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A Study on the Impact of Big Five Personality Traits and Demographics on the it Working Professionals Stock Investment Decision

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Abstract

This study aims to explore the impact of the Big Five traits and Demographics on stock market investment of Information Technology working professionals of city Bangalore. For doing the same a structured questionnaire is prepared and hypotheses are framed. For Big five personality traits the questionnaire is adapted from McCrae and Costa (1995). For the investment related questions a questionnaire is formed and its reliability is also tested. The data is collected through convenient random sampling from forty respondents from the city of Bangalore. The data is purely primary and the idea is materialized through the detailed literature review process. The model used for the study is correlation, regression, ANOVA and sample t test of parametric statistical hypothesis test under SPSS.

Key words: Investment performance, Demographics, personality traits and IT Professionals

Introduction

When we look people around us, one of the things that strike the viewer is how different individuals are from one another. Personality traits reflect basic dimensions on which people differ (Matthews, Deary, & Whiteman, 2003).

Personality traits reveal people's characteristic patterns of thoughts, feelings, and behaviors. Personality traits entail consistency and stability. Thus, trait psychology rests on the idea that people differ from one another in terms of where they stand on a set of basic trait dimensions that persist over time and across situations. The most extensively used system of persona is called the Five-Factor Model. This system encompasses five broad traits that can be remembered with the acronym OCEAN: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism.

In this study particularly this Big Five personality trait is studied and its impact on the Stock investment decision of the IT professionals. To know the personality traits of the investor the adopted questionnaire is used. But to test the Investment pattern a questionnaire is constructed and its consistency is tested through Cron bach alpha.

Review of Literature

Phung, T. T. M., & Khuong, M. N. (2016). This study found the impact of the Big Five traits and mood on investment performance of individual investors trading on the Vietnam stock market. In-depth interview method was used to check the validity of the questionnaire and then the same is circulated to the investor. This study adopted factor analysis and KMo tests to validate the hypothesis. Out of the traits Conscientiousness,

Openness and Extraversion had affected a positive mood while Agreeableness and Neuroticism affected a negative mood.

Gherzi, S., Egan, D., Stewart, N., Haisley, E., & Ayton, P. (2014). This study checks how online investors monitor their stock information. They observed a difference in their behavior .They found that portfolio monitoring depends on the positive and negative market returns. When it is positive returns the monitoring increases positively and vice versa for negative market returns. They applied non-linear mixed effects models to prove the same.

This study consists of three levels. The first level provides evidence that personality traits significantly affect the stock market participation decision. The second level explores the relationship between personality traits and risk aversion. The third level shows that personality traits are related to an investor's preferences for value versus growth stocks and for small capitalization stocks versus large capitalization stocks. The first level proved a sizeable effect on market participation. The second level found that extravagance and sentiments have a positive effect where as excitement gives a negative impact on risk aversion. The third one proved that extravagance and excitement behavior holders keep large cap stocks while sentiment behavior holders keep small cap stocks

Xinghui, P., & Xiaohong, W. (1995) This article talks about Shanghai stock-holder's investing behavior and their personality traits. It is found that the personality traits influence their investment returns. It is also found that the individual's temperament do affect the investment behavior. Factor analysis is used to identify the same.

Tauni, M. Z., Tauni, M. Z., Rao, Z. U. R., Rao, Z. U. R., Fang, H., Fang, H., ... & Jebran, K. (2017). This study found the impact of information possession on stock trading and their frequency They also studied the impact of Big five personality trait on the association of the above. They applied two stage least square and probit regression models. They found that more the trade an investor do the more the information they posses. Extrovert person possess more information than a introvert

Joyce K.H.Nga, Leong Ken Yien (2013) This study figured out the impact of gender, personality traits and course majors on decision making among Generation Y undergraduates using exploratory factor analysis, regression and ANOVA. They found that other than big five traits the other two variables does not have significant impact on decision making.

Lin, H. W. (2011) In this study they found the relationship between psychological traits, demographics and investment biases for individual investors in Taiwan stock market. Out the various biases three biases where used and applied SEM model to prove the hypotheses and finally found that investment biases are related to big five personality traits.

Objective of the study

1. To identify the major factors responsible for determining the stock market investment behavior of IT employees.
2. To know the relationship between risks tolerance level of IT Employees and Openness Trait
3. To know the impact of Extrovert trait and stock selection pattern of IT Employees in the stock market.

Hypothesis

H0 = Risk tolerance level of IT Employees is not significantly related to Openness Trait

H1= Extrovert trait and stock selection pattern are not significant

Research design

Data source

Primary data is collected from the individual IT Employees with the help of structured questionnaire.

Secondary data is collected from the published source and through internet.

