

GENDER DIFFERENCES IN FINANCIAL SOCIALIZATION AND WILLINGNESS TO  
TAKE FINANCIAL RISKS

By

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To my husband, Curtis Garrison

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Abstract of Thesis Presented to the Graduate School  
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This study utilizes social learning and gender role theories as a basis for exploring gender differences in financial socialization as they relate to willingness to take financial risks. Three research questions were proposed: 1) Does willingness to take financial risk differ by gender in college students?; 2) Does exposure to financial social learning opportunities differ by gender in college students?; and 3) Does the relationship of social learning opportunities on willingness to take financial risks differ by gender? It was hypothesized that 1) male college students would have a greater willingness to take financial risks than female college students; 2) exposure to financial social learning opportunities will differ by gender in college students; and 3) the relationship of social learning opportunities on willingness to take financial risks would differ by gender.

Basic bivariate analysis utilizing cross-tab with the  $\chi^2$  statistic and independent sample *t*-tests were used to test the first two hypotheses. Parallel cumulative logistic regressions were used to test the third hypothesis. Varying levels of comparison of willingness to take financial risks were used as reference variables, with gender as the selection variable. Results indicate that a gender difference in willingness to take

financial risks does exist among college students, with males being more likely than females to choose higher levels of financial risk. A gender difference in financial social learning opportunities was also present, with females having higher exposure to financial social learning opportunities across all four dimensions (discussions with parents, discussions with peers, observations of parents' financial behaviors, and observations of peers' financial behaviors). Significant differences were also found for the relationship of social learning opportunities on willingness to take risks by gender, but only at the discussion levels of financial socialization. Important implications are presented for college students, parents, practitioners, and researchers.

## CHAPTER 1 INTRODUCTION

Financial wellbeing is an important issue in the life of every individual. Porter and Garman (1993) define financial wellbeing as the satisfaction an individual has with their income and savings, how they perceive opportunities, their ability to "make ends meet," their sense of material security, and their sense of fairness of the system in which rewards are distributed. Being financially well is important for every individual, during every stage of life, from childhood, to starting out in the workforce, to retirement, to later life issues.

While life expectancies in the U.S. have been increasing for men and women over many years, this gender gap in life expectancy still exists. According to a recent report released by the Department of Health and Human Services (Aria, 2007), the average life expectancy in the United States was 75.2 years for males and 80.4 years for females in 2004. This means that many women will potentially outlive their spouses, leaving them to fend for themselves financially and otherwise in their later years of life. In addition, according to the U.S. Census Bureau (2008), 13% of women over the age of 75 were poor in 2007, compared to only 6% of men. This indicates that not only will women outlive men, but will also potentially have higher levels of poverty than their male counterparts.

It has also been generally recognized that, on average, women tend to make less money than men for doing the same or similar jobs. According to Blau and Kahn (2000), from the late 1950s to about 1980, the female-to-male income ratio remained steady at approximately 60%. In the late 1970s and early 1980s, this ratio began to increase, and by 1999, the income ratio had increased to 76.5% (ibid). While this increase is

substantial, it should be remembered that this income disparity, when accompanied by a longer life expectancy, can cause many problems for women later in life.

Retirement may be one of these complex times for women. Lusardi and Mitchell (2008) found that the majority of women in the United States have not made any financial plans for retirement. They also found a clear correlation between financial literacy (defined as financial knowledge) and retirement planning, stating that “women who display higher financial literacy are more likely to plan and be successful planners” (p. 413). As more and more companies have been switching away from a pension system, workers have been asked to take on a greater responsibility for their own retirement saving and investing. As was mentioned previously, women with higher financial literacy are more likely to successfully plan for retirement. However, many studies have shown women to have lower levels of financial literacy than men, in general.

Another important issue in considering the financial well-being of women is the increasing number of households headed by single mothers (both divorced and never married). In 2002, the U.S. Department of Commerce reported that the percentage of single females in the United States has consistently grown from 34% in 1950 to 46% in 2002. According to Fields and Casper (2001) the number of single-mother-headed households has also increased from three million in 1970 to ten million in 2000. This is partially due to the fact that, in the case of divorce or birth to unmarried parents in the U.S., single mothers are more likely than single fathers to live with their children, as women often receive full custody in such situations (Buehler & Gerald, 1995).

