

Investment management and personality type

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Abstract

We examine several psychological antecedents to both short-term and long-term investment intentions, with specific focus on the Big Five personality taxonomy. The effects of specific personality traits are evaluated using structural equation modeling (SEM). Our results indicate that individuals who are more extraverted intend to engage in short-term investing, while those who are higher in neuroticism and/or risk aversion avoid this activity. Risk adverse individuals also do not engage in long-term investing. Individuals who are more open to experience are inclined to engage in long-term investing; however, openness did not predict short-term investing. The implications of these findings are discussed. © 2008 Academy of Financial Services. All rights reserved.

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1. Introduction

Researchers across the past several decades have analyzed the behavior of investors and have attempted to enhance our understanding of why people manage investments in different ways. Today an extensive body of literature exists that seeks to explain how personal characteristics influence the behavior of investors. If a common theme is present in this literature, it is that personal characteristics influence investors' perception of risk and their willingness to assume risks. In turn the perception of risk determines investing behavior. However, a prevailing question left unanswered is the extent to which individuals' personal characteristics influence their intentions about investing. If individuals' investment intentions are discernable, then educators and financial counselors would want to know if those intentions are amendable.

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The nature of risk and how individuals approach risk has been a developing discussion. The expected utility approach of von Neumann and Morgenstern (1947) has provided the foundation for the primary view of risk in economics and finance for many years. The main concept in their model is that the maximization of expected utility is the sole factor in making decisions. Extending their work Allais (1952) questions the exclusive use of the maximization of expected utility as a single criterion when making a risky choice, raising the issue of a person who could be faced with the trading off of expected return and the probability of reaching a given goal. In similar fashion Markowitz (1952) proposes a two-criterion approach when an investor is faced with the desire for higher returns but not wanting the uncertainty of returns, which he perceives as risk. Many other researchers have extended this discussion.

The literature has developed into two schools of thought as researchers have sought to explain the choices investors make about risk within their investments. One group of scholars has used demographic features that relate the significance of gender, ethnicity, wealth, income, and a variety of other factors to the explanation of investment management decisions. The other group has its foundations in psychology, using investors' psychological characteristics to explain choices that are made concerning investment decisions.

Among what we describe as demographic studies, the implications of gender are most often perceived by researchers as being important in explaining investor behavior. Bajtelsmit and Bernasek (1996); Byrnes, Miller and Schafer (1999); Barber and Odean (2001); Felton, Gibson and Sanbonmatsu (2003); Hallahan, Faff and McKenzie (2004); and Worthington (2006) all reach the conclusion that gender plays an important role in general risk aversion. Bajtelsmit, Bernasek and Jianakoplos (1999); Hariharan, Chapman and Domian (2000); and Olsen and Cox (2001) arrive at the conclusion that women are not as likely to invest in higher risk assets as men possessing similar significant personal characteristics.

Although an interesting array of demographic characteristics have been used to explain what drives the investment behavior of individuals, the discussion continues in the literature concerning the psychological antecedents that would accompany this human behavior. A variety of studies have attempted to explore the psychological explanations for investor behavior. For example Carducci and Wong (1998) find that persons with a Type A personality are more willing to take higher levels of risk in all financial matters, though this may be correlated to Type A persons tending to have higher levels of income (Thoresen and Low, 1990) than Type B individuals. There is also evidence (Wong and Carducci, 1991) of a desire for "sensation seeking" by some persons in terms of their financial management.

But can investors assess risk with any accuracy when making investments? Hallahan, Faff and McKenzie (2004) believe that individuals can self-assess their risk tolerance. Schooley and Worden (1996) and Bailey and Kinerson (2005) conclude that there is a strong relationship between self-assessed risk and investment behavior. Wärneryd (1996) argues that there is a relationship between the more specific investment risk attitude and the riskiness inherent in investor portfolios. This research is confirmed by Keller and Siegrist (2006), who find that one's financial risk attitude has a positive influence on willingness to accept investment risk and invest in stocks in one's portfolio. However, research by Morse (1998) concludes that individuals have difficulty perceiving the actual risk associated with the

choice of investments they face, and so have difficulty matching investments to their desired level of risk exposure.

In a study that foreshadows the current study, Filbeck, Hatfield and Horvath (2005) use the Myers-Briggs Type Indicator to assess risk tolerance differences between people with different personality characteristics. From the discrete personality groupings in the Myers-Briggs, the researchers are able to establish behavioral linkages to risk tolerance. Their findings confirm that personality type does explain some aspects of investment behavior.

Although some studies have sought to use specific measures of personality in explaining investor behavior, this research adds to the literature by utilizing a personality framework known as the Big Five (see Costa and McCrae, 1992a, 1995, 1997; Digman, 1997; Goldberg, 1992; McAdams, 1992). The personality taxonomy of the Big Five is generally considered the most comprehensive and accepted, particularly for applied research (Barrick and Mount, 1991; Hogan and Hogan, 1991). The five dimensions (extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience) were derived from years of statistical analysis and considered stable across situations and cross-culturally applicable. We use portions of this taxonomy to test hypothesized models of how a person's psychological disposition may be related to one's intentions about current and future investing behavior.

