PERCEPTION VS. THE REALITY OF FINANCIAL SITUATION: THE ROLE OF PERSONALITY TRAITS

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Objective

Increasing financial well-being, a domain of overall well-being, has been the focus of consumers, professional advisors, and policymakers within the U.S. adult population (Joo 2008; Netemeyer et al. 2018). Perceived financial well-being is rooted in the subjective perception of a consumer's current financial situation and security about their future financial goal achievement (Netemeyer et al. 2018). Because of the subjective nature of financial well-being, a consumer's perception can be biased relative to their objective current and future financial situation. The objective of this study is to identify this gap between a consumer's objective and subjective financial reality and the characteristics contributing to its existence.

This study employs financial ratios to measure the consumer's objective financial situation (Garrett and James 2013). Greninger et al. (1996) explained that financial ratios derived from financial statements demonstrate how consumers are faring financially and which areas need improvement. Specifically, DeVaney (1993) argued that three significant areas, measured by financial ratios, provide an objective view of the financial well-being of consumers: liquidity, solvency, and investment. DeVaney, also pointed out that having an objective measure might not be enough. At the same time, Soss et al. (2015) argued that one's subjective assessment of their financial situation is an essential measure of financial well-being. Netemeyer et al. (2018) developed a conceptual definition of *perceived* financial well-being and found evidence that it contributes to overall well-being after controlling for well-being in other life domains and objective financial characteristics, such as income.

According to Roll et al. (2019), although 39% of American adults report not having enough liquidity and 60% report experiencing financial shock, most US households report being optimistic about their financial situation. Pointing to the possible disparity between objective and subjective measures of financial well-being

This study uses the Big Five personality traits to test for foundational characteristics that potentially explain the gap between objective and subjective financial well-being. Personality traits are the distinct ways consumers think, process information, and behave in different situations (Smith 1999). As shown in the literature, the Big Five Personality traits consistently predict overall subjective well-being (Lucas et al. 2008; Soto 2015) and subjective financial well-being (Davis and Runyan 2016; Tharp et al. 2020), indicating the role of personality in explaining financial well-being and possibly the gap therein.

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Given these backgrounds, the purpose of this study is to identify how the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) are related to the financial well-being gap, that is, the divergence between objective financial well-being and subjective measures of financial well-being. This study builds on existing literature by examining not just subjective financial well-being (through financial satisfaction) but also objective measures of financial well-being (using financial ratios).

Significance

Previous literature has focused on various factors affecting financial well-being (Brown et al.,2005, Hseih et al., 2003; Netemeyer et al., 2018;); however, there is minimal research on factors that explain the divergence in objective and subjective financial well-being, creating a gap that this study aims to address. This study performs a two-stage regression process to test this relationship using the 2018 wave of the Health and Retirement Study (HRS). First, financial satisfaction, used as a measure of subjective financial well-being, is regressed on financial ratios that measure respondents' objective financial situation. In the second step, the personality traits are regressed on the residuals from the first regression model using Structural Equation Modeling.

Personality traits influence how individuals process information and make decisions (Bensi 2010). Since financial well-being is a function of individuals' actions, findings from this study could help consumers identify where discrepancies might lie in how they are objectively performing relative to how they think they are performing or handling their financial affairs. Furthermore, findings from this study could inform financial professionals about the underlying factors contributing to client decision making and how best to tailor recommendations to these clients.

Theory

Consumer theory and the five-factor model form the theoretical basis for this study. According to consumer theory, individuals engage in activities and consume goods that maximize utility or satisfaction subject to their preferences and resources. Individuals have different preferences that influence their decision-making and hence, their utility. Personality traits might explain these individual differences in preferences. According to Smith (1999), personality traits are the distinct ways people think, feel and act in different situations, which could, in turn, affect their financial well-being. The Five-Factor Model (FFM), as explained by Costa and McCrae (1985), identifies five personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Costa and McCrae explained that these five personality traits exhibit predictable characteristics. For example, openness is associated with fantasy, aesthetics, feelings, actions, ideas, and values; conscientiousness is characterized by competence, order, dutifulness, achievement striving, self-discipline, and deliberation; agreeableness is associated with trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness; extraversion is characterized by warmth, gregariousness, assertiveness, activity, excitement seeking and positive emotions; and neuroticism is characterized by anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.

