

## **An Empirical Study of Indian Individual Investors' Behavior**

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### **Abstract**

Indian investor today have to endure a sluggish economy, the steep market declines prompted by deteriorating revenues, alarming reports of scandals ranging from illegal corporate accounting practices like that of Satyam to insider trading to make investment decisions. Stock market's performance is not simply the result of intelligible characteristics but also due to the emotions that are still baffling to the analysts. Despite loads of information bombarding from all directions, it is not the cold calculations of financial wizards, or company's performance or widely accepted criterion of stock performance but the investor's irrational emotions like overconfidence, fear, risk aversion, etc., seem to decisively drive and dictate the fortunes of the market.

This paper while discussing the characteristics of the Indian individual investors along makes an attempt to discover the relationship between a dependent variable i.e., Risk Tolerance level and independent variables such as Age, Gender of an individual investor on the basis of the survey. Indian investors are high income, well educated, salaried, independent in making investment decisions and conservative investors. From the empirical study it was found that irrespective of gender, most of the investors (41%) are found have low risk tolerance level and many others (34%) have high risk tolerance level rather than moderate risk tolerance level. It is also found that there is a strong negative correlation between Age and Risk tolerance level of the investor. Television is the media that is largely influencing the investor's decisions. Hence, this study can facilitate the investment product designers to design products which can cater to the investors who are low risk tolerant.

**Keywords:** Indian individual investor, Investor characteristics; dependent variables; independent variables; risk tolerance level.

## Introduction

When the BSE Sensex was hovering around the 21000 levels in the month of January 2008, irrational exuberance was the order of the day. Then, few investors would have foreseen a fall of over 70% in the subsequent 12 months period. Expectedly, the exuberance has been forgotten and despondency has set in. The market is so volatile that its behavior is unpredictable. In the past couple of years, the movement of share prices exceeded all the limits and had gone remarkably low and high levels. These dramatic prices of the shares ruin the concept of intrinsic value and rational investment behavior. The traditional finance theories assume that investors are rational but they are unable to explain the behavior and pricing of the stock market completely.

Indian Investors have to endure a sluggish economy, the steep market declines prompted by deteriorating revenues, including alarming reports of scandals like that of Satyam computers, ranging from illegal corporate accounting practices to insider trading etc to invest their money in the stock market. Whether or not Stock market's performance is simply the result of intelligible characteristics of the investor is the question that still baffles the analysts. Despite loads of information bombarding from all directions, it is not the cold calculations of financial wizards, company performance or widely accepted criterion of stock performance but the investor's irrational emotions like overconfidence, fear, risk aversion, etc., seem to decisively driving and dictating the fortunes of the market is increasingly realized by the analysts.

## Need for the Study

Stock market has been subjected to speculations and inefficiencies, which are beached to the rationality of the investor. Traditional finance theory is based on the two assumptions. Firstly, investors' make rational decisions; and secondly investors are unbiased in their predictions about future returns of the stock. However financial economist have now realized that the long held assumptions of traditional finance theory are wrong and found that investors can be irrational and make predictable errors about the return on investment on their investments.

This empirical study on Individual Investors' Behavior is an attempt to know the profile of the investor and also know the characteristics of the investors so as to know their preference with respect to their investments. The study also tries to unravel the influence of demographic factors like gender and age on risk tolerance level of the investor.

## **Objectives of the Study**

- (1) To develop a profile of sample Indian individual investor in terms of their demographics.
- (2) To identify the objective of investment plan of an Indian individual investor.
- (3) To know the preferred investment avenues of the Indian individual investor.
- (4) To know the extent of financial literacy of individual investors
- (5) To identify the preferred sources of information influencing investment decisions.
- (6) To know the risk tolerance level of the individual investor and suggest a suitable portfolio.
- (7) To study the dependence/independences of the demographic factors (Gender and Age) of the investor and his/her risk tolerance level.

