

# How Am I Doing? Perceived Financial Well-Being, Its Potential Antecedents, and Its Relation to Overall Well-Being

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Though perceived financial well-being is viewed as an important topic of consumer research, the literature contains no accepted definition of this construct. Further, there has been little systematic examination of how perceived financial well-being may affect overall well-being. Using consumer financial narratives, several large-scale surveys, and two experiments, we conceptualize perceived financial well-being as two related but separate constructs: 1) stress related to the management of money today (current money management stress), and 2) a sense of security in one's financial future (expected future financial security). We develop and validate measures of these constructs (web appendix A) and then demonstrate their relationship to overall well-being, controlling for other life domains and objective measures of the financial domain. Our findings demonstrate that perceived financial well-being is a key predictor of overall well-being and comparable in magnitude to the combined effect of other life domains (job satisfaction, physical health assessment, and relationship support satisfaction). Further, the relative importance of current money management stress to overall well-being varies by income groups and due to the differing antecedents of current money management stress and expected future financial security. Implications for financial well-being and education efforts are offered.

*Keywords:* perceived financial well-being, scale development, well-being

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When consumers ask themselves how they are doing, their personal finances assume a prominent role in that assessment. The well-being literature acknowledges finances as one of many domains of general well-being, with the majority of studies using income or money as the sole measure (Dolan, Peasgood, and White 2008). Yet, well-being, whether overall or financial well-being, cannot be captured with objective measures alone, as well-being reflects one's experience of life, including cognitive judgments and affective reactions (Diener 1984, 542). Without a strong conceptualization and measure for financial well-being, its effect on overall well-being is difficult to assess. Though financial well-being is a topic of increasing importance to academics, public policy officials, financial managers, and employers, there has been little work done on what constitutes financial well-being or its role in overall well-being.

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The importance of consumer financial well-being is echoed by several recent reports and surveys. A mandate of the [US Financial Literacy and Education Commission \(2014\)](#) calls for sustained financial well-being for US individuals and families. And a recent Consumer Financial Protection Bureau report ([CFPB 2015](#)) stresses that the goal of financial education should be consumer financial well-being, given evidence of the minuscule effects of financial education on financial behaviors ([Fernandes, Lynch, and Netemeyer 2014](#); [Willis 2011](#)). Consumers who effectively manage their current and future financial needs are better credit risks, contribute to a healthier economy, and are more productive at work ([Diener 2000](#)).

Recent survey evidence, though, suggests that most US consumers are financially insecure. A 2014 Gallup poll shows that 52% of Americans rate their financial situation as either “poor” or “fair” ([Gallup 2014](#)). One estimate puts the average US household credit card debt at \$15,611, which translates roughly into \$700 million in unsecured credit card debt ([Federal Reserve Bank of New York 2014](#)). The [Pew Research Center \(2015\)](#) reports that 55% of American households can replace less than one month of their income through their savings. A survey by the Consumer Financial Protection Bureau ([CFPB 2017](#)) estimates that one American in three was contacted by a creditor or debt collector in the past year, and a [PwC \(2016\)](#) study finds that 45% of employees stated that personal finances cause them more stress in their lives than their jobs, health, or relationships combined.

Yet prior research on overall well-being sheds little light on the role of financial well-being. Efforts to examine the financial domain have been hampered by the absence of a widely accepted definition and measure of financial well-being that captures the subjective sense of one’s financial state. Such a definition and measure would also support policy efforts to improve financial well-being. Relying on extant literature, findings from a narrative qualitative procedure, five survey-based studies, and two experiments, this study develops a conceptual definition of two primary dimensions of *perceived* financial well-being, develops and validates measures, tests a framework of its antecedents, and demonstrates the role of perceived financial well-being in overall well-being.

## BACKGROUND

### The Financial Domain of Subjective Well-Being

Subjective well-being (SWB) “is concerned with how and why people experience their lives in positive ways, including both cognitive judgments and affective reactions” ([Diener 1984](#), 542). SWB offers a broad assessment of one’s state of life and represents a perceived assessment of important life domains (e.g., job, physical health, relationships, financial) weighted by the extent to which a

consumer values each domain ([van Praag, Frijters, and Ferrer-i-Carbonell 2003](#)). In this view, SWB represents the experience and assessment of the quality of that experience and not the objective facts of a consumer’s circumstances, such as wealth ([Diener 1984](#)). One of these domains affecting SWB is the financial domain.

In prior work on SWB, researchers have considered financial matters almost entirely by measuring how objective income, either absolute or relative, predicts national measures of well-being ([Easterlin 1995](#); [Ng and Diener 2014](#)). Our focus is on individual consumer well-being, and extant research finds a loose connection between objective circumstances and single-item measures of one’s financial situation ([Johnson and Krueger 2006](#)). Thus, there has not been a robust assessment of whether consumers find their financial lives to be “satisfactory” or “worthwhile” in [Diener’s \(2000\)](#) terms. Examining consumer *perceived* financial well-being extends current thinking on how finances affect overall well-being by incorporating one’s ability to manage financial resources in support of the life one wants to live now, and in the near and more distant future. We posit two components of perceived financial well-being: 1) current money management stress, and 2) an expectation of future financial security.

### Conceptualizing Financial Well-Being

Recent interest in financial well-being largely grew out of the literature examining financial knowledge and education. Objective financial knowledge has only modest correlation with financial behaviors, and financial education interventions to impart knowledge have had little effect ([Fernandes et al. 2014](#); [Willis 2011](#)). This has led to questioning whether objective financial behavior should be the focal policy outcome of interest, as well as whether financial knowledge or other correlated psychological traits would predict positive outcomes. Thus, policy makers have called for research taking a more consumer-centric view in defining and examining the construct of financial well-being ([CFPB 2015](#)).

Most studies examine financial well-being without offering a definition of the construct. Current measures confound financial well-being with financial behavior ([Allgood and Walstad 2016](#)) and assume its presence from financial knowledge, financial product ownership, or participation in company financial plans ([Bayer, Bernheim, and Scholz 2009](#); [Gerardi, Goette, and Meier 2010](#); [Hung, Parker, and Yoong 2009](#)). Recognizing this gap in the research, we looked to two primary sources to refine our conceptualization of perceived financial well-being: 1) academic literature surrounding the topic, and 2) findings by the Center for Financial Services Innovation ([CFSI 2015](#)) and the Consumer Financial Protection Bureau ([CFPB 2015](#)) reflecting public policy approaches to understanding consumer financial well-being.

## ACADEMIC LITERATURE

There have been a number of attempts to define financial well-being, several of which note a current state and an expectation for the future. Work based on Maslow's (1943) hierarchy of needs tied consumer motivations for savings to both short- and long-term needs. More basic and short-term needs relate to anxiety over immediate "deficiency needs," such as meeting daily expenses, near-term purchases, and emergency savings. Higher- level and longer-term needs within this framework relate to savings for children and growing wealth for retirement (Xiao and Noring 1994).

One might posit several reasons for association or dissociation between subjective assessments of current and future financial circumstances. For example, a severe deficit state for some pressing near-term need typically causes more long-term concerns to lose salience (Loewenstein 1996). This may lead some to expect that current financial stress would be a barrier to perceiving a secure financial future. If consumers see their financial situations as "bounded" (Gilovich and Medvec 1995), they may be pessimistic about their future being different from the past, analogous to Dweck and Leggett's (1988) characterization of people having "entity" (unchanging) views of human intelligence.

However, consumers may expect a better financial future even if currently stressed. Constraints are likely more salient for the near term than the more distant future, and the tendency to construe one's more distant future in more general and abstract terms likely leads to more favorable assessments (Trope and Liberman 2010; Williams, Stein, and Galguera 2013). If consumers have "incremental" self-theories, they may see their financial situations as malleable and expect future financial security even while feeling stressed in the present (Hong et al. 1999). As noted by Summerville and Roese (2008), "Simply put, individuals are more likely to engage in self-improvement actions when they perceive their circumstances to be modifiable." This suggests that some consumers may have relatively greater confidence in their financial future than in their ability to handle their current financial situation (Finke, Howe, and Huston 2016). Consistent with this, Berman et al. (2016) showed that consumers expect to be financially better off in the future, and more so in the distant future. Consumers expect both incomes and expenses to rise in the future, but give more weight to changes in income than to changes in expenses in forecasting their financial futures. This tendency is independent of optimism.

Finally, Zyphur et al. (2015, 1) summarize financial well-being as a general attitude about "one's financial situation, including . . . perceived financial strain, perceived manageability of finances, and perceived financial

prospects." Chou, Parmer, and Galinsky (2016) suggest that consumers derive a sense of economic insecurity from "both their current economic situation and their perception of their future economic well-being" (444). Ruberton, Gladstone, and Lyubomirsky (2016) support a current money management stress and expected future financial security distinction. They note that building up wealth in retirement may give financial peace of mind regarding long-term/future goals, but may not relieve the short-term financial strain of paying bills on time. And in a recent conceptual article, Bruggen et al. (2017) view financial well-being as "the perception of being able to sustain current and anticipated desired living standards and financial freedom." In sum, a two-component view of financial well-being of current money management stress and expected future financial security is quite consistent with academic research on the topic.

## CFSI and CFPB

There have been some recent attempts to define and measure financial well-being from a policy maker standpoint. The US Financial Diaries and Financial Health study conducted by the nonprofit Center for Financial Services Innovation (CFSI 2015) examines core elements and indicators of positive financial outcomes for consumers. In the CFSI framework, financial health or well-being comes from:

- "The smooth and effective management of one's day-to-day financial life;
- Resilience in the face of inevitable ups and downs; and
- The capacity to seize opportunities that will lead to future financial security and mobility" (CFSI 2015, 3).

Thus, CFSI defines the *behaviors* that are most likely to lead to financial security, with a focus both on present-day as well as future financial outcomes. CFSI views saving regularly as an indicator of the capacity to seize opportunities and paying credit cards in full as an indicator of effective day-to-day management. Still, rather than a subjective sense of "how I am doing?" CFSI gathered self-report behaviors and objective circumstances that would suggest financial health. Using their analogy, financial health is like the blood pressure reading taken at your doctor's visit rather than your response to how you are feeling (CFSI 2015).

