



A Structural Determinants Framework for Financial Well-Being

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Abstract

This study develops a conceptual framework that provides a broad understanding of financial well-being. Using the 2018 National Financial Capability Study and structural equation modeling methods, this study provides empirical evidence for the proposed framework by identifying significant direct and indirect determinants of financial well-being. Previous personal financial wellness and financial satisfaction-related research provides a theoretical rationale for the construction of the conceptual framework in the current study. The results reported the relationships among these determinants, including financial perceptions and knowledge factors, financial stress, short- and long-term positive financial behavior, and financial satisfaction. The findings indicate that financial satisfaction, short-term financial behavior, perceived financial capability showed positive and direct associations with financial well-being, whereas financial stress and long-term financial behavior were negatively and directly associated with financial well-being. Financial perception and knowledge factors, financial stress, and short-term financial behavior also showed significant indirect relationships with financial well-being. The findings of this study contribute to the literature on financial well-being and provide significant policy and practical implications. Implications for financial practitioners and policy makers are discussed.

Keywords Financial well-being · Financial satisfaction · Financial behavior · Financial stress · Financial knowledge · Perceived financial capability · Structural equation modeling

JEL D14 · G50

Introduction

Many researchers have been working toward understanding financial well-being, how it is measured, how it is defined, and how it relates to other issues such as financial behavior, financial stress, and financial literacy. As research has increased in this area, we have also witnessed economic shocks such as the Great Recession and the COVID-19 pandemic. The importance of understanding financial well-being is heightened under these types of circumstances and

understanding what is associated with it and how to improve it serves as an important goal for individuals and families and an important understanding by policy makers, financial service providers, and financial educators.

Understanding financial well-being with the goal of improving financial well-being is an important endeavor for individuals and families. Making good decisions that positively impact financial well-being is significant especially during uncertain times. Adequate financial knowledge and planning skills are needed to understand the current complexities of the financial system. Understanding things such as employer retirement plans for long-term planning and the importance of saving for emergencies to establish a short-term safety net, essential pieces of the financial literacy construct can have ramifications for both short- and long-term financial well-being (Henager & Cude, 2016). Ineffective money management can lead to behaviors that make consumers vulnerable to severe financial crises (Braunstein & Welch, 2002). Financial literacy, which can lead to improved financial well-being (Taft et al., 2013),

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may help alleviate issues that arise from economic insecurity (Bowman et al., 2017), such as crises from bankruptcy, foreclosure on a mortgage, job loss, medical expenses from an extended illness, and other economic shocks. Indeed, being financially secure may alleviate or buffer the stress and anxiety that accompany such crises. Assessing financial knowledge, stress, and behavior is essential for gauging the economic security of families around the world.

The existing body of research on financial well-being suggests that financial well-being is a subjective assessment of one's current and future financial life (Brüggen et al., 2017; CFPB, 2015a, 2015b; Netemeyer et al., 2018) and can be associated with both objective financial status and subjective traits, such as perceived and objective financial knowledge, financial confidence, self-control and self-esteem, financial behavior, and financial stress (e.g., CFPB, 2017; Malone et al., 2010; Shim et al., 2009; Sorgente & Lanz, 2017; Xiao et al., 2009). However, much of the research on financial well-being does not necessarily address the interconnections among all relevant factors. Furthermore, there have been few empirical studies attempting to establish a conceptual framework and test it with national data. Previous studies have examined financial well-being using college students and young adults as the sample (e.g., Limbu & Sato, 2019; Braun Santos et al., 2016; Shim et al., 2009; Archuleta et al., 2013) or conceptualized financial well-being by current stress and future expected security without proposing hierarchical and structural relationships among the determinants (Netemeyer et al., 2018). We think that these indicate a need to understand and examine financial well-being using a more integrated approach to better understand this subject.

Given the many complexities within the financial system, it is important to understand financial well-being using an array of measures. This study aims to establish a structural determinants framework that provides a broader understanding of financial well-being. This framework, grounded in previous literature and theories, examines determining variables compiled into a structural relationship with financial well-being, including financial perception and knowledge factors, financial stress, short- and long-term positive financial behavior, and financial satisfaction. This study offers new insight into the relationships among determinants of financial well-being from a structural framework perspective and makes an original contribution to the current literature on financial well-being. Another unique contribution is that, to our knowledge, this is among the first studies providing evidence that financial satisfaction and financial well-being are two distinct concepts, and financial satisfaction is a positive indicator and subdimension of financial well-being. Further, this study also contributes to the recent research practice that separately examines short- and long-term financial behavior, given that they showed different associations with financial outcomes. The findings of this study provide

implications for policy makers, financial service providers, and educators and will ultimately benefit individuals and families. While the sample is based in the US, the findings are relevant to families around the world.

Literature Review

According to Consumer Financial Protection Bureau (CFPB) (2015), financial well-being is defined as being able to control everyday finances, absorb financial shocks, track and meet financial goals, and have financial freedom, with financial behaviors, knowledge, and personal traits as key driving elements. Financial well-being is also reflected by current money management stress and the expectations of future financial security that can have significant influences on overall life well-being (Netemeyer et al., 2018). Previous research has established relationships between financial well-being and stress, financial behaviors, and financial knowledge, but very few have built an integrated framework to examine the connections of the many determinants of financial well-being. For example, studies have examined the relationship between financial capability, planning, and financial well-being (Xiao & O'Neill, 2018) citing a positive relationship between financial planning and financial well-being while controlling for financial capability. The Consumer Financial Protection Bureau (CFPB) (2017) reported that the availability of liquid savings was a differentiator between levels of financial well-being, highlighting the positive relationship between savings and financial well-being. Studies have also shown a relationship between financial behavior and financial well-being (Gutter & Copur, 2011; Shim et al., 2009) and between financial confidence and financial well-being (CFPB, 2017). In addition, demographics play a role in perceptions of financial well-being in individuals and families. Association with financial well-being has been reported by marital status, family structure, age, education, and income (CFPB, 2017; Malone et al., 2010).