## **Sample Design**

Many investors were reluctant to divulge their investment details especially the amount of money invested so; referral sampling method is used for this empirical study. It has been carried out with a sample size of 150 investors.

## **Methodology**

Based on the responses of the questionnaire, analysis has been carried out. Statistical methods such as Chi-square test of independence of attributes and Correlation have been used to uncover relationships among the variables.

- For measuring the risk tolerance level cumulative scale has been used.
- To study the dependency/Independency of the factors Chi-square test of independence of attributes was used.
- Correlation is used to know the relationship between Risk tolerance level and the Age of the investor

The questionnaire consists of 32 questions of which first 10 questions were focused to know the demographic characteristics of the investor. Next 16 questions to find the risk tolerance level of the investor and the rest were focused to accomplish the other objectives of the study.

## **Literature Survey**

Literature suggests that major research in the area of investors' behavior has been done by behavioral scientists such as Weber (1999), Shiller (2000) and Shefrin (2000). Shiller (2000) who strongly advocated that stock market is governed by the market information which directly affects the behavior of the investors. Several studies have brought out the relationship between the demographics such as Gender, Age and risk tolerance level of individuals. Of this the relationship between Age and risk tolerance level has attracted much attention.

Horvath and Zuckerman (1993) suggested that one's biological, demographic and socioeconomic characteristics; together with his/her psychological makeup affects one's risk tolerance level. Malkiel (1996) suggested that an individual's risk tolerance is related to his/her household situation, lifecycle stage and subjective factors. Mittra (1995) discussed factors that were related to individuals risk tolerance, which included years until retirement, knowledge sophistication, income and net worth.

Guiso, Jappelli and Terlizzese (1996), Bajtelsmit and VenDerhei (1997), Powell and Ansic (1997), Jianakoplos and Bernasek (1998), Hariharan, Chapman and Domain (2000), Hartog, Ferrer-I-Carbonell and Jonker (2002) concluded that males are more risk tolerant than females.

Wallach and Kogan (1961) were perhaps the first to study the relationship between risk tolerance and age. Cohn, Lewellen et.al found risky asset fraction of the portfolio to be positively correlated with income and age and negatively correlated with marital status. Morin and Suarez found evidence of increasing risk aversion with age although the households appear to become less risk averse as their wealth increases. Yoo (1994) found that the change in the risky asset holdings were not uniform. He found individuals to increase their investments in risky assets throughout their working life time, and decrease their risk exposure once they retire. Lewellen et.al while identifying the systematic patterns of investment behavior exhibited by individuals found age and expressed risk taking propensities to be inversely related with major shifts taking place at age 55 and beyond.

Indian studies on individual investors' were mostly confined to studies on share ownership, except a few. The RBI's survey of ownership of shares and L.C. Gupta's enquiry into the ownership pattern of Industrial shares in India were a few in this direction. The NCAER's studies brought out the frequent form of savings of individuals and the components of financial investments of rural households. The Indian Shareowners Survey brought out a volley of information on shareowners. Rajarajan V (1997, 1998, 2000 and 2003) classified investors on the basis of their demographics. He has also brought out the investors' characteristics on the basis of their investment size. He found that the percentage of risky assets to total financial investments had declined as the investor moves up through various stages in life cycle. Also investors' lifestyles based characteristics has been identified. The above discussion presents a detailed picture about the various facets of risk studies that have taken place in the past. In the present study, the findings of many of these studies are verified and updated.

## Analysis of the Survey

Table 1 and Table 2 shows the Demographics and other characteristics of the sample investors.