In comparison, the US Consumer Financial Protection Bureau (CFPB 2015) sponsored research seeking to explain a consumer's *subjective or perceived sense* of financial well-being. CFPB released a definition and measure of financial well-being based on extensive qualitative and quantitative research with a diverse set of consumers and financial practitioners. Members of our team participated in parts of this research. The qualitative research included one-on-one interviews with 59 adult consumers from six

states, diverse in age, income, education, gender, race, ethnicity, marital status, and employment status. The research team (including one of the authors of the present article) transcribed and analyzed 1,600 pages of interviews. Responses were sorted, coded, and then catalogued using computer-aided qualitative data analysis software.

From this qualitative analysis, financial well-being is defined as “a state of being wherein you have control over day-to-day, month-to-month finances; have the capacity to absorb financial shock; are on track to meet your financial goals; and have the financial freedom to make the choices that allow you to enjoy life” (CFPB 2015, 5). In our view, control over day-to-day finances and the ability to enjoy life reflect one dimension—the consumer’s assessment of *current* money management circumstances. The ability to be on track to meet goals reflects a second dimension—an assessment of the *future* (CFPB 2015, 7). Despite what we view as a two-dimensional conception, the CFPB combines items, tapping perceptions of current and future financial situations, into a single index of financial well-being (CFPB 2015). Further, the CFPB index emphasizes current money management concerns more so than future concerns. An important contribution of our work is to provide a valid scale of perceived financial well-being that includes both present and future dimensions.

Several quotes from the CFPB qualitative research suggest the current money management stress and expected future financial security components of perceived financial well-being. Consider these two quotes reflecting different assessments of current financial stress, with the second envisioning a better financial future:

So I would say I’m in a scary place. Not working is really scary. I own a condo that’s expensive, I got to keep paying—electricity, phone, cable, food. So that’s the scary part. And I just take each month at a time. I’m going to pay everything this month and then go to the next month and just keep that focus. But you don’t want to have to worry about that stuff. I hate worrying.

Just not feeling like I need to be saving money or not spending money all the time would be financial freedom. Being a student I felt like I was on a very limited budget and not having a full-time job yet, I still feel that way. Once I get a full-time job, I hope that I will have more financial freedom.

Many quotes focused on the presence or absence of a sense of future financial security:

Financial well-being is making sure there’s enough money to go around to pay everything today and being able to plan on retirement.

When I think about financial well-being, I think being able to make ends meet and planning for the future. Whatever happens, you’re not struggling. You can pay your bills and have money to take a vacation if you like. If you want to dine out, you have money to do that.

People with high financial well-being are more disciplined. They are responsible, serious. More convicted. People without financial well-being are reckless. They don’t see tomorrow; just living for today. They don’t realize that this is not going to go on forever.

Finally, several quotes supported the idea of less optimism for future financial security after squandering opportunities earlier in life, for example:

Thinking about the words “financial well-being,” it is having balance in your life, it’s feeling good in your life, it’s enjoying your life . . . but back then we were thinking about the moment. This is the home that we need . . . we have three kids and can raise them here. But we didn’t really look into the future to ask whether this is a place we want to stay and retire in. Is this a place we’re going to be able to afford if we did? What if we lose our job? We didn’t do that. Some people plan so they’ll have the house paid off in 10 to 15 years. That’s one thing I wish we would have done . . . and that would have made a difference in our financial well-being today.

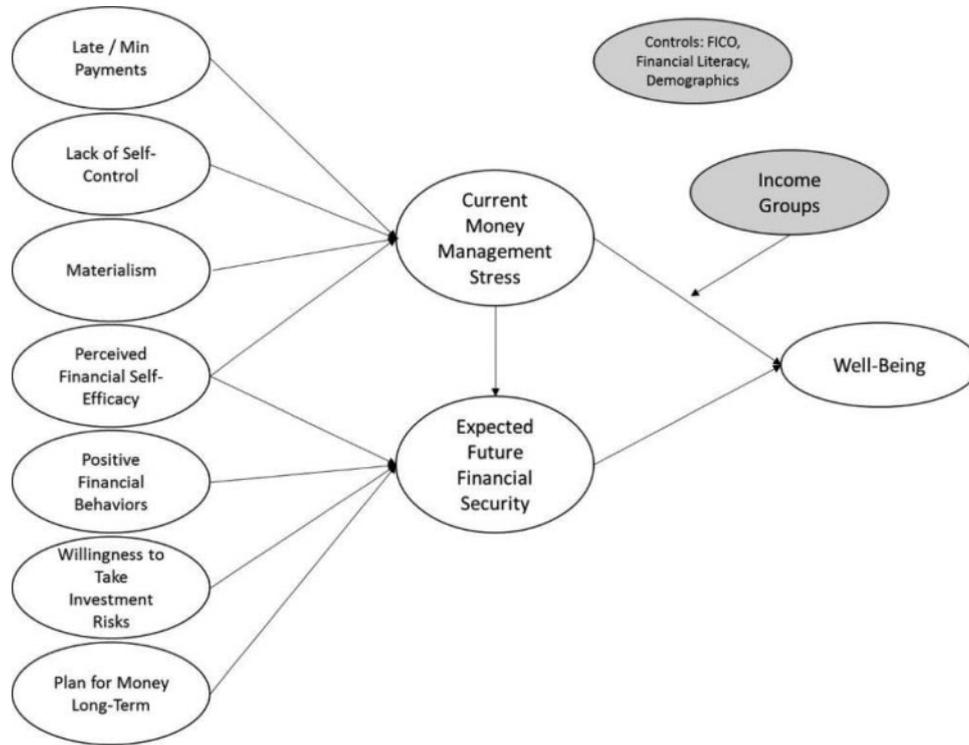
*Summary.* The academic literature, the CFSI results, and the CFPB narratives suggest that perceived financial well-being has two dimensions: 1) current money management stress, which encompasses feelings of being stressed/worried about one’s current financial situation, and being unable to manage money effectively today to meet financial obligations and to live the life one wants to live; and 2) expected future financial security, which encompasses perceptions of having a financially secure future and meeting future financial goals. The present dimension assesses how consumers feel about the current state of their financial lives, while the future dimension assesses how they feel about its trajectory and likely future state.

## OVERVIEW OF WEB APPENDIX SCALE DEVELOPMENT STUDIES

Given our focus of two dimensions of perceived financial well-being, it was necessary to develop and validate measures of current money management stress and expected future financial security. Data for our scale development came from the CFPB project that delivered a single dimension measure of perceived financial well-being described above. Based on existing literature and the CFPB research, we used numerous CFPB items to assess our two dimensions (as well as a measure of perceived self-efficacy). Web appendix A details three large-scale survey studies that develop and validate measures of current money management stress and expected future financial security. The final scales are shown in the appendix. Given our focus on antecedents and outcomes of these constructs, the following studies (studies 1, 2, 3a, and 3b) test antecedents and outcomes, and offer further evidence for our

FIGURE 1

## STUDY 1: POTENTIAL ANTECEDENTS AND CONSEQUENCES OF PERCEIVED FINANCIAL WELL-BEING



two-dimension conceptualization of perceived financial well-being.<sup>1</sup>

## STUDY 1: ANTECEDENTS AND CONSEQUENCES OF PERCEIVED FINANCIAL WELL-BEING

### Overview

The meaning of a concept like perceived financial well-being is given by its relation to antecedents and

<sup>1</sup> Earlier in the article we noted evidence of weak effects of financial education and financial behavior. This led policy makers to question whether financial well-being would be a more meaningful outcome measure than objective financial behaviors and whether the relevant drivers of good financial outcomes might be correlates of financial knowledge rather than measured financial literacy that taps only objective knowledge. Examples of such correlates of financial literacy might include propensity to plan, willingness to take investment risks, and confidence and self-efficacy in financial information search (Fernandes et al. 2014). Therefore, in the present research, we also developed a measure of perceived financial self-efficacy (web appendix A) to distinguish its effects from measured financial literacy. This was not a main focus of our research, but rather an effort to correctly estimate effects of financial literacy as an antecedent to our financial well-being constructs.

consequences in a nomological network (Cronbach and Meehl 1955). We now seek to show how perceived financial well-being might fit into a broader framework of antecedents and consequences depicted in figure 1.

Three issues are of note. First, the outcome variable we are attempting to predict and explain is an individual's overall well-being, as we will refer to it from here forward. Over the past decade, scholars from several domains have recognized the critical importance of well-being (Su, Tay, and Diener 2014). Well-being has been shown to be predictive of physical health outcomes, including protecting against heart disease and stroke (Rozanski and Kubzansky 2005), living a longer life (Diener and Chan 2011), increased job satisfaction and performance (Judge, Ilies and Dimotakis 2010), and making better (wiser) consumer choices (Gilovich, Kumar, and Jampol 2015). Given such outcomes of well-being, focusing on its potential antecedents is of equal importance (Friedman and Kern 2014). Su et al. (2014) views well-being as having elements of both current and future states of psychological and emotional health. Well-being encompasses feelings of current life satisfaction, self-worth and belonging, having a sense of purpose and accomplishment, and being optimistic about the future. To assess this construct, Su et al. (2014)

developed the 10-item Brief Inventory of Thriving (BIT)—the criterion measure we use in the studies that follow.

Second, our literature review and the CFPB narratives suggest that current money management stress and expected future financial security have differing antecedents (Ersner-Hershfield, Wimmer, and Knutson 2009; Fernandes et al. 2014; Parfit 1987). We posit that current money management stress is more likely affected by behaviors and traits related to current financial status (e.g., making minimum or late payments on bills/credit cards, lack of self-control, and materialism) than to more future-oriented financial behaviors and traits (e.g., figuring out what is needed for retirement and investment behaviors, planning money long-term, and willingness to take investment risks). We hypothesize that these more future-oriented traits and behaviors would predict expected future financial security.

Third, while current money management stress and expected future financial security have differing antecedents, they still share the outcome of well-being (Su et al. 2014). Expected future financial security and overall well-being both have “forward-looking” aspects to them—expected future financial security as securing one’s financial future and well-being as optimism about future emotional/psychological health (Diener 2013; Su et al. 2014). Likewise, current money management stress and overall well-being both have current emotional components. We expect well-being to be negatively related to current money management stress—conceptualized as anxiety, worry, and dissatisfaction with one’s current financial situation.