As a result of the literature review, the present study undertakes two tasks. First we undertake the examination of behavioral intentions as related to personal investment and portfolio management. If behavioral intentions are good predictors of actual behavior and these intentions can be changed by the formation of attitudes, subjective norms, and perceptions of self-control, then they should be amenable to interventions from educators and financial counselors. Thus, identifying the nature of behavioral intentions with respect to personal finance is important. Second, given the paucity of literature examining risk perceptions and personality factors as predictors of intentions, we set out to examine prominent predictors of intentions, specifically with personal finance in mind.

This study is reported in five sections. After this introduction, the second section discusses the theory of behavioral intentions. The third section presents the literature on the Big Five and the methodology that is used to relate the Big Five and personality measures to investor behavioral intentions. The fourth section reports the results of the study. A final segment presents a concluding summary and offers suggestions for further research.

2. Behavioral intentions: A model for use and exploration in investment research

Behavioral intentions have been the topic of a large quantity of social and behavioral science research over the past 35 years. Ajzen and Fishbein (1980) believe that behavioral intentions are cognitive in nature, and act as a representation of a person's readiness to engage in a specific behavior. Behavioral intentions are hypothesized to be influenced by attitudes toward a given behavior, subjective norms, and a perceived sense of behavioral control. This theory contends that behavioral intentions are highly predictive of behavior. The current revision of this theory is shown in Fig. 1.

According to the theory of planned behavior, the more favorable the attitude, the subjec-

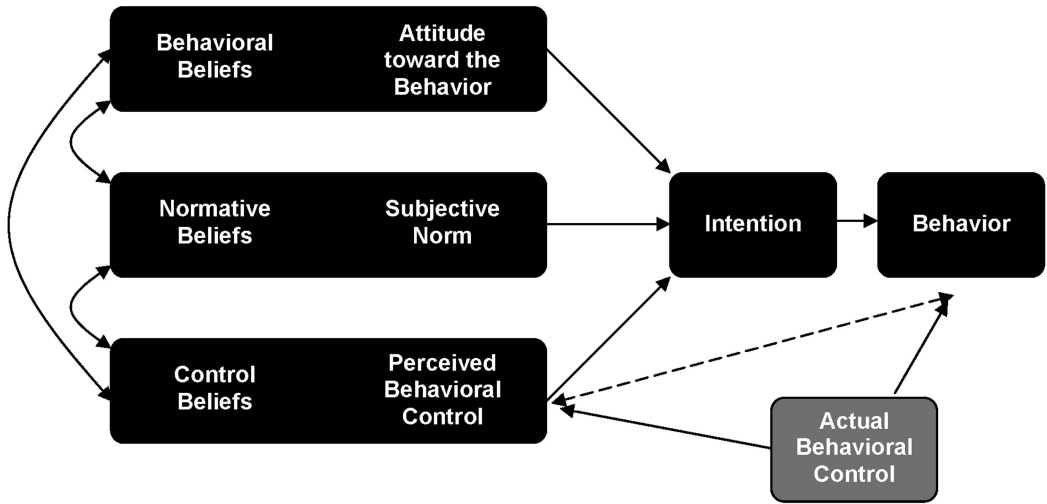


Fig. 1. Theoretical model of the theory of planned behavior. Adapted from: Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 175–211.

tive norm, and the greater the perceived control, the greater the behavioral intentions will be. Ajzen (1991, pp. 181–182) notes that:

As a general rule, the stronger the intention to engage in a behavior, the more likely should be its performance. It should be clear, however, that a behavioral intention can find expression in behavior only if the behavior in question is under volitional control.

Thus, the theory purports that behavioral intentions are highly related to targeted behaviors.

Of interest to this study are those efforts linking personality factors to behavioral intentions. Several studies have investigated the relationship between personality and behavioral intentions (de Bruijn, Kremers, de Vries, van Mechelen and Brug, 2007; Lauriola, Gioggi and Saggino, 2001; Prislin and Kourlija, 1992). Generally, the results of these studies have been inconclusive.

Related to personal finance, two studies have a direct bearing upon this study. Helsing, Elffers and Weigle (1988) explore attitudes towards paying taxes with settling tax disputes (e.g., tax evasion). They find attitudes toward taxes (i.e., intentions) and subjective norms are highly correlated with self-reported behavior, but not with official tax documents. Bolton, Cohen and Bloom (2006) investigate the effects of risk avoidance based upon behavioral intentions. They find that a remedy message (media message for debt consolidation) actually undermines bankruptcy risk perceptions and increases risky financial behavioral intentions as credit card misuse increases. Thus, when risk is lowered through a remedy (e.g., debt consolidation), there is an increase in alternative behavioral intentions for risk related financial behavior (e.g., credit card abuse).