Financial Perception and Knowledge Factors

In a comprehensive study on financial well-being in America, the CFPB (2017) reported a wide variation in how Americans feel about their well-being. Also, while their measure of financial well-being reflected distinct differences in underlying financial conditions, their measure indicated some subjectivity is involved as well. For example, other than objective information, such as income, employment, and liquid savings, financial confidence in the ability to achieve financial goals and the propensity to plan for money management have been found positively related to financial well-being (CFPB, 2017). Brüggen et al. (2017) posited that the concept of financial well-being is subjective in nature

that reflects both present and future financial freedom, where the perception of one's own well-being is key regardless of the objective conditions. Moreover, other subjective perceptions such as financial attitudes, subjective norms, and perceived behavioral control, along with financial knowledge, have also been conceptualized in a framework of young adults' financial well-being models by Shim et al. (2009).

Perceived financial knowledge has been used in the literature interchangeably with subjective financial knowledge and financial confidence (Fan, 2021; Henager & Cude, 2016, 2019). Indeed, the subjective knowledge question for the National Financial Capability Study (NFCS) has been used often to represent these subjective measures (*"On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?"*). Subjective financial knowledge and perceived financial (or money management) capability are both measured by a self-assessment regarding the respondent's perception of his or her own overall financial knowledge, and how well the respondent believes he or she deals with day-to-day financial matters (Fan, 2021; Henager & Cude, 2016, 2019). In each of these studies, an association between subjective or perceived financial knowledge and positive financial behaviors was found to be significant. Perceived goal-reaching ability has also been found to be a significant perceived and motivational factor associating with financial behavior and financial well-being (Fan & Park, 2021).

While financial knowledge has been found as a significant determinant of financial well-being, the subjective and objective financial knowledge are two distinct concepts and also show different influences on financial outcomes, such as borrowing behavior (e.g., Robb & Woodyard, 2011; Seay & Robb, 2013; Tang & Baker, 2016). Sorgente and Lanz (2017) reviewed 44 studies analyzing financial well-being and reported finding various domains that may be associated with financial well-being, one of which was the financial domain including financial knowledge and financial behavior. Prawitz et al. (2006) constructed a measurement for financial well-being called the InCharge financial distress/financial well-being (IFDFW) scale which included measurements such as the respondent's feelings about their current financial situation and their level of knowledge about personal finances among a ten-item list of concepts.

Financial Stress

Financial stress is a psychological factor representing an increased uncertainty about one's financial situation and perceived financial hardship (e.g., Baker & Montallo, 2019; Lim et al., 2014). Financial well-being is negatively associated with stress and anxiety (Malone et al., 2010) which is heightened by stressful circumstances such as economic shocks, job loss, and family issues such as being a single

parent. Indeed, as family structures change, with more single-headed households and single mothers, researchers have found more financial insecurity and worry over finances in single women and single mothers (Malone et al., 2010). If this trend continues, with single-headed households, the financial well-being of many more households and families could be at risk.

Henager and Mauldin (2015) found a significant and negative relationship between anxiety and savings, which in turn, would impact financial well-being, as financial well-being has been found to be positively related to both income and saving (Collins & Urban, 2020). Grable et al. (2015) found that those with financial anxiety and stress can be influenced negatively in their financial planning and advice-seeking activities. In studies of college students, Archuleta et al. (2013) and Lim et al. (2014) suggested that financial stress could hinder seeking appropriate financial professional advice and be negatively associated with financial satisfaction. Joo and Grable (2004) and Joo (2008) reported financial satisfaction and financial well-being were associated with many factors including financial behaviors, financial stress levels, income, and financial knowledge. Perceived financial stress has been shown to have a significant effect on life satisfaction (Lazarevic et al., 2016).

Financial Behavior

It is also important to note the reported association with financial behavior as part of the overall examination of a person's well-being. Shim et al. (2009) found certain financial behaviors, such as spending and saving money, were associated with levels of financial well-being. Indeed, the IFDFW scale also included such things as the availability of emergency savings and living paycheck-to-paycheck among the ten-item list of concepts (Prawitz et al., 2006). Financial behavior has been defined as any human behavior that is relevant to money management (Gutter & Copur, 2011). For example, saving, spending, planning for retirement, investing, and credit usage behaviors, are all financial behaviors. These types of financial behaviors can lead to costly decisions (such as carrying too much debt, not paying credit cards off in full each month, or being late paying bills) or can be best practices (spending within one's means, saving for emergencies, and saving for retirement). Positive financial behaviors refer to financial behavior and activities that can benefit the individual, such as paying bills and debt on time, budgeting, active saving, setting and working towards financial goals (Dew & Xiao, 2011; Kim et al., 2019; Wagner & Walstad, 2019).

Financial behaviors have been categorized in the context of short- and long-term behaviors in recent research (Fan, 2021; Henager & Cude, 2016, 2019; Wagner & Walstad, 2019). These short-term behaviors included

items such as having an emergency fund and spending less than one's income, whereas the long-term behaviors included items such as planning for retirement, saving for retirement, and investing. Indeed, research has shown the importance of short-term behavior, specifically the importance of emergency fund savings as a buffer against financial shocks (Babiarz & Robb, 2014; West & Friedline, 2016). Moreover, research has provided evidence that there could be different determinants and consequences of short- and long-term financial behavior (e.g., Fan, 2021; Henager & Cude, 2016, 2019; Wagner & Walstad, 2019) that provide support to examine them separately. In the current study, both short- and long-term financial behaviors were examined as positive and responsible financial behaviors. For example, positive short-term behaviors included are having an emergency fund, spending less than one's income, paying credit cards in full, and having no difficulty paying bills. The long-term behaviors include calculating retirement needs, having retirement accounts, having investments, and having a savings account.

