Financial Ratios and Financial Satisfaction: Exploring Associations Between Objective and Subjective Measures of Financial Well-Being Among Older Americans

Jacob A. Tenney[a] *and Charlene M. Kalenkoski*[b]

This study explores the relationship between objective measures and perceptions of financial well-being for older Americans. Financial well-being is measured objectively using three financial ratios including the liquidity ratio, the debt-to-asset ratio, and the investment ratio. Individuals' perceptions of their financial well-being are measured by a question in the Health and Retirement Study that asks respondents how satisfied they are with their present financial condition. An ordered probit model is used to examine the relationship between the perceptions of financial well-being and the three financial ratios. The findings in this analysis suggest that there is a positive relationship between the investment ratio and perceptions of financial well-being. There is also a small but statistically significant improvement in the perception of financial well-being with increases in the liquidity ratio. For large categorical differences, the positive relationship also holds for the debt-to-asset ratio.

Keywords: financial ratios, financial well-being

Financial planners create plans based on objective measures of financial well-being. These objective measures include financial ratios calculated from clients' financial statements. In addition to these objective measures, financial planners often address clients' perceptions of financial well-being. These perceptions may or may not align with the objective measures found using financial statements. The goal of this study is to explore whether there is alignment between objective measures and older clients' perceptions of financial well-being. This study focuses on individuals 50 and older who are near, or in, retirement. Lack of alignment between objective measures and individuals' perceptions of financial well-being for older individuals could be cause for concern for financial planners. For example, clients may perceive that their financial situation is fine but objective measures indicate otherwise. Or, clients may be overly concerned about their finances. This study helps identify whether individuals' perceptions reflect the reality that financial planners find in financial statements. There may be a need for financial planners to evaluate the relationship between objective measures and perceptions earlier in life when clients' have time to make needed adjustments.

An individual's perceptions offer a subjective measure of his or her financial well-being. The perceptions that individuals have about their financial condition often are measured subjectively by asking how the individual feels about his or her financial condition. In this study, the liquidity, investment, and debt-to-asset ratios are identified as objective measures of financial well-being. The hypothesis of this article is that, as financial ratios improve, perceptions of financial well-being also should improve.

The challenge faced by researchers is twofold. The first challenge is to find ways to measure financial well-being, both objectively and subjectively (Baek & DeVaney, 2004). Some of the efforts to measure well-being objectively and subjectively are presented in the literature

[a] *Director of Financial Planning and Assistant Professor, University of Charleston, School of Business & Leadership, 2300 MacCorkle Ave. SE, Charleston, WV 25304. E-mail: jacobtenney@ucwv.edu*
[b] *Director of the Ph.D. Program and Professor, Texas Tech University, Personal Financial Planning, 1301 Akron Avenue Box 41210, Lubbock, TX 79409. E-mail: charlene.kalenkoski@ttu.edu*

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review. The second challenge is to identify whether there is alignment between the objective measures found on financial statements and subjective measures of clients' perceptions of financial well-being. The second challenge is the focus of the present study and adds to the current literature by analyzing this relationship between objective measures and perceptions of financial satisfaction during the recovery period after the economic downturn of 2007 to 2009.

Literature Review and Hypothesis

Individuals seek to maximize their utility (i.e., happiness) over their lifetime subject to resource constraints (Ando & Modigliani, 1963; Becker, 1965; Modigliani & Brumberg, 1954). From a financial perspective, individuals seek to maximize utility by working toward a position of financial well-being (Gerrans, Speelman, & Campitelli, 2014). Financial well-being has been used to describe the financial health of an individual (Joo, 2008). If individuals are financially well, they are more likely to be prepared for future financial events. In addition, Aboagye and Jung (2018) have suggested that financial satisfaction can be explained largely by individual attitudes toward financial matters. However, individuals only can maximize their utility as much as their current resources and knowledge allow. Joo and Grable (2004) have found that financial knowledge and financial behaviors have a direct relationship with financial satisfaction. More recently, Moreland (2018) has found that seeking financial advice is related to positive financial behaviors and Xiao and Porto (2017) and Szendrey and Faila (2018) have found that financial education is positively related to financial satisfaction. This suggests that individuals may be at a lower level of satisfaction if they don't have knowledge about personal finance or the means to apply that knowledge.