The available literature discussed above suggests that risk avoidance should be related to behavioral intentions associated with personal finance. It is believed that the higher the level of risk aversion, the lower the behavioral intentions should be to engage in planned portfolio management. Thus, the following hypothesis is proposed:

Hypothesis 1: The greater the level of individuals' risk aversion, the less likely will be their intentions to engage in either short-term or long-term investing.

Support for this hypothesis is of theoretical and practical importance in that it would extend the planned behavioral model to a social realm thus far unexplored, as well as provide educators with grounds to assist others in more realistically assessing risk in the financial marketplace.

The available literature also suggests that those with traits involving high degrees of personal organization and high degrees of imagination and intellectual expression should be predictive of intentions to attend and manage personal financial matters and investments. The Big Five personality dimension, openness to experience, is characterized by both imagination and intellectual expression (Costa and McCrae, 1992a). Thus, the following hypothesis is proposed:

Hypothesis 2: The more that individuals are open to experience, the greater their intentions to engage in short-term and long-term investing.

A final Big Five personality characteristic that may impact investment intentions is conscientiousness. Conscientiousness is associated with strivings for achievement and competence (Costa and McCrae, 1992a). This personality characteristic may serve as an underlying determinant for why some individuals are more likely to use money as a tool to influence and impress others (Lim and Teo, 1997). The final hypothesis is proposed:

Hypothesis 3: The more conscientious individuals are, the greater their intentions to engage in short-term and long-term investing.

The exploration of the Big Five may further our understanding of how given personality characteristics may be utilized to more effectively plan and manage personal finances, thereby enhancing overall well-being.

3. Methodology

The present study uses structural equation modeling (SEM) that allows for the simultaneous estimation and testing of the relationships of interest. In SEM causal processes are represented by a series of structural equations that can be modeled graphically to aid in conceptualizing a theoretical framework (Byrne, 2001).

For the purpose of this study, a survey was conducted of business school undergraduates in an upper division commuter university located in an urban community. A total of 197 students participated, of which a total of 194 useable questionnaires were collected. The students were asked to identify their age, gender, the previous number of years of investing experience, and if they have ever taken a non-credit investments course. The survey was administered in courses that are prerequisites to the university's investments course.

The measures involving personality and risk avoidance that are used in this study are frequently cited and well established in the management and industrial-organizational psychology literature. We operationalize personality using two of the five measures from the Big

Table 1 Descriptions of the Big Five personality traits

Trait	Description
Neuroticism (N)	High scores indicate tenseness, moodiness, anxiety, and insecurity
Extraversion (E)	High scores indicate assertiveness, sociability, talkativeness, optimism, and being upbeat and energetic
Openness (O)	High scores indicate an active imagination, aesthetic sensitivity, a preference for variety, intellectual curiosity, and broad cultural interest
Agreeableness (A)	High scores indicate altruism, personal warmth, sympathy towards others, helpfulness, and cooperation
Conscientiousness (C)	High scores indicate purposefulness, being strong willed, determination, organization, reliability, and punctuality

Note. Adapted from *Professional manual: Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI)*, by P.T. Costa and R.R. McCrae, 1992, Lutz, FL: Psychological Assessment Resources, Inc., and “The five factor model of personality and job performance in the European community,” by J.F. Salgado, 1997, *Journal of Applied Psychology*, 82, 30–43.

Five theory (Costa and McCrae, 1992a, 1995, 1997; Digman, 1997; Goldberg, 1992; McAdams, 1992). Specifically, we use the NEO-FFI (Costa and McCrae, 2003). The NEO-FFI is a 60-item inventory, which is a shortened version of the Big Five, using 12 items to measure each of the five scales. Each item used a five-point scaled anchor, ranging from strongly disagree, disagree, neutral, agree, to strongly agree. In keeping with the test manual, numerous items are reversed scored to inhibit response bias. Shown in Table 1 are the descriptions of the Big Five traits.

For measuring risk aversion we utilize measures that are developed by Gomez-Mejia and Balkin (1989). This scale, which is based on the theoretical work of Slovic (1972) and the operationalization of Gupta and Govndarajan (1984), uses four items with five-point Likert-type response stems (strongly agree, agree, neutral, disagree, strongly disagree). These items are reworded to make them situation specific to investment behavior and personal finance. A high score would indicate a propensity to avoid the risk associated with a personal investment. The measure with the reworded items is shown in the Appendix.

To measure the possible behavioral intentions associated with investment and personal finance, exploratory items are constructed. The items for both short-term and long-term intentions are shown in the Appendix. As illustrated they reflect behavioral intentions ranging from tangible discrete actions to less tangible and more global intended behaviors.