### Hypotheses: Antecedents of Current Money Management Stress

*Late and Minimum Payments.* Paying bills on time is a very basic financial behavior associated with current cash flow management (Hilgert, Hogarth, and Beverly 2003). Individuals who are in control of their current finances will be less likely to pay bills late. In figure 1, we predict a positive relationship between making late/minimum payments on bills and credit cards, and current money management stress.

*Materialism.* Materialism has been connected to excessive credit card debt, over-borrowing, and impulsive/compulsive spending—all of which increase current household stress in relation to finances (Richins 2011; Watson 2003). Further, those scoring high in materialism report lower current financial satisfaction (Richins 2004, 2011). We predict a positive relationship between materialism and current money management stress.

*Lack of Self-Control.* Lack of self-control encompasses elements of impulsivity and lacking restraint (Maloney, Grawitch, and Barber 2012). Those scoring low in restraint are undisciplined, are unable to work effectively toward

long-term goals, and have difficulty resisting negative behaviors. This lack of self-control also results in negative consequences related to spending and managing money (Richins 2011). For example, Fernandes et al. (2014) found that individuals who scored high on impulsivity were more likely to engage in the financial behaviors that resulted in late credit card payments and checking account fees, while those high in restraint were less likely to engage in these negative behaviors. As shown in figure 1, we thus expect that those lacking in self-control should score higher in current money management stress.

*Perceived Financial Self-Efficacy.* As previously stated, we developed a measure of perceived financial self-efficacy (web appendix A). Consumers with a high level of perceived financial self-efficacy are confident in their ability to obtain information to make financial decisions, confident in their ability to make wise decisions, and disciplined with finances. Perceived financial self-efficacy leads to an avoidance of negative financial behaviors and the financial anxiety that comes with them (Hadar, Sood, and Fox 2013). Perceived financial self-efficacy can bolster responses to stressful current situations by keeping consumers motivated to meet challenges (Kammeyer-Mueller, Judge, and Scott 2009). Thus, perceived financial self-efficacy should be negatively related to current money management stress.

### Hypotheses: Antecedents of Expected Future Financial Security

*Current Money Management Stress.* The preponderance of evidence suggests that current money management stress will decrease expected future financial security (Karlan, Ratan, and Zinman 2014; Lusardi and Mitchell 2006). Such an effect is consistent with the robust social psychology finding that future domain-specific appraisals may be influenced by current domain-specific appraisals (Duval and Silvia 2002; Eagley and Chaiken 1993). Figure 1 models a negative relationship between current money management stress and expected future financial security.

*Positive Financial Behaviors.* Current financial behaviors affect perceptions of one’s current financial standing that in turn may affect perceived future financial prospects (Huston 2010; Perry and Morris 2005). Most consumers’ financial situations are complex, but when consumers are aware of their behaviors in terms of the savings and investments they have accumulated, it gives them guidance as to what their future might be (Hilgert et al. 2003). Reflections on past behaviors may allow consumers to think more critically about what is needed to improve their future financial prospects. Thus, we predict that the index of positive financial behaviors—future-oriented behaviors one has already engaged in—will be positively related to expected future financial security.

*Willingness to Take Investment Risks.* Willingness to take investment risks is considered a critical antecedent of accumulating future wealth. For example, [Iyengar and Kamenica \(2010\)](#) noted that proliferation of 401(k) options leads to avoidant choices of low-risk investment at the expense of equities, and [Jianakoplos and Bernasek \(1998\)](#) have shown that because risk and return are related, the unwillingness to take prudent risks means that consumers will fail to accumulate assets for a secure retirement. [Weber, Blais, and Betz \(2002\)](#) developed a four-item scale measure of the perceived willingness to take prudent investment risks that further demonstrate its importance to savings, wealth accumulation, and financial security. Using the [Weber et al. \(2002\)](#) scale and one item from [Fernandes et al. \(2014\)](#), we hypothesize a positive relationship between a willingness to take investment risks and expected future financial security.

*Planning for Money Long-Term.* Planning for money long-term reflects setting spending goals, thinking about subgoals and achieving them, and liking planning versus spontaneity in spending ([Lynch et al. 2010](#)). Planning is central to achieving positive outcomes and avoiding negative ones ([Adams and Rau 2011](#); [Ajzen 1991](#); [Gollwitzer 1999](#)). As with willingness to take investment risks, planning for money long-term is concerned primarily with future outcomes ([Ameriks, Caplan, and Leahy 2003](#)). Planning for money long-term has been linked to long-term financial health and wealth accumulation ([Ameriks et al. 2003](#); [Tam and Dholakia 2014](#)). We predict a positive relationship between planning for money long-term and expected future financial security (see [figure 1](#)).

*Perceived Financial Self-Efficacy.* Perceived financial self-efficacy reflects a domain-specific belief that one has the ability to make effective financial decisions. The stronger one's confidence in one's financial ability, the more positive future outcomes accrue ([Bruggen et al. 2017](#); [Hadar et al. 2013](#)). In essence, perceived financial self-efficacy serves as an incentive to be disciplined in achieving long-term financial outcomes ([Chen, Gully, and Eden 2001](#); [Chowdhry, Jung, and Dholakia 2016](#)). Financially skilled consumers are likely to believe that these decisions will help secure their financial future. We hypothesize a positive relationship between perceived financial self-efficacy and expected future financial security.

### Hypotheses: Current Money Management Stress and Expected Future Financial Security as Antecedents of Well-Being

Though most studies find a discernable but small link between income and well-being ([Ng and Diener 2014](#)), there is a growing body of evidence linking current financial stress and wealth accumulation to life satisfaction and

well-being ([Brown, Taylor, and Price 2005](#); [Johnson and Krueger 2006](#); [Ruberton et al. 2016](#)). With this as a backdrop, we hypothesize the following.

*Current Money Management Stress.* We predict a negative relationship between current money management stress and well-being. [Ruberton et al. \(2016\)](#) found that having enough cash on hand (bank checking and savings account balances) to cover current needs and bills was positively associated with a measure of life satisfaction ( $r = .21$ ), while current debt status was negatively correlated with life satisfaction ( $r = -.11$ ). Such immediately and frequently accessible accounts offer a persistent reminder of current financial health, or lack of it. [Brown et al. \(2005\)](#) also showed that current money management woes in the form of carrying excessive debt are associated with psychological distress. Overall well-being and current money management stress have appraisals of current circumstances—"How am I doing right now?" ([Su et al. 2014](#)).

*Expected Future Financial Security.* We predict a positive relationship between expected future financial security and well-being. The expectation of having access to increased finances in the future affects life satisfaction beyond that of current income ([Johnson and Krueger 2006](#)). People who prudently save/invest for the future are more satisfied with their lives than those of the same income levels who do little saving/investing ([Chancellor and Lyubomirsky 2011](#)). Psychological well-being in retirement has been linked to concepts and behaviors related to future financial security ([Lusardi and Mitchell 2006](#)), and expected future financial security allows individuals to feel optimistic about handling future health-related events. Finally, a study by the [CFPB \(2015\)](#) posited a likely link between expected future financial security and overall well-being.

*Control Variables.* Several scholars argue that objective variables should be used as covariates in predicting subjective well-being to provide a stricter test of the predictive power of subjective variables ([Ng and Diener 2014](#); [Zyphur et al. 2015](#)). Studies show that demographic characteristics (income, education, and age) are related to financial outcomes ([Ambuehl, Bernheim, and Lusardi 2014](#); [Finke et al. 2016](#); [Karlan et al. 2014](#)). We include them as control variables in model estimation to gain more nuanced estimates of the partial effects of expected future financial security and current money management stress.

We also add two financial control variables in our models, a FICO score and financial literacy. [Web appendix A study 2](#) shows that FICO is positively related to expected future financial security and negatively related to current money management stress (see [web appendix A](#)). We wished to demonstrate the predictive power of our purely perceived financial well-being concepts holding constant FICO. Similarly, the much-studied variable of financial

literacy is an assessment of one's objective knowledge of financial concepts (Fernandes et al. 2014). We wished to show that our constructs were not predicting overall well-being because of correlation with financial literacy.

## Study 1 Procedures and Measures

Study 1 used a nationally representative sample of 619 adults, ages 18 and older, from the Survey Sampling International (SSI) online panel. We used a quota sampling approach with target demographics matching those of the latest US census. All respondents first completed the 10-item Brief Inventory of Thriving scale (Su et al. 2014), then answered the expected future financial security and current money management stress items. They also answered the perceived financial self-efficacy measure developed and detailed in web appendix A, the planning for money long-term scale (Lynch et al. 2010), and a five-item willingness to take investment risk measure. Four of the items comprised the Weber et al. (2002) willingness to take investment risk scale, and the fifth item was used by Fernandes et al. (2014). Other trait measures gathered were the six-item, short-form materialism scale (Richins 2004), the lack of self-control scale (Maloney et al. 2012), and a 13-item measure of financial literacy (Fernandes et al. 2014). Web appendix E displays these scales.

We also assessed 1) FICO score on a 1 to 5 scale: 760 or higher : Great; 725–759 : Good; 660–724 : Average; 560–659 : Below average; Lower than 560 : Poor; 2) three items averaged to form a late/minimum payment measure ( $\alpha = .57$ ) : “Over the past two years, how frequently have you been late paying credit card bills?” (1 = Never to 4 = Twice per year); “How often have you bounced a check?” (1 = Never to 4 = Twice per year); and “Please indicate below the option that best describes your payments on credit cards” (1 = always pay off monthly to 5 = pay the minimum monthly); and 3) six positive financial behaviors all in a yes/no format and summed to form an index ranging from 0 to 6: “Have you set aside emergency or rainy day funds that would cover your expenses for three months?”; “Have you ever tried to figure out how much you need to save for retirement?”; “Have you ever opened a savings account or bought a CD?”; “Have you ever bought a savings bond or other bonds?”; “Have you ever invested in mutual funds?”; and “Have you ever invested in individual stocks?”