Prior research suggests that both objective measures and an individual's perceptions likely influence financial behavior (Robb & Woodyard, 2011). Financial behavior appears to be positively related to financial satisfaction (Xiao, Chen, & Chen, 2014). Financial well-being can be observed through objective measures and financial satisfaction can be identified through individuals' perceptions. Measurements of perceptions of financial well-being are not as clearly defined in the literature. These subjective measures involve an individual's perceptions of his or her financial condition and are more closely related to financial satisfaction than financial well-being (Gerrans et al., 2014). In other words, perceptions describe how satisfied individuals are with their present financial condition, whereas objective measures try to quantify an individual's financial well-being. Perceptions often are biased by what people want to believe or, in the words of Gregory (1970), "We not only believe what we see: to some extent we see what we believe" (p. 15). Perceptions often are formed by previous experiences. This suggests that perceptions about one's financial situation may be impacted more by experience rather than by numbers and facts about current circumstances (Seay, Asebedo, Thompson, Stueve, & Russi, 2015).

The challenge is to find survey questions that effectively measure perceptions of financial well-being. Baek and DeVaney (2004) used responses to this statement from the Survey of Consumer Finances: "Compared with other people of my generation and background I have been lucky in financial affairs." Garrett and James (2013) used this question from the Health and Retirement Study (HRS): "How satisfied are you with your family's current financial situation?" Both papers suggested that using a single variable to measure subjective financial well-being is acceptable, though not ideal. However, neither offered alternatives. The question from the HRS is used here because it directly addresses the individual's satisfaction with his or her financial situation regardless of whether that situation is a result of good planning, good luck, or some combination of the two.

Objective measures include financial ratios calculated from clients' financial statements (Greninger, Hamption, Kitt, & Achacoso, 1996). Financial ratios can be used to measure the financial well-being of individuals and to identify areas of weakness (Prather, 1990). Ratios are only one piece of a financial planner's toolbox and there is evidence that basing financial decisions largely on financial ratios can lead to decisions that negatively impact financial well-being (Harness, Chatterjee, & Finke, 2008). However, there is evidence that financial ratios are reasonably reliable as gauges of financial well-being (DeVaney, 1993). More recently, financial ratios have been used to measure an individual's financial situation in a number of studies including Bieker and Das (2011), Garrett and James (2013), and Joo (2008).

It is important to determine which financial ratios are most appropriate as objective measures of financial well-being. Greninger et al. (1996) identified 22 financial ratios covering many aspects of an individual's finances including savings, investments, taxes, housing, liquidity, and credit. According to DeVaney (1993), one of the goals of financial ratios is to reduce the time it takes to identify an individual's financial condition, suggesting that too many ratios might not be helpful either. There is some agreement regarding the three major areas that help to form a good objective view of an individual's financial well-being. They include solvency (which describes whether assets exceed liabilities), liquidity (how quickly and easily assets can be turned to cash), and investments (how much and what portion of an individual's assets are in investment vehicles) (Baek & DeVaney, 2004; Garrett & James, 2013). These three areas allow a financial planner to evaluate the debt and liquidity situation of a client as well as their current progress toward saving for future life events.

The liquidity ratio (liquid assets divided by monthly income) provides an estimate of the length of time an individual could live on his or her liquid assets. The liquidity ratio is often described as an emergency fund. Personal finance textbooks suggest a liquidity ratio of three to six, suggesting that individuals should have enough easily accessible funds to survive for 3 to 6 months without receiving any additional income (Keown, 2015; Winger & Frasca, 2006). Keown (2015) and other personal finance textbooks use expenses in place of income in the denominator, suggesting that not all income is needed in the event of an emergency. Other textbooks use net income (i.e., take-home pay).

The investment ratio, calculated as investment assets over total assets, is a measure of preparation for retirement and other future financial goals. The investment ratio should increase as individuals turn more of their human capital into financial capital. Baek and DeVaney (2004) suggest an investment ratio greater than 25% is desirable, and Lytton, Garman, and Porter (1991) suggest a benchmark range of 25% to 50%. This range indicates a balance between illiquid investments and liquid emergency funds.

Finally, the debt-to-asset ratio provides information about the ability of an individual to liquidate assets to pay off all debt. It is important to note that debt ratios are more nuanced and not directly related to financial well-being. They are likely better indicators of financial difficulty, indirectly measuring financial well-being. Winger and Frasca (2002) suggest a ratio of 50% or less as an acceptable level. Above 50%, individuals have more difficulty covering debt payments and their ability to remain solvent declines. This difficulty to remain solvent is heightened during turbulent times, or if other assets in the portfolio tend to be volatile (Winger & Frasca, 2002). Hong and Swanson (1995) studied the financial status of older women, age 55 and older, and analyzed changes in household income, liquidity, and the debt-to-income ratio from the late 1970s to the late 1980s. They found that the financial well-being of older women improved; however, they did not look at the women's perceptions of financial well-being. More recently, Garrett and James (2013) looked at the liquidity ratio (or emergency fund), solvency ratio (assets/debts), and the investment ratio (investments/total assets) to identify which of the three is most closely aligned with perceptions of financial well-being of older Americans. They found that prior to, and during, the economic downturn of 2007 to 2009, the solvency ratio, or debt situation, was the most closely aligned with individuals' subjective satisfaction with their financial situations. In addition, Garrett and James found a reasonably strong positive relationship between the investment ratio and satisfaction with one's financial situation, particularly when studied longitudinally. During an economic downturn, many individuals face challenging financial situations that potentially affect financial ratios, as well as the relationship between these ratios and perceptions of financial well-being. There is evidence that perceptions of risk associated with investments change during an economic downturn (Roszkowski & Davey, 2010). This article examines whether the ratios have a different relationship with perceptions of financial well-being postrecession using data from 2014. The hypothesis is that financial ratios are related to individuals' perceptions, which will help validate planners' use of ratios as a fundamental part of the analysis of clients' financial situations. In addition, it is anticipated that the relationships between the financial ratios and perceptions of financial well-being will likely be different postrecession.