Financial behaviors can be associated with some determinants, for example, financial knowledge, some psychological traits, and subjective perceptions. For instance, Tang and Baker (2016) found that self-esteem can directly relate to financial behavior, such as savings amounts, holding credit card debt, investing in risky assets, and can also indirectly relate to these financial behaviors through subjective knowledge. Financial behavior can also relate to subjective and objective financial knowledge (e.g., Robb & Woodyard, 2011). Financial stressors, perceived financial capability, and over-indebtedness can also relate to both short- and long-term financial behaviors (Fan, 2021).

Financial behavior has been associated with financial well-being in many studies. Shim et al. (2009) and Gutter and Copur (2011) found healthy financial behaviors were positively associated with financial well-being among young adults. Recent findings indicate that financial knowledge and confidence, having savings, and financial cushions are associated with higher levels of financial well-being, while carrying certain types of debt is associated with lower levels of financial well-being (CFPB, 2017). Lower financial well-being was associated with having debt in collection or having no savings (Collins & Urban, 2020). In addition, Collins and Urban (2020) suggest that resources, financial skills, debt, and subjective measures were important correlates of financial well-being. In a recent study on the role of financial behavior in determining financial well-being, Iramani and Lutfi (2021) suggested that financial behavior can have direct and indirect mediating relationships with financial

well-being through its association with financial knowledge and locus of control.

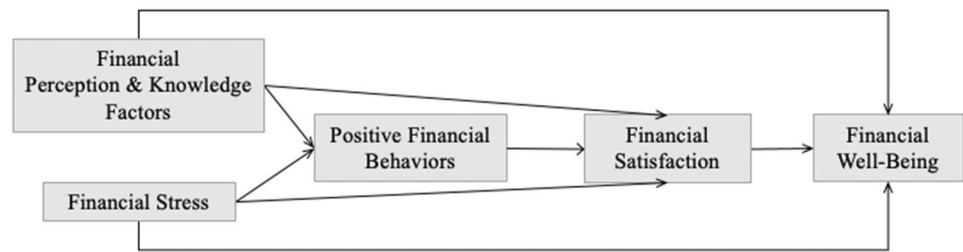
Financial Satisfaction

Financial satisfaction is often used interchangeably with financial well-being and in some studies used as a proxy for subjective financial well-being (Sorgente & Lanz, 2019; Xiao et al., 2009). In psychology studies, life satisfaction is one of the sub-components of and is positively associated with the overall subjective well-being that is a broad concept, along with positive and negative effects (Diener, 1984, 2000; Diener et al., 2002). Therefore, when examining the financial subdomain of subjective well-being, or financial well-being, it is assumed that financial satisfaction is one sub-component of a broader concept of financial well-being and will be positively associated with financial well-being. Financial well-being is considered a sub-domain of overall subjective well-being, and financial satisfaction is a sub-domain of life satisfaction. Therefore, financial satisfaction is proposed to be a direct predictor of financial well-being (Joo, 2008). When examining financial satisfaction in the context of financial well-being in women, Malone et al. (2010) reported that women were more financially satisfied and well off with age. Gerrans et al. (2014) examined the relationships among financial wellness, personal well-being, and financial satisfaction using a dataset from Western Australia.

Shim et al. (2009) used a conceptual model to examine well-being in young adults which included three domains, one of which was financial knowledge, attitudes, behaviors, focusing on the relationship between financial satisfaction and overall financial well-being. In this study, the researchers assessed both objective and subjective measures of financial well-being and found a direct link between behavior and financial satisfaction and a strong relationship between both financial behavior and satisfaction and financial well-being. The findings from another study suggest the propensity to plan makes a unique contribution to financial satisfaction (Xiao & O'Neill, 2018).

Conceptual Framework

This study attempts to provide an integrated examination of the determinants of financial well-being by establishing a structural framework that incorporates financial perception and knowledge factors, financial stress, positive financial behaviors (comprised of positive short- and long-term financial behavior), and financial satisfaction. The Personal Financial Wellness (PFW) theoretical framework developed by Joo (2008) has provided a foundation for the construction of the conceptual framework in the current study. Joo

Fig. 1 Conceptual framework of financial well-being

(2008) proposed four elements of the PFW framework that includes objective status (income, or financial status), financial satisfaction, financial behavior, and subjective perception (including financial attitudes and financial knowledge). However, there was no empirical test performed to comprehensively examine these elements described in the PFW framework. Similarly, factors such as financial behavior and personal characteristics (such as financial knowledge, capability, self-efficacy, financial practice, etc.) are also proposed by Brügger et al. (2017) in their conceptualization and research agenda of financial well-being. Garmen et al. (1999) used the PFW to examine workplace education's impact on employees' financial wellness. Joo's (2008) framework was also used to study workers' job productivity (Parcia & Estimo, 2017).

Joo and Grable's (2004) framework of financial satisfaction also demonstrates a need to incorporate financial stress into the framework of financial well-being in the current study. Financial satisfaction has been examined by Joo and Grable (2004) using path analysis. They found that financial satisfaction can be influenced by financial stress, financial behavior, financial knowledge, solvency, and risk tolerance, as well as income and education. However, more evidence is needed to link financial satisfaction, stress, behavior, and perceptions to financial well-being. Furthermore, Mahendru (2020) proposed that along with financial literacy and financial capability, psychological factors including, perceived financial status, personality traits, behavioral factors, and stress should also be considered significant indicators of financial well-being. Financial stress is a psychological factor representing an increased uncertainty about one's financial situation and perceived financial hardship (e.g., Baker & Montallo, 2019; Lim et al., 2014). Adapting these frameworks, the current study proposed a conceptual framework to examine financial well-being and provided empirical evidence, based on a U.S. sample, using the National Financial Capability Study (NFCS) data. The simplified conceptual framework of this study is presented in Fig. 1.

