

Test of Risk Appetite of Secondary Equity Investors in Chennai

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Abstract : The risk appetite of the secondary equity investors is influenced by their demographic and financial profile. With the help of a sample of 436 secondary equity investors residing in Chennai, this study aims to analyse the risk profile of the investors based on demographic and financial dimensions. Questionnaire survey method was employed to collect the data from the sample. Using Analysis of Variance tests followed by Tukey Post hoc analysis, the relationship between the risk appetite and the various demographic and financial dimensions were identified. Several demographic and financial dimensions were found to significantly influence the risk taking nature of the investors. Financial advisors and wealth managers could employ the results of this study to guide their clients appropriately after assessing their risk appetite based on their demographic and financial profiles.

IndexTerms - Risk, Indian stock market, Gender, Age, Education, Marital Status, Occupation, Annual Income, Monthly Savings, Equity Investment Proportion, Equity Investment Experience, Equity Investment Knowledge, Actual Return.

I. INTRODUCTION

Risk is an important dimension of all financial investments. The risk factor plays a very important role in the equity market. Equity investments have been considered as one of the riskiest investments as the changes in stock prices are completely random and are influenced by several factors. The pressure of peers and the excessively available free stock market information makes stock investment decisions were difficult to make for investors with low risk tolerance. Only investors with high risk appetite endure this process of constant observation of the market value of their stock portfolios.

The profit or loss made in stock market transactions moulds the rise averse nature of investors. Investors would become more risk seeking when they experience profits after selling winning stocks and on the other hand they would become more risk averse in nature when they experience losses after selling losing stocks whose prices have depreciated in value since their purchase.

Several studies have analysed the risk dimension of investors in the equity market with respect to only one or two dimensions like gender or age. This study employs nearly 11 dimensions to analyse the risk appetite of the secondary equity investors residing in Chennai. Hence in this study, a holistic picture of the risk involved with respect to all the dimensions is obtained. The dimensions include both demographic and financial variables. Demographic variables include gender, age, education, marital status and occupation and financial variables include annual income, monthly savings, equity investment proportion, equity investment experience, equity investment knowledge and actual return. Using a questionnaire survey method, the variables were measured from a sample of 436 secondary equity investors residing in Chennai.

II. LITERATURE REVIEW

Gender had an important impact on the aversion to risk taking (Barber & Odean, 2001; Byrnes et al., 1999; Felton et al., 2003; Jianakoplos & Bernasek, 1998). Kabra et al. (2010) proposed that both gender and age determined the risk taking capacity of the investor.

Bajtelsmit et al. (1999) found that women displayed higher aversion to risk when compared to men in the wealth distribution of their pension plans. Bajtelsmit and Bernasek (1996) found that men and women had different investment behavior. Women were found to be more cautious in their investment decisions and also more risk averse than men. The not so willing attitude of women to invest in high risk investments compared to men was found in several studies (Hariharan et al., 2000; Olsen & Cox, 2001). Hallahan et al. (2004) also provided evidence for women having lower risk tolerance than men. The female professional investors insisted on reduction of risk more than men during portfolio assignment (Olsen & Cox, 2001). Sjöberg and Engelberg (2006) found that women were lower than men in terms of risk preferences but women had higher emotional intelligence compared to men.

Nosic and Weber (2010) documented that investors exhibiting a higher degree of overconfidence were likely to invest in risky portfolios. The positive relation between overconfidence and risk taking was consistent with predictions in the models of Odean (1998), and Daniel et al. (2001). Pan and Statman (2012) proposed that the highly overconfident investor would tend to take high risk, choose a highly volatile stock, diversify less, increase trading volumes and thereby had poor trading performance. The risk attitude could be measured by the preferred level of volatility of the investors (Cheng, 2007).

Loss aversion was the reason why people tended to be risk taking when faced with losses and risk averse when they encountered profit. Hence, "loss aversion results in a reduction in risk aversion" (Soman, 2004, p.387). Barberis et al. (1999) explained that the stock price variations led to changing risk aversion. Following an increase in stock prices, the investor was less risk averse as the gains would cushion the losses if any came up. On the other hand, the investor becomes more risk averse following a decrease in stock prices as he was more cautious now about the forthcoming losses.

