

Exploring the Antecedents of Financial Behavior for Asians and Non-Hispanic Whites: The Role of Financial Capability and Locus of Control

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Abstract

Using data collected over a three-year time span (2008 through 2011), this paper examines the association between racial background and financial behavior. This study specifically evaluated differences between Asians and non-Hispanic Whites living in the United States (N = 341). Findings from this research suggest that any racial differences in financial behavior appear to exist only in a two variable correlational sense. Both financial capability and locus of control act as mediators between race and financial behavior. In general, those with high financial capability tend to exhibit better financial behavior. Additionally, individuals who exhibit an internal locus of control perspective also report better financial behavior. Age was also found to be positively associated with better financial behavior. When these factors were controlled for in a multivariate analysis, no meaningful racial differences were noted in this study.

Key Words: Financial Capability, Locus of Control, Financial Planning, Financial Behavior, Racial Differences

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Introduction

What are the antecedents of financial behavior? This is a question that has shaped the careers of many economists, as well as researchers interested in personal and household finance topics. Pursuit of an answer to this question has created a vast body of literature showing that, in many ways, the strongest predictor of financial behavior is a person's financial capability. For many, this association has led to an acknowledgment that financial knowledge—an indicator of capability—and financial education are key factors that allow “individuals and families to accumulate assets and achieve their financial goals.”¹ This quote, from Charles Evans, the CEO and President of the Federal Reserve Bank of Chicago, hints at the notion that financial behavior can be influenced through interventions that improve financial capabilities. Financial capability, as used in this study, refers to ‘possessing the knowledge on financial matters to confidently take effective action that best fulfils an individual’s personal, family and global community goals’ (National Financial Educators Council, n.d.). Although there are a few studies that show otherwise, nearly all reports indicate support for concluding financial capability and financial behavior are positively linked. Individuals who exhibit the best financial behavior almost always possess high levels of financial capability (Fonseca, Mullen, Zamarro, & Zissimopoulos, 2012; Perry & Morris, 2005).

One may conclude that after more than 50 years of study, the answer to what shapes financial behavior—beyond financial capability—would be adequately addressed in the literature. In many respects, this is true. Factors such as income, age, education, race, and certain personality factors are thought to influence the manner in which people evaluate behavioral choices within the financial marketplace. What is most interesting, however, is the growing realization that there may be other issues at play when people conceptualize financial behavioral choices.

Consider reports of racial differences in financial behaviors. The literature is replete with reports that non-Hispanic Whites tend to exhibit better financial behavior than others. It is no surprise then that policy makers, educators, and concerned citizens have increasingly allocated resources, both monetary and human, to facilitate and disseminate broad based financial education, especially to populations typically underserved by financial institutions. Take, for example, the growth of financial literacy centers, clinics, and inner-city asset building programs. The goal of such initiatives is simple; namely, to provide access to free or low cost financial education and information to underrepresented individuals and families as a mechanism to increase financial capability.

Nevertheless, if asked, many financial counselors and educators are quick to acknowledge that sometimes the neediest are the least likely to seek financial education. It is more common for individuals with already high levels of financial capability to be the ones who attend educational meetings. Sometimes these “help-seekers” are looking for behavioral confirmations (Grable & Joo, 1999). That is, they think their behavior is properly

¹ Quote available at the Financial Literacy and Economic Summit, 2012, website: <http://www.practicalmoneyskills.com/summit2012/>

directed, but they want a free or low cost second opinion that supports their current saving and spending activities. Others attend as a social activity—a place to meet people, receive refreshments, and gather handouts. When viewed globally, help-seekers make up, at most, 40% to 45% of the population (Grable & Joo, 1999; 2001).

Rarely do individuals and families pro-actively seek financial counseling, planning, or education on a voluntary basis. It is unusual for the most financially needy to seek help from professional advisers or educators (Grable & Joo, 2001). This might stem from cultural or societal barriers that make help-seeking behavior uncommon. The lack of educational-seeking behavior might also be attributable to low levels of knowledge (Lee, 1997). Another possible explanation may be that some individuals feel that their financial fate is beyond their control, and as such, they do not feel compelled to improve either their level of financial capability or behavior. In other words, some individuals may believe in fate, luck, and fortune to such an extent that they see no need to improve their financial capability as a way to enhance their financial situation. Those with an external locus of control perspective (e.g., believing in luck and fate) might believe that their financial future is already predetermined, and as such, conclude that their ultimate behaviors are unchangeable.