In particular, following Joo's (2008) PFW and Joo and Grable's (2004) financial satisfaction frameworks, we proposed that (a) financial perception and knowledge factors, (b) financial stress, (c) positive financial behaviors, and (d) financial satisfaction are determinants of financial

well-being, and meanwhile, the interrelationships among these determinants are also proposed based on the conceptualizations by the theoretical frameworks and related literature. The detailed hypotheses developed based on the conceptual framework are listed below.

Hypotheses

H1 Financial perception and knowledge factors are directly and positively associated with financial well-being.

H2 Financial perception and knowledge factors are indirectly and positively associated with financial well-being through positive financial behaviors and financial satisfaction.

H3 Financial stress is directly and negatively associated with financial well-being.

H4 Financial stress is indirectly and negatively associated with financial well-being through positive financial behaviors and financial satisfaction.

H5 Positive financial behaviors are directly and positively associated with financial well-being.

H6 Positive financial behaviors are indirectly and positively associated with financial well-being through financial satisfaction.

H7 Financial satisfaction is directly and positively associated with financial well-being.

The detailed path diagram of the conceptual framework is shown in Fig. 2. First, perceived financial capability, objective financial knowledge (which comprise the financial perceptions and knowledge factors), and financial stress were proposed to be directly associated with short- and long-term positive financial behavior. Next, these financial perception and knowledge factors and short- and long-term financial behavior (which comprise the positive financial behaviors) were proposed to be associated with financial satisfaction; which in turn, was proposed to be associated with financial well-being. In particular, financial perception and knowledge factors included (a) perceived financial capability (a latent construct), measured by three observed items adapting previous literature (Fan, 2021): perceived or subjective financial knowledge, perceived money management skill,

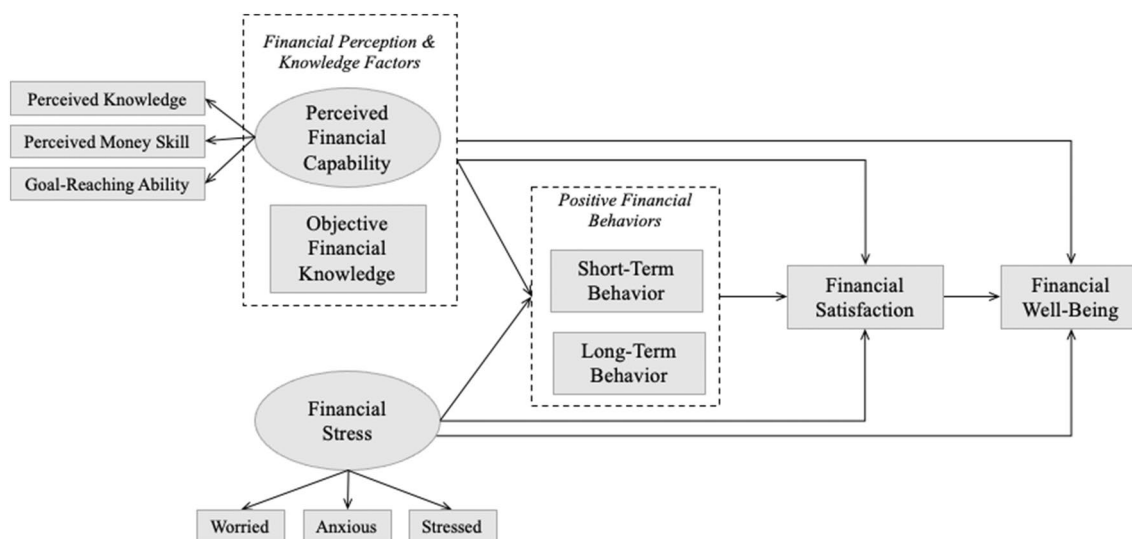


Fig. 2 Detailed framework with proposed structural relationships, latent constructs, and observed items

and perceived goal-reaching ability, and (b) objective financial knowledge, an index measured by six items adapting Lusardi and Mitchell's (2007) scale. Financial stress was a latent construct measured by three observed items that have been used in the literature to measure financial stress and anxiety (Linciano et al., 2019). Positive financial behaviors were categorized into short-term and long-term positive behaviors, following the practice in previous studies, each was an index variable (Fan, 2021; Henager & Cude, 2016, 2019). Financial satisfaction was proposed as a positive and direct indicator of financial well-being based on the psychological literature where satisfaction is a sub-dimension of overall subjective well-being (e.g., Diener, 1984, 2000; Diener et al., 2002).

Method

Data and Sample

This study used the 2018 state-by-state National Financial Capability Study (NFCS), funded by the FINRA Investor Education Foundation and conducted by ARC Research. The primary goal of the NFCS is to capture U.S. adults' financial attitudes, knowledge, capability, behaviors, and financial situations. Survey participants were randomly selected using non-probability quota sampling methods and the survey was self-administered by participants online. The questionnaire was administered on a state-by-state basis to collect approximately 500 observations from each state in the United States and the District of Columbia. The 2018 wave of NFCS included a total sample of 27,091 U.S. adults. The total analytical sample used in the statistical analysis

in this study was 16,725 after dropping missing values and the observations that did not provide valid responses to the key variables of interest. Of all the analytical sample, around 52% were women, 78% were White, 37% had income between \$35,000 to \$75,000, 37% had a college degree and higher, 60% were married, 44% were older than 55, and 33% were between ages 35–54.

