

Effect of Psychological Dispositions on Intuitive Forecasting: An Experimental Study

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ABSTRACT : Recent theories of finance underscore the role of behavioral factors affecting the efficacy of stock market investors. They argue that heuristic-driven biases, framing, emotional responses and demographic variables play a key role in investor decision making. Literature also provides that personal characteristics influence investors' perception of risk and their willingness to assume risk.

KEY WORDS: Behavioral Finance, Psychological Disposition, Forecasting Accuracy, Extraversion, Openness to Experience

Need of the Study : The extant research done in the past indicates a possible connection between psychological dispositions and investment decision making. However, it does not provide conclusive evidence on any directional relationship.

Objective/Hypothesis : The objectives of this paper are to study possible relationship between Extraversion and Openness to Experience and intuitive forecasting accuracy in stock market.

Research Methodology

Method and Sample: We use laboratory experiment on 34 subjects who are exposed to stock market fluctuations to explore the relationship.

Procedure: All subjects had to respond to a reaction test, which consisted of listening to the information announced by the mentor and predicting the price of scrips for a short term investment horizon.

Instrument: The personality measure used for the purpose was 50-item **NEO Personality Inventory-Revised (NEO PI-R) inventory by Costa and McCrae (1992)**.

Key Findings of the Study : Since, the sample design was non-random, non-parametric; MannWhitney U-test was used for analysis. Accuracy of forecasts was measured as mean difference from effective stock price. The findings of the experiment reveal that there is a statistically significant relationship between Extraversion and Openness to Experience and intuitive forecasting accuracy. Low- Extraversion subjects demonstrated lower forecasting error at $p \leq 0.05$ (non-parametric MannWhitney U: $Z_{\text{cons}} = -2.0162$, $p = 0.04338$). However, Mann Whitney test revealed that the Openness to Experience dimension of an investor and his forecasting error are not statistically related (non- parametric MannWhitney U: $Z_{\text{cons}} = 0.5185$, $p = 0.60306$). The results are significant at $p \leq 0.05$.

Implications of the Study : The relevance of personality trait for management theories and intuitive decision making in the domain of the stock market is proposed here. This experiment extends the existing research on emerging dimensions of behavioral finance.

I. INTRODUCTION

Recent theories of finance underscore the role of behavioral factors affecting the efficacy of stock market investors. These theories refute the premise of traditional theories advocating that decisions making is done best on the basis of scientifically valid information which pursues logic of consequences. Behavioral finance researchers argue that behavioral variations, biases (Kornev and Thissen 2000; Gilovich 2002; Dijksterhuis 2004b; Dijksterhuis et al. 2006) and emotional responses (Damasio et al. 1994; Loewenstein et al. 2001) play a key role in decision making.

These researchers identify that investors behave according to how they frame (Tversky and Kahneman 1981) the situations. The difference of framing is due to difference of opinion (Miller 1977), even when investors have the same basic information. This difference of opinion can be large refuting rationality and traditional models. They argue that heuristic driven biases impact the performance of stock market investors. This paper presents a research which is based on the premise that there is more to logic and rationality when it comes to investment decision making in stock market. An important dimension of professional competence of stock market investors is their forecasting accuracy. The behavioral finance researchers discuss that forecasting is not only an outcome of rational processing of information or logical reasoning alone. Rather, there is another bundle of behavioral factors that affect forecasting process. Lack of information, complexity and resource limitation facilitate forecasting on the basis of behavioral distinctions and prejudices. These researches indicate that investors make predictions about stock markets not based on analysis alone but also through working associatively, intuitively and tacitly. These theories argue that forecasting is a function of how individuals perceive and interpret the situation.

