors interest				
Very less knowledge	2.15			
Some knowledge	2.06			
Moderate knowledge	2.27	28.846**	1.095	0.359
Good knowledge	2.19	(df:16, p=0.025)		
Extensive knowledge	2.60			

*p< 0.01 ** p<0.05.

investors with very less knowledge are of different opinion. Similarly, F ratio of F (4.395)=8.722 ($p \leq 0.001$) also signify the difference in knowledge of investors affect their perception to understand AMCs ability to control risk in mutual funds. Knowledgeable investors' responses differ significantly in their opinion on probability to lose money in mutual funds which is provided by F ratio of F (4.395)=4.255, $p=0.002$. Investors' responses on whether stock market volatility affects the mutual fund return reveal that all investors are not aware of the fact that negative trend in stock market will affect mutual funds return significantly ($M=3.81$, $\sigma=1.09$). Only, some investors ($n=123$) have revealed high degree of influence of stock market volatility on their RoI. However, investors

are found to be more optimistic on expected RoI from mutual funds ($M= 4.02$, $\sigma= 0.90$). F ratio of F(4.395) = 3.4667, ($p \leq 0.01$) reveals that knowledge wise investors responses vary significantly for effect of uptrend in stock market on RoI from mutual funds whereas F ratio is not significant for downtrend in stock market and loss expected by investors. Investors have shown their above average response for confidence about annual return from mutual funds ($M= 3.21$, $\sigma = 1.01$) and confidence about total returns from mutual funds ($M= 3.30$, $\sigma = 1.01$). F ratio of F (4.395)= 12.033 and F (4.395) =10.278 for investors' confidence in annual and total returns from mutual funds respectively are significant ($p \leq 0.001$).

Results have also revealed that investors consider that

Table 3. Risk ambiguity.

Total	1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	M	F	p
Willingness to take risk	23.3	46	25.8	4.3	0.8	2.13	33.963	0.000*
Level of risk	10.3	22	37	23.3	7.5	2.95	4.070	0.003*
Worried about risk in mutual funds	11	23	35.5	25.8	4.8	2.90	5.370	0.000*
AMCs ability to estimate risk	8	20	29.8	29.8	12.5	3.18	11.234	0.000*
AMCs ability to control risk	10	21	27.5	28	13.5	3.14	8.722	0.000*
Probability of lose in MF	8.3	23.8	41.5	22.8	3.8	2.90	4.255	0.002*
Lose due to down trend in stock market	4.3	9	18.3	37.8	30.8	3.81	1.618	0.169
Gain due to uptrend in stock market	0.8	5.5	18.3	41.5	34	4.02	3.467	0.008*
Credibility of claims in mutual fund advertisement	6.3	29.3	42.5	18.5	3.5	2.83	5.805	0.000*
Confidence of annual returns	4.5	20	34.3	31.8	9.5	3.21	12.033	0.000*
Confidence of expected total returns	4.3	18.3	33.8	30.8	13	3.30	10.278	0.000*
Overall risk in mutual funds	2.5	14.5	38.8	28.5	15.8	3.40	12.234	0.000*

Table 4. Results of multiple regression analysis for risk perception (DV).

Dependent variable	Multiple R	R ²	Adjusted R ²	F probability	Durban Watson statistics	
Risk level	0.668	0.446	0.439	0.000	1.65	

Independent variable	B	B	Standard error	t-value	Significance of t	Tolerance/VI F
Age	-0.567	-0.378	0.06	-9.45	0.000	0.878/1.138
Investors' knowledge	0.237	0.223	0.047	5.03	0.000	0.718/1.392
Income	0.229	0.187	0.051	4.525	0.000	0.827/1.209
Credibility of advertisement	0.207	0.176	0.046	4.510	0.000	0.925/1.082
Worried about risk	-0.131	-0.127	0.04	-3.286	0.001	0.938/1.066

Dependent variable	Multiple R	R ²	Adjusted R ²	F probability	Durban Watson statistics	
Overall risk in MF	0.598	0.358	0.348	0.000	1.814	

Independent variable	B	β	Standard error	t-value	Significance of t	Tolerance/VI F
Probability of lose	0.304	0.295	0.048	6.310	0.000	0.748/1.337
Age	0.239	0.172	0.06	3.971	0.000	0.868/1.152
Worried	0.149	0.157	0.046	3.257	0.000	0.699/1.43
Income	-0.144	-0.126	0.051	-2.825	0.005	0.815/1.227
Downtrend in stock market	0.142	0.155	0.040	3.534	0.000	0.845/1.183
Investors' knowledge	-0.126	-0.128	0.046	-2.708	0.007	0.729/1.37

mutual fund possess above average risk ($M=3.40$, $\sigma=1.045$) as very few investors consider it to be least risky ($n=9$) and extreme risky ($n=63$). Finally, analysis of ANOVA results reveal that investors' perception towards overall risk in mutual funds also differ significantly for different categories of investors' knowledge, which yield F ratio of $F(4.395)=12.234$, $p=0.000$. As for majority of responses studied for risk perception of investors, there

have been significant differences in investors' knowledge-wise risk perception, null hypothesis of H_0 : Differences in investors' knowledge does not influence their risk perception is rejected.