**Table 1:** Demographics of the Sample Investor.

Parameter	Number of Investors	Percentage
<b>Gender</b>		
Male	120	80.0
Female	30	20.0
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Age (in Years)</b>		
Below 35	55	36.7
35 - 50	80	53.3
51 - 60	10	06.7
Above 60	5	03.3
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Marital Status</b>		
Unmarried	33	22.0
Married	117	78.0
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Employment Status</b>		
Salaried	98	65.3
Self employment (Business)	43	28.7
Retired(others)	9	06.0
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Monthly Earnings (in Rs.)</b>		
Up to Rs. 10000	0	0.0
Rs. 10001 – Rs. 20000	6	4.0
Rs. 20001 – Rs. 30000	35	23.3
Above Rs. 30000	109	72.7
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Education Level</b>		
Under Graduate	15	10.0
Graduate	65	43.3
Post Graduate and above	70	46.6
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Financially responsible</b>		
Only yourself	18	12.0
1 person in addition to yourself	16	10.7
2 to 3 persons in additions to yourself	53	35.3
4 to 5 persons in additions to yourself	49	32.7

More than 5 persons besides yourself	14	09.3
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Occupation</b>		
Accounts, Finance and Investment	65	43.3
Professionals	58	38.7
Others	27	18.0
<b>Total</b>	<b>150</b>	<b>100.0</b>

## Interpretation

Table 1 above shows, that 120 (80%) of the investors are men and the rest 30(20%) are females. Generally males bear the financial responsibility in Indian society, and therefore they have to make investment (and other) decisions to fulfill the financial obligations. When it comes to age, it was found that 36.7% are young and significant number (53.3%) of them are in the age group of 35 to 50. The marital status of 78% of the investors was found to be married and the rest are unmarried. This is because a married individual is considered to have dependents so relatively more invested and involved in making financial investments. Nearly 65% of the investors belong to the salaried class, 29% were business class and the rest were retired. It was found that 109(73%) of investors whose monthly earnings above rupees 30000 are interested in investments since these people have surplus amount due to which they are able to think of investments. 70(47%) of the individual investors covered in the study are postgraduates; 65(43%) investors are graduates and 15(10%) of the investors are under-graduates. From table 1, it is interesting to note that most investors (covered in the study) can be said to possess higher education (Bachelor Degree and above), and this factor will increase the reliability of conclusions drawn about the matters under investigation. 65(43%) of the investors covered in the study have been found to be in professions related to finance, accountancy, investment, banking, broking, and financial management etc and 58(39%) of the respondents are software engineers, architects, medical and dental practitioners, teachers, lawyers etc. 27(18%) of the respondents can be said to belong to 'non-accounting or non-financial' occupations and the other occupations.

**Interpretation:** The study has attempted to enquire about other characteristics of investor such as the reading behavior of the Investors. From table 2, it is noteworthy to find that 59 (39%) of the investors read four or more sources, 40 (27%) of the investors read two to three sources, 51 (34%) of the investors only one source. One may infer from the figures of table 2 that most investors tend not to depend upon expert advice and help while making investment decisions. However, the majority of the investors 111 (74%) make investment decisions without the help and advice from experts; only 27 (18%) investors consult some experts, for advice in investment decisions. And 12 (8%) of the investors allow the expert to take decision on their behalf. Most of the investors 89 (59%) make investment decisions on a regular basis.

**Table 2:** Other Characteristics of Sample Investor.

Parameter	Number of Investors	Percentage
<b>Reading Behavior</b>		
4 or more sources	59	39.3
2 – 3 sources	40	26.7
Only 1 source	51	34.0
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Investment Decisions are based</b>		
Taken on own initiative	111	74.0
Taken on own initiative but with help from an expert	27	18.0
Made by expert on investors behalf	12	08.0
<b>Total</b>	<b>150</b>	<b>100.0</b>
<b>Regularity of Investment Decisions</b>		
Frequently	89	59.3
Not so frequently	61	40.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

### Objective of Investment Plan

When investor was queried about his/her objective behind any investment, given that all the available investment avenues available to him will assure safety, liquidity and tax benefit, the objective of investment plan of the investors is shown in the following table 3.

**Table 3:** Objectives of investment plan.

Parameter	Number of Investors	Percentage
<b>Objective of investment Plan</b>		
Capital Appreciation	63	42.0
Balance of capital appreciation and current income	65	43.3
Supplement to their current income	22	14.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

Based on table 3, we can conclude that the investors' objective of investment plan is capital appreciation or balance of capital appreciation and current income. It is clear that investors invest to accumulate wealth rather as an avenue to supplement their income.

