Financial Leverage and Life Satisfaction of U.S. Baby Boomer Retirees: An Empirical Study

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This study examined the association between financial leverage and life satisfaction for retired baby boomers in the United States. Financial planning factors modeled included mortgage and non-mortgage debt, wealth, income, financial satisfaction, and financial control. This empirical study used a sample of 984 retirees aged 50-70 from the 2016 Health and Retirement Study. Life-cycle hypothesis was employed to explain and model life satisfaction. Ordinary least squares regression produced an adjusted R-squared of 41.31%. Partial support for the hypotheses was demonstrated. Non-mortgage debt was found to be negatively associated with life satisfaction, indicating lack of utility for this type of debt. Mortgage debt, on the other hand, was not negatively or positively associated with life satisfaction. Significant variables contributing to life satisfaction included financial satisfaction, physical health, social control, life expectations, and marital status. The results of this modeling would appear to indicate that outstanding non-mortgage debt has a greater negative impact on life satisfaction than mortgage debt.

Keywords: life satisfaction, life-cycle hypothesis, baby boomer, mortgage debt, non-mortgage debt

INTRODUCTION

Over the coming years, baby boomers will continue to retire at a steady pace (Colby & Ortman, 2014), which will strain retirement, health care, and other social programs (DeVaney, 1995). Financial planners are likely to be confronted with a variety of financial challenges from these baby boomers that may impede their life satisfaction in retirement. Financial leverage (debt) is likely to be one of these financial challenges. Baby boomers may still have a mortgage on their home, and despite recent rebounds in home values, many homes with a mortgage may still have high loan-to-value ratios. In addition to mortgage debt, baby boomers may have other personal debt as well, and some may have difficulty managing their debt load. In fact, according to the Consumer Bankruptcy Project, one in eight bankruptcies in the U.S. are filed by individuals who are 65 years or older, which is a fivefold increase among this age group since the early 1990s (Thorne, Foohey, Lawless, & Porter, 2020).

Given this problem, the purpose of this research is to determine the association between personal financial leverage, defined as one's mortgage and non-mortgage debt, and life satisfaction using the life cycle hypothesis as the theoretical framework. Furthermore, this research aims to determine to what extent the *type* of financial leverage is associated with life satisfaction. While previous research has focused on the elements of *financial* satisfaction in retirement, less energy has been devoted to the association between debt and *life* satisfaction in retirement (Seay, Asebedo, Thompson, Stueve, & Russi, 2015). Life satisfaction tends to be driven by the domains of socioeconomic status, social network, and competence, while financial

satisfaction tends to be driven by one's income, the level of assets, the amount of debt and types of debt, and financial stressors (Pinquart & Sorensen, 2000).

This research is important for several reasons. First, public concern has risen over the high number of borrowers unable to make their loan repayments, and many individuals are reporting financial distress and feel constrained by their loan repayments (Keese, 2012). Second, policymakers, too, have become concerned about the extent of overall personal indebtedness, its sustainability, and impact (Delgadillo, Stokes, & Lown, 2014). Third, results of this research should provide practitioners with a better understanding of baby boomer priorities when developing a financial plan in retirement. Lastly, this research may also help lenders understand the impact of their credit decisions when lending to baby boomer retirees.

LITERATURE REVIEW

Life Satisfaction

Given the complexity and subjectivity of defining one's satisfaction with life, research encompassing a variety of purposes and perspectives has been conducted on the subject. Life satisfaction for this study is defined as a feeling of happiness and lack of dissatisfaction with all of life satisfaction's domains (Ardelt, 1997). However, measuring life satisfaction is complicated by the fact that a variety of domains of life satisfaction have been posited in the literature. For example, Pinquart and Sorensen (2000) proposed the domains of socioeconomic status, social network, and competence (Pinquart & Sorensen, 2000), while Medley (1976) proposed financial satisfaction, health satisfaction, satisfaction with standard of living, satisfaction with family life, and satisfaction with life. This research focuses primarilty on the association between financial-related domains and life satisfaction.