While much of the previous literature has described racial differences in financial behaviors, little research has been devoted to explaining such differences. As discussed later in this paper, it is reasonable to hypothesize that variances in behavior may be associated directly with psychosocial variables and financial capability. It is also possible that indirect effects also explain some differences in behavior. As such, this paper was developed with the following intentions. Tests were first conducted to confirm that financial capability, locus of control, and racial background are associated with financial behavior among Asians and non-Hispanic Whites. In this study, financial capability is most closely aligned with the concept of self-assessed financial knowledge, whereas locus of control refers to the extent to which someone believes they can control life events and outcomes. Second, evaluations were made to examine the possibility that financial capability and locus of control mediate the association between race and financial behavior. This research advances the literature in two important ways. At a basic level, results add further support to the notion that financial capability and financial behavior are positively associated. At a deeper level, findings indicate that both financial capability and locus of control likely play an important role in explaining the relationship between race and financial behavior.

Review of Literature

The Race-Financial Behavior Association

A notable variable commonly found to be associated with financial behavior is racial background. The general evidence indicates that there are distinct differences between non-Hispanic

Whites and others in terms of financial behavior (Lyons, Rachlis, & Scherpf, 2007; Lusardi & Mitchel, 2007; Lusardi, Mitchell, & Curto, 2010). Non-Hispanic Whites tend to exhibit better financial behavior (e.g., management of debt, secured and unsecured loans, and daily money tasks) (FINRA, 2013) compared to other racial groups. Much of the research showing racial differences has tended to focus on African-American populations compared to non-Hispanic White populations. There have been fewer studies that compare non-Hispanic White and Asian populations. One such study was conducted by Grable, Park, and Joo (2009). They replicated an earlier study by Perry and Morris (2005) in an effort to address this deficiency in the literature. They found that, similar to other racial comparisons, Asians and non-Hispanic Whites differ in terms of both financial behavior and financial knowledge. Several explanations have been proposed to explain why racial differences should have an impact on financial behavior. The most common framework used to describe dissimilarities relates behavioral outcomes to minority groups in the United States having fewer assets, lower incomes, and less access to financial services (Coleman, 2003; Kim, Chatterjee, & Cho, 2012). This is known as the resource deficit hypothesis. The hypothesis leads to the conclusion that, to some extent, the cultural orientation of minority groups is one that limits the transference of financial capabilities and skills from one generation to another (Gutter, Fox, & Montalto, 1999).

Although the resource deficit explanation is widely articulated, some (e.g., Phares, 1976) have noted that this thinking can lead to research that is stereotypical. For example, while the resource deficit hypothesis may be true for some racial groups, it may not be fully applicable to Asians living either in the United States or away from their country of origin. It is equally plausible that there are cultural preferences that account for differences in financial behavior. Alternatively, it is possible that race is only significant in a two variable correlational sense. If this is true, then other factors may work to mediate the effect of race on financial behavior. This possibility is explained in more detail below. Initially, however, this research proposes the following hypothesis:

H₁: Non-Hispanic Whites and Asians will exhibit divergent financial behavior.

The Financial Capability-Behavior Association

Perry and Morris (2005) were among the first to document, within a multidimensional model, the role played by a person's financial capabilities in shaping financial behavior. They found that the propensity to save, control spending, and budget, among a diverse population of Americans, was positively associated with financial capability. Their research supported a similar finding reported by Hilgert, Hogarth, and Beverly (2003). More recently, Robb (2011) found that financial capability is an important factor that influences college students' credit card practices.