Finally, we measured gender, age, income, and education. We originally assessed nine household income categories ranging from “less than \$20K” to “\$150K and more,” but we effects-coded them into three categories—less than \$40K, \$40K to \$75K, and more than \$ 75K—based on analyses showing insensitivity of conclusions to alternative coding. We had five categories of maximum educational attainment, but effects-coded them into three: high school degree or less, college grad, and graduate

degree. We asked respondents how old they were, but we effects-coded age into three categories: Millennials (18–34), Generation X (35–50 ), and Baby Boomers (51–70+). The rationale for effects coding is as follows.

We wanted to assess if certain demographic groups based on age, income, and education were higher or lower than others with respect to current money management stress and expected future financial security. This is why age, though a continuous variable, was effects-coded. Further, the Millennial, Generation X, and Baby Boomer classifications have been commonly used in numerous studies of age-based financial security (Pew Research Center 2016). Table 1 shows summary statistics, coefficient alpha estimates, and correlations of expected future financial security and current money management stress with other study constructs.

## Analysis Strategy

We used hierarchical regression modeling to estimate the effects shown in figure 1. We estimated a first model in which current money management stress and expected future financial security were regressed only on their hypothesized antecedents and control variables. Next, to show more convincingly that current money management stress and expected future financial security have unique antecedents, we estimated a second model that added the hypothesized predictors of expected future financial security to the prediction of current money management stress, and the hypothesized predictors of current money management stress to the prediction of expected future financial security. If these non-hypothesized predictors failed to explain additional variance in current money management stress and expected future financial security, this would provide further evidence of them being distinct dimensions of perceived financial well-being.

*Current Money Management Stress.* In the first model ( $F = 26.39, p < .01, R^2 = .37$ ), the hypothesized effects were significant except for perceived financial self-efficacy ( $\beta = -.01, t = -.37, ns$ ). Late / minimum payments ( $\beta = .26, t = 6.13, p < .01$ ), lack of self-control ( $\beta = .30, t = 7.39, p < .01$ ), and materialism ( $\beta = .22, t = 7.63, p < .01$ ) all predicted significant increases in current money management stress.

In the second model shown in column 1 of table 2, the hypothesized predictors remained significant along with the income categories of \$40K to \$75K ( $\beta = -.23, t = -3.06, p < .01$ ) and more than \$75K ( $\beta = -.23, t = -2.62, p < .01$ ). Compared to those making less than \$40K, these higher-income groups reported lower current money management stress. Millennials ( $\beta = .25, t = .282, p < .01$ ) reported significantly higher stress than the reference category of Baby Boomers, but Gen Xers did not ( $\beta = .14, t = 1.65, ns$ ). College grads ( $\beta = .17, t = 2.31, p < .05$ ) also

TABLE 1  
STUDY 1: SUMMARY STATISTICS AND CORRELATIONS

	Coeff. $\alpha$	Mean	SD	Expected future financial security	Current money management stress
Expected future financial security	.90	3.06	1.05		
Current money management stress	.75	2.80	.91	-.19	
Well-being	.92	3.83	.72	.51	-.21
Perceived financial self-efficacy	.86	3.30	.85	.59	-.12
Plan for money long-term	.94	3.97	1.18	.48	-.08
Willingness to take investment risks	.88	2.89	1.14	.45	-.07
Materialism	.85	3.59	1.13	.19	.38
Late/minimum payments	.57	1.82	.78	-.22	.35
Lack of self-control	.77	2.99	.83	-.17	.38
Financial literacy	.79	6.63	3.26	.03	-.18
Fico	—	3.38	1.34	.41	-.27
Positive financial behaviors	.74	2.86	1.91	.41	-.17
Gender (1 = male; 0 = female)	—	.50	.50	.13	-.01
Age in years	—	41.14	14.98	-.15	-.27
Age categories: Millennials	—	.40	.49	.13	.18
Age categories: Gen Xers	—	.38	.48	-.04	-.01
Age categories: Baby Boomers	—	.22	.41	-.10	-.21
HH income	—	4.54	2.52	.35	-.19
HH income categories: Less than \$40K	—	.40	.49	-.29	.17
HH income categories: \$40K to \$75K	—	.33	.47	.03	-.05
HH income categories: More than \$75K	—	.27	.44	.28	-.13
Education	—	3.42	1.14	.24	-.11
Education categories: HS degree/less	—	.51	.50	-.18	.09
Education categories: College grad	—	.32	.47	.08	-.05
Education categories: Grad. degree	—	.15	.36	.19	-.05

NOTE.—In general, correlations of .08 or greater (in absolute value)  $p < .05$ .

perceived more current money management stress than those whose highest degree was high school or less, but those with a graduate degree did not ( $\beta = .12$ ,  $t = 1.25$ , ns). Higher FICO scores predicted lower current money management stress ( $\beta = -.11$ ,  $t = -4.00$ ,  $p < .01$ ).

The bolded, italicized coefficients for current money management stress in table 2 represent the non-hypothesized predictors of the second model. As a group, they did not increase the  $R^2$  of .37 ( $F_{\text{change}} = .56$ ,  $p = .59$ ), and none of these predictors were significant: planning for money long-term ( $\beta = .02$ ,  $t = .59$ , ns); positive financial behaviors ( $\beta = .02$ ,  $t = .86$ , ns); and willingness to take investment risks ( $\beta = .01$ ,  $t = .34$ , ns). Predicted antecedents of current money management stress were mostly significant, and non-hypothesized predictors were not.

*Expected Future Financial Security.* In the first model ( $F = 47.05$ ,  $p < .01$ ,  $R^2 = .527$ ), all hypothesized predictors were significant in the expected direction: index of positive financial behaviors ( $\beta = .07$ ,  $t = 3.47$ ,  $p < .01$ ); perceived financial self-efficacy ( $\beta = .46$ ,  $t = 10.62$ ,  $p < .01$ ); willingness to take investment risks ( $\beta = .12$ ,  $t = 3.69$ ,  $p < .01$ ); planning for money long-term ( $\beta = .13$ ,  $t = 4.05$ ,  $p < .01$ ); and current money management stress ( $\beta = -.15$ ,  $t = -4.01$ ,  $p < .01$ ).

In the second model shown in column 2 of table 2, all hypothesized predictors remained significant along with

the household income categories of \$40K to \$75K ( $\beta = .19$ ,  $t = 2.59$ ,  $p < .01$ ) and more than \$75K ( $\beta = .31$ ,  $t = 3.46$ ,  $p < .01$ ). Compared to those making less than \$40K, higher-income groups experienced higher expected future financial security. Millennials ( $\beta = .42$ ,  $t = 4.84$ ,  $p < .05$ ) showed a higher expected future financial security score than Baby Boomers, but Gen Xers did not ( $\beta = .11$ ,  $t = 1.27$ , ns). There were no effects by education. FICO was positive and significant ( $\beta = .06$ ,  $t = 2.09$ ,  $p < .05$ ) and, unexpectedly, financial literacy showed a small negative effect ( $\beta = -.03$ ,  $t = -2.97$ ,  $p < .01$ ).

Finally, the three non-hypothesized predictors—the bolded, italicized coefficients in table 2—contributed only .05% of additional explained variance (one half of 1%). The model without these predictors produced an  $R^2$  of .527; the model with these predictors produced an  $R^2$  of .532 ( $F_{\text{change}} = 2.40$ ,  $p < .07$ ). Neither lack of self-control ( $\beta = -.01$ ,  $t = -.11$ , ns) nor late/minimum payments ( $\beta = -.04$ ,  $t = -.90$ , ns) had any effect. Only materialism ( $\beta = .08$ ,  $t = 2.50$ ,  $p < .05$ ) predicted expected future financial security beyond its hypothesized antecedents.

*Well-Being.* We first estimated a baseline model (see table 2) with demographics only as predictors ( $F = 5.14$ ,  $p < .01$ ,  $R^2 = .06$ ). Consistent with prior investigations, those with income \$40K to \$75K ( $\beta = .16$ ,  $t = 2.27$ ,  $p < .05$ ) and those with income more than \$75K ( $\beta = .33$ ,

TABLE 2  
STUDY 1: REGRESSION RESULTS

	Current money management stress	Expected future financial security	Well-being: Baseline model	Well-being: Model 1	Well-being: Model 2
<b>Predictor variables:</b>					
Late/minimum payments	.26 (.22)***	-.04 (-.03)	—	—	—
Lack of self-control	.30 (.27)***	-.01 (-.01)	—	—	—
Materialism	.22 (.27)***	.08 (.08)**	—	—	—
Perceived financial self-efficacy	-.01 (-.01)	.45 (.37)***	—	—	—
Positive financial behaviors	.02 (.04)	.08 (.14)***	—	—	—
Willingness to take investment risks	.01 (.01)	.11 (.12)***	—	—	—
Plan for money long-term	.02 (.03)	.11 (.13)***	—	—	—
Expected future financial security	—	—	—	.33 (.48)***	.33 (.49)***
Current money management stress	—	-.17 (-.15)***	—	-.10 (-.13)***	-.23 (-.29)***
Current money management stress × \$40K to \$75K	—	—	—	—	.14 (.10)**
Current money management stress × more than \$75K	—	—	—	—	.26 (.19)***
<b>Control variables</b>					
Gender (1 = male; 0 = female)	-.06 (-.03)	.06 (.03)	.02 (.01)	-.07 (-.05)	-.08 (-.05)
Age categories: Millennials	.25 (.13)***	.42 (.20)***	.14 (.09)*	.03 (.02)	.01 (.00)
Age categories: Gen Xers	.14 (.08)	.11 (.05)	.05 (.04)	.04 (.03)	.02 (.01)
HH income categories: \$40K to \$75K	-.23 (-.12)***	.19 (.08)***	.16 (.10)**	.01 (.01)	-.01 (-.01)
HH income categories: More than \$75K	-.23 (-.11)***	.31 (.14)***	.33 (.20)***	.04 (.03)	.05 (.03)
Education categories: College grad	.17 (.09)**	.00 (.00)	.06 (.04)	.01 (.01)	.00 (.00)
Education categories: Grad. degree	.12 (.05)	.09 (.03)	.17 (.09)*	.05 (.03)	.04 (.02)
Financial literacy	-.01 (-.05)	-.03 (-.09)***	—	—	—
FICO	-.11 (-.17)***	.06 (.08)**	—	—	—
R <sup>2</sup>	.37	.53	.06	.28	.30

NOTES.—Values are unstandardized  $\beta$  coefficients with standardized  $\beta$  coefficients in parentheses;

\* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ . “Baby Boomers” was used as the reference category for age; “Less than \$40K” was used as the reference category for HH income; and “High school degree or less” was used as the reference category for education.