4. Results

The descriptive statistics for the study variables are displayed in Table 2. The sample means reported in the table for the personality and investment intention variables are based on a five-point scale (1 = strongly disagree; 5 = strongly agree). For non-credit courses taken in personal finance or investments, respondents answered ‘yes’ if they took at least one non-credit course related to investments and ‘no’ if they had never taken a course. The

Table 2 Summary descriptive and distributional statistics for items on the measurement models

Questionnaire	Percent	Mean	SD	Kurtosis	Skewness
Risk aversion		2.80	.74	.39	.38
Openness		2.21	.46	-.06	-.11
Conscientiousness		2.51	.48	-.32	-.44
Neuroticism		1.64	.66	.82	.60
Extraversion		2.51	.49	.15	-.40
Agreeableness		2.51	.48	.19	-.30
Short-term investment intentions		3.15	.73	.56	.02
Long-term investment intentions		3.79	.69	.46	-.52
Years of financial experience					
Less than 1 year	64.5%				
1 to 3 years	17.8%				
3 to 5 years	5.9%				
5 or more years	11.8%				
Non-credit finance courses taken					
Yes	9.6%				
No	90.4%				
Gender					
Male	41.3%				
Female	58.7%				
Age					
< 20	5.2%				
21 to 25	46.1%				
26 to 30	25.4%				
31 to 40	15.5%				
> 40	7.8%				

majority of respondents had never taken a non-credit finance course. Despite being undergraduates, survey participants represented a varied age group. Of this sample 5.2% are 20 years or younger, with 46.1% between ages 21 to 25, 25.4% between ages 26 to 30, 15.5% between ages 31 to 40, and 7.8% over the age of 40. This sample consisted of 81 males (41.3%) and 115 females (58.7%). All students were either juniors or seniors. Approximately 64.6% of the sample has had less than a year's experience in personal investments, with 16.9% having 1 to 3 years, 6.6% with 3 to 5 years, and 18.3% having 5 or more years.

Shown in Table 3 is the correlation matrix for both the demographic variables and the primary variables of interest. Consistent with the literature we find that a significant relationship exists between gender and investment intentions, with males reporting more intentionality to engage in both short-term ($r = -.244; p < .01$) and long-term ($r = -.147; p < .05$) personal investing. Interestingly, we find that individuals with greater prior experience in managing their personal finances respond more favorably to having intentions to attend to their short-term ($r = 0.152; p < .05$), but not their long-term investments ($r = 0.119$). This suggests that although an individual may have investment experience, he may not have a long-term financial perspective. The number of non-credit finance courses taken was related to short-term ($r = 0.169; p < .01$), but not long-term intentions ($r = 0.047$). As shown in Table 3, those individuals who are low in risk aversion and those who are more open to

Table 3 Correlation matrix of demographic and study variables

	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	—											
2. Gender	.152*	—										
3. Years of financial experience	.431**	-.081	—									
4. Non-credit finance courses taken	-.024	.100	-.154*	—								
5. Risk aversion	-.019	.120	-.112	.010	(.67)							
6. Openness to experience	-.112	-.092	-.014	.043	-.243**	(.62)						
7. Conscientiousness	.084	.014	.132	.003	.016	-.118	(.83)					
8. Neuroticism	-.031	.227**	-.218**	.146*	.193**	.039	-.261**	(.85)				
9. Extraversion	-.117	-.031	-.001	-.040	-.130	.132	.239**	-.371**	(.74)			
10. Agreeableness	.108	.087	.003	.035	-.071	.023	.145*	-.261**	.239**	(.74)		
11. Short-term intentions	.017	-.244**	.152*	.169**	-.456**	.189**	.110	-.186*	.221**	-.069	(.76)	
12. Long-term intentions	-.108	-.147*	.119	.047	-.352**	.272**	.045	-.126	.162	-.015	.582**	(.74)

Note. The sample size ranged from 154 to 194. Reliability estimates are provided (in parentheses) on the diagonal and are consistent with those found in previous research. * $p \leq .05$; ** $p \leq .01$ (two tailed).

experiences have a greater likelihood of attending to both their short-term investments (risk aversion $r = -.456$; openness $r = 0.189$) and long-term investments (risk aversion $r = -.352$; openness $r = 0.272$), and all correlations were significant at the $p < .01$ level.

Although formal hypotheses were not established, there are some significant relationships between both the personality traits of neuroticism and extraversion and short-term investment intentions. Anxious individuals reported less intentionality to engage in short-term investing ($r = -.186$; $p < .05$), whereas extraverted individuals expressed greater short-term intentions ($r = 0.221$; $p < .01$). Because anxious individuals tend to experience more insecurity, it is plausible that they would be less inclined to engage in short-term investing. Conversely, extraverted individuals, who are optimistic and outgoing, can be seen as more likely to consult a financial advisor or take the initiative to begin investing on their own. However, neither neuroticism nor extraversion had any impact, on long-term investment intentions. The personality dimension agreeableness, as one might expect, had no effect on investment intentions. Because these are post hoc findings, further research should examine the generalizability of the relationships between these personality traits and investment intentions.