Experiential learning has been shown to be the most effective method for achieving some degree of financial capability for the average person (Hogarth & Hilgert, 2002). This is one reason formal financial education has been touted as a key element in improving financial outcomes. It is important to note, however, that some have questioned the effectiveness of formal education. Mandell and Klein (2009) found that high school students who had taken a personal financial literacy course did not demonstrate better financial behavior than those who did not take a course. They used their insights to question the long-term effectiveness of high school financial literacy programs. Although the largest part of the literature suggests a positive association between capabilities and behavior, there is, as Mandell and Klein noted, active debate regarding the true validity of the relationship. This paper adds to the debate by testing the following hypothesis, which is similar to one proposed by Perry and Morris (2005):

H₂: Financial capability will be positively associated with better financial behavior.

There is evidence to indicate that financial capability may also serve as a mediating factor when people evaluate and engage in financial behavior (Chan, Burtis, & Bereiter, 1997; Lopez-Cabrales, Perez-Luno, & Cabrera, 2009). Rather than assume that financial behavior is directly associated with racial differences, the existing literature hints at the possibility that financial behavior may really be associated with different levels of financial capability among different racial groups. As such, the following hypothesis was proposed:

H₃: Financial capability will mediate differences in financial behavior between non-Hispanic Whites and Asians.

The Locus of Control-Financial Behavior Association

As discussed in the introduction to this paper, locus of control (LOC) has been shown to be associated with financial behavior. Rotter (1966) defined LOC as a psychosocial construct that captures beliefs about the causes of punishments and rewards experienced by an individual. LOC is typically measured on a continuum, with two extremes. On one end is an internal LOC perspective. Those with internal LOC associate life outcomes with their own skills, abilities, and actions. That is, they assume that outcomes are predictably based on personal efforts, skills, and motivations. External LOC falls on the other end of the continuum. An external LOC perspective is represented by a belief that luck, fate, chance, and the influence of powerful outside influences dictate life outcomes. Those with an external LOC often view the role of skill and motivation in determining behavioral outcomes as less important (Zimmerman, 1995). There is evidence to suggest that LOC is associated with financial behavior. Davies and Lea (1995) noted in their study that external LOC was related to the accumulation of debt, whereas Perry and Mor-

ris (2005) found a negative association between external LOC and a person's ability to save, budget, and control spending. It is also possible that LOC acts not only as a direct factor influencing financial behavior, but also as a mediating characteristic.

In order to fully appreciate the potential role of LOC in shaping behavioral outcomes, both directly and indirectly, it is useful to understand the theoretical underpinnings of the LOC construct. According to Phares (1976), the concept of LOC emerged from tests of Social Learning Theory (SLT). SLT was developed as a means to explain how individuals make choice decisions. The theory is premised on six core assumptions: (a) the unit of study is the interaction of a person in his/her meaningful environment; (b) biological determinants of behavior are less important than learned determinants; (c) over time, a person's personality and behavior stabilize; (d) behavior is determined by both specific and general determinants; (e) behavior is goal-oriented and motivated; and (f) both expectancies and reinforcement play key roles in shaping behavior.

The general consensus among personality researchers is that LOC is most effective in explaining behavior that is somewhat ambiguous in terms of situational cues. This is certainly the case with most forms of financial decision making. That is, rarely are consumers provided with direct instructions for use in solving complex financial questions or when making financial decisions. Phares (1976) reported that researchers and clinicians should expect those with an internal LOC perspective who feel that they have some control over behavioral outcomes to engage in more information and help seeking compared to those with an external LOC. As more information is obtained and integrated into decision-making processes (e.g., past experiences, expectation generalizations, and behavioral reinforcements), it is more likely that those with an internal LOC will be better able to distinguish between optimal and sub-optimal choice alternatives. In other words, an internal LOC perspective should be associated with positive financial behavior. As such, the following hypothesis was tested:

H₄: Internal LOC will be positively associated with better financial behavior.