Measures

Financial Well-Being

The financial well-being variable was constructed following the CFPB abbreviated scale and the 2-step scoring methods¹ (CFPB, 2015a, 2015b). First, the measured five items were summated to generate an initial total response value from 0 to 20 (Some items were reverse coded). The five items were (1) "Because of my money situation, I feel like I will never have the things I want in life", (2) "I am just getting by financially", (3) "I am concerned that the money I have or will save won't last", (4) "I have money left over at the end of the month", and (5) "My finances control my life". Then, the initial value was converted into the CFPB final financial well-being scale, which incorporated the age factor into the final scale score. According to CFPB (2015a, 2015b), the standardized score from 0 to 100 can represent the respondents' underlying financial well-being level. This scale has also been used in a recent study (Collins & Urban, 2020) to measure financial well-being using NFCS.

¹ https://files.consumerfinance.gov/f/documents/bcftp_fin-well-being_short-scorecard.pdf

Financial Satisfaction

One question asked the respondents, “Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition?”, where 1 means “Not at all satisfied” and 10 means “Extremely satisfied”.

Short- and Long-Term Positive Financial Behaviors

The construction of positive financial behaviors as two composite measures was based on Wagner and Walstad (2019), Henager and Cude (2019), and Fan (2021). In the current study, both short- and long-term financial behaviors were responsible and positive financial behaviors. The short-term financial behavior composite variable was a summated score using four binary items, including (1) having emergency funds, (2) having no difficulty paying monthly bills, (3) spending less than one’s income, and (4) paying off credit cards in full. The long-term financial behavior variable was also a composite scale measured using four items: (1) calculating retirement needs,² (2) having savings accounts,³ (3) having non-retirement investments, and (4) having retirement accounts. Each item was a binary variable where 0 = did not have such planning behavior and 1 = had such planning behavior, so the scale for the short- and long-term financial behaviors ranged from 0 to 4. A higher score means having more positive short- or long-term financial behaviors. The Cronbach’s alphas for these two planning behavior variables were 0.688 and 0.637 for short- and long-term financial behavior, respectively.

Financial Perception and Knowledge Factors

Perceived Financial Capability This variable was constructed as a latent variable measured by three observed items including perceived (or subjective) financial knowledge, perceived money management skill, and perceived goal-reaching ability. First, perceived financial knowledge was a self-assessed item, asking “On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?” Secondly, one self-assessed item was used to measure the perceived money management skill, asking “How strongly do you agree or disagree with the following statements? ... I am good at dealing with day-to-day financial matters, such

as checking accounts, credit and debit card, and tracking expenses”, where 1 means “Strongly disagree” and 7 means “Strongly agree.” Last, perceived goal-reaching ability was examined using one item asking “If you were to set a financial goal for yourself today, how confident are you in your ability to achieve it?”, on a scale of 1–4, where 1 means not at all confident and 4 mean very confident. The Cronbach’s alpha was 0.643.

Objective Financial Knowledge Objective financial knowledge was measured using six questions about personal finance topics, including inflation, compound interest, bonds, stocks, and mutual funds. A summated score was created from 0 to 6, where 0 means none of the questions were answered correctly and 6 means all questions were answered correctly.

Financial Stress

One latent variable was constructed to measure financial stress with three observed items: (1) “I worry about running out of money in retirement”, (2) “Thinking about my personal finances can make me feel anxious”, and (3) “Discussing my finances can make my heart race or make me feel stressed”, each on a scale of 1–7. The Cronbach’s alpha was 0.886.

Socio-Demographic Characteristics

Age, gender, race, income levels, educational attainment, and marital status were included and controlled in the statistical analysis procedures.

Analysis

This study uses Structural Equation Modeling (SEM) analysis techniques with the Maximum likelihood (ML) estimation method. SEM is a widely used statistical method in many social science disciplines (Hox & Bechger, 1998; MacCallum & Austin, 2000). SEM is suggested as an appropriate technique for understanding complicated behavioral and psychological concepts and their interrelationships (Schumacker & Lomax, 2010), and therefore, it is used to investigate the structural relationships that we proposed in the conceptual framework because it can identify not only the direct but also the indirect relationships among the variables simultaneously. The SEM procedure often consists of two parts: (a) the measurement models where each latent variable that will be included in the SEM will be identified with its measured observed items and (b) the structural model that links all key variables in the overall framework. Thus, before testing the structural relationships in the framework, a confirmatory factor analysis (CFA) was first performed

² For non-retired respondents, the question asked whether they had tried to figure out how much the need to save for retirement. For retired individuals, this question asked whether they had tried to figure out their retirement needs before retirement.

³ The retirement accounts included either accounts through employers, such as a 401(k), or accounts not through employer, such as an IRA.

Table 1 Descriptive statistics

Variables	Mean	Std. Dev.
Financial well-being (0–100)	55.27	15.69
Financial satisfaction (1–10)	6.24	2.74
Long-term behavior (0–4)	2.59	1.19
Short-term behavior (0–4)	2.26	1.42
Objective financial knowledge (0–6)	3.61	1.54
Perceived financial capability (Latent construct)		
Perceived knowledge (1–7)	5.39	1.17
Perceived money skill (1–7)	6.07	1.31
Perceived goal-reaching ability (1–4)	3.18	0.81
Financial stress (Latent construct)		
Feeling anxious (1–7)	4.28	2.06
Feeling stressed (1–7)	3.86	2.09
Worrying about retirement (1–7)	4.38	2.07
Demographic characteristics		%
Income		
< 35 k		20.24
35–75 K		36.57
75 K+		43.19
Female		52.19
White		77.67
College degree and higher		36.68
Married		60.35
Age		
18–34		22.53
35–54		33.39
55+		44.08

N = 16,725. Unweighted

to test the measurement model for the two latent variables (perceived financial capability and financial stress). CFA is often suggested to be conducted to examine how well the observed items measured the correspondent latent constructs (Hair et al., 2009). After conducting the CFA, the proposed structural relationships between financial well-being and its potential determinants in this study will be examined using the SEM procedures.