Individual's perception of the situation to some extent is subject to their psychological dispositions. Psychological dispositions are more commonly referred to as personality types in organizational behavior literature. Psychological dispositions are the characteristics of individuals that are exhibited in a large number of situations. These are sum total of ways in which an individual reacts and interacts with his environment and others. People with different psychological dispositions tend to process and interpret the situation differently. Due to this difference, we hypothesize in this research that difference in psychological disposition can have an impact over their intuitive forecasting accuracy. Extensive literature exists on the topic of classifying the various types of human temperament and personality domains. These researches emphasize the predominant features of different psychological dispositions. There are various inventories developed by researchers that identify and measure a few predominant traits of personality. The present research is based on the famous Five Factor model of psychological dispositions that identifies five broad domains of personality. The Big Five factors are Openness to Experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (Costa and McCrae 1992). We identify two important domains for the purpose of this study. These domains are Extraversion and Openness to Experience. These two domains have different information processing styles and we try to associate them with intuitive forecasting where subjects use their tacit knowledge for making judgments. This paper presents findings of a laboratory experiment which was conducted to investigate this connection. The paper is divided into eight sections. The forthcoming section presents literature review relevant to the present study. In the subsequent section, objectives of the study and hypotheses are discussed followed by illustration on research methodology. The next section presents analysis of the data derived from the experiment. The subsequent part of the paper includes discussion of the results. Conclusions from the experiment are drawn in the last section of the paper.

II. LITERATURE REVIEW

The domain of behavioral finance research criticizes the rational paradigm of investment decision making due to its false and incomplete assumptions and lack of predictive power. Today we have extensive body of literature that attempts to identify various behavioral factors that influence the behavior of individual investors. In this section, we attempt to illustrate various behavioral dimensions of stock market investors as explored by past researchers.

Stock Market Investors and Heuristic Driven Biases : There are several researches that argue impact of heuristic driven biases on the performance of stock market investors. To name a few, these are representative bias (Shefrin 2001; Lakonishok et al. 1994; De Bondt and Thaler 1985; Dhar and Kumar 2001), cognitive dissonance (Akerlof and Dickens 1982; Goetzmann and Peles 1997), familiarity bias (Huberman 2001; French and Poterba 1991; Coval and Maskowitz 1999), overconfidence (Barber and Odean 2001; Gervais and Odean 2001; Fischhoff and Slovic 1980), endowment effect (Thaler 1980; Kahneman et al. 1990), status quo bias (Samuelson and Zeckhauser 1988), and so on.

Stock Market Investors and Neurological Studies : Another line of investigation reveals that financial loss can bias behavior and modulate choice (Kahneman and Tversky 1979; Green and Swets 1989; Glimcher and Rustichini 2004; Rangel et al. 2008; Sokol et al. 2009). This has been reflected in neurological studies that amygdala mediates loss aversion implicating that this brain structure is involved in processing fear and threat, as well as in anticipation and experience of monetary loss (Martino et al. 2010). Monetary loss or loss conditioning alters perceptual threshold of risk and compromises future decisions via amygdala and prefrontal networks suggesting possible link between risk perception and investor decision making (Laufer and Paz 2012).

Stock Market Investors and Emotions : Researches also suggest an important link between decision making and emotions (Grossberg and Gutowski 1987; Damasio 1994; Elster 1998; Loewenstein 2000; Peters and Slovic 2000; Lucey and Dowling 2005). Prospect theory (Kahneman and Tversky 1979) reflects that domain of gain and domain of loss is treated differently, i.e. individuals tend to be risk averse in a domain of gains and relatively risk seeking in a domain of losses. Lo and Repin (2002) conclude that emotional reaction to monetary gains and losses is more intense on both the positive and negative side exhibiting significantly worse trading performance. Fear and greed (Lo et al. 2005) of investors also affect the irregularities and behavioral biases.

Stock Market Forecasting and Intuition : A typical dimension of investor's efficacy involves forecasting. Profitability of an investment decision depends upon the quality of prediction. A decision to buy or sell depends on the prediction of likely economic success of the stock. Most of the times, not enough information is available to make an accurate forecast. Therefore, researchers suggest that ability to use intuitive judgment plays a key role in this. Reber (1993) suggests that rational decision making sometimes proves to be an obstacle that overlap with implicit heuristics. Kahneman and Frederick (2002) suggest that when people are forced to predict on rational basis, they perform worse than those who perform on the basis of intuition alone. A recent study by Bruguier, Quartz, and Bossaerts (2010) confirms the ability of uninformed traders (even novices) to infer information from the trading process. They refer to it as 'Trader Intuition'.