While divorce tends to cause financial disparity for both partners, it has been found that women tend to have greater negative financial consequences of divorce than men. For instance, divorced women, as compared with divorced men and married women, have reported more continual financial difficulties such as inability to pay bills or make necessary purchases (Shapiro, 1996). According to Amato (2000), these issues are due to women experiencing more interruptions in work history before divorce, more work-family conflict, and more employment and wage discrimination than their male counterparts.

It has already been established that women are less likely to plan for retirement. Lusardi and Mitchell (2007) found that those who do not plan are likely to accumulate significantly less wealth than those who do plan, and are also less likely to take advantage of stocks and tax-favored assets as investments. It has also been established that women live longer than men, while earning less money. Single mothers are also more likely to be head of household than single fathers, and divorced women are more likely to report chronic financial issues. These things are known, but it is not yet understood why women tend to fare worse financially than men.

In thinking about this divergence, one might ask where people learn their financial attitudes and behaviors to begin with. Where does this discrepancy come from? One answer may be the concept of financial socialization. Social learning, in general, and financial socialization, specifically, will be discussed in more detail in Chapter 2, but the main idea is that individuals learn their attitudes and behaviors through watching and modeling the attitudes and behaviors of important people in their lives (Bandura 1963, 1977).

This research aims to look at potential differences in financial socialization between men and women and the effects that these differences may have on financial dispositions such as willingness to take risks. Willingness to take risks is an important concept to consider, because it will affect areas such as saving, investing, and retirement planning. All of these areas are important for the financial well-being of both men and women. This research will seek to answer the following questions related to financial socialization and willingness to take risks: Is there a gender difference in willingness to take financial risks? Is there a difference in financial socialization between genders? More specifically, are there differences between genders in talking to parents about financial behaviors? Are there differences between genders in observing the financial behaviors of parents? Are there differences between genders in talking to friends about financial behaviors? Are there differences between genders in observing the financial behaviors of friends? If there are differences in any of these areas, does the relationship of social learning on willingness to take risks differ by gender?

## CHAPTER 2 LITERATURE REVIEW

### **Willingness to Take Financial Risks**

One important factor related to financial planning and investing is financial risk tolerance or willingness to take financial risks. As was previously mentioned, this study is interested in exploring potential differences in financial socialization between men women and the effects that these differences may have on financial dispositions such as willingness to take risks. Grable (2000) defines willingness to take financial risks as “the maximum amount of uncertainty that someone is willing to accept when making a financial decision” (p. 625). Grable and Lytton (1999) identified eight different dimensions of willingness to take financial risks, including “1) guaranteed versus probable gambles, 2) general risk choice, 3) choice between sure loss and sure gain, 4) risk as related to experience and knowledge, 5) risk as a level of comfort, 6) speculative risk, 7) prospect theory, and 8) investment risk” (p. 174). While none of these dimensions individually is an accurate representation of willingness to take risk, when combined together they could provide a useful measure. The consideration of willingness to take financial risks is important in this study, because in general, higher risk in investments has the opportunity to lead to higher returns. If one gender tends to have lower levels of willingness to take risks, this could lead to lower investment returns.

As will be discussed later on, research has shown that there does tend to be a gender difference in willingness to take financial risks in older populations, but little has been done to look at gender differences in willingness to take financial risks tolerance among college students. In addition to gender, several other factors have been found to

influence willingness to take financial risks. Hawley and Fujii (1993) found that education, debt, and income were significantly related to willingness to take financial risks. These results were consistent with several other studies including Warner and Cramer (1995) and Sung and Hanna (1995). Sung and Hanna (1996) also found that marital status had a significant impact on willingness to take financial risks.

A definition of willingness to take financial risks has been provided, and it has been established that it is impacted by several factors, but how do people come about their level of willingness to take financial risks? The next section will discuss social learning theory and the idea that attitudes such as willingness to take risks may be brought about through the process of socialization.