Financial well-being can be measured objectively and subjectively. Objectively, DeVaney (1993) argued for the use of financial ratios to measure objective financial well-being, specifically stating three financial ratios as important –liquidity, solvency, and investment ratios. DeVaney, also pointed out that having an objective measure might not be enough, suggesting that perhaps a measure of subjective financial well-being, which involves one's perception of their financial situation, is essential (Gerrans, Speelman, and Campitelli 2014). These perceptions might be formed by previous experiences, not just by objective measures (Gregory 1970). These findings by Gerrans, Speelman, and Campitelli (2014), Gregory (1970) and Netemeyer et al. (2018) suggest the importance of both objective and subjective measures of financial well-being. The importance of both objective and subjective measures of an individual's financial well-being is evidenced in a possible scenario where an individual's objective and subjective financial well-being may not align. For example, an individual might have $1,000,000 and may

report not being financially satisfied, while another can have $100,000 and be extremely financially satisfied.

Hypotheses

There is limited literature on the financial well-being gap and the possible association with personality traits. However, based on Costa and McCray's (1985) explanation of the lower-level trait facets that comprise personality combined with existing literature, the following hypotheses are tested:

H1: Openness to experience is positively associated with the divergence in objective and subjective measures of financial situation.

H2: Conscientiousness is positively associated with the divergence in objective and subjective measures of financial situation.

H3: Extraversion is positively associated with the divergence in objective and subjective measures of financial situation.

H4: Agreeableness is positively associated with the divergence in objective and subjective measures of financial situation.

H5: Neuroticism is negatively associated with the divergence in objective and subjective measures of financial situation.

Method

Data and Sample

The 2018 wave of the Health and Retirement Study (HRS) is the data set used in this study. Specifically, the RAND HRS was merged with 2018 wave of the HRS Leave-Behind (LB) Psychosocial and Lifestyle HRS Questionnaire. The Leave-behind Psychosocial Survey is utilized because it contains variables used in this analysis such as financial satisfaction, and the personality traits measures, which are not available in the RAND version.

Sample Characteristics

The descriptive statistics for the sample are represented in Tables 3 and 4. As shown in Table 1, the majority of the sample are women (57.5%), White (77.5%), and married (66.8%). Furthermore, a higher proportion of the entire sample are retirees (67.4%) and have at least a college degree (67.7%). As observed with the continuous and ordinal variables, most of the sample appear to be somewhat financially satisfied and report being in good health. The average age of the respondents is 69 years. After accounting for missing data using the Full Information Maximum Likelihood (FIML) method the final analysis sample is 4,870.

Model

This study uses a two-step regression model suggested by Chen et al. (2018). Financial satisfaction is regressed on financial ratios in the first step. Financial ratios measure objective financial well-being, while financial satisfaction is a measure of subjective financial well-being. The financial ratios used here are liquidity ratios, investment ratios, and debt-to-asset ratios. Using the "SURE" package in R, the residuals from this first regression are then extracted. These residuals represent the portion of subjective well-being that is not explained by objective well-being (financial ratios). In the second step, the residuals from the first regression model are regressed on the personality traits.

An ordered probit model is estimated in the first step of the two-step procedure based on the ordinal nature of the dependent variable, financial satisfaction. This ordered probit model is presented below:

$$FS_i^* = \beta_0 + \beta X_i + \varepsilon$$

$$FS_i = 1 \text{ if } FS_i^* \leq \mu_1 \text{ (not at all satisfied)}$$

$$FS_i = 2 \text{ if } \mu_1 < FS_i^* \leq \mu_2$$

$$FS_i = 3 \text{ if } \mu_2 < FS_i^* \leq \mu_3$$

$$FS_i = 4 \text{ if } \mu_3 < FS_i^* \leq \mu_4$$
$$FS_{it} = 5 \text{ if } \mu_9 < FS_{it}^* \text{ (completely satisfied)}$$

where FSi^* is a latent measure of the financial satisfaction of an individual i, FSi is the observed financial satisfaction of an individual i. β is a vector of coefficients showing the associations of the financial ratios with the latent variable, Xi is a matrix of explanatory variables representing liquidity ratio, investment ratio and debt to asset ratio.