Stock Market Investors' Demographic and Psychological Dimensions : Another stream of inquiry in behavioral finance examines the role of demographic variables like age, gender, ethnicity, wealth and income etc. affecting investment management decisions (Bajtelsmit and Bernasek, 1996; Byrnes et al. 1999; Barber and Odean 2001; Felton et al. 2003; Hallahan et al., 2004). There are also a set of studies that test the role of psychological antecedents in short term and long term investments. These studies explore the how personal characteristics influence investors' perception of risk and their willingness to assume risk (Carducci and Wong 1998). Filbeck et al. (2005) use the MBTI inventory to find out how people with different personality characteristics assume risk differently. Many researchers have used Big Five taxonomy for applied research on behavioral finance (Barrick and Mount, 1991). The Big Five dimensions are derived from intensive statistical analysis and are fit on cross cultural applications (Costa and McCrae, 1992; Digman, 1997; Goldberg, 1992; McAdams, 1992).

III. OBJECTIVES OF THE STUDY AND HYPOTHESES

As a result of the literature review, the present study undertakes the task of examining a possible relationship between two domains of Big Five model and intuitive forecasting accuracy in stock market. We choose Extraversion and Openness to Experience as two domains of psychological dispositions from Big Five inventory. There is not much conclusive evidence in literature that supports any directional relationship between Extraversion, Openness to Experience and prediction ability of individuals. However, there are a few indications that implicitly talk about this relationship. In an important study by Mayfield et al. (2008), an attempt is made to examine the influence of personal characteristics on investors' perception of risk and their willingness to assume risks. The findings of this study indicate that individuals who are more extroverted intend to engage in short-term investing. On the basis of these findings, we intend to further test if individuals high on Extraversion are equally good for short term and midterm forecasting of stock market. However, this does not provide a very concrete base for building a hypothesis about higher Extraversion and possible higher forecasting accuracy, therefore we hypothesize,

H₁: There is no significant difference between investors' Extraversion score and their intuitive forecasting accuracy

We would like to clarify at this point that we purposefully tried to reveal the connection between Extraversion and Openness to Experience with intuitive forecasting only where enough resources (in terms of time and information) are not available to make predictions based on rational processing. For the purpose of this research, we refer intuition as a process where deliberate balancing of various alternative and reflection on task is not possible (Myers 2002). There are a few researches that correlate Openness to Experience and intuition. Ackerman and Heggstad (1997) report an overall correlation between Openness to Experience and IQ. Ferguson and Patterson (1998), McCrae (1994) interpret Openness to Experience as ability rather than a personality factor. This personality trait is consistently associated with creativity also (Kaufman 2013). Based on the reflections in literature, we argue that that Openness to Experience can be interpreted as a drive for cognitive exploration of inner and outer experience. We associate this trait with cognitive engagement with sensory and perceptual information.

Although there is no directional relationship cited in literature that indicates a directional association between Openness to Experience and intuitive forecasting ability. Therefore, we propose,

H₂: There is no significant difference between investors' Openness to Experience score and their intuitive forecasting accuracy

IV. RESEARCH METHODOLOGY

Design and Sample : For the purpose of this study, a survey was conducted on finance school graduates and undergraduates in urban community. The students were asked to identify their age, gender and previous numbers of years on investing experience. The group (n=34) of subjects with mean age was 22.1 years was drawn. All the subjects had zero to three years of exposure to the financial services sector and were considered novices. The subjects had undertaken courses in financial management, financial services, portfolio management and security analysis. The subjects were following financial news relating to stock market fluctuations and price movements for the last two weeks intermittently. In total, n=34 (21 female and 13 male) participated voluntarily. All subjects were asked to give intuitive forecasts. Some subjects did not answer certain questions on the questionnaire, so some calculations have different sample sizes.

Instrument : The personality measure used for the purpose was 50-item IPIP representation of the Goldberg (1992) markers for the big-five factor structure. The scale has been developed by IPIP International Personality Item Pool using NEO Personality Inventory-Revised (NEO PI-R) inventory by Costa and McCrae (1992). The big five personality traits are the best accepted and most commonly used model of personality in academic psychology. The big five come from the statistical study of responses to personality items. Using a technique called factor analysis researchers can look at the responses of people to hundreds of personality items and ask the question what is the best way to summarize an individual? This has been done with many samples from all over the world and the general result is that, while there seem to be unlimited personality variables, five variables stand out from the pack in terms of explaining a lot of person's answers to questions about their personality: Extraversion, Neuroticism, Agreeableness, Conscientiousness and Openness to Experience. The shorter version-50-item IPIP scale used in the experiment has high internal consistency of the five variables under study as given by the table below. Out of a total 50 items, 24 items are reverse scored.