Further, to understand investors' perception towards assuming risk in mutual funds and presence of overall risk in mutual funds, multiple regression analysis has been used. The detail results are provided in Table 4

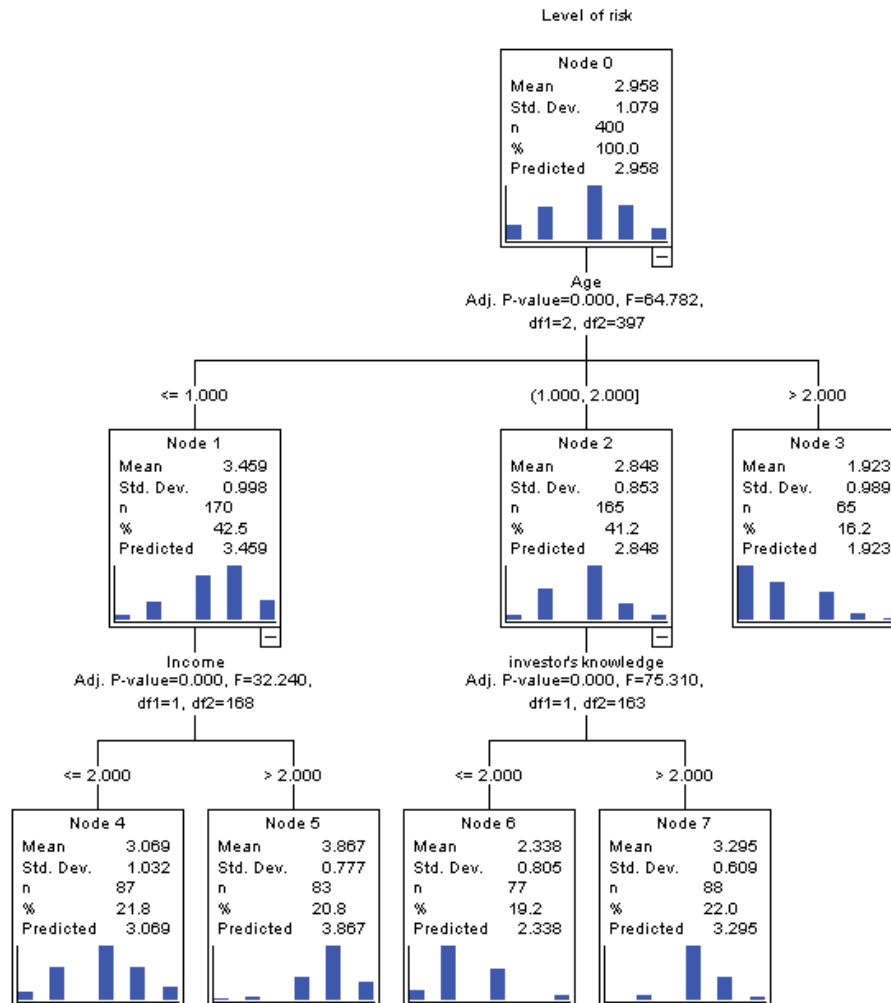


Figure 1. Level of risk.

which provides that risk level assumed by an individual investor depends upon age, investors' knowledge, income, credibility and worries about risk. Analysis of these results provides $R=0.668$ ($R^2=0.446$) and adjusted $R^2=0.439$ which is significant at 0.1% level ($p=0.000$). The inter-dependent nodes of risk taking decision are presented in Figure 1. Durbin Watson statistic of 1.65 that tests whether adjacent residuals are correlated is found satisfactory. $\beta=-0.378$ highlight that age is a strong predictor in investors' decision on level of risk they wish to assume, whereas $\beta=0.223$ also highlight a significant impact of investors' knowledge on their willingness to assume a specified risk level. High t values for all the predictor variables highlight their significant impact on criterion variable. The tolerance for each variable is > 0.878 (1.138) which indicate that there is no problem of multi collinearity. Finally, multiple regressions has also been carried out to examine the relationship between how investors perceive overall risk in mutual funds and a set of predictor variables that included probability,