Additionally, it is important to assess whether LOC might also play an indirect role in shaping behavioral choices. Those holding an external LOC orientation, for example, often use this perspective as a mechanism to "protect themselves from anticipated failure or other personal inadequacies" (Phares, 1976, p. 144). This may be a learned response. Some racial groups, for instance, have traditionally had less access to power, economic mobility, and human capital resources than others. Some have argued that this historical background tends to create a world view that is defined by an external LOC perspective. What is most interesting, however, is that holding an external LOC view is not always associated with lower social and/or socioeconomic status. In what has since become a seminal piece, Hsieh, Shybut, and Lotsof (1969) compared LOC profiles of non-Hispanic White American children attending school in Illinois, Asian

children born in the United States (i.e., Asian-American) going to school in Chicago, and Asian children enrolled in a Hong Kong school. They found that the non-Hispanic White children were the most internal, whereas the Hong Kong children were the most external. The Asian-American children fell in between. They attributed these differences primarily to learned cultural differences. Non-Hispanic White Americans tend to hold a social perspective that highly values independent thought and action, whereas Asians have a tendency to be situation-oriented basing decisions on kinship. Further, a status-quo bias appears to be present in most Asian cultures, as does a strong belief in chance, fate, and luck (Grable et al., 2009).

Using SLT as a guide, it is possible then that biological determinants, such as race, may only appear to be directly associated with financial behavior. The direct relationship between race and financial behavior may be mediated by LOC, with those holding an external LOC exhibiting worse financial behavior. This possibility was tested with the following hypothesis:

H₅: LOC will mediate differences in financial behavior between non-Hispanic Whites and Asians.

Methods

Data for this study were obtained over a multi-year period by combining information from three distinctive financial attitude and behavior surveys. The research team was the same for each of the surveys, which were approved by the principal investigator's IRB university office. The purpose of each survey was different, and as such, the respondents to each investigation were unique. One survey, for example, was focused on assessing marital and financial attitudes among individuals. Another survey was developed to evaluate resource acquisition behavior among low income households. The third survey was developed to evaluate financial decision making among consumers. The only similarities among the surveys were the questions from which data were obtained for use in this study.

The data represent information obtained from consumers living throughout the United States between 2008 and 2011. Given the research questions underlying this research, the sample was weighted to over-represent non-Hispanic Asian and other non-Hispanic White respondents. It is important to note that while the sample was appropriate for this exploratory study, it was not necessarily representative of the U.S. population. Data were collected using both paper-and-pencil and online survey methods, with both questionnaire types containing the same questions. In total, 1,000 surveys were distributed. In total, 341 non-Hispanic White and non-Hispanic Asian individuals responded to the three surveys. Among those who completed the questionnaires, 69% were female, with a mean and standard deviation age of 38.71 and 13.85 years, respectively. Twenty-nine percent of respondents were non-Hispanic Asian, with the remainder being classified as non-Hispanic White. Although

limited, respondents were grouped together without regard to their familial country of origin. Among the non-Hispanic Whites, for instance, it is possible that a wide number of cultural backgrounds were represented. Similarly, Asians were categorized as being non-Hispanic and as a group rather than through national differentiation. Given the diverse nature of the surveys, it was not possible to match other respondent demographic data. Non-Asians and those who were not non-Hispanic Whites were excluded from the study.

The variables of interest in this study were financial capability, financial behavior, and LOC. The measures used to assess these constructs were adopted from Perry and Morris (2005). Financial capability in this study was measured with subjective evaluations on a five-item financial capability measurement. Responses were combined into a summated capability scale. The items were introduced as follows: "How much do you know about the following?" Choice options included: (a) Interest rates, finance charges, and credit terms, (b) Credit ratings and credit files, (c) Managing finances, (d) Investing money, and (e) What is on your credit report. A five-point Likert-type scale was used, with "nothing" coded 1 and "a lot" coded 5. A range from 5 to 25 was possible, with higher scores representing more financial capability. In this study, the mean score was 17.74 ($SD = 4.46$). The scale's Cronbach's alpha was .78.

Financial behavior was measured with five items that were combined into a summated scale. The question was asked as follows: "How do you grade yourself in the following areas?" (a) Controlling my spending, (b) Paying my bills on time, (c) Planning for my financial future, (d) Providing for myself and my family, and (e) Saving money. A five-point Likert-type scale was used, with "poor" scored as 1 and "excellent" scored as 5. A range from 5 to 25 was possible, with higher scores indicative of better behavior. The average score was 18.54 ($SD = 3.78$). The scale's reliability, as measured with Cronbach's alpha, was .87.