Financial Leverage and Life Satisfaction

Using a longitudinal dataset for the U.S. population from the Panel Study of Income Dynamics, one study evaluated the "short-term links between different forms of household debt…and life satisfaction" (Bialowolski & Weziak-Bialowolska, 2021). This research found a positive association between home and car financing and life satisfaction, while credit card and student loan debt were negatively associated with life satisfaction. However, additional research on the association between financial leverage and *life* satisfaction is quite limited. Most research focuses instead on the association between financial leverage and financial satisfaction or explores other related associations. For example, Lee, Lown, and Sharpe (2007) sought to determine the predictors of debt among individuals aged 65 and over and found individuals who had larger households, had higher levels of education, were aged 65–74, were married, were Black, and were employed, were significantly more likely to hold consumer and mortgage debt, and that holding one type of debt was associated with holding the other type. However, mortgage debt was associated with higher income, while consumer debt was associated with lower income, indicating that mortgage debt may be seen as a way of acquiring an appreciating asset (Lee, Lown, & Sharpe, 2007).

Previous research has also examined the perception of financial well-being for individuals 50 and older who are in or near retirement. Contrary to other research, this research found that the debt-to-asset ratio was not associated with perceptions of financial well-being for older individuals. However, homeownership, attitude toward credit, and income tend to have a significant impact on one's financial well-being (Tenney & Kalenkoski, 2019). Studies also suggest that individuals with a neutral or negative disposition towards credit had a lower level of debt than those with positive attitudes toward debt. Similarly, individuals with a low-to-average risk tolerance had less debt than those with an average-to-high risk tolerance (Baek & DeVaney, 2004). Other research conducted to predict the extent of one's financial leverage found that disposable income was the main factor in determining how far people went into debt (Livingstone & Lunt, 1992).

Research has also explored the extent to which *non-mortgage* debt alone influences the subjective well-being for individuals. Studies indicate that individuals who have outstanding (non-mortgage) debt, perhaps on the higher end, are much less likely to report subjective well-being and experience higher levels of

anxiety. On the other hand, this research also found no significant association with well-being and mortgage debt (Brown, Taylor, & Price 2005; Dew & Xiao 2011). As it pertains to mortgage debt alone, the findings are mixed. Some research found no significant relationship between mortgage debt and financial satisfaction (Seay, Asebedo, Thompson, Stueve, & Russi, 2015), while others found a significant association with financial satisfaction (Aboagye & Jung, 2018).

THEORETICAL FRAMEWORK AND HYPOTHESES

Ando and Modigliani's (1963) life-cycle hypothesis suggests that households seek to maximize utility during their lifetime, subject to resource constraints. To maintain a stable level of consumption over their lifespan, households may borrow to expand these resources (Ando & Modigliani, 1963). A household that decides to borrow makes a controlled, utility-maximizing decision, which means that this decision was voluntary, and if it was not utility improving, it would not have been made. For example, a household with resource constraints may take student loans to pay for college education costs with the belief that the loans will add value to the borrower's human capital and earn an adequate return on investment in future, thereby allowing the borrower to be able to repay the student loan debt and live a satisfied life (Korankye & Kalenkoski , 2021).

Associating utility maximization with happiness or life satisfaction has already been suggested and widely accepted (Frey & Stutzer, 2002; Sabatini & Sarracino, 2017). For instance, individuals under resource constraints may use a mortgage loan to pay for housing with the expectation that it will provide the necessary shelter, appreciate, repay the mortgage, and live a satisfied life as well. Thus, younger individuals may need to borrow to meet consumption needs, while middle-aged individuals may pay down debt and save, and retirees may spend their financial wealth in retirement. Following this logic, retirees would therefore have minimal debt with little or no housing debt and be cautious about depleting their assets (Delgadillo, Stokes, & Lown, 2014). However, Bialowolski and Weziak-Bialowolska (2021) argued that if the benefit of the product or service received from the debt exceeds the burden of the debt, the impact on satisfaction can be positive.