Thaler (1999) documented that myopic loss aversion explained the famous, equity premium puzzle (Mehra & Prescott, 1985). The equity premium was the vast difference between the returns of the equity market and the returns of safer investments like Treasury bills. This disparity was because of the frequent evaluation of stock portfolios as the risk attitude of loss-averse investors depended on the frequency of evaluation of the portfolios. Hence, high frequency of evaluation implied taking high risk and thereby high returns. Thaler et al. (1997) documented that loss averse investors would be willing to take more risk only if the investment performance was not frequently evaluated and if the results were all hiked enough to avoid losses. "Two factors contribute to an investor being unwilling to bear the risks associated with holding equities, loss aversion and a short evaluation period" (myopic loss

aversion) (Benartzi & Thaler, 1995, p.75). Kahneman and Riepe (1998) suggested that the financial advisors should first assess the degree of loss aversion of the investor. Depending on that, the appropriate risk should be allocated. Highly loss averse investors would accept risky portfolios only if they were very optimistic about it and underestimated the risk. Chandra and Kumar (2011, 2012) studied the loss aversion bias among the Indian investors in the Delhi region. The research gave strong evidence for the investors being risk averse in the profit domain and weaker evidence for being risk seeking in the loss domain. Hence, in general, investors tended to resort to safer options when given a choice as they had an aversion towards losses. Larrick and Boles (1995) explained that investors were more risk averse in their decision making when they did not expect feedback about the results of a rejected risky option than when they expected feedback about the rejected risky alternative's outcome.

III. OBJECTIVE OF THE STUDY

The main objective of the study is to analyse the risk dimension of the secondary equity investors residing in Chennai with respect to demographic variables like gender, age, education, marital status and occupation and also with respect to financial variables like annual income, monthly savings, equity investment proportion, equity investment experience, equity investment knowledge and actual return.

IV. SAMPLE AND METHODOLOGY

The population for the study are the secondary equity investors residing in Chennai. The samples selected for the study are the members of the Tamil Nadu Investors Association (TIA) and the clients of a popular financial services company, Integrated. The data was collected via the questionnaire survey method. TIA was selected as it was the only formal body which allowed access to collect data from its members. Integrated was selected as it was the only company which allowed access to collect data from its clients. The total valid questionnaires collected were 436 and hence the total sample size was 436.

V. RESULTS AND DISCUSSION

5.1 Investors' Risk versus Demographic Characteristics

From the t-test results (Table 5.1) we can infer that the male and female respondents differed in the risk taken. In addition, the inference from Table 5.2 is that the male respondents were more risk taking than the female respondents. Our finding corroborated with the results of others (Barber & Odean, 2001; Byrnes et al., 1999; Felton et al., 2003; Jianakoplos & Bernasek, 1998), who also found that male investors were more risk taking than the female investors.

Table 5.1: ANOVA test – Risk vs. Gender

S.No	Dimension	t value	p-value for one tail test
1	Gender	2.724	0.0035**

** rejected at 0.01 level

Table 5.2: Descriptives of Risk vs Gender

	Gender of the respondent	N	Mean	Std. Deviation	Std. Error Mean
Risk level of the respondent	Male	322	3.04	1.186	.066
	Female	114	2.68	1.307	.122

From the ANOVA-test results (Table 5.3) we can infer that in groups divided on the basis of age, marital status, education and occupation, the respondents did not differ in their risk taking ability.

Table 5.3: ANOVA test – Risk vs. Demographics

S.No	Dimension	F value	p – value
1	Age	1.227	0.298
2	Marital Status	0.990	0.397
3	Education	1.182	0.318
4	Occupation	0.246	0.942

5.2 Investors' Risk versus Financial characteristics

5.2.1 Risk vs Annual Income

From the ANOVA results (Table 5.4) we can infer that the respondents in the various annual income groups differed in the risk taken. The results of Table 5.5 infer that the respondents in the annual income group of more than Rs. 10 lakh had the highest mean of 3.31 and the respondents in the annual income group of Rs. 2 lakh and below had the lowest mean of 2.72. The results summarize that risk taking was higher for higher income groups. These results corroborated with the past studies. Riley and Chow (1992) showed that risk aversion decreased with rise above the poverty line but however, decreased tremendously for the very rich. Kannadhasan (2006) who surveyed the retail investors in Chennai found that age did not determine their investment behavior; whereas the income level of the retail investor played an important role in determining their behavior.