LOC, as defined by Perry and Morris (2005), was assessed using seven items measured on a five-point Likert-type scale, with 1 = almost never and 5 = almost always. The question was asked as

follows: "How often do you feel?" (a) There is really no way I can solve some of my problems, (b) I am being pushed around in life, (c) There is little I can do to change the important things in my life, (d) I can do anything I set my mind to, (e) What happens to me in the future depends on me, (f) Helpless in dealing with the problems in life, and (g) I have little control over the things that happen to me. Answers to questions (d) and (e) were reverse coded. Scores were summed into a LOC scale, with higher scores representing an external LOC perspective. The average score was 13.07 ($SD = 4.49$). Using a possible range of 5 to 35, the sample was almost evenly split between internal and external LOC. The scale's Cronbach's alpha was .85.

Other variables included in the analyses were coded as follows: respondent sex was coded 1 = male, 0 = female; age was coded in years as reported by respondents; racial background was coded 1 = Non-Hispanic White, 0 = non-Hispanic Asian (i.e., Asian in this study).

Data Analysis Methods

Given the specific research questions of interest in this study, the following data analysis tools were used to evaluate the study's hypotheses: (a) Spearman's Rho correlations, (b) *t*-tests, (c) an ordinary least squares (OLS) regression, and (d) Sobel mediation tests. Results from the tests are reported below.

Results

Table 1 shows correlation estimates among the key variables of interest in this study. As expected, financial capability and financial behavior were found to be statistically significantly associated. Having an external LOC perspective was negatively associated with both financial capability and financial behavior. It was determined that men were more likely to hold an external LOC perspective. Age was found to be positively associated with financial capability and financial behavior, but negatively associated with external LOC. As expected, non-Hispanic Whites held an internal LOC perspective compared to Asians, and they were more knowledgeable and demonstrated better financial behavior.

	<i>Financial Capability (FC)</i>	<i>Financial Behavior (FB)</i>	<i>Locus of Control (LOC)</i>	<i>Sex</i>	<i>Age</i>	<i>Non-Hispanic White</i>	<i>Asian</i>
FC	1.00						
FB	0.38**	1.00					
LOC	-0.24**	-0.30**	1.00				
Sex	0.02	-0.02	0.16**	1.00			
Age	0.18**	0.23**	-0.03	-0.01	1.00		
Non-Hispanic White	0.26**	0.19**	-0.46**	-0.35**	-0.07	1.00	
Asian	-0.26**	-0.19**	0.45**	0.35**	0.07	n.a.	1.00

Note: * $p < .05$ ** $p < .01$

Table 1: Correlation Coefficients among Key Variables (N = 333)

The correlation results reported in Table 1 were useful in describing basic associations between and among variables. As expected, these bivariate results matched, in general, the working assumptions in the literature. Table 2 extends the analysis by comparing non-Hispanic Whites and Asians in terms of financial capability, financial behavior, and LOC. Results indicate that non-Hispanic Whites exhibited better financial behavior than Asians. Non-Hispanic Whites also had a higher level of financial capability than Asians, but they scored lower in external LOC.

<i>Variables</i>	<i>Non-Hispanic Whites</i> (N=239)	<i>Asians</i> (N=100)	<i>t</i>
Financial Behavior Score	19.00 (3.74)	17.45 (3.66)	3.50**
Financial Capability Score	18.49 (4.38)	15.93 (4.15)	4.97***
LOC	11.77 (3.88)	16.31 (4.27)	-9.41***

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

Table 2: Descriptive Statistics of Financial behavior, Financial Capability, and LOC for Non-Hispanic Whites and Asians

A regression model was developed to examine the relationships among financial capability, LOC, race, and financial behavior. The primary purpose behind the use of the regression was to confirm, in a basic multivariate model, that these variables were directly associated with financial behavior. Age and gender were controlled in the model. Although non-Hispanic Whites were found to report better financial behavior in the bivariate analyses, the relationship between these two variables was not statistically significant when controlling for the other variables in the model (Table 3). Based on the regression results, only partial support was noted for Hypothesis 1. Financial capability was found to be positively associated with financial behavior, holding all other factors constant. Given this result, Hypothesis 2 was accepted.