In the second step, Structural Equation Modeling with Confirmatory Factor Analysis (CFA) was employed through the Lavaan package in R (version 3.6.1). The outcome variable is the divergence in objective and subjective measures of financial well-being. The main explanatory variables are the Big Five Personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism). Other explanatory variables include age, race, gender, marital status, health status, level of education, household income, and net worth. Then, parceling is employed to reduce the number of measurement items for the Big Five Personality traits. The full-partial method is used to include the covariates in the model (Little, 2013). Full Information Maximum Likelihood (FIML) is employed to account for missing data. The estimated model is depicted in Figure 1.

Outcome Variable

Financial satisfaction is the outcome variable in the first step of the two-step regression. Financial satisfaction is measured in the HRS by asking the respondents this question, "How satisfied are you with your present financial situation?" Possible responses ranged from 1 (completely satisfied) to 5 (not at all satisfied). This was reverse coded to where 1 represents not at all satisfied and 5 represents completely satisfied.

The *financial well-being gap* is the dependent variable in the second step of the regression. The financial well-being gap is the residual from the regression of the financial ratios on financial satisfaction and is a continuous variable in the analysis.

Explanatory Variables

Financial ratios. Three financial ratios used by financial professionals as financial well-being benchmarks are the explanatory variables in the first step of the two-step regression. These include liquidity ratio (liquid assets divided by monthly income), investment ratio (investment assets divided by net worth), and debt-to-asset ratio (total debt divided by total assets). These ratios are computed from the information included in the HRS data set. Specific information used in deriving each of the ratios is provided in Table 1.

The Big Five Personality Traits. In the second step of the regression model, the Big Five personality traits by McCrae and Costa (1992) are the main explanatory variables: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Respondents were asked to rank on a scale of 1(a lot) to 4(not at all) how best 31 adjectives described them. These adjectives were based on a 31-item assessment provided by the Midlife Development Inventory (MIDI). These were reverse coded to where 1 represents not at all, and 4 represents a lot. The traits and the corresponding adjectives are provided below. Furthermore, for each personality trait, the average of the corresponding adjectives is taken to represent the trait. The traits and the adjectives are presented in Table 2.

Covariates. Based on existing literature, other variables included in this model are age, health status, retirement status, level of education, marital status, gender, race, household income, and net worth.

Results

Measurement Model and Model fit

Results from the measurement models are provided in Figure 2 and Table 5. The results show significant and positive loadings above 0.30 (Brown, 2015). Also, the model has an acceptable fit given the CFI, TLI, RMSEA, and SRMR (Little, 2013).

Structural Model Results

The structural model results are presented in Figure 2 and Table 5. Results from the structural model show that conscientiousness (β = 0.22) and extraversion (β=0.64) are associated with a higher divergence in the perception versus reality of the respondent's financial situation. However, openness to experience (β = -0.21), agreeableness (β = -0.58), and neuroticism (β = -0.17) are associated with a lower divergence in perception versus reality of one's financial situation. These results are all statistically significant at the 0.1% level. In other words, individuals who exhibit adjectives associated with conscientiousness and extraversion rate their financial situation subjectively better than it is objectively. While individuals who exhibit traits that depict openness to experience, agreeableness, and neuroticism rate their financial situation worse than it is objectively.

Regarding covariates, age, income, and net worth, each positively associate with a higher divergence in perception and reality of one's financial situation. Furthermore, respondents who are White, married, in excellent health, and have a college degree are associated with subjectively perceiving their financial situation as better than it is objectively. However, men are associated with having a lower perception of their financial situation than their objective reality.

Conclusions and Relevance

This study performed a cross-sectional analysis through Structural Equation Modeling (SEM) to investigate personality traits' role in explaining the divergence in objective and subjective measures of financial well-being using the 2018 wave of the Health and Retirement Study (HRS). Results show that consumers with greater extraversion and conscientiousness perceived their financial situation as better than it is objectively. Although this study shows that extraversion and conscientiousness are associated with perceiving one's financial situation as better than it is, conscientiousness is associated with indicators of financial stability, such as higher savings levels and lower debt holdings (Duckworth and Weir 2010). Therefore, while those with greater conscientiousness might exhibit an inflated sense of financial satisfaction compared to their objective financial situation, this might not be concerning if their objective financial situation is sound. Future research could investigate other characteristics that might explain this gap.