Procedure : Participants were tested individually. In a blinded design, subjects forecasted the development of benchmark CNX nifty index, an important stock market value two weeks to 28 weeks in advance. Additionally, the subjects forecasted the price of gold and the exchange rate of US\$ versus INR for the same time horizon. All values were forecasted in Indian rupees. The subjects were forced to forecast in a limited time span (maximum 20 seconds) where they were allotted the task sequentially. This follows the basic assumption of this study: if subjects are forced to justify forecasts rationally, intuitive ideas are suppressed. Under time pressure, however, intuitive forecasts are forced. All subjects had to respond to a reaction test, which consisted of listening to the information announced by the mentor and writing the response on a sheet. The purpose of this reaction test is to control this variable, because intuitive forecasts had to be done under considerable time pressure, which is advantageous to people with quick reactions compared to slow subjects. The quality of the forecasts was estimated by comparison with the effective stock prices at the dates decided previously. Smaller is the difference between the forecasted and the actual price, higher will be the quality and accuracy of the forecasts. Differences between forecasts and effective prices were further analyzed.

V. FINDINGS AND ANALYSIS

Data analysis commenced with the calculation of the differences between forecasted and effective stock prices and their descriptive statistics. The research questions were answered by using Mann Whitney U test. Since the sample design was non-random, non-parametric test was used for analysis. This paper presents the first series of findings over a two week investment horizon. Table 2 shows the stock prices at the beginning and at the end of the study –beginning refers to the time when the experiment was conducted and end refers to the time for which the prices were predicted (i.e. 2 weeks' later). From here on, end of the study will refer to as end of two weeks' time horizon. The ex-post analysis is conducted identifying the difference between the actual and the predicted price. All analyses refer to the difference between the forecasts and the effective value at the end of the study. Table 3 documents the accuracy of the forecasts (i.e., the difference between predicted value and effective stock rate two weeks later). The absolute value of the differences ignoring the negative/positive sign has been taken for computing the forecasting accuracy. Arithmetic Mean Difference column registers this. Negative/Positive forecasts indicated number of subjects which have forecasted the values below or above the actual value. Negative indicates that the effective value was higher than forecasted; positive indicates that the forecast was above the effective value.

Out of the total 34 participants administered for the experiment, only 30 participants provided reliable questionnaires. The remaining four were not considered for this section of the study. For exchange rate of one US \$, all the 30 subjects forecasted it below the actual value; whereas only one subject forecasted it below the actual for CNX Nifty and six for Gold. In order to compare the forecasting accuracy of different scrip/value, absolute forecasting error was converted into percentage error using beginning of the period value as the base. Table 4 sums up the mean forecasting accuracy of the different values. Geometric mean has been used for computational accuracy owing to its merit in use in percentages.

Extraversion and Forecasting Accuracy : Table 5 provides the relationship between Extraversion and forecasting accuracy at the end of the period. For this purpose, the group of 30 subjects was classified as high and low on Extraversion on the basis of the response elicited. The median of the responses (24 in Extraversion) was considered as classification benchmark. Sample A represents respondents which are low on Extraversion and sample B represents respondents high on Extraversion. The geometric mean of consolidated errors percentage between actual and predicted prices reflect that the forecasting error is lower ($GM_{cons}=1.478\%$, $n=16$) for investors low on Extraversion compared to investors high on Extraversion ($GM_{cons} = 1.956\%$, $n=14$) (see Figure 1). The consolidated error scores of the data are clearly not normal; hence non-parametric test (Mann Whitney U Test) has been used to test statistical significance of the results. This analysis also yielded similar results.