### Preferred Investment Avenues

Based on the quantity of risk, the investment avenues are classified as follows - Fixed Deposits/Bonds, Insurance schemes, Mutual Fund Schemes, Equities, Commodities and Real Estate. Investors were asked to choose preferred avenues. The resultant obtained, based on Weighted Mean Value is given in table 4

**Table 4:** Preferred Investment Avenues.

Investment Avenues	WMV	Rank
Fixed Deposits/ Bonds/PPF	5.2	I
Insurance Schemes	4.9	II
Mutual Fund Schemes	3.9	IV
Equities	4.2	III
Commodities/ Derivatives	1.8	V
Real Estate	1.0	VI

From table 4, it can be concluded that the investors prefer FD's/Bonds/PPFs avenues than insurance schemes next to Equities and Mutual Funds. It was interesting to know that Indian individual investors still prefer to invest their surplus amount in risk free investment avenues next to insurances schemes. Table 4 confirms that Indian investors are conservative investors.

### Financial literacy

When investors were queried about their financial literacy i.e. their ability or knowledge about financial terms or aspects of investments, it was found that most of the investors are financial illiterates. And the responses are shown in table 5.

**Table 5:** Financial literacy.

	Frequency	Percentage
Financial Literates	56	37.3
Financial Illiterates	94	62.7
<b>Total</b>	<b>150</b>	<b>100.0</b>

In spite of majority of the occupants (65) are from accounts and financial related jobs most of them astonishingly expressed ignorance about the mechanism of investments, and the dynamics of risk and returns.

### **Sources of Investment Information**

When investors were asked to rank their various sources of investment information, the following Weighted Mean Values were obtained which are given in table 6.

**Table 6:** Sources of investment information.

<b>Sources of Investment Information</b>	<b>WMV</b>	<b>Rank</b>
News Paper/ Magazines	3.6	II
Electronic Media (T.V)	3.9	I
Peer group/ Friends	3.3	III
Broker/ Financial Advisor	2.2	IV
Internet	2.0	V

Most of the investors get their information related to investment through electronic media (TV- NDTV Profit, CNBC and some business news channels) next to print media (News paper/ Business news paper/ Magazines). This could be because Print/Electronic media is easy and readily accessible investment information when compared to the other sources of investment information.

### **Risk tolerance level and Suggestion of Suitable Portfolio to the Investors'**

The role of uncertainty and the lack of knowledge about the return on Investment Avenue are important components of any investment. The extent of an investor's ability to tolerate these uncertainties of return is referred as risk tolerance level of an investor (Schaefer, 1978). Risk tolerance tends to be subjective rather than objective. Schaefer described the relation this way: "two persons may very well agree on the riskiness of a set of gambles, but may nevertheless prefer different gambles, rank-ordering them differently according to their personal tolerance.

There are two common methods of estimating investors' tolerance of risk. The first method is a clear understanding of the investor and his/her history with investment securities. The second method is to use a questionnaire designed to elicit feelings about risky assets and the comfort level of the investor given certain changes in the portfolio or certain investment scenarios. The second method is used to know the risk tolerance level of the investors. Based on the responses to the questionnaire, the cumulative scale is constructed and scores are assigned to each investor accordingly to categorize the respondents in to i.e. Low, Moderate and High risk tolerance level. The investors are divided into 3 categories i.e., A, B and C depending on their risk tolerance starting with Low risk tolerance, Moderate risk tolerance and High risk tolerance. Generally investors with a low risk tolerance act differently with regard to risk than individuals with a high risk tolerance. Investor with a high level of risk tolerance would be comfortable with market volatility, while low risk-tolerance

individuals require stability and are averse to uncertainties. (MacCrimmon & Wehrung, 1986). Individuals with low levels of risk tolerance require lower chances of a loss, choose not to operate in unfamiliar situations and require more information about the performance of an investment (MacCrimmon & Wehrung).