$t = 4.21, p < .01$ ) report significantly higher well-being than those with income less than \$40K. Millennials ( $\beta = .14, t = 1.78, p = .07$ ) showed a higher score than Baby Boomers, and those with a graduate degree ( $\beta = .17, t = 1.93, p = .054$ ) perceived higher well-being than those with a high school degree or less.

The last two columns of table 2 show that these demographic effects vanished with our perceived financial well-being scales as predictors. First, current money management stress ( $\beta = -.10, t = -3.45, p < .01$ ) and expected future financial security ( $\beta = .33, t = 12.60, p < .01$ ) were significant in well-being model 1 ( $F_{\text{change}} = 96.41, p < .01, R^2 = .28$ ). Though income was positively correlated with well-being ( $r = .23, p < .01$ ), the partial effects of the income categories became nonsignificant when we controlled for current money management stress and expected future financial security. Second, though we examined income as a control variable, there is evidence to suggest that the effect of current money management stress on well-being might be stronger for those with lower incomes. Thus, we conducted additional analyses based on the following rationale.

Income can be viewed as a resource to cope with current financial stress and a reason to expect that current stress

will not last forever. Higher income offsets current money management stress such that its detrimental effect on overall well-being should be mitigated (Vera-Toscano, Ateca-Amestoy, and Serrano-Del-Rosa 2006). Individuals struggling to pay current bills due to low income would likely experience lower well-being relative to those meeting current expenses due to a higher income (Brown et al. 2005; Drentea 2000). Thus, we tested if higher income levels moderate (lessen) the negative effect that current money management stress has on well-being.

After mean-centering all continuous predictors and creating the appropriate product terms (Cohen et al. 2003), we hierarchically added two moderating terms to create well-being model 2 ( $F_{\text{change}} = 7.59, p < .01, R^2 = .30$ ), shown in the last column of table 2. With this change, the coefficient on current money management stress becomes the simple effect of it for the reference income category below \$40K ( $\beta = -.23, t = -4.88, p < .01$ ) (Spiller et al. 2013). We found significant support for our hypothesis that the effect of current money management stress in the low-income reference group was more negative than in the two higher-income groups, as reflected in significant interactions of current money management stress × \$40K to \$75K ( $\beta = .14, t = 2.09, p < .05$ ), and current money

management stress  $\times$  more than \$75K ( $\beta = .26, t = 3.89, p < .01$ ). Thus, the effect of a one-point increase in current money management stress on well-being was .14 lower for the \$40K to \$75K group and .26 lower for the more than \$75K group compared to those making less than \$40K.

An equivalent specification tests the effects of current money management stress nested within income categories. The effects of current money management stress on well-being were as follows: less than \$40K ( $\beta = -.23, t = -4.88, p < .01$ ); \$40K to \$75K ( $\beta = -.09, t = -1.77, p = .08$ ); and more than \$75K ( $\beta = .03, t = 0.63, ns$ ). The regression coefficients for the two income group interactions as indicated in table 2 represent the difference in slopes for \$40K to \$75K ( $\beta = .14$ ) and more than \$75K ( $\beta = .26$ ).

An alternate specification treated our nine original income categories as a continuous variable. We conducted a “floodlight analysis” (Spiller et al. 2013) to find that current money management stress decreases well-being for those making less than \$60K, but not for those making \$60K or more. Stated more practically, having a higher income mitigates the negative effect that current money management stress has on well-being. An alternate way to describe the interaction is to say that income increases overall well-being for those who score 3.24 or higher on current money management stress—about .48 of a standard deviation above the mean. Interestingly, increasing income reduces well-being among those who score 1.99 or lower on current money management stress—about .89 of a standard deviation below the mean. There is no detectable effect of income on overall well-being for those with mean levels of current money management stress or intermediate levels between 1.99 and 3.24.

*Assessing Endogeneity.* In a cross-sectional survey like study 1, it is not possible to confidently establish a direct causal relationship among our perceived financial well-being constructs and overall well-being. We used two-stage least squares (2SLS) regressions of effects of current money management stress and expected future financial security on well-being with instrumental variables in an attempt to control for endogeneity among predictors and outcomes, thus strengthening potential causal inferences (Angrist and Krueger 2001; Larcker and Rusticus 2010). A properly chosen instrument should satisfy several criteria: 1) the instrument should be correlated with the endogenous predictor of interest; 2) the instrument should be correlated with the outcome, but the partial effect of the instrument should be nonsignificant when we control for the endogenous predictor; 3) the error term for the prediction of the outcome should be uncorrelated with the instrument; and 4) to be considered a strong instrument, the  $F$ -values for the instrument predicting the endogenous variable of interest should exceed 10 (Stock, Wright, and Yogo 2002). Finally, some argue that the instrument should have some

practical relevance to the predictors and outcome examined (Larcker and Rusticus 2010).

We chose FICO score as the instrument, as it met the preceding criteria. The FICO–current money management stress ( $r = -.27, p < .01$ ), the FICO–expected future financial security ( $r = .41, p < .01$ ), and the FICO–well-being ( $r = .27, p < .01$ ) relationships were all significant. The effects of FICO on current money management stress ( $\beta = -.11, t = -4.00, p < .01$ ) and expected future financial security ( $\beta = .06, t = 2.09, p < .05$ ) were significant, when we controlled for the other predictors. The  $F$ -values for FICO as a sole predictor of current money management stress and expected future financial security were  $F = 47.65$  and  $F = 120.54$  ( $p < .01$ ). For predicting well-being, the partial effect of FICO was nonsignificant when we controlled for current money management stress and expected future financial security ( $\beta = .02, t = 1.07, p = .28$ ) and the error term for the prediction of well-being was uncorrelated with FICO ( $r = .04, p = .36$ ).

Given one instrument but two endogenous variables to satisfy the identification restriction of 2SLS, we estimated two models: one model with current money management stress as the endogenous variable predictor, FICO as the instrumental variable, and the other controls; and another model with expected future financial security as the endogenous variable predictor, FICO as the instrumental variable, and the control variables. The coefficients for current money management stress ( $\beta = -.75, t = -4.28, p < .01$ ) and expected future financial security ( $\beta = .47, t = 5.51, p < .01$ ) remained significant, offering some support for the causal relationship between our perceived financial well-being scales and overall well-being.<sup>2</sup>

In sum, study 1 demonstrates the importance of current money management stress and expected future financial security as predictors of overall well-being and casts new light on the conditions under which income affects overall well-being.

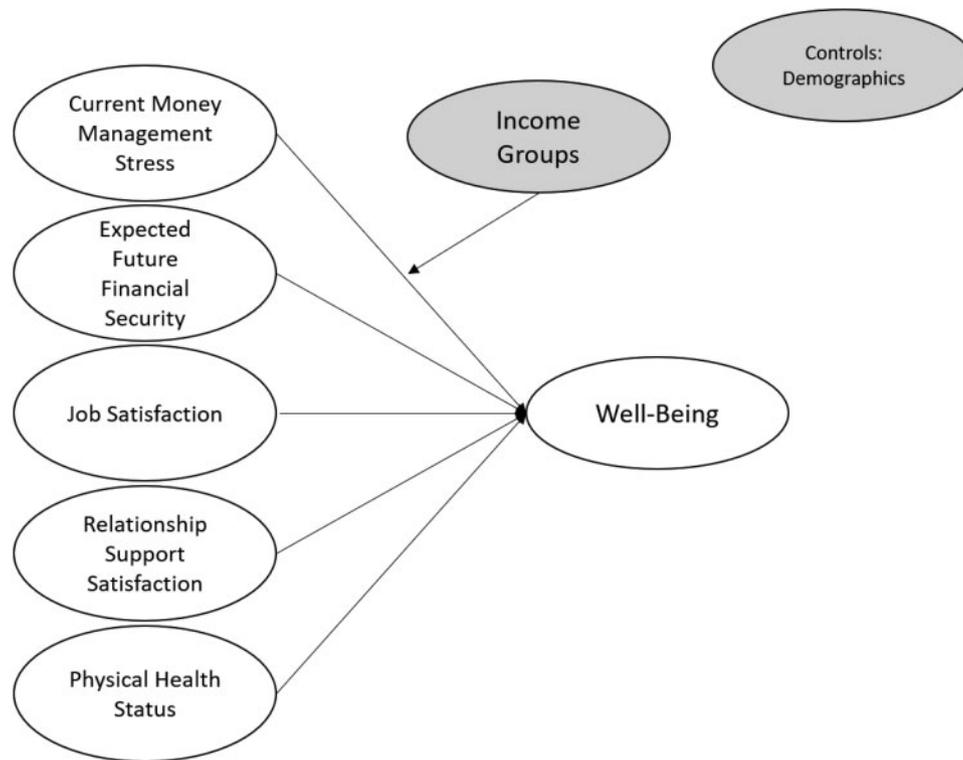
## STUDY 2: PERCEIVED FINANCIAL WELL-BEING VERSUS OTHER LIFE DOMAINS IN PREDICTING OVERALL WELL-BEING

Prior work highlights perceptions of job satisfaction, physical health status, and satisfaction with close personal relationships as important predictors of well-being (Diener

<sup>2</sup> We conducted another study with 513 MTurk panelists that largely replicated the main/linear effects found in study 1. The moderating effects of income were not significant in the MTurk study. These results are available in web appendix B. Web appendix D contains a meta-analysis of the moderating (interaction) effects of income across all studies (study 1, MTurk, and study 2). The key result of this meta-analysis is that the interaction effect is significant pooling across studies, and one cannot reject the null hypothesis that the interaction effect sizes from the three studies are drawn from a common distribution.

FIGURE 2

STUDY 2: THE ROLE OF PERCEIVED FINANCIAL WELL-BEING IN OVERALL WELL-BEING



2000; Su et al. 2014; World Values Survey 2016). In study 2, we demonstrate the incremental validity of our financial well-being scales by showing that they explain variance in overall well-being after accounting for the variance explained by these other perceptions. Incremental validity is an important, but often overlooked, dimension of construct validity in which a new measure should “contribute meaningfully to the predictive efficacy [of a phenomenon] when added to already-existing measures” (Haynes and Lench 2003, 456). A key conclusion we draw from study 2 is that our financial well-being concepts explain significant incremental variance with these factors already in the model and that the magnitude of effects of financial well-being rival those of these much-studied life domains. Figure 2 displays the model we estimate in study 2.

