THREE ESSAYS ON FINANCIAL SELF-EFFICACY BELIEFS AND THE SAVING
BEHAVIOR OF OLDER PRE-RETIREES

by

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B.S., Kansas State University, 2004
M.S., Kansas State University, 2011

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

The School of Family Studies and Human Services
College of Human Ecology

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Manhattan, Kansas

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Abstract

This dissertation employed a psychological framework to investigate the saving behavior of older pre-retirees through three essays using data from the Health and Retirement Study (HRS). Understanding the connection between psychological characteristics and saving behavior is critical as this population attempts to bridge the retirement saving gap. Of these characteristics, financial self-efficacy beliefs (FSE) are theoretically vital to saving behavior. With the FSE beliefs of older adults weak and vulnerable to decline, more research is needed to understand how FSE beliefs affect saving behavior and how FSE beliefs can be supported.

Essay one investigated the psychological characteristics associated with FSE beliefs according to the Meta-Theoretic Model of Motivation and Personality (3M). Using a sample of 2,070 pre-retirees aged 50 to 70, essay one revealed that FSE beliefs can be supported through the frequent experience of positive affect, reduced negative affect, a stronger perception of mastery, and a higher task orientation, holding all else constant.

Essay two investigated the relationship between FSE beliefs and saving behavior (i.e., change in net worth from 2008 to 2012) through the Social Cognitive Theory of Self-Regulation. Using a sample of 844 pre-retirees aged 50 to 70, results revealed that FSE beliefs are significantly and positively related to saving behavior, after controlling for the financial ability and motivation to save.

Essay three employed a structural equation model to investigate an integrated psychological approach to saving behavior based upon the 3M. Using a sample of 1,370 pre-retired and partially retired adults aged 50 to 70, essay three revealed that FSE beliefs facilitated the connection between elemental traits (i.e., openness, conscientiousness, extroversion,

agreeableness, and neuroticism), compound traits (i.e., positive affect, negative affect, mastery, and task orientation), and saving behavior.

Overall, significant evidence was generated supporting a psychological approach to the saving behavior of older pre-retirees. Financial and mental health professionals can utilize this framework to provide holistic retirement saving advice that acknowledges the psychological roots of behavior. Moreover, results established empirical support for the role FSE beliefs play in executing saving behavior. Lastly, results supported the importance of domain specific measurement for self-efficacy beliefs in future research.

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Table of Contents

List of Figures

List of Tables

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Dedication

This dissertation is dedicated to my family. To my husband, Gabriel, for your daily encouragement and support throughout this process. To my children, Julian and Abigail, for your patience, enthusiasm, and understanding about "Mom's big paper." To my parents, Darrel and Cindy, who taught me to always follow through and never give up. To my best friends and sisters, Anna and Rachel, who have provided unconditional friendship and understanding throughout this process.

Chapter 1 - Introduction

Statement of the Problem

To save or not to save? For older adults approaching retirement, saving would appear to be a rational choice in order to secure an adequate retirement income. Yet, low saving rates in the United States and older workers feeling financially unprepared for retirement suggests that the act of saving is not easy, even when able and motivated due to retirement proximity and higher lifetime earnings (Gallup, 2014; U.S. Department of Commerce, 2015; U.S. Census Bureau, 2013). Consequently, the primary purpose of this dissertation is to investigate the saving behavior of older pre-retirees and the psychological characteristics that support this behavior in the years approaching retirement.

With self-regulation central to the decision to save or spend (Shefrin & Thaler, 1988), this dissertation is focused on the psychological characteristics that interact with the self-regulatory process. Of these characteristics, "… none is more central or pervasive than people's judgments of their capabilities to deal effectively with different realities" (Bandura, 1986, p. 21). These *self-efficacy beliefs* are fundamental to the successful execution of self-regulatory behavior (Bandura, 1991), and have been shown to be susceptible to decline within the financial domain amongst older American adults (McAvay, Seema, & Rodin, 1996). Thus, older pre-retirees can benefit from understanding how financial self-efficacy beliefs are related to saving behavior and how these beliefs can be supported in the years preceding retirement. Surprisingly, domain specific *financial* self-efficacy beliefs have received little attention within the financial planning literature, despite their theoretical connection to self-regulation (Bandura, 1991).

Purpose

Given this context, the purpose of this dissertation is three-fold. First, the purpose of essay one is to investigate the psychological characteristics associated with financial self-efficacy beliefs. This study provides a foundation for understanding how older pre-retirees can support financial self-efficacy beliefs in the years leading up to retirement. Second, the purpose of essay two is to determine if financial self-efficacy beliefs account for variability in saving behavior above and beyond the financial ability and motivation to save. This study examines the theoretical connection between domain specific self-efficacy beliefs and self-regulatory behavior within a population that is highly motivated and able to save. Third, the purpose of essay three is to explore how psychological characteristics combine to shape saving behavior through direct and indirect (e.g., mediating) relationships. This study investigates the utility of a psychological framework in explaining the saving behavior of older pre-retirees.

Description of Studies

Essay One

Essay one investigated the following research questions using data from the Health and Retirement Study (HRS): (a) Do psychological characteristics add explanatory power in estimating financial self-efficacy beliefs beyond basic individual characteristics? (b) How are psychological characteristics associated with the financial self-efficacy beliefs of older pre-retirees? The Meta-Theoretic Model of Motivation and Personality (3M) served as the theoretical framework for essay one (Mowen, 2000). As depicted in Figure 1.1, the 3M posits that consumer behavior and underlying psychological characteristics can be explained through the following hierarchy of traits, ranging from broad personality characteristics to narrow behavioral dispositions (Mowen, 2000): (a) Elemental traits, (b) Compound traits, (c) Situational traits, and

(d) Surface traits. Elemental traits provide the broadest psychological reference point and include the following widely known "Big Five" personality traits (Costa & McCrae, 1992): (a) Openness to experience, (b) Conscientiousness, (c) Extroversion, (d) Agreeableness, and (e) Neuroticism. Compound traits are narrower in scope than elemental traits and are applicable in a variety of situational contexts. Situational traits represent dispositions to behave within a particular life domain (e.g., health, relationship, or financial). Lastly, surface traits reflect observable and concrete behavioral tendencies, such as saving behavior.

Figure 1.1 3M Hierarchical Personality Structure, adapted from Mowen (2000).

Elemental Traits

↓

Compound Traits

↓

Situational Traits

↓

Surface Traits
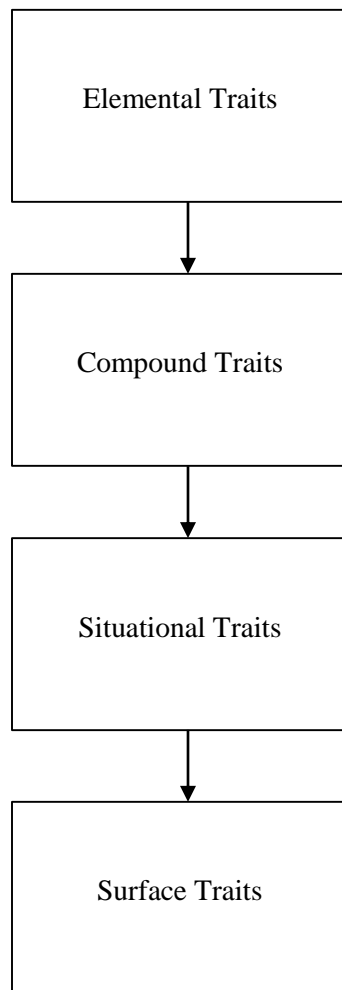
With financial self-efficacy beliefs measured on an ordinal Likert-type scale at the situational trait level, essay one utilized a three-block hierarchical ordinal logistic regression model to investigate how basic individual characteristics (block one), elemental traits (block two), and compound traits (block three) are related to financial self-efficacy beliefs. The empirical model for essay one is provided in Figure 1.2.

Figure 1.2 Empirical Model for Financial Self-Efficacy Beliefs, according to the 3M (Mowen, 2000)
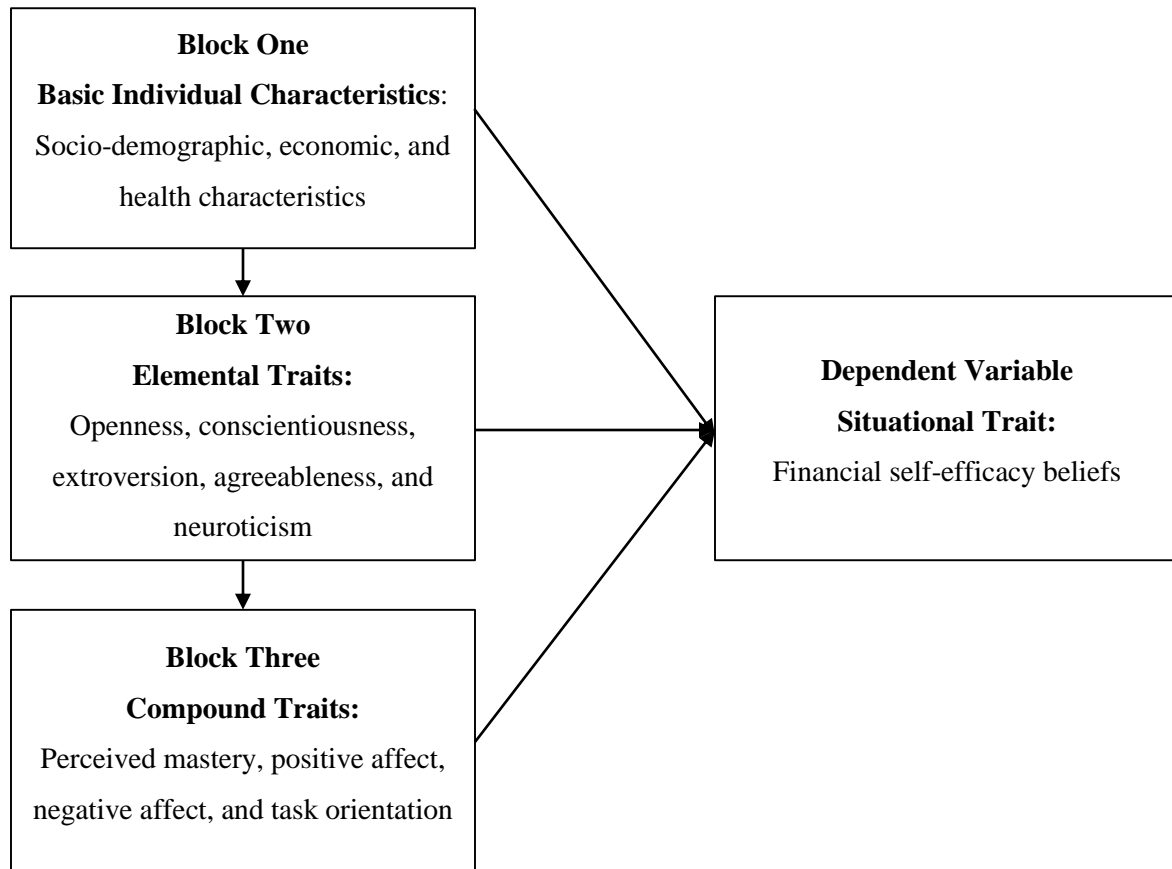
```
┌─────────────────────────────┐
│        Block One            │
│ Basic Individual Characteristics: │
│ Socio-demographic, economic, and │
│    health characteristics   │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐          ┌─────────────────────────────┐
│        Block Two            │          │    Dependent Variable       │
│     Elemental Traits:       │─────────▶│    Situational Trait:       │
│ Openness, conscientiousness, │          │ Financial self-efficacy beliefs │
│ extroversion, agreeableness, and │      └─────────────────────────────┘
│        neuroticism          │
└─────────────────────────────┘
               │
               ▼
┌─────────────────────────────┐
│       Block Three           │
│    Compound Traits:         │
│ Perceived mastery, positive affect, │
│ negative affect, and task orientation │
└─────────────────────────────┘
```

The 3M suggests that each block representing the elemental and compound traits should increase the explanatory power of the model above and beyond that of the previous blocks. Therefore, essay one explored the following hypotheses:

H1: Elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs.

H2: Compound traits (i.e., positive affect, negative affect, perceived mastery, and task orientation) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs.

The 3M indicates that elemental traits (broad personality characteristics) are connected to domain specific self-efficacy beliefs. Prior literature suggests that higher levels of extroversion, openness to experience, and conscientiousness are associated with positive financial characteristics and behavior, while higher levels of agreeableness and neuroticism are associated with negative financial characteristics and behavior. Given the positive role domain specific self-efficacy beliefs play in the execution of self-regulatory behavior (Bandura, 1991, 1997), the following additional hypotheses were explored in essay one:

H3: Openness to experience is positively associated with financial self-efficacy beliefs.

H4: Conscientiousness is positively associated with financial self-efficacy beliefs.

H5: Extroversion is positively associated with financial self-efficacy beliefs.

H6: Agreeableness is negatively associated with financial self-efficacy beliefs.

H7: Neuroticism is negatively associated with financial self-efficacy beliefs.

For the compound traits, existing literature indicated that perceived mastery and positive affective states promote higher self-efficacy beliefs, while negative affective states can harm them (Bandura, 1997; McAvay et al., 1996). Moreover, individuals with a predisposition to engage in and follow through with tasks may be more likely to exhibit higher self-efficacy

beliefs (Bandura, 1991; Mowen, 2000). Thus, the following four additional hypotheses representing each of the compound traits were explored:

H8: Perceived mastery is positively associated with financial self-efficacy beliefs.

H9: Positive affect is positively associated with financial self-efficacy beliefs.

H10: Negative affect is negatively associated with financial self-efficacy beliefs.

H11: Task orientation is positively associated with financial self-efficacy beliefs.

Essay Two

Essay two utilized the HRS to investigate the following research question: Do financial self-efficacy beliefs account for variability in the saving behavior of older pre-retirees after controlling for the ability and motivation to save? Older pre-retirees' stage in the financial life cycle suggests they are financially able and motivated to make significant progress towards closing the observed retirement saving gap, yet evidence exists that suggests many individuals will enter retirement financially underprepared (Helman, Copeland, & VanDerhei, 2012; Munnell, Webb, & Golub-Sass, 2012). With income at a lifetime high, significant self-control may still be needed in order to save (Shefrin & Thaler, 1988). Thus, the Social Cognitive Theory of Self-Regulation provided the theoretical framework for essay two to examine the utility of financial self-efficacy beliefs for older pre-retirees.

The Social Cognitive Theory of Self-Regulation states that self-efficacy beliefs affect behavior by interacting with the psychological functions of the self-regulatory system. As a result of this interaction, self-efficacy beliefs affect how an individual establishes goals, monitors behavior, judges behavioral outcomes, values activities, and how they react to positive or negative performance judgments, consequently shaping behavior (Bandura, 1991). The conceptual model for the Social Cognitive Theory of Self-Regulation is provided in Figure 1.3.

Figure 1.3 Social Cognitive Theory of Self-Regulation Conceptual Model, adapted from Bandura (1991).
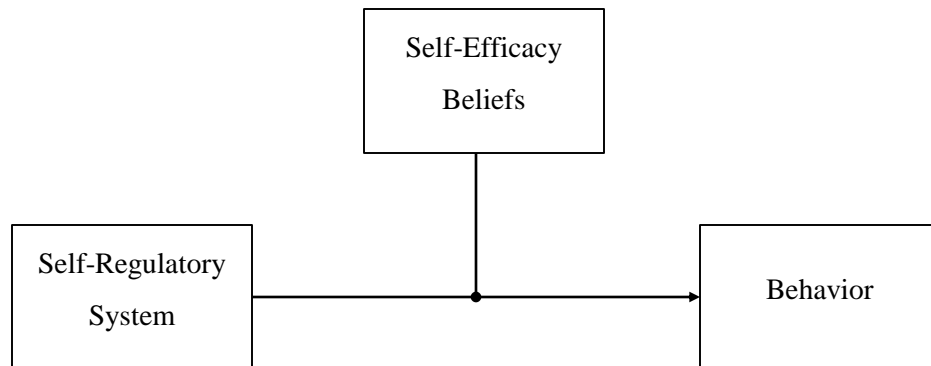
Given the continuous and unbounded nature of the dependent variable, 2008 to 2012 change in the natural logarithm of net worth, essay two utilized an OLS regression model to investigate the saving behavior of older pre-retirees. With older pre-retirees experiencing peak lifetime earnings (U.S. Census Bureau, 2013), it is expected that significant self-control is needed in order to save, despite the presence of motivation due to a close proximity to retirement (Shefrin & Thaler, 1988). Consequently, as viewed through the Social Cognitive Theory of Self-Regulation, financial self-efficacy beliefs are expected to demonstrate a positive association with saving behavior, after controlling for the ability and motivation to save (Bandura, 1991). Thus, the following hypothesis was investigated in essay two:

H1: Financial self-efficacy beliefs are positively associated with the saving behavior of older pre-retirees after controlling for the ability and motivation to save.

Essay Three

Essay three explored the following research questions: (a) How do psychological characteristics combine to shape the saving behavior of older pre-retirees? (b) Do financial self-efficacy beliefs mediate the relationship between broader psychological characteristics and saving behavior? Essay three investigated the aforementioned research questions through the 3M

Model of Motivation and Personality (3M) (see Figure 1.1). The 3M indicates that each trait level is connected to surface level traits (e.g., saving behavior), with situational traits exhibiting the strongest association given their adjacent location within the model. Moreover, with compound traits and situational traits in the middle of the hierarchy, it is possible for full or partial mediation to occur within the 3M framework. The empirical model for essay three is provided in Figure 1.4.

Figure 1.4 Empirical Model for Saving Behavior, according to the 3M (Mowen, 2000).
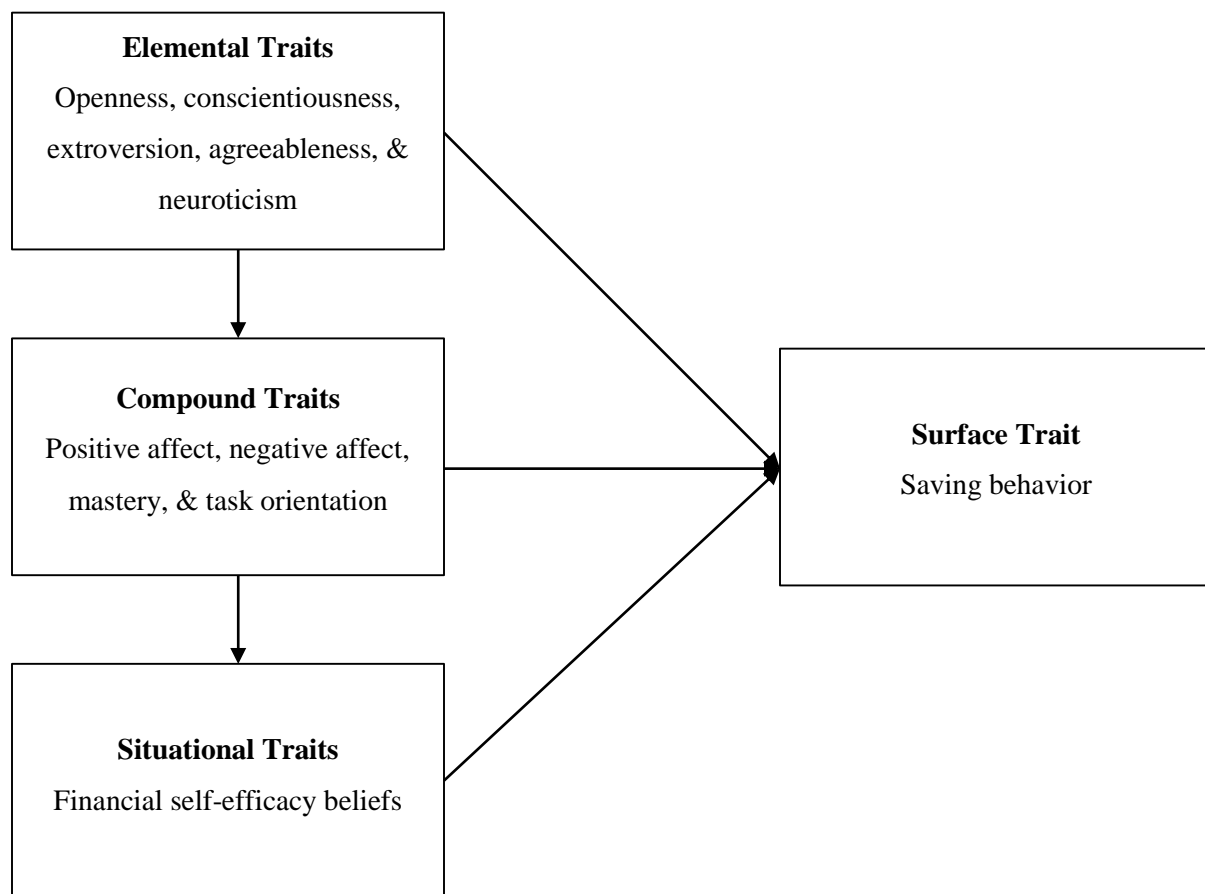
Essay three employed a Structural Equation Model (SEM), utilizing Mplus version 7.4 in order to account for the measurement error associated with the psychological constructs, and to investigate the potential for mediating roles (Kline, 2016; Muthén & Muthén, 2015). According to the 3M and prior literature, essay three investigated the following hypotheses:

Elemental traits:

H1: Openness to experience is positively associated with saving behavior.

H2: Conscientiousness is positively associated with saving behavior.

H3: Extroversion is positively associated with saving behavior.

H4: Agreeableness is negatively associated with saving behavior.

H5: Neuroticism is negatively associated with saving behavior.

Compound traits:

H6: Positive affect is positively associated with saving behavior.

H7: Negative affect is negatively associated with saving behavior.

H8: Mastery is positively associated with saving behavior.

H9: Task orientation is positively associated with saving behavior.

Situational traits:

H10: Financial self-efficacy beliefs are positively associated with saving behavior.

Moreover, it is expected that situational traits will mediate the relationship between compound traits and saving behavior. Additionally, it is expected that compound traits will mediate the relationship between elemental traits and saving behavior. It is unclear, however, whether a full or partial mediating relationship will occur. Lastly, with two trait levels (i.e., compound and situational) between the elemental traits and saving behavior, it is possible for the elemental traits to be indirectly connected to saving behavior through a combination of

compound and situational traits. These expected relationships are illustrated above in Figure 1.4. Therefore, essay three investigated the following additional hypotheses:

H11: Situational traits mediate the relationship between compound traits and saving behavior.

H12: Compound traits mediate the relationship between elemental traits and saving behavior.

H13: Combinations of situational and compound traits mediate the relationship between elemental traits and saving behavior.

Potential Implications and Summary

This dissertation has the potential to provide several relevant implications for consumers, financial professionals, mental health professionals, and researchers. First, while general self-efficacy beliefs have been introduced into the financial planning literature (Chatterjee, Finke, & Harness, 2011), theory suggests that the measurement of self-efficacy beliefs should be based upon the particular behavioral domain of interest (e.g., health, relationships, finances, etc.) (Bandura, 1991, 1997). This domain specific measurement has been recognized within the financial planning literature through the development of a financial self-efficacy scale (Lown, 2011).

Despite the development of this scale, the utility of financial self-efficacy beliefs for explaining financial behavior has not yet been established within the literature. This is surprising given the theoretical connection between domain specific self-efficacy beliefs and self-regulatory behavior (Bandura, 1991). This dissertation will uncover the relevance of financial self-efficacy beliefs for saving behavior within a population that is highly motivated and able to close the retirement savings gap, yet is consistently identified within the literature as struggling to do so.

By establishing a connection between financial self-efficacy beliefs and saving behavior for older pre-retirees, financial and mental health professionals will have a new psychological perspective to utilize in order to assist this population in reaching their retirement saving goals. Moreover, this dissertation has the potential to serve as a catalyst for future research investigating the connection between financial self-efficacy beliefs and financial behavior.

Second, this dissertation has the potential to inform consumers, financial professionals, and mental health professionals about the psychological characteristics that support financial self-efficacy belief levels. If higher financial self-efficacy beliefs are related to positive financial behavior (Bandura, 1991), then it is useful to understand how higher financial self-efficacy beliefs can be psychologically supported. Results of this research may provide insight into how financial and mental health professionals can assist clients in shaping financial self-efficacy beliefs, thereby supporting saving behavior. It may be beneficial for older pre-retirees to focus on developing higher financial self-efficacy beliefs in order to support and sustain their efforts in closing the saving gap needed to financially prepare for retirement.

Third, this research has the potential to provide evidence for a psychological framework that explains saving behavior. Currently, a variety of psychological characteristics have been found within the literature to support saving behavior; however, these characteristics have rarely been systematically investigated with psychological theory to determine how they combine and inter-relate to explain saving behavior. Moreover, this study has the potential to identify how basic personality differences are linked to narrower psychological characteristics and saving behavior. Mowen (2000) observed that consumer behavior research has primarily focused on narrow psychological attributes given their ability to account for more variability in consumer behavior than broader personality traits. Mowen (2000) suggested that consumer behavior can be

more fully explained by accounting for individuals' basic personality traits in addition to narrower psychological characteristics. Consequently, this research will provide insight into the usefulness of incorporating broad personality traits into saving behavior research.

Overall, this research will assist financial and mental health professionals in developing saving strategies that align with each client's unique psychological perspective and innate tendencies for action. Moreover, this research will support the integration of psychology with the practice of financial planning by identifying a framework that connects psychological characteristics to saving behavior. Additionally, the relevance of financial self-efficacy beliefs as a characteristic important to the saving behavior of older pre-retirees will be determined. Lastly, this dissertation will inform future research about the connection between domain specific self-efficacy beliefs and financial behavior.

References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.*
Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO-PI-R: Professional manual.* Odessa, FL: Psychological Assessment Resources.

Gallup. (2014). *Retirement remains Americans' top financial worry*. Retrieved from: http://www.gallup.com/poll/168626/retirement-remains-americans-top-financial-worry.aspx

Helman, R., Copeland, C., & VanDerhei, J. (2012). The 2012 retirement confidence survey: Job insecurity, debt weigh on retirement confidence, savings. *EBRI Issue Brief*, 369, 1-32.

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Third Edition. New York, NY: The Guilford Press.

McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self-efficacy among older adults. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 51B*(5), 243-253.

Mowen, J. C. (2000). *The 3M model of motivation and personality: Theory and empirical applications to consumer behavior*. Norwell, MA: Kluwer Academic Publishers.

Munnell, A. H., Webb, A., & Golub-Sass, F. (2012). The national retirement risk index: An update. *Center for Retirement Research at Boston College*, *1*-9.

Muthén, L. K., & Muthén, B. O. (2015). *Mplus user's guide.* Seventh Edition. Los Angeles, CA: Muthén & Muthén.

Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*, 26(4), 609-643.

U.S. Census Bureau. (2013). *Webinar on 2012 income, poverty and health insurance estimates from the current population survey*. Retrieved from: http://www.census.gov/newsroom/releases/pdf/20130917_ip_remarks.pdf

U.S. Department of Commerce. (2015). *News release: Personal income and outlays*. Retrieved from: http://www.bea.gov/newsreleases/national/pi/pinewsrelease.htm

Chapter 2 - Financial Self-Efficacy Beliefs and the Psychological Characteristics of Older Pre-Retirees

Introduction

Older pre-retirees are in a unique psychological and economic position as they near the end of the accumulation phase of the financial life cycle. They experience their highest level of lifetime earnings, which provides them with increased financial ability (U.S. Census Bureau, 2013). The increase of financial resources along with a close proximity to retirement presents a consumption and saving dilemma, as the urgency to save rises along with the temptation to spend. Saving current discretionary income presents a psychological challenge as spending today is more desirable than spending tomorrow (Shefrin & Thaler, 1988). Thus, older pre-retirees must exercise significant control to overcome the mental costs associated with forgoing consumption (Shefrin & Thaler, 1988). Given the competing demand on older pre-retirees' income (save vs. spend), the ability to exert control over their financial situation is challenging and paramount for retirement preparedness.

A key factor in the exercise of control is the belief in ones' ability to influence courses of action and achieve desired outcomes (Bandura, 1991, 1997). These personal beliefs, called *self-efficacy beliefs,* are the cornerstone of personal agency – the intentional engagement in and completion of tasks - and are essential to engaging in and following through with self-regulatory behavior (Bandura, 1986, 1991, 1997). People with stronger self-efficacy beliefs in a particular task are more likely to engage in it, set higher goals, and persevere with greater attention and effort in the face of adversity (Bandura, 1982, 1991). Self-efficacy beliefs are unique to each life domain, such as health, relationships, and finances (Bandura, 1997; McAvay, Seeman, & Rodin, 1996). Within the financial domain, self-efficacy beliefs have been found to be vulnerable.

Investigating self-efficacy beliefs across various life functions, McAvay et al. (1996) found financial self-efficacy beliefs to be the weakest and most susceptible to a sustained decline across time within a sample of older adults age 62 and above. Based upon this vulnerability and the role self-efficacy beliefs play in self-regulatory behavior, older pre-retirees would benefit from further research exploring how financial self-efficacy beliefs can be supported in the years preceding retirement.

The purpose of this study was to investigate the relationship between psychological characteristics and financial self-efficacy beliefs in order to understand how older pre-retirees can support a sense of control over their financial situation. Using a hierarchical approach through the 3M Model of Motivation and Personality (Mowen, 2000), this study investigated the following research questions: (a) Do psychological characteristics add explanatory power in estimating financial self-efficacy beliefs beyond basic individual characteristics? (b) How are psychological characteristics associated with the financial self-efficacy beliefs of older pre-retirees?

Literature Review

Self-efficacy beliefs are defined as "…beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Self-efficacy beliefs are an important aspect of control, as they provide individuals with the psychological perspective that they have influence over their behavior (Bandura, 1991, 1997). This perspective can affect how one engages in tasks, perseveres, and succeeds in goal attainment (Bandura, 1991). General self-efficacy beliefs are applicable within the financial domain, as they have been linked to positive financial behaviors (Chatterjee, Finke, & Harness, 2011). Despite the utility of self-efficacy beliefs within the financial realm, little is understood

about how financial self-efficacy beliefs can be supported by one's psychological status. Thus, this literature review is focused on the connection between psychological characteristics and general self-efficacy beliefs, the personal and psychological factors associated with domain specific *financial* self-efficacy beliefs, and how financial self-efficacy beliefs are related to older pre-retirees.

General Self-Efficacy Beliefs

Self-efficacy beliefs are influenced by a variety of psychological, social, and environmental factors. This study is focused on the personal psychological characteristics that shape self-efficacy beliefs. Of these psychological characteristics, enactive mastery experience and affective states have been shown to influence self-efficacy belief levels (Bandura, 1997; Baron, 1990; Schuettler & Kiviniemi, 2006).

Enactive mastery experiences provide the most powerful source of efficacy information to individuals (Bandura, 1977, 1997). Based upon Bandura's (1977, 1997) description, enactive mastery experience is defined within this study as the experience of past performance accomplishments. These past successes, particularly those that are challenging to achieve, culminate into a general sense of mastery that can affect self-efficacy beliefs across domains (Bandura, 1977, 1997; Bandura, Adams, & Beyer, 1977). When individuals succeed in these challenging situations, resiliency is developed and mastery beliefs are enhanced, providing individuals with a reservoir of information to act as a buffer against future failures. Given the strong connection between mastery experiences and self-efficacy beliefs, perceived mastery beliefs have been utilized as a foundation for the development of general self-efficacy scales (Chen, Gully, & Eden, 2001; Sherer & Maddux, 1982). In addition to general mastery beliefs, domain specific ability provides individuals with mastery information related to a particular task.

For example, the ability to solve math problems had a significant positive and direct effect on high school students' level of math self-efficacy (Pajares & Kranzler, 1995).

Affective states influence how people interpret their capabilities and are defined as the experience of positive and negative emotions. Negative emotional states, such as anxiety, stress, fear, and depression can undercut the perception of capability and expectations of success, resulting in poor task performance (Bandura, 1977, 1997). Positive emotions, on the other hand, enhance self-efficacy beliefs and enable individuals to more effectively cope with stress (Bandura, 1997). Happiness, for example, has been shown to promote higher self-efficacy beliefs (Baron, 1990; Schuettler & Kiviniemi, 2006).

Financial Self-Efficacy Beliefs

The psychological characteristics associated with financial self-efficacy beliefs may be similar to those associated with general self-efficacy beliefs; however this has not been directly tested within the literature. McAvay et al. (1996) provided insight into these characteristics by investigating changes in various domain specific self-efficacy beliefs over an eight-month period within a sample of 255 American adults over the age of 62. McAvay et al. found that those who experienced higher depression levels and daily financial hassles at the prior interview were more likely to exhibit a subsequent decline in their financial self-efficacy beliefs. These findings are consistent with Bandura's (1977, 1997) proposition that negative affective states can harm self-efficacy beliefs.

Socio-demographic factors also play a role. Age and education status have been linked to financial self-efficacy beliefs. A higher education status was associated with a higher average financial self-efficacy belief score (Lown, 2011). Moreover, Lown (2011) indicated that increased age was positively and significantly correlated with financial self-efficacy beliefs.

18

Additionally, McAvay et al. (1996) found that women were more likely to experience a decline in financial self-efficacy beliefs than men; however, whether women held higher or lower financial self-efficacy beliefs than men at the initial interview was not reported. Moreover, McAvay et al. concluded that older adults with annual income above $11,000 were more likely to experience improved financial self-efficacy beliefs over time. Thus, while maximizing income may assist in improving financial self-efficacy beliefs, psychological factors appear to play a meaningful role. While the McAvay et al. study focused on the *change* in financial self-efficacy beliefs, the findings provide a basic foundation for factors potentially associated with the existing *level* of financial self-efficacy beliefs for older pre-retirees.

Other socio-demographic and economic correlates of financial self-efficacy beliefs have not been extensively investigated within the literature; however, research findings associated with positive financial behavior may provide additional insights. Lown (2011) found that planners and savers reported above average financial self-efficacy belief scores, while strugglers, impulsive individuals, and deniers demonstrated below average scores. Given the positive relationship between financial behavior and financial self-efficacy beliefs, socio-demographic and financial characteristics associated with positive financial behaviors may provide further insight into characteristics that shape financial self-efficacy beliefs. For example, being white (Perry & Morris, 2005) and a possessing a higher self-reported health status (O'Neill, Sorhaindo, Xiao, & Garman, 2005) were associated with positive financial behaviors. Moreover, Perry and Morris (2005) highlighted that increased financial resources, such as income, provide individuals with the opportunity to demonstrate responsible financial behavior. Thus, it is possible that a higher income and the presence of other financial resources (e.g., savings) may be associated with higher financial self-efficacy beliefs, thereby supporting positive financial behavior.

Alternatively, the presence of debt may constrain financial resources and demonstrate a negative association with financial self-efficacy beliefs. Moreover, homeowners have demonstrated a higher probability of reporting positive saving behavior (Hogarth, Beverly, & Hilgert, 2003). Lastly, married individuals and smaller households were more likely to demonstrate positive patterns of cash flow and saving behavior (Hogarth et al., 2003).

Personality and Financial Self-Efficacy Beliefs

Self-efficacy beliefs are psychological characteristics within an individual's personality schema (Mowen, 2000). Mowen (2000) defined personality as the "hierarchically related set of intra-psychic constructs that reveal consistency across time and that combine with situations to influence the feelings, thoughts, intentions, and behavior of individuals" (p. 2). Mowen (2000) further suggested that broad personality traits provide the foundation for shaping domain specific self-efficacy beliefs, such as financial self-efficacy beliefs. While different approaches to personality exist, the personality psychology field has reached a general consensus that five broad traits, commonly known as the *Big Five*, form the basic foundation of personality (John & Srivastava, 1999). The Big Five personality traits consist of the following (Costa & McCrae, 1992): Openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

According to Costa and McCrae (1992), open individuals tend to be curious, consider unique ideas, entertain unconventional values, experience positive and negative emotions more acutely than others, and possess a rich life full of experiences. Conscientious individuals are characterized as being active in planning, organizing, and executing tasks (Costa & McCrae, 1992). Additionally, Costa and McCrae indicated that conscientious individuals are "purposeful, strong-willed, and determined," which is associated with academic and occupational success (p. 16). Extraverted individuals are sociable, energetic, upbeat, cheerful, enjoy excitement, are

optimistic, and prefer to be with people (Costa & McCrae, 1992). An agreeable individual is

altruistic, sympathetic, cooperative, eager to help others, and believes others will equally

reciprocate their goodwill (Costa & McCrae, 1992). Finally, the neurotic individual is the

opposite of the emotionally stable one, as Costa and McCrae stated, "the general tendency to

experience negative affects such as fear, sadness, embarrassment, anger, guilt, and disgust is the

core of the N (neuroticism) domain" (p. 14). Individuals who score low on the neuroticism trait

are typically "…calm, even-tempered, and relaxed, and they are able to face stressful situations

without becoming upset or rattled" (Costa & McCrae, 1992, p. 15).

The connection between the Big Five personality traits and financial self-efficacy beliefs

has not yet been tested within the literature; however, each Big Five trait has been connected to

financial characteristics and financial behavior. With higher self-efficacy beliefs also connected

with financial behavior (Chatterjee et al., 2011; Lown, 2011), it is possible that a relationship

might be observed between the Big Five personality characteristics and financial self-efficacy

beliefs. Specifically, existing research indicates that higher levels of extroversion, openness to

experience, and conscientiousness are associated with positive financial attributes and behavior

(Hershey & Mowen, 2000; Mayfield, Perdue, & Wooten, 2008; Mowen & Spears, 1999;

Nabeshima & Seay, 2015). On the other hand, higher levels of agreeableness and neuroticism

have been associated with negative financial attributes and behavior (Mowen & Spears, 1999;

Nabeshima & Seay, 2015). This study will investigate if a similar relationship exists between

each of the Big Five traits and financial self-efficacy beliefs.

Older Pre-Retirees and Financial Self-Efficacy Beliefs

Pre-retirees nearing the end of the accumulation phase (older pre-retirees) are the

population of interest for this study. Older pre-retirees tend to experience peak lifetime earnings

and have accumulated savings (DeVaney & Chiremba, 2005; U.S. Census Bureau, 2013). They are also highly engaged in the financial planning process, which may be partially due to their close proximity to retirement (Ekerdt, Kosloski, & DeViney, 2000; Hershey, Henkens, & Van Dalen, 2010). Moreover, older pre-retirees are at or close to their prime when it comes to financial decision-making (Agarwal, Driscoll, Gabaix, & Laibson, 2009). While these factors would support higher financial self-efficacy beliefs, psychological characteristics have been shown to play a significant role in shaping the financial self-efficacy beliefs of older adults (McAvay et al., 1996).

The decision to save or spend is psychologically challenging for older pre-retirees given their close proximity to retirement and increased income level. Despite possessing positive financial characteristics, older Americans are concerned they will not have adequate financial resources for retirement (Gallup, 2014). This concern is justified, as overall saving rates are persistently low in the United States and it is expected that many individuals will enter retirement with insufficient financial resources (Helman, Copeland, & VanDerhei, 2012; Hershey & Jacobs-Lawson, 2012; Munnell, Webb, & Golub-Sass, 2012; U.S. Department of Commerce, 2015). With self-efficacy beliefs associated with the successful execution of self-regulatory behavior (Bandura, 1991; Chatterjee et al., 2011), older pre-retirees would benefit from understanding how financial self-efficacy beliefs can be supported in the years leading up to retirement.

The 3M Model of Motivation and Personality

This study employed the Meta-Theoretic Model of Motivation and Personality (3M) to investigate the psychological characteristics associated with older pre-retirees' financial self-efficacy beliefs given the empirical evidence supporting the ability of the 3M to explain a variety

of psychological traits and consumer behaviors within the financial domain (Mowen, 2000). The

3M posits the following four trait levels vary from the abstract to the concrete and interact

together to explain consumer behavior (see Figure 2.1): (a) Elemental traits, (b) Compound traits,

(c) Situational traits, and (d) Surface traits.

Figure 2.1 3M Hierarchical Personality Structure, adapted from Mowen (2000).

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┌─────────────────────┐
│                     │
│   Elemental Traits  │
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┌─────────────────────┐
│                     │
│   Compound Traits   │
│                     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│                     │
│  Situational Traits │
│                     │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│                     │
│    Surface Traits   │
│                     │
└─────────────────────┘
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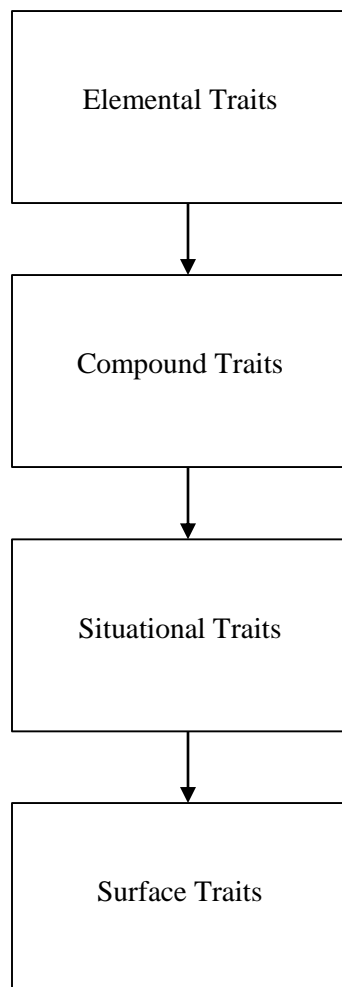
Elemental Traits

Elemental traits are defined as the "basic, underlying predispositions of individuals that

arise from genetics and a person's early learning history" (Mowen, 2000, p. 20). These traits

provide a foundation and serve as the broadest reference point for evaluating psychological

characteristics and consumer behavior. Elemental traits are the fundamental source of individual value differences that combine to produce narrower compound traits. In the 3M, elemental traits include the following Big Five personality traits (Costa & McRae, 1992): (a) Openness to experience, (b) Conscientiousness, (c) Extroversion, (c) Agreeableness, and (d) Neuroticism. Based upon evolutionary psychology (Buss, 1988), Mowen (2000) proposed the following three additional elemental traits exist: (a) Material needs, (b) Arousal needs, and (c) Physical needs.

The elemental traits provide a broad psychological foundation to investigate older pre-retirees' financial self-efficacy beliefs. Of particular interest to this study is the notion that the elemental traits are a function of an individual's culture and early learning history. Older pre-retirees possess a rich and extensive financial learning history that is embodied within the elemental personality traits according to the 3M. Within the 3M, these elemental traits should add explanatory power to the model investigating financial self-efficacy beliefs (i.e., a situational trait) above and beyond that of basic individual characteristics and economic factors.

Compound Traits

Compound traits reflect a combination of two or more elemental traits and are defined as "unidimensional dispositions emerging from the interplay of elemental traits, from the culture in which an individual lives, and from the learning history of the individual" (Mowen, 2000, p. 22). Compound traits are narrower in focus than elemental traits and form general predispositions within a variety of situational contexts. Mowen (2000) suggested that numerous compound traits exist and the researcher must use judgment in selecting which compound traits are appropriate for investigation. The compound traits investigated within this study were perceived mastery, positive affect, negative affect, and task orientation. Based upon the existing literature, affective states (positive and negative) and perceived mastery are psychological characteristics that have

been linked to general self-efficacy beliefs and may also explain variability in financial self-efficacy beliefs (Bandura, 1977, 1997; Baron, 1990; McAvay et al., 1996; Schuettler & Kiviniemi, 2006). Perceived mastery and affective states align with the general definition of a compound trait, as they are narrower in focus than elemental traits and are applicable within a variety of situational contexts.

Task orientation is the fourth compound trait investigated within this study. Task orientation is an example of a compound trait proposed by Mowen (2000) that has utility within the financial domain. Task orientation is defined as "the enduring disposition to set task goals and to achieve high performance levels in completing tasks" (Mowen, 2000, p. 61). Goal setting and task completion are intertwined with self-efficacy beliefs, as those with stronger self-efficacy beliefs in a particular task or activity are more likely to set goals for the future and work persistently towards them (Bandura, 1991, 1997). Through the lens of the 3M, the basic activity of goal setting and task achievement may be partially due to an individual's personality disposition at the compound trait level. Thus, individuals with a higher task orientation trait may be more likely to set goals and to succeed in following through with related tasks, thereby promoting higher self-efficacy beliefs due to experienced successes. Therefore, task orientation may have a positive relationship with financial self-efficacy beliefs and was investigated as a fourth compound trait within this study.

Situational Traits

Situational traits are defined as the "unidimensional predispositions to behave within a general situational context" (p. 21). Situational traits emerge when a combination of elemental traits and compound traits interact with situational forces to produce domain-specific behavioral dispositions. Mowen (2000) described domain specific self-efficacy beliefs as an example of a

situational trait resulting from a combination of elemental and compound traits. Given their position in the hierarchical structure, situational traits tend to explain a high level of variance in surface level traits. Financial self-efficacy beliefs were measured as a situational trait within this study.

Surface Traits

Surface traits represent the "enduring tendency of consumers to behave with respect to a product category or behavioral domain" (Mowen, 2000, p. 23). Surface traits are the most specific, observable, and concrete traits represented in the 3M. From a financial planning perspective, a surface trait may be budgeting, saving, or hiring a financial planner. Surface traits were not included within this study given the current focus on financial self-efficacy beliefs at the situational trait level.

Hypotheses and Empirical Model

The hierarchical structure of the 3M provided an integrated framework for investigating financial self-efficacy beliefs. According to the 3M, financial self-efficacy beliefs were measured at the situational trait level and served as the dependent variable. Block one represented control variables informed by existing literature to provide a foundation for the hierarchical model, which included basic socio-demographic, health, and economic characteristics. Block two variables added elemental traits to the model, which included the Big Five personality traits (Costa & McCrae, 1992). Finally, block three variables added compound traits to the model, which included perceived mastery, positive affect, negative affect, and task orientation.

Figure 2.2 Empirical Model for Financial Self-Efficacy Beliefs, according to the 3M (Mowen, 2000)
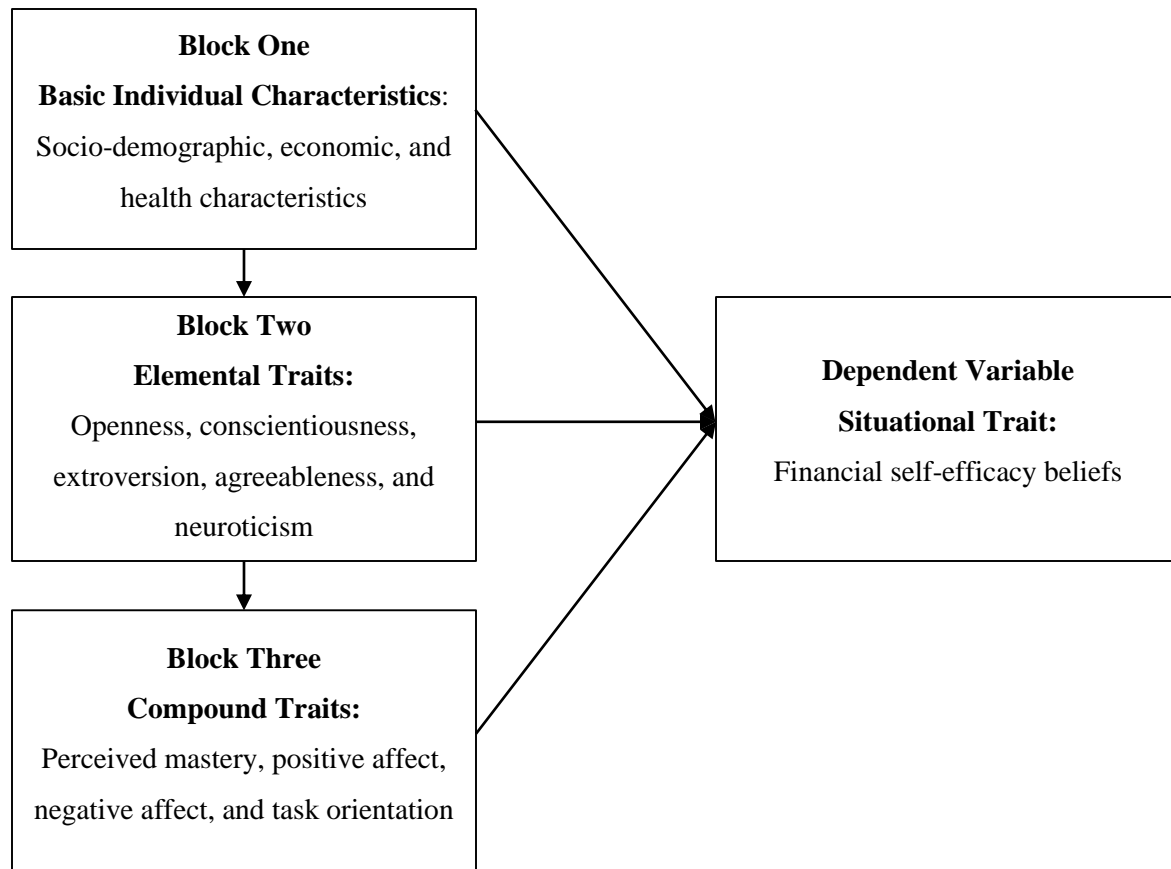
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┌─────────────────────────────┐
│        Block One            │
│ Basic Individual            │
│ Characteristics:            │
│ Socio-demographic,          │ ─────────┐
│ economic, and health        │          │
│ characteristics             │          │
└─────────────────────────────┘          │
              │                           │
              ▼                           ▼
┌─────────────────────────────┐  ┌─────────────────────────────┐
│        Block Two            │  │    Dependent Variable       │
│ Elemental Traits:           │  │    Situational Trait:       │
│ Openness, conscientiousness,│ ▶│ Financial self-efficacy     │
│ extroversion, agreeableness,│  │ beliefs                     │
│ and neuroticism             │  └─────────────────────────────┘
└─────────────────────────────┘          ▲
              │                           │
              ▼                           │
┌─────────────────────────────┐          │
│       Block Three           │          │
│ Compound Traits:            │ ─────────┘
│ Perceived mastery, positive │
│ affect, negative affect,    │
│ and task orientation        │
└─────────────────────────────┘
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The 3M suggests that each block representing the elemental and compound traits should increase the explanatory power of the model above and beyond that of the previous blocks. Therefore, the following hypotheses were explored:

H1: Elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs.