From the sample of 150, it has been found that 61 investors (41%) have low risk tolerance and these investors should emphasize on capital preservation portfolio i.e., category A asset mix is suggested to them. 38 investors (25%) have moderate risk tolerance and these investors should emphasize on balanced portfolio i.e., category B asset mix is suggested to them. And 51 investors (34%) have high risk tolerance and these investors should emphasize on aggressive capital appreciation portfolio i.e., category C asset mix is suggested to them.

**Table 7:** Risk Tolerance level and investor.

Risk Tolerance Level	No. Of Investors	Percentage
Low (Category A)	61	41%
Medium (Category B)	38	25%
High (Category C)	51	34%
Total	150	100

The portfolio suggested to investors consists of four types of asset classes i.e., Equities, Fixed Income Securities, Cash & Equivalents and other Alternative assets such as art. Depending on their risk tolerance the corresponding asset class has been increased or decreased and corresponding asset mix has been suggested to each category of investor. Each category of investors asset mix has been described below.

#### **Category A: Aggressive Capital Preservation Portfolio**

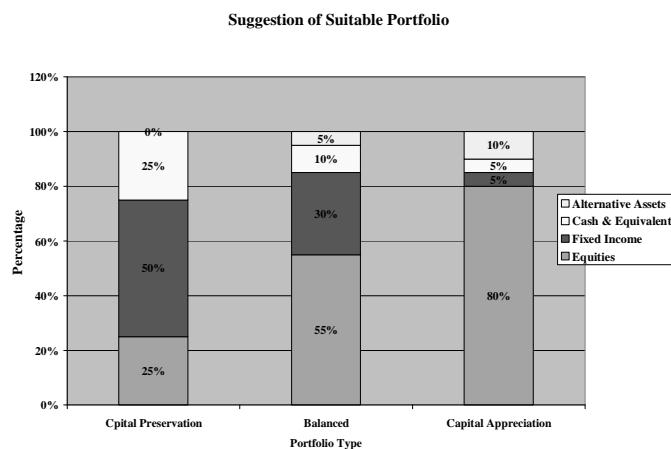
This category of investor has low risk tolerance and should emphasize aggressive capital preservation. Suggested optimal asset mix is specified in figure 2.

#### **Category B: Balanced Portfolio**

This category of investors has moderate risk tolerance and should emphasize a balanced approach to capital appreciation and capital preservation. Suggested optimal asset mix is specified in figure 2.

#### **Category C: Aggressive Capital Appreciation Portfolio**

This category of investors has high-risk tolerance and should emphasize aggressive capital appreciation. Suggested optimal asset mix is specified in figure 1.



**Figure 1:** Suitable portfolio to the various category of investor.

### Hypothesis Testing

**Hypothesis 1:** Gender of the investor and the Risk tolerance level are two independent attributes of the investor.

**Table 8:** Gender & Risk Tolerance Level.

	Low Risk	Moderate Risk	High Risk	Total
<b>Male</b>	<b>48</b>	<b>31</b>	<b>41</b>	<b>120</b>
<b>Female</b>	<b>13</b>	<b>7</b>	<b>10</b>	<b>30</b>
<b>Total</b>	<b>61</b>	<b>38</b>	<b>51</b>	<b>150</b>

Conducting chi square test at 5% level of significance, it is found that  $\chi^2 = 0.22$  as the computed value is very less than the table value 5.99. We conclude that Gender and Risk tolerance are the two independent attributes of the investor. However empirical investigation of gender differences in risk taking is inconclusive (Charness and geenzy, 2004). While most research conducted prior to 1980 concluded that gender difference clearly exists, more recent research studies yield mixed conclusions. In the current empirical analysis, it is found that irrespective of gender most of the investors are low risk tolerant or high risk tolerant rather than moderate risk tolerant. Generally, it is considered that women tend to be risk averse in comparison with men.