Table 6 documents the results of Mann Whitney U test for individual values, i.e. for CNX Nifty index, for gold and for US\$ and the consolidated values. For CNX Nifty, low-Extraversion investors demonstrated lower forecasting error (non parametric Mann Whitney U: $Z= -2.037$, $p=0.04136$). The result is significant at $p\leq 0.05$ (non parametric Mann Whitney U: U value = 62.5; $n_1 = 16$; $n_2 = 14$; Critical value of U = 64). Similarly, for exchange rate of 1US Dollar vs. INR, low-Extraversion investors demonstrated lower forecasting error (non parametric Mann Whitney U: $Z= -2.3072$, $p=0.02088$). Also, using U-values, the result is significant at $p\leq 0.05$ (non parametric Mann Whitney U: U value = 63; $n_1 = 16$; $n_2 = 14$; Critical value of U = 64). However, this is not seen in the case of forecasting of Gold (non parametric Mann Whitney U: $Z= -0.5612$, $p=0.57548$). The result is not significant at $p\leq 0.05$ (non parametric Mann Whitney U: U value = 98; $n_1 = 16$; $n_2 = 14$; Critical value of U = 64). The test was also conducted for GM_{cons} of the three values. GM_{cons} refers to the consolidated mean of individual value geometric means, i.e. geometric mean of error of gold, nifty and US\$. The results reveal that low-Extraversion investors demonstrated lower forecasting error (non parametric Mann Whitney U: $Z_{cons}= -2.0162$, $p=0.04338$). The result is significant at $p\leq 0.05$. Also, using U-values, the result is significant at $p\leq 0.05$ (non parametric Mann Whitney U: U value = 63; $n_1 = 16$; $n_2 = 14$; Critical value of U = 64). This indicates that investors with lower Extraversion have higher forecasting accuracy. Hence we reject our null hypothesis (H_1).

Openness to Experience and Forecasting Accuracy : Participants were divided into low – ($n=15$) and high – ($n=15$) Openness to Experience groups by their median score split (Median = 25.5). Forecasting error was calculated as geometric mean difference between actual price and predicted price of the three values. GM_{cons} refers to the consolidated mean of individual value geometric means, i.e. geometric mean of error of gold, nifty and US\$. The results revealed that the investors who are high on Openness to Experience had lower forecasting error ($n=15$; $GM_{cons}= 1.58$) than investors who are low on Openness to Experience ($n=15$; $GM_{cons}= 1.82$) (refer Table 7). However, this needs to be tested for significance. In order to test the statistical significance of the data, non-parametric test (Mann Whitney U Test) has been used. Mann Whitney test revealed that the Openness to Experience dimension of an investor and his forecasting error are not statistically related (non parametric Mann Whitney U: $Z_{cons}= 0.5185$, $p=0.60306$). The result is not significant at $p\leq 0.05$. Also, using U-values, the result is not significant at $p\leq 0.05$ (non parametric Mann Whitney U: U value = 99.5; $n_1 = 15$; $n_2 = 15$; Critical value of U = 64). Similar results are seen for CNX Nifty Index (non parametric Mann Whitney U: $Z= 0.0207$, $p=0.984$; U value = 112.5; $n_1 = 15$; $n_2 = 15$; Critical value of U = 64), for Gold (non parametric Mann Whitney U: $Z= 0.0415$, $p=0.9681$; U value = 111; $n_1 = 15$; $n_2 = 15$; Critical value of U = 64) and for exchange rate 1US\$ (non parametric Mann Whitney U: $Z= 0.394$, $p=0.6965$; U value = 99.5; $n_1 = 15$; $n_2 = 15$; Critical value of U = 64). These results indicate that investors' Openness to Experience dimension and his forecasting accuracy are not related. Hence we accept null hypothesis (H_2).

VI. DISCUSSION

The discussion focuses on the procedural aspects of the study and relates the results with the literature available on psychological dispositions and role of intuitive on prediction in stock markets.

Can psychological dispositions have an impact on intuitive forecasting in stock markets?