H2: Compound traits (i.e., positive affect, negative affect, perceived mastery, and task orientation) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs.

The 3M suggests that elemental traits may exhibit a direct relationship with situational traits. Therefore, the Big Five traits (i.e., elemental traits) were expected to demonstrate an association with financial self-efficacy beliefs (i.e., situational trait). Prior literature indicated that higher levels of extroversion, openness to experience, and conscientiousness were associated with positive financial characteristics and financial behavior, while higher levels of agreeableness and neuroticism were associated with negative financial characteristics and behavior. Given the positive role domain specific self-efficacy beliefs play in the execution of self-regulatory behavior (Bandura, 1991, 1997), it was expected that the elemental traits would share a similar association with financial self-efficacy beliefs. Thus, the following additional hypotheses were explored:

H3: Openness to experience is positively associated with financial self-efficacy beliefs.

H4: Conscientiousness is positively associated with financial self-efficacy beliefs.

H5: Extroversion is positively associated with financial self-efficacy beliefs.

H6: Agreeableness is negatively associated with financial self-efficacy beliefs.

H7: Neuroticism is negatively associated with financial self-efficacy beliefs.

For the compound traits, existing literature indicated that perceived mastery and positive affective states promote higher self-efficacy beliefs, while negative affective states can harm them (Bandura, 1997; McAvay et al., 1996). Moreover, individuals with a predisposition to engage in and follow through with tasks may be more likely to exhibit higher self-efficacy beliefs (Bandura, 1991; Mowen, 2000). Thus, the following four additional hypotheses representing each of the compound traits were explored:

H8: Perceived mastery is positively associated with financial self-efficacy beliefs.

H9: Positive affect is positively associated with financial self-efficacy beliefs.

H10: Negative affect is negatively associated with financial self-efficacy beliefs.

H11: Task orientation is positively associated with financial self-efficacy beliefs.

Methodology

Data and Sample

Data were utilized from the 2010 and 2012 waves of the Health and Retirement Study (HRS), a biennial longitudinal panel study of over 26,000 Americans that is representative of the United States' population over the age of 50. The HRS oversamples Blacks, Hispanics, and Florida residents (Health and Retirement Study, 2008). Sample weights and sample design information were incorporated into the analyses to adjust for unequal selection probabilities due to these oversampling techniques. Given the complex and comprehensive nature of the HRS, the RAND Center for the Study of Aging created a data file that is more accessible and user-friendly for researchers (Rand Center for the Study of Aging, 2014). The RAND version of the HRS served as the core data file for the current study. In addition to this core file, data from the 2010 – 2012 waves of the *Leave-Behind* Psychosocial and Lifestyle Questionnaire were utilized to provide the psychological characteristics (i.e., elemental and compound traits) relevant to self-efficacy beliefs (Smith et al., 2013). Moreover, financial self-efficacy beliefs were measured with data from the Psychosocial and Lifestyle Questionnaire. Each collection cycle, the Psychosocial and Lifestyle Questionnaire is provided to half of the overall longitudinal panel after the primary interview and subsequently returned via mail. Due to this rotating collection scheme, data were utilized from the 2010 and 2012 collection cycles in order to include information from the full sample.

For the current study, the sample was restricted to individuals aged 50 to 70 who reported they were not yet fully or partially retired. While the average retirement age is 64 for men and 62

for women (Munnell, 2011), an age limit of 70 was selected as workforce participation rates for those aged 65 and over have been increasing (Fleck, 2009). Additionally, Munnell (2013) argued that a shift to age 70 for retirement is warranted given an increased life expectancy, better health, and higher education status of most American workers. Moreover, retirement at age 70 would allow pre-retirees to maximize their Social Security benefits, providing for a more secure retirement income base (Munnell, 2013). The sample was further limited to the financial respondent of the household; the individual that may be the most in tune to the family's financial position and who is responsible for completing the financial portion of the survey (Rand Center for the Study of Aging, 2014). The final analytic sample included 2,070 observations. When using weighting information provided within the HRS to account for the complex sampling design of the survey, these 2,070 observations represented over 13 million pre-retirees aged 50 to 70.

Variable Measurement

Dependent Variable (Situational Trait)

Financial self-efficacy beliefs served as the dependent variable for this study at the situational trait level. The following question was proposed by Smith et al. (2013) to represent domain specific self-efficacy beliefs and was selected to operationalize financial self-efficacy beliefs (see Table 2.1): "How would you rate the amount of control you have over your financial situation these days?" Responses ranged from 0 *(no control at all)* to 10 *(very much control)*. This definition is in concert with previous research. McAvay et al., (1996) measured financial self-efficacy beliefs based upon how strongly respondents agreed with the following statement about their financial situation: "This month I've been feeling that I could make it better if I wanted to" (p. 245). This confidence in one's ability to exert control over their environment and

behavior is an important aspect of self-efficacy beliefs (American Psychological Association, 2015; Bandura, 1991, 1997). While a 6-item financial self-efficacy scale has been proposed within the literature (Lown, 2011), a comprehensive financial self-efficacy scale was not available within the HRS.

Table 2.1 Measurement of Financial Self-Efficacy Beliefs (dependent variable)

Variable	Measurement
Financial self-efficacy beliefs	11-point scale with higher scores representing higher levels of financial self-efficacy beliefs.

Block One: Basic Individual Characteristics

Individual characteristics included socio-demographic, financial, and health related variables to provide a basic understanding of the personal and economic factors associated with financial self-efficacy beliefs. A summary measurement table for the basic individual characteristics is provided in Table 2.2.

Table 2.2 Measurement of Basic Individual Characteristics (control variables)

Variables	Measurement
Gender and Marital Status	
Single male	1 for single male; otherwise 0
Single female	1 for single female; otherwise 0
Married male	1 for married male; otherwise 0
Married female	1 for married female; otherwise 0
Age	Continuous ranging from age 50 to 70
Children	1 if respondent reported any living children; otherwise 0
Race	
White	1 if respondent reported being white; otherwise 0
Black	1 if respondent reported being black; otherwise 0
Other	1 if respondent reported a race other than black or white; otherwise 0
Education	
Less than high school	1 if respondent reported highest level of education as less than a high school diploma or GED; otherwise 0
High school	1 if respondent reported highest level of education as either high school diploma or GED; otherwise 0
Some college	1 if respondent reported highest level of education as a partial college education; otherwise 0
College graduate	1 if respondent reported highest level of education as a college degree or above; otherwise 0
Natural logarithm of income	Measured as a natural logarithmic transformed continuous variable after adding 1 to household income greater than or equal to zero.
Natural logarithm of net worth	Measured as a natural logarithmic transformed continuous variable after adding 1 to net worth greater than or equal to zero.
Homeownership and mortgage	
Mortgage holding homeowner	1 if respondent reported that they were a homeowner and had a positive mortgage balance; otherwise 0

Non mortgage holding homeowner	1 if respondent reported that they were a homeowner and did not have an existing mortgage; otherwise 0
Non homeowner	1 if respondent was not a homeowner; otherwise 0
Quantitative reasoning ability	Continuous ranging from 409 to 584 with higher scores representing higher levels of quantitative reasoning ability
Financial strain	5-point scale with higher scores reflecting a greater perceived inability to pay bills
Self-reported health status	5-point scale reverse coded such that higher scores reflect a more favorable health assessment
Work status	1 if respondent reported that they are currently working full or part-time; otherwise 0 if they reported being unemployed, disabled, or not in the labor force

Socio-Demographic. Socio-demographic factors were specified as control variables informed by existing financial self-efficacy and financial behavior literature, including: age, race, gender, marital status, education level, and presence of children.

Financial Characteristics. Financial characteristics were included to control for the presence of financial resources and constraints that may affect the ability to exhibit positive financial behaviors and higher financial self-efficacy beliefs, including: log net-worth, log household income, homeownership, presence of mortgage, and presence of other debt (e.g., credit card, intrafamily loans, and life insurance loans, etc.). In addition to controlling for financial resources and asset composition, a measure of financial strain (difficulty paying bills) was included to control for the presence of financial difficulty that may affect an individual's sense of control over their financial situation. Moreover, domain specific ability has been shown to have a positive association with self-efficacy beliefs (Pajares & Kranzler, 1995). Financial decision-making requires the ability to reason with concepts and numbers conjointly and

therefore, a measure of quantitative reasoning ability was incorporated into the model. A more specific measure of financial ability was not available within the HRS. Lastly, labor force status was included to control for respondents' working or non-working status. Non-working status was due to unemployment, disability, or other reasons unrelated to retirement.

   Health Status. Self-reported health status has been positively linked to indicators of financial well-being and positive financial behaviors (O'Neil, Sorhaindo, Xiao, & Garman, 2005). Thus, an individual's perception of their health serves as an important control variable within the financial domain that may also be connected to financial self-efficacy beliefs. Consequently, a self-reported measure of health was utilized to control for an individual's health perception.

Block Two: Elemental Traits

   The elemental traits were operationalized through the Big Five personality traits (Costa & McRae, 1992), including: (a) Openness to experience, (b) Conscientiousness, (c) Extroversion, (d) Agreeableness, and (e) Neuroticism. Data to measure the Big Five personality traits were available through the HRS's Psychosocial and Lifestyle Questionnaire and were derived from the Midlife in the United States (MIDUS) national survey and the International Personality Item Pool (IPIP) (IPIP, 2016; Lachman & Weaver, 1997; Smith et al., 2013). Each Big Five trait was measured according to the extent to which respondents felt certain adjectives described them. Respondents rated 31 separate adjectives on a four-point Likert-type scale, ranging from 1 *(a lot)* to 4 (*not at all*), with higher scores reflecting less personal identification with the adjective. All adjectives were reverse coded except as identified below as *not reverse coded*, with higher scores indicating stronger identification with each adjective. Measurement of the elemental traits is summarized in Table 2.3.

Table 2.3 Measurement of Elemental Traits

Variables	Measurement
Openness	4-point scale with higher scores representing stronger presence of the openness to experience trait
Conscientiousness	4-point scale with higher scores representing stronger presence of the conscientiousness trait
Extroversion	4-point scale with higher scores representing stronger presence of the extroversion trait
Agreeableness	4-point scale with higher scores representing stronger presence of the agreeableness trait
Neuroticism	4-point scale with higher scores representing stronger presence of the neuroticism trait

Openness to experience was calculated by averaging the scores for the following seven adjectives: Creative, imaginative, intelligent, curious, broad-minded, sophisticated, and adventurous. Conscientiousness was calculated by averaging the scores for the following ten adjectives: Reckless (not reverse coded), organized, responsible, hardworking, self-disciplined, careless (not reverse coded), impulsive (not reverse coded), cautious, thorough, and thrifty. Extroversion was calculated by averaging the scores for the following five adjectives: Outgoing, friendly, lively, active, and talkative. Agreeableness was calculated by averaging the scores for the following five adjectives: Helpful, warm, caring, softhearted, and sympathetic. Neuroticism was calculated by averaging the scores for the following four adjectives: Moody, worrying, nervous, and calm (not reverse coded). For each Big Five trait, average scores were computed only if less than half of the scale items were missing. Within the current sample, each Big Five

trait scale demonstrated adequate internal reliability based upon Cronbach's Alpha scores of .78

for openness, .75 for conscientiousness, .77 for extroversion, .81 for agreeableness, and .68 for

neuroticsm (Field & Miles, 2012).

Block Three: Compound Traits

Informed by prior literature and the 3M, the compound traits investigated within this

study were: (a) Perceived mastery, (b) Positive affect, (c) Negative affect, and (d) Task

orientation. The measurement of each compound trait is summarized in Table 2.4.

Table 2.4 Measurement of Compound Traits

Variables	Measurement
Mastery	6-point scale with higher scores representing higher levels of perceived mastery
Positive affect	5-point scale with higher scores representing higher levels of positive affect
Negative affect	5-point scale with higher scores representing higher levels of negative affect
Task orientation	6-point scale with higher scores representing higher levels of task orientation

Mastery. Mastery was operationalized through a measure of general perceived mastery

based on an augmentation of the widely used Pearlin and Schooler's Mastery scale (Pearlin &

Schooler, 1978). The factor loadings of the original scale items ranged from an absolute value of

.47 to .76 (Pearlin & Schooler, 1978). In the current study, respondents indicated the extent to

which they agreed with the following questions on a six-point Likert-type scale, with potential values ranging from 1 (*strongly disagree*) to 6 (*strongly agree*):

- I can do just about anything I really set my mind to.

- When I really want to do something, I usually find a way to succeed at it.

- Whether or not I am able to get what I want is in my own hands.

- What happens to me in the future mostly depends on me.

- I can do the things that I want to do.

The scores were averaged to create an index of perceived mastery, ranging from 1-6, with higher scores reflecting higher levels of mastery. Within the current sample, the mastery scale demonstrated adequate internal reliability with a Cronbach's Alpha score of .91 (Field & Miles, 2012).

Positive and Negative Affect. Broad measures of positive and negative affect were utilized to estimate respondents' proclivity to frequently experience either positive or negative emotions. Specifically, positive and negative affect were measured separately based on a combination of emotions from the *Positive and Negative Affect Schedule – Expanded Form* (PANAS-X) and work from other researchers (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Ong, Edwards, & Bergeman, 2006; Watson & Clark, 1999). The original PANAS-X positive and negative affect scales exhibited strong internal reliability, with Cronbach's Alpha scores of .89 for each scale, representing the level of positive and negative affect present within the past month (Watson & Clark, 1999). The PANAS-X positive and negative affect scales have been shown to be valid, reliable, and independent measures across a variety of samples and time frames (Watson & Clark, 1999).

For the current study, respondents reported on a five-point Likert-type scale the extent to which they felt various emotions within the past 30 days, with scores ranging from 1 (*very much*) to 5 (*not at all*). For positive affect, respondents reported the extent to which they felt determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited. For negative affect, respondents reported the extent to which they felt afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed. Responses to all items were reverse coded and averaged to create two separate positive and negative affect scales, with higher scores reflecting stronger levels of affect. Within the current sample, the positive and negative affect scales demonstrated adequate internal reliability with Cronbach's Alpha scores of .93 and .90, respectively (Field & Miles, 2012).

Task Orientation. Task orientation was operationalized based upon a measure of purpose in life from the Ryff Measures of Psychological Well-being (Ryff, 1989). The original purpose in life scale demonstrated strong internal reliability with a Cronbach's Alpha score of .90 and has been widely used as a measure of psychological well-being (Ryff, 1989). Ryff's (1989) purpose in life measure aligns with Mowen's (2000) task orientation construct in that it is long-term goal oriented, incorporates aspects of task completion, and emphasizes the importance placed on task completion. Respondents were asked the following six-point Likert-type questions, with potential responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*):

- I enjoy making plans for the future and working to make them a reality.
- My daily activities often seem trivial and unimportant to me.
- I am an active person in carrying out the plans I set for myself.
- I don't have a good sense of what it is I'm trying to accomplish in life.
- I sometimes feel as if I've done all there is to do in life.

- I live life one day at a time and don't really think about the future.

- I have a sense of direction and purpose in my life.

Questions 2, 4, 5, and 6 were reverse coded and scores were then averaged to create an index of purpose in life, ranging from 1-6 with higher scores reflecting higher levels of purpose in life. Within the current sample, the purpose in life scale demonstrated adequate internal reliability with a Cronbach's Alpha score of .81 (Field & Miles, 2012).

A summary of the expected relationship between each of the independent variables and financial self-efficacy beliefs (i.e., dependent variable) is provided in Table 2.5. The independent variables are comprised of socio-demographic, health, and financial control variables (i.e., block one), the elemental traits (i.e., block two), and the compound traits (i.e., block three). The 3M model and prior literature regarding self-efficacy beliefs informed the expected direction of the relationship between the compound traits and financial self-efficacy beliefs. The elemental traits (i.e., operationalized through the Big Five personality traits) have not yet been linked to financial self-efficacy beliefs. Thus, previous literature connecting financial behavior and financial characteristics with the Big Five personality traits informed the direction of the expected relationship between the elemental traits and financial self-efficacy beliefs. Lastly, socio-demographic, health, and financial control variables were included in block one to provide a foundation for the addition of the psychological variables under the 3M model. Many of the control variables included in the analysis have not yet been linked directly to financial self-efficacy beliefs. Thus, for these variables prior literature was consulted to identify control variables that are relevant to financial behavior.

Table 2.5 Expected Relationship between Independent Variables and Financial Self-Efficacy Beliefs (dependent variable)

Variables	Expected Effect
Elemental Traits	
Openness	+
Conscientiousness	+
Extroversion	+
Agreeableness	-
Neuroticism	-
Compound Traits	
Mastery	+
Positive affect	+
Negative affect	-
Task orientation	+
Controls	
Gender and Marital Status	
Single male	+
Single female	-
Married male	+
Married female	+
Age	+
Children	-
Race	
White	+
Black	-
Other	Unknown
Education	+
Natural logarithm of income	+

Natural logarithm of net worth	+
Homeownership and mortgage	
Mortgage holding homeowner	Unknown
Non mortgage holding homeowner	+
Non homeowner	-
Quantitative reasoning ability	+
Financial strain	-
Self-reported health status	+
Work status	+

Data Analysis

Given the bounded and ordinal nature of the dependent variable, financial self-efficacy beliefs, an ordered logistic regression model was employed (Allison, 2012). The analysis was constructed as a three-block hierarchical model in order to estimate the probability that an individual reported higher levels of financial self-efficacy beliefs with the addition of each successive block. Block one variables consisted of basic individual characteristics to estimate model one, block two added the elemental traits to the block one variables for model two, and block three combined compound traits with the block one and block two variables to estimate the final third model. Prior to conducting the full analysis, the compound traits were analyzed separately to determine if the selected scales met the criteria for compound traits according to the 3M (Mowen, 2000).

Furthermore, the Taylor series method (Wolter, 1985) was employed to incorporate the HRS's weighting and complex sampling design information when calculating estimates and the variances associated with those estimates in accordance with recommended methodology (Heeringa & Conner, 1995; Nielsen & Seay, 2014). In the final full model, performance statistics

revealed a concordance ratio of 72.80% and a pseudo r-squared of .38, showing adequate fit of the model.

Results

Descriptive Statistics

An overview of the sample characteristics can be found in Table 2.6 and Table 2.7. The sample consisted of 2,070 observations, which represents over 13 million U.S. pre-retirees aged 50 to 70 after incorporating the weighting information provided within the HRS. Due to the oversampling techniques employed by the HRS, the weighted percentages are provided (see Table 2.6). In terms of demographic and health characteristics, the majority of the sample was White (88%), married (62%), male (52%), working (91%), had living children (87%), reported having a partial college level education or beyond (68%), and was under the age of 60 with an average age of 58.37. Furthermore, respondents reported positive views of their health with an average self-reported health score of 3.62 on a five-point scale.

Table 2.6 Sample Characteristics of Categorical Variables (N = 2,070)

Variable	n	% (weighted)*
Race		
White	1499	87.50%
Black	392	7.12%
Other	179	5.38%
Labor force status		
Working	1847	91.28%
Not working	223	8.72%
Household status and gender		
Married male	700	38.63%
Married female	515	23.03%
Single female	621	25.18%
Single male	234	13.17%
Education		
Less than high school	163	4.09%
High school	579	27.85%
Some college	625	27.98%
College graduate	703	40.08%
Children		
Any living children	1843	87.23%
No living children	227	12.77%
Homeownership & mortgage debt status		
Homeowner with mortgage	950	51.37%
Homeowner without a mortgage	628	31.50%
Non Homeowner	492	17.14%
Presence of other debt		
Yes	792	38.57%
No	1278	61.43%
Income categories		
$0 to $24,999	377	13.10%
$25,000 to $49,999	418	17.46%
$50,000 to $74,999	379	18.40%
$75,000 to $99,999	257	13.73%
$100,000 and above	639	37.30%
Net worth categories		
$0 to $24,999	471	15.28%
$25,000 to $99,999	428	19.52%
$100,000 to $249,999	459	22.89%
$250,000 to $499,999	337	18.98%
$500,000 and above	375	23.33%

Table 2.7 Sample Characteristics of Scales and Continuous Variables *

Variable	Mean	se	Min	Max	Cronbach's Alpha
Dependent Variable					
Financial self-efficacy beliefs	7.17	0.06	0.00	10.00	-
Control Variables					
Age	58.37	0.14	52.00	70.00	-
Log net worth	11.72	0.07	0.00	16.98	-
Log income	11.07	0.05	0.00	14.29	-
Quantitative reasoning	537.97	0.80	409.00	584.00	-
Self-report of health	3.62	0.03	1.00	5.00	-
Financial Strain	2.11	0.03	1.00	5.00	-
Elemental Traits					
Openness	3.04	0.02	1.00	4.00	0.78
Conscientiousness	3.31	0.01	1.00	4.00	0.75
Extroversion	3.19	0.02	1.00	4.00	0.77
Agreeableness	3.49	0.01	1.00	4.00	0.81
Neuroticism	2.01	0.02	1.00	4.00	0.68
Compound Traits					
Mastery	4.91	0.03	1.00	6.00	0.91
Task orientation	4.82	0.02	1.00	6.00	0.81
Positive affect	3.64	0.02	1.00	5.00	0.93
Negative affect	1.79	0.02	1.00	5.00	0.90

* The Taylor series method (Wolter, 1985) was employed to incorporate the HRS's weighting and complex sampling design information. N of 2,070. The weighted sample represents 13,334,713 pre-retirees age 50 to 70.

Moreover, the sample demonstrated positive financial characteristics with the majority owning a home (83%), possessing a net worth over $100,000 (65%), and receiving annual household income of $50,000 or more (69%). When it comes to debt, about 51% of the sample had a mortgage and 61% did not have any other outstanding debt (e.g., credit card debt, life insurance loans, or family loans, etc.). The experience of financial strain was relatively low across the sample with an average financial strain score of 2.11 on a scale of one to five.

Individuals demonstrated an average quantitative reasoning score of 538 on a scale of 409 to

584, with higher scores representing more quantitative reasoning ability. The sample average of

538 was higher than the HRS population average of 519.56. Respondents also exhibited

generally high financial self-efficacy beliefs, with an average score of 7.17 on an 11-point scale.

The elemental and compound trait scales indicated a stronger presence of positive

psychological attributes across the sample (see Table 2.7). On a one to four scale, respondents

generally felt that the elemental personality characteristics of openness to experience (*M=3.04*),

conscientiousness (*M=3.31*), extroversion (*M=3.19*), and agreeableness (*M=3.49*) described

them. Respondents identified less with the neuroticism trait, as the average score was 2.01

(range = 1-4). For the compound traits, respondents reported higher levels perceived mastery

(*M=4.91, range = 1-6*), task orientation *(M=4.82, range = 1-6)*, and positive affect *(M=3.64,*

range = 1-5). Respondents indicated lower levels of negative affect with an average score of

1.79 *(range = 1-5)*.

Analysis of Compound Traits

The compound traits (i.e., mastery, positive affect, negative affect, and task orientation)

were separately analyzed prior to conducting the full analysis in order to determine if the

measurement scales would operate effectively within the 3M framework. According to the 3M,

compound traits should meet the following four criteria: (1) the measurement scales are

unidimensional, (2) the scales demonstrate strong internal reliability (i.e., Cronbach's alpha of

.75 or higher), (3) they can be significantly explained with an r-squared of .25 or more by at least

two of the elemental traits, and (4) they can account for variance in situational traits above and

beyond that of the elemental traits in a hierarchical model (Mowen, 2000). Table 2.8 provides a

summary of the OLS regression results for the elemental traits regressed on each compound trait

to determine the proportion of variance explained by the elemental traits. The fourth criterion, the ability of the compound traits to add significant explanatory power to the model above and beyond the elemental traits, is discussed in the hierarchical ordinal logistic results and discussion sections.

Table 2.8 OLS Regression Results for Elemental Traits Regressed on Compound Traits (N = 2,070)

Variable	Mastery		Positive affect		Negative affect		Task orientation	
	B	*SE B*	*B*	*SE B*	*B*	*SE B*	*B*	*SE B*
Intercept	3.88***	0.36	1.46***	0.16	0.71**	0.21	1.26***	0.28
Openness	0.23***	0.06	0.24***	0.04	0.07	0.03	0.34***	0.05
Conscientiousness	0.15	0.07	0.23***	0.04	-0.13*	0.05	0.62***	0.07
Extroversion	0.19**	0.07	0.41***	0.04	-0.11***	0.03	0.24***	0.05
Agreeableness	0.01	0.07	0.07	0.04	0.10*	0.04	0.07	0.05
Neuroticism	-0.41***	0.04	-0.42***	0.02	0.65***	0.02	-0.25***	0.03
Adjusted R^2		0.13		0.42		0.42		0.30

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

The mastery scale met all but one of the first three criteria (i.e., unidimensional, adequate internal reliability, and can be significantly explained by the elemental traits) set forth by the 3M. First, the Pearlin and Schooler Mastery scale (PM) has been demonstrated to have a unidimensional factor structure (NLSY, 2015; Pearlin & Schooler, 1978). The five-item mastery scale within the HRS was constructed based upon the broader seven-item PM scale and would therefore possess a similar unidimensional measurement of mastery (NLSY, 2015). The mastery scale demonstrated adequate internal reliability with a Cronbach's Alpha of .91. The regression results (see Table 2.8) revealed that the openness, extroversion, and neuroticism traits significantly explained the mastery scale, with an associated r-squared of .13. These results met the criterion that two or more elemental traits can significantly explain the variability in the

mastery scale, but fell short of the recommended 25% level. Mowen (2000) indicated the 25% level is a basic rule of thumb as there is no fixed rule for what constitutes a "substantial proportion of variance" (p. 60). Although the mastery scale did not meet this rule of thumb, it served as the best available proxy for perceived mastery at the compound trait level within the HRS.

The positive and negative affect scales met the first three criteria set forth by the 3M (i.e., unidimensional, adequate internal reliability, and can be significantly explained by the elemental traits). Based upon the PANAS-X (Positive and Negative Affect Schedule – Expanded Form), each scale encompassed two general and separate dimensions of emotional experience, with positive affect capturing the positive emotional dimension and negative affect encompassing the negative emotional dimension (Watson & Clark, 1994). The positive and negative affect scales demonstrated adequate internal reliability with Cronbach's Alpha scores of .93 and .90, respectively. A combination of the elemental traits explained more than 25% of the variance in each of the positive and negative affect scales. The regression results (see Table 2.8) show that the openness, conscientiousness, extroversion, and neuroticism traits significantly explained variability in the positive affect scale, with an associated r-squared of .42. The conscientiousness, extroversion, agreeableness, and neuroticism traits significantly explained variability in the negative affect scale, with an associated r-squared of .42.

The task orientation scale, operationalized through Ryff's (1989) purpose in life scale, met the first three criteria set forth by the 3M (i.e., unidimensional, adequate internal reliability, and can be significantly explained by the elemental traits). The purpose in life scale is a unidimensional measurement of psychological well-being (Ryff, 1989); however, it is questionable as a valid measurement of task orientation as it encompasses other aspects of

human motivation, such as a sense of purpose and direction in life. Of the variables available in the HRS, it most closely aligned with the following elements of Mowen's (2000) unidimensional task orientation scale:

- Long-term goal oriented.

- When doing a task, I set a deadline for completion.

- Set long-term goals for the future.

- Approach tasks in a serious manner.

The purpose in life scale demonstrated adequate internal reliability with a Cronbach's Alpha of .81. The regression results (see Table 2.8) revealed that the openness, conscientiousness, extroversion, and neuroticism traits significantly explained variability in the purpose in life scale, with an associated r-squared of .30.

Hierarchical Ordinal Logistic Results

Results of the three-block hierarchical ordinal logistic model can be found in Table 2.9. Overall, significant evidence is presented linking the elemental and compound psychological traits to financial self-efficacy beliefs, as operationalized through the 3M Model of Motivation and Personality (Mowen, 2000).

Table 2.9 Hierarchical Ordinal Logistic Results for Higher Reported Financial Self Efficacy

Beliefs of Older US Pre-Retirees Age 50 to 70 (N = 2,070)

Variable	Model 1			Model 2			Model 3		
	b	SE b	OR	b	SE b	OR	b	SE b	OR
Intercept 1	2.44	1.58	-	0.99	1.70	-	-0.93	1.90	-
Intercept 2	3.31*	1.57	-	1.90	1.69	-	0.03	1.89	-
Intercept 3	4.38**	1.58	-	3.01	1.70	-	1.24	1.89	-
Intercept 4	5.21**	1.58	-	3.87*	1.71	-	2.18	1.90	-
Intercept 5	5.84***	1.59	-	4.53*	1.72	-	2.91	1.91	-
Intercept 6	6.71***	1.60	-	5.43**	1.72	-	3.90*	1.91	-
Intercept 7	7.28***	1.59	-	6.01***	1.71	-	4.52*	1.90	-
Intercept 8	7.84***	1.58	-	6.56***	1.71	-	5.13**	1.90	-
Intercept 9	8.79***	1.59	-	7.52***	1.72	-	6.16**	1.90	-
Intercept 10	9.81***	1.62	-	8.54***	1.73	-	7.27***	1.91	-
Basic Individual Characteristics									
Age	-0.02	0.01	0.98	-0.03**	0.01	0.97	-0.03**	0.01	0.97
Race (white)									
Black	0.36*	0.17	1.43	0.27	0.17	1.32	0.09	0.18	1.09
Other	0.28	0.21	1.32	0.36	0.21	1.44	0.26	0.22	1.30
Household status (married male)									
Married female	0.36**	0.11	1.44	0.36**	0.11	1.43	0.39***	0.11	1.47
Single female	0.23	0.13	1.26	0.20	0.13	1.22	0.28*	0.12	1.32
Single male	0.17	0.14	1.18	0.25	0.14	1.28	0.30	0.16	1.35
Education (college graduate)									
Less than high school	1.24***	0.27	3.44	1.37***	0.28	3.93	1.36***	0.31	3.89
High school	0.45**	0.15	1.58	0.52**	0.15	1.68	0.50**	0.15	1.65
Some college	0.25	0.12	1.28	0.23	0.12	1.26	0.22	0.14	1.25
Any living children	0.11	0.15	1.12	0.12	0.15	1.13	0.09	0.17	1.10
Working	-0.03	0.17	0.97	-0.01	0.17	0.99	-0.13	0.17	0.88
Log net worth	0.03	0.03	1.03	0.04	0.03	1.04	0.03	0.03	1.03
Log income	0.03	0.04	1.03	0.02	0.04	1.02	0.04	0.04	1.04
Homeownership and Mortgage									
Homeowner no mtg	-0.09	0.10	0.92	-0.05	0.10	0.96	-0.01	0.10	0.99
Non homeowner	0.11	0.17	1.11	0.08	0.17	1.08	0.16	0.17	1.18
Other debt	0.01	0.10	1.01	0.00	0.10	1.00	0.04	0.10	1.04
Quantitative reasoning	-0.01**	0.00	0.99	-0.01**	0.00	0.99	-0.01**	0.00	0.99
Self-reported health	0.35***	0.06	1.42	0.24***	0.06	1.27	0.16*	0.06	1.17
Financial strain	-0.88***	0.06	0.42	-0.82***	0.06	0.44	-0.70***	0.06	0.50

Elemental Traits

Openness	-	-	-	0.41**	0.14	1.50	0.24	0.13	1.27
Conscientiousness	-	-	-	0.26	0.18	1.29	-0.05	0.19	0.95
Extroversion	-	-	-	0.17	0.13	1.19	-0.15	0.14	0.86
Agreeableness	-	-	-	0.13	0.14	1.14	0.11	0.15	1.11
Neuroticism	-	-	-	-0.49***	0.08	0.61	0.19	0.11	1.21
Compound Traits									
Perceived mastery	-	-	-	-	-	-	0.45***	0.06	1.56
Task orientation	-	-	-	-	-	-	0.21*	0.08	1.24
Positive affect	-	-	-	-	-	-	0.39***	0.09	1.48
Negative affect	-	-	-	-	-	-	-0.64***	0.11	0.53
Pseudo R^2		0.23			0.28				0.38
Wald F Statistic		-			19.84***				56.09***
Concordance ratio		68.00			69.50				72.80

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

Model One (Basic Individual Characteristics)

Model one incorporated the block one control variables in order to establish a basic understanding of the socio-demographic, health, and economic factors associated with financial self-efficacy beliefs. Model one performance statistics revealed a concordance ratio of 68 and a pseudo r-squared of .23.

Results revealed that married females, Black individuals, those with a high school education or less, and individuals who perceived they were healthier were more likely to report higher levels of financial self-efficacy beliefs. Specifically, the odds of reporting higher financial self-efficacy beliefs were 44% greater for married females than for married males, holding all else constant. The odds of reporting higher financial self-efficacy beliefs were 43% greater for Blacks than for Whites, holding all else constant. Surprisingly, the odds of reporting higher financial self-efficacy beliefs were 244% greater for those without a high school education and 58% greater for those with a high school education than for college graduates, holding all else constant. Lastly, a one-unit increase in an individual's self-reported health status was associated

with a 42% increase in the odds of reporting higher financial self-efficacy beliefs, holding all

else constant. Individuals with higher levels of quantitative reasoning ability and financial strain

were less likely to report higher levels of financial self-efficacy beliefs. Specifically, holding all

else constant, a one-unit increase in an individual's quantitative reasoning ability score was

associated with a 1% decrease in the odds of reporting higher financial self-efficacy beliefs. For

every one-unit increase in financial strain, the odds of reporting higher financial self-efficacy

beliefs decreased by 58%, holding all else constant. The socio-demographic, health, and financial

results are compared to the existing literature in Model Three.

Model Two (Elemental Traits)

Model two combined the elemental traits (block two) with basic individual characteristics

(block one) to determine if the elemental traits increased the explanatory power of the model

estimating financial self-efficacy beliefs. The elemental traits were operationalized through the

following Big Five personality characteristics (Costa & McRae, 1992): (a) Openness to

experience, (b) Conscientiousness, (c) Extroversion, (d) Agreeableness, and (e) Neuroticism.

Model two performance statistics revealed a concordance ratio of 69.50 and a pseudo r-squared

of .28, reflecting an increase of 1.50 and .05, respectively, from model one. In support of

hypothesis one, Wald test results revealed a significant F statistic of 19.84 (p < .001), indicating

the addition of the elemental traits significantly improved the fit of the model investigating

financial self-efficacy beliefs.

Model two provided support for hypothesis three and seven, respectively. Results

revealed that openness to experience and neuroticism were significantly associated with financial

self-efficacy beliefs. For every one-unit increase in the openness trait, the odds of reporting

higher financial self-efficacy beliefs increased by 50%, holding all else constant. Neuroticism

was negatively associated with increased financial self-efficacy beliefs. Specifically, for every one-unit increase in the neuroticism trait, the odds of reporting higher financial self-efficacy beliefs decreased by 39%, holding all else constant.

The block one variables that were significant in model one continued to be significant in model two, except for the effect associated with race. Holding all else constant, married females (as compared to married males, *OR=1.43)*, those without a high school education (as compared to college graduates, *OR=3.93)*, those with a high school education (as compared to college graduates, *OR=1.68)*, and those who perceived they were healthier *(OR=1.27)* were more likely to report higher levels of financial self-efficacy beliefs. Respondents with higher quantitative reasoning ability *(OR=.99)* and higher financial strain scores *(OR=.44)* were less likely to report higher financial self-efficacy beliefs, holding all else constant. A new relationship between age and financial self-efficacy beliefs was revealed in model two. For every one-unit increase in age, the odds of reporting higher financial self-efficacy beliefs decreased by 3%. The socio-demographic, health, and financial results are compared to the existing literature in Model Three.

Model Three (Compound Traits)

Model three combined the compound traits (block three) with the elemental traits (block two) and basic individual characteristics (block one) to determine if the compound traits increased the explanatory power of the model estimating financial self-efficacy beliefs above and beyond that of the block two and block three variables. The compound traits included in model three were mastery, positive affect, negative affect, and task orientation. Model three performance statistics revealed an adequate fit of the overall model with a concordance ratio of 72.80 and a pseudo r-squared of .38, reflecting an increase of 3.30 and .10, respectively, from model two. In support of hypothesis two, Wald test results revealed a significant F statistic of

56.09 (p < .001), indicating the addition of the compound traits significantly improved the fit of the model investigating financial self-efficacy beliefs.

In support of hypotheses eight, nine, ten, and eleven, respectively, results of model three revealed that each of the compound traits were significantly associated with financial self-efficacy beliefs. Holding all else constant, respondents with higher levels of mastery, positive affect, and task orientation were more likely to report higher levels of financial self-efficacy beliefs. More specifically, for every one-unit increase in perceived mastery, the odds of reporting higher financial self-efficacy beliefs increased by 56%, holding all else constant. A one-unit increase in task orientation was associated with a 24% increase in the odds of reporting higher levels of financial self-efficacy beliefs, holding all else constant. Similarly, a one-unit increase in positive affect was associated with a 48% increase in the odds of reporting higher financial self-efficacy beliefs, holding all else constant. Alternatively, those with higher levels of negative affect were more likely to report lower levels of financial self-efficacy beliefs. For every one-unit increase in reported negative affect, the odds of reporting higher financial self-efficacy beliefs decreased by 47%, holding all else constant. Any effects associated with the elemental traits and financial self-efficacy beliefs from block two were replaced by the effect of the compound traits from block three.

One new socio-demographic effect from the block one variables was found in model three that was not present in models one and two. Holding all else constant, the odds of reporting higher financial self-efficacy beliefs were 32% greater for single females than for married males Married females continued to demonstrate a higher likelihood of reporting higher financial self-efficacy beliefs than married males in model three, holding all else constant *(OR=1.47)*. This result conflicts with the expectation that men would report higher financial self-efficacy beliefs

than women; however, it may be that women report higher initial financial self-efficacy beliefs, but that these beliefs are more vulnerable to decline over time for women than for men (McAvay et al., 1996). The other block one variables that were significant in model one and model two continued to be significant in model three. Contrary to expectations based upon existing literature (Lown, 2011), those without a high school education (as compared to college graduates, *OR=3.89)*, and those with a high school education (as compared to college graduates, *OR=1.65)*, were more likely to report higher financial self-efficacy beliefs, holding all else constant. As expected, those who perceived they were healthier *(OR=1.17)* were more likely to report higher levels of financial self-efficacy beliefs, holding all else constant (O'Neill et al., 2005). Contrary to expectations, older respondents *(OR=.97)* (Lown, 2011), and those with a higher quantitative reasoning ability *(OR=.99)* (Pajares & Kranzler, 1995)*,* were less likely to report higher financial self-efficacy beliefs, holding all else constant. Lastly, as expected, those with higher financial strain scores *(OR=.50)* were less likely to report higher financial self-efficacy beliefs, holding all else constant. This is consistent with the notion that resource constraints may be associated with lower financial self-efficacy beliefs, where available financial resources may support them (Perry & Morris, 2005).

Discussion

This study investigated the relationship between psychological characteristics and financial self-efficacy beliefs in order to understand how older pre-retirees can support a sense of control over their financial situation in the years preceding retirement. This relationship was analyzed through a three-block hierarchical model based upon the 3M Model of Motivation and Personality (3M) (Mowen, 2000). The 3M indicates that financial self-efficacy beliefs are a product of broader underlying psychological characteristics and situational forces. In accordance

with the 3M, results of this study provide evidence that broad personality dispositions (i.e., elemental traits including openness, conscientiousness, extroversion, agreeableness, and neuroticism) provide a foundation for financial self-efficacy beliefs. These personality dispositions, however, are no longer significant after accounting for more specific traits (i.e., compound traits including mastery, positive affect, negative affect, and task orientation). The 3M supports this finding, as full or partial mediation can occur between the different trait levels within the 3M hierarchical framework. Within this study, the compound traits appear to fully mediate the relationship between the elemental traits and financial self-efficacy beliefs. Overall, the results combine to support the 3M hierarchical approach, as significant improvements to the model were observed with the addition of each block with the largest effect size derived from the addition of the compound traits in model three. Moreover, both elemental and compound traits were found to be significantly associated with financial self-efficacy beliefs. The specific hypotheses and supporting results are discussed next.

3M Hierarchical Model

First, results provide support for hypothesis one: Elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs. Thus, broad personality characteristics provide significant information about older pre-retirees' financial self-efficacy beliefs above and beyond basic socio-demographic, health, and economic factors. This was demonstrated by a statistically significant increase in the pseudeo r-squared of .05 between model one and model two, indicating an improved fit of the model after incorporating the elemental traits (block two). This result is in concert with the 3M, which indicates that elemental traits provide the broadest psychological reference point explaining downstream traits at the

situational trait level (i.e., financial self-efficacy beliefs). This finding suggests that broad personality traits play a role in shaping financial self-efficacy beliefs.

Second, results provide support for hypothesis two: Compound traits (i.e., mastery, positive affect, negative affect, and task orientation) add explanatory power to the model investigating older pre-retirees' financial self-efficacy beliefs. After accounting for broad personality characteristics (i.e., the elemental traits), more specific compound traits (i.e., mastery, positive affect, negative affect, and task orientation) further explain older pre-retirees' financial self-efficacy beliefs. This was demonstrated by a statistically significant increase in the pseudeo r-squared of .10 between model two and model three, indicating an improved fit of the model after incorporating compound traits (block three).

Moreover, the fourth criterion for compound traits is that "…the combination of the elemental traits with appropriately selected compound traits should account for more variance in situational traits than the elemental traits (alone)" (Mowen, 2000, p. 60). Results meet this criterion in that the addition of the compound traits to the elemental traits in model three provided a larger model improvement (pseudo r-squared increase of .10) than the elemental traits alone in model two (pseudo r-squared increase of .05) (Mowen, 2000). This suggests that the compound traits selected were appropriate for the model investigating financial self-efficacy beliefs.

As indicated by the 3M, the compound traits demonstrated a stronger association with financial self-efficacy beliefs than the elemental traits. Additionally, the 3M suggests that compound traits may mediate the relationship between elemental traits and financial self-efficacy beliefs. Results of the model support the potential mediating role of the compound traits, as the significant effects of the elemental traits were removed after incorporating the compound traits.

Elemental Traits

Third, results provide support for hypothesis three: Openness to experience is positively associated with financial self-efficacy beliefs. Older pre-retirees who express higher levels of the openness trait are more likely to demonstrate higher financial self-efficacy beliefs. The openness facets utilized in the HRS - creative, imaginative, intelligent, curious, broad-minded, sophisticated, and adventurous – suggest that older pre-retirees with a broadened mindset who are able to create, imagine, and explore various alternatives are more likely to have higher financial self-efficacy beliefs. This notion aligns with existing research that indicates a broadened mindset promotes an increase in the array of perceived possible actions and outcomes (Fredrickson, 2004). This broadened mindset may promote the exploration of viable financial alternatives, thereby increasing one's sense of efficacy over their financial situation.

Fourth, results did not provide support for hypotheses four, five, or six. There was no relationship found between the conscientiousness, extroversion, or agreeableness traits and financial self-efficacy beliefs. The lack of a relationship between conscientiousness and financial self-efficacy beliefs is surprising since conscientious individuals tend to exhibit characteristics that are indicative of stronger self-efficacy beliefs, such as goal setting, determination, task follow through, planning, and achievement.

Fifth, results provide support for hypothesis seven: Neuroticism is negatively associated with financial self-efficacy beliefs. Older pre-retirees who demonstrate higher scores for the neuroticism trait are less likely to exhibit high financial self-efficacy beliefs. The neuroticism facets - moody, worrying, nervous, and calm (reverse coded) – suggest that older pre-retirees who strongly identify with these negative characteristics are more likely to express lower financial self-efficacy beliefs. This finding is in accord with existing literature that indicates

57

negative emotional states can undermine self-efficacy beliefs (Bandura, 1977, 1997; McAvay et al., 1996).

Compound Traits

Sixth, results provide support for hypothesis eight: Perceived mastery is positively associated with financial self-efficacy beliefs. Older pre-retirees who possess a stronger sense of mastery are more likely to exhibit higher financial self-efficacy beliefs. This result aligns with existing research. Mastery beliefs are developed over time as a result of successful and challenging life experiences (Bandura, 1977, 1977). These mastery experiences are critical to shaping general self-efficacy beliefs that can transfer to situation specific contexts (Bandura, 1977, 1997; Bandura, Adams, & Beyer, 1977). Thus, results support the expectation that older pre-retirees with a higher sense of perceived mastery would be more likely to report higher levels of financial self-efficacy beliefs.

Seventh, results provide support for hypothesis nine: Positive affect is positively associated with financial self-efficacy beliefs. Older pre-retirees who experience higher levels of recent positive effect (i.e., over the past 30 days) are more likely to report higher financial self-efficacy beliefs. This finding aligns with previous research that suggests positive affective states promote higher self-efficacy beliefs (Bandura, 1977, 1997; Baron, 1990; Schuettler & Kiviniemi, 2006). Positive affect may assist individuals in overcoming psychological states that can harm self-efficacy beliefs, such as stress, fear, and worry (Bandura, 1997).

Eighth, results provide support for hypothesis ten: Negative affect is negatively associated with financial self-efficacy beliefs. That is, higher levels of recent negative affective states (i.e., over the past 30 days) are associated with lower financial self-efficacy beliefs in older pre-retirees. This finding is in accordance with existing literature that indicates negative affective

states can harm general self-efficacy beliefs (Bandura, 1977, 1997). This result supports existing evidence that negative psychological states, such as depression, are associated with reduced financial self-efficacy beliefs in older adults (McAvay et al., 1996).

Ninth, results provide support for hypothesis eleven: Task orientation is positively associated with financial self-efficacy beliefs. This result indicates that older pre-retirees who value future oriented goal setting and who are actively involved in completing daily tasks are more likely to report higher levels of financial self-efficacy beliefs. It is important to note that task orientation was operationalized through a measure of purpose in life from the Ryff Measures of Psychological Well-being, which incorporates a sense of direction and purpose into the future goal setting and daily task completion process (Ryff, 1989). This indicates that a sense of purpose and direction in life is intertwined with an individual's disposition to set goals and follow through with tasks.

Socio-Demographic and Financial Controls

Two surprising socio-demographic correlates were revealed. First, older pre-retirees with a greater ability to reason with concepts and numbers (quantitative reasoning ability) were associated with a lower likelihood of reporting higher financial self-efficacy beliefs. This is surprising since domain specific ability has been found to have a positive relationship with domain specific self-efficacy beliefs (Pajares & Kranzler, 1995). It may be that quantitative reasoning ability is a poor proxy for ability within the financial domain. Second, a lower education status was consistently associated with higher financial self-efficacy beliefs across all three models with a large effect size. This is surprising given the well-documented positive relationship between education status and income level (Bureau of Labor Statistics, 2015) combined with the finding by McAvay et al., (1996) that a higher income level is associated with

increased financial self-efficacy beliefs. Moreover, Lown (2011) suggested that a higher

education status was associated with higher average financial self-efficacy belief scores. Further

research is needed to understand the relationship between financial self-efficacy beliefs, income,

and education status. Lastly, higher financial strain scores were associated with lower financial

self-efficacy beliefs, as expected. Interestingly, the perception of financial strain appears to

matter over that of objective resource constraints, as no relationship was found between debt and

financial self-efficacy beliefs. This is consistent with the notion that individuals may view their

financial situation differently, even after controlling for objective financial characteristics

(Prawitz, et al., 2006).