To test our hypothesized relationships between the three personality traits (i.e., risk aversion, conscientiousness, and openness to experience) and investment intentions, we evaluated two full structural equation models using AMOS 7.0. One advantage of using structural equation modeling is that the analysis allows for the simultaneous evaluation of both the accuracy of the measures (i.e., estimation of the factor loadings and error variance that is associated with each question used for assessing our variables), and testing of the strength of the relationships between our latent variables of interest. In the model depicted in Fig. 2, the measurement portion of the model is represented by the latent variables in circles (e.g., risk aversion, conscientiousness), the items associated with the actual questions on the survey instrument used to assess the variables (e.g., Item 1, Item 2, Item 3, Item 4), the item's respective factor loading (i.e., the number corresponding to the arrow from each latent variable to its items), and the error variance represented in the ovals. For example, there are four questions used to assess the variable risk aversion and they are represented by the rectangles labeled Item 1 through Item 4. In the case of risk aversion, the factor loading (i.e., path coefficient) for Item 1 is 0.69 and is the extent to which Item 1 loads on to risk aversion. Although there is no established criterion, generally a factor loading of 0.40 or higher is considered meaningful (Ford et al., 1986). The error variance (i.e., measurement error) associated with each particular item is indicated by the number in the ovals. Item 1 for risk aversion has an error variance of 0.53. In other words, 47% of the variance in respondent's scores on the question, "I am not willing to take risk when choosing a stock or investment," is explained by our latent variable, "risk," whereas 53% is explained by other factors. The accuracy of the measurement for each latent variable can be assessed by evaluating the factor loadings and error variances for the remaining items in the model.

The second portion of the structural equation model is the structural component. The structural component is represented by the path(s) between our latent variables (e.g., the arrow between risk aversion and short-term intentions), which illustrate our hypothesized relationships. For example, in Fig. 2 the standardized path coefficient between risk aversion

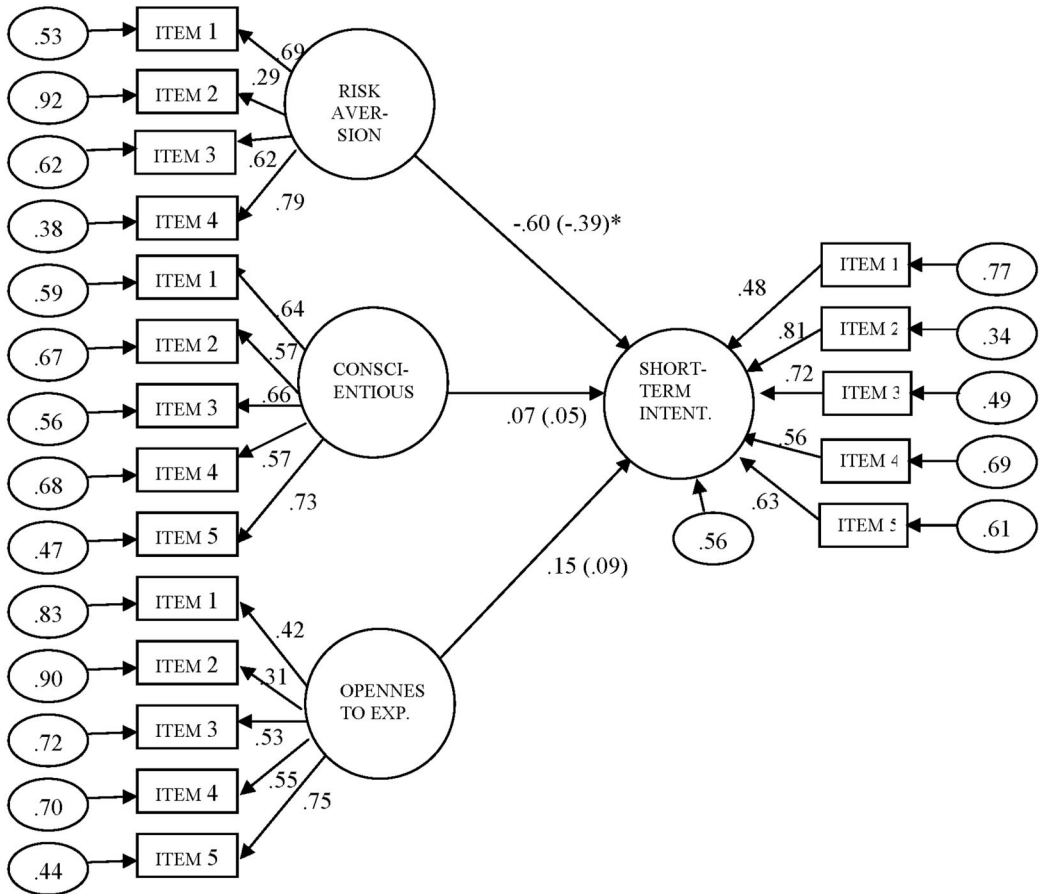


Fig. 2. Short-term investment intentions. (Unstandardized regression coefficients are shown in parentheses.)