From a practical standpoint, forecasting accuracy defines the success of a stock market investor. Understanding the movements in the stock market, deciphering the fluctuations over longitudinal and short-term time horizon and adjusting the role of irregular fluctuations or volatility lies at the core of financial decision-making and success. From a theoretical standpoint, there are three schools of thought on how an individual processes information – rational, intuitive and dual (rational-intuitive). Forecasting accuracy is therefore a function of how an individual processes information and predicts the price movements in a stock market. For a day-trader, the frequency of such information processing and subsequent decision making is high compared to a medium term investor and even higher compared to a long term investor. The subjects of the experiment fall in the third category, i.e. long term investors. The exposure of the subjects was limited to the extent of discussions in the class, news roundup sessions and mock trading. Therefore, owing to limited and similar exposure of stock markets, the subjects had not acquired skill in deciphering stock price movements and their level of understanding of the markets is also comparable. They can be termed as same category novices for the experiment. Moreover, the experiment was conducted during the pre-noon session. This limits the role of instantaneous variables like mood and sentiments; however does not completely negate them. To sum up, this experiment limits the role of emotional disorders and skill in financial markets, focusing on the role of psychological disposition in interpreting information and intuitive forecasting. The procedure selected also tends to exclude rationality from intuitive forecasts by demanding time-based prediction. Wahl (1990) refers this as procedurally typical.

Psychological disposition has been widely studied as an important construct in financial decision making. Financial decision making is influenced by investors' perception of risk (Mayfield et al. 2008; Bolton et al. 2006), risk attitude (Warner 1996; Lauriola and Levin 2001), willingness to assume risk (Carducci and Wong 1998; Mayfield et al. 2008; Bolton et al. 2006), investment intentions (Mayfield et al. 2008) which in turn affected by their psychological dispositions. We studied two of the five dimensions of the psychological disposition – Extraversion and Openness to Experience as important variables affecting forecasting accuracy. All the subjects had to provide intuitive forecasts of the financial values: CNX Nifty Index, Gold and Exchange rate of 1US\$ in INR. As Table 5 shows, lower the Extraversion, lower is the forecasting error and higher is the forecasting accuracy. The theoretical assumptions are confirmed. However, this finding can be discussed critically when considering the gap between the forecasting errors of low-high Extraversion. The mean error of low Extraversion was 1.478% and that of high Extraversion was 1.956%. Gap between the two groups divided on the basis of median score split being only 0.478%. Table 6 documents the result of non parametric Mann Whitney U test, which also suggests similar findings. The difference of mean between the two groups (low and high Extraversion) is statistically significant, but only marginally in case of CNX Nifty Index, Exchange rate of 1US\$ vs. INR and consolidated value.

This low difference can be interpreted as indicator of comparable quality of forecasting in general. However, the low positive difference still signals that Extraversion can have an effect on the forecasting accuracy of an investor. But, this needs to be tested on a larger sample size and for higher investment horizon.

Similarly, table 7 reveals that subjects with lower Openness to Experience have a higher forecasting error and corresponding lower forecasting accuracy compared to subjects high on Openness to Experience. So far, the theoretical assumptions are confirmed. However this finding can be discussed critically when non-parametric Mann Whitney U test is used. The difference of mean between the two groups (high and low Openness to Experience) is statistically not significant. Also, the gap between the forecasting errors of low-high Openness to Experience is marginal. The mean error of low Openness to Experience was 1.82% and that of high Openness to Experience was 1.58%. Gap between the two groups divided on the basis of median score split being only 0.34%.

This experiment needs further validation with larger sample size and for higher investment time horizon. This experiment also includes prediction by 34 subjects for 6 weeks to 28 weeks which will be analyzed in due course and are beyond the scope of this paper.

VII. CONCLUSION

The relevance of personality trait for management theories and intuitive decision making in the domain of the stock market is proposed here. Relationship Managers (RM) of the financial institutions like banks and NBFCs are engaged in advising their clients. The investment advice is a function of the RM's individual knowledge, expertise and ability to forecast market fluctuations. Intuitive forecasting and personality trait has a bearing on RM's ability to forecast market fluctuations. Stock market investors behave

according to how they interpret the situation and this interpretation can be different even when they have similar information. Hence intuitive forecasting of RMs and stock market investors becomes imperative for their financial success. Also, market forecasts cannot refer to complete information, because there is always some crucial information missing that is necessary to determine factors objectively. Thus, intuition is an important component of professional competence in the domain of stock market because it allows individuals to act appropriately in situations when they lack information. The purpose of this study was to identify if personality can have a bearing on an individual's forecasting ability. When tested for subjects with comparable knowledge and exposure, subjects differing in personality dimensions predicted the stock prices differently. To put things in perspective, with the same level of information and awareness, each subject had a different expectation from the market. This expectation is a function of subjects' risk tolerance, willingness to consume risk, risk attitude and risk perception which are further a function to his psychological disposition. The empirical findings partly confirm this relation for few stock values. In these cases, the intuitive forecasts were significantly closer to the actual values for investors with lower Extraversion scores.