Limitations

There were some notable limitations to the current study. First, due to variable

availability in the HRS, financial self-efficacy beliefs were measured based upon a single item

scale that assessed one's level of perceived financial control. While this measure aligned with

previous research (McAvay et al., 1996), Lown (2011) developed a financial self-efficacy scale

that suggests financial self-efficacy beliefs are a multi-faceted construct. Future research could

improve upon this study by utilizing a more comprehensive measurement of financial self-

efficacy beliefs.

Second, this study did not test for causality, thus it is possible that higher financial self-

efficacy beliefs precede positive psychological experiences, such as mastery, positive affect, and

purpose in life. It is also possible that a reciprocal relationship may exist. The 3M framework

implies psychological attributes shape financial self-efficacy beliefs; however, experimental and

longitudinal research is needed to more effectively examine the causal relationship between these

constructs.

Implications and Conclusion

Older pre-retirees must exercise personal control over their financial situation in order to overcome the consumption and saving dilemma they face in the years leading up to retirement (Shefrin & Thaler, 1988). Self-efficacy beliefs serve a key role in the successful execution of personal control over behavior requiring self-regulation (Bandura, 1991). Thus, possessing high financial self-efficacy beliefs would support older pre-retirees' efforts in preparing financially for retirement. The financial self-efficacy beliefs of older American adults have been shown to be weak and vulnerable to decline when compared to self-efficacy beliefs across various life functions (McAvay et al., 1996). Therefore, financial and mental health professionals can assist older pre-retirees in cultivating and sustaining higher financial self-efficacy beliefs over time. Results of this study reveal several relevant implications for financial and mental health professionals interested in this endeavor. Overall, higher financial self-efficacy beliefs can be supported through understanding basic personality dispositions, fostering mastery experiences, enhancing positive affective states, effectively managing negative affective states, and aligning daily tasks with meaningful and purposeful goals for the future.

First, basic personality differences, specifically neuroticism and openness to experience, serve as a foundation for understanding older pre-retirees' financial self-efficacy beliefs. That is, those who identify with the neuroticism trait are more likely to experience lower financial self-efficacy beliefs while those who identify more with the openness to experience trait are more likely to experience higher financial self-efficacy beliefs. Therefore, it may be useful for a financial or mental health professional to assess their client's personality type as a gauge for their propensity to experience high or low financial self-efficacy beliefs. This is, however, only part of the story.

Second, financial and mental health professionals need to explore beyond basic personality characteristics and understand the extent to which older pre-retirees' possess a high level of mastery, experience positive affective states over that of negative affective states, value daily task completion, and have established meaningful and purposeful goals for the future. This study utilized established and publicly available scales to operationalize the aforementioned psychological characteristics at the compound trait level. The specific scales can be found in the HRS' Psychosocial and Lifestyle Questionnaire 2006 – 2010 (Smith et al., 2013). Alternatively, several positive psychological scales are available on the University of Pennsylvania's *Authentic Happiness* website (https://www.authentichappiness.sas.upenn.edu). Financial and mental health professionals may wish to utilize these scales to increase their understanding of clients' propensity towards feeling high or low financial self-efficacy beliefs.

Third, financial and mental health practitioners can help clients more fully experience and realize successes, thereby enhancing mastery perceptions. For example, when setting financial goals, it may be useful to break down larger goals that seem unattainable to smaller actionable ones. For example, if a client's savings goal for retirement is $10,000 in the current year, the $10,000 figure may appear daunting, especially if the client needs to reduce expenses in order to reach this goal. As a first step, the financial or mental health professional can encourage the client to focus on changing one spending habit over the course of the next week. This will allow the client to experience success more immediately, thereby incrementally developing a stronger sense of mastery. Additionally, financial and mental health professionals can assist clients in obtaining mastery experiences by exploring and encouraging activities (e.g., hobbies, work, sports, etc.) that promote a sense of success and accomplishment. This is especially important for older pre-retirees who receive their primary source of mastery experience from

work, as a plan needs developed for alternative mastery related activities in retirement. The financial plan may need to be augmented to allow the allocation of financial resources to these activities both before and during retirement. It is important to note that low perceived mastery levels might be difficult to overcome for older pre-retirees, as they have an extensive history of successes and failures that have shaped those beliefs. As Bandura (1977, 1997) indicated, mastery experiences are the most powerful source of efficacy information for individuals. Thus, an older pre-retiree's low mastery beliefs may be strongly rooted in their psyche as years of experiences have accumulated over time to shape those beliefs. If this is the case, it may be necessary to work closely with a mental health professional to develop a stronger sense of mastery.

Fourth, to support higher levels of financial self-efficacy beliefs, older pre-retirees would benefit from cultivating positive affective states. This study utilized the following facets to produce an index of positive affect - determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited. Thus, financial and mental health professionals can help their clients by exploring how the financial plan can be constructed in a way to promote frequent experience of these positive affective states. One affective state that has received significant attention in the financial planning and self-efficacy literatures is happiness. Experimental evidence indicates a causal relationship exists between happiness and self-efficacy beliefs, although a causal link cannot be claimed in the current study (Baron, 1990; Lyubomirsky, King, & Diener, 2005; Schuettler & Kiviniemi, 2006). For older pre-retirees who need to save in order to meet their retirement goals, financial and mental health professionals can focus on encouraging clients to develop a budget that maximizes their experience of happiness and other positive affective states. Dunn, Gilbert, and Wilson (2011) compiled existing evidence

on the connection between money and happiness and suggested higher levels of happiness are associated with the following eight consumption patterns: (a) Buy more experiences than material goods, (b) Spend money on others, (c), Buy more small pleasures than large pleasures, (d) Avoid extended warranties and overpriced insurance, (e) Delay consumption, (f) Consider the affect of peripheral features on day-to-day lives, (g) Beware of comparison shopping, and (h) Be attentive to the happiness of others.

Fifth, older pre-retirees may benefit by developing strategies to manage negative affective states, which were associated with a reduced likelihood of experiencing higher financial self-efficacy beliefs. This study utilized the following facets to produce an index of negative affect - afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed. Bandura (1999) indicated that "…those who believe they can relax, get engrossed in engaging activities, calm themselves by reassuring thought and support from friends, family, and others find unpleasant emotional states less aversive than those who feel helpless to relieve their emotional distress" (p. 30). This may be partially accomplished by focusing on enhancing positive affective states, although it is unreasonable to completely eliminate negative affective states from one's life. Financial and mental health professionals can help clients reduce negative affective states by exploring potential sources of negative emotional experiences. For example, if a client is chronically bored then exploring activities to alleviate the boredom would be beneficial. It may be that the client's negative affect is largely related to the work environment. In this case, the client may need to revise their financial plan to retire earlier or to explore a job or career change. Depending upon the situation, engagement of a mental health professional may be necessary to further explore the cause of severe negative affective states potentially causing more serious mental health issues, such as depression.

Sixth, results indicate that it would behoove older pre-retirees to set meaningful and purposeful goals for the future and to develop actionable tasks to make those goals a reality. This notion of *task orientation* (Mowen, 2000) was operationalized within this study through a measure of purpose in life (Ryff, 1989), which incorporates direction and purpose in addition to goal setting and task follow through. Research indicates older pre-retirees are generally more in tune to financial planning as their proximity to retirement increases (Ekerdt, Kosloski, & DeViney, 2000); however, it may be that they need assistance with establishing a clear direction and purpose for their future retirement life. Financial and mental health practitioners can assist their clients in creating a vivid and meaningful vision for retirement. Once this vision has been established, relevant and actionable tasks can be created.

In summary, older pre-retirees must effectively navigate a challenging consumption and saving dilemma in order to adequately prepare for their financial future. Financial self-efficacy beliefs are an influential aspect of personal control that can be cultivated to manage the competing demands on income in the years leading up to retirement (Bandura, 1991). The results of this study suggest that older pre-retirees can support financial self-efficacy beliefs by understanding basic personality dispositions, fostering perceived mastery experiences, enhancing positive affective states, effectively managing negative affective states, and aligning daily tasks with meaningful and purposeful goals for the future.

References

Allison, P. (2012). *Logistic regression using SAS®: Theory and application* (2nd ed.). Cary, NC: SAS Publishing.

American Psychological Association. (2015). *Teaching tip sheet: Self-efficacy*. Retrieved from: http://www.apa.org/pi/aids/resources/education/self-efficacy.aspx

Agarwal, S., Driscoll, J. C., Gabaix, X., & Laibson, D. (2009). The age of reason: Financial decisions over the life cycle and implications for regulation. *Brookings Papers on Economic Activity*: 51-101.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review 84*(2), 191-215.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.

Bandura, A. (1999). Social cognitive theory: An agentic perspective. *Asian Journal of Social Psychology 2*, 21-41.

Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. *Journal of personality and social psychology*, *35*(3), 125-139.

Baron, R. A. (1990). Environmentally induced positive affect: Its impact on self-efficacy, task

    performance, negotiation, and conflict. *Journal of Applied Social Psychology*, *20*(5), 368-

    384.

Bureau of Labor Statistics. (2015). *Employment projections.* Retrieved from:

    http://www.bls.gov/emp/ep_chart_001.htm

Buss, A. H. (1988). *Personality: Evolutionary heritage and human distinctivenessˆ. Hillsdale,*

    N.J.: Lawrence Erlbaum Associates.

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in

    everyday life across the adult life span. *Journal of Personality and Social Psychology*,

    79(4), 644-655.

Chatterjee, S., Finke, M., & Harness, N. (2011). The impact of self-efficacy on wealth

    accumulation and portfolio choice. *Applied Economics Letters, 18*(7), 627-631.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale.

    Organizational research methods, *4*(1), 62-83.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO-PI-R: Professional manual.* Odessa, FL:

    Psychological Assessment Resources.

DeVaney, S. A., & Chiremba, S. (2005). *Comparing the retirement savings of the baby boomers*

    and other cohorts. US Department of Labor, Bureau of Labor Statistics.

Dunn, E. W., Gilbert, D. T., & Wilson, T. D. (2011). If money doesn't make you happy, then

    you probably aren't spending it right. *Journal of Consumer Psychology, 21*(2), 115-125.

Ekerdt, D. J., Kosloski, K., & DeViney, S. (2000). The normative anticipation of retirement by

    older workers. *Research on aging*, *22*(1), 3-22.

Field, A. & Miles, J. (2012). *Discovering statistics using SAS.* Thousand Oaks, CA: Sage
    Publications, Inc.

Fleck, C. (2009). *Is retirement even possible? Millions of people age 70+ are still on the job.*
    AARP Bulletin. Retrieved from: http://www.aarp.org/work/working-after-
    retirement/info-08-2009/no_rest_for_the_weary.html

Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *The Royal
    Society, 359*, 1367-1377.

Gallup. (2014). *Retirement remains Americans' top financial worry*. Retrieved from:
    http://www.gallup.com/poll/168626/retirement-remains-americans-top-financial-
    worry.aspx

Health and Retirement Study. (2008). *Design history*. Retrieved from:
    http://hrsonline.isr.umich.edu/sitedocs/DesignHistory.pdf

Heeringa, S. G., & Conner, J. H. (1995, May). Technical description of the Health and
    Retirement Survey sample design. *Institute for Social Research: University of Michigan
    Survey Research Center*. Retrieved from http://
    hrsonline.isr.umich.edu/sitedocs/userg/HRSSAMP.pdf

Helman, R., Copeland, C., & VanDerhei, J. (2012). The 2012 retirement confidence survey: Job
    insecurity, debt weigh on retirement confidence, savings. *EBRI Issue Brief*, 369, 1-32.

Hershey, D. A., Henkens, K., & Van Dalen, H. P. (2010). Aging and financial planning for
    retirement: Interdisciplinary influences viewed through a cross-cultural lens. *The
    International Journal of Aging and Human Development*, *70*(1), 1-38.

Hershey, D. A., & Jacobs-Lawson, J. M. (2012). Bridging the gap: Anticipated shortfalls in
    future retirement income. *Journal of Family and Economic Issues*, *33*(3), 306-314.

Hershey, D. A., & Mowen, J. C. (2000). Psychological determinants of financial preparedness

    for retirement. *The Gerontologist, 40*(6), 687-697.

Hogarth, J. M., Beverly, S. G., & Hilgert, M. (2003). Patterns of financial behaviors:

    Implications for community educators and policy makers. *Federal Reserve System*

    Community Affairs Research Conference.

IPIP. (2016). *International personality item pool*. Retrieved from: http://ipip.ori.org.

John, O.P. & Srivastava, S. (1999). *The big five trait taxonomy: History, measurement, and*

    theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), Handbook of Personality:

    Theory and research. Second Edition. 102-138). New York: The Guilford Press.

Lachman, M. E., & Weaver, S. L. (1997). *The midlife development inventory (MIDI) personality*

    scales: Scale construction and scoring. Waltham, MA: Brandeis University. Retrieved

    from: http://www.brandeis.edu/departments/psych/lachman/pdfs/midi-personality-

    scales.pdf

Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of*

    Financial Counseling and Planning, *22*(2), 54-63.

Lyubomirsky, S, King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does

    happiness lead to success? *Psychological Bulletin, 131*(6), 803-855.

Mayfield, C., Perdue, G., & Wooten, K. (2008). Investment management and personality type.

    Financial Services Review, 17, 219-236.

McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-

    specific self-efficacy among older adults. *Journal of Gereontology, 51B*(5), 243-253.

Mowen, J. C. (2000). *The 3M model of motivation and personality: Theory and empirical applications to consumer behavior*. Norwell, MA: Kluwer Academic Publishers.

Mowen, J. C., & Spears, N. (1999). Understanding compulsive buying among college students: A hierarchical approach. *Journal of Consumer Psychology, 8*(4), 407-430.

Munnell, A. H. (2011). What is the average retirement age?. *Center for Retirement Research*.

Munnell, A. H. (2013). Social security's real retirement age is 70. *Center for Retirement Research*

Munnell, A. H., Webb, A., & Golub-Sass, F. (2012). The national retirement risk index: An update. *Center for Retirement Research at Boston College*, *1*-9.

Nabeshima, G., & Seay, M. C. (2015). Wealth and personality: Can personality traits make your clients rich? *Journal of Financial Planning, 28*(7), 50-57.

Nielsen, R. B., & Seay, M. C. (2014). Complex samples and regression-based inference: Considerations for consumer researchers. *Journal of Consumer Affairs*, 1-17.

NLSY. (2015). Pearlin mastery scale IRT item parameter estimates, scores and standard errors with custom weighted z-scores and percentile ranks. Retrieved from: https://www.nlsinfo.org/sites/nlsinfo.org/files/attachments/141120/Pearlin%20Document ation%20with%20IRT.pdf

O'Neill, B., Sorhaindo, B., Xiao, J. J., & Garman, E. T. (2005). Financially distressed consumers: Their financial practices, financial well-being, and health. *Journal of Financial Counseling and Planning*, *16*(1), 73-87.

Ong, A.D., Edwards, L.M., & Bergeman, C.S. (2006). Hope as a source of resilience in later adulthood. *Personality and Individual Differences*. 41(7), 1263-1273.

Pajares, F., & Kranzler, J. (1995). Self-efficacy beliefs and general mental ability in

      mathematical problem-solving. *Contemporary educational psychology*, *20*(4), 426-443.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of health and Social*

      Behavior, 19, 2-21.

Perry, V. G., & Morris, M. D. (2005). Who's in control? The role of self-perception, knowledge,

      and income in explaining consumer financial behavior. *Journal of Consumer Affairs,*

      39(2), 299-313.

Prawitz, A. D., Garman, E. T., Sorhaindo, B., O'Neill, B., Kim, J., & Drentea, P. (2006).

      InCharge financial distress/financial well-being scale: Development, administration, and

      score interpretation. *Journal of Financial Counseling and Planning*, *17*(1). 34-50.

RAND Center for the Study of Aging. (2014). *RAND HRS data documentation, Version N*. Santa

      Monica, CA: RAND.

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological

      well-being. *Journal of Personality and Social Psychology, 57*(6), 1069-1081.

Schuettler, D., & Kiviniemi, M. T. (2006). Does how I feel about it matter? The role of affect in

      cognitive and behavioral reactions to an illness diagnosis, *Journal of Applied Social*

      Psychology, 36(11), 2599-2618.

Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*,

      26(4), 609.

Sherer, M., & Maddux, J. E. (1982). Self-efficacy scale: Construction and validation.

      Psychological Reports, 51, 663-671.

Smith, J., Fisher, G., Ryan, L., Clarke, P., House, J., & Weir, D. (2013). *Psychosocial and Lifestyle Questionnaire 2006 – 2010.* Ann Arbor, MI: University of Michigan Institute for Social Research, Survey Research Center.

U.S. Census Bureau. (2013). *Webinar on 2012 income, poverty and health insurance estimates from the current population survey*. Retrieved from: http://www.census.gov/newsroom/releases/pdf/20130917_ip_remarks.pdf

U.S. Department of Commerce. (2015). *News release: Personal income and outlays*. Retrieved from: http://www.bea.gov/newsreleases/national/pi/pinewsrelease.htm

Watson, D., & Clark, L.A. (1999). The PANAS-X: Manual for the positive and negative affect schedule – expanded form. Unpublished manuscript. University of Iowa.

Wolter, K. M. (1985). *Introduction to variance estimation*. New York, NY: Springer.

Chapter 3 - Financial Self-Efficacy Beliefs and the Saving Behavior of Older Pre-Retirees

Introduction

"So much and no more! Never more than a spot, or something may happen! You never know what" (Palmer, 1961, p. 5). Palmer's (1961) popular children's book, *A Fish Out of Water,* highlights psychological concepts relevant to human behavior across the life course. From a child feeding a fish to an adult saving for retirement, psychological factors such as self-control, uncertainty, and impatience play a key role in shaping behavior and action (Bandura, 1986, 1991; Wärneryd, 1989). This study is focused on the act of saving - a complex behavior that requires self-regulation to overcome the mental costs associated with forgoing consumption, as spending today is more desirable than spending tomorrow (Shefrin & Thaler, 1988). The tradeoff between spending and saving is unique for older pre-retirees given their stage in the financial life cycle and proximity to retirement. With income at an all time high and retirement approaching, older pre-retirees experience competing demands on their financial resources (i.e., save vs. spend) that require self-regulation in order to achieve desired saving behavior (Bandura, 1991; U.S. Census Bureau, 2013).

The self-regulatory process is multifaceted with self-efficacy beliefs serving a fundamental role (Bandura, 1991). Self-efficacy beliefs are defined as "…beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). These beliefs can affect how the self-regulatory system functions, thereby affecting behavioral outcomes (Bandura, 1991). Given the link between self-efficacy beliefs and self-regulatory behavior (Bandura, 1991), it is surprising there has been limited research investigating this connection within the financial domain. When it comes to self-efficacy beliefs

and saving behavior, existing research has primarily focused on young pre-retirees (Chatterjee, Finke, and Harness, 2011; Shim, Serido, and Tang, 2012). With persistently low saving rates in the United States and older workers feeling financially unprepared for retirement, understanding how self-efficacy beliefs are related to older pre-retirees' saving behavior may help them more effectively navigate their financial situation in the years preceding retirement (Gallup, 2014; U.S. Department of Commerce, 2015).

The literature suggests a complex relationship exists between saving ability, motivation, and follow-through for older pre-retirees. According to the Social Cognitive Theory of Self-Regulation, self-efficacy beliefs are an important psychological attribute that positively affects and supports self-regulatory behavior (Bandura, 1991). Thus, self-efficacy belief levels may provide insight into the saving behavior of older pre-retirees above and beyond what is currently reflected in the literature. Consequently, the purpose of this study was to investigate the relationship between financial self-efficacy beliefs and the saving behavior of older pre-retirees through the following research question: Do financial self-efficacy beliefs account for variability in the saving behavior of older pre-retirees after controlling for the ability and motivation to save?

Literature Review

It is expected that many individuals in the Boomer and Generation X populations will enter retirement with insufficient financial resources to maintain their pre-retirement standard of living (Helman, Copeland, & VanDerhei, 2012; Munnell, Webb, & Golub-Sass, 2012). Older pre-retirees' stage in the financial life cycle suggests they are in a financial position to close this retirement preparedness gap. With retirement on the horizon, the motivation to save may also assist older pre-retirees in following through with their saving plans. Despite this financial ability

and motivation, a persistent concern exists amongst older American workers about having enough money for retirement; suggesting psychological factors are intertwined with the financial ability and motivation to save (Gallup, 2014). Bandura (1986) asserted "among the types of thoughts that affect action, none is more central or pervasive than people's judgments of their capabilities to deal effectively with different realities" (p. 21). These judgments of *self-efficacy* may serve as an important psychological link in bridging the saving gap. Given this backdrop, this literature review explores the basic personal factors associated with the financial ability and motivation to save, how older pre-retirees' financial life cycle stage is related to saving behavior, and the connection between saving behavior and financial self-efficacy beliefs.

Ability and Motivation to Save

At the most fundamental level, socio-demographic factors, health characteristics, financial attributes, and motives can affect an individual's ability and proclivity to save. Several socio-demographic factors have been linked to saving behavior. Gender has been found to account for variance in savings contributions, with men reporting they voluntarily save a higher percentage of their annual income than women (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007). This increased saving pattern for men supports the finding that men hold higher levels of total retirement wealth than women (Binswanger & Carman, 2012). Married individuals were more likely to demonstrate positive patterns of cash flow and saving behavior (Hogarth, Beverly, & Hilgert, 2003). Moreover, racial disparities in total wealth still exist today with Whites continuing to hold more total wealth than Black and Hispanic households (Lusardi & Mitchell, 2006). This may be partially due to a difference in saving behavior. For example, saving over time, as operationalized through a five-year change in savings net worth, was the greatest on average for Whites when compared to Black and Hispanic households (Wakita,

75

Fitzsimmons, & Liao, 2000). In terms of education, those with a higher level of education generally demonstrate positive saving behavior; however, contrary results have been noted. Higher education levels were positively associated with higher changes in the savings net worth of White respondents (Wakita et al., 2000). On the other hand, higher levels of education have been associated with an increased likelihood of overspending relative to income (Bae, Hanna, & Lindamood, 1993). Lastly, health plays a role with those in poor health less likely to save regularly and more likely to spend more than their income (Fisher & Montalto, 2010).

From a financial standpoint, a positive association between income and saving behavior has been established within the literature (Fisher & Montalto, 2011; Grable & Lytton, 1997; Hershey et al., 2007; Lunt & Livingstone, 1991). With higher income levels supporting saving behavior, it would logically follow that income interruptions can negatively affect the ability to save. This connection has been noted, with periods of unemployment associated with lower levels of accumulated wealth (Glass & Kilpatrick, 1998; Lusardi, 2000). Asset composition has also been linked to saving behavior. Homeownership has been shown to have a positive relationship with saving regularly and spending less than income over the previous year (Fisher & Montalto, 2010). Moreover, the presence of Individual Retirement Accounts (IRAs) and self-employed Keogh retirement plans were associated with an increase in household saving (Hubbard, 1984).

While objective financial characteristics provide a basic explanation for saving behavior, these factors are subject to personal interpretation, value systems, and unique financial goals creating subjective perceptions that may further explain individual differences in saving behavior (Prawitz et al., 2006). Measures of financial worry or strain are often used to assess the extent to which individuals perceive financial difficulty above and beyond what objective characteristics

indicate (Prawitz, et al., 2006). Holding all else constant, those with greater perceived financial difficulty may feel less able to save than those who perceive their situation more positively. In support of this notion, perceived financial strain has been found to have a negative association with the saving habits and level of total reported savings within a sample of low-income individuals (Loibl, Kraybill & DeMay, 2011).

Motivational forces associated with saving behavior have been well established within the literature. Fisher and Montalto (2010) found that the likelihood of saving on a regular basis increased for respondents with an emergency saving motive and for those with a retirement saving motive. DeVaney, Anong, and Whirl (2007) proposed that emergency fund and retirement saving motives are connected, with individuals more likely to save for future retirement needs after they have saved adequately for short-term emergencies. For pre-retirees focused on saving for retirement, retirement goal clarity has been shown to be an important motivational factor indirectly linked to saving behavior through a pre-retiree's retirement planning activity level (Hershey et al., 2007). Additionally, a longer future time perspective was positively associated with a pre-retiree's perceived effort in saving for retirement within a sample of working American adults aged 25 to 45 (Jacobs-Lawson & Hershey, 2005). Similarly, those with a longer planning horizon were more likely to save regularly (Fisher & Montalto, 2010; Rabinovich & Webley, 2007; Rha, Montalto, & Hannah, 2006). A shorter future time perspective, as measured by smoking and lack of exercise, was negatively associated with saving behavior within a sample of older American adults (Lusardi, 2000, 2001, 2002).

Finally, bequest and inheritance motives have been found to account for differences in accumulated wealth levels. American households with a bequest motive demonstrated a higher wealth accumulation profile than households without a bequest motive (Bernheim, Skinner, &

Weinberg, 1997; Lusardi, 2000; 2001; 2002). While this may suggest bequest motives significantly explain saving behavior, the causal relationship is unclear. Households who have accumulated more wealth may have developed a bequest motive as a result of their saving success. Alternatively, the bequest motive may have been a significant driver of the saving behavior that led to more accumulated wealth. Dynan, Skinner, and Zeldes (2002) illustrated that bequest motives are rarely cited as an ex ante reason for saving and that bequest motives tend to account for only a modest increase in saving rates. While the effect size is debatable, there is general recognition that bequest motives are an important aspect of saving behavior research (Cordes, 1990). From the receiving perspective, older American households that expected to receive an inheritance, as measured by living parents, tended to accumulate less wealth (Lusardi, 2000; 2001). Older pre-retirees may be in tune to their inheritance and bequest expectations with their parents nearing the end of the life cycle and bequest possibilities becoming more tangible as they accumulate wealth and approach retirement.

Older Pre-Retirees and Saving Behavior

Beyond basic socio-demographic, financial, and motivating factors, an individual's financial life cycle stage can influence the ability and propensity to save. Due in part by the natural passage along the life cycle, older pre-retirees exhibit a financial profile that supports positive saving behavior (Elder, 1998; Dalton, Dalton, Cangelosi, & Guttery, 2014). Existing research suggests the financial characteristics of older pre-retirees are a higher income (as compared to earlier working years) (U.S. Census Bureau, 2013), accumulated retirement assets (DeVaney & Zhang, 2001), presence of retirement accounts (DeVaney & Chiremba, 2005), and increased defined contribution plan participation (Bassett, Fleming, & Rodriguez, 1998). When it

78

comes to financial decision-making, middle-aged adults tend to make fewer financial mistakes, with peak performance occurring around age 53 (Agarwal, Driscoll, Gabaix, & Laibson, 2009).

In accordance with a life cycle approach, economic theory posits that older pre-retirees may be inclined to save due to their increased income relative to prior levels, as individuals are thought to rationally save excess income in order to smooth consumption over the life course (Ando & Modigliani, 1963). Evidence exists that suggests older pre-retirees do save more than in the earlier years, as the saving age profile tends to peak around age 60 (Attanasio, 1993). A behavioral perspective indicates, however, that saving discretionary income is psychologically costly due to a high marginal propensity to consume associated with current income (Shefrin & Thaler, 1988). Significant self-control is needed to overcome this mental cost in order to translate increased income into increased savings (Shefrin & Thaler, 1988). For older pre-retirees, the psychological cost of saving declines with the reward (i.e., future spending) becoming more salient as retirement nears (da Matta, Goncalves, & Bizarro, 2012; Shefrin & Thaler, 1988). However, an increased marginal propensity to consume is still present with income at a lifetime high (Shefrin & Thaler, 1988). Thus, while a close proximity to retirement reduces the cost of saving, older pre-retirees experience a simultaneous increase in the temptation to spend due to rising income levels.

The financial life cycle and existing research suggests that older pre-retirees possess positive financial attributes and the decision-making ability to support saving behavior in the years preceding retirement. However, low saving rates, an increased temptation to spend (i.e., due to higher income), and concern for financial resources in retirement indicate it may still be difficult for older pre-retirees to save despite having the financial ability and motivation to do so (Gallup, 2014; U.S. Department of Commerce, 2015).

Financial Self-Efficacy Beliefs and Saving Behavior

Self-efficacy beliefs are fundamental to personal agency – the intentional engagement in behavior - and are defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). Self-efficacy beliefs are domain specific (e.g., life, health, financial) and can influence behavior, as individuals tend to engage and persist in activities that they believe they are capable of, can control, and can produce desirable results from (Bandura, 1997). Self-efficacy beliefs, both general and domain specific, have been linked to positive saving behavior; however, younger pre-retirees have primarily been the population of interest. Shim, Serido, and Tang (2012) evaluated saving behavior within a sample of American college students from Spring 2008 to Spring 2009. Shim, et al. found that perceived financial control, which has been used as a proxy for financial self-efficacy beliefs within the literature (McAvay, Seeman & Rodin, 1996), predicted both saving intention and self-reported saving behavior. Chatterjee et al. (2011), using a non-domain specific measure of perceived mastery as a proxy for general self-efficacy beliefs, found that perceived mastery beliefs were positively associated with wealth creation and portfolio choice over a ten year period for young American savers entering the wealth accumulation phase. While general and financial self-efficacy beliefs have been connected to saving behavior, more research is needed to determine if self-efficacy beliefs, particularly as measured within the financial domain, continue to serve a role in saving behavior for older populations.

Social Cognitive Theory of Self-Regulation

Self-efficacy beliefs may provide an important link between saving ability, motivation, and follow-through for older pre-retirees given the saving and consumption dilemma they experience (Bandura, 1991; Shefrin & Thaler, 1988). The Social Cognitive Theory of Self-

Regulation states that self-efficacy beliefs affect behavior by interacting with the psychological functions of the self-regulatory system. The self-regulatory system operates through self-observation and monitoring processes, positive and negative judgments about performance results, and personal reactions influenced by incentives and affective states (Bandura, 1991). As a result of this interaction, self-efficacy beliefs affect how an individual establishes goals, monitors behavior, judges behavioral outcomes, values activities, and how they react to positive or negative performance judgments (Bandura, 1991). More specifically, individuals with higher self-efficacy beliefs in a particular task tend to set aspirational goals, persevere when confronted with difficulties and failures, attribute successes to personal capabilities and effort, consider transient personal and external contributions to failures, exhibit enduring interest in the task at hand, and are less susceptible to stress and anxiety in the face of adversity (Bandura, 1991, 1999). Thus, self-efficacy beliefs play a significant role in shaping behavior by influencing how individuals interpret and respond to the self-regulatory process (See Figure 3.1).

When it comes to the self-regulation of financial behavior, existing research has focused primarily on tangible mechanisms and incentives that aid people in exercising control, such as automatic and mandatory saving plans, tax incentives for saving, and penalties associated with early withdrawals (Amromin & Smith, 2003; Rha et al., 2006; Statman, 2013). These mechanisms are characteristic of rules that have been shown to facilitate financial control (Rha et al., 2006; Shefrin & Thaler, 1988). Chatterjee et al. (2011) revealed that general self-efficacy beliefs, as measured by the Pearlin mastery scale, are an additional aspect of control that are positively associated with the saving behavior of young American pre-retirees. This study builds upon the literature by investigating the connection between domain specific *financial* self-efficacy beliefs and saving behavior within a sample of older American pre-retirees.

Figure 3.1 Social Cognitive Theory of Self-Regulation Conceptual Model, adapted from Bandura (1991).
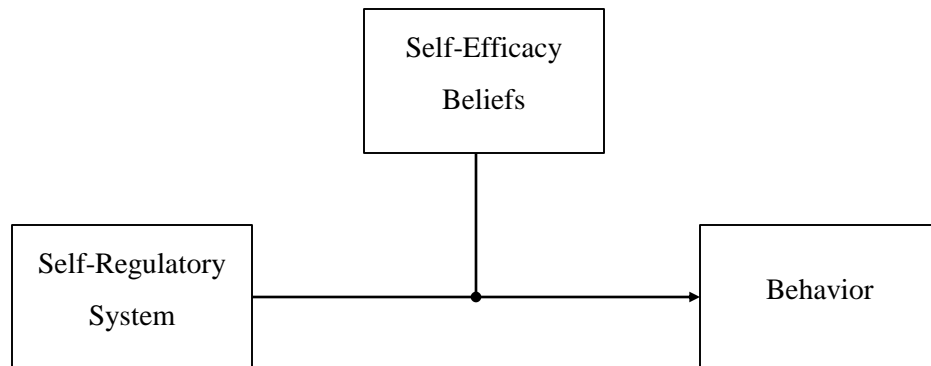
Hypothesis

This study investigated the relationship between financial self-efficacy beliefs and the saving behavior of older pre-retirees. In accordance with the Social Cognitive Theory of Self-Regulation, financial self-efficacy beliefs are expected to positively influence the self-regulatory system and consequently demonstrate a positive association with saving behavior after controlling for the ability and motivation to save (Bandura, 1991). Thus, the following hypothesis is investigated:

H1: Financial self-efficacy beliefs are positively associated with the saving behavior of older pre-retirees after controlling for the ability and motivation to save.

Methodology

Data and Sample

Data were utilized from the 2008 and 2012 waves of the Health and Retirement Study (HRS), a biennial panel study of over 26,000 Americans age 50 and above. The HRS incorporates a nationally representative, multi-stage area probability sample design in addition to oversampling techniques for Blacks, Hispanics, and Florida residents (Heeringa & Conner,

1995). Sample weights and sample design information were incorporated into the analyses to adjust for unequal selection probabilities and the complex survey design. Given the complex and comprehensive nature of the HRS, the RAND Center for the Study of Aging created a user-friendly data file for researchers (Rand Center for the Study of Aging, 2014). The 2008 RAND version of the HRS served as the core data file for the current study. In addition to this core file, data from the 2008 and 2010 waves of the *Leave-Behind* Psychosocial and Lifestyle Questionnaire were utilized to operationalize the psychological characteristics investigated in this study (Smith et al., 2013). The Psychosocial and Lifestyle Questionnaire is administered according to a rotating collection scheme to half of the HRS panel at each collection cycle and is returned after the primary interview via mail. Thus, data were utilized from the 2008 and 2010 collection cycles in order to include information from the full sample. Specifically, financial self-efficacy beliefs and financial strain measures were derived from the 2008 and 2010 Psychosocial and Lifestyle Questionnaire.

The sample was restricted to the financial respondent of the household who reported they were not yet fully retired in both 2008 and 2012. The financial respondent is likely to be the most in tune to the family's financial position and is responsible for completing the financial portion of the survey (Rand Center for the Study of Aging, 2014). Moreover, the sample was restricted to those aged 50 to 70 in 2008. While the average retirement age is 64 for men and 62 for women (Munnell, 2011), a maximum age limit of 70 was selected for this study as workforce participation rates for those aged 65 and over have been increasing (Fleck, 2009). Additionally, Munnell (2013) argued that a later retirement is warranted and should be encouraged given an increased life expectancy, better health, and higher education status of most American workers. The final analytic sample included 844 observations, representing just under six million pre-

retirees between age 50 and 70 in 2008 after accounting for the weighting information provided within the HRS.

Variable Measurement

Dependent Variable

Saving behavior served as the dependent variable for this study. Saving behavior was measured based upon a four-year change in total net worth from 2008 to 2012 (see Table 3.1), providing a comprehensive picture of asset and liability changes (Bryant & Zick, 2006). Comparing net worth at two different points in time is considered a more optimal measure of saving behavior than net worth at a single point in time (Fitzsimmons & Leach, 1994; Wakita et al., 2000). Net worth was defined as total assets minus total liabilities. Total assets included the value of the primary residence, secondary residence, other real estate, vehicles, businesses, retirement accounts, stocks, mutual funds, checking, savings, money market accounts, certificates of deposit, bonds, and any other existing assets. Total liabilities included the total value of all debt associated with the primary residence and secondary residence. Additionally, any other outstanding debt was included as a liability, such as credit card debt, medical debt, life insurance loans, and family loans. To compute the change in net worth from 2008 to 2012, the negative net worth groups in both 2008 and 2012 were first excluded in order to calculate the natural logarithm of 2008 net worth and the natural logarithm of 2012 net worth to account for the right-skewed distribution of wealth. Second, consistent with existing literature (Harness, Finke, & Chatterjee, 2009), change in net worth was computed by subtracting the natural

logarithm of 2008 net worth from the natural logarithm of 2012 net worth based upon the

following equation: $\ln(W_{12}) - \ln(W_{08}) = \ln(\frac{W_{12}}{W_{08}})$ [1].

Table 3.1 Measurement of Saving Behavior (dependent variable)

Variable	Measurement
Saving behavior	Natural logarithm of 2012 total net worth minus the natural logarithm of 2008 total net worth.

Ability and Motivation to Save

The variables associated with the ability and motivation were derived from the existing

saving behavior literature and included socio-demographic and health characteristics, financial

factors, and motivating forces. A table summarizing the measurement of these variables can be

found in Table 3.2.

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[1] The quotient property of logarithms: $\ln(\frac{M}{N}) = \ln(M) - \ln(N)$

Table 3.2 Measurement of Independent Variables

Variables	Measurement
Age	Continuous variable ranging from age 50 to 70 in 2008
Census region	
Northeast	1 if located in the Northeast; otherwise 0
Midwest	1 if located in the Midwest; otherwise 0
South	1 if located in the South; otherwise 0
West	1 if located in the West; otherwise 0
Gender	1 for female; 0 for male
Marital status	1 for a coupled household; otherwise 0
Race	
White	1 if respondent reported being white; otherwise 0
Black	1 if respondent reported being black; otherwise 0
Other	1 if respondent reported a race other than black or white; otherwise 0
Education	
Less than high school	1 if respondent reported highest level of education as less than a high school diploma or GED; otherwise 0
High school	1 if respondent reported highest level of education as either high school diploma or GED; otherwise 0
Some college	1 if respondent reported highest level of education as a partial college education; otherwise 0
College graduate	1 if respondent reported highest level of education as a college degree or above; otherwise 0
Natural logarithm of 2008 income	Measured as a natural logarithmic transformed continuous variable after adding 1 to household income greater than or equal to zero in 2008
Natural logarithm of 2008 net worth	Measured as a natural logarithmic transformed continuous variable after adding 1 to net worth greater than or equal to zero in 2008

Homeownership and mortgage

    Mortgage holding homeowner   1 if respondent reported that they were a homeowner and had a positive mortgage balance; otherwise 0

    Non mortgage holding homeowner   1 if respondent reported that they were a homeowner and did not have an existing mortgage; otherwise 0

    Non homeowner   1 if respondent was not a homeowner; otherwise 0

Other debt   1 if respondent reported debt other than mortgage debt, such as credit cards and intrafamily loans; otherwise 0

Presence of IRA/KEOGH plans   1 if respondent reported a value for IRA/KEOGH plans; otherwise 0

Presence of stock and stock mutual funds   1 if respondent reported stock or stock mutual funds outside of IRA/KEOGH accounts

Financial strain   5-point scale with higher scores reflecting a greater perceived inability to pay bills.

Self-reported health status   5 point scale reverse coded such that higher scores reflect a more favorable health assessment.

Working status   1 if respondent reported that they are currently working full or part-time; otherwise 0 if they reported being unemployed, disabled, or not in the labor force

Currently smoke   1 if respondent reported that they currently smoke; otherwise 0

Emergency fund ratio   1 if computed emergency fund ratio is =>3; otherwise 0

Bequest motive   Measured as a continuous variable ranging from 0 to 100 with higher scores representing an increased likelihood of leaving a bequest.

Inheritance motive   1 if respondent reported at least one parent was still living; otherwise 0

Retirement goal clarity   1 if respondent reported a planned retirement year; otherwise 0

| Financial Self-Efficacy Beliefs | 11-point scale with higher scores representing higher financial self-efficacy beliefs. |

Socio-Demographic and Health. Socio-demographic characteristics were included as control variables informed by the existing saving behavior literature, which included: age, gender, race, marital status, and education status. Working status was also controlled for, with those working full or part-time coded as a one. If respondents reported they were unemployed, disabled, or not in the labor force then they were coded as a zero. Additionally, census region was included to control for differences in regional prices and asset values that may affect savings needs and change in net worth. Lastly, poor health has been shown to have a negative association with saving behavior and was included in the model as an additional control variable (Fisher & Montalto, 2010). All socio-demographic and health variables were obtained from the 2008 RAND HRS data (Rand Center for the Study of Aging, 2014).

Financial. The natural logarithm of 2008 income and employment characteristics were included to control for objective financial attributes affecting the ability to save and were obtained from the 2008 RAND HRS data (Rand Center for the Study of Aging, 2014). Moreover, the level of household assets has been shown to account for participation rate differences in risky financial markets (Campbell, 2006). For example, Campbell (2006) illustrated that households in the bottom quartile of wealth tended to hold only safe assets (e.g., cash and vehicles). On the other hand, wealthier households tended to hold riskier assets, such as public equity, private businesses, and real estate (Campbell, 2006). Thus, it is possible that those with a higher wealth status are more likely to produce a greater change in net worth over time than those with a lower wealth status due to differences in risky asset participation rates. To control for this wealth

effect, the natural logarithm of 2008 net worth and the following indicator variables were included: homeownership (Fisher & Montalto, 2010), presence of mortgage debt, presence of non-mortgage debt (e.g., credit card, intrafamily loan, life insurance loan, etc.), presence of stocks and stock mutual funds outside of retirement accounts, and presence of IRA and Keogh plans (Hubbard, 1984). Controlling for a wealth effect in this manner is consistent with existing literature (Fitzsimmons & Leach, 1994; Judge, Hill, Griffiths, Lutkepohl & Lee, 1982; Harness et al., 2009; Chatterjee et al., 2011). Moreover, the logarithmic specification of change in net worth provides an additional control for the effect of higher prior-period wealth on subsequent asset returns (Pence, 2006).

Additionally, DeVaney et al. (2007) indicated that individuals save for future retirement goals after short-term emergency needs have been met. Thus, it is possible that older pre-retirees who have an adequate emergency fund are more likely to save significantly for future retirement needs than those without an adequate emergency fund. To control for this possibility, an emergency fund proxy was included in the model to assess existing emergency fund adequacy. An emergency fund ratio was computed by dividing current cash assets (e.g., checking, savings, and CD's) by monthly total household income using 2008 RAND HRS data. Emergency funds that met recommended guidelines of three months or more were coded as a one, with those that did not meet the three-month guideline coded as a zero. Lastly, financial strain was included to control for an individual's perceived financial constraints and difficulty using data from the 2008 and 2010 Psychosocial and Lifestyle Questionnaire (Prawitz, et al., 2006; Loibl et al., 2011; Smith et al., 2013).

Motives. Motivational factors included in the model were retirement goal clarity, future time perspective, bequest motives, and inheritance motives. Retirement goal clarity was included

as a proxy for a retirement savings motive (Fisher & Montalto, 2010; Hershey et al., 2007).

Retirement goal clarity was measured based upon respondents' reported planned retirement date.

Those that had indicated an established retirement date were coded as a one, with those without

an established retirement date coded as zero. In concert with previous literature, current smoking

behavior was utilized as a proxy for a shorter future time perspective (Lusardi, 2000, 2001,

2002). Additionally, the likelihood of leaving a bequest was included to estimate a respondent's

bequest motive (Bernheim et al., 1997; Lusardi, 2000; 2001; 2002). Finally, an inheritance

motive was included and operationalized through a dichotomous variable indicating the presence

of living parents (Lusardi, 2000, 2001).

Financial Self-Efficacy Beliefs

Self-efficacy beliefs are domain specific and it is important to tailor the measurement

according to the behavioral domain being explored (Bandura, 1986, 1997). Consequently, self-

efficacy beliefs were operationalized through a domain specific variable measuring *financial*

self-efficacy beliefs using a combination of data from the 2008 and 2010 Psychosocial and

Lifestyle Questionnaire (Smith et al., 2013). According to Smith et al. (2013), the following

question was utilized as a proxy for financial self-efficacy beliefs (see Table 3.2): "How would

you rate the amount of control you have over your financial situation these days?" Responses

were measured through an 11-point scale ranging from 0 *(no control at all)* to 10 *(very much*

control). This question provides insight into the amount of influence an older pre-retiree feels

they have over their financial situation and is in concert with previous research as a measure of

financial self-efficacy beliefs (McAvay et al., 1996). A comprehensive financial self-efficacy

scale was not available within the HRS data (Lown, 2011).

A summary of the expected relationships between the independent variables and the

dependent variable (i.e., saving behavior) is provided in Table 3.3. The Social Cognitive Theory

of Self-Regulation informed the direction of the relationship between financial self-efficacy

beliefs and saving behavior (Bandura, 1991). The independent control variables were included as

a result of the existing saving behavior literature.

Table 3.3 Expected Relationship between Independent Variables and Saving Behavior

(dependent variable)

Variables	Expected Effect
Age	+
Census region	
Northeast	Unknown
Midwest	Unknown
South	Unknown
West	Unknown
Female gender	-
Marital status	+
Race	
White	+
Black	-
Other	Unknown
Education	+
Natural logarithm of 2008 income	+
Natural logarithm of 2008 net worth	-
Homeownership and mortgage	
Mortgage holding homeowner	Unknown
Non mortgage holding homeowner	+
Non homeowner	-
Non-mortgage debt	Unknown
Presence of IRA/KEOGH plans	+

Presence of stock and stock mutual funds	+
Financial strain	-
Self-reported health status	+
Working status	+
Currently smoke	-
Emergency fund ratio	+
Bequest motive	+
Inheritance motive	-
Retirement goal clarity	+
Financial self-efficacy beliefs	+

Data Analysis

Given the continuous and unbounded nature of the dependent variable, 2008 to 2012 change in the natural logarithm of net worth, this study utilized an OLS regression model to investigate the saving behavior of older pre-retirees. The dependent variable was constructed with a natural logarithm transformation on 2008 and 2012 net worth in order to approximate a normal distribution given the right skewed distribution of wealth (see Table 3.1). Model assumptions were examined and revealed normally distributed errors and no multicollinearity issues. Overall performance statistics revealed an adequate fit of the model investigating the saving behavior of older pre-retirees with an adjusted r-squared of .29. The HRS's weighting and

complex sampling design information was incorporated through the Taylor series method

(Wolter, 1985) in calculating estimates and associated variances in accordance with

recommended methodology (Heeringa & Conner, 1995; Nielsen & Seay, 2014).

Results

Descriptive Statistics

A summary of the sample characteristics can be found in Tables 3.4 and 3.5. The sample

consisted of 844 observations representing just under six million U.S. pre-retirees age 50 to 70 in

2008 after incorporating the weighting information provided within the HRS. Weighted

percentages are provided in Table 3.4 in order to account for the oversampling techniques

utilized by the HRS. Moreover, all independent variables were measured utilizing the 2008

RAND HRS data, except where noted.

Table 3.4 Sample Characteristics of Categorical Variables (N = 844)

Variable	n	% (weighted)*
Census Region		
Northeast	146	18.22%
Midwest	233	28.90%
South	280	31.41%
West	185	21.46%
Gender		
Female	437	45.70%
Male	407	54.30%
Marital Status		
Married	528	65.59%
Single	316	34.41%
Race		
White	682	87.55%
Black	103	7.15%
Other	59	5.30%
Education		
Less than high school	65	5.29%
High school	238	26.48%
Some college	224	26.10%
College graduate	317	42.13%
Labor force status		
Working	815	96.66%
Not working	29	3.34%
Income		
$0 to $24,999	89	8.11%
$25,000 to $49,999	172	18.63%
$50,000 to $74,999	184	21.33%
$75,000 to $99,999	121	15.09%
$100,000 and above	278	36.84%
Net Worth		
$0 to $24,999	105	9.78%
$25,000 to $99,999	165	18.81%
$100,000 to $249,999	175	21.29%
$250,000 to $499,999	186	22.53%
$500,000 and above	213	27.59%
Homeownership & mortgage debt status		
Homeowner with mortgage	465	58.15%
Homeowner without a mortgage	262	30.15%
Non Homeowner	117	11.69%

Presence of other debt			
Yes	378	46.22%	
No	466	53.78%	
Presence of stocks/mutual funds			
Yes	208	26.47%	
No	636	73.53%	
Presence of IRA/KEOGH accounts			
Yes	404	52.51%	
No	440	47.49%	
Emergency Fund Ratio			
Three months or more	244	30.88%	
Less than three months	600	69.12%	
Currently smoke			
Yes	111	12.79%	
No	733	87.21%	
Retirement goal			
Yes	151	18.99%	
No	693	81.01%	
Inheritance motive (living parent)			
Yes	382	47.48%	
No	462	52.52%	

* Weighted percentages are provided to account for the oversampling techniques utilized by
the HRS. The weighted sample represents 5,987,615 pre-retirees aged 50 to 70.