**Hypothesis 2:** Increase in Age decreases the Risk tolerance level.

Correlation between Age and risk tolerance

Attributes	Risk Tolerance Level
Age	-0.74

When Karl Pearson's correlation coefficient is calculated, it is found to be -0.74 by which we can conclude that there is a strong negative correlation between Age and Risk tolerance. Age accounts for the major differences in risk taking decisions by the investors. The older an investor, the better seemed his/her performance in comparison to the younger ones. Over-confidence in their own investment ability among the youngsters largely accounts for the excessive trading among younger investors leading to lower returns and this direct to decline in the risk tolerance level.

### Findings

- The study reveals that male investors dominate the investment market in India.
- Most of the investors possess higher education like graduation and above.
- Majority of the Investors belong to accountancy and related employment, non-financial management and some other occupations are very few.
- Most investors read two or more sources of information to make investment decisions.
- The investors' decisions are based on their own initiative.
- The investment habit was noted in a majority of the people who participated in the study.
- The objective of investment was either capital appreciation or balance of capital appreciation and current income.
- Investors prefer to park their funds in avenues like PPF/FD/Bonds next to Equities and Mutual Funds Scheme.
- Most of the investors get their information related to investment through electronic media (TV) next to print media (News paper/ Business news paper/ Magazines)
- Most of the investors are financial illiterates.
- Gender and the risk tolerance level of the investor are independent attributes of the investor.
- Increase in age decrease the risk tolerance level.

### Conclusion

This study confirms the earlier findings with regard to the relationship between gender and age, the risk tolerance level of individual investors. The Present study has important implications for investment managers as it has come out with certain interesting facets of an individual investor. The individual investor still prefers to invest in financial products which give risk free returns. This confirms that Indian investors even if they are of high income, well educated, salaried, independent are conservative investors prefer to play safe. The investment product designers can design products which can cater to the investors who are low risk tolerant and use TV as a marketing media as they seem to spend long time watching TVs.

## References

- [1] Admati, Anat and Paul Pfleiderer, 1997, “Does it All Add Up? Benchmarks and the Compensation of Active Portfolio Managers,” *Journal of Business*, Vol. 70, pp. 323–50.
- [2] Arrow, K. J. (1971). Essays in the theory of risk-bearing. Chicago: Markham Publishing Co.
- [3] Bajtelsmit, V. L., & Bernasek, A. (1996). Why do women invest differently than men? *Financial Counseling and Planning*, 7, 1-10.
- [4] Bajtelsmit, V. L., & Bernasek, A. & Jianakoplos, N. A. (1999). Gender differences in defined contribution pension decisions. *Financial Services Review*, 8(1), 1-10.
- [5] Barber, Brad, and Terry Odean, 2001. “Boys will be boys: Gender, overconfidence, and common stock investment.” *Quarterly Journal of Economics* 116, 261-292.
- [6] Barberis, N., A. Shleifer, and R. Vishny, 1998. A Model of Investor Sentiment, *Journal of Financial Economics* 49, 307-343.
- [7] Berk, J. B., Ri. C. Green and V. Naik, 1999. Optimal investment, growth options and security returns, *Journal of Finance* 54, 1553-1608.
- [8] Cohn, Richard A., W. G. Lewellen, R.C Lease and G. G Schlarbaum. (1975) “Individual Investor Risk Aversion and Investment Portfolio Composition.” *Journal of Finance*, Vol. 30, No.2, May 1975, pp.605-620.
- [9] Cohn, Richard A., W. G. Lewellen, R.C Lease and G. G Schlarbaum. “Op. Cit.” pp. 610.
- [10] Daniel, K., D. Hirshleifer and A. Subrahmanyam, 1998. Investor Psychology and Security Market under- and Overreactions, *Journal of Finance* 53, 1839–1886.
- [11] Daniel, K., D. Hirshleifer and A. Subrahmanyam, 2001. Overconfidence, Arbitrage, and Equilibrium Asset Pricing, *Journal of Finance* 56, 921–966.
- [12] Daniel, K., D. Hirshleifer and S.H. Teoh, 2002, “Investor Psychology in Capital Markets: Evidence And Policy Implication,” *Journal of Monetary Economics*, v49, pp.139 – 209.
- [13] Froot, Kenneth A., and Emil A. Dabora, 1999. “How are stock prices affected by the location of trade?” *Journal of Financial Economics* 53, 189-216.
- [14] Guiso, L., Jappelli, T., & Terlizzese, D. (1996). Income risk, borrowing constraints, and portfolio choice. *American Economic Review*. 86(1), 158-172.
- [15] Hanna, S. D., Gutter, M. S., & Fan, J. X. (2001). A measure of risk tolerance based on economic theory. *Financial Counseling and Planning*, 12(2), 53-60.
- [16] Hanna, S. D., & Yao, R. (2003). Risk tolerance. In Vitt, L. A. (Ed.) *Encyclopedia of Retirement and Finance*. Greenwood Press, 2, 685-689.
- [17] Hariharan, G., Chapman, K. S., & Domain, D. L. (2000). “Risk tolerance and asset allocations for investors nearing retirement”. *Financial Services Review*, 9(2), 159-170.
- [18] Hartog, J., Ferrer-I\_Carbonell, A., & Jonker, N. (2002). Linking measured risk aversion to individual characteristics. *Kyklos*, 55(1), 3-26.