The difference in the forecasting error is higher when aggregate value of CNX Nifty Index is compared to US\$ and Gold. In fact, the forecasting error of gold and US\$ ranged from 0.85% to 1.57% for Extraversion and ranged from 0.93% to 1.43% for Openness to Experience. This may be possible because single values are subject to singular irregular influences more than aggregated values. However, CNX Nifty includes 50 large cap companies from different sectors and is susceptible to larger market fluctuations. The forecasting error of CNX Nifty index was 3.6611% (n=30) with Extraversion ranging from 3.53% (n=16) to 3.83% (n=14) and Openness to Experience ranging from 3.54% (n=15) to 3.79% (n=15). It is interesting to note that the difference in forecasting accuracy is not high for different personality dimensions. However, it has to be considered that the number of participants was quite low. Therefore, inferences should be drawn carefully. Also, the conclusions will have to wait till the end of 28 weeks period. It would be interesting to cross-validate these results with changing investment horizon. It would be promising to replicate the study with larger sample size. Another possibility is to recruit subjects from banking and financial domain who are engaged in active trading. Thus, to conclude we suggest that stock markets provide perfect setting for research in intuition by using forecast as a tool. Our preliminary investigation led to interesting insights. Some of them can be contextual; some of them merely accidental; and some may be exogenous. However, all of them have either a direct or indirect bearing on the competence of a stock market investor or advisor. It will be worthwhile to wait for the study period to complete and compare results; or to replicate the study for a larger, educated sample size to check the reliability of these results. This contribution will play an important role in strengthening current literature in behavioral finance from a theoretical perspective supported with empirical evidence.

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Table 1-Internal Consistency of Big-Five

Big-Five Domain	Number of Items	Mean Item Inter-correlation	Coefficient Alpha
I. Extraversion	5 + 5 = 10	0.40	.87
II. Agreeableness	6 + 4 = 10	0.31	.82
III. Conscientiousness	6 + 4 = 10	0.29	.79
IV. Neuroticism	2 + 8 = 10	0.38	.86
V. Openness to Experience	7 + 3 = 10	0.34	.84
Total/Mean	26 + 24 = 50	0.34	.84

Table 2 – Stock Prices at the Beginning and at the End of the Study

Value	Beginning	End
CNX Nifty Index	6310	6089.50 points
Gold per 1 gram	Rs.2992	Rs. 2946.4
Exchange Rate 1US\$ Vs. INR	Rs.61.63	Rs. 62.68

Table 3 – Accuracy of Forecasts Measured as Mean Difference from Effective Stock Price:

Value	Arithmetic Mean Difference	Standard Deviation	Negative, Positive forecasts	Number of subjects
CNX Nifty Index	252.6733	151.2967	1, 29	30
Gold per 1 gram	67.3267	69.3657	6, 24	30
Exchange Rate 1US\$ Vs. INR	0.9820	0.9924	30, 0	30

Table 4 – Percentage Accuracy of Forecasts Measured as Mean Difference from Effective Stock Price

Value	Geometric Mean Difference (in %)
CNX Nifty Index	3.6611 (n=30)
Gold per 1 gram	1.0269 (n=30)
Exchange Rate 1US\$ Vs. INR	1.3160 (n=30)

Table 5 – Analysis of Psychological Disposition Dimension –Extraversion and Accuracy of Forecasts measured as Mean Difference from Effective Stock Price

Value	Sample A Low on Extraversion (n=16) (in %)	Sample B High on Extraversion (n=14) (in %)
CNX Nifty Index	3.53	3.83
Gold per 1 gram	0.85	1.27
Exchange Rate 1US\$ Vs. INR	1.09	1.57
Geometric Mean of three values - consolidated	1.478	1.956