Table 3.5 Sample Characteristics of Scales and Continuous Variables (N = 844)*

Variable	Mean	se	Min	Max
Age	58.51	0.13	54.00	70.00
Income 2008	111,305.00	6,263.95	0.00	1,936,000.00
Natural logarithm of 2008 income	11.21	0.05	0.00	14.48
Net worth 2008	504,684.00	34,190.00	0.00	16,582,000.00
Natural logarithm of 2008 net worth	12.10	0.07	0.00	16.62
Net worth 2012	523,452.00	42,489.00	0.00	23,667,000.00
Natural logarithm of 2012 net worth	12.10	0.07	0.00	16.98
Change in net worth (2008 to 2012)	18,767.00	29,330.00	-4,469,164.19	7,085,000.00
Natural logarithm of change in net worth (2008 to 2012)	0.00	0.04	-10.33	12.98
Financial self-efficacy beliefs**	7.24	0.08	0.00	10.00
Financial Strain**	2.02	0.04	1.00	5.00
Self-report of health	3.68	0.04	1.00	5.00
Bequest likelihood	59.52	1.58	0.00	100.00

* The Taylor series method (Wolter, 1985) was employed to incorporate the HRS's weighting and
complex sampling design information. N of 844. The weighted sample represents 5,987,615 pre-retirees
aged 50 to 70.

** Utilized 2008 and 2010 data from the Leave-Behind Psychosocial and Lifestyle Questionnaire (Smith
et al., 2013).

The majority of the sample was from the Midwest (29%) and South (31%) regions of the U.S., married (66%), White (88%), possessed at least some college education or beyond (68%), and reported they were working (97%). Additionally, just over half of the sample was male (54%). The average age of the sample was 58.51 within a range of 54 to 70. Although the sample was inclusive of respondents age 50 to 70, there were no respondents under the age of 54 within the final analytic sample. Respondents reported mostly positive views of their health, with an average self-reported health score of 3.68 on a one to five scale.

In terms of financial characteristics, the majority of the sample had annual income of $50,000 or more (73%), had accumulated a net worth of $100,000 or more (71%), owned a home (88%), held a mortgage (58%), did not possess forms of debt other than a mortgage (54%), and did not hold stocks or stock mutual funds outside of retirement accounts (74%). The sample was split almost evenly when it comes to having IRA or Keogh accounts, with 53% not holding these types of accounts and 47% indicating they did. Moreover, 69% of the sample had not established an adequate emergency fund of three months or more, indicating a majority of the sample did not have sufficient cash on hand to cover short-term unexpected needs. The presence of perceived financial strain was relatively low across the sample with an average financial strain score of 2.02 on a one to five scale. Respondents also exhibited high financial self-efficacy beliefs, with an average score of 7.24 on a zero to ten scale. From 2008 to 2012, respondents reported an average change in net worth of $11,941 (range = -$4,469,164 to $7,085,000).

When it comes to motivational factors for saving, the average likelihood of leaving a bequest was 60% on a 0% to 100% scale. Additionally, just under half of the sample (47%) reported at least one parent was still living, which was utilized as a proxy for inheritance expectations. The majority of the sample indicated that they currently did not smoke (87%),

which served as a proxy for future time perspective. Thus, the lack of smoking behavior suggested the majority of the sample held a longer future time perspective. Despite this longer future time perspective, most of the sample had not yet reported a future retirement date (81%), which indicated there was a significant amount of uncertainty regarding future retirement plans within the sample.

OLS Regression Results

Table 3.6 provides a summary of the OLS regression model results. In support of hypothesis one, results revealed that an older pre-retiree's financial self-efficacy beliefs, as measured using combined 2008 and 2010 data, were significantly and positively associated with saving behavior from 2008 to 2012. More specifically, for every one-unit increase in financial self-efficacy beliefs, the change in net worth between 2008 and 2012 increased by 5.13%[2], holding all else constant *(b = 0.05)*.

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[2] Equation for the interpretation of parameters with a natural logarithmic transformed dependent variable: Percentage change in Y for every one-unit change in $X = (e^b - 1) * 100$, where b is the regression coefficient (Benoit, 2011; Harness et al., 2009).

Table 3.6 Regression Results Predicting Saving Behavior (Change in Net Worth from 2008 to 2012, N = 844)

Variable	B	SE B
Intercept	4.43***	1.09
Age	0.01	0.01
Female gender (Male)	0.07	0.09
Married (Single)	0.23*	0.09
Race (white)		
Black	-0.35	0.20
Other	-0.09	0.23
Education (college graduate)		
Less than high school	-1.07**	0.35
High school	-0.08	0.08
Some college	-0.14	0.09
Census region (Northeast)		
Midwest	-0.16	0.10
South	-0.23*	0.10
West	-0.23*	0.11
Working	-0.01	0.38
2008 log income	0.11*	0.05
2008 log net worth	-0.51***	0.06
Homeownership and Mtg (Mtg holding homeowner)		
Homeowner without a mortgage	0.13	0.08
Non Homeowner	-0.45*	0.18
Other debt	-0.07	0.08
Stocks/Mutual funds	0.13	0.09
IRA/Keogh plan	0.26**	0.08
Financial strain	-0.17**	0.06
Self-reported health	-0.04	0.05
Emergency fund ratio	0.34***	0.07
Currently smoke	0.18	0.12
Bequest motive	0.003*	0.00
Inheritance motive	0.10	0.08
Retirement goal clarity	0.02	0.08
Financial self-efficacy beliefs	0.05*	0.02
Adjusted R^2		0.29

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

Additionally, results revealed socio-demographic characteristics were associated with the change in net worth over the 2008 to 2012 time period. Holding all else constant, being married in 2008 was associated with a 25.86% higher change in net worth than single individuals *(b = 0.23)*. This finding is in concert with existing literature that indicated married households were more likely to exhibit positive behaviors related to cash flow and savings (Hogarth et al., 2003). As expected, respondents with a less than high school education were associated with a lower change in net worth from 2008 to 2012 as compared to college graduates, holding all else constant *(b = -1.07)* (Wakita et al., 2000). Census region was important to the model with those from the South *(b = -0.23)* and West *(b = -0.23)* regions of the U.S. (as compared to the Northeast region) associated with a lower change in net worth from 2008 to 2012, holding all else constant.

Financial factors were also significantly associated with change in net worth from 2008 to 2012. Consistent with existing literature (Fisher & Montalto, 2011), a higher reported income in 2008 was associated with a higher subsequent change in net worth *(b = 0.11)*. Specifically, a 10% increase in income in 2008 was associated with a 1.05%[3] increase in the change in net worth from 2008 to 2012, holding all else constant. Net worth in 2008 was negatively associated with a subsequent change in net worth *(b = -0.51)*, which aligned with existing literature with a similar natural logarithmic transformation of net worth as an independent variable and change in net worth as a dependent variable (Chatterjee et al., 2011). As expected, non-homeowners were

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[3] Equations for the interpretation of parameters of natural logarithmic transformed independent variables with a natural logarithmic transformed dependent variable (Benoit, 2011; Harness et al., 2009):

a = ln [(100 + *p*)/100], where *p* = percentage increase associated with the independent variable.

Percent change in $Y = [(e^{a*b}) - 1] * 100$, for every *p* change in X, where *b* = regression coefficient.

associated with a lower change in net worth than mortgage holding homeowners, holding all else constant *(b = -0.45)* (Fisher & Montalto, 2010). Moreover, in concert with existing literature (Hubbard, 1984), respondents who reported they held IRA or Keogh accounts in 2008 were associated with higher changes in net worth from 2008 to 2012, holding all else constant *(b = 0.26)*. Perceived financial strain, using combined 2008 and 2010 data, also demonstrated a negative association with change in net worth from 2008 to 2012, holding all else constant *(b = -0.17)*, as expected (Loibl et al., 2011).

Lastly, two significant motivational factors were revealed and aligned with existing literature. Holding all else constant, respondents with a higher likelihood of leaving a bequest in 2008 were associated with a higher change in net worth from 2008 to 2012 *(b = 0.003)* (Dynan et al., 2002). Additionally, those that had an adequate emergency fund in 2008 were associated with a higher change in net worth from 2008 to 2012, holding all else constant *(b = 0.34)* (DeVaney et al., 2007; Fisher & Montalto, 2010).

Discussion

The purpose of this study was to investigate the relationship between financial self-efficacy beliefs and the saving behavior of older pre-retirees. Older pre-retirees' life cycle stage indicates they are motivated to save given their proximity to retirement. Moreover, older pre-retirees appear to have the financial resources and decision-making ability to make significant progress in preparing financially for their future. With an increased temptation to spend associated with peak earning levels, it is possible that saving for retirement in the later years continues to require a significant amount of self-control in order to overcome the psychological costs associated with forgoing consumption (Shefrin & Thaler, 1988). The Social Cognitive Theory of Self-Regulation states that domain specific self-efficacy beliefs significantly affect the

101

self-regulatory process and are influential in achieving desired behavioral outcomes (Bandura, 1991).

Results of this study provide support for the Social Cognitive Theory of Self-Regulation and the hypothesis that financial self-efficacy beliefs are important to saving behavior within a population that is motivated and able to save. Higher financial self-efficacy beliefs, as measured in 2008 and 2010, were associated with a higher change in net worth over the 2008 to 2012 time period. That is, for every one-unit increase in financial self-efficacy beliefs, the change in net worth between 2008 and 2012 increased by 5.13% for older pre-retirees, holding all else constant. While the effect size (i.e., 5.13%) is small compared to other relationships within the model (e.g., education status), it is similar to and slightly larger than the effect size found in a younger sample utilizing a general measure of self-efficacy beliefs (Chatterjee et al., 2011).

Chatterjee et al. (2011) used a similar measure of saving behavior (i.e., natural logarithmic change in net worth) and found that for every one-unit increase in general self-efficacy beliefs, change in net worth increased by 2.74% *(b = .027)* for younger pre-retirees. The larger effect size (i.e., 5.13%) in the current study may be due to the domain specific measure of self-efficacy (i.e., financial self-efficacy), or potentially the different population of interest (i.e., older pre-retirees). Overall, self-efficacy beliefs increase the understanding of saving behavior for both young and older populations; however, more research is needed to further understand the lower effect size for both groups. The Social Cognitive Theory of Self-Regulation suggests a larger effect size might be observed. It may be that socio-demographic, financial, and motivating factors affect the ability to save more than self-efficacy beliefs. Nonetheless, after controlling for the ability and motivation to save, financial self-efficacy beliefs demonstrated a positive association with saving behavior. Overall, this study builds upon the existing literature by

establishing a connection between domain specific *financial* self-efficacy beliefs and the saving behavior of older pre-retirees.

Results of this study also provide support for the notion that addressing financial planning fundamentals remains important for older pre-retirees. Respondents with an adequate emergency fund in 2008, defined as a cash cushion of three months or more, were associated with a 40.49% increase in the change in net worth over the 2008 to 2012 time period. This result supports the notion that an appropriate cash cushion can help individuals weather financial difficulties that may arise and stay the course. Moreover, the perception of financial strain continues to demonstrate a negative relationship with saving behavior, as has been established within the existing literature (Loibl et al., 2011). Other effects associated with asset composition aligned with existing literature. For example, the presence of IRA and Keogh plans was associated with a higher change in net worth (Hubbard, 1984). When it comes to motivating forces, bequest motives in 2008 significantly predicted change in net worth over the 2008 to 2012 time period; however, in concert with existing literature, the effect size of a bequest motive within the current study was small (Dynan et al., 2002).

Limitations

There are notable limitations to the current study. First, it is important to note that the Great Recession occurred during the time period of variable measurement, which caused significant financial losses, distress, and worry amongst American households. For some people, the financial losses were permanent due to reactionary selling of investments prior to the market recovery (Hurd & Rohwedder, 2010). With the significant amount of investment related volatility affecting net worth levels during this time period, it may be difficult to effectively isolate saving behavior. Moreover, financial self-efficacy beliefs were measured based upon a

single item scale from two separate time periods (2008 and 2010). Existing research suggests financial self-efficacy beliefs are a multi-faceted construct, however, only a single item scale was available in the HRS (Lown, 2011). Also, it is possible the Great Recession, which primarily occurred in 2008 and 2009, could have influenced respondent's financial self-efficacy belief levels based upon the timing of the interviews. Lastly, longitudinal research is needed to better understand how financial self-efficacy beliefs shape saving behavior over time.

Implications and Conclusion

The lack of financial preparedness for retirement and the concern about financial matters displayed by older pre-retirees suggests that saving may still be difficult even when the motivation and ability to save are present (Gallup, 2014; Helman et al., 2012; Munnell et al., 2012). The primary implication from this study is that financial self-efficacy beliefs are an important aspect of personal control in the years preceding retirement when income peaks and competing demands on that income (save vs. spend) intensify (Shefrin & Thaler, 1988). Thus, it is useful for financial and mental health professionals to assist older pre-retirees in cultivating self-efficacy beliefs specifically about their financial situation in order to support the saving behavior necessary to prepare for retirement.

The Social Cognitive Theory of Self-Regulation indicates higher self-efficacy beliefs positively influence self-regulation in ways that are relevant to the financial planning process. First, goal setting is an essential element of financial planning and individuals with higher self-efficacy beliefs tend to establish aspirational goals and persevere towards them when confronted with difficulties (Bandura, 1991). A saving goal creates a situation that is psychologically challenging because it requires individuals to forego current consumption (Shefrin & Thaler, 1988). While older pre-retirees are close to retirement and motivated to a certain extent by

104

proximity, they also tend to experience their highest level of lifetime earnings, which creates a simultaneous competing temptation to spend (Shefrin & Thaler). Higher financial self-efficacy beliefs may help older pre-retirees overcome the mental cost associated with foregoing consumption and deflect the increased temptation to spend current income, thereby promoting persistent progress towards the targeted saving goal.

Second, those with high self-efficacy beliefs handle failures constructively such that they are less susceptible to stress, anxiety, and depression as a result (Bandura, 1991). Thus, higher financial self-efficacy beliefs may help individuals better manage financial-related stress resulting from failures that occur within the financial planning process. This is important, as research has shown that financial fear and worry can undermine saving behavior, even in the presence of strong financial goals and motivating forces (Neukam & Hershey, 2003).

In summary, this study builds upon the existing literature by establishing a link between financial self-efficacy beliefs and the saving behavior of older pre-retirees. Financial self-efficacy beliefs appear to be the weakest and most vulnerable to decline for older American adults when compared to self-efficacy beliefs in other life domains (McAvay et al., 1996). Consequently, older pre-retirees may benefit from future research focused on the factors that shape and sustain financial self-efficacy beliefs.

References

Agarwal, S., Driscoll, J. C., Gabaix, X., & Laibson, D. (2009). The age of reason: Financial

    decisions over the life cycle and implications for regulation. *Brookings Papers on*

    Economic Activity: 51-101.

Amromin, G., & Smith, P. (2003). What explains early withdrawals from retirement accounts?

    Evidence from a panel of taxpayers. *National Tax Journal*, 595-612.

Ando, A., & Modigliani, F. (1963). The 'life cycle' hypothesis of saving: Aggregate implications

    and tests. *The American Economic Review, 53*(1), 55-84.

Attanasio, O. P. (1993). A cohort analysis of saving behavior by US households (No. w4454).

    National Bureau of Economic Research.

Bae, M., Hanna, S., & Lindamood, S. (1993). Patterns of overspending in US households.

    Journal of Financial Counseling and Planning, 4(1), l-30.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.*

    Englewood Cliffs, NJ: Prentice-Hall, Inc.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and*

    Human Decision Processes, 50(2), 248-287.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and

    Company.

Bassett, W. F., Fleming, M. J., Rodrigues, A. P. (1998). How workers use 401(k) plans: The

    participation, contribution, and withdrawal decisions, *National Tax Journal*, 51(2), 263-

    289.

Benoit, K. (2011). *Linear regression models with logarithmic transformations.* Methodology

    Institute, London School of Economics. Retrieved from:

    http://www.kenbenoit.net/courses/ME104/logmodels2.pdf

Bernheim, B. D., Skinner, J., & Weinberg, S. (1997). What accounts for the variation in

    retirement wealth among US households? *National Bureau of Economic Research*.

    Working paper No. 6227, 1-62.

Binswanger, J., & Carman, K. G. (2012). How real people make long-term decisions: The case

    of retirement preparation. *Journal of Economic Behavior & Organization*, *81*(1), 39-60.

Bryant, W. K., & Zick, C. D. (2006). *The economic organization of the household*, New York,

    NY: Cambridge University Press.

Campbell, J. Y. (2006). Household finance. *Journal of Finance, 61*, 1553-1604.

Chatterjee, S., Finke, M., & Harness, N. (2011). The impact of self-efficacy on wealth

    accumulation and portfolio choice. *Applied Economics Letters, 18*(7), 627-631.

Cordes, J. J. (1990). Socio-economic perspectives on household saving behavior. *Journal of

    Behavioral Economics*, *19*(3), 273-284.

Dalton, M. A., Dalton, J. F., Cangelosi, R. R., Guttery, R. S. (2014). *Personal financial

    planning: Theory and practice, 8th edition*. St. Rose, LA: Kaplan Schweser.

da Matta, A., Gonçalves, F. L., & Bizarro, L. (2012). Delay discounting: Concepts and measures.

    Psychology & Neuroscience, 5(2), 135-146.

DeVaney, S. A., Anong, S. T., Whirl, S. E. (2007). Household savings motives. *The Journal of

    Consumer Affairs, 41*(1), 174-186.

DeVaney, S. A., & Chiremba, S. (2005). *Comparing the retirement savings of the baby boomers

    and other cohorts*. US Department of Labor, Bureau of Labor Statistics.

DeVaney, S. A., & Zhang, T. C. (2001). A cohort analysis of the amount in defined contribution

    and individual retirement accounts. *Financial Counseling and Planning*, *12*(1), 89-104.

Dynan, K. E., Skinner, J., & Zeldes, S. P. (2002). The importance of bequests and life-cycle saving in capital accumulation: A new answer. *The American Economic Review, 92*(2), 274-278.

Elder, G. H. (1998). The life course as developmental theory. *Child Development, 69*(1), 1-12.

Fisher, P. J., & Montalto, C. P. (2010). Effect of saving motives and horizon on saving behaviors. *Journal of Economic Psychology*, *31*(1), 92-105.

Fisher, P. J., & Montalto, C. P. (2011). Loss aversion and saving behavior: Evidence from the 2007 US Survey of Consumer Finances. *Journal of Family and Economic Issues, 32*(1), 4-14.

Fitzsimmons, V. S., & Leach, L. J. (1994). Net Worth Change: Beginning and Expanding Life Cycle Stages. *Journal of Financial Counseling and Planning*, 5(1). 1-19.

Fleck, C. (2009). *Is retirement even possible? Millions of people age 70+ are still on the job.* AARP Bulletin. Retrieved from: http://www.aarp.org/work/working-after-retirement/info-08-2009/no_rest_for_the_weary.html

Gallup. (2014). *Retirement remains Americans' top financial worry*. Retrieved from: http://www.gallup.com/poll/168626/retirement-remains-americans-top-financial-worry.aspx

Glass Jr, J. C., & Kilpatrick, B. B. (1998). Gender comparisons of baby boomers and financial preparation for retirement. *Educational Gerontology: An International Quarterly, 24*(8), 719-745.

Grable, J. E., & Lytton, R. H. (1997). Determinants of retirement savings plan participation: A discriminant analysis. *Personal Finances and Worker Productivity, 1*(1), 184-189.

Harness, N. J., Finke, M. S., & Chatterjee, S. (2009). The effects of the capital accumulation ratio on wealth. *Journal of Financial Counseling and Planning, 20*(1), 44-57.

Heeringa, S. G., & Conner, J. H. (1995, May). Technical description of the Health and Retirement Survey sample design. *Institute for Social Research: University of Michigan Survey Research Center*. Retrieved from http:// hrsonline.isr.umich.edu/sitedocs/userg/HRSSAMP.pdf

Helman, R., Copeland, C., & VanDerhei, J. (2012). The 2012 retirement confidence survey: Job insecurity, debt weigh on retirement confidence, savings. *EBRI Issue Brief*, 369, 1-32.

Hershey, D. A., Jacobs-Lawson, J. M., McArdle, J. J., & Hamagami, F. (2007). Psychological foundations of financial planning for retirement. *Journal of Adult Development, 14*(1-2), 26-36.

Hogarth, J. M., Beverly, S. G., & Hilgert, M. (2003). Patterns of financial behaviors: Implications for community educators and policy makers. *Federal Reserve System Community Affairs Research Conference*.

Hubbard, R. G. (1984). Do IRAs and Keoghs Increase Saving?. *National Tax Journal*, 43-54.

Hurd, M. D., & Rohwedder, S. (2010). Effects of the financial crisis and great recession on American households (No. w16407). *National Bureau of Economic Research.*

Jacobs-Lawson, J. M., & Hershey, D. A. (2005). Influence of future time perspective, financial knowledge, and financial risk tolerance on retirement saving behaviors. *Financial Services Review, 14*(4), 331.

Judge, G. G., Hill, R. C., Griffiths, W. E., Lutkepohl, H., & Lee, T. S. (1982). *Introduction to the theory and practice of econometrics*. New York: John Wiley.

Loibl, C., Kraybill, D. S., & DeMay, S. W. (2011). Accounting for the role of habit in regular saving. *Journal of Economic Psychology, 32*(4), 581-592.

Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counseling and Planning*, *22*(2), 54-63.

Lunt, P. K., & Livingstone, S. M. (1991). Psychological, social and economic determinants of saving: Comparing recurrent and total savings. *Journal of Economic Psychology, 12*(4), 621-641.

Lusardi, A. (2000). *Precautionary saving and the accumulation of wealth*. Irving B. Harris Graduate School of Public Policy Studies, University of Chicago.

Lusardi, A. (2001). Explaining why so many people do not save. *Center for Retirement Research Working Paper*, 2001(5),1-42.

Lusardi, A. (2002). Preparing for retirement: The importance of planning costs. In *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, National Tax Association, 148-154.

Lusardi, A., & Mitchell, O. S. (2006). Baby boomer retirement security: The roles of planning, financial literacy, and housing wealth. *University of Michigan Retirement Research Center*, *2006*(114), 1-37.

McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self-efficacy among older adults. *Journal of Gereontology, 51B*(5), 243-253.

Munnell, A. H. (2011). What is the average retirement age?. *Center for Retirement Research*.

Munnell, A. H. (2013). Social security's real retirement age is 70. *Center for Retirement Research*

Munnell, A. H., Webb, A., & Golub-Sass, F. (2012). The National Retirement Risk Index: An Update. *Center for Retirement Research at Boston College*, 1 1-9.

Neukam, K. A., & Hershey, D. A. (2003). Financial inhibition, financial activation, and saving for retirement. *Financial Services Review, 12*(1), 19-37.

Nielsen, R. B., & Seay, M. C. (2014). Complex samples and regression-based inference: Considerations for consumer researchers. *Journal of Consumer Affairs*, 1-17.

Palmer, H. (1961). *A fish out of water*. New York, NY: Random House, Inc.

Pence, K. M. (2006). The role of wealth transformations: An application to estimating the effect of tax incentives on saving. *Contributions to Economic Analysis & Policy, 5*(1), No. 20, 1-24.

Prawitz, A. D., Garman, E. T., Sorhaindo, B., O'Neill, B., Kim, J., & Drentea, P. (2006). InCharge financial distress/financial well-being scale: Development, administration, and score interpretation. *Journal of Financial Counseling and Planning*, *17*(1). 34-50.

RAND Center for the Study of Aging. (2014). *RAND HRS data documentation, Version N*. Santa Monica, CA: RAND.

Rabinovich, A., & Webley, P. (2007). Filling the gap between planning and doing: Psychological factors involved in the successful implementation of saving intention. *Journal of Economic Psychology, 28*(4), 444-461.

Rha, J. Y., Montalto, C. P., & Hanna, S. D. (2006). The effect of self-control mechanisms on household saving behavior. *Journal of Financial Counseling & Planning*, 17(2), 3-16.

Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*, 26(4), 609.

Shim, S., Serido, J., & Tang, C. (2012). The ant and the grasshopper revisited: The present

    psychological benefits of saving and future oriented financial behaviors. *Journal of*

    Economic Psychology, 33(1), 155-165.

Smith, J., Fisher, G., Ryan, L., Clarke, P., House, J., Weir, D. (2013). *Psychosocial and Lifestyle*

    Questionnaire 2006 – 2010. Ann Arbor, MI: University of Michigan Institute for Social

    Research, Survey Research Center.

U.S. Census Bureau. (2013). *Webinar on 2012 income, poverty and health insurance estimates*

    from the current population survey. Retrieved from:

    http://www.census.gov/newsroom/releases/pdf/20130917_ip_remarks.pdf

U.S. Department of Commerce. (2015). *News release: Personal income and outlays*. Retrieved

    from: http://www.bea.gov/newsreleases/national/pi/pinewsrelease.htm

Wakita, S., Fitzsimmons, V. S., & Liao, T. F. (2000). Wealth: Determinants of savings net worth

    and housing net worth of pre-retired households. *Journal of Family and Economic Issues,*

    21(4), 387-418.

Wärneryd, K. E. (1989). On the psychology of saving: An essay on economic behavior. *Journal*

    of Economic Psychology, 10(4), 515-541.

Wolter, K. M. (1985). *Introduction to variance estimation*. New York, NY: Springer.

Chapter 4 - From Personality to Saving Behavior: Bridging the Gap

Introduction

Integrating psychological concepts with saving behavior research has become increasingly important with the rise of behavioral finance and the recognition that consumers do not always make rational financial decisions (Mullainathan & Thaler, 2000). Saving discretionary income is considered a rational behavior undertaken by older pre-retirees to obtain financial security for the rapidly approaching golden years (Ando & Modigliani, 1963); however, financial preparedness for retirement is consistently identified as a problem, suggesting that actual behavior may deviate from rational expectations (Gallup, 2014; Helman, Copeland, & VanDerhei, 2012; Munnell, Webb, & Golub-Sass, 2012). From a life cycle perspective, this is somewhat surprising since older pre-retirees would appear to be motivated and able to close the saving gap given their proximity to retirement and peak lifetime earnings (da Matta, Goncalves, & Bizarro, 2012; Shefrin & Thaler, 1988; U.S. Census Bureau, 2013). The consistent concern expressed by older pre-retirees about financial preparedness for retirement suggests that the act of saving for the future is psychologically challenging, even when the ability and motivation to save are present (Gallup, 2014). Consequently, this study is focused on how older pre-retirees' psychological characteristics are associated with saving behavior in the years leading up to retirement.

Psychological characteristics are conceptualized as elements within an individual's personality schema that vary from abstract traits to narrow characteristics that surface as observable behaviors (Mowen, 2000). Historically, researchers have focused on narrowly defined traits, as they tend to be more predictive of consumer behavior; however, Mowen suggested that the combination of broad and narrow psychological characteristics account for

more variation in predicting consumer behavior than narrow traits alone. A variety of psychological characteristics have been connected to saving behavior; however, studies have rarely systematically investigated these constructs simultaneously to determine how broad traits combine with more specific traits to support saving behavior. This approach allows researchers to identify the broader network of relationships between psychological constructs and the potential for mediating roles. Moreover, of the psychological characteristics associated with human behavior, "…none is more central or pervasive than people's judgments of their capabilities to deal effectively with different realities" (Bandura, 1986, p. 21). These *self-efficacy* beliefs are critical to the act of saving as a self-regulating behavior (Bandura, 1991). Existing research suggests that these beliefs may serve a mediating role between broader psychological characteristics and saving behavior. The mediating role of financial self-efficacy beliefs has not yet been tested within the saving behavior literature and was further investigated within this study.

Given this backdrop, the purpose of this study was to investigate the relationship amongst the psychological elements of an individual's personality and to determine how these elements are related to the saving behavior of older pre-retirees. Through the lens of the 3M Model of Motivation and Personality (Mowen, 2000), this study investigated the following research questions: (a) How do psychological characteristics combine to shape the saving behavior of older pre-retirees? (b) Do financial self-efficacy beliefs mediate the relationship between broader psychological characteristics and saving behavior?

The 3M Model of Motivation and Personality

Psychological characteristics are connected to saving behavior through the Meta-Theoretic Model of Motivation and Personality (3M) (Mowen, 2000). As depicted in Figure 4.1,

the 3M posits that consumer behavior can be explained through the following hierarchy of traits, ranging from abstract personality characteristics to concrete behavioral dispositions (Mowen, 2000): (a) Elemental traits, (b) Compound traits, (c) Situational traits, and (d) Surface traits. The 3M indicates that each trait level is connected to surface level traits (e.g., saving behavior), with situational traits exhibiting the strongest association given their adjacent location to surface traits within the hierarchy. Moreover, with compound traits and situational traits in the middle of the hierarchy, it is possible for full or partial mediation to occur.

Figure 4.1 3M Hierarchical Personality Structure, adapted from Mowen (2000).

Elemental Traits

↓

Compound Traits

↓

Situational Traits

↓

Surface Traits
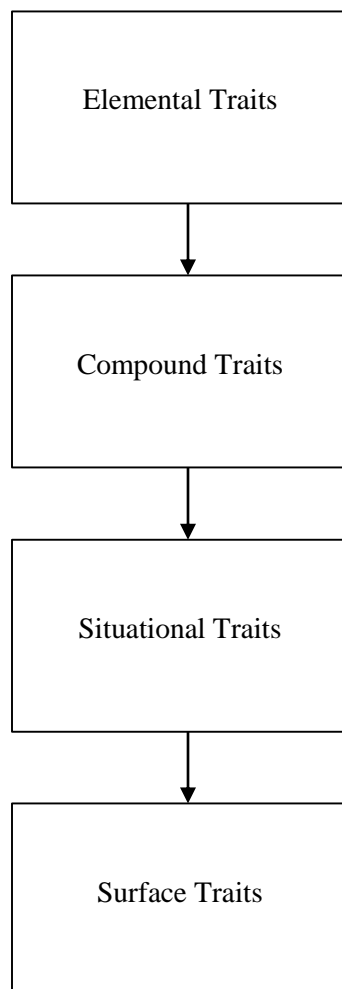
Elemental traits provide a broad foundation for more specific psychological characteristics and are defined as the "…basic, underlying predispositions of individuals that arise from genetics and a person's early learning history" (Mowen, 2000, p. 20). Compound traits are narrower in scope than elemental traits and are applicable in a variety of situational contexts. Compound traits are defined as unidimensional dispositions resulting from a combination of the elemental traits, one's learning history, and cultural perspective (Mowen, 2000). Compound traits, elemental traits, and situational forces combine to form situational traits. Situational traits are defined as the "unidimensional predispositions to behave within a general situational context," such as the health, financial, or social environments (Mowen, 2000, p. 21). Lastly, surface traits are the most concrete and observable traits in the 3M, and are defined as the "enduring tendency of consumers to behave with respect to a product category or behavioral domain" (Mowen, 2000, p. 23). Domain specific behaviors, such as saving behavior, lie at the surface trait level.

Literature Review

As a surface level trait, saving behavior can be explained by the underlying psychological characteristics at the elemental, compound, and situational trait levels. Thus, this literature review explores the psychological characteristics associated with saving behavior through the lens of the 3M personality framework. Additionally, basic socio-demographic and financial correlates of saving behavior are reviewed.

Elemental Traits

According to the 3M, elemental traits include the following *Big Five* personality traits (Mowen, 2000): (a) Openness to experience, (b) Conscientiousness, (c) Extroversion, (d) Agreeableness, and (e) Neuroticism (Costa & McCrae, 1992). Each of the Big Five traits have

been linked to financial behavior and financial characteristics, but not all traits have been

connected specifically to saving behavior.

First, open individuals tend to be curious, consider unique ideas, entertain unconventional

values, experience positive and negative emotions more acutely than others, and value life

experiences (Costa & McCrae, 1992). Openness has been associated with the intent to engage in

long-term saving and investing behavior within a sample of 194 undergraduate college students

(Mayfield, Perdue, & Wooten, 2008). While older pre-retirees' financial experience is more

extensive than that of undergraduate college students, having an open and broadened mindset

may assist older pre-retirees in exploring and accepting alternative financial scenarios for

retirement (Fredrickson, 2004). This may lead to clarity about retirement goals, which has been

shown to encourage participation in retirement planning activities and saving behavior (Stawski,

Hershey, & Jacobs-Lawson, 2007).

Second, conscientious individuals exhibit purpose, a strong will, and determination

(Costa & McCrae, 1992). These characteristics are demonstrated through active engagement in

planning, organizing, and executing tasks, which promote successful outcomes (Costa &

McCrae, 1992). Conscientiousness has been found to have a positive relationship with a longer

future time perspective, thereby supporting positive retirement planning and saving behavior

(Hershey & Mowen, 2000). Additionally, Nabeshima and Seay (2015) found that the

conscientiousness trait was positively associated with higher net worth levels of older American

adults. Moreover, Mowen and Spears (1999) found low levels of conscientiousness to be

associated with increased compulsive buying behavior amongst a sample of college students.

Thus, conscientious individuals' enduring and purposeful disposition to set goals, follow through

with tasks, and succeed in their endeavors indicates a positive relationship may exist between the conscientiousness personality trait and saving behavior of older pre-retirees.

Third, extraverted individuals are sociable, energetic, upbeat, cheerful, enjoy excitement, are optimistic, and prefer to be with people (Costa & McCrae, 1992). Nabeshima and Seay (2015) found extroversion to be positively associated with current net worth levels in older American adults, although the direction of the relationship was not tested. With a causal connection from happiness to saving behavior established within the literature (Guven, 2012), it is possible that the proclivity of extroverted individuals to experience positive emotions may support saving behavior.

Fourth, an agreeable individual is altruistic, sympathetic, cooperative, eager to help others, and believes others will equally reciprocate their goodwill (Costa & McCrae, 1992). While agreeableness may promote positive outcomes in certain life domains, such as relationships, it has been shown to have negative ramifications in the financial domain. For example, older American adults with higher levels of the agreeableness trait reported lower net worth levels (Nabeshima & Seay, 2015). Moreover, Mowen and Spears (1999) found high levels of agreeableness to be associated with increased compulsive buying behavior within a sample of college students. Agreeable individuals are less likely to protect their own interests (Costa & McCrae, 1992), and therefore may be more likely to assist others financially for the sake of their own financial goals. Older pre-retirees experience increased income levels compared to prior earning years (U.S. Census Bureau, 2013). The temptation to spend this income on others as opposed to save for retirement may be stronger for older pre-retirees with higher levels of the agreeableness trait. Thus, agreeableness may have a negative relationship with the saving behavior of older pre-retirees.

Fifth, neurotic individuals demonstrate an enduring disposition to express negative

emotions such as fear, sadness, embarrassment, anger, guilt, and disgust (Costa & McCrae,

1992). Individuals who score low on the neuroticism trait are typically "…calm, even-tempered,

and relaxed, and they are able to face stressful situations without becoming upset or rattled" (p.

15). Mowen and Spears (1999) found that higher levels of emotional stability (i.e., the opposite

of neuroticism) were associated with lower levels of compulsive buying behavior amongst a

sample of college students. Thus, neuroticism may demonstrate a negative relationship with the

saving behavior of older pre-retirees.

Compound Traits

Elemental traits combine to form more specific compound traits that guide behavior

within a variety of situational contexts. Numerous compound traits exist and, as Mowen (2000)

stated, the researcher must use judgment in selecting which compound traits to investigate for a

particular behavior. Based upon existing literature, the following psychological characteristics

were investigated at the compound trait level: (a) Positive affect, (b) Negative affect, (c) Task

orientation, and (d) Mastery.

Positive Affect

Positive affect encompasses the positive emotional dimension and is defined as the

experience of positive emotional states, such as happiness, joy, excitement, contentment, and

hopefulness (Watson & Clark, 1999). The relationship between positive emotions and money is

complex with existing research focused on how happiness or life satisfaction is derived from

financial resources (Diener & Biswas-Diener, 2002; Dunn, Gilbert, & Wilson, 2011; Headey,

Muffels, & Wooden, 2008; Roszkowski & Grable, 2007). Of interest to this study are the

findings that indicate positive emotions support one's ability to earn income, succeed at work,

exert willpower and self-control, and enhance feelings of self-efficacy (Bandura, 1997;

Lyubomirsky, King, & Diener, 2005). This suggests that feelings of positive affect may assist

individuals in overcoming the temptation to spend, thereby supporting the increase of financial

resources through the successful execution of saving behavior. Guven (2012) provided empirical

support for this connection within a sample of Dutch households. Guven found that happier

people were more likely to save money, to express positive views about saving, to have a

preference for the future, were more in control of and disciplined with their expenditures, were

less likely to be in debt, took more time before making decisions, and were more optimistic

about future prices and personal longevity. Thus, the extent to which older pre-retirees

experience positive emotions may support their saving efforts in the years preceding retirement.

Negative Affect

Negative affect encompasses the negative emotional dimension and is defined as the

experience of negative emotional states, such as fear, stress, anger, and guilt (Watson & Clark,

1999). Negative affective states have been shown to undermine saving behavior. In an American

sample age 25 to 45, higher levels of financial fear were negatively associated with saving for

retirement (Neukam & Hershey, 2003). Moreover, Neukam and Hershey (2003) found that the

positive saving practices of those with strong financial goals were dependent upon their level of

financial fear, with higher levels of fear thwarting positive saving practices. Similarly, pre-

retirees with a high planning drive decreased their saving for retirement as a result of increased

levels of financial worry (Neukam & Hershey, 2003). Interestingly, when motivational factors

were not present (i.e., low planning drive and low goal strength), the saving practices of pre-

retirees were unaffected by financial fear and worry (Neukam & Hershey, 2003).

The findings from Neukam and Hershey (2003) indicate that older pre-retirees who experience fear and worry about their financial future may have a more difficult time saving for it, despite their motivation and ability to save. Moreover, older pre-retirees' saving plans may be highly susceptible to the damaging effects of negative emotional states because of their motivation to save due to retirement proximity. Thus, the extent to which older pre-retirees experience negative affective states may explain variability in their saving behavior.

Task Orientation

Task orientation is defined as the tendency of individuals to establish future oriented goals and to actively complete the tasks necessary to achieve them (Mowen, 2000). Task orientation is a trait proposed by Mowen (2000) that meets the psychometric requirements of a compound trait within the 3M, and that is useful in explaining consumer behavior. According to Mowen, task orientation includes the following individual attributes: (a) Has a long-term goal orientation, (b) Establishes task deadlines, (c) Establishes future oriented goals, and (d) Has a positive approach to and valuation of tasks. The relationship between saving behavior and a person's disposition towards goal setting and follow through has not been tested within the literature. However, Mowen indicated that task orientation was a significant predictor of impulsive consumption behavior, suggesting that a stronger task orientation can help protect against harmful financial behaviors. Moreover, task orientation is closely related to the conscientiousness trait, which has been shown to have a positive relationship with healthy financial behaviors and characteristics (Hershey & Mowen, 2000; Mowen & Spears, 1999; Nabeshima & Seay, 2015). Thus, an older pre-retiree's disposition towards establishing future oriented goals and following through with the tasks necessary to achieve them, may explain individual differences in saving behavior.

Mastery

Mastery is defined as the confidence in one's general ability to succeed as a result of successful and challenging outcomes experienced throughout life (Bandura, 1997). Mowen (2000) indicated that this sense of mastery is an important motivating factor guiding behavior at the compound trait level. Older pre-retirees have an extensive money history involving both successes and failures that may influence their general perceived mastery level. The Pearlin Mastery Scale (Pearlin & Schooler, 1978) has been widely utilized to operationalize perceived mastery and has been shown to have a positive relationship with the saving behavior of young pre-retirees entering the wealth accumulation phase (Chatterjee, Finke, & Harness, 2011). Given this connection, this study will investigate if perceived mastery at the compound trait level is also positively associated with the saving behavior of older pre-retirees.

Situational Traits

Situational traits arise from the combination of elemental and compound traits that are shaped by situational forces. Consequently, situational traits are unique to each separate life domain (e.g., relationships, health, financial, etc.) and result from basic personality differences and narrow psychological attributes. Mowen (2000) stated that domain specific self-efficacy beliefs are an example of a situational trait within the 3M model. Self-efficacy beliefs are defined as the belief in one's ability to influence the courses of action and outcomes required to successfully achieve stated goals and objectives (Bandura, 1997). Bandura (1991) suggested that self-efficacy beliefs are critical to the effective execution of self-regulatory behavior, such as saving behavior (Bandura, 1991). With saving behavior (i.e., the outcome variable at the surface trait level) falling within the financial domain, it follows that *financial* self-efficacy beliefs would serve a critical role in shaping saving behavior. Thus, financial self-efficacy beliefs were

included as a situational trait within the model. Research investigating the connection between financial self-efficacy beliefs and saving behavior has been limited to young pre-retirees and non-domain specific self-efficacy proxies (Chatterjee et. al., 2011; Shim, Serido, & Tang, 2012). This study builds upon the literature by investigating how financial self-efficacy beliefs are related to the saving behavior of older pre-retirees.

Mediating Relationships within the 3M

A mediating variable is the mechanism through which the effects of one variable are transmitted to another (Little, 2013). The 3M hierarchical framework suggests that full or partial mediation is possible between the trait levels. For example, Figure 4.2 illustrates how situational traits might mediate the relationship between compound traits and surface level traits (Little, 2013). The *a* path represents the direct effect of the compound traits with situational traits. The *b* path represents the direct effect of situational traits with surface traits. The *c* path represents the direct effect of compound traits with surface traits after controlling for the mediating effect of situational traits. The indirect effect of compound traits with surface traits is represented with the path from *a* to *b*. Mediation occurs when the *ab* product term is significant, regardless of the significance or magnitude of the direct effect (i.e., the *c* path) (Little, 2013). With situational traits (i.e., financial self-efficacy beliefs) adjacent to surface level traits (i.e., saving behavior) within the 3M hierarchy, it was expected that financial self-efficacy beliefs would serve a mediating role. Moreover, situational traits tend to be highly predictive of surface level traits and have the potential to fully mediate the relationship between the broader traits and saving behavior (Mowen, 2000).

Figure 4.2 Mediation Framework, adapted from Little (2013)
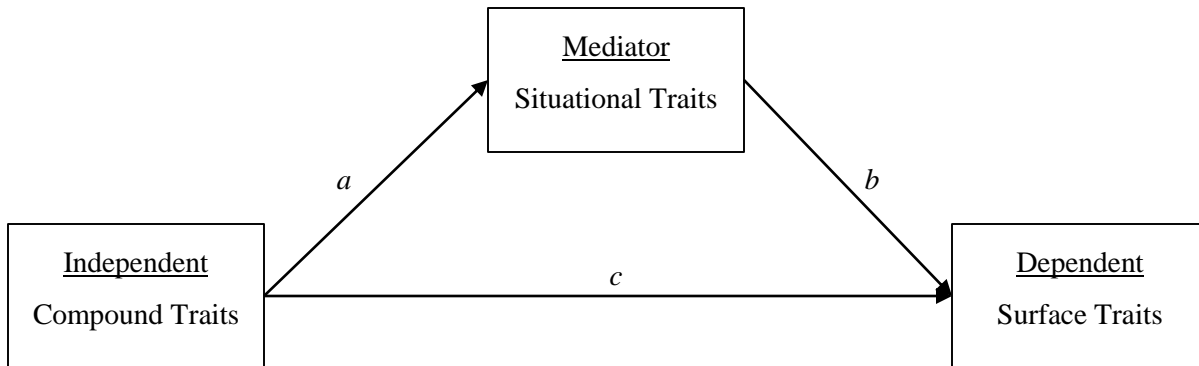
Existing literature supports the potential mediating role of financial self-efficacy beliefs (i.e., a situational trait), as positive affect, negative affect, and mastery (i.e., compound traits) have been connected to self-efficacy beliefs in addition to saving behavior. Specifically, positive affective states, such as happiness, have been found to promote higher self-efficacy beliefs by helping individuals effectively cope with stress associated with adversity and failures (Bandura, 1977, 1997; Baron, 1990; Lyubomirsky et al., 2005; Schuettler & Kiviniemi, 2006). Positive affective states, such as happiness, have also been shown to have a positive relationship with saving behavior (Guven, 2012). On the other hand, negative affective states can hinder one's perception of capability and perceived ability to succeed, thereby harming self-efficacy beliefs (Bandura, 1977, 1997). Negative affective states have also been shown to undermine saving behavior (Neukam & Hershey, 2003). Mastery has been positively linked to the saving behavior of young pre-retirees (Chatterjee et al., 2011) and also serves as the most powerful source of efficacy information for individuals, with stronger mastery beliefs promoting higher self-efficacy beliefs (Bandura, 1977, 1997). Lastly, task orientation (i.e., a compound trait) has not yet been

connected to either saving behavior or self-efficacy beliefs. However, given the measurement of task orientation at the compound trait level, it is possible that financial self-efficacy beliefs might also mediate the relationship between task orientation and saving behavior.

Thus, based upon the 3M framework and the empirical connections observed within the literature, financial self-efficacy beliefs (i.e., situational trait) were expected to mediate the relationship between compound traits and saving behavior (i.e., surface level trait). Moreover, it is possible for compound traits to mediate the relationship between elemental traits and saving behavior; however, existing empirical support for this mediating relationship was less clear. The mediating role of compound traits was further investigated within this study. Lastly, the combination of compound and situational traits may mediate the relationship between elemental traits and saving behavior given their central location within the 3M hierarchy. In summary, the mediating role of situational traits, compound traits, and a combination of these traits was further examined within this study.

Socio-Demographic and Financial Correlates of Saving Behavior

In addition to psychological characteristics, a relationship between saving behavior and socio-demographic and financial factors has been established within the literature. Evidence suggests that saving increases with age and peaks around age 60 (Attanasio, 1993). Gender has been found to account for variance in saving contributions; with men reporting they voluntarily save a higher percentage of their annual income than women (Hershey, Jacobs-Lawson, McArdle, & Hamagami, 2007). Married individuals were more likely to demonstrate positive patterns of cash flow and saving behavior (Hogarth, Beverly, & Hilgert, 2003). Moreover, Wakita, Fitzsimmons, and Liao (2000) noted that saving over time, as operationalized through a five-year change in savings net worth, was the greatest for Whites when compared to Black and

125

Hispanic households. In terms of education, higher education levels were positively associated with higher changes in the savings net worth of White respondents (Wakita, Fitzsimmons, & Liao, 2000).

From a financial standpoint, a positive association between income and saving behavior has been established within the literature (Fisher & Montalto, 2011; Grable & Lytton, 1997; Hershey et al., 2007; Lunt & Livingstone, 1991). Asset composition has also been linked to saving behavior. Homeownership has been shown to have a positive relationship with saving regularly and spending less than income over the previous year (Fisher & Montalto, 2010). Moreover, the presence of Individual Retirement Accounts (IRAs) and self-employed Keogh retirement plans were associated with an increase in household saving (Hubbard, 1984). Lastly, Fisher and Montalto (2010) found that the likelihood of saving on a regular basis increased for respondents with an emergency and retirement saving motive.

Hypotheses and Empirical Model

This study investigated the relationship between older pre-retirees' psychological characteristics and saving behavior, according to the 3M Model of Motivation and Personality (Mowen, 2000). The 3M posits that psychological characteristics at each level of the trait hierarchy combine to influence behavior. Moreover, psychological characteristics at each trait level were expected to demonstrate a significant direct path to saving behavior based upon existing literature and the 3M framework. Thus, the following hypotheses for direct effects with saving behavior were investigated:

Elemental traits:

H1: Openness to experience is positively associated with saving behavior.

H2: Conscientiousness is positively associated with saving behavior.

H3: Extroversion is positively associated with saving behavior.

H4: Agreeableness is negatively associated with saving behavior.

H5: Neuroticism is negatively associated with saving behavior.

Compound traits:

H6: Positive affect is positively associated with saving behavior.

H7: Negative affect is negatively associated with saving behavior.

H8: Mastery is positively associated with saving behavior.

H9: Task orientation is positively associated with saving behavior.

Situational traits:

H10: Financial self-efficacy beliefs are positively associated with saving behavior.

Moreover, it was expected that situational traits would mediate the relationship between compound traits and saving behavior. Additionally, it was expected that compound traits would mediate the relationship between elemental traits and saving behavior. Lastly, with two trait levels (i.e., compound and situational) between the elemental traits and saving behavior, it was possible for the elemental traits to be indirectly connected to saving behavior through a combination of compound and situational traits. It was unclear, however, whether a full or partial mediating relationship would occur. These expected mediating relationships according to the 3M are illustrated in Figure 4.3. The following additional hypotheses for mediating relationships between the trait levels and saving behavior were investigated:

H11: Situational traits (i.e., financial self-efficacy beliefs) mediate the relationship between compound traits and saving behavior.