Results

Descriptive Statistics

The average financial well-being score of the analytical sample was 55.27 (on a CFPB scale of 0–100). The average financial satisfaction was 6.24. For short-term financial behavior, the average score was 2.26 (on a scale of 0–4). For long-term financial behavior, the average score was 2.59 (on a scale of 0–4). The three observed variables measuring

perceived financial capability's means were 5.39 for perceived financial knowledge (scale of 1–7), 6.07 for perceived money management skill (scale of 1–7), and 3.18 for perceived goal-reaching ability (scale of 1–4). The average scores for the three observed items for the financial stress were 4.28 for feeling anxious, 3.86 for feeling stressed, and 4.38 for worrying for retirement, each on a 1–7 scale. The detailed descriptive statistics are presented in Table 1. We also checked the correlations among the variables of interest and the correlation matrix is available upon request from the authors.

SEM Analysis

Before running the SEM for the full conceptual model, we ran a CFA to examine how well the observed items measured their corresponding latent constructs. For the two latent constructs in this study—perceived financial capability and financial stress, factor loadings and Cronbach's alphas are presented in Table 2. The measuring items in general showed

Table 2 Factor loading and Cronbach's alpha for the three latent constructs

Latent constructs and items	Factor loading	Cronbach's alpha
Financial stress		0.886
Feeling anxious	0.944	
Feeling stressed	0.878	
Worrying about retirement	0.734	
Perceived financial capability		0.643
Perceived knowledge	0.765	
Perceived money skill	0.575	
Perceived goal-reaching ability	0.511	

good internal consistency based on the alphas, ranging from 0.643 to 0.886, using 0.60 as a threshold (Malhotra & Birks, 2007). The overall SEM model testing the structural relationships showed a good fit by the data ($\chi^2(61) = 5764.694$, $p < 0.000$; RMSEA = 0.075; SRMR = 0.027; CFI = 0.945 (Hooper et al., 2008; Hu & Bentler, 1999). Note that the socio-demographic variables, including age, race, gender, education, marital status, and income, were controlled in the SEM analysis.⁴

The SEM results with direct effects can be found in Table 3. The SEM results showed that financial satisfaction ($\beta = 0.025$, $p = 0.015$), short-term positive financial behavior ($\beta = 0.164$, $p < 0.000$), and perceived financial capability ($\beta = 0.332$, $p < 0.000$) were positively associated with financial well-being. Surprisingly, long-term positive financial behavior was found to be negatively associated with financial well-being ($\beta = -0.056$, $p < 0.000$). A negative and significant association was also found between financial stress and financial well-being ($\beta = -0.450$, $p < 0.000$). For the paths to financial satisfaction, the direct SEM results showed that short-term positive financial behavior ($\beta = 0.124$, $p < 0.000$) and perceived financial capability ($\beta = 0.711$, $p < 0.000$) showed positive associations; whereas objective financial knowledge showed a negative association ($\beta = -0.107$, $p < 0.000$). For the financial perception and knowledge factors, objective financial knowledge showed positive roles in its associations with both long-term ($\beta = 0.124$, $p < 0.000$) and short-term ($\beta = 0.028$, $p < 0.000$) positive financial behaviors, and perceived financial capability also showed positive associations with both long-term ($\beta = 0.520$, $p < 0.000$) and short-term ($\beta = 0.575$, $p < 0.000$) positive financial behaviors. Interestingly, the results showed that financial stress showed opposite relationships with short- and long-term behavior. It was positively associated

Table 3 SEM results – Direct effects for the proposed relationships in the conceptual framework

Paths	Direct effect			
	Std. Coef.	Std. Err.	<i>p</i>	Sig.
To FWB, from				
FS	0.025	0.010	0.015	*
STB	0.164	0.007	0.000	***
LTB	-0.056	0.006	0.000	***
OK	-0.006	0.005	0.205	
PFC	0.332	0.018	0.000	***
FTR	-0.450	0.008	0.000	***
To FS, from				
STB	0.124	0.011	0.000	***
LTB	-0.017	0.009	0.066	
OK	-0.107	0.007	0.000	***
PFC	0.711	0.019	0.000	***
FTR	0.014	0.011	0.219	
To STB, from				
OK	0.028	0.007	0.000	***
PFC	0.575	0.012	0.000	***
FTR	-0.137	0.011	0.000	***
To LTB, from				
OK	0.124	0.007	0.000	***
PFC	0.520	0.012	0.000	***
FTR	0.169	0.011	0.000	***

Model fit indices: Chi-squared (61) = 5,764.694, $p < 0.000$; RMSEA = 0.075, CFI = 0.945, SRMR = 0.027, AIC = 81,7887.799, BIC = 81,8613.917. N = 16,725. Unweighted. Age, income, gender, race, education, and marital status were controlled in the SEM analysis. Results for these socio-demographic variables in the structural model are available upon request

FWB financial well-being; FS financial satisfaction; STB short-term behavior; LTB long-term behavior; FST financial stress; PFC perceived financial capability; OK objective financial knowledge

* $p < .05$, ** $p < .01$, *** $p < .001$

with long-term behavior ($\beta = 0.169$, $p < 0.000$), but negative associated with short-term behavior ($\beta = -0.137$, $p < 0.000$).