Sampling design
Random and convenient sampling is used and the sample size is 40 respondents as it is a pilot study and to check the questionnaire consistency

Data analysis
Correlation, regression and factor analysis are used for analysis

Research methodology

1. The data used in this study is purely Primary data.(one part of the questionnaire is adopted).
2. The model used for the study is regression under SPSS.
3. The study has proposed a null hypothesis the same has been tested using regression.
4. The study also used factor analysis to group the data.

Data Analysis and Interpretation

Reliability test

Reliability Statistics

Cronbach's Alpha	N of Items
.957	37

J In this case we found that Cronbach's alpha is **0.957**, which indicates a high level of internal consistency for the scale with this specific sample.

Communalities

Communalities

	Initial	Extraction
[I invest to create Wealth Creation]	1.000	.868
[I invest to preserve wealth, after accounting for inflation and taxes]	1.000	.946
[I invest for regular income to meet commitments and expenses]	1.000	.842
[I invest to build a corpus to meet specific future requirements]	1.000	.868
[I am prepared to tolerate an unrealized loss of capital between 0%-15% in my investments (A loss that results from holding onto an asset rather than cashing it)]	1.000	.900
[I am prepared to tolerate an unrealized loss of capital between 15%-30% in my investments]	1.000	.872
[I am prepared to tolerate an unrealized loss of capital between 30%-50% in my investments]	1.000	.859
[I am prepared to tolerate an unrealized loss of capital of greater than 50% in my investments]	1.000	.808

[I feel comfortable with the investment portfolio which gives the best return of 10% and worst loss of 5%]	1.000	.911
[When I purchase a winning investment, I feel that my actions and knowledge affected the result]	1.000	.759
[When I hear news that has potentially negative implications for the price of shares I own, then I tend to ignore the information; because I have already made the investment]	1.000	.869
[My investment losses are felt more than my gains.]	1.000	.842
[Capital preservation is of critical importance to me and I am looking at low risk investment options]	1.000	.918
[I am concerned with capital preservation but I can tolerate infrequent negative cycles to achieve consistent average returns]	1.000	.896
[I understand higher returns means I may have to tolerate several quarters of negative returns]	1.000	.939
[My main concern is maximizing capital gains]	1.000	.954
[When one of my investments performs poorly, I feel unlucky.]	1.000	.913
[I am comfortable taking moderate risks & investing for the long term to achieve capital growth]	1.000	.957
[I am willing to take some risks in return for some capital growth potential.]	1.000	.918
[I actively seek high capital growth and I am willing to potentially suffer a large capital loss pursuit of significant investment gains.]	1.000	.885
[The stock market is the best investment for long term holders, who can just buy and hold through the ups and downs of the market.]	1.000	.869
[If there is a deep drop in the market like to one day due to any attack , the market will surely be back up to its former levels in a couple of days or so]	1.000	.857
[If the stock index (SENSEX) dropped 3% tomorrow, I would guess the day after tomorrow the SENSEX would increase]	1.000	.919
[If the stock index (SENSEX) dropped 3% tomorrow, I would guess the day after tomorrow the SENSEX would decrease]	1.000	.926
[If the stock index (SENSEX) dropped 3% tomorrow, I would guess the day after tomorrow the SENSEX would stay the same]	1.000	.890
[A smart thing to try, to time the stock market, to get out before it goes down and get in before it goes up]	1.000	.884
[Trying to pick up individual stocks, trying to predict, for example, if and when stock ‘A’ will go up or stock ‘B’ will go up is a smart thing to do.]	1.000	.871
[Although I expect a substantial drop in stock prices in India untimely, I advise being relatively heavily invested in stocks for the time being because I think that prices are likely to rise for a while.]	1.000	.893
[Many people are showing a great deal of pessimism about the prospects for the stock market in India, and I must be careful not to be influenced by them]	1.000	.883