Method

Data

The data for this study are from the core survey and the Leave Behind Questionnaire for the 2014 HRS. The HRS is a biannual panel study of individuals aged 50 and older.

The data collected include balance sheet information about assets, liabilities, and net worth, along with income and other health and economic information, for a representative sample of households.

Variables

The question about the respondent's satisfaction with their current financial condition is included in a self-administered questionnaire that is left with the respondents after they finish the more formal in-person interviews.

The dependent variable in this study is the perception by an individual of his or her own financial well-being as expressed by the response to this question from the HRS: "How satisfied are you with your present financial situation?" The HRS excludes any individuals who are institutionalized for each wave. This is done by assigning these individuals a weight of zero in the waves that they are institutionalized. This leaves just over 6,700 individuals who responded to the satisfaction question in the 2014 Leave Behind Questionnaire.

The primary explanatory variables for this study include three financial ratios used by financial planners as standard benchmarks for determining financial well-being. The three ratios include the liquidity ratio, the investment ratio, and the debt-to-asset ratio. The values of these ratios are notincluded directly in the HRS data. Instead, the authors calculate the ratios from the available data in the HRS. The liquidity ratio is calculated as liquid assets divided by income. Liquid assets include cash, checking accounts, savings accounts, certificates of deposit, government savings bonds, and T-bills. The investment ratio is calculated by dividing investment assets by total assets. Investment assets include stocks, mutual funds, investment trusts, bonds, bond funds, Individual Retirement Accounts (IRAs), and Keogh accounts. The debt-to-asset ratio is calculated by dividing debts by total assets. Debts include all mortgages, credit-card debt, medical, and other debts.

There are a few things to note regarding the ratios. First, for the liquidity ratio, this study uses total household income instead of total expenses. The HRS includes income, but it does not give a detailed breakdown of expenses. It is also important to note that, of the 6,700 observations, there are 56 instances (less than 1%) where the liquidity ratio is undefined because individuals have some amount of current assets but do not report any income, leaving a zero in the denominator. These individuals do not report income and may be living off just their emergency funds during this time. These individuals are dropped from the analysis.

Second, the investment ratio often is calculated using net worth in the denominator instead of total assets. Total assets are used in this study to avoid situations where there are investments assets but there is zero or negative net worth.

Finally, regarding the debt-to-asset ratio, the asset values reported in the HRS include real estate (primary residence and other real estate), vehicles, business, investment accounts, retirement accounts, checking and savings accounts, and other savings. However, for the nonfinancial assets (real estate, vehicles, and businesses), only the net value is reported, that is, the value remaining after all debt is paid off. The challenge with this method of reporting assets is that it does not reflect situations where individuals owe more than the asset is worth. Thus, the debt-to-asset ratio calculated for this analysis may look better than it is. The HRS data lack information on respondents' vehicle loans, making it difficult to accurately calculate total assets.

There are situations where individuals have debts but no assets leaving the debt-to-asset ratio undefined and unusable. Initially, 1+ assets was used to preserve these observations; however; the observations with zero assets in the denominator of the debt-to-asset ratio were subsequently dropped with no significant change in the interpretation of the results.

Additional demographic variables include age, gender, education, marital status, retirement status, income, and net worth. These additional variables are not the focus of this article, but they are important variables to control for individuals' preferences and constraints as they relate to perceptions of financial well-being.

Tables 1a and 1b show the summary statistics of the ratios and demographic variables. A little under half of the respondents felt very or completely satisfied with their present financial condition. The weights provided by the HRS have been applied to make the sample more representative of non-institutionalized older Americans. The weighted subsample used in this study is very similar to the weighted full-sample.