The SEM results for indirect and total effects are reported in Table 4. Note that only for the variables that showed indirect relationships were reported. Particularly, short-term positive financial behavior ($\beta = 0.003$, $p = 0.026$) and perceived financial capability ($\beta = 0.085$, $p < 0.000$) were positively and indirectly associated with financial well-being, whereas objective financial knowledge ($\beta = -0.005$, $p = 0.002$) and financial stress ($\beta = -0.032$, $p < 0.000$) showed negative indirect associations. For indirect associations with financial satisfaction, perceived financial capability ($\beta = 0.063$, $p < 0.000$) and financial stress ($\beta = -0.020$, $p < 0.000$) showed opposite associations. Moreover, Table 4 also presents the total effects which were the sum of both direct and indirect associations. For the variables that only

⁴ Due to space limit, results for the socio-demographic variables in the structural model were not reported and are available upon request.

Table 4 SEM Results – Indirect and Total Effects for the Proposed Relationships in the Conceptual Framework

Paths	Indirect effect				Total effect			
	Std. Coef.	Std. Err.	<i>p</i>	Sig.	Std. Coef.	Std. Err.	<i>p</i>	Sig.
To FWB, from								
STB	0.003	0.016	0.026	*	0.167	0.083	0.000	***
LTB	0.000	0.003	0.087		– 0.056	0.083	0.000	***
OK	– 0.005	0.016	0.002	**	– 0.011	0.053	0.031	*
PFC	0.085	0.273	0.000	***	0.417	0.305	0.000	***
FTR	– 0.032	0.019	0.000	***	– 0.482	0.069	0.000	***
To FS, from								
OK	0.001	0.003	0.350		– 0.106	0.013	0.000	***
PFC	0.063	0.036	0.000	***	0.773	0.082	0.000	***
FTR	– 0.020	0.004	0.000	***	– 0.006	0.017	0.624	

N = 16,725. Unweighted. Age, income, gender, race, education, and marital status were controlled

FWB financial well-being; *FS* financial satisfaction; *STB* short-term behavior; *LTB* long-term behavior; *FST* financial stress; *PFC* perceived financial capability, *OK* objective financial knowledge

* $p < .05$, ** $p < .01$, *** $p < .001$

showed a direct relationship, the total effects were equivalent to the direct effects. In sum, short-term positive financial behavior ($\beta = 0.167$, $p < 0.000$) and perceived financial capability ($\beta = 0.417$, $p < 0.000$) showed positive total effects on financial well-being after combining direct and indirect associations. Long-term positive financial behavior ($\beta = -0.056$, $p < 0.000$), objective financial knowledge ($\beta = -0.011$, $p = 0.031$), and financial stress ($\beta = -0.482$, $p < 0.000$) showed negative total effects after considering both direct and indirect associations. Lastly, for total effects on financial satisfaction, regarding the financial perception and knowledge factors, objective knowledge showed a consistent negative total effect. For the association with financial satisfaction, objective financial knowledge showed a negative total effect ($\beta = -0.106$, $p < 0.000$), whereas perceived financial capability showed a positive total effect ($\beta = 0.773$, $p < 0.000$).

Discussion and Implications

Given the critical role of financial well-being as the core and central mission of financial practices and education (Wilmarth, 2020), the current study aims at providing a broad and structural framework to study the determinants of financial well-being, including both subjective perceptions and objective characteristics of individuals and families. This study contributes to the literature in the following ways. First, the structural framework established in this study was grounded in previous literature and theories to provide a broader understanding of the interrelationships among the determinants, instead of focusing on individual ones, which have already been examined in some recent studies. Given the importance of research on financial well-being,

another unique contribution is that this study provides the rationale and evidence to distinguish financial satisfaction and financial well-being, where financial satisfaction is a sub-dimension and a positive indicator of financial well-being, following psychological theories and the findings in the current study. Further, this study also contributes to the recent research practice that separately examines short- and long-term financial behavior, given that they showed different associations with financial well-being. The findings of this study also provide insights into implications for policy makers and financial service providers and will ultimately benefit individuals and families.

In particular, the structural model results showed that, of the financial perception and knowledge factors, only perceived financial capability was positively and directly associated with financial well-being; therefore, H1 was partially supported by the results. H2 was also partially supported because of the financial perception and knowledge factors, only perceived financial capability showed a positive and indirect association with financial well-being, and surprisingly, we found a negative association between objective knowledge and financial well-being. The positive relationship between perceived financial capability and financial well-being aligns with previous literature that has found similar relationships where confidence was more strongly associated with subjective financial well-being and with positive financial behaviors than objective knowledge (Atlas et al., 2019; Henager & Cude, 2016; Xiao & Porto, 2017; Xiao et al., 2014). In addition, Robb et al., (2019) found similar results where objective financial knowledge was negatively associated with financial satisfaction while subjective knowledge was positively associated. The connoisseur effect (Michalos, 2008) was also mentioned in work by Xiao et al. (2014) while exploring the negative relationship between

self-reported financial well-being and objective financial knowledge. Further research into this specific association would be helpful in the study of financial well-being.

The results fully supported H3 and H4, showing financial stress has negative direct and indirect associations with financial well-being. These findings accord with earlier observations that identified a negative relationship between financial well-being and financial anxiety and stress (Malone et al., 2010). In addition, previous research has reported a negative association between financial stress and self-reported well-being (Aslund et al., 2014). Siahpush et al. (2007) found a positive relationship between a decrease in financial stress and material well-being using a scale to measure a self-reported level of prosperity or poverty. Also, financial stressors that lead to financial stress for college students decreased students' reported well-being in a study by Britt et al. (2016).