### Study 2 Procedures and Measures

Study 2 used a nationally representative sample of 560 adults, ages 18 and older, from the Survey Sampling International (SSI) online panel. Six respondents had missing answers, leaving 554 for the analysis. Eight versions of the survey were drafted that counterbalanced the order of all multi-item scale measures to help control for order bias

among predictors. The survey contained the 10-item BIT (Su et al. 2014), the current money management stress and expected future financial security scales, a three-item measure of job satisfaction (Netemeyer, Boles, and McMurrian 1996), the eight-item satisfaction with close personal relationships support scale (e.g., spouse, significant others; Walen and Lachman 2000), and a four-item measure assessing physical health status (Huh and Shin 2014; Lee, King, and Reid 2015). (See web appendix E.) Finally, the same FICO score of study 1 and the demographics of gender, age, income, and education were gathered.

Table 3 shows summary statistics, coefficient alpha estimates, and correlations of expected future financial security and current money management stress with other study constructs. As with study 1, we again effects-coded age, income, and education into three categories to more efficiently conduct the analyses below:

### Analyses and Results

We mean-centered all continuous predictor variables, created the same interaction terms of study 1, and then hierarchically estimated series of regression models. As with study 1, a well-being baseline model in table 4 ( $F = 5.08$ ,

**TABLE 3**  
STUDY 2: SUMMARY STATISTICS AND CORRELATIONS

	Coeff. $\alpha$	Mean	SD	Expected future financial security	Current money management stress
Expected future financial security	.93	3.47	1.07		
Current money management stress	.91	2.99	1.12	-.25	
Well-being	.93	3.91	.76	.62	-.20
Job satisfaction	.96	4.91	1.92	.56	-.16
Relationships support satisfaction	.72	2.69	.58	.35	.23
Physical health status	.84	3.84	.86	.48	-.15
FICO	—	3.53	1.34	.36	-.25
Gender (1 = male; 0 = female)	—	.48	.50	.19	-.07
Age in years	—	42.65	16.59	-.07	-.37
Age categories: Millennials	—	.39	.49	.15	.29
Age categories: Gen Xers	—	.28	.45	-.14	.03
Age categories: Baby Boomers	—	.33	.47	-.02	-.33
HH income	—	4.81	2.58	.36	-.20
HH income categories: Less than \$40K	—	.36	.48	-.27	.14
HH income categories: \$40K to \$75K	—	.32	.46	-.02	.05
HH income categories: More than \$75K	—	.32	.47	.30	-.19
Education	—	3.89	1.48	.18	-.02
Education categories: HS degree/less	—	.56	.49	-.17	.02
Education categories: College grad	—	.27	.45	.06	-.04
Education categories: Grad. degree	—	.17	.37	.16	.02

NOTE.—In general, correlations of .09 or greater (in absolute value)  $p < .05$ .

**TABLE 4**  
STUDY 2: REGRESSION RESULTS

	Well-being: Baseline model	Well-being: Model 1	Well-being: Model 2	Well-being: Model 3
<b>Predictor variables:</b>				
Job satisfaction	—	.17 (.43)***	.11 (.28)***	.11 (.28)***
Relationship support satisfaction	—	.27 (.21)***	.23 (.17)***	.22 (.17)***
Physical health status	—	.22 (.24)***	.14 (.15)***	.13 (.14)***
Expected future financial security	—	—	.26 (.36)***	.26 (.36)***
Current money management stress	—	—	-.06 (-.08)**	-.13 (-.19)***
Current money management stress $\times$ \$40K to \$75K	—	—	—	.10 (.08)*
Current money management stress $\times$ more than \$75K	—	—	—	.11 (.10)**
<b>Control variables:</b>				
Gender (1 = male; 0 = female)	.09 (.06)	-.03 (-.02)	-.09 (-.06)*	-.08 (-.05)
Age categories: Millennials	.05 (.03)	-.11 (-.07)*	-.09 (-.06)	-.10 (-.06)
Age categories: Gen X	-.17 (-.10)**	-.15 (-.09)**	-.06 (-.03)	-.05 (-.03)
HH income categories: \$40K to \$75K	.22 (.13)***	-.01 (-.01)	-.04 (-.02)	-.05 (-.03)
HH income categories: More than \$75K	.35 (.21)***	-.04 (-.03)	-.14 (-.09)**	-.14 (-.09)**
Education categories: College grad	-.00 (.00)	-.05 (-.03)	-.05 (-.03)	-.06 (-.04)
Education categories: Grad. degree	.11 (.05)	-.00 (-.00)	-.00 (-.00)	-.01 (-.00)
R <sup>2</sup>	.06	.42	.50	.51

NOTES.—Values are unstandardized  $\beta$  coefficients with standardized  $\beta$  coefficients in parentheses;

\* $p < .10$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ . "Baby Boomers" was used as the reference category for age; "Less than \$40K" was used as the reference category for HH income; and "High school degree or less" was used as the reference category for education.

$p < .01$ ,  $R^2 = .06$ ) was first estimated that regressed the BIT on just the demographic control variables with three significant effects. Consistent with study 1, compared to those with less than \$40K income, overall well-being was significantly higher for those with incomes \$40K to \$75K ( $\beta = .22$ ,  $t = 2.74$ ,  $p < .01$ ) and more than \$75K ( $\beta = .35$ ,  $t = 4.05$ ,  $p < .01$ ). These results mirror those of other

articles showing income effects on overall well-being (Diener and Biswas-Diener 2002). This model also showed that Gen Xers ( $\beta = -.17$ ,  $t = -2.13$ ,  $p < .05$ ) perceived lower overall well-being than Millennials.

Model 1 ( $F_{\text{change}} = 109.92$ ,  $p < .01$ ,  $R^2 = .42$ ) just added the effects of the life domain variables to the baseline model. Table 4 shows that job satisfaction ( $\beta = .17$ ,

$t = 11.34, p < .01$ ), relationship support satisfaction ( $\beta = .27, t = 5.74, p < .01$ ), and physical health status ( $\beta = .22, t = 6.47, p < .01$ ) were significant predictors. Given our focus on demonstrating the incremental validity of our perceived financial well-being scales, model 2 added our financial well-being measures to model 1 (model 2  $F_{\text{change}} = 46.54, p < .01; R^2 = .50$ ). Current money management stress ( $\beta = -.06, t = -2.32, p < .05$ ) and expected future financial security ( $\beta = .26, t = 8.37, p < .01$ ) were significant. Thus, the financial well-being scales do predict well-being beyond other important antecedents and, in fact, the standardized coefficient for expected future financial security is slightly larger than the effects of any of the other life domain variables.

Note that in models 1 and 2 the effects of income on well-being become nonsignificant, or show a partial negative effect. As in study 1, despite a positive zero-order correlation between income level and well-being ( $r = .23, p < .01$ ), the partial effects of the income categories are negligible in the presence of the life domain variables and financial well-being measures.

Well-being model 3 in table 4 adds the interactions between income and current money management stress ( $F_{\text{change}} = 2.59, p = .076; R^2 = .51$ ). Now the coefficient on current money management stress becomes the simple effect for the reference income category ( $\beta = -.13, t = 3.21, p < .01$ ). The current money management stress  $\times$  \$40K to \$75K interaction ( $\beta = .10, t = 1.83, p = .07$ ) was marginally significant, and the current money management stress  $\times$  more than \$75K interaction was significant ( $\beta = .11, t = 2.13, p < .05$ ). We again estimated an equivalent model with a separate slope of the effect of current money management stress on overall well-being nested within income groups. The effects of current money management stress on well-being were as follows: less than \$40K ( $\beta = -.13, t = -3.21, p < .01$ ), \$40K to \$75K ( $\beta = -.03, t = -0.80, ns$ ), and more than \$75K ( $\beta = -.02, t = -0.46, ns$ ). The regression coefficients for the two income group interactions shown in table 4 represent the difference in slopes for \$40K to \$75K ( $\beta = .10$ ) and more than \$75K ( $\beta = .11$ ) versus less than \$40K. Thus, the slope of the effect of current money management stress on well-being is .10 lower for the \$40K to \$75K group and .11 lower for the more than \$75K group compared to those making less than \$40K, implying that current money management stress is a critical deterrent to overall well-being for those with the lowest income.

An alternate specification treated our nine-category income variable as a continuous predictor for a floodlight analysis. The negative simple effect of current money management stress on well-being becomes nonsignificant among those who earn \$60K or more. Finally, for study 2, we also estimated a model with just demographics, expected future financial security, current money management stress, and the current money management

stress  $\times$  income category interactions. This model produced an  $R^2 = .41$ . Recall that model 1 in table 4 with the demographics and life domain variables produced an  $R^2 = .42$ . Thus, our financial well-being measures explain an equivalent amount of variance in overall well-being when compared to that explained by job satisfaction, relationship support satisfaction, and health status combined. Web appendix C offer further details relevant to this analysis.

*Assessing Endogeneity.* We again used FICO as an instrumental variable for our perceived financial well-being scales in 2SLS. The FICO–current money management stress  $r = -.25 (p < .01)$ , the FICO–expected future financial security  $r = .37 (p < .01)$ , and the FICO–well-being  $r = .22 (p < .01)$ . The effects of FICO on current money management stress ( $\beta = -.15, t = 3.93, p < .01$ ) and expected future financial security ( $\beta = .20, t = 5.82, p < .05$ ) were significant. The  $F$ -values for FICO as a sole predictor of current money management stress and expected future financial security were  $F = 35.78$  and  $F = 87.57 (p < .01)$ . For predicting well-being, the partial effect of FICO was not significant when we controlled for current money management stress and expected future financial security ( $\beta = -.04, t = -1.70, p = .09$ ), and the error term for the prediction of well-being was uncorrelated with FICO ( $r = -.06, p = .14$ ). The coefficients for current money management stress ( $\beta = -.58, t = -2.79, p < .01$ ) and expected future financial security ( $\beta = .43, t = 3.98, p < .01$ ) remained significant, again offering support for the causal relationship between perceived financial well-being and general well-being.