### **Social Learning Theory**

In order to understand the potential impact that gender differences in financial socialization may have on financial attitudes and behaviors, it is important to understand the foundation of the idea of socialization. In his Social Learning Theory, Alfred Bandura (1963, 1977) posited that people learn their own behaviors and attitudes by observing the behaviors and attitudes of significant people in their lives. This process of learning through observing others is called modeling. Social Learning Theory has been applied extensively to understanding the modification of behaviors. Strategies based on Social Learning Theory have been effective in reducing alcohol abuse among students (Foss, Deikman, Bartley, & Goodman, 2004, Perkins & Craig, 2002), reducing or delaying tobacco use at colleges and universities (Hancock & Henry, 2003), and preventing sexual assault and eating disorders (Berkowitz, 2003).

According to Bandura (1977), there are four conditions necessary for effective modeling: attention, retention, reproduction, and motivation. In order for modeling to be

effective, the observer must be paying attention to the behavior or attitude, must remember the behavior or attitude, must be able to reproduce the behavior or attitude themselves, and must have some motivation to reproduce the behavior or attitude. One example of this socialization is a child who observes their parent's behavior and then emulates that behavior. Because modeling has an important impact on behavior change, Bandura (1977) proposed that new behaviors could be taught more quickly and more efficiently through modeling.

### **The Socialization Process**

The socialization process begins in childhood and may continue throughout life (McNeal, 1987; Moschis, 1985, 1987). Socialization processes include the development of financial knowledge and skills through multiple life events and personal interactions (Fox, Bartholomae, & Gutter, 2000). Ward (1974) describes consumer socialization as the process through which young people develop knowledge, skills, and attitudes regarding their consumer role in the marketplace. This definition has been extended to include the acquisition and development of values, attitudes, standards, norms, skills, behavior, motives and knowledge related to family financial management and consumption (Cohen & Xiao, 1992; Danes, 1994; Fox, Bartholomae, & Gutter, 2000; Hira, 1997).

Consumer socialization research, based on social learning theory, suggests that a large portion of consumer behavior (i.e. spending behavior among adults) is learned through socialization agents such as parents, family members, peers, and other influential individuals during adolescence, and thus can be transferred through generations (Churchill & Moschis, 1979; Moschis & Moore, 1984; Valence, d'Astous, & Fourtier, 1988). The idea of childhood consumer socialization is based on the premise

that behaviors, skills, knowledge, and attitudes learned early in life can, and often do, persist into adulthood (Moschis, 1985). Ward (1974) suggested that consumer behavior among young people, as well as the development of adult patterns of behavior, can be understood by studying related childhood and adolescent experiences.

Childhood socialization opportunities come from individual, organizational, or institutional agents with whom children come into contact or maintain a relationship (Fox, Bartholomae, & Gutter, 2000). Parents, peers, schools, and mass media are the primary agents that play a significant role in consumer socialization (Bush, Smith, & Martin, 1999; Moschis & Moore, 1984). The psychological, emotional, and behavioral developments of young people are strongly influenced by these agents as they become consumers in the marketplace (Moore, Raymond, Mittelstaedt, & Tanner, 2002). Several empirical studies have also found that these same socialization agents act as typical sources of financial knowledge for young people (Fox, Bartholomae, & Gutter, 2000; Keller & Staelin, 1987; Lee & Hogarth, 1999). Gutter, Copur, and Garrison (2009) found associations between financial dispositions, financial socialization, and financial behaviors. Many authors have developed models of consumer socialization (Carlson & Grossbart, 1988; Moschis & Churchill, 1978; Ward, Klees, & Wackman, 1991), yielding that in general, consumer socialization consists of three components: background factors (e.g., sex, age, socioeconomic status), socialization agents-processes (e.g., peers, parents, other family members), and learning mechanisms-outcomes (e.g., the process through which parents teach consumer skills to children) (Grossbart, Carlson, & Walsh, 1991; Mascarenhas & Higby, 1993).

## **Gender Roles**

In looking at the socialization process, and financial socialization in particular, one might wonder why gender matters. Research suggests that socially constructed gender roles have an impact on behavioral differences in males and females. Gender is often thought of as not necessarily whether an individual is biologically male or female, but as the way they have been socialized to act as feminine or masculine (Hare-Mustin & Marachek, 1990). According to the American Heritage Stedman's Medical Dictionary, a gender role is "the pattern of masculine or feminine behavior of an individual that is defined by a particular culture and that is largely determined by a child's upbringing." Thus, while every individual presumably undergoes socialization and acquires attitudes and behaviors through social learning, social learning may not be equal depending on one's gender. Even more importantly, individuals may be socialized differently regarding money and financial behaviors depending on their gender.