We found differences between the direct and indirect associations between short-term versus long-term positive financial behavior in relation to financial well-being. Particularly, short-term behavior was found to have a positive direct association, whereas long-term behavior was found to have a negative direct association. These results partially supported H5. Further, only short-term behavior showed a significant and positive indirect association with financial well-being, while there was no significance found in the indirect association between long-term behavior and financial well-being, which also partially supported H6. These findings echoed the need to separately examine short- and long-term positive financial behaviors as conducted in the previous literature (e.g., Wagner & Walstad, 2019). As found in previous studies, conducting positive and desired financial behaviors would positively contribute to the overall financial well-being (e.g., Shim et al., 2009). However, as the consequences of long-term positive and responsible financial behavior may not pay off in the short run, because consequences or feedback of long-term behavior may not be as timely as short-term financial behavior (Wagner & Walstad, 2019). This could be one explanation of the negative association between long-term behavior and present financial well-being. Since this was a cross-sectional dataset in which both the financial behavior and the financial well-being variables were the current status at the time of the survey. This could explain the negative association between long-term financial behavior and financial well-being. More longitudinal research is needed to further investigate whether some long-term financial planning behaviors, such as retirement savings and investments, can benefit long-term financial security and well-being.

We found that financial satisfaction was a significant and positive determinant of financial well-being, supporting H7. This finding is consistent with the proposed relationship in Joo's (2008) PFW framework. As suggested in psychological

research, life satisfaction is one aspect of the multi-dimensional concept of subjective well-being (Diener, 1984, 2000; Diener et al., 2002). As we move to the financial domain and examine financial satisfaction and financial well-being, this significant and positive direct relationship was also identified in work by Tenney and Kalenkoski (2019) using a financial well-being measure based on financial ratios and their relationships to self-reported financial satisfaction. This was also similar to findings where financial well-being was measured using assets which was positively related to financial satisfaction (Plagnol, 2011).

Given the findings of the significant role of perceived financial capability, both direct and indirect, in relation to financial behavior and financial well-being, future investments are needed to build individuals' and families' confidence and perceived financial capability, including intervention programs to boost self-confidence in subjective knowledge, perceived money management skills, and perceived goal-setting ability. Increasing confidence in the understanding and managing of finances may play an important role in increased financial well-being. Bandura and Schunk (1981) found that children increased their confidence in math using a curriculum based on hands-on learning. This also increased the student's level of self-knowledge about their capabilities. In other words, not only did the student gain confidence in his or her abilities, but also was better able to accurately assess his or her level of knowledge. It may be that hands-on style workshops or community programs aimed at confidence-building would prepare individuals and families to manage their finances well. With our aging population, this is an increasing need and an important issue for financial educators, financial practitioners, and policy makers. This is also important for building responsible short-term financial behaviors, such as having an emergency fund or a spending plan, because both objective financial knowledge and perceived financial capability were positively associated with planning for short-term personal finances, which in turn, can be positively associated with current financial well-being. Financial practitioners can help clients establish positive financial planning habits one step at a time, from creating a monthly budget, building plans to pay off outstanding credit card balances, to saving for emergencies. Financial education may best be achieved through simulations of real-world financial decisions, with feedback to participants about their choices (Henager & Cude, 2016). For example, the Junior Achievement organization has a business simulation project for youth in the state of Georgia (Thomas-Aguilar, 2013). A similar simulation model could be adapted for various age groups.

Knowing that financial stress showed a negative association with financial well-being is important for policy makers to consider. With the evident increase in stress due to financial crises, especially under the global COVID-19 pandemic,

and the increasing number of single female-headed households (Malone et al., 2010), this could be an issue going forward. Policy makers should consider providing customized services and resources for households and families, especially those with single parents or those who suffer from unemployment due to the pandemic, to help them alleviate financial hardship and financial stress induced by such hardship. Stimulus checks and increased unemployment benefits have helped families during this current crisis as well as tax relief for those families with dependent children at home. Policy makers should keep these options open for any future economic shock or downturn. In addition, however, consideration needs to be given to indirect assistance for the stress induced by such circumstances, such as free counseling programs or incentives for financial planners to offer pro bono work for community members. Many employers already provide financial education and financial counseling opportunities for their employees, but often small businesses cannot afford these, so help by offering incentives to smaller employers would extend the reach to the broader community.

The NFCS is a well-respected dataset used by this study, however, there exist some limitations. It is important to note that the data are self-reported and are cross-sectional. Ideally, a longitudinal study would provide a more robust analysis of financial well-being issues for short-term and long-term circumstances. Also, this is one of a few ways financial well-being has been studied over the years. As researchers continue to study this topic, it would be helpful to have a standardized assessment for measuring financial well-being. This would include components that account for both the objective and subjective nature of financial well-being (Wilmarth, 2020). Further, our sample included those U.S. respondents who provided valid responses to the key variables in the conceptual framework and may have limitations in generalizing the results to the overall U.S. population and families around the world. Taking into consideration social, political, and economic factors, similar analyses conducted in other countries might lead to different results. According to Wilmarth (2020), to identify a more cohesive understanding of financial and economic well-being, researchers need to clarify the definition, operationalization, and measurement of the construct. With a more broadly accepted definition and operationalization, the field of research would be better equipped to lead to the improvement of the lives of individuals and families, and the knowledge of the professionals that work with them (e.g., financial counselors, financial educators, financial planners) (Wilmarth, 2020).

Conclusion

A conceptual framework was proposed in this study to provide a broad understanding of financial well-being, by examining financial perceptions and knowledge factors, financial stress, and the interplay among individual financial behaviors, and financial satisfaction. The results showed that financial satisfaction, short-term positive financial behavior, and perceived financial capability showed positive and direct associations with financial well-being, whereas financial stress and long-term positive financial behavior were negatively and directly associated with financial well-being. Financial perception and knowledge factors, financial stress, and short-term behavior also showed significant indirect relationships with financial well-being. The findings of this study contribute to the literature on financial well-being and provide significant policy and practical implications for families. In particular, understanding the mechanism among determinants of financial well-being can help the policy makers identify pathways to increase financial well-being, for example, by focusing on improving counseling programs and personal financial services to foster positive financial habits, balancing long-term financial planning and present well-being status, and reducing financial stress, which essentially benefit consumers', individuals', and families', interest and financial well-being.

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Declarations

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