To extend the life-cycle hypothesis to this research, it is hypothesized that individuals will use a certain level of debt based on the utility (satisfaction) they receive from it. This level of debt represents their optimal mix of debt and equity where their satisfaction is maximized. One's utility is increased by financial leverage by allowing a greater investment in assets with the same amount of equity. So, a borrower will likely use more debt to enhance their consumption and satisfaction until the cost and risk of more debt is greater than the satisfaction derived from it, which is the point where the marginal costs of debt offset the satisfaction derived from debt.

Based on this theoretical framework and the purpose of this research, the following hypotheses are rendered:

Hypothesis 1: There is a negative association between mortgage debt and life satisfaction.

Hypothesis 2: There is a negative association between other debt and life satisfaction.

Hypothesis 3: There is a positive association between financial control and life satisfaction.

Hypothesis 4: There is a positive association between financial wealth and life satisfaction.

Hypothesis 5: There is a positive association between financial satisfaction and life satisfaction.

METHODS

Data and Sample

To test these hypotheses, secondary cross-sectional data from the Health and Retirement Study (HRS) 2016 Core served as the data source for this research. The HRS is a biennial longitudinal survey of the economic, health, marital, family status, and public/private support systems of approximately 20,000 individuals who are representative of the U.S. population over 50. Additionally, user-friendly 2016 RAND HRS Fat File data prepared by the RAND Center for the Study of Aging was used when possible. The sample from these sources was limited to 984 homeowner retirees, aged 50-70. However, when incorporating HRS weighting information into the statistical model to be more representative and account for the sampling design of the survey, these observations will represent considerably more individuals.

SAS statistical software was used to provide the analytics for this research. Because a composite and continuous measure was used for the dependent variable of life satisfaction in this study, ordinary least squares regression was used to model the relationships. Variance inflation factor (VIF) testing was also conducted to check for multi-collinearity. To determine the strength of the model, the adjusted R-squared was noted and the p-values for the independent variables were examined for significance.

Dependent Variable

Life satisfaction is the dependent variable for this research, in accordance with the life-cycle hypothesis. To measure this variable, previous research has used the "Satisfaction with Life Scale" (Oishi, Diener, Lucas, & Suh, 1999). The present research used the same scale, which is a proven and reliable survey measure of subjective well-being that has been used and tested (Diener, Emmons, Larsen, & Griffin, 1985). This scale measures life satisfaction by a series of five items that ask respondents to indicate their level of agreement on a seven-point Likert scale to each item pertaining to life satisfaction, where 1 = Strongly disagree, 2 = Somewhat disagree, 3 = Slightly disagree, 4 = Neither agree nor disagree, 5 = Slightly agree, 6 = Somewhat agree, and 7 = Strongly agree. The life satisfaction items consisted of the following statements:

      (a) In most ways my life is close to ideal.
      (b) The conditions of my life are excellent.
      (c) I am satisfied with my life.
      (d) So far, I have gotten the important things I want in life.
      (e) If I could live my life again, I would change almost nothing.

Cronbach's Alpha testing was conducted to test reliability for this scale, which generated a score of .90.

Independent Variables

Financial Leverage, Wealth and Control Variables

In addition to mortgage debt, the presence of other debt was extracted from the dataset to determine its association with life satisfaction. Likewise, the association between non-housing financial wealth and life satisfaction was also explored to capture assets. As a proxy for one's non-housing financial wealth, a continuous value which specifically measures the respondent's non-housing numerical financial wealth was used. Previous research also suggests that one's perception of their current financial situation can be an important predictor of life satisfaction (Dolan, Peasgood, & White, 2008). To measure a respondent's assessment of control over their finances, a 0 to 10 scale was used where 0 means "no control at all" and 10 means "very much control." Additionally, respondents were queried on their level of financial satisfaction using the following scale: 1=Completely Satisfied, 2=Very Satisfied, 3=Somewhat Satisfied, 4=Not Very Satisfied, and 5=Not at All Satisfied.