H12: Compound traits (i.e., positive affect, negative affect, mastery, and task orientation) mediate the relationship between elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) and saving behavior.

H13: Combinations of situational and compound traits mediate the relationship between elemental traits and saving behavior.

Figure 4.3 Empirical Model for Saving Behavior, according to the 3M (Mowen, 2000).
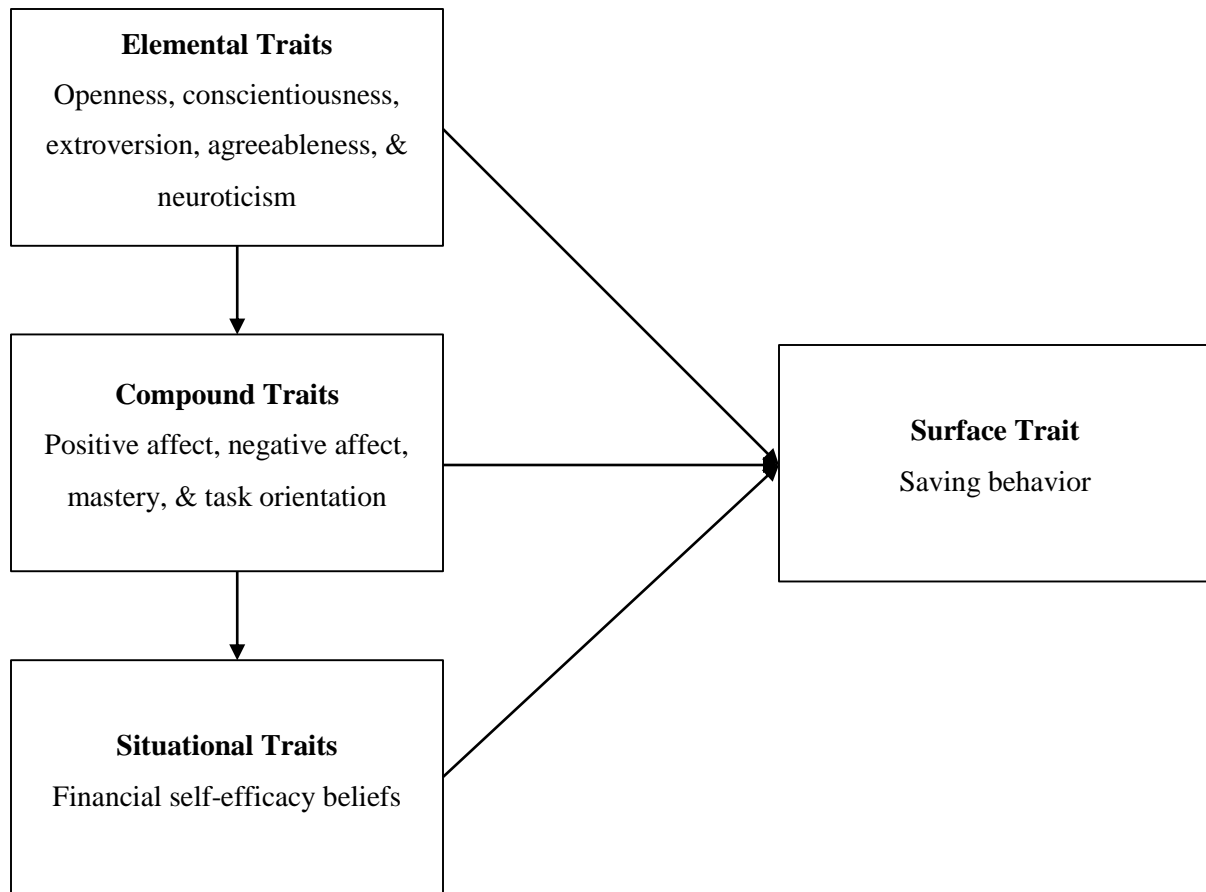
Methodology

Data and Sample

Data were utilized from the 2008 and 2012 waves of the RAND version of the Health and Retirement Study (HRS) (Rand Center for the Study of Aging, 2014). The 2008 RAND file served as the core data file for the control variables. The 2012 RAND file was used to measure saving behavior over the 2008 to 2012 time period. Additionally, data from the 2008 and 2010 waves of the *Leave-Behind* Psychosocial and Lifestyle Questionnaire were utilized to operationalize the psychological characteristics (e.g., elemental, compound, and situational traits) (Smith et al., 2013). The Psychosocial and Lifestyle Questionnaire is administered based upon a rotating collection scheme to half of the HRS panel at each collection cycle, and is returned after the primary interview via mail. Thus, data were utilized from the 2008 and 2010 collection cycles in order to include information from the full sample.

For the current study, the sample was restricted to the financial respondent of the household who reported they were not yet fully retired in both 2008 and 2012. Individuals who considered themselves partially retired in both 2008 and 2012 were included within the model in order to obtain an adequate observation to parameter ratio for the structural equation model. The financial respondent is likely to be the most in tune to the family's financial position and is responsible for completing the financial portion of the survey (Rand Center for the Study of Aging, 2014). Moreover, the sample was restricted to those aged 50 to 70 in 2008. While the average retirement age is 64 for men and 62 for women (Munnell, 2011), a maximum age limit of 70 was selected for this study as workforce participation rates for those aged 65 and over have been increasing (Fleck, 2009).

After accounting for the weighting information provided within the HRS, the final analytic sample included 1,370 observations, representing just over nine million pre-retirees and partially retired individuals between age 50 and 70. The ratio of observations to free parameters in the final structural model was 5.64:1 (i.e., 1,370 observations divided by 243 free parameters), which met the recommended minimum guideline of a 5:1 ratio for a structural equation model (Bentler & Chou, 1987; Kenny, 2015a).

Variable Measurement

Outcome Variable (Saving Behavior)

Saving behavior served as the outcome variable at the surface trait level. Saving behavior was measured based upon a two-year change in total net worth from 2008 to 2012 (see Table 4.1), providing a comprehensive picture of asset and liability changes (Bryant & Zick, 2006). Net worth was defined as total assets minus total liabilities. Total assets included the value of the primary residence, secondary residence, other real estate, vehicles, businesses, retirement accounts, stocks, mutual funds, checking, savings, money market accounts, certificates of deposit, bonds, and any other existing assets. Total liabilities included the total value of all debt associated with the primary residence and secondary residence. Additionally, any other outstanding debt was included as a liability, such as credit card debt, medical debt, life insurance loans, and family loans. To compute the change in net worth from 2008 to 2012, the negative net worth groups in both 2008 and 2012 were first excluded in order to calculate the natural logarithm of 2008 net worth and the natural logarithm of 2012 net worth. Second, consistent with existing literature (Harness, Finke, & Chatterjee, 2009), change in net worth was computed by

subtracting the natural logarithm of 2008 net worth from the natural logarithm of 2012 net worth based upon the following equation: $\ln(W_{12}) - \ln(W_{08}) = \ln(\frac{W_{12}}{W_{08}})$ [4].

Table 4.1 Measurement of Saving Behavior (outcome variable)

Variable	Measurement
Saving behavior	Natural logarithm of 2012 total net worth minus the natural logarithm of 2008 total net worth.

Elemental Traits

Elemental traits were operationalized through the following Big Five personality traits (Costa & McRae, 1992): (a) Openness to experience, (b) Conscientiousness, (c) Extroversion, (d) Agreeableness, and (e) Neuroticism. Each Big Five trait was measured as a latent variable with indicators derived from a combination of data from the 2008 and 2010 Psychosocial and Lifestyle Questionnaire (Smith et al., 2013). Indicators for the Big Five traits were developed from the Midlife in the United States (MIDUS) national survey and the International Personality Item Pool (IPIP) (IPIP, 2016; Lachman & Weaver, 1997; Smith et al., 2013). Each Big Five trait was measured according to the extent to which respondents felt certain adjectives described them. Respondents rated 26 separate adjectives on a four-point Likert-type scale, ranging from 1 (*a lot*) to 4 (*not at all*), with higher scores reflecting less personal identification with the adjective. All adjectives were reverse coded except as identified below as *not reverse coded*. Higher scores generally indicated stronger identification with each adjective. For the items that were not reverse coded, a higher score meant less identification with that particular adjective. For

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[4] The quotient property of logarithms: $\ln(\frac{M}{N}) = \ln(M) - \ln(N)$

example, conscientious individuals would identify less with the *careless* trait. Consequently, a higher rating for careless was not reverse coded so that a higher score reflected less identification with the careless adjective for conscientious individuals. Measurement of the elemental traits is summarized in Table 4.2.

Table 4.2 Measurement of Elemental Traits

Variables	Measurement
Openness	Latent variable with 7 ordinal Likert-type indicators measured separately on a 4-point scale with higher scores representing stronger presence of the openness to experience trait
Conscientiousness	Latent variable with 5 ordinal Likert-type indicators measured separately on a 4-point scale with higher scores representing stronger presence of the conscientiousness trait
Extroversion	Latent variable with 5 ordinal Likert-type indicators measured separately on a 4-point scale with higher scores representing stronger presence of the extroversion trait
Agreeableness	Latent variable with 5 ordinal Likert-type indicators measured separately on a 4-point scale with higher scores representing stronger presence of the agreeableness trait
Neuroticism	Latent variable with 4 ordinal Likert-type indicators measured separately on a 4-point scale with higher scores representing stronger presence of the neuroticism trait

Openness to experience was measured as a latent variable with the following seven adjectives serving as indicators: Creative, imaginative, intelligent, curious, broad-minded, sophisticated, and adventurous. Conscientiousness was measured as a latent variable with the following five adjectives serving as indicators: Organized, responsible, hardworking, careless (not reverse coded), and thorough. Extroversion was measured as a latent variable with the following five adjectives serving as indicators: Outgoing, friendly, lively, active, and talkative. Agreeableness was measured as a latent variable with the following five adjectives serving as indicators: Helpful, warm, caring, softhearted, and sympathetic. Neuroticism was measured as a latent variable with the following four adjectives serving as indicators: Moody, worrying, nervous, and calm (not reverse coded). Observations were list-wise deleted if more than half of

the items were missing for each trait. Responses for each adjective were included within the model as ordinal indicator variables estimating each separate personality trait construct. Within the current sample, each elemental personality trait demonstrated adequate internal reliability with Cronbach's Alpha scores of .78 for openness, .69 for conscientiousness, .76 for extroversion, .80 for agreeableness, and .72 for neuroticism (Field & Miles, 2012).

Compound Traits

Informed by prior literature and the 3M, the compound traits investigated within this study were: (a) Positive affect, (b) Negative affect, (c) Task orientation, and (d) Mastery. The compound traits were each measured as latent variables with indicators derived from a combination of data from the 2008 and 2010 Psychosocial and Lifestyle Questionnaire (Smith et al., 2013). The measurement of each compound trait is summarized in Table 4.3.

Table 4.3 Measurement of Compound Traits

Variables	Measurement
Positive affect	Latent variable with 13 Likert-type indicators measured separately on a 5-point scale with higher scores representing higher levels of positive affect
Negative affect	Latent variable with 12 Likert-type indicators measured separately on a 5-point scale with higher scores representing higher levels of negative affect
Task orientation	Latent variable with 7 ordinal Likert-type indicators measured separately on a 6-point scale with higher scores representing higher levels of task orientation
Mastery	Latent variable with 5 ordinal Likert-type indicators measured separately on a 6-point scale with higher scores representing higher levels of perceived mastery

Positive and Negative Affect. Two separate latent variables estimating positive affect and negative affect were utilized to measure respondents' proclivity to frequently experience either positive or negative emotions. Specifically, positive and negative affect were measured based on a combination of emotions from the *Positive and Negative Affect Schedule – Expanded Form* (PANAS-X) and work from other researchers (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Ong, Edwards, & Bergeman, 2006; Watson & Clark, 1999). The original PANAS-X positive and negative affect scales exhibited strong internal reliability, with Cronbach's Alpha scores of .89 for each scale, representing the level of positive and negative affect present within the past month (Watson & Clark, 1999). The PANAS-X positive and negative affect scales have been shown to be valid, reliable, and independent measures across a variety of samples and time frames (Watson & Clark, 1999).

For the current study, respondents reported on a five-point Likert-type scale the extent to which they felt various emotions within the past 30 days, with scores ranging from 1 (*very much*) to 5 (*not at all*). For positive affect, respondents reported the extent to which they felt determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited. For negative affect, respondents reported the extent to which they felt afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed. Responses to all items were reverse coded with higher scores reflecting stronger levels of affect. Observations for each affect construct were list-wise deleted if more than six items were missing. Responses for each emotion were included within the model as ordinal indicator variables estimating the separate positive and negative affect constructs. Within the current sample, the positive and negative affect constructs demonstrated adequate internal reliability with Cronbach's Alpha scores of .92 and .90, respectively (Field & Miles, 2012).

Task Orientation. Task orientation was operationalized as a latent variable based upon a measure of purpose in life from the Ryff Measures of Psychological Well-being (Ryff, 1989). The original purpose in life scale demonstrated strong internal reliability with a Cronbach's Alpha score of .90 and has been widely used as a measure of psychological well-being (Ryff, 1989). Ryff's (1989) purpose in life measure aligned with Mowen's (2000) task orientation construct by estimating an individual's orientation towards long-term goals and task completion. Respondents were asked the following seven questions, with potential Likert-type scale responses ranging from 1 (*strongly disagree*) to 6 (*strongly agree*):

- I enjoy making plans for the future and working to make them a reality.

- My daily activities often seem trivial and unimportant to me.

- I am an active person in carrying out the plans I set for myself.

- I don't have a good sense of what it is I'm trying to accomplish in life.

- I sometimes feel as if I've done all there is to do in life.

- I live life one day at a time and don't really think about the future.

- I have a sense of direction and purpose in my life.

Questions 2, 4, 5, and 6 were reverse coded with higher scores reflecting higher levels of purpose in life. Observations were list-wise deleted if more than three items were missing. Responses to each question were included within the model as ordinal indicator variables estimating the purpose in life construct. Within the current sample, the purpose in life construct demonstrated adequate internal reliability with a Cronbach's Alpha score of .78 (Field & Miles, 2012).

Mastery. Mastery was operationalized as a latent variable through a measure of general perceived mastery based on an augmentation of the widely used Pearlin and Schooler's Mastery scale (Pearlin & Schooler, 1978). The factor loadings of the original scale items ranged from an

absolute value of .47 to .76 (Pearlin & Schooler, 1978). Factor loadings for the perceived

mastery scale within the current study can be found within the results section. In the current

study, respondents indicated the extent to which they agreed with the following questions on a

six-point Likert-type scale, with potential values ranging from 1 (*strongly disagree*) to 6

(*strongly agree*):

- I can do just about anything I really set my mind to.

- When I really want to do something, I usually find a way to succeed at it.

- Whether or not I am able to get what I want is in my own hands.

- What happens to me in the future mostly depends on me.

- I can do the things that I want to do.

Responses to each question were included within the model as ordinal indicator variables

estimating the mastery construct. Observations were list-wise deleted if more than three items

were missing. Within the current sample, the mastery construct demonstrated adequate internal

reliability with a Cronbach's Alpha score of .91 (Field & Miles, 2012).

Situational Traits

Financial self-efficacy beliefs were included within the model as a situational trait,

measured as an observed scale. The measurement of financial self-efficacy beliefs is summarized

in Table 4.4.

Table 4.4 Measurement of Situational Traits

Variable	Measurement
Financial self-efficacy beliefs	10-point ordinal Likert-type scale with higher scores representing higher financial self-efficacy beliefs.

Financial Self-Efficacy Beliefs. Financial self-efficacy beliefs were operationalized using a combination of data from the 2008 and 2010 Psychosocial and Lifestyle Questionnaire (Smith et al., 2013). According to Smith et al. (2013) the following question served as a proxy for financial self-efficacy beliefs: "How would you rate the amount of control you have over your financial situation these days?" This question provided insight into the amount of influence an older pre-retiree feels they have over their financial situation. Responses were measured through an 11-point scale, ranging from 0 *(no control at all)* to 10 *(very much control)*. In order to treat financial self-efficacy beliefs as a categorical variable on an ordinal scale in the model (Muthén & Muthén, 2015), the 11-point scale was reduced to a 10-point scale *(range = 1 to 10)* by combining the observations in the zero category (i.e., 7) with the one category (i.e., 20). This measurement of financial self-efficacy beliefs is in concert with previous research (McAvay et al., 1996). A comprehensive financial self-efficacy scale was not available within the HRS data (Lown, 2011).

Socio-Demographic and Financial Control Variables

Socio-demographic and financial characteristics were based upon current saving behavior literature and were included as control variables within the model. A table summarizing the measurement of these variables is provided in Table 4.5.

Table 4.5 Measurement of Control Variables

Variables	Measurement
Age	Continuous variable ranging from age 50 to 70 in 2008
Female gender	1 for female; 0 for male
Marital status	1 for a coupled household; otherwise 0
Race White	1 if respondent reported being white; otherwise 0
Education	1 if respondent reported some college level education or beyond; otherwise 0
Natural logarithm of 2008 income	Measured as a natural logarithmic transformed continuous variable after adding 1 to household income greater than or equal to zero in 2008
Natural logarithm of 2008 net worth	Measured as a natural logarithmic transformed continuous variable after adding 1 to net worth greater than or equal to zero in 2008
Homeownership	1 if respondent reported that they were a homeowner; otherwise 0.
Non-mortgage debt	1 if respondent reported debt other than mortgage debt, such as credit cards, medical, and intrafamily loans; otherwise 0
Presence of IRA/Keogh plans	1 if respondent reported a value for IRA/Keogh plans; otherwise 0
Presence of stock and stock mutual funds	1 if respondent reported stock or stock mutual funds outside of IRA/Keogh accounts
Emergency fund ratio	1 if computed emergency fund ratio is ≥ 3; otherwise 0

Socio-Demographic. The following socio-demographic characteristics were included in the model as control variables informed by prior literature: age, gender, race, marital status, and education status. All socio-demographic variables were obtained from the 2008 RAND HRS data (Rand Center for the Study of Aging, 2014).

Financial. Financial characteristics were included to control for the ability to save. Additionally, the initial net worth level and indicators for net worth composition were included to control for the change in net worth associated with prior period wealth attributes (Campbell, 2006; Chatterjee et al., 2011). Financial characteristics were obtained from the 2008 RAND HRS data (Rand Center for the Study of Aging, 2014) and included the natural logarithm of 2008 income, the natural logarithm of 2008 net worth, homeownership, presence of non-mortgage debt (e.g., credit card, intrafamily loan, life insurance loan, etc.), presence of stocks and stock mutual funds outside of retirement accounts, and presence of IRA and Keogh plans (Hubbard, 1984). Additionally, an emergency fund ratio was included to control for existing emergency fund adequacy (Fisher & Montalto, 2010). An emergency fund ratio was computed by dividing current cash assets (e.g., checking, savings, CD's) by monthly total household income using 2008 RAND HRS data. Emergency funds that met recommended guidelines of three months or more were coded as a one, with those that did not meet the three-month guideline coded as a zero. The expected relationship between all model variables and saving behavior is provided in Table 4.6.

Table 4.6 Expected Relationship between Model Variables and Saving Behavior (outcome variable)

Variables	Expected Effect
Elemental Traits	
Openness	+
Conscientiousness	+
Extroversion	+
Agreeableness	-
Neuroticism	-
Compound Traits	
Positive affect	+
Negative affect	-
Task orientation	+
Mastery	+
Situational Traits	
Financial self-efficacy beliefs	+
Control Variables	
Age	+
Female gender (males)	-
Married (unmarried)	+
White (non-White)	+
College education (less than college)	+
Natural logarithm of 2008 income	+
Natural logarithm of 2008 net worth	-

Homeowner (non-homeowner)	+
Non-mortgage debt (no non-mtg debt)	Unknown
Presence of IRA/Keogh plans	+
Presence of stock and stock mutual funds	+
Adequate emergency fund ratio	+

Data Analysis

This study employed a Structural Equation Model (SEM), utilizing Mplus version 7.4 in order to account for the measurement error associated with the psychological constructs and to investigate the potential for mediating variables (Kline, 2016; Muthén & Muthén, 2015). A Confirmatory Factor Analysis (CFA) was included as part of the structural model to determine if the measurement model for the elemental and compound traits fit the data. The 3M provided the theoretical framework to guide construction of the structural component of the SEM. The core data file was prepared using SAS® University Edition. Individual level data was read into Mplus by converting the SAS® data file to a comma delimited file.

In accordance with recommended methodology, a mean- and variance- adjusted weighted least squares (WLSMV) estimator was selected for all analyses due to the mixture of continuous and categorical dependent variables and the presence of more than four factors (Kline, 2016; Muthén, 2009; Muthén & Muthén, 2015). Consequently, the categorical variables were estimated with probit regression and the continuous variables were estimated with linear regression (Muthén & Muthén, 2015). Additionally, theta parameterization was utilized over that of delta parameterization since the model included a categorical dependent variable as a mediator (Muthén & Muthén, 2015). Lastly, the HRS's weighting and complex sampling design

information was incorporated in accordance with recommended methodology (Asparouhov, 2005, 2006; Asparouhov & Muthén, 2006; Muthén & Muthén, 2015; Nielsen & Seay, 2014). Specifically, parameters were estimated by utilizing sampling weights provided by the HRS (Muthén & Muthén, 2015). Additionally, the Taylor Series method was utilized to account for the complex sampling design (i.e., stratification and clustering) of the HRS survey (Muthén & Muthén, 2015).

Results

Descriptive Statistics

A summary of the sample characteristics can be found in Table 4.7 and Table 4.8. The sample consisted of 1,370 observations representing just over nine million U.S. pre-retirees and partially retired individuals aged 50 to 70 in 2008 after incorporating the weighting information provided within the HRS. Weighted percentages are provided in Table 4.7 in order to account for the oversampling techniques utilized by the HRS. All variables were obtained from the 2008 RAND data file, except where noted.

Table 4.7 Sample Characteristics of Categorical Variables (N = 1,370)

Variable	n	% (weighted)*
Gender		
Female	676	43.96%
Male	694	56.04%
Marital Status		
Married	858	65.66%
Single	512	34.34%
Race		
White	1111	87.57%
Other	259	12.43%
Education		
Less than college	515	32.88%
College or higher	855	67.12%
Income 2008		
$0 to $24,999	172	10.28%
$25,000 to $49,999	308	20.68%
$50,000 to $74,999	266	19.38%
$75,000 to $99,999	196	14.63%
$100,000 and above	428	35.03%
Net Worth 2008		
$0 to $24,999	157	9.32%
$25,000 to $99,999	268	18.40%
$100,000 to $249,999	280	21.04%
$250,000 to $499,999	280	20.74%
$500,000 and above	385	30.49%
Homeownership		
Yes	1193	88.64%
No	177	11.36%
Presence of other debt		
Yes	792	56.78%
No	578	43.22%
Presence of stocks/mutual funds		
Yes	370	29.83%
No	1000	70.17%
Presence of IRA/KEOGH accounts		
Yes	678	53.52%
No	692	46.48%
Emergency Fund Ratio		
Three months or more	449	33.78%
Less than three months	921	66.22%

Table 4.8 Sample Characteristics of Continuous Variables (N = 1,370)*

Variable**	Mean	se	Min	Max
Age	59.54	0.14	54.00	70.00
Log 2008 income	11.14	0.04	0.00	14.48
Log 2008 net worth	12.18	0.07	0.00	16.62
Log change in net worth (2008 to 2012)	-0.08	0.04	-11.47	10.46
Financial self-efficacy beliefs	7.23	0.07	1.00	10.00

* The Taylor Series method was employed to incorporate the HRS's complex sampling design information (Muthén & Muthén, 2015). N of 1,370. The weighted sample represents 9,038,187 pre-retirees and partially retired individuals aged 50 to 70.

** Financial self-efficacy beliefs were measured as ordinal categorical within the model, utilizing 2008 and 2010 data from the Leave-Behind Psychosocial and Lifestyle Questionnaire (Smith et al., 2013). Raw descriptive statistics for financial variables obtained through SAS®: 2008 income (*M = $107,845, se = $4,697, range = $0 - $1,936,000*), 2008 net worth (*M = $574,503, se = $26,814, range = $0 - $16,582,000*), 2008 to 2012 change in net worth (*M = -$36, se = $29,394, range = -$8,513,2000 - $12,035,691*).

The majority of the sample was male (56%), married (66%), white (88%), and educated at the college level or beyond (67%). Respondents were relatively young, with an average age of 59.54 within a range of 54 to 70. In terms of financial characteristics, the majority of the sample had annual income over $50,000 (69%), a net-worth of $100,000 or more (72%), owned a home (89%), had non-mortgage related debt (57%), did not have an adequate emergency fund (66%), and did not own stocks or stock mutual funds outside of retirement accounts (70%). Just over half of the sample had IRA or Keogh accounts (54%). Respondents exhibited high financial self-efficacy beliefs, with an average score of 7.23 on a one to ten scale. Lastly, the average change in net worth was -$36 from 2008 to 2012 within a range of -$8,513,200 to $12,035,691.

Missing Data

The data were examined to evaluate missing data. In the data preparation phase, list-wise deletion was utilized for all variables; however, missing data was permitted to a limited extent

for the elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) and the compound traits (i.e., mastery, positive affect, negative affect, and task orientation) in accordance with recommended guidelines (Smith et al., 2013). The RAND version of the HRS file follows a sequential imputation process for missing wealth and income data associated with the raw HRS data file (Moldoff et al., 2014). Thus, any missing data associated with the outcome variable, change in net worth from 2008 to 2012 (i.e., saving behavior), was imputed through the RAND version of the HRS. A review of the descriptive statistics revealed that missing data were only associated with the elemental and compound trait indicators, as expected. Of the 1,370 observations, missing data were present on 12.26% of the cases *(n = 168)*. Thus, the majority of the observations (87.74%, *n = 1,202)* revealed no missing data. The covariance coverage of the data ranged from .974 to 1.0, which was well above the minimum threshold of .10 (Geiser, 2013). This indicates that, depending upon the combination of variables, anywhere from 97.4% to 100% of the observations contributed to the model.

Pairwise deletion based upon an MCAR (i.e., missing completely at random) assumption was employed given the use of the WLSMV estimator (Muthén & Muthén, 2015). MCAR assumes that any missing data is random and independent of other variables including the variable itself (Allison, 2003). Pairwise deletion utilizes all available data and only excludes cases with missing data on variables associated with a particular analysis (Allison, 2003; Kline, 2016). Thus, under a pairwise deletion method, model estimates can be based upon varying sample sizes. Asparouhov and Muthén (2010) demonstrated that pairwise deletion with the WLSMV estimator produced consistent estimates and is an appropriate method when the amount of missingness is small or when the MCAR assumption is plausible. As previously identified, the covariance coverage revealed that the majority of cases contributed to model estimates (i.e.,

range of 97.4% to 100%). Thus, the amount of missingness was minimal within the current sample.

Correlations and Multicollinearity

A correlation matrix was examined to determine if multicollinearity issues were present in the data (See Appendix A, Table A.1). Multicollinearity can cause significant problems in estimating measurement and structural models (Kline, 2016). Field and Miles (2012) suggested that extreme multicollinearity might exist with correlations above .80. Results revealed that two of the mastery indicators (i.e., M1: can do anything, and M2: find a way) were very highly correlated at .89. Additionally, the second agreeableness indicator (i.e., warm) and the second extroversion indicator (i.e., friendly) were highly correlated at .82. There were no other multicollinearity issues present based upon the correlation matrix. The data were further examined within SAS® to determine the Variance Inflation Factor (VIF) for all variables. Allison (2012) suggested that multicollinearity issues can arise with VIFs > 2.5. The VIFs that exceeded 2.5 are provided in Table 4.9. VIF issues were present within the agreeableness, positive affect, negative affect, and mastery indicators (see Table 4.9). The most prominent VIF issues were associated with the mastery indicators, with VIF levels ranging from 2.85 to 4.17. The elemental traits did not appear to have significant VIF issues with only one indicator for agreeableness barely exceeding the 2.5 threshold (i.e., 2.62).

Table 4.9 Variables with Variance Inflation Factors > 2.5

Variable	VIF
Positive Affect	
PA2: Enthusiastic	2.99
PA5: Interested	2.73
PA6: Happy	3.02
PA8: Content	3.09
PA9: Inspired	3.00
PA10: Hopeful	2.95
Negative Affect	
NA1: Afraid	3.00
NA4: Scared	3.02
NA10: Nervous	2.97
NA12: Distressed	2.79
Mastery	
M1: I can do anything	4.04
M2: Find a way	4.17
M3: Way to get	2.85
M4: Future depends	2.86
M5: Do the things	2.91
Agreeableness	
A2: Friendly	2.62

Multicollinearity can be handled by either deleting the problematic variables or by combining highly correlated variables into a composite parcel (Kline, 2016). A parcel is defined as "…as an aggregate-level indicator comprised of the sum (or average) of two or more items, responses, or behaviors" (Little, Cunningham, & Shahar, 2002, p. 152). Parceling allows for the targeted construct to remain in tact while reducing sampling variability, increasing the chance of SEM model convergence, and reducing the estimated parameters for a more parsimonious analysis (Little, 2013; Little et al., 2002). Parceling is considered appropriate for unidimensional factors when the primary research goal is to investigate the associations between constructs (Little, 2013; Little et al., 2002). With the positive affect, negative affect, and mastery scales well established within the literature, parceling was the preferred approach as opposed to deleting indicators.

Model Fit

Model fit indices for the combined measurement and structural model with parcels for positive affect, negative affect, and mastery are provided in Table 4.10. The parcel construction is further described under the Measurement Model Results Section. The model chi-square *exact fit* test indicates the model should be tentatively rejected (χ^2(df 1,431) = 2,774.15, p = <.001). The model chi-square test estimates model to data discrepancies and is highly sensitive to model rejection with an increasing sample size (e.g., over 400 cases) (Kenny, 2015a; Kline, 2016). Thus, sample size sensitivity may be the primary reason for the significant chi-square test within the current study given the final analytic sample consisted of 1,370 observations.

To further investigate this possibility, the correlation residuals were examined to determine the extent to which the sample correlations deviated from the correlations estimated by the model (Kline, 2016). Kline (2016) suggested that absolute correlation residuals in excess of .10 might indicate poor model fit to the data; however, high correlation residuals do not indicate the type or degree of model misspecification and a recommended threshold for the amount of tolerable high correlation residuals does not exist (Kline, 2016). Mplus reports correlation residuals for categorical variables and covariance residuals for continuous variables. A threshold for covariance residuals does not exist due to the difference in scaling across variables. Standardized residuals are often examined in conjunction with correlation residuals to determine local model fit (Kline, 2016); however, standardized residuals were not available due to the WLSMV estimation method (Muthén & Muthén, 2015). A review of the correlation residual matrix revealed that 12.94% of the correlation effects for the categorical variables had residuals over the |.10| threshold, which indicates the rejection of the model under the chi-square test *may* be due to the large sample size as opposed to poor model fit.

Table 4.10 Fit Indices for Combined Measurement and Structural Model with Parcels

Index	Value	Indication of Fit	Suggested Cut Off Values
χ^2	2,774.15 (df 1,431, p = <.001)	Poor fit	Non-significant. Sensitive to sample size. Models with > 400 cases almost always result in a significant model chi-square *exact fit* test (Kline, 2016; Kenny, 2015).
RMSEA	0.026	Good fit	Excellent fit $\leq$ .01, good fit $\leq$ .05, mediocre fit $\leq$ .08 (MacCallum, Browne, & Sugawara, 1996).
90% Confidence Interval for RMSEA	(.025, .028)	Good fit	Lower bound close to zero. Upper bound < .05 to pass not-close-fit test. Upper bound < .10 to pass poor-fit test (Kline, 2016).
P-Value for Test of Close-Fit	1.000	Good fit	p > .05 suggests a close-fitting model. p < .05 suggests a deviation from a close-fitting model (Kline, 2016).
CFI	0.911	Marginally good fit	<.90 poor fit, .90 - .95 marginal, <.95 good (Kenny, 2015).
TLI	0.905	Marginally good fit	<.90 poor fit, .90 - .95 marginal, >.95 good (Kenny, 2015).

The other model fit indices (see Table 4.10) indicated an adequate fit of the data. Specifically, the Root Mean Square Error of Approximation (RMSEA) measures a departure from close or approximate fit with values closer to 0 indicating a closer model fit (Kline, 2016). Results revealed an RMSEA of .026 (90% CI = .025, .028), which passed the close-fit test (i.e., H_0: RMSEA $\leq$ .05, p = 1.0), and the not-close-fit test (i.e., upper bound of confidence interval < .05) (Kline, 2016). The Comparative Fit Index (CFI) assessed the amount of departure from a close-fitting model on a 0 to 1.0 scale, where 1.0 reveals a model with no departure from close fit (Kline, 2016). The Tucker-Lewis Index (TLI) is closely related to the CFI; however, it imposes a

penalty due to model complexity and can exceed 1.0. A CFI and TLI index ≥ .90 is generally recognized as an indicator of acceptable model fit (Kenny, 2015a). Results revealed an acceptable fit of the data with a CFI index of .911 and a TLI index of .905.

Measurement Model Results

The measurement component of the model was analyzed through a Confirmatory Factor Analysis (CFA) within the overall structural model. Prior to conducting the full structural model with the CFA, a separate item-level CFA model without covariates or structural paths was investigated to evaluate the measurement of factor indicators (See Appendix A, Table A.2). Moreover, the measurement and psychometric properties of the compound traits (i.e., positive affect, negative affect, task orientation, and mastery) were investigated within the current sample through an Exploratory Factor Analysis (EFA) to determine if these traits would operate effectively within the 3M framework.

Results of the EFA (See Appendix B, Table B.1 and B.2) supported the use of positive affect, negative affect, task orientation, and mastery as compound traits within the 3M. Also, results of these preliminary analyses supported the re-specification of the measurement model to include parcels for the positive affect, negative affect, and mastery constructs. Parcels were deemed appropriate for these constructs due to their unidimensional measurement, large number of indicators (i.e., 13 for positive affect, and 12 for negative affect), and multicollinearity issues. Moreover, the focus of this study was on the relationship between constructs, which further supported the use of parcels (Little et al., 2002; Little, 2013). The measurement of task orientation was acceptable, and therefore not re-specified in order to retain the categorical measurement of the indicators.

In accordance with Kline (2016), parcels were created for mastery by combining the indicators with multicollinearity issues into parcel one (i.e., M1: I can do anything, and M2: Find a way). The remaining three indicators were combined into parcel number two (i.e., M3: Able to get, M4: Future depends, and M5: Mostly depends). While three to five indicators are generally recommended (Kline, 2016), two parcels were constructed given only five indicators were present. Parcel items were subsequently averaged in order to retain the original metric of the Likert-type scale (i.e., *range = 1 to 6*), in accordance with recommended methodology (Little, 2013). Due to this averaging technique, the final parcels included non-integer values and were consequently treated as continuous factor indicators.

Positive and negative affect indicators were each combined into four separate parcels for their respective constructs based upon an item-to-construct balance approach (Little et al., 2002). Four parcels were selected for the affect constructs as three to five indicators are generally recommended as a practical minimum for CFA specification (Kline, 2016). In accordance with Little et al. (2002), the four items with the largest factor loadings (i.e., structure coefficients from the EFA, see Appendix B, Table B.1) were utilized to anchor the four parcels. Then, the next four items with the highest factor loadings were added to the parcels in an inverted order (i.e., highest loaded item from the anchor items matched with the lowest loaded item from the second selection). This procedure was continued until all items were allocated to the four parcels for each positive and negative affect construct (Little et al., 2002). The 13th positive affect indicator, calm, was added to parcel one in order to achieve a reasonable balance across parcels (Little et al., 2002). In accordance with recommended methodology (Little, 2013), parcel items were subsequently averaged in order to retain the original metric of the Likert-type scale (i.e., *range = 1 to 5*). Due to this averaging technique, the final parcels were treated as continuous factor

indicators. A separate *parceled* CFA model without covariates or structural paths was examined

prior to combining the measurement model with the structural model, and can be found in

Appendix A, Table A.3.

Results of the final parceled CFA model estimated within the structural model are

provided in Figure 4.4 and in Table 4.11. The correlations between factors are provided in Table

4.12. Results revealed significant factor loadings across all indicators above the recommended

.40 level (Thompson, 2004). The more parsimonious measurement model with parcels was

retained, as it effectively addressed the multicollinearity issues and allowed for a stronger sample

size to parameter ratio.

Figure 4.4 Confirmatory Factor Analysis Diagram of Elemental Traits and Compound Traits with Parcels (N = 1,370)
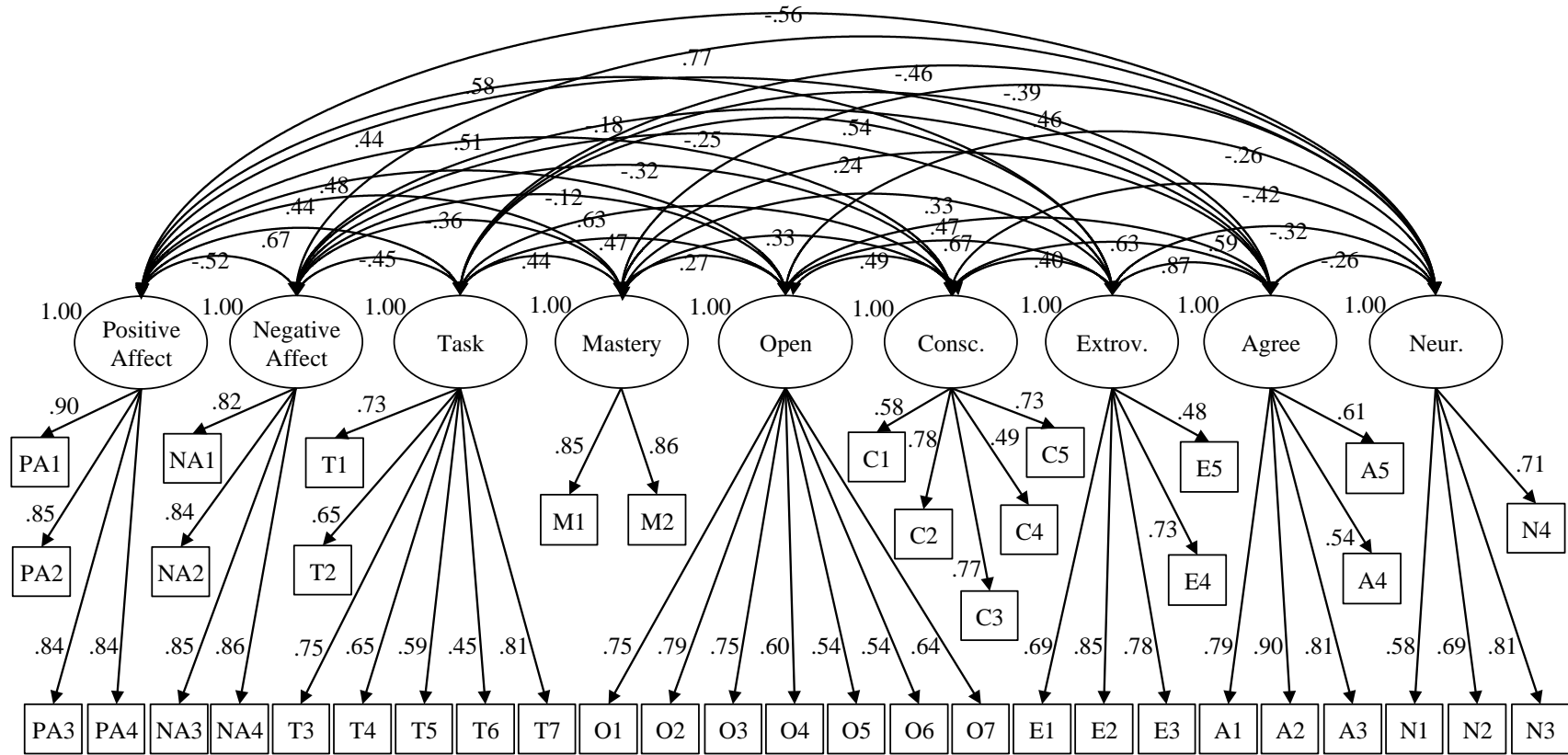
Note: Model Fit Indices: $\chi^2(1,431) = 2,774.15$ p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905. All factor loadings were significant at the p<.001 level.

Table 4.11 Confirmatory Factor Analysis Results for Elemental and Compound Traits with

Parcels (N = 1,370)

Parameter	Unstandardized		Standardized		
	b	SE	β	SE	R^2
Pattern coefficients					
Openness					
Openness ➔ O1: Creative	1.00[a]	-	**0.75**	0.02	0.56
Openness ➔ O2: Imaginative	1.12	0.09	**0.79**	0.02	0.62
Openness ➔ O3: Intelligence	1.01	0.10	**0.75**	0.03	0.56
Openness ➔ O4: Curious	0.66	0.07	**0.60**	0.03	0.36
Openness ➔ O5: Broad-minded	0.57	0.06	**0.54**	0.03	0.29
Openness ➔ O6: Sophisticated	0.57	0.06	**0.54**	0.03	0.29
Openness ➔ O7: Adventurous	0.73	0.08	**0.64**	0.03	0.41
Conscientiousness					
Conscientiousness ➔ C1: Organized	1.00[a]	-	**0.58**	0.03	0.34
Conscientiousness ➔ C2: Responsible	1.72	0.20	**0.78**	0.02	0.61
Conscientiousness ➔ C3: Hardworking	1.71	0.24	**0.77**	0.03	0.59
Conscientiousness ➔ C4: Careless	0.78	0.10	**0.49**	0.04	0.24
Conscientiousness ➔ C5: Thorough	1.50	0.16	**0.73**	0.03	0.53
Extroversion					
Extroversion ➔ E1: Outgoing	1.00[a]	-	**0.69**	0.02	0.48
Extroversion ➔ E2: Friendly	1.64	0.15	**0.85**	0.02	0.72
Extroversion ➔ E3: Lively	1.29	0.08	**0.78**	0.02	0.61
Extroversion ➔ E4: Active	1.09	0.08	**0.73**	0.02	0.53
Extroversion ➔ E5: Talkative	0.56	0.05	**0.48**	0.02	0.23
Agreeableness					
Agreeableness ➔ A1: Helpful	1.00[a]	-	**0.79**	0.02	0.62
Agreeableness ➔ A2: Warm	1.57	0.16	**0.90**	0.02	0.81
Agreeableness ➔ A3: Caring	1.08	0.09	**0.81**	0.02	0.66
Agreeableness ➔ A4: Softhearted	0.50	0.05	**0.54**	0.03	0.29
Agreeableness ➔ A5: Sympathetic	0.60	0.05	**0.61**	0.03	0.37
Neuroticism					
Neuroticism ➔ N1: Moody	1.00[a]	-	**0.58**	0.03	0.34
Neuroticism ➔ N2: Worrying	1.32	0.12	**0.69**	0.02	0.48
Neuroticism ➔ N3: Nervous	1.91	0.21	**0.81**	0.02	0.66
Neuroticism ➔ N4: Calm	1.42	0.16	**0.71**	0.03	0.50
Positive Affect					
P. Affect ➔ PA1 (Proud, inspired, alert, calm)	1.00[a]	-	**0.90**	0.01	0.81
P. Affect ➔ PA2 (Attentive, hopeful, excited)	0.98	0.04	**0.85**	0.01	0.72
P. Affect ➔ PA3 (Determined, enthusiastic, content)	1.05	0.04	**0.84**	0.01	0.71
P. Affect ➔ PA4 (Active, interested, happy)	0.96	0.03	**0.84**	0.01	0.71

Negative Affect

N. Affect ➔ NA1 (Scared, frustrated, ashamed)	1.00[a]	-	**0.82**	0.01	0.67
N. Affect ➔ NA2 (Upset, hostile, nervous)	1.12	0.04	**0.84**	0.02	0.71
N. Affect ➔ NA3 (Afraid, guilty, sad)	1.07	0.04	**0.85**	0.01	0.72
N. Affect ➔ NA4 (Bored, jittery, distressed)	1.12	0.04	**0.86**	0.01	0.74

Mastery

Mastery ➔ M1 (Do anything, way to succeed)	1.00[a]	-	**0.85**	0.02	0.72
Mastery ➔ M2 (Able to get, future depends, can do)	0.98	0.05	**0.86**	0.02	0.74

Task Orientation

Task ➔ T1: Enjoy making plans	1.00[a]	-	**0.73**	0.02	0.53
Task ➔ T2: Daily activities are trivial	0.81	0.06	**0.65**	0.02	0.42
Task ➔ T3: Active in carrying out plans	1.08	0.09	**0.75**	0.02	0.56
Task ➔ T4: Don't have sense	0.82	0.06	**0.65**	0.02	0.42
Task ➔ T5: Done all there is to do	0.69	0.05	**0.59**	0.03	0.35
Task ➔ T6: Live one day at a time	0.47	0.04	**0.45**	0.03	0.20
Task ➔ T7: Have direction and purpose	1.30	0.08	**0.81**	0.01	0.66

Note: Standardized pattern coefficients > .40 are in bold text and are the same as structure coefficients (i.e., Pearson correlations) when indicators depend upon a single factor (Kline, 2016). All results were computed with Mplus in theta parameterization and STDYX standardization. Unstandardized estimates obtained through probit regression for the individual indicators due to the ordinal categorical measurement and linear regression for the parcels due to the continuous measurement. Overall model fit indices are: $\chi^2(1,431) = 2,774.15$, $p = <.001$; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

[a] Not tested for statistical significance. All other unstandardized and standardized pattern coefficients were significant at $p < .001$.

Table 4.12 Correlation Matrix for the Latent Elemental and Latent Compound Traits (N = 1,370)

Variables	1	2	3	4	5	6	7	8	9
1. Openness	-								
2. Conscientiousness	0.49***	-							
3. Extroversion	0.67***	0.40***	-						
4. Agreeableness	0.47***	0.63***	0.87***	-					
5. Neuroticism	-0.26***	-0.42***	-0.32***	-0.26***	-				
6. Positive affect	0.48***	0.51***	0.58***	0.44***	-0.56***	-			
7. Negative affect	-0.12***	-0.32***	-0.25***	-0.18***	0.77***	-0.52***	-		
8. Task orientation	0.47***	0.63***	0.54***	0.46***	-0.46***	0.67***	-0.45***	-	
9. Mastery	0.27***	0.33***	0.33***	0.24***	-0.39***	0.44***	-0.36***	0.44***	-

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

Structural Model Results

A structural diagram representing the statistically significant paths between the elemental, compound, situational, and surface traits with standardized parameter estimates is provided in Figure 4.5. The structural model was estimated with control variables in addition to the factor indicators from the measurement model (see Figure 4.4). Both direct and indirect effects were observed between the trait levels, which are further discussed in the next section. Results provided evidence for the ability of the 3M Model of Motivation and Personality to explain the relationship between older pre-retirees' psychological characteristics and saving behavior. Overall, the model explained 19% of the variability in saving behavior (r-squared = .19). Additionally, the compound traits explained 24% of the variability in financial self-efficacy beliefs (r-squared = .24). Lastly, in accord with the 3M, the elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) explained a substantial amount of variance in each of the compound traits, with an r-squared of .68 for positive affect, .65 for negative affect, .71 for task orientation, and .29 for mastery.