age, worries, income, downtrend in stock market and investors' knowledge. $R=0.598$ ($R^2=0.358$) and adjusted $R^2=0.348$ which is significant at 0.1% level ($p=0.000$). Figure 2 presents the relationship nodes that finally set the investors risk perception for mutual funds. Durbin Watson statistic (1.814) has also been examined to test whether adjacent residuals are correlated, and is also found to be satisfactory. Further, standardized $\beta=0.295$ for probability to lose and $\beta=0.172$ for age also provide that these predictor variables have most significant impact on investors' risk perception towards mutual funds risk. Similarly, high t value for probability ($t=6.310$) and age ($t=3.971$) provide that predictor variables have significant impact on criterion variables. The tolerance values highlight the correlation between the predictor variables whereas VIF is an alternative measure of collinearity in which high values reveal strong relationship between predictor variables. The tolerance for each variable is > 0.748 (1.337) which indicate that there is no problem of multi collinearity (overlap between dependent

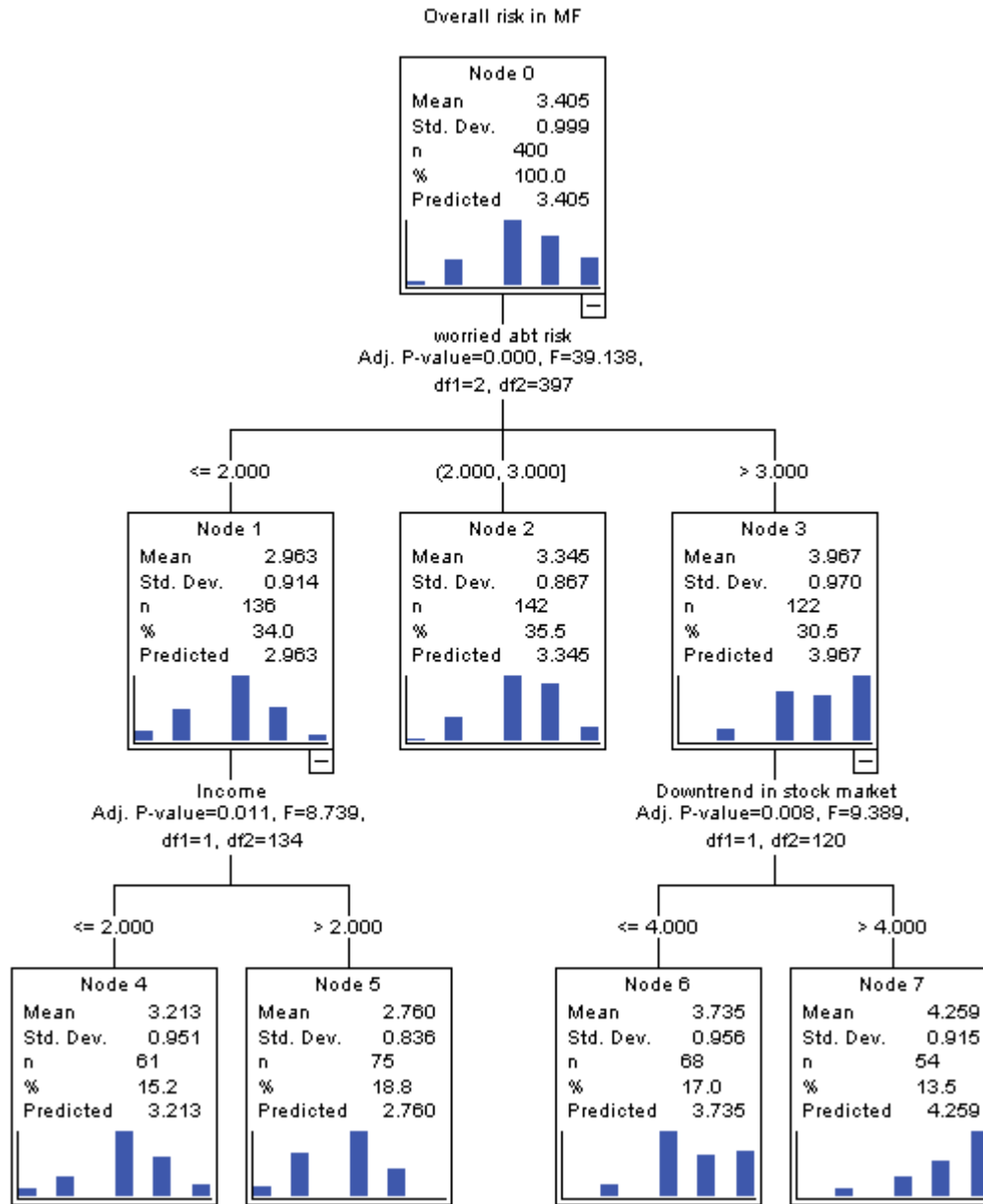


Figure 2. Risk perception.

variables).