TABLE 1a. Summary Statistics of Ratios and Demographic Variables

	N = 6,709			
Variable	**Mean**	**Std. Err.**	**95%**	**Conf. Int.**
Liquidity ratio	33.488	15.863	1.711	65.265
Investment ratio	0.178	0.007	0.163	0.192
Debt-to-asset-ratio	2.747	0.844	1.056	4.438
Age	67.185	0.287	66.611	67.760
Years of education	13.422	0.079	13.263	13.580
Household income per year	$86,007	$3,254	$79,489	$92,525
Household net worth	$567,499	$26,577	$514,260	$620,739

Notes. Data compiled from the 2014 Health and Retirement Survey. Respondent level weights provided by HRS and noninstitutionalized individuals.

TABLE 1b. Summary Statistics of Dependent and Demographic Variables

N = 6,709	
Variable	**Percentage**
Dependent variable	
Satisfaction with financial condition	
Not at all satisfied	5.63
Not very satisfied	14.34
Somewhat satisfied	34.25
Very satisfied	28.51
Completely satisfied	17.27
Male	45.39
Married	62.12
Retired	49.21

Notes. Data compiled from the 2014 Health and Retirement Survey. Respondent level weights provided by HRS and noninstitutionalized individuals are included in the sample.

There is no statistically significant difference in age, gender, education, and retirement status between the subsample and the full sample. The differences among the marital status, education, and retirement age subgroups are statistically significant though small. The average education is 2.5 months lower in the full sample compared to the subsample. The percentage of those married in the full sample is 2% higher compared to the subsample. The percentage of those who are retired is 2% lower in the full sample compare to the subsample.

As shown in Table 1a, the average liquidity ratio is 33.49, which represents enough liquid assets to replace income for almost 3 years. This is very high considering the recommendation is 3 to 6 months; however, there are some observations with very large liquid asset values for and/or very little monthly income driving this ratio. In addition, this analysis examines older Americans who are close to, or already in, retirement, including some who have saved significant financial resources. Table 2 breaks the observations of the ratios into terciles, putting the extreme observations in the third tercile. The mean of the first tercile is 0.07 and the mean of the second tercile is 1.66, suggesting that many of the respondents have a low liquidity ratio. The average investment ratio is 18%, below the recommended level of at least 25% (Kim & Lyons, 2008). This is especially worrisome considering that these individuals are in or near retirement and will need enough retirement investment assets (Lytton et al., 1991). However, it is important to note that this ratio does not include any amounts received or expected to be received from defined-benefit plans. This low investment ratio may have been an advantage to those who retired near or during the economic downturn of 2007 to 2009.

The average debt-to-asset ratio is 2.75 which is well above the recommended level. The recommendation is to keep the debt-to-asset ratio below 50% under normal conditions (Winger & Frasca, 2006). In addition, the debt-to-asset ratio should decrease with age (Keown, 2015). This high debt-to-asset ratio is likely due to the 3% of respondents reporting debt-to-asset ratios greater than 1. There are a relatively small number of respondents with significant debt, but few assets. Table 2 shows that most of this sample of older individuals have a zero or very low debt-to-asset ratio with the lowest tercile of respondents reporting no debts and the second tercile reporting an average debt-to-asset ratio of 0.04.

TABLE 2. Ratio Tercile Means

Variable	# Obs.	Mean	Std. Err.	95%	Conf. Int.
Liquidity ratio tercile 1	2,235	0.0702	0.1086	0.0000	0.3867
Liquidity ratio tercile 2	2,236	1.6550	1.0295	0.3871	4.0873
Liquidity ratio tercile 3	2,236	102.70	2,197.01	4.10	75,000.00
Investment ratio tercile 1	3,526	0.0000	0.0000	0.0000	0.0000
Investment ratio tercile 2	944	0.0596	0.0391	0.0000	0.1356
Investment ratio tercile 3	2,234	0.4460	0.2136	0.1357	1.0000
Debt-to-asset ratio tercile 1	3,232	0.0000	0.0000	0.0000	0.0000
Debt-to-asset ratio tercile 2	1,238	0.0446	0.0369	0.0000	0.1185
Debt-to-asset ratio tercile 3	2,234	17.31	283	0.1188	10,000

In Table 3, the ratios are analyzed as continuous measures to show the relationship between a small incremental change in each ratio and levels of satisfaction with one's current financial condition. However, it is difficult to compare changes between continuous measures of each ratio. For example, what does a one unit increase in the liquidity ratio mean, and how can it be compared to a one unit increase in the debt-to-asset ratio or the investment ratio? To address this, an analysis is performed with each ratio broken into thirds. Originally, the observations were assigned to deciles; however, many of the lower deciles of the debt-to-asset and investment ratios were empty because of the large number of zeros for individuals with no debts or no investments. There were similar problems using quintiles and quartiles. Terciles are used to allow for the evaluation of larger jumps in the ratio.