On the other hand, being extraverted relates positively to having high debt levels, low savings, and greater impulse buying tendencies (Brown and Taylor 2014; Harrison and Chaudry 2011; Nyhus and Webley 2001). Also, those with greater extraversion tend to have a higher net worth and earn more income, as extraversion has a strong correlation with engaging in enterprising occupations (e.g. sales; Costa et al. 1984; Viinikaineen et al. 2010). The impulsiveness associated with extraversion might explain higher risk preferences, which could potentially explain their higher net worth even with higher debt and lower savings (Harlow and Brown 1990). These combined characteristics suggest that despite impulse, more debt, and lower liquid savings, those with greater extraversion tend to accumulate wealth through entrepreneurial and risk-taking behaviors. Thus, those with greater extraversion might have a sound long-term financial situation despite short-term behaviors that are traditionally problematic for financial health. Thus, like conscientiousness, a greater divergence between financial ratios and financial satisfaction might not be problematic for extraversion, and future research can investigate other factors contributing to this gap.

Furthermore, these results have implications for financial professionals working with consumers with greater extraversion, high debt levels, and low savings, while having a higher perception of their financial situation than it is objectively. For example, those with greater extraversion may find managing everyday finances difficult. Regardless, professional advisors may serve a key purpose by educating consumers on the importance of these key financial indicators on their financial health and the likelihood

that those with greater extraversion may have a higher perception of their financial situation than it is objectively.

Another significant finding of this study is that exhibiting traits relating to openness to experience, agreeableness, and neuroticism are associated with having a lower perception of their financial situation than it objectively is. In past studies, these traits are found to be negatively associated with savings and net worth and positively associated with debt holding (Harrison and Chaudry 2011; Nabeshima 2015; Nyhus and Webley 2001), pointing to evidence that these consumers have a less secure financial situation in the first place. Therefore, these consumers could be experiencing a self-defeating cycle where they are not financially secure while also judging their financial situation as *worse* than it is—another possible implication for consumers and financial professionals. Emotions play a vital role in financial decision-making (Zaleskiewicz and Traczyk 2020), and happier people have more control over their expenses (Guven, 2012). Financial professionals could add significant value by helping consumers feel more positively about their financial situation such that their subjective financial well-being aligns more closely with their objective financial reality.

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Table and Figures

Table 1
Financial Rations Breakdown

Ratio	Formula	Information Used
Liquidity Ratio	$\frac{Liquid\ assets}{Income}$	$\frac{Checking, Saving, and\ Money\ market\ accounts,\ Certificate\ of\ Deposits\ saving\ bonds\ and\ Treasury\ bills}{Total\ Household\ Income}$
Investment Ratio	$\frac{Investment\ asse}{Total\ Assets}$	$\frac{Stocks,\ Mutual\ funds, Investment\ trusts,\ IRA, Keogh\ accounts, bonds\ and\ bond\ funds}{Total\ Assets}$
Debt-to-Asset Ratio	$\frac{Debts}{Assets}$	$\frac{Mortgages, Credit\ card, Medical, and\ Other\ debt}{Assets}$

Table 2
Big Five Personality Traits and Adjectives

Personality Traits	Adjectives	Parcels
Openness	Creative, imaginative, intelligent, curious, broad-minded, sophisticated, and adventurous.	Parcel 1= Creative and imaginative; Parcel 2= Intelligent, curious, and adventurous; Parcel 3 = Broad-minded and sophisticated
Conscientiousness	Reckless organized, responsible, hardworking, self-disciplined, careless, impulsive, cautious, thorough, thrifty.	Parcel 1= Reckless, careless, impulsive and thorough; Parcel 2= Organized, hardworking, cautious and thrifty; Parcel 3= responsible and self-disciplined
Extraversion	Outgoing, friendly, lively, active and talkative	Parcel 1= Outgoing and talkative; Parcel 2=Lively and active; Parcel 3: Friendly
Agreeableness	Helpful, warm, caring, softhearted and sympathetic	Parcel 1= Soft-hearted and sympathetic; Parcel 2=Helpful; and warm; Parcel 3=Caring
Neuroticism	Moody, worrying, nervous and calm	Parcel 1=Moody; Parcel 2=Worrying and nervous; Parcel 3=Calm