[My investment loses 15% of its value in a market correction a month after I buy it. Assuming that none of the fundamentals have changed, I'll sit tight and wait for it to journey back up.]	1.000	.914
[My investment loses 15% of its value in a market correction a month after I buy it. Assuming that none of the fundamentals have changed, I'll Sell it and rid myself of further sleepless nights if its continues to decline]	1.000	.886
[My investment loses 15% of its value in a market correction a month after I buy it. Assuming that none of the fundamentals have changed, I'll Buy more – it looked good at the original price, it looks even better now.]	1.000	.929
[A month after I purchase it, the value of my investment suddenly skyrockets by 40%. Assuming I can't find any further information, then I'll sell it.]	1.000	.952
[A month after I purchase it, the value of my investment suddenly skyrockets by 40%. Assuming I can't find any further information, then I'll hold it on the expectation of further gain.]	1.000	.946
[A month after I purchase it, the value of my investment suddenly skyrockets by 40%. Assuming I can't find any further information, then I'll buy more – it will probably go higher]	1.000	.883
[I feel better when my money doubles in an equity investment and OK if my money market fund investment saves me from losing half of my money in a market slide.]	1.000	.837
[I see my past equity returns record and if it yields better return then I deploy more in the same equity]	1.000	.939
[I feel more confident in my own investment opinions over opinions of financial analysts and advisors]	1.000	.887
[I feel more confident in my own investment opinions over opinions of friends and colleagues]	1.000	.802
[I am likely to purchase investments that have been recommended by friends or colleagues]	1.000	.913
[I always have an inner urge to make additional income to save for a better future]	1.000	.835
[Genius investors are often cheated by unscrupulous and greedy people in the stock market]	1.000	.935
[Equity investments certainly requires rational thinking]	1.000	.896
[My investment decision involves the use of mental shortcuts or rules of thumb]	1.000	.915
[After I have spent a long time researching an investment, I am more likely to act on this information (buy or sell).]	1.000	.894
[My mind try to justify mistakes committed while making investment decisions]	1.000	.871
[I buy shares that can be quickly sold at higher prices.]	1.000	.896
[I am an experienced investor and I know how mental calculations work in stock market]	1.000	.861
[I feel more confident in my own investment opinions over opinions of financial analysts and advisors.]	1.000	.916
[My investment losses are felt more than my gains.]	1.000	.891

Extraction Method: Principal Component Analysis.

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Communalities - This is the proportion of each variable's variance that can be explained by the factors

Extraction - The values in this column indicate the proportion of each variable's variance that can be explained by the retained factors. Variables with high values are well represented in the common factor space, while variables with low values are not well represented

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.433	36.866	36.866	18.433	36.866	36.866
2	4.365	8.731	45.597	4.365	8.731	45.597
3	4.159	8.319	53.915	4.159	8.319	53.915
4	3.337	6.674	60.589	3.337	6.674	60.589
5	2.775	5.550	66.140	2.775	5.550	66.140
6	2.335	4.670	70.809	2.335	4.670	70.809
7	2.053	4.107	74.916	2.053	4.107	74.916
8	1.816	3.632	78.548	1.816	3.632	78.548
9	1.677	3.355	81.903	1.677	3.355	81.903
10	1.457	2.914	84.817	1.457	2.914	84.817
11	1.104	2.208	87.025	1.104	2.208	87.025
12	1.002	2.004	89.029	1.002	2.004	89.029
13	.799	1.598	90.627			
14	.675	1.350	91.976			
15	.570	1.140	93.117			
16	.541	1.082	94.198			
17	.518	1.035	95.234			
18	.475	.950	96.184			
19	.346	.691	96.875			
20	.291	.582	97.457			
21	.256	.512	97.970			
22	.203	.405	98.375			
23	.183	.366	98.741			
24	.154	.308	99.049			
25	.117	.233	99.282			
26	.088	.177	99.459			
27	.083	.166	99.625			
28	.056	.112	99.737			
29	.045	.091	99.828			
30	.031	.062	99.889			
31	.026	.053	99.942			
32	.019	.037	99.979			
33	.007	.015	99.994			
34	.003	.006	100.000			

35	1.387E-015	2.774E-015	100.000			
36	1.225E-015	2.451E-015	100.000			
37	8.829E-016	1.766E-015	100.000			
38	6.853E-016	1.371E-015	100.000			
39	3.324E-016	6.647E-016	100.000			
40	2.913E-016	5.825E-016	100.000			
41	2.033E-016	4.066E-016	100.000			
42	1.023E-016	2.047E-016	100.000			
43	-2.414E-017	-4.827E-017	100.000			
44	-1.180E-016	-2.360E-016	100.000			
45	-3.136E-016	-6.272E-016	100.000			
46	-5.131E-016	-1.026E-015	100.000			
47	-6.103E-016	-1.221E-015	100.000			
48	-8.406E-016	-1.681E-015	100.000			
49	-9.770E-016	-1.954E-015	100.000			
50	-1.626E-015	-3.253E-015	100.000			

Extraction Method: Principal Component Analysis.

Factor - The initial number of factors is the same as the number of variables used in the factor analysis. However, not all 41 factors will be retained. In this research, only the first twelve factors are retained.

Initial Eigenvalues - Eigenvalues are the variances of the factors. Because we conducted our factor analysis on the correlation matrix, the variables are standardized, which means that the each variable has a variance of 1, and the total variance is equal to the number of variables used in the analysis, in this case, 50.

Total - This column contains the eigen values. The first factor will always account for the most variance (and hence have the highest eigenvalue), and the next factor will account for as much of the left over variance as it can, and so on. Hence, each successive factor will account for less and less variance.

% of Variance - This column contains the percent of total variance accounted for by each factor.

Cumulative % - This column contains the cumulative percentage of variance accounted for by the current and all preceding factors. For example, the third row shows a value of 89.029. This means that the first twelve factors together account for 59.690% of the total variance.