Table 6 – Mann Whitney U Test Results of High Vs Low Groups of Extraversion Dimension and their Respective Forecasting Errors

Value	U – Calculated	U – Critical	Z	p	Significance
CNX Nifty Index	62.5	64	-2.037	0.04136	significant at $p \leq 0.05$
Gold per 1 gram	98	64	-0.561	0.57548	not significant at $p \leq 0.05$
Exchange Rate 1US\$ Vs. INR	56	64	-2.307	0.02088	significant at $p \leq 0.05$
Geometric Mean of three values - consolidated	63	64	-2.016	0.04338	significant at $p \leq 0.05$

Note: U-Critical at $p \leq 0.05$; Z score = Mann-Whitney U test; $n_1 = 16$, $n_2 = 14$

Table 7 – Analysis of Psychological Disposition Dimension –Openness to Experience and Accuracy of Forecasts Measured as Mean Difference from Effective Stock Price

Value	Sample A Low on Openness to Experience (n=15) (in %)	Sample B High on Openness to Experience (n=15) (in %)
CNX Nifty Index	3.79	3.54
Gold per 1 gram	1.14	0.93
Exchange Rate 1US\$ Vs. INR	1.43	1.21
Geometric Mean of three values - consolidated	1.82	1.58

Table 8 - Mann Whitney U Test Results of High Vs Low Groups of Openness to Experience dimension and their Respective Forecasting Errors

Value	U–Calculated	U–Critical	Z	p	Significance
CNX Nifty Index	112.5	64	0.0207	0.9840	not significant at $p \leq 0.05$
Gold per 1 gram	111	64	0.0415	0.9681	not significant at $p \leq 0.05$
Exchange Rate 1US\$ Vs. INR	102.5	64	0.394	0.6965	not significant at $p \leq 0.05$
Geometric Mean of three values - consolidated	99.5	64	0.5185	0.6030	not significant at $p \leq 0.05$

Note: U-Critical at $p \leq 0.05$; Z score = Mann-Whitney U test; $n_1 = 15$, $n_2 = 15$

Figure 1: Extraversion Score and Forecasting Error. (Error bars represent the geometric absolute mean of forecasting error for the Extraversion low-high).

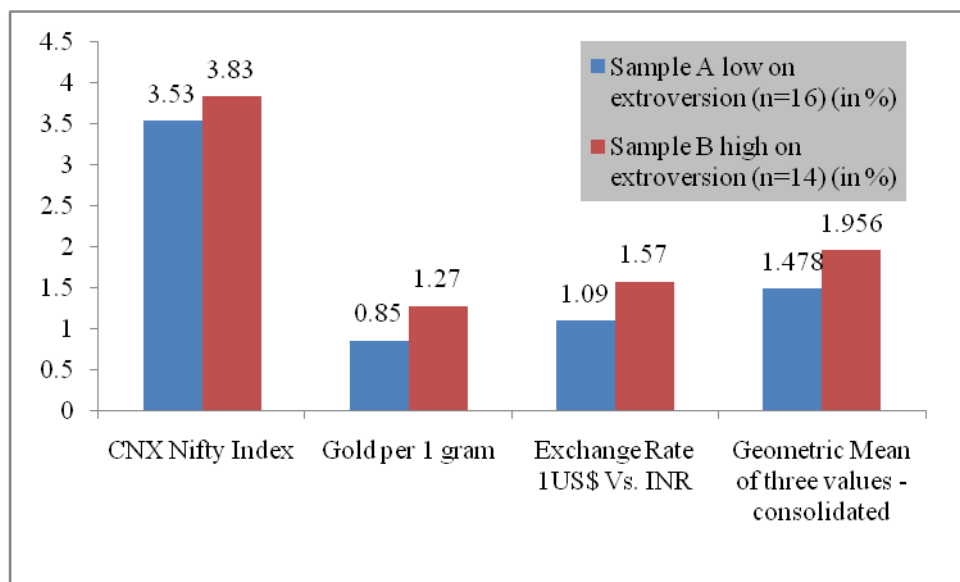


Figure 2: Openness to Experience Score and Forecasting Error. (Error bars represent the geometric absolute mean of forecasting error for the Openness to Experience low-high)