and short-term investment intentions is $-.60$, which means that if risk aversion increases by one standard deviation, short-term intentions decreases by 0.60 standard deviations. The unstandardized path coefficients are also reported in parentheses; however, these statistics do not correct for differences of scale and therefore unstandardized path coefficients cannot easily be compared.

The first of our structural equation models (Fig. 2) examines how well risk aversion, conscientiousness, and openness to experience predict short-term investment intentions and the second model (Fig. 3) tests how well these same variables do at predicting long-term investment intentions. In accordance with common psychometric methods, the measures for each variable are factor analyzed a priori to determine which items adequately capture their intended construct. As a result, the number of items for each of the Big Five personality variables is reduced for the evaluation of each model. Both short-term and long-term investment models are statistically overidentified, a requirement of structural equation modeling, and select error terms between the items for the predictors are allowed to covary.

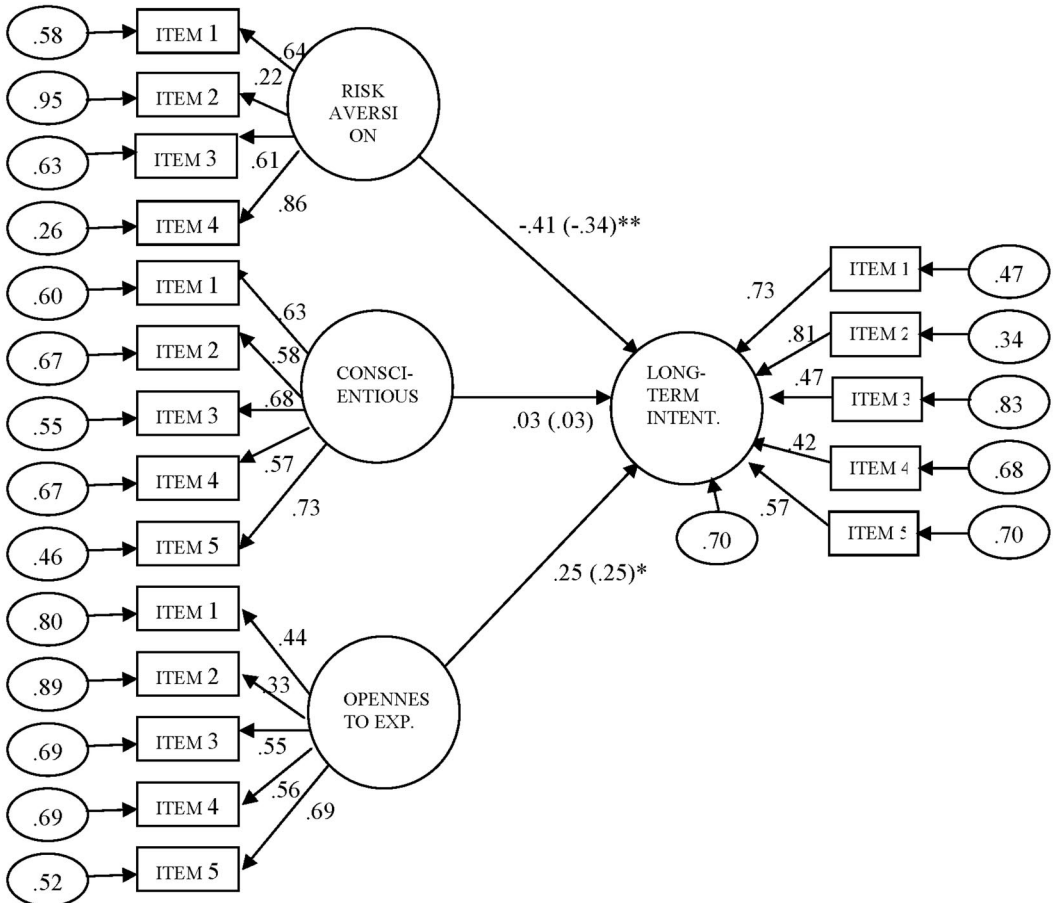


Fig. 3. Long-term investment intentions. (Unstandardized regression coefficients are shown in parentheses.)