- [19] Hinz, R. P., McCarthy, D. D., & Turner, J. A. (1997). *Are women conservative investors? Gender differences in participated-directed pension investments*. In Micheal S. Gordon, Olivia S. Mitchell, and Marc M. Twinney (Eds.), *Positioning Pensions for Twenty-Firt Century*. Philadelphia: University of Pennsylvania Press. Pp 91-103.
- [20] Hirshleifer, David, 2001. "Investor psychology and asset pricing" *Journal of Finance* 56, 1533-1597.
- [21] Horvath, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal and risky behavior. *Personality and Individual Differences*, 14, 41-52.
- [22] James J. Choi, David Laibson, How Does the Internet Affect Trading? Evidence from Investor Behavior in 401(k) Plans, The Wharton School University of Pennsylvania, August 2001([finance.wharton.upenn.edu/~metrick/cv.pdf](http://finance.wharton.upenn.edu/~metrick/cv.pdf))
- [23] Jianakopols, N. A., & Bernasek, A. (1998). Are women more risk averse? *Economic Enquiry*, 36(4), 620-630.
- [24] Jawahar Lal, *Understanding Indian Investors*, ed1, Global Business Press, New Delhi, 1992.
- [25] John E. Grable1and Ruth H. Lytton. (1998) "Investor Risk Tolerance: Testing The fficacy Of Demographics As Differentiating And Classifying Factors" *Association for Financial Counseling and Planning Education*. Volume 9(1), 1998
- [26] Lewellen, Wilbur G., R.C Lease and G. G Schlarbaum. "ibid." pp.309.
- [27] Lewellen, Wilbur G., R.C Lease and G. G Schlarbaum. "ibid." pp.315.
- [28] Lewellen, Wilbur G., R.C Lease and G. G Schlarbaum. (1977) "Patterns of Investment Strategy and Behaviour among Individual Investors." *Journal of Business*. July 1977, pp. 296-333.
- [29] Malkiel, B. G. (1996). *A random walk down Wall Street*. New York: W. W. Norton & Co.
- [30] MacCrimmon, K. R. & Wehrung, D. A. (1986). *Taking risks*.New York: The Free Press. Mittra, S. (1995). *Practicing financial planning: A complete guide for professionals*. Michigan: Mittra & Associates.
- [31] NCEAR, (1961) "Savings in India." National Council of Applied Economic Research, New Delhi, April 1961.
- [32] NCEAR,(1980) "Household Income and Its Disposition." National Council of Applied Economic Research, New Delhi, April 1980.
- [33] Philip Kotler, Hermawan Kartjaya, S. David Young, *Attracting Investors*, ed10, John Wiley & Sons, Inc., United States of America, 2004.
- [34] Pring, Martin J., *Investors Psychology Explained*, John Wiley & Sons, 1993.
- [35] Rajarajan.V (1997) "Investment size based segmentation of Individual Investors", *Management Researcher*, Vol.3, No. 3 & 4, January – June 1997, pp.27-36.
- [36] Rajarajan.V (1998) "Stages in Life Cycle and Investment Pattern", *The Indian Journal of Commerce*, Vol.51, No. 2 & 3, April-September 1998, pp.27-36.
- [37] Rajarajan.V (2000) "Investors' Lifestyles and Investment Characteristics", *Finance India*, Vol. XIV, No. 2, June 2000, pp.465-478.