Historically, evidence of this potential gender difference in socialization has been seen in several domains, including education, athletics, and risk-taking, to name a few. In the area of education, differences have been especially evident in the areas of mathematics, with girls rating their math skills as lower and expressing less interest than boys in math and professions related to math (Eccles, Jacobs, & Harold, 1990). There is evidence in the area of mathematics that parents of junior high aged children hold gender-differentiated views of the math-competence of their children and that these views are associated with the children's own confidence in their math competence (Eccles-Parsons, 1984). In addition, parents' gender differentiated perceptions of their children's math competence persist even when their male and female children perform

equally well in both their math grades and their performance on math-related standardized tests (Eccles-Parsons, Adler, & Kaczala, 1982).

There is also evidence of a gender role affect in the area of athletics. Until more recent times, competitive athletics has been primarily dominated by males. Frish (1977), posits that, from birth, males and females are socialized into different categories of physical activity. While males have historically been encouraged into athletics, women have been discouraged from such participation (Lantz & Schroeder, 1999). In their 1999 study, Lantz and Schroeder found that, among their sample of college athletes and non-athletes, gender role orientation was significantly related to both athletic participation and identification with the athletic role. Both athletes and those who identified themselves as athletic showed a greater endorsement for the masculine gender role, while non-athletes and those who identified themselves as non-athletic showed a greater endorsement of the feminine gender role. In her 1999 study, Koivula similarly found that “gender and gender-based processing correlate with the reasons given for participation in sports...and both the frequency and amount of time spent participating” (p.375).

Risk-taking is another area in which gender roles seem to play a significant part. Based on several research studies specifically aimed at gender differences in risk taking behavior, it seems that males are more prone to take risks than females. In their study on gender differences in risk taking with children, Ginsburg and Miller (1982) found that boys were significantly more likely than girls to engage in all four of their risk-taking situations. In their meta-analysis of 150 studies examining gender differences in risk-taking, Byrnes, Miller, and Shafer (1999) found that males indicated significantly higher

risk taking than females in 14 out of 16 risk-taking situations, with certain topics producing greater gender differences than others. Levenson (1990) points out that “a cognitive-social learning theory of risk-taking behavior suggests that social factors, perhaps in combination with personality predispositions, have more influence on various forms of risk-taking behavior than underlying physiological traits” (p.1074).

We have now examined three different behavior areas in which gender-role-oriented social learning seems to play a role in eventual attitudes and behavior formation. This paper seeks to determine if gendered social learning also plays a role in formation of financial attitudes and behaviors such as willingness to take financial risks. The next section will examine this topic more closely.

### **Gender Differences in Financial Knowledge, Attitudes, and Behaviors**

This study would be unnecessary if there were no documented gender differences in financial knowledge, attitudes, or behaviors, but, in fact, such differences have been noted time and time again. This section will examine existing gender differences that have been studied in key areas of financial knowledge, attitudes, and behaviors. Such differences support the reasoning behind determining whether or not gender plays a role in financial socialization.

While several studies suggest that women tend to have lower levels of financial knowledge than men, the findings have been mixed. Chen and Volpe (2002) found that, on average, women knew less about personal finance than men when controlling for other factors. In addition, more men than women ranked personal finance as an important subject, and men ranked themselves as more knowledgeable in personal finance than did women. As has also been seen in previous socialization research related to education (Eccles et al., 1990, Eccles-Parsons, 1984, Eccles et al., 1982),

men ranked math and other number-related sciences as important subjects, while more women ranked English and word-oriented liberal arts as important in the Chen and Volpe (2002) study. Not surprisingly, women also scored much lower than men on personal finance questions requiring them to process numerical information. In contrast, Norvilitis, Merwin, Osberg, Roehling, Young, & Kamas (2006) found that females scored significantly higher than males on the Jump\$tart financial knowledge scale, although the average score for both sexes was only 60%.