Variable	Parameter Estimate	Standard Error	t Value	Standardized Estimate
Gender	0.153	0.433	0.353	0.433
Age	0.043**	0.014	3.098	0.014
Financial Capability	0.244***	0.045	5.436	0.045
LOC	-0.190***	0.048	-3.992	0.048
Non-Hispanic White	0.107	0.499	0.215	0.499
Constant	14.877***	1.251	11.894	

Note: F5, 324 = 17.63*** R² = .214
 *p< .05 **p< .01 ***p< .001

Table 3: OLS Regression Results Showing Independent Variable Effects on Financial Behavior

Information regarding Hypothesis 4 is also shown in Table 3. Internal LOC was found to be associated with better financial behavior. As hypothesized in this study, those with an internal LOC (i.e., low scale scores represent an internal LOC) were found to report better financial behavior. Demonstrating an external LOC perspective was shown to be related to worse financial behavior. As such, the hypothesis was accepted.

Hypotheses 3 and 5 proposed that financial capability and LOC mediate the association between race and financial behavior. A mediation model (Figure 1) was developed to test these hypotheses. As shown in Figure 1, *X* represents race, *M* is financial capability or LOC, and *Y* is the outcome variable financial behavior. The linkage between *X* and *Y* is the direct effect of race on financial behavior. The effect of *X* on *Y*, through *M*, is the indirect effect. In order for mediation to occur, four criterion must exist concurrently: (1) *X* must predict *M*, (2) *X* must predict *Y*, (3) *M* must predict *Y*, and (4) *M* must significantly predict *Y* controlling for *X* (i.e., *b* ≠ 0). In addition to these four mediation rules, the predicted coefficient for *X* must be smaller in condition (model) 4 than in condition (model) 2 and *Y* must not be a cause of *M*. For the purposes of this test, each path was measured using an ordinary least squares regression procedure.

Preacher and Hayes’s (2004) criteria for estimating mediation, using Baron and Kenny’s (1986) Sobel test procedures, were used in this study as described below:

$$Y = i_1 + cX \quad (1)$$

$$M = i_2 + bX \quad (2)$$

$$Y = i_3 + c'X + bM \quad (3)$$

where:

Y = outcome variable

X = independent variable

M = mediating variable

i = intercept coefficient

Results from the mediation tests are shown in Tables 4 and 5. Each mediation criterion has been matched to a model in the table. As shown in Table 4, the direct and total effect of race on financial behavior when controlling for LOC was not significant. A post-hoc analysis, as indicated by Hayes and Preacher (2009), was used to estimate the effect size of the indirect effect. A bootstrap (*n* = 3,000) estimation procedure (see Hayes, 2012) was employed to calculate confidence intervals for the indirect effect. Based on a 95% confidence interval and the Sobel test results (*s*_{ab} = 1.023, *p* < .001), confirmation was obtained for the mediation effect of LOC on financial behavior for race. Additionally, a relatively high effect size was noted (.958). Based on these results, Hypothesis 5 was accepted. That is, LOC was found to mediate the effect of race on financial behavior.

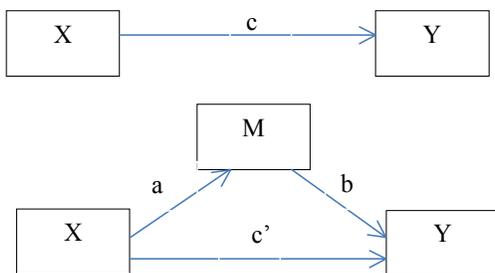


Figure 1: Hypothesized Mediation Effect of Financial Capability and LOC on Financial Behavior

	<i>Independent Variables</i>	<i>Dependent Variables</i>	<i>Coefficients</i>
Model 1	Race (Non-Hispanic Whites)	Financial Behavior	1.653***
Model 2	Race (Non-Hispanic Whites)	LOC	-4.558***
Model 3	Race (Non-Hispanic Whites) LOC	Financial Behavior	.621 -.226***