Social, Competence, and Health Variables

Based on previous research, other variables that might be associated with life satisfaction include "Purpose in Life" and "Perceived Mastery" (Oishi, Diener, Lucas, & Suh, 1999). These variables were validated using scales that had previously been established to be reliable measures (Keyes, C. L. M,

Shmotkin, & Ryff, 2002). Even so, Cronbach's Alpha testing was conducted to test reliability for the scales used for these measures and data. Scores rendered were .80 and .89 for "Purpose in Life" and "Perceived Mastery," respectively.

Consistent with the research on the domains of life satisfaction, measures for physical health and one's social network, known to drive life satisfaction, were also included in this research (Medley, 1976). To measure physical health for this research, a subjective measure was used where health was rated as follows: 1=Excellent, 2=Very Good, 3=Good, 4=Fair, and 5=Poor. To measure one's social network, previous research used measures such as the Social Support Questionnaire, which is a 12-item instrument in which individuals are asked to list the people (up to nine) in their social network whom they perceive as helpful in six different areas (Haley, et al., 1996). Social functioning is also often measured via a composite scale of one's social interactions, social network, and the number of contacts an individual has with friends each month (Lynch, Kaplan, & Shema, 1997). As a proxy for one's social network, this research measured one's control over their social life by asking respondents "How would you rate the amount of control you have over your social life these days?" A scale of 0 to 10 was used where 0 means "no control at all" and 10 means "very much control."

Control Variables

Consistent with previous research, sample characteristics added to control for socioeconomic status in this research included college education, marital status, children, gender, age, and income. With respect to the income variable, research usually indicates a positive but diminishing association between income and life satisfaction. The idea is that the higher one's income, the greater the satisfaction with one's standard of living but at diminishing levels (Dolan, Peasgood, & White, 2008). Additionally, women tend to report higher happiness, and some studies found a positive relationship between each level of education and subjective well-being. Being in a caring relationship such as marriage also tends to evoke higher life satisfaction than being alone. However, research regarding the impact of having children on life satisfaction is mixed (Dolan, Peasgood, & White, 2008).

STATISTICAL ANALYSES AND RESULTS

Descriptive Statistics

Table 1 provides a synopsis of the sample characteristics for this research. Most of the sample was of age 60-70 (77%) and consisted of more females (60%) than males (40%). Many of the respondents were married (70%) with children (88%) and did not have a college education (71%). Just over half (58%) of the respondents reported no mortgage debt, but with the remaining 42% having mortgage debt, the sample for this research is somewhat balanced.

TABLE 1
SAMPLE CHARACTERISTICS (N = 984)

Variable	n	%		n	%
Mortgage:			Children:		
Yes	415	42.17	Yes	869	88.31
No	569	57.83	No	115	11.69
College:			Gender:		
Yes	285	28.96	Male	390	39.63
No	699	71.04	Female	594	60.37
Age:			Married:		
$\geq 50 < 60$	170	17.28	Yes	685	69.61
$\geq 60 < 70$	755	76.73	No	299	30.39
$\geq 70 < 80$	59	6.00			

Table 2 provides sample characteristics for the scales with a mean respondent age of 64. Life satisfaction was high for the sample *(M = 5.19, range 1-7)* and respondents were confident in their abilities with a high self-efficacy score (M = 5.00, range 1-6). Most respondents believe to have found purpose in life (M = 4.70, range 1.43-6) and likewise have a sense of overall life mastery (M = 4.95, range 1-6). Similarly, most individuals reported having control of their finances (M = 7.69, range 1-10) and were in good physical health (M = 3.23, range 1-5). Respondents reported having a high control of their social lives (M = 8.22, range 1-10) with high expectations of what lies ahead for them in their lives (M = 4.87, range 1-6). The mean income reported was $87,637 along with financial wealth of $199,970 and mean non-mortgage debt of $5,414.