5. Personality and short-term intentions

For the model predicting short-term investment intentions (see Fig. 2), the majority of the fit indices we examine indicate good model fit. The exception is the χ^2 statistic ($\chi^2 (141) = 183.63, p < .009$); however, χ^2 can be spuriously high when data becomes increasingly non-normal (West, Finch and Curran, 1995). Using Marsh and Hocevar’s (1985) rule of thumb, dividing χ^2 by its degrees of freedom yielded a value of 1.30, which indicates reasonable model fit. The Goodness of Fit Index (GFI) and Comparative Fit Index (CFI) indices were 0.91 and 0.95, respectively. The root mean square error of approximation is 0.04, with a 90% confidence interval of 0.02 to 0.06, and the p value test of close fit is equal to 0.85. All the fit indices indicate that our observed data fits the hypothesized model well. Closer inspection of the path coefficients in the model, shown in Fig. 2, indicate that risk aversion is the only significant predictor of short-term intentions ($r = -.60; p < .001$). The multiple R^2 of the model is 0.44 and the residual variance (.56) is reported in Fig. 2 as per convention. Otherwise stated, individuals that scored higher on their aversion to risk are less

likely to engage in short-term investing, and this relationship explains 44% of the variance in our criterion. In the behavioral sciences, explaining 9% or more of the total variance is generally regarded as a medium effect and explaining 25% or more of the variance is a large effect (Cohen, 1977). Whether individuals were conscientious or open to experience did not play a role in determining their short-term investment intentions.

6. Personality and long-term intentions

The model for predicting long-term investment intentions is presented in Fig. 3. Similar to short-term investment intentions, all fit indices point toward moderately good model fit with the exception of the χ^2 statistic, (χ^2 (142) = 187.98, $p < .006$). χ^2 divided by its degrees of freedom yielded 1.32, indicating reasonable model fit. The remaining indices are as follows: GFI = 0.91, CFI = 0.94, RMSEA = 0.04 (90% CI = 0.023 - 0.057, p value = 0.81). As in our short-term investment model, risk aversion ($r = -.41$, $p < .001$) contributes significantly to the variance explained in long-term intentions. However, unlike in our short-term investment model, openness to experience ($r = 0.25$, $p < .05$) also significantly contributes to long-term intentions. The multiple R^2 for our long-term intentions model is 0.30.

7. Conclusion

Although this study was largely exploratory, a few conclusions can be made. First, statistically and methodologically, the use of the Big Five taxonomy is useful. Although there have been hundreds of studies utilizing the Big Five, the current study may be among the first to utilize this commonly accepted approach to personality and trait measurement in conjunction with personal finance. Even though the Big Five factors have come under criticism by some scholars (Block, 1995; Previn, 1994), the overall stability and validity of the method has more recently been greatly supported (Barbaranelli and Caprara, 2000; DeYoung, 2006; DeYoung, Quilty and Peterson, 2007). This study thus extends the utility of the Big Five model as a viable approach for examining economic behavior.

The finding that males report greater intentions for both short-term and long-term investment activity than females is consistent with the findings of other researchers (Bajtelsmit, Bernasek and Jianakopolus, 1999; Hariharan, Chapman and Domain, 2000; Olsen and Cox, 2001). The association in this study between gender and risk aversion as related to investment was not significant, but generally supportive of the view that females are more risk averse in investment matters. The extent to which investment intentions are related in any way to knowledge of investments (Chen and Volpe, 1998; Volpe, Chen and Pavlicko, 1996) or investor overconfidence (Barber and Odean, 2000; Bhandari and Deaves, 2006) is not addressed in this study. Thus, future studies should also examine the differential effects of these considerations.

The exploratory effort in the present research to establish a measure of investment intentions is important at several levels. First, it is an extension of the general model of

planned behavior (Ajzen, 1991) to yet another area of social behavior, in this case financial planning and investment. Given the prominence of this theory in broad areas of social behavior, this is a rich paradigm for interdisciplinary contributions. Of particular importance is the finding that investment intentions are comprised of two separate components (short-term and long-term). The extent to which behavioral intentions are highly predictive of eventual behavior needs to be tested in the context of manifest financial and investment behavior. Future research needs to determine if those who truly differ in openness to experience and risk aversion do in fact differ in investment intentions and their subsequent investment behaviors and decisions. Thus, a complete test of the planned behavior model is still required.

The finding in the present study that suggests personality influences or contributes to the intentions of investors is not without practical applications. To the extent that education and financial counselors are able to profile those who differ in personality and subsequent intentions, much promise may be in store relative to educative interventions. Reviews of the behavioral intention literature (Armitage and Conner, 2001) and of attitudinal change (Rydell and McConnell, 2006) suggest that attitudes and subsequent behavior are indeed malleable. Thus, by use of direct influence, education, cognitive reframing, and interventions aimed at creating a different social reality for those with a low degree of openness and a high degree of risk avoidance, a better financial future seems achievable.