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

Table 4: Mediation Test of Financial Behavior as a Function of Race and LOC

A similar mediation test was developed to test Hypothesis 3. As shown in Table 2, the financial capability of non-Hispanic Whites and Asians was different. It was proposed that differences in financial capability may mediate the effect of race on financial behavior. This proposition was tested using the same procedure described above (Preacher and Hayes, 2004). Table 5 shows the mediated effect of financial capability on race and financial behavior. As presented in the table, the direct effect of race on financial behavior was insignificant when controlling for financial capability. A Sobel test ($s_{ab} = .781, p < .001$) and bootstrapping procedure, similar to the method used with the LOC mediation test, confirmed the significant indirect effect.

	<i>Independent Variables</i>	<i>Dependent Variables</i>	<i>Coefficients</i>
Model 1	Race (Non-Hispanic White)	Financial Behavior	1.588***
Model 2	Race (Non-Hispanic White)	Financial Capability	2.574***
Model 3	Race (Non-Hispanic White) Financial Capability	Financial Behavior	.808 .303***

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

Table 5: Mediation Test of Financial Behavior as a Function of Financial capability and Race

Discussion

Table 6 summarizes the results from this study. Each of the hypotheses was supported, with the exception that Hypothesis 1, which stated that non-Hispanic Whites and Asians would exhibit divergent financial behavior. Hypothesis 1 was only partially supported. Behavioral differences were noted in the bivariate analysis; however, the difference was diminished when LOC and financial capability were controlled for in the multivariate analysis. When taken together, these findings are noteworthy. Results confirm several associations commonly reported in the literature; namely, individuals with higher levels of financial capability, regardless of age, gender, or racial background, exhibit better financial behavior. Additionally, LOC appears to be associated with both financial capability and financial behavior. Individuals who hold an internal LOC view reported being more capable in relation to their financial situation. They also engaged in better financial behavior than those with an external LOC. Although not tested directly, older respondents were found to exhibit better financial behavior as well.

Hypothesis	Results
H ₁ : Non-Hispanic Whites and Asians will exhibit divergent financial behavior.	Partially Accepted
H ₂ : Financial capability will be positively associated with better financial behavior.	Accepted
H ₃ : Financial capability will mediate the association between race (Non-Hispanic White and Asian) and financial behavior.	Accepted
H ₄ : Internal LOC will be positively associated with better financial behavior.	Accepted
H ₅ : LOC will mediate the association between race (Non-Hispanic White and Asian) and financial behavior.	Accepted

Table 6: Summary Results from the Hypothesis Tests

The key findings from this study, however, are related to the relationship between race and financial behavior. In a simple two variable bivariate sense, non-Hispanic Whites appear to manage their financial behavior better than Asians. However, all racial differences disappear when LOC and financial capability are accounted for in a more robust model. The mediation tests illustrate something even more important. What really appears to matter, when shaping financial behavior, is LOC and financial capability for Asians and non-Hispanic Whites. Individuals

holding an internal LOC perspective are predicted to report better financial behaviors than others, regardless of their racial background. In addition, those who are financially capable are also predicted to exhibit better financial behavior. Results from this study support a core assumption within SLT; namely, learned perspectives appear to be more important than some biological determinants when people are faced with ambiguous choice dilemmas.

Results from this study suggest that some behavioral differences between Asians and non-Hispanic Whites are likely a result of variations in LOC, rather than being strictly a racial differentiation. Because holding an external LOC is associated with worse financial behavior, it is no surprise that Asians exhibited more problematic behavior. This leads to an important question; namely, can LOC be altered. Regarding the malleability of LOC, the answer to this question, unfortunately, is complicated. As described within SLT, the ability of some individuals to change perceptions, viewpoints, and belief systems tends to diminish with age. If one acknowledges this, but focuses instead on factors that affect controllability perceptions, the evidence clearly suggests that LOC can be altered (see Phares, 1976). In other words, it is possible with effort and guidance, for a person to move along the continuum of control from external to internal.