Model

An ordered probit model is used in this analysis instead of ordinary least squares (OLS) to avoid potential bias when analyzing Likert scale variables (Greene, 2010). OLS requires an assumption of normality of the conditional distribution (y|x). This assumption is violated when the dependent variable is a Likert scale variable. The normality assumption states that for each value of an explanatory variable *X*, the dependent variable is normally distributed. This cannot be the case with a Likert scale variable because there are "gaps" in between each value. The ordered probit model is appropriate when the dependent variable is a Likert scale variable. The results in the analysis are the calculated marginal effects. The marginal effect of an explanatory variable is the change in the probability of being in a category when the explanatory variable is increased by one. This article estimates the following ordered probit model via maximum likelihood:

$$SP^* = ß_0 + ß_1 lr + ß_2 ir + ß_3 dar + ß_j DV_j + e$$

$$SP = 1 if SP^* < \mu_1 \text{ (Notatallsatisfied)}$$

$$SP = 2 if \mu_1 < SP^* < \mu_2 \text{ (Notverysatisfied)}$$

$$SP = 3 if \mu_2 < SP^* < \mu_3 \text{ (Somewhatsatisfied)}$$

$$SP = 4 if \mu_3 < SP^* < \mu_4 \text{ (Verysatisfied)}$$

$$SP = 5 if \mu_4 < SP^* \text{ (Completelysatisfied)}$$

where SP^* is a latent (i.e., unobserved) measure of a person's subjective perception of financial well-being or financial satisfaction and *SP* is the observed measure of this subjective perception based on responses to the question "how satisfied are you with your present financial situation?" The unknown thresholds of SP^*, $\mu_1, \mu_2,$ and μ_4, are estimated in the model.

The variable *lr* is the liquidity ratio measuring preparation for emergencies, *ir* is the investment ratio measuring preparedness for retirement and other financial goals, and *dar* is the debt-to-asset ratio measuring individuals' solvency. The matrix *DV* contains all the demographic variables used in the model including age, education, gender, income, retirement status, and marital status. $ß_1$, $ß_2$, and $ß_3$ reflect the change in the subjective perception of financial well-being associated with an incremental change in the

TABLE 3. Marginal Effects of Continuous Financial Ratios on Levels of Satisfaction With Current Financial Condition

	Not Satisfied at All				Completely Satisfied
	1	2	3	4	5
Liquidity ratio	−0.000001**	−0.000001**	−0.000001**	0.000001**	0.000001**
	0.0000	0.0000	0.0000	0.0000	0.0000
Investment ratio	−0.087531***	−0.131250***	−0.085896***	0.116330***	0.188347***
	(0.0095)	(0.0138)	(0.0092)	(0.0112)	(0.0189)
Debt-to-asset ratio	0.00002	0.00003	0.00002	−0.00002	−0.00004
	(0.00002)	(0.00003)	(0.00002)	(0.00003)	(0.00005)
Age	−0.002527***	−0.003790***	−0.002480***	0.003359***	0.005438***
	(0.0002)	(0.0003)	(0.0002)	(0.0003)	(0.0004)
Male	0.006136*	0.009162*	0.005942*	−0.008136*	−0.013103*
	(0.0032)	(0.0047)	(0.0031)	(0.0041)	(0.0068)
Years of education	0.0003	0.0005	0.0003	(0.0004)	(0.0007)
	(0.0006)	(0.0009)	(0.0006)	(0.0008)	−0.0013
Married	−0.021773***	−0.032464***	−0.020031***	0.029509***	0.044759***
	(0.0039)	(0.0049)	(0.0031)	(0.0046)	(0.0069)
Income per month	−0.000189***	−0.000284***	−0.000186***	0.000251***	0.000407***
	−(0.00004)	−(0.00006)	−(0.00004)	−(0.00005)	−(0.00008)
Net worth (in 10 thousands)	−0.000211***	−0.000316***	−0.000207***	0.000280***	0.000453***
	−(0.00004)	−(0.00006)	−(0.00004)	−(0.00006)	−(0.00009)
Retired	−0.012646***	−0.019324***	−0.012739***	0.017232***	0.027476***
	(0.0033)	(0.0053)	(0.0034)	(0.0047)	(0.0072)

Note. Data and weights compiled from the 2014 Health and Retirement Survey.
Pseudo *R*-Squared = .067.
*Significant at 10% level. **Significant at 5% level. ***Significant at the 1% level.
Numbers in parenthesis are standard errors.
Male, married, and retired variables are labeled as 1, zero if not.

respective ratios. The ßs give the signs of the coefficients. Marginal effects are calculated to determine the magnitude of the effects on the observed dependent variable (*SP*). The error term (*e*) is assumed to be distributed normally.