Table 5.4: ANOVA test – Risk vs Annual Income

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	18.116	5	3.623	2.444	.034
Within Groups	637.450	430	1.482		
Total	655.567	435			

Table 5.5: Descriptives - Risk vs Annual Income

Annual Income	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
2 lakhs and below	155	2.72	1.287	.103	2.52	2.93
2.01 to 4 lakhs	107	3.09	1.240	.120	2.86	3.33
4.01 to 6 lakhs	60	2.98	1.000	.129	2.73	3.24
6.01 to 8 lakhs	31	2.94	1.093	.196	2.53	3.34
8.01 to 10 lakhs	28	2.79	1.197	.226	2.32	3.25
More than 10 lakhs	55	3.31	1.260	.170	2.97	3.65
Total	436	2.94	1.228	.059	2.83	3.06

5.2.2 Risk vs Proportion of Monthly Savings out of Monthly Income

From the ANOVA results (Table 5.6) we can infer that the respondents in the various monthly savings groups differed in the risk taken. The results of Table 5.7 infer that the respondents with a monthly savings of more than 20% of their monthly income had the highest mean of 3.34 and the respondents with a monthly savings of 5% and less of their monthly income had the lowest mean of 2.59. The results summarize that risk taking was higher when the proportion of monthly saving out of monthly income was higher. Hence, higher was the propensity to save higher was the risk of the investor.

Table 5.6: ANOVA test – Risk vs Monthly savings

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	35.579	4	8.895	6.183	.000
Within Groups	619.987	431	1.438		
Total	655.567	435			

Table 5.7: Descriptives – Risk vs Monthly savings

Proportion of Monthly Savings	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	2.59	1.231	.099	2.40	2.79
6% - 10%	122	2.99	1.189	.108	2.78	3.20
11% - 15%	39	3.08	1.306	.209	2.65	3.50
16% - 20%	44	3.23	1.118	.169	2.89	3.57
More than 20%	76	3.34	1.138	.131	3.08	3.60
Total	436	2.94	1.228	.059	2.83	3.06

5.2.3 Risk vs Proportion of equity investment

From the ANOVA results (Table 5.8) we can infer that the respondents in the various equity proportion groups differed in the risk taken. The results of Table 5.9 infer that the respondents with an equity investment of 11-15% of their monthly savings had the highest mean of 3.56 and the respondents with an equity investment of 5% and less of their monthly savings had the lowest mean of 2.69. The results summarize that risk taking was higher when the proportion of direct investment in equity was higher. When the investors increased their level of investments in equity it was an indirect sign of increasing the risk. Moreover investors would increase their equity investments only when the returns were higher. So going by the risk return trade-off, the investors with more investments in equity tend to be more risk taking as found in our tests.

Table 5.8: ANOVA test - Risk vs Proportion of equity investment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48.366	4	12.091	8.583	.000
Within Groups	607.201	431	1.409		
Total	655.567	435			

Table 5.9: Descriptives - Risk vs Proportion of equity investment

Equity Investment Proportion	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	185	2.69	1.179	.087	2.52	2.86
6% - 10%	127	2.81	1.200	.106	2.60	3.02
11% - 15%	43	3.56	1.240	.189	3.18	3.94
16% - 20%	22	3.32	1.211	.258	2.78	3.85
More than 20%	59	3.44	1.134	.148	3.15	3.74
Total	436	2.94	1.228	.059	2.83	3.06

5.2.4 Risk vs Experience in the stock market

From the ANOVA results (Table 5.10) we can infer that the respondents in the various equity investment experience groups differed in the risk taken. The results of Table 5.11 infer that the respondents with the equity investment experience of 15.01 to 20 years in the stock market had the highest mean of 3.47 and the respondents with the equity investment experience of 5 years or less in the stock market had the lowest mean of 2.62. Based on the Tukey post hoc test (Table 5.12), the mean of the risk in the equity investment experience level of 5 years or less was significantly less than the means of the risk levels in all other equity investment experience groups except 5.01 to 10 years. These results summarize that higher the investment experience in the stock market higher was the risk taking ability of the investor. These results seemed logical as higher was the experience in the equity market, more will be the knowledge levels of the investors and hence higher risk taking ability as insisted by Das (2012). However, the result did not corroborate with the study by Hayat et al. (2010) where they found that investors with more investment experience in the equity market were less risk seeking and preferred more stable returns.