If it is assumed that both financial capability and LOC can be changed (albeit less dramatically as a person ages), then the question becomes how to bring about change in the most resource effective manner possible. Consider a recent, and widely quoted, review paper by Willis (2008-2009). She concluded that financial education does not increase capabilities, but rather confidence. Willis argued that enhanced levels of confidence likely work against the interests of consumers by tricking those who are confident into making problematic consumer finance choices. Willis based many of her conclusions on primary research published by Mandell and Klein (2007) who noted that among young people who participated in JumpStart programs, financial capabilities were not strongly related to financial practices. Further, and maybe more importantly, Mandell and Klein found that playing a stock market game was highly associated with financial capability scores and financial outcomes. They hypothesized that the stock market game might be more effective, as compared to traditional education interventions, because participants find games to provide intrinsic motivation to learn about personal finance topics. Might there be another explanation as well? It is important to note that neither Willis nor Mandell and Klein were able to control for important psychosocial characteristics when evaluating the effectiveness of financial literacy programming due to limitations in the JumpStart dataset. We believe that had the study accounted for LOC, as suggested in this study, the modest associations between financial education and behavior might have been different. Specifically, as shown in this study, LOC appears to have both a direct and mediating effect on financial behavior. The stock market game may be perceived by young people as a game with learned patterns and outcomes. These patterns are reinforced with immediate feedback. Although most educators would likely argue that the game

is random and something that encourages risky choices, players may adopt a gambler's fallacy mentality when playing. That is, the game may provide an illusion of controllability and stability that helps engender an internal LOC perspective, especially when the game's outcomes are positive. Further, the game may tap into a preference among some with an external LOC for learning scenarios that have inherent aspects of luck, fate, and chance. If a sizable portion of the population shares an external LOC perspective, it is no surprise that education received via a randomized (non-skill based) game would appeal to players and provide a long-lasting knowledge and behavioral impact.

How might results from this study impact financial education? To begin with, the results indicate that financial capability is positively associated with financial behavioral outcomes. Also, having an external LOC outlook appears to be negatively related to positive financial behavior. Additionally, the evidence suggests that both of these variables mediate the association between race and financial behavior. If true, then it behooves financial counselors, planners, and educators to incorporate games, assignments, and simulations that might appeal to those with an external LOC into educational programming. Rather than assuming that a well-designed educational program focused on information, handouts, calculators, and traditional tools preferred by those with an internal LOC is appropriate for all audiences, a better alternative may involve assessing the control preferences of each audience or educational needs of a given population.

Additionally, results from this study provide an additional reason to reconsider the role of LOC in personal and household finance research. Researchers and educators who have an interest in helping improve the financial outcomes of consumers should consider designing and testing creative ways to alter consumer perceptions of financial behavior. If the typical consumer today feels that behavioral outcomes associated with financial decisions are somewhat random and beyond their control, then it is unlikely that the consumer will either seek additional information or attempt to improve their behavior. On the other hand, if consumers can be shown ways to develop reasonable goal orientations and methods to reinforce the association between personal decision-making effort in such a way that outcomes are measureable and meaningful, then SLT predicts that behavioral change is possible.

While the results from this study provide an explanatory insight into racial differences in financial behavior, it is important to interpret results within the context of methodological and sample limitations. This paper used a limited dataset. It was not possible, for example, to know whether respondents in the sample were native born, immigrants, or students. Further studies should attempt to segment survey respondents by residency status and regional background. Other important determinants of behavioral intentions and actions were not available in the dataset. While the mediation test results will not be impacted by the inclusion of other variables, a more encompassing regression analysis certainly would be. Future research, therefore, should be conducted to confirm that basic direct associations between and among

racial background, LOC, and financial capability and financial behavior, controlling for other demographic and socioeconomic characteristics, hold true. Additionally, additional research is needed to help clarify whether variables, such as education and income, also mediate the relationship between racial background and financial behavior. Based on this and future studies, it may be possible to move discussions regarding financial behavior away from purely descriptive studies to ones that focus on explaining financial behavior.

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