In the area of investment knowledge, Volpe, Chen, and Pavlicko (1996) found that all student groups tend to have inadequate investment knowledge, but that females tended to have poorer investment knowledge than males. This is important, because as was discussed in the introduction, a clear correlation has been found between financial literacy and retirement planning (Lusardi and Mitchell, 2008). If women know less about money than men, tend to live longer than men, make less money than men, and plan less for retirement than men, we have a huge problem! Differences in social learning may be a part of the problem, as men tend to be socialized as the “breadwinners” and women have historically been more dependent on men for financial support than the other way around (Bremner, 1894).

Gender differences in financial attitudes such as willingness to take financial risks are also important to consider. As was discussed previously, social learning theory posits that people develop their own attitudes by observing the attitudes of significant people in their lives (Bandura, 1963, 1977). Thus, if there are differences in financial attitudes by gender, it stands to reason that some of these differences may be related to gendered financial socialization.

In fact, differences have been found in the area of willingness to take financial risks. In their study on risk aversion and expected retirement benefits, Watson and McNaughton (2007) found that women tended to choose investment strategies that were more conservative than men. They also found that the lower income of women was a significant contributor to the women's lower projected retirement benefits. Thus, not only were women investing less, but they were also choosing less aggressive investment strategies than men. In their 2004 study, Hallahan, Faff, and McKenzie found that gender was a significant predictor of risk tolerance, with females scoring 6.20 points lower on their Risk Tolerance Scale compared to males who were demographically equivalent.

Not only do children learn their attitudes, such as willingness to take financial risks, through social learning, but also their behaviors (Bandura, 1963, 1977). For this reason, it is important to look at gender differences in financial behaviors that have been observed. While women do have some financial behaviors that are worse than those of men, the outlook is not all bad. For instance, Hayhoe et al. (2000) found that female students, compared to male students, were more likely to have a budget, to keep bills and receipts, to save regularly, and to plan their spending. Lyons (2004), however, found that women were more likely to engage in risky credit card behaviors than men. Davies and Lea (1995) also found that women tend to have higher levels of debt. As risky credit behaviors and high levels of debt have a negative effect on the credit score which can later inhibit important milestones such as purchasing a home or getting a job, these findings are concerning.

In relation to women's lower willingness to take risk, studies have found gender differences in financial risk taking. While women may tend to engage in risky credit behaviors more often than men, Powell and Ansic (1997) found that, in general, women tend to be less risk-seeking in their finances than men. Females were also more likely to attribute their positive financial performance to good luck than males and also had less financial confidence than males who had similar prior financial experience and similar education. Jianakoplos and Bernasek (1996) found that not only were single women more risk averse in their asset holdings than married couples or single men, but they also perceived themselves to be more risk averse, with a women reporting no willingness to take financial risk. Bernasek and Bajtelsmit (1996) found many gender differences in their review of investment literature, indicating that women tend to be more risk averse than men when investing. They address the issue of biological determinism versus socialization in predicting women's willingness to take risk and conclude that "interventions focused on changing socialization processes can still positively impact the well-being of women by influencing their decision making" (p.8).

This study seeks to extend the idea of gender role influences on social learning to financial socialization. We seek to discover whether or not gender has a significant role in financial socialization. Is there a gender difference in exposure to financial socialization? If so, does this difference have an effect on financial attitudes and/or behaviors? To better understand how to answer these questions, it is important to look at the agents of financial socialization.

### **Agents of Financial Socialization**

As has been previous established, a child's family is one of their primary socialization agents. Several authors (Danes, 1994; McNeal, 1987; Moschis, 1987)

have found that financial knowledge is learned through children's observations and participation, as well as through the intentional instruction of their parents. Multiple previous studies have revealed that intentional instruction and reinforcement by parents can both directly and indirectly impact the financial knowledge and behavior of their children (Drentea & Lavrakas 2000; Hayhoe, Leach, Turner, Bruin, & Lawrence 2000; Lyons, Scherpf, & Roberts 2006; Moschis, 1985). Marshall and Magruder (1960) found that wise financial management by parents can lead to increased knowledge about money in their children.