TABLE 2
SAMPLE CHARACTERISTICS OF SCALES

Variable	Mean	Std Dev	N	Min	Max
Life satisfaction	5.19	1.46	984	1.00	7.00
Age	63.93	4.43	984	51.00	70.00
Self-Efficacy	5.00	1.18	984	1.00	6.00
Expectations	4.87	1.20	984	1.00	6.00
Physical health	3.23	1.02	984	1.00	5.00
Fiancial Satisfaction	3.42	1.07	984	1.00	5.00
Purpose in life	4.70	0.93	984	1.43	6.00
Mastery	4.95	0.98	984	1.00	6.00
Financial control	7.69	2.17	984	1.00	10.00
Social Control	8.22	1.94	984	1.00	10.00
Income	$87,637	$134,877	984	$0	$2,411,618
Financial Wealth	$199,970	$755,229	984	$0	$11,366,332
Other Debt	$5,414	$27,562	984	$0	$735,000

To evaluate variable independence, correlation analysis was conducted to check the strength of the relationship between independent variables utilizing Pearson's correlation testing. The results of the test did not reveal cause for concern, with most coefficients falling below +/-.50 as demonstrated in Table 3.

TABLE 3
PEARSON CORRELATION COEFFICIENTS, N = 984

	Mortgage	Income (log)	Health Status	Purpose	Mastery	Homeowner	Retiree	Expectations	Other Debt (log)	Wealth (log)	Social Control	Financial Control
Income (log)	0.10 **											
Health Status	-0.01	0.17 ***										
Purpose	0.00	0.08 **	0.30 ***									
Mastery	-0.03	0.09 **	0.28 ***	0.44 ***								
Homeowner	0.04	0.26 ***	0.23 ***	0.12 **	0.09 **							
Retiree	-0.09 **	-0.10 **	-0.17 ***	-0.11 **	-0.07 *	-0.07						
Expectations	-0.08 *	0.04	0.22 ***	0.37 ***	0.39 ***	0.04	-0.03					
Other Debt (log)	0.18 ***	0.01	-0.12 **	0.01	-0.04	-0.09 **	-0.02	-0.02				
Wealth (log)	0.03	0.32 ***	0.29 ***	0.12 **	0.07 *	0.33 ***	-0.07	-0.01	-0.04			
Social Control	-0.02	0.06	0.25 ***	0.39 ***	0.42 ***	0.09 **	-0.07	0.30 ***	-0.04	0.07		
Financial Control	-0.13 ***	0.09 **	0.32 ***	0.37 ***	0.40 ***	0.11 **	-0.03	0.29 ***	-0.10	0.16 ***	0.50 ***	
Financial Satisfaction	-0.19 ***	0.24 ***	0.38 ****	0.31 ***	0.30 ***	0.25 ***	-0.01	0.23 ***	-0.20 ***	0.33 ***	0.26 ***	0.51 ***

Note. *p < .05. **p <.01. ***p < .001.

Regression Results
Financial Leverage Variables

Table 4 provides the coefficients of the variables used to model life satisfaction in this research, and their level of significance along with VIF to check for multi-collinearity. Based on the model's adjusted R-squared, 41.31% of the variance in life satisfaction was explained. Additionally, there were no multi-collinearity issues between the independent variables per VIF testing with no factors over 10. For this sample, holding all else equal, other debt, was negatively associated with life satisfaction *(b =- .013, p < .05)*, indicating lack of utility for this type of debt. Mortgage debt, on the other hand, was not negatively or positively associated with life satisfaction. However, like previous research, financial satisfaction was positively associated with life satisfaction *(b = .378, p < .001)*.

TABLE 4
OLS REGRESSION RESULTS (*N =984*)

Variable	*Unstandardized coefficients*	SE		*VIF*
Constant	-0.922	0.602		0.000
Mortgage	0.126	0.076		1.118
Other Debt (log)	-0.013	0.006	*	1.110
Financial Wealth	-0.011	0.008		1.249
Income (log)	0.040	0.026		1.330
Physical health	0.268	0.043	***	1.401
Social Control	0.089	0.023	***	1.582
Purpose in life	0.081	0.048		1.534
Mastery of life	0.072	0.075		4.130
Life Expectations	0.165	0.034	***	1.362
Financial control	0.012	0.023		1.754
Self-Efficacy	-0.022	0.057		3.699
Financial Satisfaction	0.378	0.046	***	1.816
Married	0.465	0.093	***	1.332
Children	0.199	0.112		1.148
Gender	0.013	0.008		1.078
Male	-0.119	0.074		1.062
College Education	0.120	0.081		1.127
R-Square	41.31%			

Note. *p < .05. **p <.01. ***p < .001. SE = Standard Error.