### STUDY 3: EXPERIMENTAL EVIDENCE THAT CURRENT MONEY MANAGEMENT STRESS AND EXPECTED FUTURE FINANCIAL SECURITY AFFECT WELL-BEING

Studies 1 and 2 offer evidence for our perceived financial well-being scales affecting overall well-being, but an experiment would provide stronger causal evidence for such effects. Study 3a manipulates current money management stress, and study 3b manipulates expected future financial security to test their causal influences on well-being.

#### Study 3a Method: Manipulating Current Money Management Stress

One hundred six MTurk workers were randomly assigned to scenarios to think about a day in the past three months in which they were feeling very little stress (success frame) or a day in the past three months in which they were stressed (failure frame) about their current finances. These instructions were adapted from widely used emotion

induction methods (van Boven et al. 2010). The wording for the failure frame was:

Has there been a day in the past three months when you were stressed about your current finances? Yes/No (96% of respondents answered “yes”).

Please think of a day from the past three months in which you were NOT on top of your current finances. Specifically, you were in debt and you were not sure where you would find the money to pay your bills that month. You felt your finances controlled your life and you were feeling stress about money. Please write a paragraph about your thoughts. Include anything else going on in your life that day that contributed to how you felt.

In the success frame condition, the wording was:

Has there been a day in the past three months when you were feeling very little stress about your current finances? Yes/No (74% of respondents answered “yes”).

Please think of a day from the past three months in which you felt you were on top of your current finances. Specifically, you had enough money to cover all of your expenses for the month and to buy the things you had to buy. You felt in control of your finances and you were feeling good about money. Please write a paragraph about your thoughts. Include anything else going on in your life that day that contributed to how you felt.

In studies 3a and 3b, we first asked whether respondents experienced a similar situation to the one described in the scenario and found that most of them answered “yes.” This indicates that most participants are familiar with the failure and success frame situations. In both studies, we consider all respondents in our analyses. The results are similar and the conclusions are the same if we consider only those who answered “yes” to the question. After describing their thoughts, participants answered the current money management stress and the expected future financial security scales. We counterbalanced the order of those scales. Next, participants answered the BIT scale. One participant didn’t answer the BIT scale.

## Results

*Perceived Financial Well-Being.* We averaged the responses to items from the current money management stress ( $\alpha = .83$ ) and the expected future financial security scales ( $\alpha = .89$ ). We tested whether a success outcome in our attempted manipulation of current money management stress would produce lower measured current money management stress without affecting perceptions of future financial security. To test this, we reverse-scored current money management stress so that both scales were coded with higher numbers being more positive.

Figure 3 displays the results for study 3a. We found an interaction between the valence frame focus (success vs. failure)

and the response scale (lack of current money management stress vs. expected future financial security scale) ( $F(1, 104) = 5.18, p = .025$ ). For the reverse-scored current money management stress scale where higher numbers are more positive, participants in the success frame reported more positive (i.e., lower) current money management stress ( $M = 3.77, SD = 1.13$ ) than participants in the failure frame condition ( $M = 3.19, SD = 1.02; F(1, 104) = 7.66, p = .007; \omega^2 = .059$ ). However, participants in the success frame condition reported the same expected future financial security ( $M = 3.79, SD = 1.25$ ) as those in the failure frame condition ( $M = 3.69, SD = 0.95; F(1, 104) = 0.23, p = .631; \omega^2 = .00$ ).

*Overall Well-Being.* For the BIT scale of well-being ( $\alpha = .92$ ), we found an effect of our manipulation of valence of thoughts about current money management stress (success vs. failure) ( $M_{\text{success}} = 4.73, SD_{\text{success}} = 0.81$ , vs.  $M_{\text{failure}} = 4.37, SD_{\text{failure}} = 0.88; F(1, 103) = 4.66, p = .033; \omega^2 = .034$ ). Next, we added the current money management stress (with original scaling such that higher numbers reflect more stress) and the expected future financial security scales to the model. We observed significant effects of both current money management stress ( $\beta = -0.33, SE = 0.07, p < .0001$ ) and expected future financial security ( $\beta = 0.25, SE = 0.06, p = .0003$ ). Finally, we used the Hayes (2013) PROCESS approach to test the indirect effects of the valence frame focus (success vs. failure) on well-being. This analysis revealed a significant indirect effect through current money management stress (CI 95%: 0.045 to 0.249), but not through expected future financial security (CI 95%:  $-0.060$  to 0.120). These analyses serve to validate the discriminant validity of our manipulation of current money management stress and provide further evidence of discriminant validity of our two perceived financial well-being measures.

## Study 3b Method: Manipulating Expected Future Financial Security

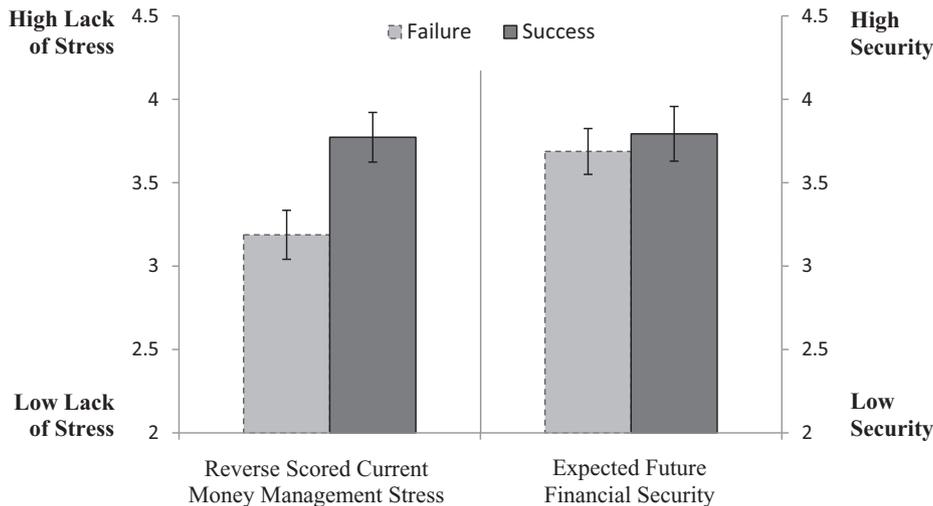
Study 3b replicates 3a, but manipulates participants’ thoughts about future financial security rather than current money management stress. Ninety-nine respondents thought about a day when they were thinking good or bad thoughts about their long-term financial security for the next 5 to 10 years. The wording for the failure frame was:

Has there been a day in the past three months when you were thinking of your long-term finances and feeling you were NOT becoming financially secure for the next five to 10 years? Yes/No (85% of respondents answered “yes”).

Please think of a day in the past three months when you were thinking of your long-term finances and feeling you were not becoming financially secure. Specifically, you thought that you would have difficulty paying off your bills when you get older, and you doubted that you would have

FIGURE 3

STUDY 3A: CURRENT MONEY MANAGEMENT STRESS AND EXPECTED FUTURE FINANCIAL SECURITY AS FUNCTIONS OF THINKING ABOUT RECENT EXPERIENCE OF FEELING LOW STRESS (SUCCESS) OR HIGH STRESS (FAILURE)



saved enough money for major purchases and expenses that might be coming up in the next five to 10 years. Please write a paragraph about your thoughts. Include anything else going on in your life that day that contributed to how you felt.

In the success frame condition, the wording was the same except:

Has there been a day in the past three months when you were thinking of your long-term finances and feeling good that you are on the road to becoming financially secure for the next five to 10 years? Yes/No (69% of respondents answered “yes”).

Please think of a day in the past three months when you were thinking of your long-term finances and feeling you were on a path to becoming financially secure. Specifically, you thought that you would have little difficulty paying off your bills when you get older, and you felt good that you would have saved enough money for major purchases and expenses that might be coming up in the next five to 10 years. Please write a paragraph about your thoughts. Include anything else going on in your life that day that contributed to how you felt.

Participants then responded to the same counterbalanced measures used in study 3a.

## Results

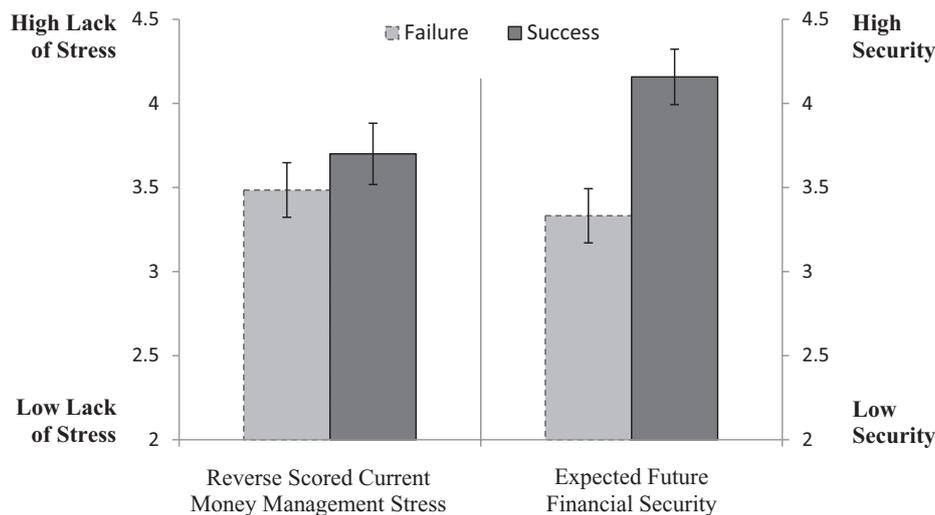
**Perceived Financial Well-Being.** We averaged the responses to the current money management stress ( $\alpha = .88$ ) and the expected future financial security scales ( $\alpha = .92$ ). Figure 4 shows the results. We found an interaction

between the valence frame focus (success vs. failure) and the response scale (reverse-scored current money management stress vs. expected future financial security scale) ( $F(1, 97) = 9.70, p = .002$ ). Participants in the success frame condition reported more positive expected future financial security ( $M = 4.16, SD = 1.19$ ) than participants in the failure frame condition ( $M = 3.33, SD = 1.11; F(1, 97) = 12.72, p = .0006; \omega^2 = .106$ ). However, participants in the success frame condition did not report more positive perceptions of (reverse-scaled) current money management stress ( $M = 3.70, SD = 1.32$ ) than participants in the failure frame condition ( $M = 3.49, SD = 1.11; F(1, 97) = 0.76, p = .385; \omega^2 = .00$ ).