Hira (1997) identified family, in general, and mothers and fathers, in particular, as the most important influences on the financial attitudes and beliefs of respondents, suggesting that young people learn their symbolic meanings of money from their parents and other family members. The same study established that parents pass down money values to their children through direct and indirect messages. Among younger respondents, the proportion of respondents that indicated parents or family members as a strong influence was higher than among older respondents. Friends were also an important influence, but only among the younger age groups (ibid).

The extent to which a child is exposed to each socialization agent (family, school, media, or peer group) determines the influence of that agent (Alhabeeb, 1999). As children get older, their exposure to each agent changes. For instance, as children age, their major behavioral influence tends to shift from parents to peers, which may be a result of their increased exposure to peers as they get older (Harris, 1995). John (1999) warned parents to start early in modeling good behavior for their children, because while parents are more influential at the information-gathering stage, peers are more

influential later on during the product-evaluation stage. She also stated that peer group influences are strengthened through unstable family environments and weak family communication. Thus, early positive parental communication in the home can affect the strength of peer influences on children later on.

Bernheim, Garret, and Maki (2001) found that adults who had been encouraged to save using a bank account in childhood saved more than those adults who had not been encouraged in this manner. In addition, those adults who perceived their parents as having saved more than average also saved more than others themselves. Capital One Financial Corporation (2003), in their third annual back-to-school survey, found that 90% of high school students and 87% of college students rely on their parents for advice about finances. Pinto, Parente, and Mansfield (2005) found that parents were the only socialization agent significantly correlated with credit card use, indicating that college students learn more information about credit cards from their parents than any other socialization agent. In addition, they found that greater levels of information from parents on the proper use of credit cards were correlated with lower levels of students' outstanding credit card balances. Webley and Nyhus (2006) found that parental behavior (i.e. discussing finances with children) and orientations (i.e. future orientation) had a clear, though weak, impact on children's financial behavior in childhood and adulthood.

Through all of this research, we see that various socialization agents, and the family in particular, play a large role in a child's financial socialization. We also have seen gender differences in several other types of socialization related to education, athletics, and risk-taking. If these differences also exist in the area of financial

socialization, it could help to explain gender differences in financial knowledge, attitudes, and behaviors in adulthood.

### **Summary**

Through the lens of social learning theory and research on gender roles, we see that various behavior differences in males and females may be partially affected by differences in socialization. There is evidence that gender differences exist in various areas of financial knowledge, financial attitudes, and financial behaviors. Thus, the following questions present themselves:

- 1) Does willingness to take financial risk differ by gender in college students?
- 2) Does exposure to financial social learning opportunities differ by gender in college students?
- 3) Does the relationship of social learning opportunities on willingness to take financial risks differ by gender?

It stands to reason that if people are socialized differently based on their gender for some behaviors and attitudes, they may also be socialized differently for financial behaviors and attitudes. This study seeks to expand that research to the area of financial socialization, with the following hypotheses:

- 1) Male college students will have a greater willingness to take financial risks than female college students.
- 2) Exposure to financial social learning opportunities will differ by gender in college students.
- 3) The relationship of social learning opportunities on willingness to take risks will differ by gender.

This research is important, in that it is vital for males and females to have adequate knowledge of and exposure to financial issues. Both male and female college students will eventually be responsible for their own finances. If females are missing out

on early positive financial socialization opportunities, they may be negatively affected later in life when it comes time to get a job, take care of their families, and invest for retirement. By finding out whether or not individuals are socialized differently in the financial realm, we can determine next steps in closing this potential gender gap.

## CHAPTER 3 METHODS

### **Sampling and Data Collection**

Data for this study was collected as part of a larger study on the impact of financial education on financial behaviors during the spring and fall terms of 2008. A stratified random sampling technique based on state policies toward financial education was utilized. Six policy categories were determined using the 2005 National Council on Economic Education report. At least two large universities were randomly chosen from each policy category, and each institution was contacted by phone and/or email to obtain student email lists for a web-based survey. The sampling pool consisted of college students, age 18 and over, from 15 public universities across the United States.