Figure 4.5 Structural Model for Elemental, Compound, and Situational Traits Predicting Saving Behavior (N = 1,370)*
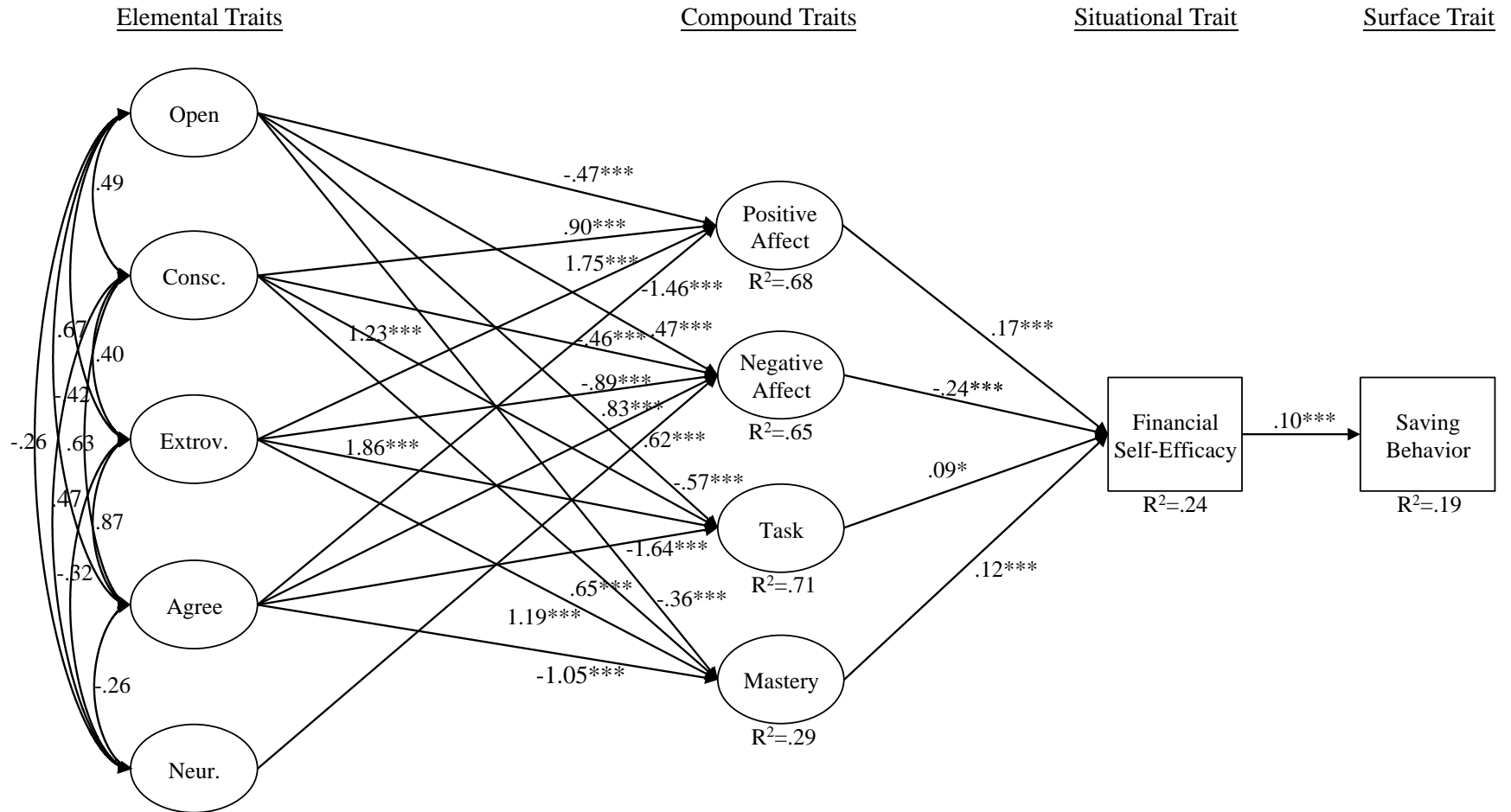
*Note: * p < .05. **p < .01. ***p < .001.* Model Fit Indices: $\chi^2(1,431) = 2,774.15$, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905. All results were computed with Mplus in theta parameterization and STDYX standardization. The structural model was estimated with indicators from the measurement model for the latent variables (see Figure 4.4), and controls for age, marital status, gender, race, education, non-mortgage debt, homeowner status, emergency fund, stocks, IRA/Keogh, 2008 natural logarithmic income, and 2008 natural logarithmic net worth.

Direct Effects with Saving Behavior

Results for the direct effects with saving behavior are provided in Table 4.13. Contrary to expectations, results did not provide support for hypotheses one through nine. The elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) and compound traits (i.e., positive affect, negative affect, mastery, and task orientation) were not directly associated with saving behavior. However, results provided support for hypothesis ten: Financial self-efficacy beliefs are positively associated with saving behavior. For every one-unit increase in financial self-efficacy beliefs, the change in net worth from 2008 to 2012 (i.e., saving behavior) increased by 11.63%[5], holding all else constant *(unstandardized b = .11)*. The standardized coefficient (β) of .10 indicated that a one standard deviation change in financial self-efficacy beliefs was associated with a .10 standard deviation increase in saving behavior, holding all else equal.

The other direct effects associated with saving behavior were race, homeownership, having an adequate emergency fund, having an IRA or Keogh plan, income, and net worth. In accord with existing literature (Wakita et al., 2000), White respondents were associated with a 34.99% higher change in net worth than non-White respondents *(b = .30)*, holding all else equal. The asset composition correlates with saving behavior were also expected based upon existing literature. Specifically, being a homeowner *(b = .35)*, having an emergency fund of three months or more *(b = .31)*, and having an IRA or Keogh account *(b = .22)*, were each associated with a higher change in net worth from 2008 to 2012, holding all else equal (Fisher & Montalto, 2010;

[5] Equation for the interpretation of parameters with a natural logarithmic transformed dependent variable: Percentage change in Y for every one-unit change in $X = (e^b - 1) * 100$, where b is the regression coefficient (Benoit, 2011; Harness et al., 2009).

Hubbard, 1984). Lastly, both income and net worth measured in 2008 were significantly

associated with saving behavior over the 2008 through 2012 time period. Holding all else equal,

a 10% increase in 2008 income was associated with a 1.34%[6] *(b = .14)* increase in the change in

net worth from 2008 to 2012. Additionally, in accord with existing literature, a higher net worth

in 2008 was associated with lower change in net worth (*b* = -.36), holding all else equal

(Chatterjee et al., 2011). Standardized coefficients (β) for the control variables can be found in

Table 4.13.

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[6] Equations for the interpretation of parameters of natural logarithmic transformed independent variables with a
natural logarithmic transformed dependent variable (Benoit, 2011; Harness et al., 2009):

$a = \ln[(100 + p)/100]$, where p = percentage increase associated with the independent variable.

Percent change in $Y = [(e^{a*b}) - 1] * 100$, for every p change in X, where b = regression coefficient.

Table 4.13 Direct Effects with Saving Behavior (N = 1,370)

Parameter	Unstandardized		Standardized*		
	b	SE	β	SE	p
Situational Trait with Saving behavior					
Financial self-efficacy ➜ Saving behavior	0.11	0.03	0.10	0.02	0.00***
Compound Traits with Saving Behavior					
Positive affect ➜ Saving behavior	-0.01	0.31	-0.01	0.16	0.96
Negative affect ➜ Saving behavior	-0.10	0.23	-0.04	0.09	0.67
Task orientation ➜ Saving behavior	0.04	0.26	0.03	0.21	0.88
Mastery ➜ Saving behavior	-0.07	0.09	-0.05	0.06	0.43
Elemental Traits with Saving Behavior					
Openness ➜ Saving behavior	-0.05	0.49	-0.04	0.43	0.93
Conscientiousness ➜ Saving behavior	0.01	1.25	0.00	0.70	1.00
Extroversion ➜ Saving behavior	-0.03	1.64	-0.02	1.24	0.99
Agreeableness ➜ Saving behavior	-0.04	1.13	-0.04	1.12	0.98
Neuroticism ➜ Saving behavior	-0.13	0.11	-0.07	0.06	0.25
Control Variables with Saving Behavior					
Age ➜ Saving behavior	0.00	0.01	-0.01	0.03	0.67
Married ➜ Saving behavior	0.10	0.08	0.08	0.06	0.20
Female ➜ Saving behavior	0.00	0.07	0.00	0.06	0.98
Race White ➜ Saving behavior	0.30	0.08	0.24	0.06	0.00***
College education ➜ Saving behavior	0.13	0.08	0.10	0.07	0.11
Non-mortgage debt ➜ Saving behavior	-0.14	0.07	-0.11	0.06	0.05
Homeowner ➜ Saving behavior	0.35	0.11	0.27	0.08	0.00**
Emergency fund ➜ Saving behavior	0.31	0.12	0.24	0.09	0.00**
Stocks ➜ Saving behavior	0.23	0.13	0.18	0.10	0.07
IRA/KEOGH ➜ Saving behavior	0.22	0.08	0.17	0.06	0.00**
Log income 2008 ➜ Saving behavior	0.14	0.04	0.12	0.03	0.00***
Log net worth 2008 ➜ Saving behavior	-0.36	0.02	-0.56	0.03	0.00***
R^2	0.19				

*Note: * $p < .05$. **$p < .01$. ***$p < .001$.* All results were computed with Mplus in theta parameterization. Standardized results are provided in STDYX standardization for continuous independent variables (including ordinal categorical), and STDY standardization for binary independent variables. Overall model fit indices are: $X^2(1,431) = 2,774.15$, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

Situational Traits as a Mediator

   With situational traits adjacent to compound traits and surface traits in the 3M, it was expected that situational traits (i.e., financial self-efficacy beliefs) would partially or fully mediate the relationship between compound traits (i.e., positive affect, negative affect, task orientation, and mastery) and surface traits (i.e., saving behavior). The mediation framework is provided in Figure 4.6. As previously discussed, mediation occurs when the *ab* product term is significant, regardless of the significance or magnitude of the *c* path (i.e., the direct effect) (Kenny, 2015b; Little, 2013). Kenny (2015b) discussed the general consensus that a direct effect between x and y (i.e., path *c*) is not a necessary condition for mediation to occur. If a significant *c* path is not present, then financial self-efficacy beliefs would fully mediate the relationship between the compound traits and saving behavior.

Figure 4.6 Mediation Framework for Compound Traits to Saving Behavior through Financial Self-efficacy Beliefs, adapted from Little (2013)
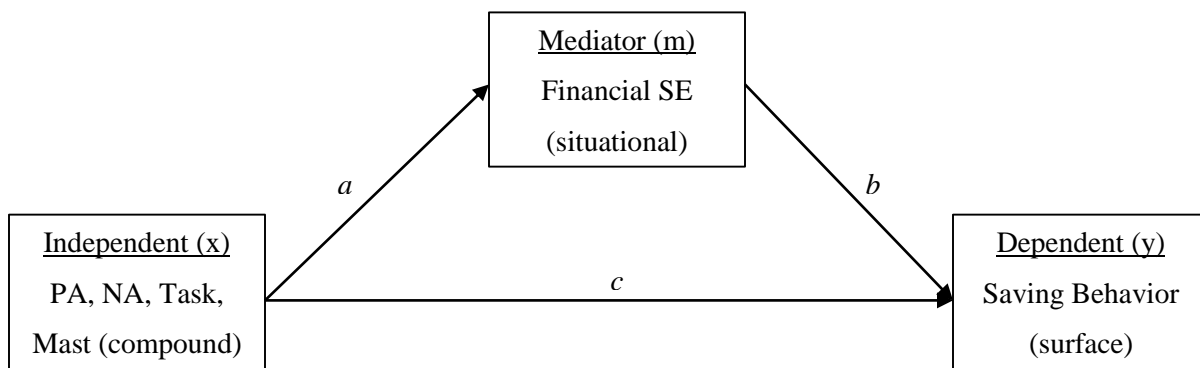
   In support of hypothesis eleven, results provided evidence that financial self-efficacy beliefs *fully* mediate the relationship between compound traits and saving behavior. A significant

163

path from each of the compound traits directly to financial self-efficacy beliefs was observed

(i.e., path *a,* see Table 4.14). Specifically, higher financial self-efficacy beliefs were associated

with higher levels of positive affect ($\beta = .17$), lower levels of negative affect ($\beta = -.24$), a higher

orientation towards tasks ($\beta = .09$), and stronger mastery beliefs ($\beta = .12$). Additionally, a

significant direct path from financial self-efficacy beliefs to saving behavior was found ($\beta = .10$)

(i.e., path *b*, see Table 4.13). Because the direct effects between the compound traits and saving

behavior (i.e., path *c*) were not statistically significant (see Table 4.13), the total effect is equal to

the indirect effect.

Table 4.14 Direct Effects for Compound Traits with Financial Self-Efficacy Beliefs (N = 1,370)

Parameter	Unstandardized		Standardized*		
	b	SE	β	SE	p
Compound Traits with Situational Traits					
Positive affect ➔ Financial self-efficacy	0.29	0.06	0.17	0.03	0.00***
Negative affect ➔ Financial self-efficacy	-0.54	0.06	-0.24	0.03	0.00***
Task orientation ➔ Financial self-efficacy	0.09	0.04	0.09	0.03	0.01*
Mastery ➔ Financial self-efficacy beliefs	0.15	0.03	0.12	0.02	0.00***
R^2	0.24				

*Note: * p < .05. **p < .01. ***p < .001.* All results were computed with Mplus in theta parameterization. Standardized results are provided in STDYX standardization for continuous independent variables (including ordinal categorical). Overall model fit indices are: $X^2(1,431) =$ 2,774.15, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

The total indirect effects (i.e., *ab* product term) are provided in Table 4.15. Standardized

parameter estimates (β) for the indirect effects are discussed in order to facilitate interpretation of

the different measurement scales. To compute the indirect effects, the standardized coefficient

for each compound trait with financial self-efficacy beliefs *(i.e., path a, see Table 4.14)* was

multiplied against the standardized coefficient for financial self-efficacy beliefs with saving

behavior *(*i.e., path b = .10, see Table 4.13). Holding all else equal, the statistically significant standardized indirect effects were .02 (.17 x .10) for positive affect, -.02 (-.24 x .10) for negative affect, and .01 (.12 x .10) for mastery, rounded to two decimal places. The total indirect effect from task orientation to saving behavior missed the statistical significance threshold with a p-value of .052. These indirect estimates can be interpreted in standard deviation units. For example, a one standard deviation increase in positive affect was associated with a .02 standard deviation increase in saving behavior through increased financial self-efficacy beliefs, holding all else equal. Higher levels of negative affect indirectly contributed to reduced saving behavior through lower financial self-efficacy beliefs (β = -.02), holding all else equal. Lastly, stronger mastery beliefs were indirectly and positively associated with saving behavior through higher financial self-efficacy beliefs (β = .01), holding all else equal. Kenny (2015b) suggested the following general rule of thumb for an indirect effect size due to the product of two partial correlations: .01 for small, .09 for medium, and .25 for large. Thus, the compound traits demonstrated a small indirect effect with saving behavior, with a slightly larger indirect effect associated with the positive and negative affect constructs.

Table 4.15 Indirect Effects for Compound Traits with Saving Behavior through Financial Self-Efficacy Beliefs (N = 1,370)

Parameter	Unstandardized		Standardized*		
	b	SE	β	SE	p
Compound Traits to Saving Behavior through Situational Traits					
Positive affect ➔ Financial self-efficacy ➔ Saving behavior	0.03	0.01	0.02	0.01	0.00**
Negative affect ➔ Financial self-efficacy ➔ Saving behavior	-0.06	0.01	-0.02	0.01	0.00***
Task orientation ➔ Financial self-efficacy ➔ Saving behavior	0.01	0.01	0.01	0.00	0.05
Mastery ➔ Financial self-efficacy ➔ Saving behavior	0.02	0.00	0.01	0.00	0.00***

*Note: * p < .05. **p < .01. ***p < .001.* All results were computed with Mplus in theta parameterization. Standardized results are provided in STDYX standardization for continuous independent variables (including ordinal categorical). Model fit indices are: X^2(1,431) = 2,774.15, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

Compound Traits as a Mediator

With compound traits adjacent to elemental traits in the 3M model and the expectation that each trait level would demonstrate a direct association with saving behavior, it was hypothesized that the compound traits (i.e., positive affect, negative affect, task orientation, and mastery) would partially or fully mediate the relationship between the elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) and surface traits (i.e., saving behavior). Using the mediation framework from Figure 4.6, results did not provide support for hypothesis twelve: Compound traits mediate the relationship between elemental traits and saving behavior. While significant direct relationships were found between the elemental and compound traits (i.e., path *a*, see Table 4.16), there were no significant direct relationships between the compound traits and saving behavior (i.e., path *b*, see Table 4.13). Moreover, there were no significant direct relationships between the elemental traits and saving behavior (i.e., path *c*, see Table 4.13).

While the compound traits did not mediate the relationship between the elemental traits and saving behavior, significant direct effects between the elemental traits and compound traits were observed (see Table 4.16). Specifically, openness was associated with lower levels of positive affect (β = -.47), higher levels of negative affect (β = .47), a lower orientation towards tasks (β = -.57), and weaker mastery beliefs (β = -.36). Conscientiousness was associated with higher levels of positive affect (β = .90), lower levels of negative affect (β = -.46), a higher orientation towards tasks (β = 1.23), and stronger mastery beliefs (β = .65). Extroversion was associated with higher levels of positive affect (β = 1.75), lower levels of negative affect (β = -.89), a higher orientation towards tasks (β = 1.86), and stronger mastery beliefs (β = 1.19). Agreeableness was associated with lower levels of positive affect (β = -1.46), higher levels of

167

negative affect (β = .83), a lower orientation towards tasks (β = -1.64), and weaker mastery

beliefs (β = -1.05). Lastly, neuroticism was associated with higher levels of negative affect (β =

.62).

Table 4.16 Direct Effects for Elemental Traits with Compound Traits (N = 1,370)

Parameter	Unstandardized		Standardized*		
	b	SE	β	SE	p
Positive affect					
Openness ➜ Positive affect	-0.28	0.08	-0.47	0.13	0.00***
Conscientiousness ➜ Positive affect	0.86	0.19	0.90	0.17	0.00***
Extroversion ➜ Positive affect	1.24	0.23	1.75	0.29	0.00***
Agreeableness ➜ Positive affect	-0.78	0.16	-1.46	0.29	0.00***
Neuroticism ➜ Positive affect	-0.11	0.09	-0.11	0.10	0.24
R^2	0.68				
Negative affect					
Openness ➜ Negative affect	0.21	0.04	0.47	0.10	0.00***
Conscientiousness ➜ Negative affect	-0.33	0.09	-0.46	0.11	0.00***
Extroversion ➜ Negative affect	-0.47	0.11	-0.89	0.21	0.00***
Agreeableness ➜ Negative affect	0.33	0.08	0.83	0.19	0.00***
Neuroticism ➜ Negative affect	0.45	0.07	0.62	0.06	0.00***
R^2	0.65				
Task orientation					
Openness ➜ Task orientation	-0.52	0.15	-0.57	0.16	0.00**
Conscientiousness ➜ Task orientation	1.81	0.34	1.23	0.20	0.00***
Extroversion ➜ Task orientation	2.03	0.42	1.86	0.36	0.00***
Agreeableness ➜ Task orientation	-1.35	0.29	-1.64	0.34	0.00***
Neuroticism ➜ Task orientation	0.13	0.18	0.09	0.12	0.47
R^2	0.71				
Mastery					
Openness ➜ Mastery	-0.29	0.08	-0.36	0.10	0.00***
Conscientiousness ➜ Mastery	0.83	0.19	0.65	0.13	0.00***
Extroversion ➜ Mastery	1.13	0.22	1.19	0.22	0.00***
Agreeableness ➜ Mastery	-0.75	0.16	-1.05	0.22	0.00***
Neuroticism ➜ Mastery	-0.12	0.09	-0.10	0.07	0.17
R^2	0.29				

*Note: * $p < .05$. **$p < .01$. ***$p < .001$.* All results were computed with Mplus in theta parameterization. Standardized results are provided in STDYX standardization for continuous independent variables (including ordinal categorical). Overall model fit indices are: $\chi^2(1,431) =$ 2,774.15, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

Compound Traits and Situational Traits as Mediators

Given the mediating role of financial self-efficacy beliefs and the significant interrelationships between the trait levels, results provided support for hypothesis thirteen: Combinations of situational and compound traits mediate the relationship between elemental traits and saving behavior. The total indirect effects from elemental traits to saving behavior are provided in Table 4.17. Overall, results revealed that each elemental trait was indirectly connected to saving behavior through multiple pathways.

Table 4.17 Indirect Effects for Elemental Traits to Saving Behavior through Compound and Situational Traits (N = 1,370)

Parameter	Unstandardized		Standardized*		
	b	SE	β	SE	p
Openness ➜ Positive affect ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.00	-0.01	0.00	0.00*
Openness ➜ Negative affect ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.00	-0.01	0.00	0.00**
Openness ➜ Task orientation ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.00	-0.01	0.00	0.08
Openness ➜ Mastery ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.00	0.00	0.00	0.00**
Conscientiousness ➜ Positive affect ➜ Financial self-efficacy ➜ Saving behavior	0.03	0.01	0.02	0.01	0.00**
Conscientiousness ➜ Negative affect ➜ Financial self-efficacy ➜ Saving behavior	0.02	0.01	0.01	0.00	0.00**
Conscientiousness ➜ Task orientation ➜ Financial self-efficacy ➜ Saving behavior	0.02	0.01	0.01	0.01	0.049*
Conscientiousness ➜ Mastery ➜ Financial self-efficacy ➜ Saving behavior	0.01	0.00	0.01	0.00	0.00***
Extroversion ➜ Positive affect ➜ Financial self-efficacy ➜ Saving behavior	0.04	0.01	0.03	0.01	0.00**
Extroversion ➜ Negative affect ➜ Financial self-efficacy ➜ Saving behavior	0.03	0.01	0.02	0.01	0.00**
Extroversion ➜ Task orientation ➜ Financial self-efficacy ➜ Saving behavior	0.02	0.01	0.02	0.01	0.06
Extroversion ➜ Mastery ➜ Financial self-efficacy ➜ Saving behavior	0.02	0.01	0.01	0.00	0.00***
Agreeableness ➜ Positive affect ➜ Financial self-efficacy ➜ Saving behavior	-0.02	0.01	-0.02	0.01	0.00**
Agreeableness ➜ Negative affect ➜ Financial self-efficacy ➜ Saving behavior	-0.02	0.01	-0.02	0.01	0.00**
Agreeableness ➜ Task orientation ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.01	-0.01	0.01	0.06
Agreeableness ➜ Mastery ➜ Financial self-efficacy ➜ Saving behavior	-0.01	0.00	-0.01	0.00	0.00***
Neuroticism ➜ Positive affect ➜ Financial self-efficacy ➜ Saving behavior	0.00	0.00	0.00	0.00	0.29
Neuroticism ➜ Negative affect ➜ Financial self-efficacy ➜ Saving behavior	-0.03	0.01	-0.01	0.00	0.00***
Neuroticism ➜ Task orientation ➜ Financial self-efficacy ➜ Saving behavior	0.00	0.00	0.00	0.00	0.48
Neuroticism ➜ Mastery ➜ Financial self-efficacy ➜ Saving behavior	0.00	0.00	0.00	0.00	0.24

*Note: * p < .05. **p < .01. ***p < .001.* All results were computed with Mplus in theta parameterization. Standardized results are provided in STDYX standardization for continuous independent variables (including ordinal categorical). Overall model fit indices are: $\chi^2(1,431) = 2,774.15$, p = <.001; RMSEA = .026, 90% CI [.025, .028], CFI = .911, TLI = .905

Indirect effects for multiple mediators can be computed with the conventional method

(i.e., product of regression coefficients), as illustrated in Figure 4.7 (Muthén & Muthén, 2015).

Without a direct effect between the elemental traits and saving behavior (i.e., path $d = 0$), the

indirect effect ($a \times b \times c$) equals the total effect, with mediation occurring if the abc product term

is significant.

Figure 4.7 Multiple Mediation of Situational Traits and Compound Traits between Elemental

Traits and Saving Behavior
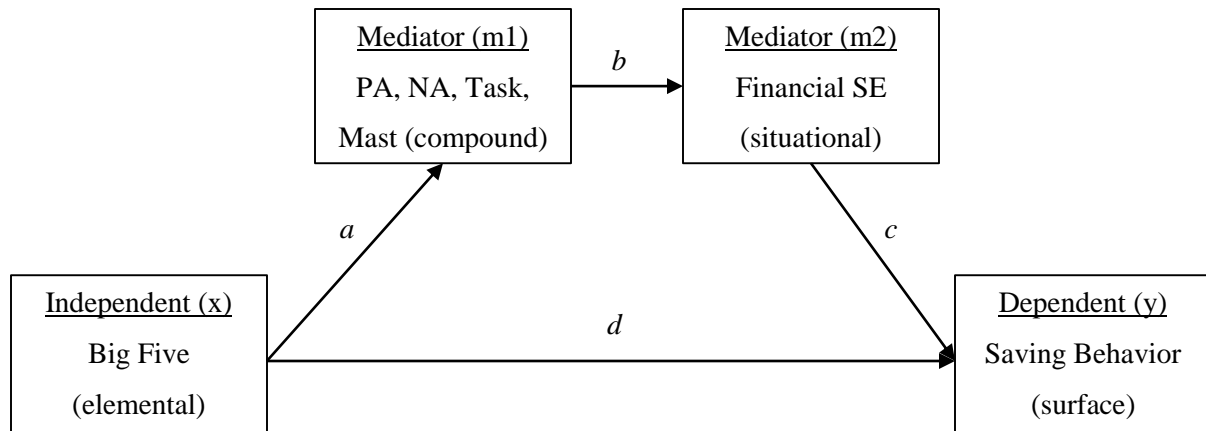
Openness was found to have a negative indirect relationship with saving behavior

through three statistically significant pathways. First, higher levels of openness were associated

with lower levels of positive affect ($\beta = -.47$). Lower levels of positive affect were associated

with lower financial self-efficacy beliefs ($\beta = .17$). Lower financial self-efficacy beliefs were

associated with reduced saving behavior ($\beta = .10$). Thus, the standardized indirect effect of

openness with saving behavior was -.01 (-.47 x .17 x .10). In other words, a one standard

deviation increase in openness was associated with a .01 standard deviation decrease in saving behavior through a combination of decreased positive affect and decreased financial self-efficacy beliefs. Following Kenny (2015b), this is considered a small effect size; however, Kenny's guideline was based upon two partial correlations; where these results are from the product of three partial correlations, suggesting a larger effect size was observed. Second, openness demonstrated a negative indirect relationship with saving behavior ($\beta = -.01$) through higher levels of negative affect and lower financial self-efficacy beliefs (.47 x -.24 x .10 = -.01). Third, openness demonstrated a negative indirect relationship with saving behavior ($\beta = -.004$) through weaker mastery beliefs and lower financial self-efficacy beliefs (-.36 x .12 x .10 = -.004).

Conscientiousness was found to have a positive indirect relationship with saving behavior through four statistically significant pathways. First, conscientiousness demonstrated a positive indirect relationship with saving behavior ($\beta = .02$) through higher levels of positive affect and higher financial self-efficacy beliefs (.90 x .17 x .10 = .02). Second, conscientiousness demonstrated a positive indirect relationship with saving behavior ($\beta = .01$) through lower levels of negative affect and higher financial self-efficacy beliefs (-.46 x -.24 x .10 = .01). Third, conscientiousness demonstrated a positive indirect relationship with saving behavior ($\beta = .01$) through higher levels of task orientation and higher financial self-efficacy beliefs (1.23 x .09 x .10 = .01). Fourth, conscientiousness demonstrated a positive indirect relationship with saving behavior ($\beta = .01$) through stronger mastery beliefs and higher financial self-efficacy beliefs (.65 x .12 x .10 = .01).

Extroversion was found to have a positive indirect relationship with saving behavior through three statistically significant pathways. First, extroversion demonstrated a positive indirect relationship with saving behavior ($\beta = .03$) through higher levels of positive affect and

173

higher financial self-efficacy beliefs (1.75 x .17 x .10 = .03). Second, extroversion demonstrated a positive indirect relationship with saving behavior (β = .02) through lower levels of negative affect and higher financial self-efficacy beliefs (-.89 x -.24 x .10 = .02). Third, extroversion demonstrated a positive indirect relationship with saving behavior (β = .01) through stronger mastery beliefs and higher financial self-efficacy beliefs (1.19 x .12 x .10 = .01).

Agreeableness was found to have a negative indirect relationship with saving behavior through three statistically significant pathways. First, agreeableness demonstrated a negative indirect relationship with saving behavior (β = −.02) through lower levels of positive affect and lower financial self-efficacy beliefs (-1.46 x .17 x .10 = -.02). Second, agreeableness demonstrated a negative indirect relationship with saving behavior (β = −.02) through higher levels of negative affect and lower financial self-efficacy beliefs (.83 x -.24 x .10 = -.02). Third, agreeableness demonstrated a negative indirect relationship with saving behavior (β = −.01) through lower levels of mastery and lower financial self-efficacy beliefs (-1.05 x .12 x .10 = -.01).

Lastly, neuroticism was found to have a negative indirect relationship with saving behavior through one statistically significant pathway. Neuroticism was negatively associated with saving behavior (β = −.01) through higher levels of negative affect and lower financial self-efficacy beliefs (.62 x -.24 x .10 = -.01).

Discussion

This study investigated the relationship amongst the psychological elements of an individual's personality according to the 3M Model of Motivation and Personality (3M) to determine how these elements combine to support the saving behavior of older pre-retirees (Mowen, 2000). These relationships were analyzed through a Structural Equation Model in order

to account for the measurement error associated with the psychological constructs of the 3M, and for the efficient estimation of mediation effects. Overall, results support the ability of the 3M to explain the psychological characteristics directly and indirectly related to the saving behavior of older pre-retirees. Moreover, results of this study highlight the key role financial self-efficacy beliefs play in connecting broader psychological characteristics to saving behavior.

Direct Effects

First, results did not support hypotheses one through nine, which stated that each of the elemental (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) and compound traits (i.e., positive affect, negative affect, task orientation, and mastery) would demonstrate a direct association with saving behavior. This is surprising, as existing literature provided empirical evidence supporting the hypothesized direct relationships for these variables with saving behavior. Within the 3M framework, elemental and compound traits are not adjacent to surface level traits (i.e., saving behavior). Thus, it is possible that any relationship between these traits and saving behavior would be limited to an indirect relationship, mediated by variables at the situational trait level.

Second, significant evidence was generated for hypothesis ten: Financial self-efficacy beliefs are positively associated with saving behavior. This suggests that higher financial self-efficacy beliefs supported the saving behavior of older pre-retirees over the 2008 to 2012 time period. This result aligns with existing literature that indicates domain specific self-efficacy beliefs support self-regulatory behavior, and therefore saving behavior, by positively interacting with an individual's self-regulatory system (Bandura, 1991). Moreover, results support the notion that situational traits (i.e., financial self-efficacy beliefs) hold the strongest relationship

with saving behavior (i.e., a surface level trait) given their adjacent location within the 3M hierarchy (Mowen, 2000).

The direct effect results support Mowen's (2000) observation that researchers have focused on more concrete and narrowly defined traits (e.g., such as financial self-efficacy beliefs) when investigating consumer behavior, as they tend to be more predictive of behavior than broader traits (e.g., elemental and compound traits). Moreover, these results build upon the existing literature by establishing a connection between financial specific self-efficacy beliefs and the saving behavior of older pre-retirees. Currently, the literature reflects a relationship between financial self-efficacy beliefs and young pre-retirees (Shim et al., 2012). Additionally, the literature currently reflects general self-efficacy beliefs, using the Pearlin Mastery scale as a proxy, are associated with the saving behavior of young pre-retirees (Chatterjee et al., 2011). Moreover, results support the notion that the measurement of self-efficacy beliefs is domain specific (Bandura, 1997). This was observed within the current study as *financial* self-efficacy beliefs were directly related to saving behavior. However, general mastery beliefs, which have been used as a proxy for general self-efficacy beliefs and as a foundation for general self-efficacy scales, did not demonstrate a direct relationship with saving behavior (Chen, Gully, & Eden, 2001; Lown, 2011; Sherer & Maddux, 1982).

Mediating (Indirect) Effects

Third, results did not provide support for hypothesis eleven: Compound traits mediate the relationship between elemental traits and saving behavior. While each of the elemental traits were significantly and directly related to the compound traits (i.e., positive affect, negative affect, task orientation, and mastery), the compound traits did not demonstrate a direct relationship with saving behavior. Therefore, compound traits did not serve a mediating role

176

between the elemental traits and saving behavior. Since compound traits are not adjacent to surface level traits (i.e., saving behavior) in the 3M, this finding is not surprising. However, as previously discussed, the lack of a direct relationship between the compound traits and saving behavior was not expected based upon existing literature.

Fourth, significant evidence was generated supporting hypothesis twelve: Situational traits mediate the relationship between compound traits and saving behavior. Specifically, higher levels of positive affect, lower levels of negative affect, and higher levels of mastery indirectly support saving behavior through their association with higher financial self-efficacy beliefs. These results align with existing literature that suggests self-efficacy beliefs are strengthened through experiencing positive emotions, reducing or effectively managing negative emotions, and enhancing mastery perceptions (Bandura, 1997). With financial self-efficacy beliefs positively associated with saving behavior (i.e., hypothesis 10), compound traits (i.e., positive affect, negative affect, and mastery) indirectly support saving behavior by shaping financial self-efficacy beliefs.

For example, older pre-retirees who experience higher levels of positive affect (i.e., determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited) within the last 30 days also demonstrate positive saving behavior through increased financial self-efficacy beliefs. On the other hand, those who experience increased levels of negative affect (i.e., afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed) during the last 30 days exhibit reduced saving behavior through lower financial self-efficacy beliefs. Effectively managing these negative emotional states and enhancing the experience of positive emotional states can indirectly support saving behavior through higher financial self-efficacy beliefs. Moreover, stronger mastery beliefs

177

support saving behavior through higher financial self-efficacy beliefs. This suggests that building mastery beliefs through successful experiences can promote positive saving behavior.

Lastly, task orientation, operationalized through a measure of purpose in life from the Ryff Measures of Psychological Well-Being (Ryff, 1989), did not demonstrate a significant (p = .052) indirect relationship with saving behavior. However, it was significantly and directly associated with higher financial self-efficacy beliefs. Thus, any effects associated with higher levels of task orientation were not transmitted to saving behavior, but were solely related to supporting higher financial self-efficacy beliefs.

Fifth, results provide support for hypothesis thirteen: A combination of situational and compound traits mediate the relationship between elemental traits and saving behavior. Results suggest that elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) are indirectly connected to saving behavior through the direct relationship between the elemental and compound traits, the compound and situational traits, and situational traits and saving behavior. Specifically, the openness, agreeableness, and neuroticism traits were found to have a negative indirect relationship with saving behavior. Alternatively, the conscientiousness and extroversion traits demonstrated a positive indirect relationship with saving behavior. Of these relationships, the only surprising finding was the indirect negative association between openness and saving behavior. The other relationship directions were expected based upon existing literature.

Existing literature suggested a positive relationship would be observed between the openness trait and saving behavior; however, results revealed a negative and indirect relationship exists through lower levels of positive affect, higher levels of negative affect, and weaker mastery beliefs. Previous literature indicated the openness trait was associated with the intent to

178

engage in long-term saving and investing behavior for undergraduate college students (Mayfield et al., 2008); however, perhaps the openness trait manifests into different behavioral consequences for older pre-retirees. Costa and McCrae (1992) suggested that open individuals are curious, open-minded, and experience positive and negative emotions more acutely than others. With retirement looming, older pre-retirees with an open personality disposition may be more susceptible to the damaging effects of stress and worry about financial preparedness for retirement (Gallup, 2014). These *negative affective states* were found to have a negative indirect relationship with saving behavior in this study. Additionally, financial fear and worry have been shown to undermine saving behavior in the presence of motivational factors (Neukam & Hershey, 2003). Thus, open individuals may feel these negative emotions more acutely, thereby harming their financial self-efficacy beliefs and saving behavior. More research is needed to further investigate the relationship between the openness trait and saving behavior.

Agreeableness and neuroticism also demonstrated a negative indirect relationship with saving behavior, which was expected based upon existing literature. Agreeable individuals were negatively associated with saving behavior through higher levels of negative affect, lower levels of positive affect, and weaker mastery beliefs. Neurotic individuals tend to experience higher levels of negative affect; however, a connection between positive affect, mastery, and task orientation was not found. Overall, agreeable and neurotic individuals are significantly associated with negative psychological attributes that are linked to lower financial self-efficacy beliefs. Through lower financial self-efficacy beliefs, the neuroticism and agreeableness traits were found to undermine saving behavior.

The negative relationship between neuroticism and saving behavior is supported within the literature, primarily due to the significant association with negative emotions (Neukam &

179

Hershey, 2003). Agreeableness shares this same connection between negative emotions and saving behavior; however, agreeable individuals also experience less frequent positive emotions and lower levels of mastery. This may be due to the tendency of agreeable individuals to acquiesce and provide assistance to others. For example, they are more likely to be altruistic, sympathetic, cooperative, and eager to help (Costa & McCrae, 1992). While these trait characteristics may promote positive relationships, this trait has been shown to have a negative association with financial outcomes (Mowen & Spears, 1999; Nabeshima & Seay, 2015). Costa and McCrae (1992) suggested that agreeable individuals are less likely to protect their own interests. Older pre-retirees with a dominant agreeable trait may be tempted to spend their financial resources on others for the sake of their own future retirement goals, resulting in negative psychological and financial consequences. For example, agreeable individuals may have a difficult time declining requests for financial assistance from friends, family, or charity. Consequently, they may be more likely to have difficulties following through with a saving plan and may be susceptible to feelings of stress and failure as a result.

The conscientiousness and extroversion traits both demonstrated a positive indirect relationship with saving behavior, as was expected based upon existing literature. Conscientious and extroverted individuals tend to experience higher levels of positive affect, lower levels of negative affect, and a stronger sense of mastery. Conscientiousness was the only elemental trait that exhibited a positive indirect relationship with saving behavior through a higher orientation towards tasks. Overall, these positive psychological attributes are related to higher financial self-efficacy beliefs, which support saving behavior. Therefore, older pre-retirees who identify more strongly toward the conscientiousness and extroversion traits may be more resilient when facing the difficult task of saving for retirement. These findings are in concert with existing literature,

with conscientious and extroverted individuals associated with higher net worth levels (Nabeshima & Seay, 2015).

Limitations

There were several limitations within this study. First, the Great Recession occurred during the measurement time period for saving behavior and for the psychological characteristics. Saving behavior was measured based upon the change in net worth from 2008 to 2012. This time period was highly volatile for investment markets, which made it more difficult to isolate the change in net worth associated with a conscious behavioral decision to save. Thus, using a change in net worth proxy for saving behavior, while comprehensive, may not directly measure saving behavior.

Moreover, the psychological characteristics (i.e., elemental, compound, and situational traits) were measured with a combination of 2008 and 2010 data from the Psychosocial and Lifestyle Questionnaire. The Great Recession was a psychologically challenging time, especially for older pre-retirees approaching retirement in the wake of a substantial investment market decline. Thus, the Great Recession may have influenced the reported psychological characteristics within this study. Moreover, self-reported measures were utilized to estimate the psychological constructs, which can result in measurement error. This measurement error was accounted for within the structural model by treating the psychological constructs as latent variables. A multi-faceted financial self-efficacy construct was not available within the HRS (Lown, 2011). Consequently, financial self-efficacy beliefs were measured based upon a single-item scale. Additionally, in order to obtain an acceptable observation to parameter ratio for the structural equation model, the sample of pre-retirees included partially retired individuals.

Lastly, structural equation modeling implies an *a priori* causal model informed by theory; however, due to the cross-sectional and non-experimental design of this study, causality was not tested. Thus, alternative models with different causal pathways may explain the saving behavior of older pre-retirees as well as the current model (Kline, 2016). Appendix C, Figure C.1, includes a possible alternative model that diverges from the 3M framework by placing financial self-efficacy beliefs solely as an outcome of saving behavior. This alternative model estimates the relationships and model fit under the prediction that financial self-efficacy beliefs are a function of saving success, as opposed to a mediator between broader characteristics and saving behavior. Results of this preliminary alternative model suggest a poorer fit to the data than the current model (χ^2(1,435) = 3,353.55, p = <.001; RMSEA = .031, 90% CI [.030, .033], CFI = .874, TLI = .865). Thus, the full model according to the 3M was retained.

Implications and Conclusion

Results of this study support the ability of the 3M Model of Motivation and Personality to explain consumer behavior from a psychological perspective (Mowen, 2000). Through the 3M framework, results support the notion that psychological characteristics are associated with saving behavior through a combination of broad personality dispositions, narrower psychological attributes, and situational forces. This framework is particularly useful for older pre-retirees who have a rich history of life and financial experiences that manifest within personality characteristics that interact to shape behavior. With retirement on the horizon and an increased financial ability to decide between saving versus spending, it is important for older pre-retirees to understand how the composition of their psychological characteristics and basic personality dispositions might affect their behavioral choices. This study suggests several relevant

implications for financial and mental health practitioners in the role of guiding saving and retirement planning activities for older pre-retirees.

First, this study highlights the central role financial self-efficacy beliefs play in bridging the gap between broader personality traits and saving behavior. Among the psychological characteristics investigated, financial self-efficacy beliefs had the only direct effect associated with saving behavior. Instead of informing saving behavior directly, the broader personality characteristics (i.e., elemental traits) served a primary role in explaining financial self-efficacy beliefs and the underlying characteristics (i.e., compound traits) associated with them. These findings are useful to financial and mental health practitioners because they establish that financial self-efficacy beliefs are important to saving behavior, and they provide a framework (i.e., through the 3M) that explains how these beliefs can be supported by one's psychological status. This facilitates a holistic psychological approach to the implementation of retirement saving strategies that can promote successful follow through.

Second, the 3M framework and findings from this study suggest that financial self-efficacy beliefs are directly shaped by positive emotions, negative emotions, perceived mastery, and an orientation towards tasks with purposeful goal setting. It is important to note that task orientation was operationalized through Ryff's (1989) purpose in life psychological well-being measure, which includes feelings of direction and purpose in life in addition to the valuation of goal setting and task completion. Financial and mental health practitioners can help support higher financial self-efficacy beliefs by assessing their client's current psychological status and deriving a plan to enhance the experience of positive emotions, effectively manage and/or reduce the experience of negative emotions, promote the perception of mastery, and assist clients in establishing meaningful future-oriented goals with clear, actionable steps to achieve them. The

University of Pennsylvania has a user-friendly website (https://www.authentichappiness.sas.upenn.edu) with psychometrically validated scales that can be applied within the financial planning context to establish an understanding of clients' psychological status (e.g., positive and negative affect scales). This understanding provides a foundation for building a retirement saving strategy that supports a positive psychological experience, which in turn supports higher financial self-efficacy beliefs and ultimately successful saving behavior.

Moreover, the growing field of positive psychology provides relevant tools and resources that can be utilized by financial and mental health professionals to enhance clients' positive psychological experience and overall sense of well-being. Asebedo and Seay (2015) provided an overview of how positive psychology can be integrated into the financial planning process to enhance clients' sense of well-being. Financial and mental health professionals can utilize various positive psychological tools, exercises, and resources in order to help clients enhance their financial self-efficacy beliefs to support saving behavior.

Lastly, basic personality dispositions are indirectly connected to saving behavior through the experience of positive emotions, negative emotions, perceived mastery, and task orientation (i.e., the compound traits). These compound traits in turn, directly shape financial self-efficacy beliefs. Thus, an individual's broad personality disposition can provide insight into their proclivity to experience positive or negative psychological characteristics that can affect financial self-efficacy beliefs and ultimately, saving behavior. This suggests that financial and mental health professionals can increase their understanding of saving behavior by determining their client's dominant personality trait. With this information in hand, a saving strategy can be designed that accommodates the negative aspects associated with that particular personality trait.

184

The personality traits with a negative indirect relationship with saving behavior were openness, agreeableness, and neuroticism. The traits with a positive indirect relationship with saving behavior were conscientiousness and extroversion.

Agreeable, open, and neurotic individuals tend to experience higher levels of negative affect, with agreeable and open individuals also experiencing lower levels of positive affect. These relationships were indirectly associated with reduced saving behavior through lower financial self-efficacy beliefs. Consequently, individuals with a dominant agreeable, open, or neurotic personality trait may benefit from strategies specifically focused on the management of negative emotional states. One useful positive emotion that has been shown to combat negative emotions and inspire action is optimism. Optimism has received significant attention within positive psychology and other fields, such as health psychology, and can be cultivated over time (Seligman, 2011, 2012). To manage negative emotional states, Bandura (1999) also suggested that, "…those who believe they can relax, get engrossed in engaging activities, calm themselves by reassuring thought and support from friends, family, and others find unpleasant emotional states less aversive than those who feel helpless to relieve their emotional distress" (p. 30). This suggests that one's social network and trusted financial or mental health advisors can also have an impact on the management of negative emotions. Additionally, it may be useful to encourage clients to participate in activities or hobbies that provide a sense of engagement.

Agreeable and open individuals are also associated with weaker mastery beliefs, and therefore reduced saving behavior through lower financial self-efficacy beliefs. These individuals may benefit from a retirement saving strategy that is focused on smaller and more manageable steps that allow them to experience more frequent successes. The financial planner or mental health professional can have a profound influence on the perception of success. For

example, daily decisions to curb expenditures may seem inconsequential, but can be viewed as significant as they reflect difficult behavioral decisions that require self-control. Financial and mental health professionals can help clients see these decisions as successes, which can promote a greater sense of mastery and accomplishment. Moreover, it may be useful to stay in close contact with these clients (e.g., through email, phone calls, or meetings) in order to offer ongoing support and encouragement.

Lastly, conscientiousness and extroversion appear to be protective personality traits that indirectly support saving behavior through the experience of more positive emotions, reduced negative emotions, and a stronger sense of mastery. Conscientious individuals were also indirectly associated with positive saving behavior through a greater purposeful and meaningful orientation towards tasks and goals. These positive psychological attributes were associated with higher financial self-efficacy beliefs and consequently, higher saving behavior. Despite these positive attributes, financial and mental health professionals may still want to assess the extent to which conscientious and extroverted individuals experience positive or negative psychological attributes, as these traits may manifest differently based upon individual and situational circumstances.

In summary, financial and mental health practitioners can provide valuable support for older pre-retirees experiencing an increased temptation to spend (i.e., due to a higher income) along with an increased sense of urgency and motivation to save (i.e., due to a close proximity to retirement). This study provides evidence for a psychological framework (i.e., the 3M) that utilizes basic personality dispositions as the foundation for understanding more specific psychological characteristics that support saving behavior. Financial and mental health practitioners can utilize this framework to support both positive financial and psychological

outcomes within the financial planning process. This study builds upon the literature by bridging the gap between broad personality traits and saving behavior in order to support older pre-retirees in ultimately bridging the saving gap for retirement.

References

Allison, P. D. (2003). Missing data techniques for structural equation modeling. *Journal of Abnormal Psychology, 112*(4), 545-557.

Allison, P. D. (2012). When can you safely ignore multicollinearity? *Statistical Horizons.* Retrieved from: http://statisticalhorizons.com/multicollinearity

Ando, A., & Modigliani, F. (1963). The 'life cycle' hypothesis of saving: Aggregate implications and tests. *The American Economic Review, 53*(1), 55-84.

Asebedo, S. D., & Seay, M. C. (2015). From functioning to flourishing: Applying positive psychology to financial planning. *Journal of Financial Planning, 28*(11), 50-58.

Asparouhov, T. (2005). Sampling weights in latent variable modeling. *Structural Equation Modeling, 12*, 411-434.

Asparouhov, T. (2005). General multi-level modeling with sampling weights. *Communications in Statistics: Theory and Methods, 35*, 439-460.

Asparouhov, T. & Muthén, B. (2006). Multilevel modeling of complex survey data. Proceedings of the Joint Statistical Meeting in Seattle, August 2006. ASA Section on Survey Research Methods, 2718-2726.

Asparouhov, T. & Muthén, B. (2010). Weighted least squares estimation with missing data. Technical appendix. Los Angeles: Muthén & Muthén.

Attanasio, O. P. (1993). A cohort analysis of saving behavior by US households (No. w4454). *National Bureau of Economic Research.*

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review 84*(2), 191-215.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall, Inc.

Baron, R. A. (1990). Environmentally induced positive affect: Its impact on self-efficacy, task performance, negotiation, and conflict. *Journal of Applied Social Psychology*, *20*(5), 368-384.

Benoit, K. (2011). *Linear regression models with logarithmic transformations.* Methodology Institute, London School of Economics. Retrieved from: http://www.kenbenoit.net/courses/ME104/logmodels2.pdf

Bentler, P. M., & Chou, C. P. (1987) Practical issues in structural modeling. *Sociological Methods & Research, 16*, 78-117.

Bryant, W. K., & Zick, C. D. (2006). *The economic organization of the household*, New York, NY: Cambridge University Press.

Carstensen, L. L., Pasupathi, M., Mayr, U., & Nesselroade, J. R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, 79(4), 644-655.

Campbell, J. Y. (2006). Household finance. *The Journal of Finance*, *61*(4), 1553-1604.

Chatterjee, S., Finke, M., & Harness, N. (2011). The impact of self-efficacy on wealth accumulation and portfolio choice. *Applied Economics Letters, 18*(7), 627-631.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods*, *4*(1), 62-83.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO-PI-R: Professional manual.* Odessa, FL: Psychological Assessment Resources.

da Matta, A., Gonçalves, F. L., & Bizarro, L. (2012). Delay discounting: Concepts and measures. *Psychology & Neuroscience, 5*(2), 135-146.