It is expected that β_1 and β_2, which are associated with the liquidity and investment ratios, will be positive. Improvements in either of these ratios indicate additional resources for either emergencies, in the case of the liquidity ratio, or long-term financial goals, in the case of the investment ratio. Additional resources reduce income constraints, increasing an individual's utility. It is expected that β_3, associated with the debt-to-asset ratio, will be negative because debts constrain cash flow and individuals typically prefer to hold cash. Individuals with more debt may be less satisfied with their current financial condition, particularly at later stages in life.

The vector of coefficients, β_j, reflects the changes in the perceptions of financial well-being associated with various demographic variables (DV_j) including age, education, gender, income, net worth, marital status, and retirement status.

The demographic variables are included as proxies for unobserved preferences and constraints. The existing evidence regarding the associations of age on this perception of financial well-being is mixed. While individuals' confidence in financial decisions may not decrease, there is evidence of cognitive decline with age (Finke, Howe, & Huston, 2016). This could lead to poor financial decisions, suggesting a

decline in financial satisfaction, unless it is counteracted by overconfidence that would suggest an increase in financial satisfaction, leaving the correlation between financial well-being and aging ambiguous.

Similarly, there is mixed evidence in the literature as to whether additional education (holding other variables, including income, constant) can bring additional satisfaction. In general, additional education appears to increase life satisfaction; however, higher education often leads to more time spent in a field of study, leaving less time to pursue other interests (Melin, Fugl-Meyer, & Fugl-Meyer, 2002). This could lead to decreased life satisfaction.

Gender plays a role in perceptions of financial well-being. Prior research has suggested that, on average, when women compare their financial situation to others, they are less satisfied than men (Hira & Mugenda, 2000). According to Hira and Mugenda, women tend to be less satisfied with their current financial condition. Marital status also may influence perceptions of financial well-being as those who are married have two individuals with potentially differing perceptions making financial decisions.

Whether an individual is retired plays a role in the level of satisfaction with one's present financial condition. Retirement is defined by the fact that individuals switch from working in the labor market to spending more time in household production and leisure activities. It is anticipated that an individual who is retired would be relatively more satisfied with his or her present financial condition, assuming the individual made the decision to retire based on financial preparation. The exception to this would be if the individual experienced one or more unexpected risk shocks such as uninsured late-life medical shocks, longevity risks, or negative portfolio return risks (Poterba, Venti, & Wise, 2011).

Several studies have looked at the relationship between income or net worth with financial satisfaction (Diener & Biswas-Diener, 2002; Dolan, Peasgood, & White, 2008; Vera-Toscano, Ateca-Amestoy, & Serrano-Del-Rosal, 2006). Vera-Toscano et al. (2006), among other authors, find that lower levels of income reduce satisfaction; however, higher levels of income don't necessarily increase satisfaction. It is anticipated that the relationship between money, as measured by income or net worth, and satisfaction will be positive but weak. The relationship is anticipated to be positive because higher income likely reduces constraints, making it easier for individuals to maximize utility. However, this may not be the case for individuals income above a certain level causing the relationship to be weak.

Results

The marginal effects and standard errors from the ordered probit model using continuous measures of each ratio are reported in Table 3. An increase in the liquidity ratio was related to a small (almost zero) increase in the probability of an individual being completely satisfied with his or her current financial condition. While the increase is statistically significant, it does not appear to be economically significant. This suggests that small increases in the liquidity ratio may not be as critical to those in this study, which includes those near or in retirement. This may be because an additional month of emergency funds is not very significant to an individual who is looking to fund years, even decades, of retirement spending.

The investment ratio, on the other hand, appears to be more relevant to older Americans. There was a statistically and economically significant increase in perceptions of financial well-being as the investment ratio increased. As the investment ratio increased by 1%, the probability of being completely satisfied with one's current financial condition increased by 0.19.

Intuitively, the debt-to-asset ratio should be of most concern to those near, or in, retirement. The greater an individual's debts compared to his or her assets, the greater the challenge to meet financial needs in retirement. The higher the debts, the more current and future income must be devoted to paying down those debts instead of financial goals, including retirement. However, small, incremental changes in the debt-to-asset ratio did not appear to be a statistically significant factor in this study.

Additionally, demographic variables were related to perceptions of financial well-being. As individuals get older, the probability of being completely satisfied with one's financial condition increased by 0.005. In addition, those who are married had a 0.044 higher probability of being completely satisfied than those who are not. Those with higher income or high net worth also had a slightly higher probability of satisfaction with their current financial condition compared

to those with less income. There was a 0.03 increase in the probability of complete satisfaction for those who are retired compared to those who are not.