Table 5.10: ANOVA test - Risk vs Equity Investment Experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37.575	4	9.394	6.551	.000
Within Groups	617.992	431	1.434		
Total	655.567	435			

Table 5.11: Descriptives - Risk vs Equity Investment Experience

Equity Investment Experience	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5 years or less	173	2.62	1.269	.096	2.43	2.81
5.01 - 10 years	120	2.99	1.199	.109	2.77	3.21
10.01 - 15 years	65	3.20	1.093	.136	2.93	3.47
15.01 - 20 years	30	3.47	.900	.164	3.13	3.80
Above 20 years	48	3.31	1.223	.177	2.96	3.67
Total	436	2.94	1.228	.059	2.83	3.06

Table 5.12: Tukey Post hoc test – Risk taken vs Equity investment experience

(I) Length of experience in the stock market	(J) Length of experience in the stock market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
5 years or less	5.01 - 10 years	-.373	.142	.068	-.76	.02
	10.01 - 15 years	-.582*	.174	.008	-1.06	-.10
	15.01 - 20 years	-.848*	.237	.003	-1.50	-.20
	above 20 years	-.694*	.195	.004	-1.23	-.16

5.2.5 Risk vs Equity investment knowledge

From the ANOVA results (Table 5.13) we can infer that the respondents in the various equity investment knowledge groups differed in the risk taken. The results of Table 5.14 infer that the respondents with the equity investment knowledge level of very good knowledge had the highest mean of 3.7 and the respondents in the lowest equity investment knowledge level of very little knowledge had the lowest mean of 2.45. Based on the Tukey post hoc test (Table 5.15), the mean of the risk in the equity investment knowledge level of very little knowledge was significantly less than the means of the risk levels in all other knowledge levels except the business investor. Thus, the respondents with very good equity investment knowledge had higher risk taking abilities than most others in the sample. Das (2012) insisted the importance of the knowledge levels of the investors to assess the risk of the investment which in turn helped them engage in risky transactions. Our results also supported that knowledgeable investors tend to be risk taking as they were able to assess the risk.

Table 5.13: ANOVA test - Risk vs Equity Investment Knowledge

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	48.291	4	12.073	8.568	.000
Within Groups	607.275	431	1.409		
Total	655.567	435			

Table 5.14: Descriptives - Risk vs Equity Investment Knowledge

Equity Investment Knowledge	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
very little knowledge	108	2.45	1.263	.122	2.21	2.69
some investment knowledge	177	2.99	1.123	.084	2.82	3.16
good knowledge	111	3.11	1.238	.118	2.88	3.34
very good knowledge	33	3.70	1.075	.187	3.32	4.08
business investor	7	3.14	1.215	.459	2.02	4.27
Total	436	2.94	1.228	.059	2.83	3.06

Table 5.15: Tukey Post hoc test – Risk taken vs Equity investment knowledge

(I) equity investment knowledge	(J) equity investment knowledge	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
very little knowledge	some investment knowledge	-.535*	.145	.002	-.93	-.14
	good knowledge	-.654*	.160	.001	-1.09	-.21
	very good knowledge	-1.243*	.236	.000	-1.89	-.60
	business investor	-.689	.463	.570	-1.96	.58

5.2.6 Risk Vs Actual Return

From the ANOVA results (Table 5.16) we can infer that the respondents in the various actual return groups differed in the risk taken. The results of Table 5.17 infer that with respect to the actual capital appreciation in equity investment in the last two years, the respondents with an actual return of 20.01 – 25% in equity investment have the highest mean of 3.47 and the respondents with an actual return of 0.01 - 5% in equity investment have the lowest mean of 2.52. The results summarize that the respondents who report higher actual returns have higher risk taking abilities. These results corroborate with the classic risk-return tradeoff which implies that higher the risk taken, higher would be the returns (French et al., 1987; Chou, 1988; Campbell and Hentschel, 1992; Bansal and Lundblad, 2002).