Diener, E., & Biswas-Diener, R. (2002). Will money increase subjective well-being?. *Social Indicators Research, 57*(2), 119-169.

Dunn, E. W., Gilbert, D. T., & Wilson, T. D. (2011). If money doesn't make you happy, then you probably aren't spending it right. *Journal of Consumer Psychology, 21*(2), 115-125.

Field, A. & Miles, J. (2012). *Discovering statistics using SAS.* Thousand Oaks, CA: Sage Publications, Inc.

Fisher, P. J., & Montalto, C. P. (2010). Effect of saving motives and horizon on saving behaviors. *Journal of Economic Psychology*, *31*(1), 92-105.

Fisher, P. J., & Montalto, C. P. (2011). Loss aversion and saving behavior: Evidence from the 2007 US Survey of Consumer Finances. *Journal of Family and Economic Issues, 32*(1), 4-14.

Fleck, C. (2009). *Is retirement even possible? Millions of people age 70+ are still on the job.* AARP Bulletin. Retrieved from: http://www.aarp.org/work/working-after-retirement/info-08-2009/no_rest_for_the_weary.html

Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *The Royal Society, 359*, 1367-1377.

Gallup. (2014). *Retirement remains Americans' top financial worry*. Retrieved from: http://www.gallup.com/poll/168626/retirement-remains-americans-top-financial-worry.aspx

Geiser, C. (2013). *Data analysis with Mplus.* New York, NY: The Guilford Press.

Grable, J. E., & Lytton, R. H. (1997). Determinants of retirement savings plan participation: A discriminant analysis. *Personal Finances and Worker Productivity, 1*(1), 184-189.

Guven, C. (2012). Reversing the question: Does happiness affect consumption and savings behavior? *Journal of Economic Psychology, 33*(4), 701-717.

Harness, N. J., Finke, M. S., & Chatterjee, S. (2009). The effects of the capital accumulation ratio on wealth. *Journal of Financial Counseling and Planning, 20*(1), 44-57.

Headey, B. Muffels, R, & Wooden, M. (2008). Money does not buy happiness: Or does it? A reassessment based on the combined effects of wealth, income and consumption. *Social Indicators Research*, *87*(1), 65-82.

Helman, R., Copeland, C., & VanDerhei, J. (2012). The 2012 retirement confidence survey: Job insecurity, debt weigh on retirement confidence, savings. *EBRI Issue Brief*, 369, 1-32.

Hershey, D. A., & Mowen, J. C. (2000). Psychological determinants of financial preparedness for retirement. *The Gerontologist, 40(*6), 687-697.

Hershey, D. A., Jacobs-Lawson, J. M., McArdle, J. J., & Hamagami, F. (2007). Psychological foundations of financial planning for retirement. *Journal of Adult Development, 14*(1-2), 26-36.

Hogarth, J. M., Beverly, S. G., & Hilgert, M. (2003). Patterns of financial behaviors: Implications for community educators and policy makers. *Federal Reserve System Community Affairs Research Conference*.

Hubbard, R. G. (1984). Do IRAs and Keoghs Increase Saving?. *National Tax Journal*, 43-54.

IPIP. (2016). *International personality item pool*. Retrieved from: http://ipip.ori.org.

Kenny, D. A. (2015a). *Measuring model fit.* Retrieved from: http://davidakenny.net/cm/fit.htm

Kenny, D. A. (2015b). *Mediation.* Retrieved from: http://davidakenny.net/cm/mediate.htm

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Third Edition. New York, NY: The Guilford Press.

Lachman, M. E., & Weaver, S. L. (1997). *The midlife development inventory (MIDI) personality scales: Scale construction and scoring*. Waltham, MA: Brandeis University. Retrieved from: http://www.brandeis.edu/departments/psych/lachman/pdfs/midi-personality-scales.pdf

Little, T. D. (2013). *Longitudinal structural equation modeling*. New York, NY: The Guilford Press.

Little, T. D., Cunningham, W. A., & Shahar, G. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. *Structural Equation Modeling, 9*(2), 151-173.

Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counseling and Planning*, *22*(2), 54-63.

Lunt, P. K., & Livingstone, S. M. (1991). Psychological, social and economic determinants of saving: Comparing recurrent and total savings. *Journal of Economic Psychology, 12*(4), 621-641.

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: does happiness lead to success?. *Psychological bulletin*, *131*(6), 803.

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, *1*, 130-149.

Mayfield, C., Perdue, G., & Wooten, K. (2008). Investment management and personality type. *Financial Services Review, 17*, 219-236.

McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self-efficacy among older adults. *Journal of Gereontology, 51B*(5), 243-253.

Moldoff, M., Chien, S., Campbell, N., Hayden, O., Hurd, M., Main, R., Meijer, E., Martin, C., Carroll, J., Rohwedder, S., St. Clair, P. (2014). Rand HRS Income and Wealth Imputations, Version N. *Social Security Administration and the National Institute on Aging.* Retrieved from:

http://130.154.3.8/content/dam/rand/www/external/labor/aging/dataprod/randiwn.pdf

Mowen, J. C. (2000). *The 3M model of motivation and personality: Theory and empirical applications to consumer behavior*. Norwell, MA: Kluwer Academic Publishers.

Mowen, J. C., & Spears, N. (1999). Understanding compulsive buying among college students: A hierarchical approach. *Journal of Consumer Psychology, 8*(4), 407-430.

Mullainathan, S., & Thaler, R. H. (2000). Behavioral economics. *National Bureau of Economic Research,* Inc, 2000, NBER Working Papers: 7948.

Munnell, A. H. (2011). What is the average retirement age?. *Center for Retirement Research*.

Munnell, A. H., Webb, A., & Golub-Sass, F. (2012). The national retirement risk index: An update. *Center for Retirement Research at Boston College*, *1*-9.

Muthén, L. K. (2009). MPlus discussion: WLS vs MLR in EFA w ordinal data. Retrieved from: http://www.statmodel.com/discussion/messages/8/3865.html?1447080346

Muthén, L. K., & Muthén, B. O. (2015). *Mplus user's guide.* Seventh Edition. Los Angeles, CA: Muthén & Muthén.

Nabeshima, G., & Seay, M. C. (2015). Wealth and personality: Can personality traits make your clients rich? *Journal of Financial Planning, 28*(7), 50-57.

Neukam, K. A., & Hershey, D. A. (2003). Financial inhibition, financial activation, and saving for retirement. *Financial Services Review, 12*(1), 19-37.

Nielsen, R. B., & Seay, M. C. (2014). Complex samples and regression-based inference: Considerations for consumer researchers. *Journal of Consumer Affairs*, 1-17.

Ong, A.D., Edwards, L.M., & Bergeman, C.S. (2006). Hope as a source of resilience in later adulthood. *Personality and Individual Differences*. 41(7), 1263-1273.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of health and Social Behavior*, 19, 2-21.

RAND Center for the Study of Aging. (2014). *RAND HRS data documentation, Version N*. Santa Monica, CA: RAND.

Roszkowski, M. J., & Grable, J. (2007). How are income and net worth related to happiness?. *Journal of Financial Service Professionals*, *61*(1).

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57*(6), 1069-1081.

Seligman, M. E. (2011). *Learned optimism: How to change your mind and your life.* New York, NY: Random House Digital, Inc.

Seligman, M. E. (2012). *Flourish: A visionary new understanding of happiness and well-being.* New York, NY: Simon and Schuster.

Sherer, M., & Maddux, J. E. (1982). Self-efficacy scale: Construction and validation. *Psychological Reports, 51*, 663-671.

Schuettler, D., Kiviniemi, M. T. (2006). Does how I feel about it matter? The role of affect in cognitive and behavioral reactions to an illness diagnosis, *Journal of Applied Social Psychology, 36*(11), 2599-2618.

Shefrin, H. M., & Thaler, R. H. (1988). The behavioral life-cycle hypothesis. *Economic Inquiry*, 26(4), 609.

Shim, S., Serido, J., & Tang, C. (2012). The ant and the grasshopper revisited: The present psychological benefits of saving and future oriented financial behaviors. *Journal of Economic Psychology, 33*(1), 155-165.

Smith, J., Fisher, G., Ryan, L., Clarke, P., House, J., Weir, D. (2013). *Psychosocial and Lifestyle Questionnaire 2006 – 2010.* Ann Arbor, MI: University of Michigan Institute for Social Research, Survey Research Center.

Stawski, R. S., Hershey, D. A., & Jacobs-Lawson, J. M. (2007). Goal clarity and financial planning activities as determinants of retirement savings contributions. *The International Journal of Aging and Human Development, 64*(1), 13-32.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis.* Washington, DC: American Psychological Association.

U.S. Census Bureau. (2013). *Webinar on 2012 income, poverty and health insurance estimates from the current population survey*. Retrieved from: http://www.census.gov/newsroom/releases/pdf/20130917_ip_remarks.pdf

Wakita, S., Fitzsimmons, V. S., & Liao, T. F. (2000). Wealth: Determinants of savings net worth and housing net worth of pre-retired households. *Journal of Family and Economic Issues, 21*(4), 387-418.

Watson, D., & Clark, L.A. (1999). The PANAS-X: Manual for the positive and negative affect schedule – expanded form. Unpublished manuscript. University of Iowa.

Chapter 5 - Conclusion

The overarching purpose of this dissertation was to investigate a psychological framework to explain variability in the saving behavior of older pre-retirees. This understanding is critical to holistically supporting older pre-retirees' saving efforts as this population moves towards closing the observed retirement saving gap (Helman, Copland, & VanDerhei, 2012; Munnell, Webb, & Golub-Sass, 2012). This purpose was accomplished through three separate essays investigating the complex relationship between psychological characteristics, financial self-efficacy beliefs, and saving behavior. Each essay utilized data from the Health and Retirement Study (HRS), a large national data set focused on the retirement issues facing older American adults. The 3M Model of Motivation and Personality (3M) served as the primary theoretical framework, guiding the investigation of the psychological characteristics associated with saving behavior. The 3M provided a coherent map to facilitate the selection of psychological attributes and to place these characteristics into a logical and useful framework. The 3M suggested that psychological characteristics range from the following broad to narrow traits, resulting in concrete behavioral tendencies at the surface trait level: Elemental, compound, situational, and surface traits. Moreover, the Social Cognitive Theory of Self-Regulation served as the theoretical framework highlighting the critical role financial self-efficacy beliefs play within the self-regulatory process, and consequently saving behavior.

Essay One

Essay one established a foundation for the psychological factors supporting the financial self-efficacy beliefs of older pre-retirees. Through the 3M framework, the purpose of essay one was to investigate the elemental and compound traits associated with financial self-efficacy beliefs. Results provided support for the utility of the 3M to explain the connections between

psychological characteristics and financial self-efficacy beliefs. Specifically, positive affect, mastery, and task orientation (i.e., compound traits) were significantly and positively associated with financial self-efficacy beliefs. Negative affect (i.e., a compound trait) was significantly and negatively associated with financial self-efficacy beliefs. Moreover, results revealed preliminary evidence for mediating roles between psychological characteristics, as any effect from the elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) with financial self-efficacy beliefs was removed after controlling for the narrower compound traits. These results supported the utility of the 3M in investigating the inter-relationships of psychological characteristics.

Essay Two

Essay two examined the role of financial self-efficacy beliefs in explaining older pre-retirees' saving behavior, as this population tends to possess the objective financial ability and motivation to save with peak lifetime earnings and a close proximity to retirement (U.S. Census Bureau, 2013). Thus, the purpose of essay two was to determine if financial self-efficacy beliefs accounted for variability in the saving behavior of older pre-retirees after controlling for the financial ability and motivation to save. The Social Cognitive Theory of Self-Regulation asserted that domain specific self-efficacy beliefs are a key aspect of control that shape self-regulatory behavior, such as saving behavior (Bandura, 1991). Overall results revealed support for the Social Cognitive Theory of Self-Regulation within the older pre-retiree population. A significant and positive connection was found between higher financial self-efficacy beliefs and saving behavior after controlling for socio-demographic, financial, and motivational factors. Results suggest that psychological attributes remain important to the saving and consumption decisions for the older pre-retiree population.

Essay Three

   The purpose of essay three was to determine how psychological characteristics combine to support the saving behavior of older pre-retirees. Both direct and indirect relationships were examined in essay three with saving behavior as the outcome variable of interest. Essay one revealed the possibility of mediating relationships through the 3M framework. Consequently, essay three integrated essays one and two within a structural equation model to investigate the complex relationships between the psychological characteristics informed by the 3M, and to determine how these characteristics combine to support saving behavior. Results from essay three revealed significant interrelationships amongst the psychological constructs in accord with expectations based upon the 3M. Specifically, elemental traits (i.e., openness, conscientiousness, extroversion, agreeableness, and neuroticism) were significantly associated with compound traits (i.e., positive affect, negative affect, task orientation, and mastery), compound traits were significantly associated with situational traits (i.e., financial self-efficacy beliefs), and situational traits were significantly associated with surface traits (i.e., saving behavior). Additionally, results highlight the role financial self-efficacy beliefs play in translating broader characteristics into saving behavior, as financial self-efficacy beliefs were the only trait that demonstrated a direct effect with saving behavior.

   Mowen (2000) observed that there has been a departure from investigating broad personality traits within the consumer behavior literature given the weak direct relationships found between broad personality traits (e.g., Big Five personality traits) and behavior. Results of essay three supported this observation, as a direct connection between broad personality traits and saving behavior was not found. In concert with the 3M, however, essay three found that broad personality traits connected directly with subsequent narrow traits that ultimately informed behavior. This supports Mowen's (2000) assertion that consumer behavior can be more fully

understood by investigating the combination of narrow and broad traits simultaneously.

Implications

Results of this dissertation reveal several relevant implications for financial professionals, mental health professionals, and researchers. First, results support existing literature that suggests the measurement of self-efficacy beliefs should be based upon the particular behavioral domain of interest (Bandura, 1997; McAvay, Seeman, & Rodin, 1996). This was observed in essay two, which demonstrated a larger effect size for the relationship between financial self-efficacy beliefs and saving behavior than a similar study utilizing a general measure of mastery as a proxy for self-efficacy beliefs (Chatterjee, Finke, & Harness, 2011). It is important to also note that younger pre-retirees were the population of interest for the Chatterjee et al. (2011) study, where this dissertation focused on older pre-retirees. Therefore, it is also possible that sample differences may have accounted for some of the difference in effect size.

Moreover, general mastery beliefs were not directly related to saving behavior in essay three. Instead, general mastery beliefs were shown in essay three to directly inform financial self-efficacy beliefs. This finding is supported by theory, which states that mastery beliefs are the most powerful source of information that directly shape self-efficacy beliefs, which should be measured at the domain level (Bandura, 1997). Mastery beliefs have been used as a proxy for self-efficacy beliefs and as a foundation for general self-efficacy scales within the literature. Bandura (1997) stated that a common misconception is that general self-efficacy beliefs produce domain specific self-efficacy beliefs. Consequently, general measures of self-efficacy, often operationalized through measures of perceived mastery, tend to be used in lieu of domain specific self-efficacy measurements. Bandura (1997) indicated that any relationship between general self-efficacy and behavior is likely due to chance and an overlap with the general and

domain specific measurement. As a result, any effect between general self-efficacy beliefs and behavior tend to be removed after accounting for domain specific beliefs. This was observed when comparing the alternative model (see Appendix C, Figure C.1) to the retained model in essay three (see Figure 4.5). The alternative model revealed a direct relationship between mastery and saving behavior when financial self-efficacy beliefs were removed from the mediation equation and measured solely as an outcome of saving behavior. However, when estimating financial self-efficacy beliefs as a mediator between saving behavior and mastery, any direct effect between saving behavior and mastery was removed. This supports the notion that domain specific self-efficacy beliefs provide more explanatory power in estimating behavior, and that mastery beliefs serve a fundamental role in shaping those domain specific efficacy beliefs.

Recognizing the need for a domain specific self-efficacy measure, Lown (2011), developed a specific financial self-efficacy scale that can be utilized by researchers. With financial self-efficacy beliefs positively related to older pre-retirees' saving behavior, it would behoove financial and mental health professionals to assess their client's current financial self-efficacy belief levels. Lown's (2011) financial self-efficacy scale (FSES) could be utilized for this purpose. Lown's FSES scale includes the following components, rated on a Likert-type scale from 1 *(exactly true)* to 4 *(not at all true)*:

1. It is hard to stick to my spending plan when unexpected expenses arise.
2. It is challenging to make progress toward my financial goals.
3. When unexpected expenses occur I usually have to use credit.
4. When faced with a financial challenge, I have a hard time figuring out a solution.
5. I lack confidence in my ability to manage my finances.
6. I worry about running out of money in retirement.

Higher FSES scores indicate higher financial self-efficacy beliefs. After financial and mental health professionals have assessed a client's FSES level, they can target strategies to enhance their client's beliefs. Results of this dissertation provide empirical evidence for the psychological characteristics that support financial self-efficacy beliefs. In accordance with Bandura (1997), financial self-efficacy beliefs are supported through frequent feelings of positive affect, reduced feelings of negative affect, and an increased perception of mastery. Additionally, a purposeful and future orientation towards goals, tasks, and activities supports positive financial self-efficacy beliefs. The scales incorporated into this dissertation could be utilized to assess existing levels of positive affect, negative affect, mastery, and task orientation. Alternatively, some of these scales (e.g., positive and negative affect) are available within a user-friendly format on the University of Pennsylvania's Authentic Happiness website (https://www.authentichappiness.sas.upenn.edu).

Third, results of this dissertation suggest that a complex network of psychological characteristics explain saving behavior. Specifically, saving behavior can be traced back to broader personality dispositions, but are more directly explained through narrow traits influenced by situational forces. The combination of the 3M with the Social Cognitive Theory of Self-Regulation results in a framework that moves from broad personality traits (i.e., elemental traits: openness, conscientiousness, extroversion, agreeableness, and neuroticism) to saving behavior through narrower traits (i.e., compound traits: positive affect, negative affect, mastery, and task orientation) and financial self-efficacy beliefs (i.e., a situational trait). For example, conscientiousness is positively associated with frequent positive affect, reduced negative affect, feelings of perceived mastery, and a stronger task orientation. These same directional effects for the narrower compound traits are related to higher financial self-efficacy beliefs, which in turn

demonstrate a positive relationship with saving behavior.

Personality origins can provide insight into general tendencies to exhibit narrower traits and thus, provide a foundation from which to explore saving behavior. Financial and mental health professionals can utilize this framework to provide holistic retirement saving advice that acknowledges the psychological roots of behavior. Understanding these psychological origins can help professionals more effectively tailor advice to help individuals overcome adversity and manage stress associated with failures during the financial planning process. For example, an agreeable individual may be more susceptible to negative emotions and lower mastery beliefs associated with managing and succumbing to the financial expectations of others. These negative psychological characteristics are associated with reduced financial self-efficacy beliefs and negative saving behavior. Through gaining an understanding of these psychological origins, a financial or mental health professional might adopt a strategy to specifically encourage higher mastery beliefs. Additionally, it may be useful to provide the client with tools and resources to more effectively manage the financial demands imposed by others (e.g., friends, family, or charity). This may include a more detailed budget or an alternative account structure.

In summary, by adapting and integrating psychological theory into retirement saving recommendations, financial and mental health professionals can provide more comprehensive advice and support by accounting for client's psychological characteristics that manifest through behavioral tendencies, which can affect the successful implementation of recommendations.

Future Direction

The financial planning profession would benefit from future research investigating the relationship between financial self-efficacy beliefs and other financial behaviors through the 3M, such as investing, debt choices, retirement timing, portfolio withdrawal rates, and behavior

amongst couples, etc. It is possible that the combination of basic personality factors and narrower

psychological characteristics may further explain why observed behaviors deviate from rational

expectations. Moreover, more longitudinal research is needed to expand upon McAvay, Seeman,

and Rodin's (1996) work, which suggested that the financial self-efficacy beliefs of older adults

(i.e., age 62 and above) were the weakest and most susceptible to decline over time, as compared

to self-efficacy beliefs in other life domains. Additionally, with the major financial transition

associated with retirement, research can be expanded to investigate how financial self-efficacy

beliefs are associated with financial behavior and satisfaction during retirement and throughout

the retirement transition.

Additionally, advanced statistical methods are needed in order to understand the causal

relationship between variables. For example, do positive emotions cause higher financial self-

efficacy beliefs and consequently positive saving behavior? Or, does the act of saving (i.e., a

success that builds the perception of mastery) result in higher financial self-efficacy beliefs,

thereby resulting in positive emotional outcomes (i.e., happiness)? The structural equation

modeling (SEM) framework implies a causal ordering of variables based upon *a priori*

specifications; however, an SEM framework does not specifically test for causality.

Consequently, it is important to investigate other alternative models that explain the data just as

well as the preferred model (Kline, 2016).

Lastly, essay one indicated that the openness personality trait was positively connected to

financial self-efficacy beliefs; however, essay three revealed a negative relationship. Additional

analyses suggested this may be due to the time period difference between essay one and essay

three. Essay one measured openness with a combination of 2010 and 2012 data, where essay

three utilized 2008 and 2010 data. It is possible that the volatile investment market environment

over the 2008 to 2010 time period was felt more acutely for individuals with an openness personality trait (Costa & McCrae, 1992), resulting in a negative relationship with financial self-efficacy beliefs and saving behavior. Further research is needed to evaluate the possible time-period effect for the relationship between openness, financial self-efficacy beliefs, and saving behavior.

Overall, results of this dissertation suggest that financial self-efficacy beliefs provide a key to the connection between psychology and financial behavior. With financial self-efficacy beliefs serving an important role in the successful execution of saving behavior, more research is needed to understand how these beliefs affect the financial planning process and how higher financial self-efficacy beliefs can be sustained across time.

References

Bandura, A. (1991). Social cognitive theory of self-regulation. *Organizational Behavior and Human Decision Processes, 50*(2), 248-287.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W.H. Freeman and Company.

Costa, P. T., Jr., & McCrae, R. R. (1992). *NEO-PI-R: Professional manual.* Odessa, FL: Psychological Assessment Resources.

Chatterjee, S., Finke, M., & Harness, N. (2011). The impact of self-efficacy on wealth accumulation and portfolio choice. *Applied Economics Letters, 18*(7), 627-631.

Helman, R., Copeland, C., & VanDerhei, J. (2012). The 2012 retirement confidence survey: Job insecurity, debt weigh on retirement confidence, savings. *EBRI Issue Brief*, 369, 1-32.

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Third Edition. New York, NY: The Guilford Press.

Lown, J. M. (2011). Development and validation of a financial self-efficacy scale. *Journal of Financial Counseling and Planning*, *22*(2), 54-63.

McAvay, G. J., Seeman, T. E., & Rodin, J. (1996). A longitudinal study of change in domain-specific self-efficacy among older adults. *Journal of Gereontology, 51B*(5), 243-253.

Munnell, A. H., Webb, A., & Golub-Sass, F. (2012). The national retirement risk index: An update. *Center for Retirement Research at Boston College*, *1*-9.

U.S. Census Bureau. (2013). *Webinar on 2012 income, poverty and health insurance estimates from the current population survey*. Retrieved from http://www.census.gov/newsroom/releases/pdf/20130917_ip_remarks.pdf

Appendix A - Correlation Table and Separate CFA Results (Ch. 4)

Table A.1 Correlation Matrix for All Variables

Variables	1	2	3	4	5	6	7	8
1. O1: Creative	-							
2. O2: Imaginative	0.78***	-						
3. O3: Intelligence	0.46***	0.47***	-					
4. O4: Curious	0.42***	0.48***	0.52***	-				
5. O5: Broad-minded	0.30***	0.31***	0.42***	0.40***	-			
6. O6: Sophisticated	0.36***	0.38***	0.47***	0.32***	0.32***	-		
7. O7: Adventurous	0.40***	0.43***	0.36***	0.42***	0.31***	0.44***	-	
8. C1: Organized	0.24***	0.21***	0.34***	0.15***	0.14***	0.26***	0.11***	-
9. C2: Responsible	0.23***	0.23***	0.43***	0.26***	0.27***	0.20***	0.12**	0.54***
10. C3: Hardworking	0.23***	0.27***	0.32***	0.16***	0.17***	0.16***	0.13***	0.37***
11. C4: Careless	0.07***	0.01	0.15***	-0.05	-0.01***	0.09**	-0.04	0.35***
12. C5: Thorough	0.30***	0.34***	0.46***	0.33***	0.28***	0.34***	0.28***	0.58***
13. E1: Outgoing	0.26***	0.29***	0.31***	0.28***	0.23***	0.33***	0.44***	0.16***
14. E2: Friendly	0.26***	0.32***	0.30***	0.35***	0.31***	0.24***	0.32***	0.24***
15. E3: Lively	0.32***	0.39***	0.33***	0.33***	0.28***	0.36***	0.45***	0.22***
16. E4: Active	0.34***	0.37***	0.37***	0.39***	0.30***	0.27***	0.41***	0.29***
17. E5: Talkative	0.18***	0.25***	0.15***	0.22***	0.15***	0.24***	0.29***	0.00
18. A1: Helpful	0.28***	0.28***	0.36***	0.26***	0.29***	0.27***	0.25***	0.26***
19. A2: Warm	0.26***	0.29***	0.30***	0.29***	0.27***	0.24***	0.24***	0.22***
20. A3: Caring	0.19***	0.20***	0.28***	0.27***	0.32***	0.19***	0.16***	0.24***
21. A4: Softhearted	0.09**	0.17***	0.14***	0.22***	0.18***	0.04	0.06*	0.08**
22. A5: Sympathetic	0.17***	0.21***	0.24***	0.20***	0.34***	0.15***	0.06*	0.19***
23. N1: Moody	-0.06*	-0.06*	-0.09***	-0.02	-0.08**	-0.04	-0.04	-0.02
24. N2: Worrying	-0.10***	-0.04	-0.12***	0.02	-0.04	-0.06*	-0.15***	-0.01
25. N3: Nervous	-0.07**	-0.07*	-0.16***	-0.02	-0.07**	-0.05	-0.12***	-0.10***
26. N4: Calm	-0.25***	-0.25***	-0.35***	-0.25***	-0.27***	-0.15***	-0.19***	-0.22***
27. P1: Determined	0.26***	0.30***	0.31***	0.21***	0.25***	0.23***	0.27***	0.29***
28. P2: Enthusiastic	0.28***	0.30***	0.33***	0.25***	0.33***	0.26***	0.33***	0.24***
29. P3: Active	0.29***	0.28***	0.26***	0.21***	0.26***	0.21***	0.34***	0.25***

30. P4: Proud	0.27***	0.26***	0.32***	0.23***	0.19***	0.23***	0.28***	0.27***
31. P5: Interested	0.33***	0.32***	0.39***	0.30***	0.29***	0.22***	0.31***	0.25***
32. P6: Happy	0.22***	0.19***	0.25***	0.18***	0.23***	0.16***	0.27***	0.18***
33. P7: Attentive	0.24***	0.29***	0.43***	0.27***	0.38***	0.29***	0.22***	0.28***
34. P8: Content	0.17***	0.18***	0.26***	0.15***	0.23***	0.14***	0.22***	0.25***
35. P9: Inspired	0.36***	0.34***	0.30***	0.25***	0.25***	0.25***	0.35***	0.19***
36. P10: Hopeful	0.29***	0.31***	0.29***	0.25***	0.28***	0.24***	0.31***	0.24***
37. P11: Alert	0.23***	0.22***	0.30***	0.25***	0.33***	0.26***	0.25***	0.27***
38. P12: Calm	0.18***	0.15***	0.23***	0.16***	0.18***	0.17***	0.20***	0.26***
39. P13: Excited	0.30***	0.29***	0.29***	0.25***	0.23***	0.27***	0.39***	0.20***
40. N1: Afraid	-0.08**	-0.09*	-0.11**	-0.08*	-0.08*	-0.06*	-0.17***	-0.17***
41. N2: Upset	-0.07*	-0.05*	-0.14***	-0.07*	-0.10***	-0.08**	-0.12***	-0.13***
42. N3: Guilty	-0.01	-0.02	-0.11***	-0.03	-0.07*	-0.11***	-0.08**	-0.15***
43. N4: Scared	0.00	-0.02	-0.03	-0.02	-0.01**	0.02	-0.10***	-0.10***
44. N5: Frustrated	-0.04	-0.03	-0.06*	0.01	-0.05	-0.03	-0.08***	-0.08**
45. N6: Bored	-0.17***	-0.12***	-0.16***	-0.14***	-0.14***	-0.06*	-0.12***	-0.10***
46. N7: Hostile	0.03	-0.01	-0.05	0.00	-0.11***	0.01	0.01	-0.14***
47. N8: Jittery	-0.01	-0.06*	-0.09**	-0.03	-0.07*	-0.05	-0.09**	-0.14***
48. N9: Ashamed	-0.06	-0.12***	-0.14***	-0.10*	-0.14***	-0.10**	-0.11***	-0.19***
49. N10: Nervous	-0.04	-0.07*	-0.13***	-0.01	-0.08**	-0.06*	-0.14***	-0.10***
50. N11: Sad	-0.07**	-0.04	-0.13***	-0.07*	-0.11***	-0.05***	-0.15***	-0.10***
51. N12: Distressed	-0.03	-0.01	-0.08*	0.01	-0.05	-0.04***	-0.10***	-0.15***
52. T1: Making plans	0.28***	0.33***	0.29***	0.23***	0.24***	0.23***	0.28***	0.30***
53. T2: Daily activities	0.16***	0.18***	0.23***	0.15***	0.16***	0.14***	0.19***	0.19***
54. T3: Active person	0.29***	0.28***	0.32***	0.28***	0.23***	0.24***	0.33***	0.31***
55. T4: Don't have sense	0.25***	0.24***	0.25***	0.17***	0.15***	0.20***	0.21***	0.25***
56. T5: Done all	0.22***	0.18***	0.30***	0.22***	0.26***	0.13***	0.22***	0.07**
57. T6: Live one day	0.21***	0.22***	0.23***	0.12***	0.11***	0.17***	0.14***	0.22***
58. T7: Direction	0.25***	0.27***	0.35***	0.21***	0.20***	0.21***	0.25***	0.29***
59. M1: Can do anything	0.29***	0.25***	0.29***	0.20***	0.26***	0.20***	0.29***	0.18***
60. M2: Find a way	0.26***	0.26***	0.31***	0.23***	0.29***	0.21***	0.27***	0.22***
61. M3: Able to get	0.14***	0.15***	0.22***	0.19***	0.20***	0.15***	0.18***	0.14***
62. M4: Future depends	0.14***	0.14***	0.24***	0.15***	0.20***	0.16***	0.18***	0.15***
63. M5: Do the things	0.15***	0.16***	0.25***	0.16***	0.21***	0.20***	0.24***	0.21***
64. Financial self-efficacy	0.10***	0.06*	0.17***	0.07**	0.09***	0.08**	0.08***	0.22***
65. Saving behavior	-0.08***	-0.05*	-0.02	-0.02	-0.03	-0.05*	-0.08**	0.01

66. Non-mortgage debt	-0.05	-0.03	-0.04	-0.05	0.06	0.00	-0.02	-0.16***
67. Homeowner	0.00	0.01	-0.04	0.01	0.00	-0.05	0.02	-0.05
68. Emergency fund	0.02	0.02	0.04	0.02	0.00	0.00	-0.02	0.14***
69. Stocks	0.02	0.05	0.16***	0.06	0.13**	0.15***	0.10**	0.05
70. IRA/Keogh	0.11*	0.08*	0.16***	0.14***	0.10**	0.12***	0.16***	0.08**
71. Log 2008 income	0.04	0.03	0.15***	0.08**	0.07*	0.12***	0.12***	0.04
72. Log 2008 net worth	0.11***	0.10***	0.10***	0.10***	0.10***	0.12***	0.15***	0.04
73. Age	0.09**	0.10**	0.03	0.08	0.09**	0.02	0.04	0.05*
74. Married	-0.08*	-0.03	-0.04	0.03	-0.01	-0.05	0.03	-0.06*
75. Female	0.04	-0.04	0.02	-0.01	0.05	-0.02	-0.13***	0.07*
76. Race White	0.05	0.05	-0.02	0.09	0.17***	-0.13**	0.05	0.05
77. College education	0.13***	0.18***	0.39***	0.17***	0.24***	0.30***	0.20***	0.12***

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

Variables	9	10	11	12	13	14	15	16
9. C2: Responsible	-							
10. C3: Hardworking	0.60***	-						
11. C4: Careless	0.39***	0.29***	-					
12. C5: Thorough	0.58***	0.50***	0.37***	-				
13. E1: Outgoing	0.12**	0.21***	-0.02	0.16***	-			
14. E2: Friendly	0.41***	0.47***	0.06	0.31***	0.60***	-		
15. E3: Lively	0.32***	0.38***	0.10***	0.26***	0.66***	0.59***	-	
16. E4: Active	0.36***	0.47***	0.11***	0.28***	0.39***	0.42***	0.57***	-
17. E5: Talkative	0.04	0.08**	-0.13***	0.07**	0.60***	0.42***	0.48***	0.23***
18. A1: Helpful	0.41***	0.57***	0.11***	0.43***	0.42***	0.62***	0.44***	0.37***
19. A2: Warm	0.39***	0.43***	0.15***	0.29***	0.53***	0.82***	0.52***	0.34***
20. A3: Caring	0.46***	0.48***	0.19***	0.36***	0.36***	0.62***	0.50***	0.32***
21. A4: Softhearted	0.29***	0.34***	0.03	0.20***	0.15***	0.43***	0.27***	0.18***
22. A5: Sympathetic	0.39***	0.33***	0.13***	0.36***	0.20***	0.45***	0.29***	0.20***
23. N1: Moody	-0.14***	-0.21***	-0.40***	-0.17***	-0.13***	-0.18***	-0.14***	-0.16***
24. N2: Worrying	-0.06	-0.09**	-0.23***	-0.04	-0.16***	-0.10***	-0.13***	-0.14***
25. N3: Nervous	-0.17***	-0.19***	-0.37***	-0.16***	-0.19***	-0.18***	-0.12***	-0.19***
26. N4: Calm	-0.39***	-0.33***	-0.25***	-0.27***	-0.22***	-0.36***	-0.28***	-0.35***
27. P1: Determined	0.35***	0.29***	0.22***	0.40***	0.26***	0.24***	0.30***	0.34***
28. P2: Enthusiastic	0.24***	0.21***	0.18***	0.30***	0.38***	0.29***	0.45***	0.42***

29. P3: Active	0.24***	0.31***	0.18***	0.25***	0.29***	0.27***	0.40***	0.66***
30. P4: Proud	0.35***	0.35***	0.19***	0.31***	0.32***	0.31***	0.41***	0.39***
31. P5: Interested	0.36***	0.32***	0.24***	0.34***	0.35***	0.32***	0.38***	0.45***
32. P6: Happy	0.28***	0.28***	0.21***	0.25***	0.36***	0.35***	0.38***	0.40***
33. P7: Attentive	0.37***	0.26***	0.25***	0.39***	0.30***	0.29***	0.31***	0.37***
34. P8: Content	0.33***	0.21***	0.23***	0.27***	0.27***	0.29***	0.30***	0.37***
35. P9: Inspired	0.23***	0.28***	0.19***	0.29***	0.32***	0.23***	0.41***	0.41***
36. P10: Hopeful	0.25***	0.24***	0.18***	0.29***	0.33***	0.29***	0.39***	0.41***
37. P11: Alert	0.33***	0.33***	0.30***	0.40***	0.29***	0.30***	0.37***	0.44***
38. P12: Calm	0.30***	0.26***	0.29***	0.27***	0.25***	0.30***	0.28***	0.33***
39. P13: Excited	0.23***	0.20***	0.11***	0.24***	0.37***	0.29***	0.45***	0.42***
40. N1: Afraid	-0.16***	-0.24***	-0.24***	-0.13***	-0.23***	-0.20***	-0.20***	-0.22***
41. N2: Upset	-0.16***	-0.17***	-0.24***	-0.09***	-0.13***	-0.09**	-0.17***	-0.21***
42. N3: Guilty	-0.24***	-0.25***	-0.31***	-0.19***	-0.07**	-0.11***	-0.14***	-0.13***
43. N4: Scared	-0.14***	-0.18***	-0.27***	-0.09**	-0.18***	-0.15***	-0.14***	-0.18***
44. N5: Frustrated	-0.09*	-0.09**	-0.18***	-0.04	-0.10***	-0.01	-0.14***	-0.16***
45. N6: Bored	-0.21*	-0.17***	-0.25***	-0.15***	-0.19***	-0.16***	-0.25***	-0.28***
46. N7: Hostile	-0.20***	-0.20***	-0.32***	-0.14***	-0.11***	-0.23***	-0.14***	-0.11***
47. N8: Jittery	-0.21***	-0.20***	-0.29***	-0.09**	-0.18***	-0.18***	-0.18***	-0.27***
48. N9: Ashamed	-0.31***	-0.31***	-0.37***	-0.24***	-0.19***	-0.21***	-0.22***	-0.30***
49. N10: Nervous	-0.18***	-0.25***	-0.28***	-0.14***	-0.20***	-0.16***	-0.23***	-0.26***
50. N11: Sad	-0.19***	-0.21***	-0.26***	-0.14***	-0.19***	-0.11***	-0.18***	-0.27***
51. N12: Distressed	-0.14***	-0.18***	-0.29***	-0.07**	-0.14***	-0.08**	-0.15***	-0.21***
52. T1: Making plans	0.32***	0.29***	0.26***	0.35***	0.29***	0.29***	0.34***	0.38***
53. T2: Daily activities	0.27***	0.33***	0.29***	0.28***	0.18***	0.24***	0.26***	0.33***
54. T3: Active person	0.44***	0.42***	0.25***	0.39***	0.32***	0.32***	0.40***	0.53***
55. T4: Don't have sense	0.24***	0.26***	0.27***	0.28***	0.18***	0.21***	0.24***	0.28***
56. T5: Done all	0.28***	0.23***	0.21***	0.22***	0.21***	0.23***	0.23***	0.29***
57. T6: Live one day	0.33***	0.24***	0.20***	0.26***	0.12***	0.15***	0.19***	0.22***
58. T7: Direction	0.38***	0.39***	0.30***	0.34***	0.35***	0.32***	0.36***	0.43***
59. M1: Can do anything	0.16***	0.22***	0.21***	0.26***	0.27***	0.28***	0.28***	0.29***
60. M2: Find a way	0.24***	0.26***	0.22***	0.28***	0.25***	0.27***	0.26***	0.32***
61. M3: Able to get	0.18***	0.14***	0.20***	0.16***	0.22***	0.21***	0.22***	0.24***
62. M4: Future depends	0.22***	0.18***	0.18***	0.19***	0.17***	0.22***	0.16***	0.21***
63. M5: Do the things	0.22***	0.23***	0.21***	0.21***	0.22***	0.25***	0.27***	0.28***
64. Financial self-efficacy	0.21*	0.23***	0.18***	0.18***	0.15***	0.19***	0.22***	0.23***

Variable								
65. Saving behavior	0.02	-0.07*	0.01	0.02	-0.05*	-0.01	-0.09***	-0.07*
66. Non-mortgage debt	-0.05	0.00	-0.06*	-0.09**	-0.01	-0.03	-0.01	-0.05
67. Homeowner	0.08	0.10*	0.14**	-0.02	-0.02	-0.04	-0.03	0.04
68. Emergency fund	0.05	-0.05	0.00	0.09**	0.00	-0.03	-0.06*	0.07*
69. Stocks	0.04	-0.01	0.08**	0.05	0.02	0.00	0.00	0.02
70. IRA/Keogh	0.08*	0.05	0.06	0.09**	0.04	-0.06	-0.04	0.14***
71. Log 2008 income	0.08*	0.03	0.10***	0.06*	0.10***	0.01	0.04	0.08**
72. Log 2008 net worth	0.09**	0.04	0.11***	0.08**	0.09***	0.01	0.04	0.14***
73. Age	0.07	0.06	0.02	0.04	0.14***	0.10**	0.11***	0.19***
74. Married	0.04	-0.02	-0.03	-0.09**	0.03	-0.06	0.03	0.09**
75. Female	0.13**	0.21***	0.15***	0.15***	0.08***	0.17***	0.00**	-0.04
76. Race White	0.08	0.06	0.01	0.04	-0.02	0.06	-0.13**	0.03
77. College education	0.11**	-0.03	0.04	0.18***	0.10**	0.05	-0.02	0.06*

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

Variables	17	18	19	20	21	22	23	24
17. E5: Talkative	-							
18. A1: Helpful	0.27***	-						
19. A2: Warm	0.34***	0.66***	-					
20. A3: Caring	0.31***	0.67***	0.68***	-				
21. A4: Softhearted	0.18***	0.46***	0.50***	0.57***	-			
22. A5: Sympathetic	0.18***	0.50***	0.51***	0.64***	0.59***	-		
23. N1: Moody	-0.08**	-0.10***	-0.21***	-0.14***	-0.02	-0.09**	-	
24. N2: Worrying	0.04	0.01	-0.10***	0.05*	0.14***	0.06*	0.39***	-
25. N3: Nervous	-0.01	-0.09**	-0.20***	-0.05*	0.06*	0.01	0.45***	0.70***
26. N4: Calm	-0.04	-0.32***	-0.36***	-0.34***	-0.30***	-0.26***	0.35***	0.35***
27. P1: Determined	0.15***	0.29***	0.29***	0.27***	0.15***	0.28***	-0.19***	-0.17***
28. P2: Enthusiastic	0.25***	0.26***	0.33***	0.24***	0.09**	0.24***	-0.26***	-0.30***
29. P3: Active	0.13***	0.26***	0.24***	0.20***	0.04	0.13***	-0.19***	-0.22***
30. P4: Proud	0.20***	0.28***	0.31***	0.23***	0.18***	0.18***	-0.23***	-0.27***
31. P5: Interested	0.16***	0.29***	0.33***	0.25***	0.10***	0.19***	-0.28***	-0.27***
32. P6: Happy	0.19***	0.27***	0.31***	0.23***	0.12***	0.18***	-0.37***	-0.38***
33. P7: Attentive	0.15***	0.32***	0.32***	0.32***	0.11***	0.30***	-0.22***	-0.18***
34. P8: Content	0.13***	0.22***	0.28***	0.20***	0.11**	0.19***	-0.34***	-0.37***
35. P9: Inspired	0.16***	0.26***	0.28***	0.22***	0.13***	0.17***	-0.26***	-0.31***

36. P10: Hopeful	0.18***	0.27***	0.32***	0.29***	0.14***	0.22***	-0.28***	-0.24***
37. P11: Alert	0.18***	0.32***	0.29***	0.32***	0.12***	0.23***	-0.26***	-0.20***
38. P12: Calm	0.05*	0.26***	0.32***	0.27***	0.14***	0.17***	-0.35***	-0.40***
39. P13: Excited	0.24**	0.24***	0.31***	0.25***	0.15***	0.17***	-0.16***	-0.23***
40. N1: Afraid	-0.06*	-0.13***	-0.18***	-0.09**	-0.01	-0.02	0.32***	0.49***
41. N2: Upset	-0.02	-0.05	-0.12***	-0.05	0.01	0.00	0.36***	0.49***
42. N3: Guilty	-0.04	-0.16***	-0.17***	-0.11***	0.01	0.02	0.28***	0.32***
43. N4: Scared	-0.06*	-0.07*	-0.12***	-0.08*	0.01	0.01	0.30***	0.44***
44. N5: Frustrated	-0.08**	-0.02	-0.06*	-0.04	-0.03	-0.01	0.35***	0.41***
45. N6: Bored	-0.05*	-0.15***	-0.20***	-0.13***	0.02	-0.13***	0.35***	0.32***
46. N7: Hostile	0.01	-0.09**	-0.25***	-0.19***	-0.16***	-0.21***	0.43***	0.34***
47. N8: Jittery	-0.07*	-0.12***	-0.17***	-0.15***	-0.03	-0.04	0.33***	0.44***
48. N9: Ashamed	-0.08*	-0.20***	-0.21***	-0.14***	-0.02	-0.04	0.38***	0.34***
49. N10: Nervous	-0.05*	-0.12***	-0.18***	-0.13***	-0.04	-0.01	0.39***	0.51***
50. N11: Sad	-0.02	-0.10***	-0.14***	-0.07*	0.01	0.05	0.36***	0.50***
51. N12: Distressed	-0.03	-0.04	-0.07**	-0.06*	0.07*	0.00	0.38***	0.54***
52. T1: Making plans	0.10***	0.28***	0.32***	0.28***	0.14***	0.21	-0.23***	-0.17***
53. T2: Daily activities	0.10***	0.24***	0.27***	0.27***	0.10***	0.23***	-0.27***	-0.21***
54. T3: Active person	0.14***	0.31***	0.33***	0.31***	0.11***	0.19***	-0.24***	-0.15***
55. T4: Don't have sense	0.09***	0.16***	0.22***	0.23***	0.09**	0.19***	-0.22***	-0.26***
56. T5: Done all	0.12***	0.25***	0.22***	0.24***	0.08**	0.18***	-0.22***	-0.26***
57. T6: Live one day	0.04	0.12***	0.13***	0.13***	0.04	0.13***	-0.13***	-0.10***
58. T7: Direction	0.14***	0.29***	0.33***	0.29***	0.12***	0.20***	-0.30***	-0.24***
59. M1: Can do anything	0.12***	0.30***	0.29***	0.30***	0.14***	0.19***	-0.19***	-0.23***
60. M2: Find a way	0.10***	0.31***	0.27***	0.32***	0.11***	0.16***	0.24***	-0.25***
61. M3: Able to get	0.09***	0.16***	0.18***	0.15***	0.04	0.11***	-0.22***	-0.27***
62. M4: Future depends	0.05*	0.19***	0.15***	0.19***	0.05*	0.10***	-0.23***	-0.29***
63. M5: Do the things	0.09**	0.23***	0.21***	0.23***	0.07**	0.12***	-0.26***	-0.29***
64. Financial self-efficacy	0.08***	0.23***	0.20***	0.15***	0.08**	0.12***	-0.22***	-0.25***
65. Saving behavior	0.01	-0.05	0.02	-0.07*	-0.03	-0.01	-0.07**	-0.03
66. Non-mortgage debt	0.10***	-0.02	-0.02	0.00	0.05	0.09**	0.05*	0.07*
67. Homeowner	0.02	-0.06	-0.01	-0.16**	-0.06	-0.07*	-0.07	0.04
68. Emergency fund	-0.03	-0.02	0.01	-0.06*	-0.07*	-0.07*	0.00	-0.02
69. Stocks	-0.05	0.01	-0.01	-0.12***	-0.17***	-0.08*	0.01	-0.07*
70. IRA/Keogh	-0.11***	-0.10**	-0.06	-0.16***	-0.19***	-0.10**	-0.02	-0.11***
71. Log 2008 income	-0.01	-0.02	-0.02	-0.06**	-0.14***	-0.03	-0.02	-0.08***

Variables								
72. Log 2008 net worth	-0.01	-0.02	0.01	-0.10**	-0.15***	-0.03	-0.10***	-0.09***
73. Age	0.05*	0.01	0.09**	0.04	0.01	0.07*	-0.10***	-0.09***
74. Married	0.02	-0.07*	-0.05	-0.12***	-0.03	-0.07*	-0.02	0.00
75. Female	0.12***	0.23***	0.27***	0.38***	0.28***	0.36***	-0.12***	0.19***
76. Race White	-0.05	-0.11*	-0.05	-0.03	-0.03	0.06	0.04	0.01
77. College education	-0.12***	0.00	0.06	-0.05	-0.22***	-0.02	0.00	-0.06*