This study utilized a cross-sectional research design and an online survey method. According to de Vaus (2006), the cross-sectional design has four basic elements. First, this design relies on existing independent variable differences in the sample instead of using interventions as in the experimental design. Second, at least two categories must be present, with at least one independent variable. Third, the data is collected at one point in time. Lastly, groups are not randomly allocated. The present study utilized this design through the use of an online survey in order to explore existing differences in financial socialization opportunities between genders.

An online survey was utilized for several reasons. As Lyons, Cude, Lawrence, and Gutter (2005) point out, online surveys have several practical advantages over traditional survey methods, including faster response rates, larger sample sizes, lower costs, and less data processing. It is important, however, to choose an appropriate audience for an online survey. Using an online survey to glean information from people

with low computer literacy or little internet access would be illogical. However, because the target population for this study was college students (who tend to be easily accessible via email), the use of an online survey method was an appropriate strategy. This strategy also enabled the researcher to reach a very broad sampling pool at 15 different universities through email.

In order to obtain student email addresses, the appropriate official (usually the Registrar's office) for each university was contacted to initiate the process. The process for obtaining email addresses was different for each university. Some emailed a list of email addresses for their entire student body; some emailed a list of email addresses for a random sample of their student body. Some required no payment; some required a small fee; and some required IRB approval from their respective universities. In the cases that IRB approval was required, appropriate IRB paperwork was filed before receiving email addresses for the students.

Student participation was requested using emails delivered to the email addresses obtained from each university. Students were informed that every one thousandth completed survey would receive a \$100 gift card. The email students received, which contained an informed consent document, took them to the SurveyMonkey based survey, where they had to affirm their assent to the informed consent statement prior to beginning the survey. Students also received two follow up emails to remind them of the survey and encourage participation in the study.

In total, emails were sent out to 172,412 students, with 16,876 students responding to the survey. This yields a response rate of 10.22%. Students who were not educated in the United States, who were homeschooled, who received a GED, or who

did not indicate their state of high school attendance were removed from the sample, yielding a final sample of 15,797 students. The sample profile is fairly typical, with the majority of students being full-time (94.2%) and an average age of 21.3 years. In addition, most students were female (64.9%), most were white (81.8%), and most were unmarried (85.3%). The sample also contained good representation from each class rank, with 20.7% freshmen, 19.3% sophomores, 24.2% juniors, 27.1% seniors, and 8.7% graduate/professional students. The national averages for college students are 62.7% female, 69.8% white, 58.1% single, and 27.8% senior (NASPA, 2008). Thus, although students in this sample were more likely to be white and single than the general student population, this sample is similar to the overall demographics of the college students in the U.S.

### **Dependent Variables**

**Willingness to take financial risks:** The measure for willingness to take financial risk is a theory-based measure of risk tolerance that is used in the Survey of Consumer Finance. Willingness to take financial risks was measured with the following question: "Which of the statements on this page comes closest to the amount of financial risk that you are willing to take when you save or make investments?" Answer choices were as follows: "take substantial financial risks expecting to earn substantial returns;" "take above average financial risks to earn above average returns;" "take average financial risks expecting to earn average returns;" and "not willing to take any financial risks."

### **Independent Variables**

**Demographics:** Gender was the main independent variable for this study and was measured by asking the students to indicate their gender as male or female. In accordance with factors previously found to be significantly related to willingness to take

risks, additional demographic information was also collected for control purposes. These include previous financial education, race, marital status, and income.

**Financial social learning opportunities:** The financial social learning opportunities score was a composite measure based on four dimensions: financial discussions with parents, financial discussions with peers, observing parents' financial behaviors, and observing peers' financial behaviors. The score utilized responses to eight items representing these four dimensions. Scores for each dimension ranged from 8 to 40.

Each dimension used the basic form of how often the participant discussed the following with their parents or peers in the past five years, or how often they observed the following from their parents or peers in the last five years: managing expenses and avoiding overspending; checking credit report; paying bills on time; saving and investing money; working with a mainstream financial institution like a bank or credit union (as opposed to payday lenders); buying and maintaining health insurance; buying and maintaining auto insurance; and buying and maintaining renters insurance. The scale ranged from 1 (never) to 5 (often), and included a "don't know" option.