Table 4 shows the results of an ordered probit analysis with the ratios broken into terciles. In reference to the liquidity ratio, the second and third terciles were statistically associated with greater financial satisfaction than those in the first tercile. The probability of being completely satisfied increased by 0.05 from the first to the second tercile of the liquidity ratio and by 0.09 from the first to the third. In reference to the investment ratio, the probability of being completely satisfied increased by 0.03 from the first to the second tercile and by 0.09 from the first to the third tercile. With the debt-to-asset ratio, the probability of being completely satisfied decreased by 0.06 from the first to the second tercile and by 0.08 from the first to the third tercile.

Similar to Table 3, Table 4 shows that some of the demographic variables included in the model also were related to perceptions of financial well-being, though the magnitudes tended to be small. As individuals age, all else equal, the probability of being completely satisfied increased by 0.004 per year. Those who are married had a 0.04 higher probability of being completely satisfied with their present financial condition. In addition, as income increases, the probability of being completely satisfied increased slightly by 0.0004. Similar to income, increases in net worth slightly increased the probability of satisfaction, in this case by 0.0003. Those who are retired were more satisfied with their current financial condition. The probability was 0.02 higher for those who report being completely retired. This is likely because individuals often choose to retire based on their preferences, specifically their financial condition.

Two additional sensitivity analyses were performed. First, the self-reported health status of the respondents was included as an explanatory variable. Those who reported fair, good, very good, or excellent health had a statistically higher probability of being satisfied with their current financial condition compared to those who reported poor health. The second analysis included race as an explanatory variable. No statistical difference was found between Whites and non-Whites in perceptions of financial well-being when other factors were controlled for.

Discussion and Implications

Discussion

Financial planners focus on individuals' financial well-being. Planners have many tools available to evaluate an individual's financial well-being. One set of tools includes financial ratios. Financial ratios, including the liquidity ratio, the investment ratio, and the debt-to-asset ratio, provide objective measures of financial well-being. This study looks at the alignment between these objective measures and individuals' perceptions of financial well-being. Individuals' perceptions are measured with a question asking about satisfaction with current financial condition. This study focuses on individuals approaching, or in, retirement, and gives an indication of the role financial ratios can play in the financial planning process.

The results of this article show that, in a cross-sectional analysis, small and large changes in the investment ratio are positively associated with subjective measures of financial well-being, similar to the result found in Garrett and James (2013), although the association they found was larger. However, contrary to their findings, the analysis presented in this article shows that the debt-to-asset ratio is not associated with perceptions of financial well-being for older Americans, unless terciles are compared, suggesting that there needs to be a large change in the ratio to influence perceptions of financial satisfaction. The differing results may be due to the fact that Garrett and James (2013) use a longitudinal analysis or because the two analyses are performed on data collected from two different time periods. Garrett and James used data from before and during the economic downturn of 2007 to 2009. This analysis uses data from 2014 as the economy was recovering.

Finally, the results of this study suggest that the liquidity ratio does not have an economically meaningful association with perceptions of financial well-being for older Americans, unless terciles are compared, suggesting that, similar to the debt-to-asset ratio there needs to be a large change in the ratio to influence perceptions of financial satisfaction. This may be because those at or near retirement focus less on emergency funds and more on retirement assets. An additional month of emergency funds would likely be a significant improvement for a young college student, whereas an additional month of income may not be very significant to an individual needing to set aside funding for decades of retirement. Individuals may not think about the condition of their

TABLE 4. Marginal Effects of Financial Ratios by Tercile on Levels of Satisfaction With Current Financial Condition