Extraction Sums of Squared Loadings - The number of rows in this panel of the table correspond to the number of factors retained. In this research it is decided that twelve factors be retained, so there are twelve rows, one for each retained factor.

Rotation Sums of Squared Loadings - The values in this panel of the table represent the distribution of the variance after the varimax rotation. Varimax rotation tries to maximize the variance of each of the factors, so the total amount of variance accounted for is redistributed over the twelve extracted factors.

Factor - The columns under this heading are the rotated factors that have been extracted. Twelve factors were extracted. These are the factors that most represent the Investment pattern of the IT Employees. Though there are 12 factors extracted after seeing the values and its grouping it is more associated with three factors. So the three factors are named as

a. Risk and return conscious investors
b. Tolerant investors
c. Risk aversive investors

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Regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.197[a]	.039	.013	.942	1.353

a. Predictors: (Constant), [Loves to read challenging material.]

b. Dependent Variable: [I am willing to take some risks in return for some capital growth potential.]

Interpretation

- R = 0.197.R is the multiple correlation coefficient.R is the measure of the quality of the prediction of the dependent variable.R is the correlation between the predicted scores (PRE_1) and the actual scores of the dependent variable (BSE Turnover).A value of 0.197, in this example, indicates a low level of prediction
- R2 = 0.039.The independent variables explain 3.9% of the variability of the dependent variable in this model
- Adjusted R2 = 0.013.The independent variable explains 1.3% of the variability of the dependent variable in the population.
- Durbin Watson score between 0-2 is acceptable and here the score is 1.353 which is positive.

ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.356	1	1.356	1.528	.224[b]
	Residual	33.744	38	.888		
	Total	35.100	39			

a. Dependent Variable: [I am willing to take some risks in return for some capital growth potential.]

b. Predictors: (Constant), [Loves to read challenging material.]

Interpretation

- Statistical significance.The *F*-ratio in the **ANOVA** table is the ratio of the mean sum of squares for regression to the mean sum of squares for the residuals.It tests whether the regression model is a good fit for the data.The table shows that the independent variables statistically significantly predict the dependent variable, $F(1, 38) = 1.528$, $p < .0005$ (i.e., the regression model is a good fit of the data).The null hypothesis (the multiple correlation coefficient, $R = 0.22$) is accepted.It means at least one regression coefficient (except the intercept) is statistically significantly different to zero.

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Regression

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.026[a]	.001	-.026	1.089	1.405

a. Predictors: (Constant), [Is assertive and takes charge]

b. Dependent Variable: [I invest to create Wealth Creation]

Interpretation

- R = 0.026.R is the multiple correlation coefficient.R is the measure of the quality of the prediction of the dependent variable.R is the correlation between the predicted scores (PRE_1) and the actual scores of the dependent variable (BSE Turnover).A value of 0.026, in this example, indicates a very low level of prediction
- R2 = 0.001.The independent variables explain 0.1% of the variability of the dependent variable in this model
- Adjusted R2 = -0.026.The independent variable explains -2.3% of the variability of the dependent variable in the population.
- Durbin Watson score between 0-2 is acceptable and here the score is 1.405 which is positive.

ANOVA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.030	1	.030	.026	.874[b]
	Residual	45.070	38	1.186		
	Total	45.100	39			

a. Dependent Variable: [I invest to create Wealth Creation]

b. Predictors: (Constant), [Is assertive and takes charge]

Interpretation

- Statistical significance.The *F*-ratio in the **ANOVA** table is the ratio of the mean sum of squares for regression to the mean sum of squares for the residuals.It tests whether the regression model is a good fit for the data.The table shows that the independent variables statistically significantly predict the dependent variable, $F(1, 38) = 0.026$, $p < .0005$ (i.e., the regression model is a good fit of the data).The null hypothesis (the multiple correlation coefficient, $R = 0.874$) is accepted.It means at least one regression coefficient (except the intercept) is statistically significantly different to zero.

Conclusion

It is very difficult for one to identify the personality of another individual. This study is part of a PhD thesis. The pilot study of the research is presented in this paper. The consistency of the questionnaire is checked in this study and which proved positive. This study also aims to explore the impact of the Big Five traits and Demographics on stock market investment pattern of Information Technology working professionals of city Bangalore. As the study progressed with a small sample it could not prove the hypothesis. The literature studies proved a significant impact of personality trait on the stock market investment pattern. But here in this study two major traits Extrovert and Openness is tested on the stock market investment pattern but it proved insignificant. Factor analysis is also done and twelve factors were extracted but it was further reduced to three major factor which best represent the rest. The data is collected through convenient random sampling from

forty respondents from the city of Bangalore. The data is purely primary and the idea is materialized through the detailed literature review process. The model used for the study is correlation, regression, ANOVA under SPSS.

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