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

Variables	25	26	27	28	29	30	31	32
25. N3: Nervous	-							
26. N4: Calm	0.46***	-						
27. P1: Determined	-0.18***	-0.27***	-					
28. P2: Enthusiastic	-0.30***	-0.34***	0.69***	-				
29. P3: Active	-0.21***	-0.26***	0.44***	0.57***	-			
30. P4: Proud	-0.30***	-0.34***	0.48***	0.59***	0.53***	-		
31. P5: Interested	-0.32***	-0.34***	0.54***	0.64***	0.58***	0.69***	-	
32. P6: Happy	-0.41***	-0.39***	0.43***	0.65***	0.50***	0.61***	0.62***	-
33. P7: Attentive	-0.26***	-0.29***	0.50***	0.53***	0.47***	0.38***	0.59***	0.46***
34. P8: Content	-0.41***	-0.42***	0.44***	0.60***	0.47***	0.51***	0.56***	0.73***
35. P9: Inspired	-0.29***	-0.35***	0.52***	0.63***	0.51***	0.54***	0.60***	0.62***
36. P10: Hopeful	-0.28***	-0.37***	0.51***	0.62***	0.49***	0.49***	0.59***	0.63***
37. P11: Alert	-0.32***	-0.31***	0.43***	0.52***	0.50***	0.48***	0.59***	0.50***
38. P12: Calm	-0.49***	-0.59***	0.34***	0.50***	0.41***	0.46***	0.50***	0.59***
39. P13: Excited	-0.23***	-0.30***	0.40***	0.60***	0.44***	0.55***	0.56***	0.61***
40. N1: Afraid	0.57***	0.32***	-0.15***	-0.30***	-0.26***	-0.27***	-0.31***	-0.41***
41. N2: Upset	0.47***	0.33***	-0.15***	-0.32***	-0.27***	-0.26***	-0.28***	-0.42***
42. N3: Guilty	0.41***	0.26***	-0.14***	-0.19***	-0.16***	-0.18***	-0.20***	-0.28***
43. N4: Scared	0.54***	0.30***	-0.15***	-0.29***	-0.22***	-0.22***	-0.25***	-0.40***
44. N5: Frustrated	0.41***	0.27***	-0.13***	-0.28***	-0.20***	-0.23***	-0.20***	-0.41***
45. N6: Bored	0.31***	0.25***	-0.26***	-0.38***	-0.32***	-0.26***	-0.38***	-0.39***
46. N7: Hostile	0.43***	0.28***	-0.15***	-0.25***	-0.20***	-0.25***	-0.25***	-0.39***
47. N8: Jittery	0.64***	0.41***	-0.17***	-0.30***	-0.28***	-0.28***	-0.28***	-0.39***
48. N9: Ashamed	0.49***	0.37***	-0.17***	-0.30***	-0.28***	-0.35***	-0.32***	-0.43***
49. N10: Nervous	0.73***	0.45***	-0.12***	-0.30***	-0.25***	-0.28***	-0.25***	-0.43***
50. N11: Sad	0.56***	0.35***	-0.22***	-0.36***	-0.30***	-0.35***	-0.33***	-0.55***
51. N12: Distressed	0.62***	0.34***	-0.13***	-0.31***	-0.26***	-0.28***	-0.28***	-0.44***

Variables								
52. T1: Making plans	-0.23***	-0.30***	0.41***	0.42***	0.34***	0.38***	0.39***	0.39***
53. T2: Daily activities	-0.24***	-0.25***	0.34***	0.38***	0.33***	0.31***	0.39***	0.37***
54. T3: Active person	-0.23***	-0.28***	0.40***	0.42***	0.43***	0.40***	0.43***	0.39***
55. T4: Don't have sense	-0.25***	-0.24***	0.33***	0.35***	0.31***	0.32***	0.34***	0.34***
56. T5: Done all	-0.26***	-0.23***	0.30***	0.33***	0.31***	0.29***	0.41***	0.31***
57. T6: Live one day	-0.09***	-0.09**	0.26***	0.23***	0.22***	0.23***	0.29***	0.17***
58. T7: Direction	-0.32***	-0.33***	0.40***	0.47***	0.40***	0.42***	0.46***	0.49***
59. M1: Can do anything	-0.27***	-0.29***	0.38***	0.40***	0.31***	0.29***	0.35***	0.41***
60. M2: Find a way	-0.28***	-0.31***	0.38***	0.39***	0.33***	0.32***	0.38***	0.38***
61. M3: Able to get	-0.29***	-0.26***	0.24***	0.33***	0.25***	0.29***	0.32***	0.34***
62. M4: Future depends	-0.28***	-0.26***	0.26***	0.29***	0.22***	0.26***	0.30***	0.33***
63. M5: Do the things	-0.30***	-0.31***	0.28***	0.38***	0.30***	0.33***	0.35***	0.43***
64. Financial self-efficacy	-0.26***	-0.22***	0.22***	0.31***	0.27***	0.35***	0.32***	0.35***
65. Saving behavior	-0.06*	-0.02	-0.01	-0.03	-0.06*	-0.02	-0.02	-0.03
66. Non-mortgage debt	0.01	0.04	0.00	-0.01	-0.11***	-0.06*	0.00	-0.07*
67. Homeowner	-0.04	0.06	-0.02	0.01	0.02	0.07	0.07	0.15***
68. Emergency fund	0.04	0.07*	0.03	0.02	0.10***	0.02	0.06*	0.05
69. Stocks	-0.03	0.07*	0.09**	0.12***	0.09**	0.12***	0.17***	0.10**
70. IRA/Keogh	-0.06*	0.04	0.04	0.11***	0.15***	0.08**	0.18***	0.07*
71. Log 2008 income	-0.08***	0.00	0.08***	0.17***	0.08***	0.15***	0.16***	0.15***
72. Log 2008 net worth	-0.09***	0.00	0.10***	0.19***	0.17***	0.15***	0.20***	0.19***
73. Age	-0.06*	-0.11***	0.07*	0.10***	0.09***	0.08**	0.14***	0.14***
74. Married	-0.06*	0.02	-0.01	0.11***	0.04	0.08**	0.05	0.15***
75. Female	0.05	-0.06*	0.03	0.00	-0.08**	0.02	0.04	0.03
76. Race White	-0.05	0.06	-0.03	0.02	0.04	-0.06	0.03	0.01
77. College education	-0.02	0.01	0.08**	0.17***	0.13***	0.04	0.21***	0.02

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

Variables	33	34	35	36	37	38	39	40
33. P7: Attentive	-							
34. P8: Content	0.61***	-						
35. P9: Inspired	0.48***	0.58***	-					
36. P10: Hopeful	0.47***	0.61***	0.80***	-				
37. P11: Alert	0.61***	0.56***	0.56***	0.62***	-			
38. P12: Calm	0.38***	0.63***	0.52***	0.56***	0.53***	-		

39. P13: Excited	0.41***	0.53***	0.65***	0.63***	0.50***	0.49***	-	
40. N1: Afraid	-0.23***	-0.44***	-0.27***	-0.28***	-0.33***	-0.48***	-0.19***	-
41. N2: Upset	-0.19***	-0.44***	-0.32***	-0.29***	-0.25***	-0.47***	-0.27***	0.62***
42. N3: Guilty	-0.13***	-0.28***	-0.18***	-0.21***	-0.27***	-0.36***	-0.14***	0.53***
43. N4: Scared	-0.16***	-0.40***	-0.22***	-0.24***	-0.26***	-0.46***	-0.17***	0.85***
44. N5: Frustrated	-0.14***	-0.42***	-0.28***	-0.26***	-0.18***	-0.41***	-0.21***	0.45***
45. N6: Bored	-0.32***	-0.42***	-0.38***	-0.37***	-0.36***	-0.32***	-0.28***	0.33***
46. N7: Hostile	-0.18***	-0.41***	-0.28***	-0.29***	-0.27***	-0.41***	-0.15***	0.49***
47. N8: Jittery	-0.18***	-0.38***	-0.26***	-0.29***	-0.31***	-0.51***	-0.22***	0.58***
48. N9: Ashamed	-0.28***	-0.43***	-0.27***	-0.28***	-0.36***	-0.45***	-0.25***	0.58***
49. N10: Nervous	-0.20***	-0.43***	-0.29***	-0.26***	-0.30***	-0.55***	-0.23***	0.62***
50. N11: Sad	-0.22***	-0.53***	-0.36***	-0.36***	-0.34***	-0.49***	-0.33***	0.65***
51. N12: Distressed	-0.24***	-0.51***	-0.27***	-0.31***	-0.30***	-0.53***	-0.25***	0.66***
52. T1: Making plans	0.39***	0.40***	0.42***	0.45***	0.36***	0.33***	0.37***	-0.26***
53. T2: Daily activities	0.35***	0.36***	0.37***	0.37***	0.37***	0.30***	0.30***	-0.31***
54. T3: Active person	0.39***	0.40***	0.44***	0.44***	0.42***	0.34***	0.36***	-0.27***
55. T4: Don't have sense	0.32***	0.39***	0.38***	0.37***	0.36***	0.29***	0.31***	-0.34***
56. T5: Done all	0.38***	0.34***	0.33***	0.35***	0.35***	0.28***	0.31***	-0.28***
57. T6: Live one day	0.25***	0.17***	0.21***	0.23***	0.19***	0.10***	0.23***	-0.13***
58. T7: Direction	0.43***	0.51***	0.49***	0.51***	0.43***	0.41***	0.41***	-0.37***
59. M1: Can do anything	0.39***	0.42***	0.39***	0.40***	0.31***	0.32***	0.30***	-0.30***
60. M2: Find a way	0.38***	0.40***	0.39***	0.38***	0.32***	0.33***	0.29***	-0.31***
61. M3: Able to get	0.33***	0.35***	0.32***	0.31***	0.25***	0.29***	0.24***	-0.31***
62. M4: Future depends	0.31***	0.34***	0.29***	0.31***	0.25***	0.28***	0.23***	-0.30***
63. M5: Do the things	0.37***	0.48***	0.41***	0.41***	0.34***	0.37***	0.33***	-0.37***
64. Financial self-efficacy	0.26***	0.40***	0.30***	0.31***	0.31***	0.39***	0.31***	-0.39***
65. Saving behavior	0.00	0.07**	-0.07**	-0.06*	-0.01	0.05*	-0.06**	-0.03
66. Non-mortgage debt	-0.02	-0.12***	0.00	-0.02	-0.01	-0.13***	0.02	0.12***
67. Homeowner	0.07*	0.10*	0.03	0.06	0.09*	0.03	0.07	-0.09*
68. Emergency fund	0.07*	0.11***	-0.01	0.19***	0.03	0.06*	-0.06*	0.02
69. Stocks	0.17***	0.12***	0.10**	0.08*	0.16***	0.07*	0.00	-0.05
70. IRA/Keogh	0.14***	0.16***	0.09**	0.04	0.05	0.06*	0.02	0.01***
71. Log 2008 income	0.13***	0.10***	0.13***	0.09***	0.15***	0.02	0.11***	-0.09***
72. Log 2008 net worth	0.20***	0.18***	0.17***	0.17***	0.19***	0.11***	0.11***	-0.12***
73. Age	0.10***	0.12***	0.09***	0.10***	0.13***	0.11***	0.08***	-0.12***
74. Married	-0.01	0.12***	0.05	0.05	0.09**	-0.01	0.03	-0.11***

75. Female	0.04	0.01	0.04	0.06*	0.04	0.04	0.04	0.13***
76. Race White	0.15***	0.10**	-0.11**	-0.10*	0.02	-0.07	-0.12**	-0.12**
77. College education	0.31***	0.08**	0.13***	0.09**	0.13***	0.01	0.09**	0.00

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

Variables	41	42	43	44	45	46	47	48
41. N2: Upset	-							
42. N3: Guilty	0.47***	-						
43. N4: Scared	0.60***	0.56***	-					
44. N5: Frustrated	0.64***	0.39***	0.50***	-				
45. N6: Bored	0.35***	0.28***	0.26***	0.34***	-			
46. N7: Hostile	0.53***	0.41***	0.48***	0.51***	0.45***	-		
47. N8: Jittery	0.54***	0.42***	0.58***	0.46***	0.34***	0.56***	-	
48. N9: Ashamed	0.51***	0.67***	0.62***	0.52***	0.39***	0.52***	0.61***	-
49. N10: Nervous	0.61***	0.50***	0.66***	0.56***	0.38***	0.54***	0.77***	0.61***
50. N11: Sad	0.67***	0.48***	0.60***	0.58***	0.42***	0.54***	0.57***	0.63***
51. N12: Distressed	0.67***	0.44***	0.63***	0.61***	0.37***	0.56***	0.65***	0.59***
52. T1: Making plans	-0.22***	-0.25***	-0.23***	-0.20***	-0.24***	-0.18***	-0.27***	-0.35***
53. T2: Daily activities	-0.25***	-0.26***	-0.27***	-0.26***	-0.39***	-0.27***	-0.26***	-0.38***
54. T3: Active person	-0.20***	-0.22***	-0.22***	-0.20***	-0.29***	-0.15***	-0.24***	-0.35***
55. T4: Don't have sense	-0.21***	-0.24***	-0.27***	-0.20***	-0.30***	-0.23***	-0.27***	-0.33***
56. T5: Done all	-0.22***	-0.22***	-0.24***	-0.17***	-0.36***	-0.21***	-0.23***	-0.30***
57. T6: Live one day	-0.08**	-0.10***	-0.09**	-0.11***	-0.19***	-0.16***	-0.09**	-0.16***
58. T7: Direction	-0.34***	-0.23***	-0.35***	-0.29***	-0.38***	-0.27***	-0.29***	-0.39***
59. M1: Can do anything	-0.26***	-0.22***	-0.27***	-0.27***	-0.26***	-0.21***	-0.27***	-0.35***
60. M2: Find a way	-0.26***	-0.23***	-0.27***	-0.27***	-0.25***	-0.20***	-0.28***	-0.35***
61. M3: Able to get	-0.28***	-0.22***	-0.30***	-0.29***	-0.17***	-0.17***	-0.26***	-0.32***
62. M4: Future depends	-0.28***	-0.20***	-0.29***	-0.26***	-0.17***	-0.19***	-0.24***	-0.28***
63. M5: Do the things	-0.38***	-0.25***	-0.34***	-0.34***	-0.22***	-0.25***	-0.30***	-0.36***
64. Financial self-efficacy	-0.37***	-0.31***	-0.39***	-0.35***	-0.22***	-0.26***	-0.27***	-0.33***
65. Saving behavior	-0.03	-0.07**	-0.04	-0.13***	-0.03*	-0.05	0.03	-0.04
66. Non-mortgage debt	0.16***	0.06	0.12***	0.17***	0.01	0.05	0.06*	0.06
67. Homeowner	-0.04	-0.10*	-0.06	0.05	-0.18***	-0.04	0.00	-0.17***
68. Emergency fund	-0.04	-0.01	-0.02	-0.04	-0.02	0.07*	0.01	0.00

Variables								
69. Stocks	-0.07*	-0.09**	-0.08**	-0.03	-0.09**	-0.05	-0.07*	-0.09*
70. IRA/Keogh	-0.05	0.04	-0.02	-0.01	-0.09**	0.00	-0.05	-0.03**
71. Log 2008 income	-0.02	0.04	-0.05	0.03	-0.13***	-0.05*	-0.02	-0.08
72. Log 2008 net worth	-0.09***	-0.05*	-0.12***	-0.02	-0.16***	-0.07**	-0.09**	-0.15***
73. Age	-0.10***	-0.04	-0.09**	-0.10***	-0.08**	-0.02	-0.03	-0.11**
74. Married	-0.04	-0.03	-0.08*	-0.03	-0.16***	-0.03	-0.07*	-0.10**
75. Female	0.13***	0.04	0.16***	0.08**	-0.02	-0.01	-0.01	0.01
76. Race White	0.01	0.08	-0.08	0.12**	-0.08	-0.02	0.03	-0.03
77. College education	0.01	0.06*	0.06	0.16***	-0.09**	0.03	0.05	0.05

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

Variables	49	50	51	52	53	54	55	56
49. N10: Nervous	-							
50. N11: Sad	0.62***	-						
51. N12: Distressed	0.69***	0.71***	-					
52. T1: Making plans	-0.25***	-0.27***	-0.20***	-				
53. T2: Daily activities	-0.24***	-0.30***	-0.28***	0.40***	-			
54. T3: Active person	-0.23***	-0.26***	-0.22***	0.61***	0.46***	-		
55. T4: Don't have sense	-0.25***	-0.28***	-0.25***	0.46***	0.51***	0.47***	-	
56. T5: Done all	-0.20***	-0.28***	-0.25***	0.33***	0.47***	0.36***	0.46***	-
57. T6: Live one day	-0.09***	-0.14***	-0.11***	0.44***	0.35***	0.31***	0.40***	0.40***
58. T7: Direction	-0.32***	-0.37***	-0.32***	0.60***	0.47***	0.63***	0.57***	0.43***
59. M1: Can do anything	-0.26***	-0.31***	-0.27***	0.39***	0.32***	0.39***	0.31***	0.31***
60. M2: Find a way	-0.27***	-0.30***	-0.26***	0.41***	0.36***	0.43***	0.34***	0.30***
61. M3: Able to get	-0.28***	-0.30***	-0.29***	0.31***	0.28***	0.29***	0.29***	0.27***
62. M4: Future depends	-0.28***	-0.26***	-0.27***	0.29***	0.25***	0.30***	0.25***	0.27***
63. M5: Do the things	-0.32***	-0.36***	-0.33***	0.35***	0.28***	0.35***	0.32***	0.27***
64. Financial self-efficacy	-0.37***	-0.35***	-0.40***	0.28***	0.27***	0.28***	0.25***	0.19***
65. Saving behavior	-0.02	-0.02	-0.05*	-0.01	-0.03	-0.01	0.00	-0.08**
66. Non-mortgage debt	0.07*	0.06*	0.11***	-0.05	-0.03	-0.12***	-0.08**	-0.01
67. Homeowner	-0.03	-0.08*	-0.03	0.03	-0.01	0.05	0.06	0.11**
68. Emergency fund	0.00	0.03	0.00	0.04	-0.02	0.02	0.02	0.04
69. Stocks	-0.03	-0.05	-0.07*	0.09**	0.01	0.07*	0.02	0.12***
70. IRA/Keogh	-0.03	-0.06*	-0.03	0.04	-0.01	0.07*	-0.02	0.08*
71. Log 2008 income	-0.01	-0.10***	-0.04	0.09***	0.06*	0.09***	0.07**	0.13***

72. Log 2008 net worth	-0.09***	-0.09***	-0.11***	0.13***	0.09**	0.14***	0.13***	0.19***
73. Age	-0.04	-0.10***	-0.07**	0.08**	0.07**	0.11***	0.07**	0.00
74. Married	-0.06*	-0.17***	-0.09**	0.07*	0.05	0.11***	0.07*	0.04
75. Female	-0.01	0.18***	0.14***	0.04	0.03	0.04	0.01	-0.02
76. Race White	0.05	0.01	0.01	-0.07	-0.06	-0.07	-0.12**	0.13**
77. College education	0.06*	0.04	0.06	0.13***	0.00	0.12***	0.07*	0.13***

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

Variables	57	58	59	60	61	62	63	64
57. T6: Live one day	-							
58. T7: Direction	0.39***	-						
59. M1: Can do anything	0.17***	0.42***	-					
60. M2: Find a way	0.20***	0.46***	0.89***	-				
61. M3: Able to get	0.17***	0.33***	0.72***	0.73***	-			
62. M4: Future depends	0.15***	0.36***	0.69***	0.69***	0.79***	-		
63. M5: Do the things	0.19***	0.42***	0.72***	0.73***	0.75***	0.77***	-	
64. Financial self-efficacy	0.15***	0.29***	0.29***	0.31***	0.34***	0.36***	0.43***	-
65. Saving behavior	-0.02	-0.01	-0.06*	-0.05	-0.04	-0.01	-0.05*	0.09***
66. Non-mortgage debt	-0.05	-0.11***	-0.08*	-0.08**	-0.10**	-0.11***	-0.14***	-0.15***
67. Homeowner	0.13***	0.07	0.05	0.02	0.03	0.01	0.06	0.02
68. Emergency fund	0.07*	0.01	-0.01	-0.01	0.01	0.00	0.00	0.11***
69. Stocks	0.06*	0.0*	0.08*	0.08*	0.09**	0.05	0.10**	0.13***
70. IRA/Keogh	0.12***	0.01	0.08**	0.07*	0.11***	0.05	0.13***	0.05
71. Log 2008 income	0.21***	0.11***	0.03	0.04*	0.09***	0.03	0.11***	0.05**
72. Log 2008 net worth	0.19***	0.16***	0.14***	0.12***	0.13***	0.08**	0.16***	0.07**
73. Age	0.00	0.11***	0.02	0.01	0.03	0.01	0.05*	0.09***
74. Married	0.11***	0.16***	0.01	0.02	0.02	-0.08*	-0.01	-0.06*
75. Female	-0.13***	-0.03	0.02	-0.01	-0.09**	-0.03	-0.04	0.00
76. Race White	0.02	-0.09***	0.02	-0.01	0.02	-0.04	-0.01	-0.11**
77. College education	0.19***	0.13***	0.12***	0.16***	0.10**	0.11***	0.11***	-0.05

Variables	65	66	67	68	69	70	71	72
65. Saving behavior	-							
66. Non-mortgage debt	-0.04	-						
67. Homeowner	-0.17***	0.10*	-					
68. Emergency fund	0.01	-0.44***	0.12**	-				
69. Stocks	-0.02	-0.09*	0.34***	0.27***	-			
70. IRA/Keogh	-0.03	-0.20***	0.29***	0.32***	0.40***	-		
71. Log 2008 income	-0.02	0.03	0.25***	-0.04	0.36***	0.38***	-	
72. Log 2008 net worth	-0.32***	-0.13***	0.68***	0.49***	0.67***	0.65***	0.43***	-
73. Age	-0.05	-0.08*	0.03	0.10**	0.07*	-0.03	-0.01	0.09***
74. Married	-0.02	0.13***	0.42***	-0.12**	0.11**	0.11**	0.46***	0.31***
75. Female	0.01	0.08*	-0.02	-0.01	-0.11**	-0.17***	-0.27***	-0.18***
76. Race White	0.01	-0.03	0.38***	0.22***	0.33***	0.41***	0.22***	0.35***
77. College education	0.01	-0.02	0.11*	0.12**	0.38***	0.49***	0.45***	0.34***

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

Variables	73	74	75	76	77
73. Age	-				
74. Married	0.00	-			
75. Female	-0.03	-0.50***	-		
76. Race White	0.05	0.29***	-0.20***	-	
77. College education	-0.11***	0.06	-0.19***	0.13*	-

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

Table A.2 Separate CFA Results for Elemental and Compound Traits without Parceling

Parameter	Unstandardized		Standardized		
	b	SE	β	SE	R^2
Pattern coefficients					
Openness					
Openness ➔ Creative	1.00[a]	-	**0.75**	0.02	0.56
Openness ➔ Imaginative	1.08	0.08	**0.77**	0.02	0.59
Openness ➔ Intelligence	1.07	0.10	**0.77**	0.03	0.59
Openness ➔ Curious	0.70	0.07	**0.62**	0.03	0.38
Openness ➔ Broad-minded	0.67	0.07	**0.60**	0.03	0.36
Openness ➔ Sophisticated	0.62	0.07	**0.57**	0.03	0.33
Openness ➔ Adventurous	0.80	0.09	**0.67**	0.03	0.45
Conscientiousness					
Conscientiousness ➔ Organized	1.00[a]	-	**0.59**	0.04	0.35
Conscientiousness ➔ Responsible	1.75	0.25	**0.79**	0.03	0.62
Conscientiousness ➔ Hardworking	1.59	0.24	**0.76**	0.04	0.57
Conscientiousness ➔ Careless	0.88	0.12	**0.54**	0.04	0.29
Conscientiousness ➔ Thorough	1.59	0.20	**0.76**	0.03	0.58
Extroversion					
Extroversion ➔ Outgoing	1.00[a]	-	**0.71**	0.02	0.51
Extroversion ➔ Friendly	1.42	0.13	**0.82**	0.02	0.67
Extroversion ➔ Lively	1.27	0.09	**0.79**	0.02	0.62
Extroversion ➔ Active	1.33	0.14	**0.80**	0.02	0.64
Extroversion ➔ Talkative	0.50	0.05	**0.45**	0.03	0.20
Agreeableness					
Agreeableness ➔ Helpful	1.00[a]	-	**0.81**	0.02	0.65
Agreeableness ➔ Warm	1.92	0.30	**0.93**	0.02	0.87
Agreeableness ➔ Caring	1.08	0.11	**0.83**	0.02	0.68
Agreeableness ➔ Softhearted	0.43	0.05	**0.50**	0.04	0.25
Agreeableness ➔ Sympathetic	0.62	0.06	**0.64**	0.03	0.41
Neuroticism					
Neuroticism ➔ Moody	1.00[a]	-	**0.59**	0.03	0.35
Neuroticism ➔ Worrying	1.29	0.13	**0.68**	0.02	0.47
Neuroticism ➔ Nervous	1.98	0.21	**0.82**	0.02	0.68
Neuroticism ➔ Calm	1.38	0.14	**0.71**	0.03	0.50
Positive Affect					
P. Affect ➔ Determined	1.00[a]	-	**0.66**	0.02	0.44
P. Affect ➔ Enthusiastic	1.51	0.09	**0.80**	0.01	0.64
P. Affect ➔ Active	1.04	0.07	**0.68**	0.02	0.46
P. Affect ➔ Proud	1.16	0.07	**0.72**	0.02	0.51
P. Affect ➔ Interested	1.46	0.07	**0.79**	0.01	0.63
P. Affect ➔ Happy	1.57	0.10	**0.81**	0.01	0.66
P. Affect ➔ Attentive	1.07	0.07	**0.69**	0.02	0.47
P. Affect ➔ Content	1.47	0.09	**0.79**	0.01	0.63

P. Affect ➜ Inspired	1.65	0.09	**0.83**	0.01	0.68
P. Affect ➜ Hopeful	1.65	0.09	**0.83**	0.01	0.68
P. Affect ➜ Alert	1.19	0.08	**0.73**	0.02	0.53
P. Affect ➜ Calm	1.19	0.08	**0.73**	0.02	0.53
P. Affect ➜ Excited	1.10	0.07	**0.70**	0.02	0.49
Negative Affect					
N. Affect ➜ Afraid	1.00[a]	-	**0.85**	0.01	0.73
N. Affect ➜ Upset	0.74	0.05	**0.77**	0.02	0.59
N. Affect ➜ Guilty	0.47	0.04	**0.61**	0.03	0.37
N. Affect ➜ Scared	0.88	0.07	**0.82**	0.02	0.67
N. Affect ➜ Frustrated	0.57	0.04	**0.68**	0.02	0.46
N. Affect ➜ Bored	0.45	0.04	**0.59**	0.03	0.35
N. Affect ➜ Hostile	0.53	0.05	**0.66**	0.03	0.43
N. Affect ➜ Jittery	0.79	0.06	**0.79**	0.02	0.62
N. Affect ➜ Ashamed	0.78	0.07	**0.78**	0.02	0.61
N. Affect ➜ Nervous	0.95	0.07	**0.84**	0.02	0.70
N. Affect ➜ Sad	0.88	0.06	**0.82**	0.02	0.67
N. Affect ➜ Distressed	0.86	0.06	**0.81**	0.02	0.66
Mastery					
Mastery ➜ Can do anything	1.00[a]	-	**0.93**	0.01	0.86
Mastery ➜ Find a way	1.07	0.13	**0.94**	0.01	0.88
Mastery ➜ Able to get	0.58	0.04	**0.82**	0.01	0.68
Mastery ➜ Future depends	0.60	0.04	**0.83**	0.01	0.69
Mastery ➜ Do the things	0.78	0.06	**0.89**	0.01	0.79
Task Orientation					
Task ➜ Enjoy making plans	1.00[a]	-	**0.74**	0.02	0.54
Task ➜ Daily activities are trivial	0.81	0.06	**0.66**	0.02	0.43
Task ➜ Active in carrying out plans	1.08	0.09	**0.76**	0.02	0.58
Task ➜ Don't have sense	0.81	0.06	**0.66**	0.02	0.44
Task ➜ Done all there is to do	0.71	0.05	**0.61**	0.02	0.37
Task ➜ Live one day at a time	0.46	0.04	**0.45**	0.03	0.20
Task ➜ Have direction and purpose	1.36	0.10	**0.83**	0.02	0.69

Factor variances

Openness	1.25	0.16	1.00	-	-
Conscientiousness	0.54	0.10	1.00	-	-
Extroversion	1.02	0.11	1.00	-	-
Agreeableness	1.84	0.22	1.00	-	-
Neuroticism	0.53	0.09	1.00	-	-
Positive affect	0.78	0.07	1.00	-	-
Negative affect	2.65	0.28	1.00	-	-
Mastery	6.17	0.77	1.00	-	-
Task	1.18	0.12	1.00	-	-

Note: Standardized pattern coefficients > .40 are in bold text and are the same as structure coefficients (i.e., Pearson correlations) when indicators depend upon a single factor (Kline, 2016). All results were computed with Mplus in theta parameterization and STDYX standardization. Model fit indices are: $X^2(1854) = 4255.32$, p = <.001; RMSEA = .031, 90% CI [.030, .032], CFI = .943, TLI = .940

[a] Not tested for statistical significance. All other unstandardized and standardized pattern coefficients are significant at p < .001.

Table A.3 Separate CFA Results for Elemental and Compound Traits with Parceling

Parameter	Unstandardized		Standardized		
	b	SE	β	SE	R^2
Pattern coefficients					
Openness					
Openness ➔ Creative	1.00[a]	-	**0.76**	0.02	0.58
Openness ➔ Imaginative	1.11	0.08	**0.79**	0.02	0.63
Openness ➔ Intelligence	1.00	0.09	**0.76**	0.02	0.58
Openness ➔ Curious	0.67	0.06	**0.62**	0.03	0.38
Openness ➔ Broad-minded	0.60	0.06	**0.57**	0.03	0.32
Openness ➔ Sophisticated	0.60	0.06	**0.57**	0.03	0.33
Openness ➔ Adventurous	0.72	0.07	**0.65**	0.03	0.42
Conscientiousness					
Conscientiousness ➔ Organized	1.00[a]	-	**0.59**	0.03	0.35
Conscientiousness ➔ Responsible	1.79	0.24	**0.80**	0.03	0.64
Conscientiousness ➔ Hardworking	1.64	0.23	**0.77**	0.04	0.59
Conscientiousness ➔ Careless	0.79	0.10	**0.51**	0.04	0.26
Conscientiousness ➔ Thorough	1.62	0.19	**0.77**	0.03	0.59
Extroversion					
Extroversion ➔ Outgoing	1.00[a]	-	**0.72**	0.02	0.52
Extroversion ➔ Friendly	1.67	0.18	**0.87**	0.02	0.75
Extroversion ➔ Lively	1.23	0.08	**0.79**	0.02	0.63
Extroversion ➔ Active	1.07	0.09	**0.75**	0.02	0.56
Extroversion ➔ Talkative	0.51	0.05	**0.47**	0.02	0.22
Agreeableness					
Agreeableness ➔ Helpful	1.00[a]	-	**0.80**	0.02	0.63
Agreeableness ➔ Warm	1.91	0.25	**0.93**	0.02	0.86
Agreeableness ➔ Caring	1.12	0.11	**0.83**	0.02	0.69
Agreeableness ➔ Softhearted	0.47	0.05	**0.53**	0.04	0.28
Agreeableness ➔ Sympathetic	0.65	0.05	**0.65**	0.02	0.42
Neuroticism					
Neuroticism ➔ Moody	1.00[a]	-	**0.60**	0.03	0.36
Neuroticism ➔ Worrying	1.27	0.12	**0.69**	0.02	0.47
Neuroticism ➔ Nervous	1.88	0.20	**0.81**	0.02	0.66
Neuroticism ➔ Calm	1.36	0.13	**0.71**	0.02	0.51
Positive Affect					
P. Affect ➔ PA1 (Proud, inspired, alert, calm)	1.00[a]	-	**0.90**	0.01	0.82
P. Affect ➔ PA2 (Attentive, hopeful, excited)	0.98	0.04	**0.85**	0.01	0.72
P. Affect ➔ PA3 (Determined, enthusiastic, content)	1.05	0.03	**0.85**	0.01	0.72
P. Affect ➔ PA4 (Active, interested, happy)	0.97	0.03	**0.85**	0.01	0.73
Negative Affect					
N. Affect ➔ NA1 (Scared, frustrated, ashamed)	1.00[a]	-	**0.81**	0.01	0.66
N. Affect ➔ NA2 (Upset, hostile, nervous)	1.13	0.04	**0.85**	0.02	0.72
N. Affect ➔ NA3 (Afraid, guilty, sad)	1.07	0.04	**0.84**	0.01	0.71

N. Affect ➔ NA4 (Bored, jittery, distressed)	1.14	0.04	**0.87**	0.01	0.76
Mastery					
Mastery ➔ M1 (Do anything, way to succeed)	1.00^a	-	**0.86**	0.01	0.75
Mastery ➔ M2 (Able to get, future depends, can do)	0.97	0.05	**0.85**	0.02	0.72
Task Orientation					
Task ➔ Enjoy making plans	1.00^a	-	**0.74**	0.02	0.55
Task ➔ Daily activities are trivial	0.79	0.05	**0.65**	0.02	0.43
Task ➔ Active in carrying out plans	1.09	0.08	**0.77**	0.02	0.59
Task ➔ Don't have sense	0.81	0.05	**0.66**	0.02	0.44
Task ➔ Done all there is to do	0.68	0.05	**0.60**	0.02	0.36
Task ➔ Live one day at a time	0.49	0.04	**0.47**	0.02	0.22
Task ➔ Have direction and purpose	1.29	0.08	**0.82**	0.02	0.67

Factor variances

Openness	1.37	0.16	1.00	-	-
Conscientiousness	0.54	0.09	1.00	-	-
Extroversion	1.10	0.12	1.00	-	-
Agreeableness	1.73	0.19	1.00	-	-
Neuroticism	0.55	0.09	1.00	-	-
Positive affect	0.51	0.03	1.00	-	-
Negative affect	0.27	0.02	1.00	-	-
Mastery	0.89	0.06	1.00	-	-
Task	1.20	0.12	1.00	-	-

Note: Standardized pattern coefficients > .40 are in bold text and are the same as structure coefficients (i.e., Pearson correlations) when indicators depend upon a single factor (Kline, 2016). All results were computed with Mplus in theta parameterization and STDYX standardization. Model fit indices are: $\chi^2(824) = 2,422.12$, p = <.001; RMSEA = .038, 90% CI [.036, .039], CFI = .902, TLI = .893
[a] Not tested for statistical significance. All other unstandardized and standardized pattern coefficients are significant at p < .001.

Appendix B - Analysis of Compound Traits (Ch. 4)

Compound traits must meet the following four criteria to operate effectively within the 3M framework (Mowen, 2000): (1) the measurement is unidimensional, (2) the scales demonstrate strong internal reliability (i.e., Cronbach's alpha of .75 or higher), (3) they can be significantly explained (i.e., r-squared of .25 or more) by a combination of two or more elemental traits, and (4) they can account for variance in situational and/or surface level traits above and beyond that of the elemental traits. The compound traits within this study (i.e., positive affect, negative affect, task orientation, and mastery) were analyzed separately according to the first three criteria in order to determine if they were appropriate for the model. The fourth criterion was investigated as part of chapter two.

First, the compound traits were analyzed through an Exploratory Factor Analysis (EFA) to determine if the measurement of each construct exhibited a unidimensional factor structure within the current sample. Each item-level factor indicator was simultaneously input into an EFA model with a Geomin oblique rotation and a mean- and variance- adjusted weighted least squares extraction method (WLSMV) given the ordinal categorical measurement of the indicators. An oblique rotation method was employed since the compound trait factors are likely correlated due to the same level of measurement in the 3M model (i.e., compound trait level). Due to the Geomin oblique rotation method, both the standardized pattern coefficients and structural coefficients are provided. Pattern coefficients can be interpreted as regression coefficients (i.e., probit regression coefficients). Given the unequal measurement of each indicator, standardized pattern coefficients are provided to estimate the change in standard deviation units of each indicator for one full standard deviation change in each latent factor (Kline, 2016). The structure coefficient (e.g., the factor loading) represents the Pearson correlation between each indicator

and each factor (Kline, 2016). An absolute structure coefficient greater than .40 serves as a general guideline for a meaningful relationship between an indicator and factor (Thompson, 2004).

The EFA results provided in Table B.1 suggest a four-factor solution provides the best fit of the data; however, the model chi-square *exact fit* test indicates the model should be tentatively rejected ($\chi^2(524) = 1920.85$, p = <.001). A review of the correlation residual matrix revealed that only 1.80% of the correlation effects had residuals over the |.10| threshold (i.e., 12 out of 666), which indicates the rejection of the model under the chi-square test is more likely due to the large sample size. The other fit indices indicated an adequate fit of the data to the model (RMSEA of .044 (90% CI = .042, .046), CFI = .967, and TLI = .958).

Table B.1 Exploratory Factor Analysis of Compound Traits

Parameter	Positive Affect		Negative Affect		Task Orientation		Mastery	
	Pattern Coefficient	Structure Coefficient	Pattern Coefficient	Structure Coefficient	Pattern Coefficient	Structure Coefficient	Pattern Coefficient	Structure Coefficient
Positive Affect								
1. Determined	0.60*	**0.66**	0.17*	-0.11	0.21*	**0.47**	0.06	0.32
2. Enthusiastic	0.74*	**0.80**	0.00	-0.29	0.11*	**0.48**	0.02	0.36
3. Active	0.57*	**0.65**	-0.03	-0.26	0.16*	**0.44**	-0.03	0.27
4. Proud	0.68*	**0.72**	-0.05	-0.29	0.07*	**0.41**	-0.03	0.28
5. Interested	0.73*	**0.79**	0.00	-0.29	0.14*	**0.50**	-0.02	0.33
6. Happy	0.68*	**0.78**	-0.27*	**-0.51**	-0.03	0.40	0.03*	0.38
7. Attentive	0.54*	**0.66**	0.06*	-0.21	0.21*	**0.49**	0.08*	0.36
8. Content	0.61*	**0.75**	-0.29*	**-0.53**	0.03	**0.43**	0.06*	**0.41**
9. Inspired	0.86*	**0.86**	0.01	-0.29	-0.04	0.40	0.05*	0.38
10. Hopeful	0.84*	**0.85**	-0.01	-0.31	-0.01	**0.42**	0.03	0.37
11. Alert	0.62*	**0.71**	-0.07*	-0.32	0.17*	**0.48**	-0.05*	0.28
12. Calm	0.51*	**0.64**	-0.42*	**-0.59**	-0.03	0.33	-0.01	0.31
13. Excited	0.74*	**0.73**	-0.01	-0.26	-0.01	0.35	-0.02	0.28
Negative Affect								
14. Afraid	0.18*	-0.26	0.81*	**0.83**	-0.30*	**-0.45**	-0.02	-0.30
15. Upset	-0.10*	-0.35	0.75*	**0.78**	0.06	-0.22	-0.05*	-0.30
16. Guilty	0.11*	-0.20	0.60*	**0.61**	-0.22*	-0.33	0.01	-0.21
17. Scared	0.22*	-0.21	0.85*	**0.85**	-0.26*	-0.40	-0.01	-0.28
18. Frustrated	-0.08*	-0.31	0.66*	**0.69**	0.07*	-0.19	-0.08*	-0.29
19. Bored	-0.25*	**-0.43**	0.30*	0.43	-0.22*	-0.40	0.08*	-0.20
20. Hostile	-0.11*	-0.32	0.63*	**0.66**	-0.03	-0.24	0.07*	-0.18
21. Jittery	-0.06*	-0.33	0.77*	**0.79**	-0.01	-0.25	0.01	-0.25
22. Ashamed	0.04*	-0.34	0.67*	**0.74**	-0.29*	**-0.47**	-0.02	-0.31
23. Nervous	-0.07*	-0.34	0.82*	**0.84**	0.03	-0.23	0.00	-0.27
24. Sad	-0.17*	**-0.43**	0.72*	**0.79**	-0.02	-0.31	0.00	-0.30
25. Distressed	-0.10*	-0.36	0.80*	**0.82**	0.04	-0.24	-0.01	-0.28
Task Orientation								
26. Making plans	0.16*	**0.48**	0.01	-0.23	0.62*	**0.71**	0.05*	0.34
27. Activities	0.11*	**0.42**	-0.11*	-0.30	0.55*	**0.64**	0.00	0.28

28. Active person	0.19*	**0.50**	0.03	-0.23	0.61*	**0.71**	0.05*	0.34
29. Have sense	0.08*	**0.41**	-0.07*	-0.28	0.63*	**0.68**	0.00	0.28
30. Done all	0.12*	0.40	-0.07	-0.26	0.51*	**0.59**	0.00	0.26
31. Live one day	0.02	0.26	0.06*	-0.09	0.57*	**0.54**	-0.05	0.14
32. Direction	0.20*	**0.56**	-0.09*	-0.35	0.60*	**0.75**	0.06*	0.39
Perceived Mastery								
33. Do anything	0.01	**0.43**	0.04*	-0.28	0.18*	**0.49**	0.86*	**0.92**
34. Find a way	-0.01	**0.43**	0.05*	-0.28	0.23*	**0.52**	0.85*	**0.91**
35. Able to get	0.00	0.36	-0.08*	-0.33	-0.01	0.31	0.82*	**0.84**
36. Future depends	-0.01	0.34	-0.06*	-0.32	-0.03*	0.29	0.87*	**0.87**
37. Do the things	0.10*	**0.45**	-0.13*	-0.40	-0.02	0.35	0.77*	**0.85**
Eigenvalues	14.32		4.11		2.60		1.82	

* $p < .05$; Model fit indices are: $\chi^2(524) = 1920.85$, $p = <.001$; RMSEA = .044, 90% CI [.042, .046], CFI = .967, TLI = .958
Note: Pattern coefficients are standardized. Structure coefficients estimate the Pearson correlation between the indicator and factor with estimates over .40 in bold (Thompson, 2004). EFA conducted with Geomin oblique rotation and mean- and variance- adjusted weighted least squares estimation (WLSMV).

The EFA results (see Table A.1) indicate a unidimensional factor structure for the four-factor solution according to the *a priori* construct specifications. For example, all thirteen indicators for positive affect demonstrated high loadings with factor one (i.e., .64 to .86). The twelve negative affect indicators highly loaded onto factor two (i.e., .43 to .85). The seven task orientation indicators revealed high loadings with factor three (i.e., .54 to .75). Lastly, all five indicators for mastery highly loaded onto factor four (i.e., .84 to .92). Given the nature of compound traits within the 3M framework, cross-loadings were expected and did occur. The most notable cross-loading occurred between the positive affect and task orientation indicators with factors one and three; however, all items for each construct did not cross-load and the correlation levels were moderate. Specifically, task orientation indicators demonstrated moderate loadings with factor one (i.e., .41 to .56), which appeared to most strongly represent positive affect. Similarly, positive affect indicators revealed moderate loadings with factor three (i.e., .41 to .50) task. Moreover, the standardized pattern coefficients representing changes in standard deviation units were relatively low for the cross-loaded items. Overall results suggest that each set of indicators measures distinct and unidimensional factors. Correlation estimates for the latent factors are provided in Table B.2. Given the cross-loading between the positive affect and task orientation indicators, it is not surprising that these two factors demonstrated the highest overall correlation of .49.

Table B.2 Correlation Matrix for the Compound Trait Factors

Latent Factors	1	2	3	4
1. Positive affect	-			
2. Negative affect	-0.35*	-		
3. Task orientation	0.49*	-0.28*	-	
4. Perceived mastery	0.40*	-0.31*	0.36*	-
p < .05				

Second, the 3M states that each compound trait should demonstrate strong internal reliability with a Cronbach's alpha score of .75 or higher. Cronbach's alpha scores were computed for each compound trait. Results reveal that each compound trait met this criterion with a Cronbach's alpha score of .92 for positive affect, .90 for negative affect, .78 for task orientation, and .91 for mastery.

Third, two or more elemental traits should significantly explain each compound trait according to the 3M (i.e., r-squared of .25 or more). The direct effects of the elemental traits with the compound traits are provided in Table 4.16. Results reveal that a combination of the elemental traits accounted for a significant amount of variance (i.e., r-squared $\geq$ .25) in each of the compound traits with an r-squared of .68 for positive affect, .65 for negative affect, .71 for task orientation, and .29 for mastery. Thus, the third criteria of the 3M for each of the compound traits was met.

References

Kline, R. B. (2016). *Principles and practice of structural equation modeling*. Third Edition. New

    York, NY: The Guilford Press.

Mowen, J. C. (2000). *The 3M model of motivation and personality: Theory and empirical*

    applications to consumer behavior. Norwell, MA: Kluwer Academic Publishers.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis.* Washington, DC:

    American Psychological Association.

Appendix C - Alternative Structural Model (Ch. 4)

The alternative model investigated the model fit to the data with financial self-efficacy beliefs as an outcome of successful saving behavior instead of a mediating variable supporting saving behavior. Results, provided in Figure C.1, revealed a poorer fit to the data than the retained model in chapter four (e.g., model fit indices: χ^2(df 1,435) = 3,353.55, p = <.001; RMSEA = .031, 90% CI [.030, .033], CFI = .874, TLI = .865). Consequently, the full model according to the 3M framework in chapter four was retained.

Figure C.1 Alternative Structural Model Diagram: Financial Self-Efficacy Beliefs as an Outcome of Saving Behavior
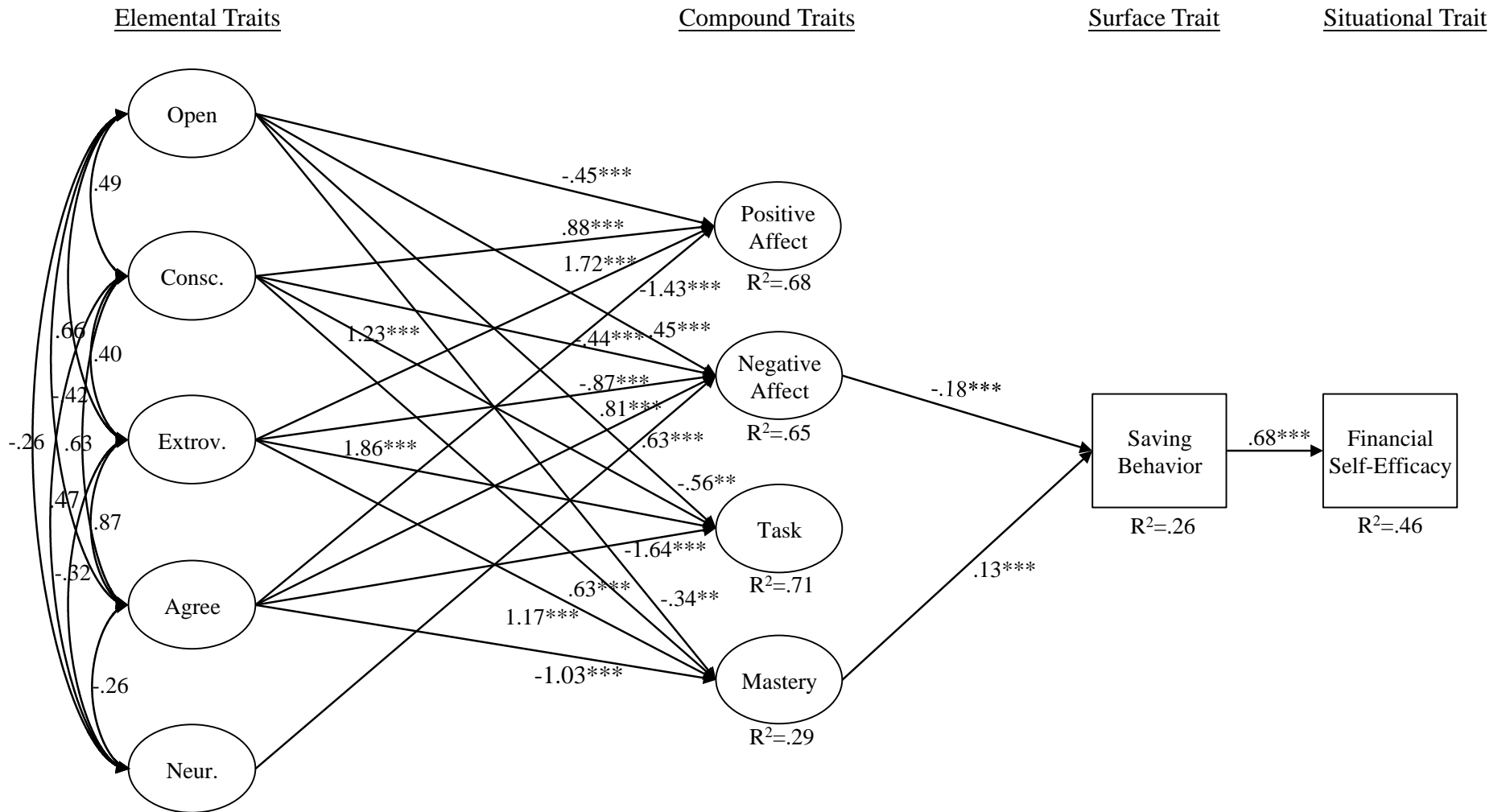
* *Note:* Model Fit Indices: $\chi^2(1,435) = 3,353.55$, p = <.001; RMSEA = .031, 90% CI [.030, .033], CFI = .874, TLI = .865
All results were computed with Mplus in theta parameterization and STDYX standardization.