**Overall Well-Being.** For the BIT scale ( $\alpha = .94$ ), we found an effect of valence frame focus (success vs. failure): ( $M_{\text{success}} = 4.65, SD_{\text{success}} = 0.93$ , vs.  $M_{\text{failure}} = 4.29, SD_{\text{failure}} = 0.90; F(1, 97) = 3.67, p = .058; \omega^2 = 0.026$ ). Next, we added the current money management stress and the expected future financial security scales to the model. We observed significant effects of both current money management stress ( $\beta = -0.27, SE = 0.08, p = .0005$ ) and expected future financial security ( $\beta = 0.29, SE = 0.08, p = .0006$ ). The Hayes (2013) PROCESS approach revealed a significant indirect effect through expected future financial security (CI 95%: 0.095 to 0.338), but not through current money management stress (CI 95%:  $-0.060$  to 0.162). As with study 3a, this analysis serves to validate the discriminant validity of our manipulation of expected future financial security and provides further

FIGURE 4

STUDY 3B: CURRENT MONEY MANAGEMENT STRESS AND EXPECTED FUTURE FINANCIAL SECURITY AS FUNCTIONS OF THINKING ABOUT A DAY WHEN FEELING FINANCIALLY SECURE (SUCCESS) VERSUS INSECURE (FAILURE)



evidence of discriminant validity among our two perceived financial well-being dimensions.

### Discussion of Studies 3a and 3b

Study 3a manipulates current money management stress and study 3b manipulates expected future financial security. In both studies, the manipulation affects the intended perceived financial well-being scale and not the other, showing evidence of discriminant validity. Both manipulations cause changes in mean reported overall well-being, with both perceived financial well-being dimensions predicting overall well-being. Lastly, we show that these well-being scores, driven by the manipulations of the present money thoughts and the future money thoughts, are mediated by current money management stress and expected future financial security, respectively. In total, we provide experimental evidence for causal influences of current money management stress and expected future financial security on well-being.

## GENERAL DISCUSSION

### Overview and Findings

The financial domain is perhaps the least understood driver of subjective well-being given prior reliance on objective measures such as income or single-item stated satisfaction. While there is increasing recognition of the importance of the financial domain, progress requires an understanding and measure of the concept, as well as the

perceptions, behaviors, traits, and circumstances that support it. This study addresses several of these requirements.

Building from existing literature and consumer financial narratives (CFPB 2015), we conceptualized perceived financial well-being as: 1) stress over current finances (current money management stress), and 2) a sense of security about achieving future financial goals (expected future financial security). With three studies detailed in web appendix A, we developed brief, reliable, and valid measures of these constructs and demonstrated predicted correlations with other constructs in the nomological net. In studies 1 and 2, and an MTurk study in web appendix B, we find support for hypothesized antecedents and consequences of current money management stress and expected future financial security. With studies 3a and 3b, we offer experimental evidence of the effects of current money management stress and expected future financial security on well-being.

Importantly, we demonstrate that current money management stress and expected future financial security are influenced by differing antecedents, and both influence overall well-being. Current money management stress and expected future financial security explain substantial variance in well-being beyond other life domains that have been the focus of prior research (i.e., job satisfaction, relationship support satisfaction, and physical health). This is true when we control for objective measures of one's financial situation (i.e., income).

Perceived financial well-being is the result of two distinct yet related assessments: How am I doing today?

How do I expect I will be doing in the future? As expected, increasing levels of stress over today's circumstances predict lower levels of perceived security regarding future finances. What is novel is our evidence of distinct antecedents of current money management stress and expected future financial security. Current money management stress is predicted by short-term traits and behaviors. Making only minimal payments, lack of self-control, and being materialistic are all relatively short-term factors that ultimately have long-term consequences (Maloney et al. 2012; Richins 2011). We hypothesized that these factors would not affect expected future financial security, and our results generally support our hypothesis. Likewise, behaviors and traits that reflect longer-term thinking, such as planning for money long-term and a willingness to take investment risks, are significantly related to expected future financial security, but have no effects on current money management stress.

Current money management stress and expected future financial security drive the consumer's assessment of overall well-being, even when we control for assessments of other life domains (relationship, job, and health satisfaction). In fact, the amount of variance explained by current money management stress and expected future financial security is the same amount as that explained by all other life domains combined. In addition, when the two components of perceived financial well-being are included in the model, income is not a straightforward positive predictor of overall well-being. Instead, income moderates the effect of current money management stress on well-being. As income levels rise, the negative effect of money management stress on well-being dissipates. We argued that higher income leads to a greater expectation that current financial stress might be temporary, thus mitigating its effect on overall well-being (Easterlin 1995; Ruberton et al. 2016). Put differently, holding constant demographics and our perceived financial well-being constructs, income only increases overall well-being when current money management stress is high. That is, current money management stress has a serious detrimental effect on well-being among low-income individuals. This moderating effect offers further support for current money management stress and expected future financial security as distinct (though correlated) components of perceived financial well-being.

## Implications

How might our findings contribute to future academic research on subjective well-being and financial well-being, and to the development of effective policies and programs to improve well-being? First, the measures we developed are reliable, valid, and brief. These measures could be used by a variety of researchers, as well as agencies and firms (e.g., Pew Research, CFPB, Fidelity, Vanguard) specializing in savings and retirement to gauge how consumers are

feeling about their current and future financial situations, relate these measures to what consumers are actually doing, and then advise those who feel stressed or insecure about their financial future.

Second, our framework identifies antecedents of current money management stress and expected future financial security that may inspire interventions to improve each component of financial well-being. Can training in planning for money, perceived financial self-efficacy, and willingness to take investment risks enhance expected future financial security? "Possibly" seems to be the answer. Though materialism is a trait/value likely internalized early in life (Richins 2004, 2011), there is evidence that some traits, like self-control, are malleable into early adulthood (Moffitt et al. 2011). Thus, school-based training/interventions designed to increase self-control with money may be worthwhile (Pathak, Holmes, and Zimmerman 2011).

Similarly, perceived financial self-efficacy, willingness to take investment risks, and planning for money are skills that can be acquired (Hadar et al. 2013; Perry and Morris 2005). Financial education efforts in these domains may be more effective than acquiring content knowledge about interest rates, bonds, and the like (Fernandes et al. 2014). Thus, it may be worthwhile for academics and policy makers to design programs to increase perceived financial self-efficacy, willingness to take investment risks, and planning for money with an aim to improve perceptions of expected future financial security (CFPB 2015).

Third, prior evidence suggests that the effect of income, an objective measure, on well-being may plateau at a certain level. Our work suggests that the perceptual variables we studied hold promise in future research in examining what drives well-being. Overall well-being was a major focus of this research and is increasingly relevant to researchers across several domains (Su et al. 2014). The measures developed in the present research—expected future financial security and current money management stress—collectively explained 31% (study 1) and 39% (MTurk study, web appendix B) of the variance in well-being, and an additional 9% of the variance in study 2, after we account for other life domains. Moreover, the standardized effects of our perceived financial well-being constructs were just as large as those of other well-being domains much studied in the literature.

Finally, we believe that our findings have important implications for employer efforts to foster employee well-being. According to the Society for Human Resource Management (Miller 2016), "When employees are stressed financially, their health and productivity can both suffer. Fortunately, organizations can ease some of that stress by helping employees manage their personal finances and prepare for retirement." Employers report that their workers are stressed by carrying debt (66%), covering basic living expenses (48%), and paying for medical expenses (36%), as well as by

long-term issues related to saving for retirement (60%) or for children's education (51%). As a way to address these issues, two-thirds of North American employers offer their employees financial education (Mrkvicka, Stich, and Held 2016). These well-intentioned efforts are likely suboptimal given evidence of the miniscule effects of financial education on financial behavior (Fernandes et al. 2014).

Our article might suggest a different approach. For low-income consumers, the focus should be on helping reduce debilitating current money management stress. That's not something financial education could likely achieve. However, employers could offer emergency loans so that employees do not have to turn to other sources like payday lenders in emergencies. For middle- and high-income consumers, what really matters is a sense of future financial security. Here, employers aiming to produce a happier and more productive workforce should focus on programs to help employees with planning for specific long-term future goals. Not only must employees be financially prepared for retirement and other future life events, they must feel secure in their plans as well.

In conclusion, this article highlights the importance of perceived financial well-being in overall well-being and examines the traits, behaviors, and circumstances that produce higher or lower levels of perceived financial well-being and overall well-being. It is our intent that the concepts and findings presented here will instigate additional work on the role of the financial domain of well-being, enhancing theory, policy, and programs.

## DATA COLLECTION INFORMATION

All authors contributed equally to survey design, data collection, and data analyses for the MTurk study in web appendix B (spring 2015); studies 1 and 2 in the body of the article (November 2015 and April 2017); and data analysis for web appendix A studies 1–3 (spring and fall 2014). The second author was involved in all qualitative data collection and analyses as well as survey design and data collection for web appendix A studies 1–3, conducted prior to the studies in the body of the article and the web appendix. The second, third, and fourth authors designed the experiments and analyzed the data of studies 3a and 3b in the body of the article (May and June 2017). All authors contributed equally to the writing of the article.

## APPENDIX

### Perceived Financial Well-Being Scale Dimensions: Expected Future Financial Security and Current Money Management Stress

**Expected future financial security: Five-point scale items (“does not describe me at all” to “describes me completely”)**

I am becoming financially secure.  
I am securing my financial future.  
I will achieve the financial goals that I have set for myself.  
I have saved (or will be able to save) enough money to last me to the end of my life.  
I will be financially secure until the end of my life.

**Current money management stress: Five-point scale items (“does not describe me at all” to “describes me completely”)**

Because of my money situation, I feel I will never have the things I want in life.  
I am behind with my finances.  
My finances control my life.  
Whenever I feel in control of my finances, something happens that sets me back.  
I am unable to enjoy life because I obsess too much about money.

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