- [38] Rajarajan.V (2003) "Investors' Demographics and Risk Bearing Capacity", *Finance India*, Vol. XVII, No. 2, June 2003, pp.565-576.
- [39] Reserve Bank of India,(1965) "Survey of Ownership of Shares in Joint Stock Companies as at the End of December 1965." *Reserve Bank of India Bulletin, February 1968*, pp. 137-151.
- [40] Reserve Bank of India,(1978) "Survey of Ownership of Shares in Joint Stock Companies as at the End of December 1978." *Reserve Bank of India Bulletin, February 1983*, pp. 69-128.
- [41] Richard A. Cohn, R.C. Lease, W.G.Lewellen and G.G. Schlarbaum. "Individual investor Risk Aversion and Investment Portfolio Composition". *Journal of Finance*, May 1975, pp.605-620.
- [42] Robert D. Milne. "Determination of Portfolio Policies: Individual Investors John I.Maginn and David L Tuttle. Eds". *Managing Investment Portfolios – A Dynamic Process*. New York. Warren Gorham and Lamont, 1983, pp. 133-135.
- [43] Robert A. Nagy and Robert W. Obenberger, "Factors Influencing Individual Investor Behaviour", *Financial Analysts Journal*, July/August 1994.
- [44] Scott. P. Frush, Optimal Investing, Jaico Publishing House, 2005.
- [45] Shefrin, Hersh, 2000. *Beyond Greed and Fear* Harvard Business School Press, Boston.
- [46] Shiller, Robert J., 2000. *Irrational Exuberance* Princeton University Press, Princeton
- [47] Wang, H. & Hanna, S. (1997). Does risk tolerance decrease with age? *Financial Counseling and Planning*, 8 (2), 27-31. Available: <http://afcpe.org/doc/Vol824.pdf>
- [48] W.E. Warren, R.E. Stevens and C.W. McConkey, "Using Demographic and Lifestyle analysis to segment Individual Investors", *Financial Analysts Journal*, March/April 1990.
- [49] Wallach, M. A. & Kogan, N. (1961). Aspects of judgment and decision making: Interrelationships and changes with age. *Behavioral Science*, 6, 23-26.
- [50] William B. Riley Jr. and K. Victor Chow, "Asset Allocation and Individual Risk Aversion", *Financial Analysts Journal*, November/December 1992.
- [51] Yao, R., Hanna, S. D., & Lindamood, S. (2004). Changes in financial risk tolerance, 1983-2001. *Financial Services Review*, 13 (4), 249-266.
- [52] Yao, R., Gutter, M.S., & Hanna, S.D. (2005). The financial risk tolerance of Blacks, Hispanics and whites. *Financial Counseling and Planning*, 16 (1), 51-62.
- [53] Yao, R. & Hanna, S.D. (2005). The effect of gender and marital status on financial risk tolerance. *Journal of Personal Finance*, 4 (1), 66-85.
- [54] Yoo, Peter S, (1994) "Age Dependent Portfolio Selection". Federal Reserve Bank of St. Louis, 1994.