The multivariate test statistic reveals multiple correlation coefficient (R) is 0.705 ($R^2=0.497$) and adjusted $R^2= 0.491$ for investors' confidence in expected total return from mutual funds. The value of R^2 measures variability in the outcome by predictor variable which leads to the connotation that 49.7% of the variance in confidence about total return can be predicted from investors' belief in AMC's ability, age, credibility and worries. The results indicate that all the predictor variable risk estimation by AMC's ($p= 0.000$), risk control by AMC's ($P= 0.000$), credibility ($P=0.000$), worries ($P= 0.000$) and age ($P= 0.002$) yield significant results. The standardized

$\beta=0.38$ reveals that risk estimation by AMC's contribute maximum to the model which indicates that a unit change in this predictor variable has a large effect on criterion variable. Similarly, high $t = 8.378$ indicate that predictor variable has large impact on criterion variable. The tolerance values highlight the correlation between the predictor variables whereas VIF is an alternative measure of collinearity in which high values reveal strong relationship between predictor variables. The tolerance for each variable is > 0.616 (1.623). Analysis of multivariate statistic for investors' confidence in annual return from mutual funds reveal that $R=0.704$ ($R^2=0.496$) and adjusted $R^2=0.490$ provide that 49% variance in investors'

Table 5. Results of multiple regression analysis for confidence in MF returns (DV).

Dependent variable	Multiple R	R ²	Adjusted R ²	F probability	Durban Watson statistics	
Confident about TR	0.705	0.497	0.491	0.005	1.79	

Independent variable	B	β	Standard error	t-value	Significance of t	Tolerance/VIF
Risk estimation by AMC	0.35	0.38	0.042	8.378	0.000	0.616/1.623
Risk control by AMC	0.218	0.247	0.039	5.565	0.000	0.640/1.562
Credibility of advertisement	0.161	0.142	0.043	3.722	0.000	0.875/1.143
Worried about risk	-0.138	-1.40	0.039	-3.567	0.000	0.826/1.21
Age	-0.174	-1.20	0.055	-3.141	0.002	0.869/1.174

Dependent variable	Multiple R	R ²	Adjusted R ²	F probability	Durban Watson statistics	
Confident about AR	0.704	0.496	0.490	0.000	2.002	

Independent variable	B	β	Standard error	t-value	Significance of t	Tolerance/VIF
Risk estimation by AMC	0.267	0.297	0.04	6.636	0.000	0.636/1.571
Risk control by AMC	0.210	0.246	0.039	5.375	0.000	0.613/1.632
Credibility of advertisement	0.225	0.203	0.042	5.375	0.000	0.893/1.120
Age	-0.246	-0.175	0.053	-4.611	0.000	0.893/1.120
Probability to lose money	-0.165	-0.157	0.039	-4.189	0.000	0.907/1.103

confidence can be predicted from investors' trust in AMCs working, credibility, age and probability (Table 5). These results are found significant at 0.1% level ($p=0.000$). For multiple regression between investor' confidence in annual returns from mutual funds as criterion variable and predictor variable provide Durbin Watson statistic of 2.002 which is quite satisfactory. The standardized $\beta=0.297$ reveals that risk estimation by AMCs contribute maximally to the model which indicates that a unit change in this predictor variable has a large effect on criterion variable.

Similarly, high $t = 6.636$ for risk estimation by AMCs indicate that predictor variable has large impact on criterion variable. As step-wise regression has been used, t value is found significant for all the predictor variables. The tolerance for each variable is > 0.636 (1.571) which indicate that there is no problem of multi-collinearity.

CONCLUDING REMARKS

This study was conducted to understand investors' perception towards presence of risk in mutual funds and further extend it to examine how investors' knowledge influence risk perception of investors. The results of this empirical research has provided that investors have experienced a significant change in services offered by mutual funds, after they actually invest their funds in a particular scheme. Investors have revealed that AMCs deviate from their promises for assurance and

commitment towards Rol and they do not get expected returns. Further as mutual fund investment is subject to market risk, it gets affected by the stock market volatility. Investors' own knowledge influence their perception for assuming presence of risk in mutual funds.

Research results have provided that risk ambiguity prevails among investors because of differences in investors' updated knowledge on financial market behavior. Thus, although, the perception gap among mutual fund investors is a result of their perceived notions about mutual fund investment where they are lured by overwhelming promising solutions whereas the actual performance of mutual fund AMCs is subject to multiple constraints and risk ambiguity prevails among mutual fund investors because of lack of the differences in individuals' knowledge.

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