Table 5.16: ANOVA test – Risk vs Actual Return

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	59.935	6	9.989	7.195	.000
Within Groups	595.632	429	1.388		
Total	655.567	435			

Table 5.17: Descriptives – Risk vs Actual Return

Actual Return	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
0% and below	56	2.70	1.513	.202	2.29	3.10
0.01 - 5%	118	2.52	1.130	.104	2.31	2.72
5.01 - 10%	79	3.19	1.099	.124	2.94	3.44
10.01 - 15%	70	2.77	1.230	.147	2.48	3.06
15.01 - 20%	43	3.42	1.074	.164	3.09	3.75
20.01 - 25%	30	3.47	.937	.171	3.12	3.82
above 25%	40	3.45	1.108	.175	3.10	3.80
Total	436	2.94	1.228	.059	2.83	3.06

From the summary of the ANOVA-test results (Table 5.18) we can infer that in all the groups, except the frequency of monitoring the equity investment value, the respondents divided on the basis of all the financial dimensions differed in their risk taking ability.

Table 5.18: ANOVA test – Risk vs. Financials

S.No	Dimension	F value	p – value
1	Annual Income	2.444	0.034*
2	Proportion of monthly savings out of monthly income	6.183	0.000**
3	Proportion of equity investment	8.583	0.000**
4	Experience in the stock market	6.551	0.000**
5	Frequency of monitoring the equity investment value	0.761	0.578
6	Equity investment knowledge	8.568	0.000**
7	Actual Return	7.195	0.000**

*rejected at 0.05 level **rejected at 0.01 level

VI. CONCLUSION

In this study, the dimension of risk was analysed holistically and important conclusions were drawn with respect to both the demographic and financial dimensions. Male respondents were found to be more risk taking than the female respondents. With respect to the demographic variables of age, marital status, education and occupation, the respondents did not differ in their risk taking ability. The respondents in the various annual income, monthly savings, equity investment proportion, equity investment experience, equity investment knowledge and actual return groups differed in the risk taken. Hence, in all the groups, except the frequency of monitoring the equity investment value, the respondents divided on the basis of all the financial dimensions differed in their risk taking ability. Risk taking was higher when the proportion of direct investment in equity was higher, when the proportion of monthly saving out of monthly income was higher and for the higher income groups. Higher was the investment experience in the stock market higher was the risk taking ability of the investor. The respondents with very good equity investment knowledge had higher risk taking abilities than most others in the sample. The respondents who reported higher actual returns had higher risk taking abilities. This risk profiling of the investors would be useful to the financial advisors and wealth managers who assign stock portfolios to various investors coming from various demographic and financial profiles.

REFERENCES

- [1] Bajtelsmit, V. L., and Bernasek, A. 1996. Why do women invest differently than men?. *Financial Counseling and Planning*, 7: 1-10.
- [2] Bajtelsmit, Vickie L., Alexandra Bernasek, and Nancy A. Jianakoplos. 1999. Gender differences in defined contribution pension decisions. *Financial Services Review*, 8(1): 1-10.
- [3] Bansal, R., and C. Lundblad. 2002. Market Efficiency, Fundamental Values, and Asset Returns in Global Equity Markets. *Journal of Econometrics*, 109: 195–237.
- [4] Barber, B. M., and Odean, T. 2001. Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, 116(1): 261-292.
- [5] Barberis, N., Huang, M., and Santos, T. 1999. Prospect theory and asset prices. *Quarterly Journal of Economics*, 116: 1-53.
- [6] Benartzi, S., and Thaler, R. H. 1995. Myopic loss aversion and the equity premium puzzle. *The Quarterly Journal of Economics*, 110(1): 73-92.
- [7] Byrnes, J. P., Miller, D. C., and Schafer, W. D. 1999. Gender differences in risk taking: A meta-analysis. *Psychological Bulletin*, 125(3): 367-383.
- [8] Campbell, J., Hentschel, L. 1992. No news is good news: an asymmetric model of changing volatility in stock returns. *Journal of Financial Economics*, 31(3): 281–318
- [9] Chandra, A., and Kumar, R. 2011. Determinants of individual investor behavior: An orthogonal linear transformation approach (MPRA Paper No.29722). MPRA, Munich personal RePEc archive. Retrieved from <http://mpra.ub.uni-muenchen.de/29722/>