Table 3
Descriptive Statistics of Categorical Variables

Variables	Proportion of Sample	Standard Errors
Gender		
Men	0.4246	0.0075
Women	0.5754	0.0075
Race		
White	0.7750	0.0063
Nonwhite	0.2250	0.0063
Marital Status		
Married	0.6682	0.0071
Single	0.3318	0.0071
Education		
College Degree	0.6770	0.0071
No College Degree	0.3230	0.0071
Retirement Status		
Retired	0.3262	0.0071
Not Retired	0.6737	0.0071

Data are from the 2018 wave of the Health and Retirement Study (HRS). Sample size = 4,870.

Table 4
Descriptive Statistics of Continuous and Ordinal Variables

Variables	Min	Max	Mean	Standard Errors
Financial Satisfaction	1	5	3.4269	0.0169
Liquidity ratio	0	2,350	1.6343	0.5904
Investment ratio	0	1	0.1569	0.0056
Debt-to-asset Ratio	0	5,500	4.3167	4.9157
Openness	1	4	2.9554	0.0085
Conscientiousness	1	4	2.8234	0.0052
Extraversion	1	4	3.1809	0.0087
Agreeableness	1	4	3.4965	0.0076
Neuroticism	1	4	2.2735	0.0070
Health Status	1	5	3.2560	0.0151
Age	55	101	69.6655	0.1504
Ln Income	0.6931	15.0145	10.8812	0.0160
IHS Net worth	-13.4021	18.3309	11.8035	0.0315

Data are from the 2018 wave of the Health and Retirement Study (HRS). Sample size = 4,870.

Table 5

Structural Model for Effects of Covariates on Divergence in Perception and Reality of Financial Situation

Covariates	Estimate	Standard Errors
Men (Ref: Women)	0.026*	0.018
White (Ref: nonwhite)	0.093***	0.037
Education (Ref: No college degree)	0.050***	0.029
Married (Ref: single)	0.109***	0.029
Retired (Not retired)	-0.020	0.039
Health Status (Ref: Poor Health):		
Excellent Health	0.144***	0.076
Very Good	0.164***	0.066
Good	0.117***	0.064
Fair	0.056*	0..076
Age	0.148***	0.002
IHS Net Worth	0.181***	0.003
Ln Income	0.041***	0.000

Covariates are included in the model using the full partial method. Standardized results are provided. Model fit RMSEA = 0.063, SRMR = 0.060, CFI = 0.929, TLI = 0.918. *** p<0.001.** p<0.01. * p<0.001. *N* =4,870.

Figure 1

Estimated Model

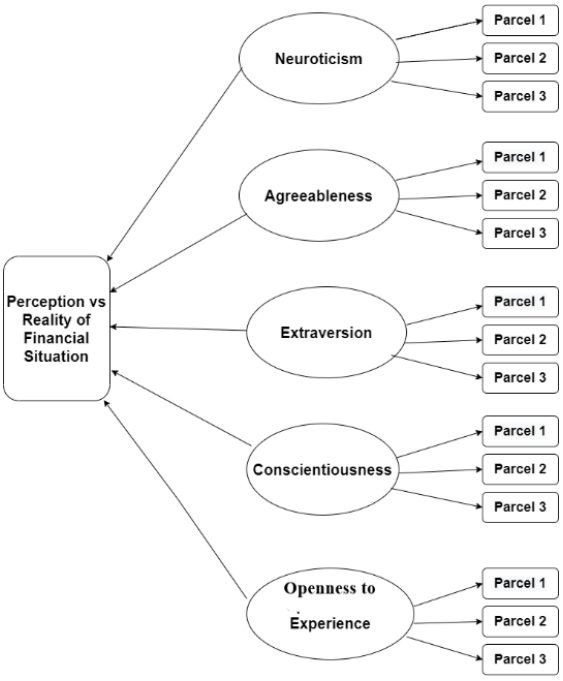

Figure 2

Structural Model Results