Social, Competence, Health and Control Variables

Consistent with conventional wisdom, better physical health was significantly associated with life satisfaction *(b = .268, p < .001)*, holding all else equal. Likewise, having a positive outlook and expectation for what lies ahead in life was significantly associated with life satisfaction *(b = .165, p < .001)*. Control over the respondent's social network was also significantly associated with life satisfaction, so for every 1-point increase in social control, there was a .089 unit increase in life satisfaction, holding all else equal. The only control variable significantly associated with life satisfaction was being married *(b = .465, p < .001)*.

This mixture of significant variables supports the notion that while the financial domain is significant in determining the life satisfaction of retirees, the domains of health, social network, and competence are also important consistent with previous research.

DISCUSSION, IMPLICATIONS, AND LIMITATIONS

This study examined the association between financial leverage and life satisfaction for retirees based on the conceptual framework of the life cycle hypothesis. This research adds to the literature in several ways. First, the association between the mortgage debt and life satisfaction for the homeowner retiree was examined. Second, through an objective measure of other household debt, its association with life satisfaction was also determined. Finally, this research also examined the impact of health, social control, and socio-economic variables on life satisfaction.

Based on these results, the hypotheses are only partially supported. Hypothesis 1 which predicted a negative association between mortgage debt and life satisfaction is rejected due to lack of significance. This would support the notion that leverage can support life satisfaction per the life cycle hypothesis. However, hypothesis 2 which also predicted a negative association between other debt and life satisfaction is not rejected. The "other debt" variable in the model is negative and significant ($p < .05$). These results would indicate that this type of debt is offering too much leverage to support life satisfaction. Hypothesis 3 which predicted a positive association between financial control and life satisfaction is rejected given that the "financial control" variable in the model is not significant. Likewise, hypothesis 4 which predicted a positive association between financial wealth and life satisfaction is also rejected due to lack of significance. On the other hand, hypothesis 5 which predicted a positive association between financial satisfaction and life satisfaction is not rejected given the "financial satisfaction" variable in the model is significant ($p < .001$).

The results of this modeling would appear to indicate that outstanding non-mortgage debt has a greater negative impact on life satisfaction than mortgage debt. Like previous research, financial satisfaction, having control over one's social life, being in good physical health, and maintaining positive expectations about the future were also found to contribute retiree life satisfaction. Given these findings, it behooves financial advisors to examine their clients' leverage situations and coach them accordingly as part of the financial planning process. Ultimately, the advisor's objective is to enhance client well-being to achieve certain financial outcomes (Ammerman & Stueve, 2018). Based on this research and backed by the life cycle hypothesis, mortgage debt does not necessarily decrease homeowner retiree life satisfaction as conventional wisdom might suggest. On the other hand, this research suggests that financial advisors should advise their clients against carrying non-mortgage debt into retirement. As noted in Seay et al. (2015), the In Charge Financial Distress/Financial Well-Being scale may be a useful tool for advisors when assessing client debt loads. Likewise, planners and educators alike should also provide the appropriate educational tools for retirees that address having debt into retirement. Future research may wish to explore the impact of this coaching and resulting financial knowledge on homeowner retiree behaviors and life satisfaction.

While this research has made some contributions to the literature, it is not without its limitations. As noted in this research, the life satisfaction construct is relative. Despite the reliability of the scale used, what constitutes "strongly agree" may differ among respondents. This study was also limited to focusing on baby boomer retirees that excluded younger and older retirees. Future research may wish to explore the impact of including these age groups in the modeling.

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