- [10] Chandra, A., and Kumar, R. 2012. Factors influencing Indian individual investor behaviour: Survey evidence. *Decision*, 39(3): 141-167
- [11] Cheng, P. Y. 2007. The trader interaction effect on the impact of overconfidence on trading performance: An empirical study. *The Journal of Behavioral Finance*, 8(2): 59-69.
- [12] Chou, R. Y. 1988. Volatility Persistence and Stock Valuations: Some Empirical Evidence Using GARCH. *Journal of Applied Econometrics*, 3(4): 279-294
- [13] Daniel, K. D., Hirshleifer, D., and Subrahmanyam, A. 2001. Overconfidence, arbitrage, and equilibrium asset pricing. *The Journal of Finance*, 56(3): 921-965.
- [14] Das, S. K. 2012. Small investor's behavior on stock selection decision: A case of Guwahati stock exchange. *International Journal of Advanced Research in Management and Social Sciences*, 1(2): 59-78.
- [15] Felton, J., Gibson, B., and Sanbonmatsu, D. M. 2003. Preference for risk in investing as a function of trait optimism and gender. *The Journal of Behavioral Finance*, 4(1): 33-40.
- [16] French, K., Schwert, W., Stambaugh, R. 1987. Expected stock returns and volatility. *Journal of Financial Economics*, 19(1): 3-29.
- [17] Hallahan, T. A., Faff, R. W., and McKenzie, M. D. 2004. An empirical investigation of personal financial risk tolerance. *Financial Services Review - Greenwich-*, 13(1): 57-78.
- [18] Hariharan, G., Chapman, K. S., and Domian, D. L. 2000. Risk tolerance and asset allocation for investors nearing retirement. *Financial Services Review*, 9(2): 159-170.
- [19] Hayat, M. A., Bukhari, K., and Ghufuran, B. 2010. Understanding investment behavior of individual investors: How they handle investment decisions? Do they act rationally? (Unpublished doctoral dissertation). Bahauddin Zakariya University, Multan.
- [20] Jianakoplos, N. A., and Bernasek, A. 1998. Are women more risk averse?. *Economic Inquiry*, 36(4): 620-630.
- [21] Kabra, G., Mishra, P.K. and Dash M.K. 2010. Factors influencing investment decision of generations in India: An econometric study, *Asian Journal of Management Research*: 308-326
- [22] Kahneman, D., and Riepe, M. W. 1998. Aspects of investor psychology. *The Journal of Portfolio Management*, 24(4): 52-65.
- [23] Kannadhasan, M. 2006. Risk appetite and attitudes of retail investors' with special reference to capital market. *Management Accountant*, 41(6): 448-454.
- [24] Larrick, R. P., and Boles, T. L. 1995. Avoiding regret in decisions with feedback: A negotiation example. *Organizational Behavior and Human Decision Processes*, 63(1): 87-97.
- [25] Mehra, R., and Prescott, E. C. 1985. The equity premium: A puzzle. *Journal of Monetary Economics*, 15(2): 145-161.
- [26] Nasic, A., and Weber, M. 2010. How riskily do I invest? The role of risk attitudes, risk perceptions, and overconfidence. *Decision Analysis*, 7(3): 282-301.
- [27] Odean, T. 1998. Volume, volatility, price, and profit when all traders are above average. *The Journal of Finance*, 53(6): 1887-1934.
- [28] Olsen, R. A., and Cox, C. M. 2001. The influence of gender on the perception and response to investment risk: The case of professional investors. *The Journal of Psychology and Financial Markets*, 2(1): 29-36.
- [29] Pan, C. H., and Statman, M. 2012. Questionnaires of risk tolerance, regret, overconfidence, and other investor propensities. *The Journal of Investment Consulting*, 13(1): 54-63.
- [30] Riley Jr, W. B., and Chow, K. V. 1992. Asset allocation and individual risk aversion. *Financial Analysts Journal*, 48(6): 32-37.
- [31] Sjöberg, L., and Engelberg, E. 2006. Attitudes to economic risk taking, sensation seeking and values of economists specializing in finance. SSE/EFI Working paper series in Business Administration, Centre for risk research, Stockholm School of Economics, Sweden. Retrieved from http://dynam-it.com/lennart/wp-content/uploads/downloads/2013/07/hastba2006_003.pdf
- [32] Soman, D. 2004. Framing, loss aversion, and mental accounting. *Blackwell Handbook of Judgment and Decision Making*: 379-398.
- [33] Thaler, R. H. 1999. Mental accounting matters. *Journal of Behavioral Decision Making*, 12(3): 183-206.
- [34] Thaler, R. H., Tversky, A., Kahneman, D., and Schwartz, A. 1997. The effect of myopia and loss aversion on risk taking: An experimental test. *The Quarterly Journal of Economics*: 647-661.