The results of this study also extend the work of Filbeck et al. (2005) who found that individuals who differ in personality traits, as measured by the Myers-Briggs Type Indicator, vary in their risk tolerance as framed in terms of expected utility theory (i.e., variance and skew acceptable to a given rate of return). The significant and negative correlation reported in this study between the personality trait of openness and investment specific risk aversion is contrary to the finding by Filbeck et al. (2005). In the Filbeck et al. (2001) study, those who scored higher in the traits of thinking (objective decision making), judging (organization and order), and sensing (concrete and practical), reported increased risk tolerance. Thus, our study suggests that those who are creative and non-traditional in their experiences may consider greater investment risk, whereas the findings for Filbeck et al. (2005) suggest that those who are objective, orderly, and concrete may have the greater risk tolerance toward their investments. The results of this study also differ from that of Filbeck et al. (2005) to the extent that they report the trait of extraversion had no measurable impact upon risk tolerance. In our study, extraversion predicted short-term investment intentions; as well, extraversion was negatively, but not significantly related to investment specific risk avoidance.

Literature involving general personality research, the Big Five, and broad areas of functioning and mental health is supportive of our general findings (McAdams, 2006; Rand 2006; Weiner and Greene, 2008). Specific to this study, the meta-analysis results of Connor-Smith and Falchsart (2007) involving Big Five traits and coping tend to be supportive. Connor-Smith and Falchsart (2007) found extraversion and conscientiousness was predictive of concrete problem solving and cognitive structuring as coping strategies. In our study, extraversion and conscientiousness were both positively related to short-term investment intentions, and significantly so for extraversion. That the meta-analysis results from Zhao and Seibert (2006) involving entrepreneurial behavior was predicted by conscientiousness and

openness to experience is also of interest. In the current study, both short-term and long-term intentions are predicted by openness, and a positive trend was found for conscientiousness.

One possible explanation for the difference between our study and that of Filbeck et al. (2005) involves the items used in the questionnaires to assess risk. The items used by Filbeck et al. (2005) required the respondent to calculate the odds and allocate percentages from their portfolio. The questionnaire used in the present study involved a general measure of risk in investment behavior such as having a preference for lower risk with less return. Thus, not only how risk was theoretically operationalized, but how risk was measured (allocations vs. intentions) may account for the difference between the two studies. It is clear that additional research needs to be done in this area to clarify these relationships and their potential implications (e.g., investor education and counseling).

The financial services industry has had a long history of educating investors for the purpose of creating wealth, resulting in a strong economy and society. It is now time to identify specific individuals (personality types) and specific interventions (change and education programs) aimed at those considered “at risk” for not attending to their financial needs.

Appendix

Big five personality measures (revised scales)

Neuroticism

1. I often feel inferior to others.
2. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.
3. I often feel tense and jittery.
4. Sometimes I feel completely worthless.
5. Too often, when things go wrong, I get discouraged and feel like giving up.

Extraversion

1. I really enjoy talking to people.
2. I often feel as if I'm bursting with energy.
3. I am a cheerful, high-spirited person.
4. I am a very active person.

Openness to experience

1. I am intrigued by the patterns I find in art and nature.
2. I often try new and foreign foods.
3. I have little interest in speculating on the nature of the universe or the human condition.¹
4. I have a lot of intellectual curiosity.

5. I often enjoy playing with theories or abstract ideas.

Agreeableness

1. I often get into arguments with my family and co-workers.¹
2. Some people think I'm selfish and egotistical.¹
3. Some people think of me as cold and calculating.¹
4. I generally try to be thoughtful and considerate.

Conscientiousness

1. I keep my belongings neat and clean.
2. I'm pretty good about pacing myself so as to get things done on time.
3. I waste a lot of time before settling down to work.¹
4. Sometimes I'm not as dependable or reliable as I should be.¹
5. I never seem to be able to get organized.¹

¹Items are reverse scored.

Risk aversion

1. I am not willing to take risk when choosing a stock or investment.
2. I prefer a low risk/high return investment with a steady performance over an investment that offers higher risk/higher return.
3. I prefer to remain with an investment strategy that has known problems rather than take the risk trying a new investment strategy that has unknown problems, even if the new investment strategy has great returns.
4. I view risk in investment as a situation to be avoided at all cost.

Items used to measure investment intentions

Short-term investment intentions

1. I intend to invest in an IRA every year.
2. I intend to put at least half of my investment money into the stock market.
3. I intend to engage in portfolio management activities at least twice per week.
4. I intend to perform my own investment research instead of using outside advice.
5. I intend to compare my portfolio performance to that of professional managers.

Long-term investment intentions

1. I intend to save at least 10% of my gross earnings for investing/saving/retirement purposes.
2. I intend to have a portfolio that focuses on multiple asset classes (i.e., stocks, bonds, cash, real estate, etc.).
3. I intend to take an investments course.

4. I intend to manage my portfolio for maximum gross return rather than tax and cost efficiency.
5. I intend to invest some money in long-term assets where my money will be tied up and inaccessible for years.

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