	Not Satisfied at All				Completely Satisfied
	1	2	3	4	5
Liquidity ratio 2nd tercile	−0.02766***	−0.03948***	−0.01789***	0.03844***	0.04659***
	(0.0071)	(0.0093)	(0.0036)	(0.0094)	(0.0101)
3rd tercile	−0.04258***	−0.06701***	−0.04089***	0.06167***	0.08881***
	(0.0063)	(0.0084)	(0.0050)	(0.0087)	(0.0090)
Investment ratio 2nd tercile	−0.01785***	−0.02704**	−0.01407**	0.02609***	0.03287**
	(0.0064)	(0.0102)	(0.0060)	(0.0095)	(0.0130)
3rd tercile	−0.03596***	−0.06160***	−0.04453***	0.05504***	0.08706***
	(0.0040)	(0.0065)	(0.0050)	(0.0057)	(0.0085)
Debt-to-asset ratio 2nd tercile	0.01930***	0.03274***	0.02622***	−0.02729***	−0.05098***
	(0.0036)	(0.0055)	(0.0045)	(0.0049)	(0.0084)
3rd tercile	0.03333***	0.05227***	0.03600***	−0.04588***	−0.07572***
	(0.0048)	(0.0067)	(0.0052)	(0.0062)	(0.0098)
Age	−0.00177***	−0.00265***	−0.00174***	0.00226***	0.00390***
	(0.0002)	(0.0003)	(0.0002)	(0.0003)	(0.0004)
Male	0.0048	0.0072	0.0047	(0.0062)	−0.0106
	(0.0030)	(0.0044)	(0.0030)	(0.0037)	(0.0066)
Years of education	0.0010	0.0014	0.0009	−0.0012	−0.0021
	(0.0007)	(0.0010)	(0.0006)	(0.0008)	(0.0014)
Married	−0.02100***	−0.03132***	−0.01955***	0.02749***	0.04439***
	(0.0038)	(0.0049)	(0.0033)	(0.0044)	(0.0072)
Income per month	−0.00019***	−0.00029***	−0.00019***	0.00025***	0.00042***
	(0.00004)	(0.00005)	(0.00004)	(0.00005)	(0.00008)
Net worth (in 10 thousands)	−0.00015***	−0.00022***	−0.00015***	0.00019***	0.00033***
	(0.00004)	(0.00005)	(0.00003)	(0.00004)	(0.00007)
Retired	−0.01052***	−0.01602***	−0.01065***	0.01375***	0.02343***
	(0.0032)	(0.0051)	(0.0035)	(0.0044)	(0.0074)

Note. Data and weights compiled from the 2014 Health and Retirement Survey.
Pseudo *R*-Squared = .086.
*Significant at 10% level. **Significant at 5% level. ***Significant at the 1% level.
Numbers in parenthesis are standard errors.
Male, married, and retired variables are labeled as 1, zero if not.

financial ratios or the impact of an emergency fund; however, many individuals may associate financial well-being with debt and investments and not with the liquidity ratio.

Age, marital status, and retirement status also play important roles in one's perceptions of satisfaction with present financial conditions. Income and net worth play smaller roles and likely influence more in certain income ranges rather than overall.

The relationships between perceptions and objective measures of financial well-being are evident but do not appear to be very strong. Comprehensive financial planning involves many considerations, including goal planning, financial statement analysis, evaluation of current financial assets, portfolio management, tax planning, and so forth. Financial ratio analysis is only one small piece of the larger puzzle. A model that excludes many of the other variables used by a comprehensive financial planner would not be expected

to fully explain an individual's financial satisfaction. However, even small pieces of the puzzle can be important, and this study highlights this importance.

There are some limitations to this study. For example, a cross-sectional sample is used instead of combining multiple waves to create a longitudinal study. A longitudinal study would present a stronger case because some characteristics are held constant over time. A cross-section is used in this article to evaluate the immediate aftermath of the economic downturn of 2007 to 2009. In order to include the same individuals in multiple waves, there would be 4-year gaps making it difficult to isolate the recovery time after the downturn in the economy.

Another limitation is the use of a single survey question to measure individuals' perceptions of financial well-being. It would be more effective to use multiple questions to gauge perceptions. For example, the Consumer Financial Protection Bureau developed a Financial Well-Being Scale to more effectively measure perceptions of financial well-being (Consumer Financial Protection Bureau, 2015). Unfortunately, the Financial Well-Being Scale is not available in the HRS data set and the scale could be used in a future study.

Implications for Practitioners

This study finds evidence suggesting that financial ratios can be a helpful part of a comprehensive financial evaluation. Some ratios are associated with perceptions of financial well-being for older individuals and financial planners can use them in their analyses of individuals' finances. Garret and James (2013) found the solvency ratio to have the strongest relationship to perceptions of financial well-being preeconomic downturn. However, this article finds that the investment ratio has the strongest relationship postrecession. The magnitudes and correlations of the relationships between the financial ratios and perceptions of financial conditions are relatively small suggesting that financial ratios are only a small part of the full financial picture. Financial planners should use financial ratios but not rely too much on them as the financial ratios only tell part of the story. Educators of financial planning and financial literacy can use this study to help emphasize to students the importance of understanding financial ratios and that some ratios are likely related to perceptions of financial well-being.

Future research could break respondents into groups by financial-ratio levels. Those who have ratios that are considered too high or too low could warrant extra attention to see if there is misalignment between perceptions and the financial ratios. In addition, it could be helpful to examine the liquidity ratio more thoroughly. It would be interesting to see if the liquidity ratio has a larger impact on the financial well-being perceptions of younger individuals. This study did not consider the impact of home ownership and how leverage to purchase a home might influence perceptions of well-being. An analysis including home ownership could be insightful, particularly for a younger cohort that may be more likely to have mortgages on their homes.

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