### **Analysis**

In order to determine whether willingness to take financial risks differs by gender (Hypotheses 1), bivariate analysis will be conducted using cross tab analysis. The Chi Square ( $\chi^2$ ) test statistic will be computed to determine whether willingness to take financial risks differs by gender. The  $\chi^2$  test will be able to show whether or not there is a significant difference by gender, but it will not tell which risk variables (substantial, high, average, and no risk) are significantly different from one other. In order to

determine this, each level of willingness to take risk will be compared to each other level via a *t*-test to determine significant differences.

In order to determine whether social learning differs by gender (Hypothesis 2), each social learning opportunity dimension (discuss with parents, discuss with friends, observe parents, and observe friends) will be compared by gender via a two sample *t*-test to determine significant differences.

Most importantly, the relationship of social learning opportunities on willingness to take risks will be compared by gender (Hypothesis 3). This analysis will be run via a cumulative logistic regression technique, utilizing parallel cumulative logits with gender as the selection variable, the varying combinations of willingness to take financial risks as the dependent variable, and social learning opportunities as the independent variable. Control variables will include marital status, race, income, and prior financial education. The cumulative logit is appropriate for this analysis because the dependent variable of willingness to take financial risk is naturally ordered. In this instance, the cumulative logit is superior to the ordered logit, because the nature of the research question requires the ability to rotate reference variables. This is possible with the cumulative logit, but not with the ordered logit. This model allows for the independent variables of gender and financial socialization to have varying effects on willingness to take financial risks. The cumulative logit model examines the effects of the independent variables on the probability for college students to choose high risk (including above average and substantial risk) vs. low risk (average risk and no risk), substantial risk vs. other risk (including none), and no risk vs. any risk (both high risk and average risk). A similar cumulative logit model was used in Yao, Gutter, and Hanna (2005) to compare

racial differences in risk tolerance. This will be the first time that a cumulative logit model will be used to test differences in gender and financial socialization related to financial risk tolerance.

Table 3-1. Summary of variables

Dependent variables	Independent variables
Willingness to take financial risks	Demographics
Substantial risk	Gender
Above average risk	Male
Average risk	Female
No risk	Previous financial education
High risk vs. low risk	In high school
Substantial risk only vs. lower risk	In the community
Any risk vs. no risk	Race
	White
	Black
	Hispanic
	Asian
	Other
	Marital status
	Single (including divorced, separated, widowed)
	Married/cohabitating
	Income
	\$0
	\$1-\$499
	\$500-\$999
	\$1000 and above
	Social learning opportunities
	Financial discussions with parents
	Financial discussions with peers
	Observe parents' behaviors
	Observe friends' behaviors

## CHAPTER 4 ANALYSIS

The previous chapter discussed how each of the three hypotheses would be tested. This chapter will discuss the results of the bivariate and cumulative logistic regression analysis described in Chapter 3. Hypothesis 1 was tested using cross tab analysis with the  $\chi^2$  statistic, followed by independent sample *t*-tests to determine significant gender differences between each “willingness to take financial risks” variable. Hypothesis 2 was tested using independent sample *t*-tests to determine significant gender differences between each social learning opportunity dimension. Hypothesis 3 was tested using cumulative logistic regression to determine whether the independent variables of gender, financial socialization, and the relationship of these two had varying effects on willingness to take financial risks.

### **Bivariate Analysis**

This section will present the bivariate results for each of the dependent and independent variables. [Table 4-1](#) presents the results of all the bivariate analysis presented in this section.

#### **Dependent Variable**

**Willingness to take financial risks:** For willingness to take financial risks, each level of financial risk (substantial risk, above average risk, average risk, no risk) was tested by gender via cross tab analysis with  $\chi^2$ . The result of the  $\chi^2$  test indicated that there were overall significant differences in willingness to take financial risks by gender ( $\chi^2=609.14, p<.01$ ). The results of the  $\chi^2$  test are as follows: 6.6% of males and 2.7% of females were willing to take substantial financial risk to achieve substantial financial returns; 32.7% of males and 16.8% of females were willing to take above average

financial risk to achieve above average financial returns; 51.0% of males and 60.6% of females were willing to take average financial risk to achieve average financial returns; and 9.7% of males and 20.1% of females were willing to take no financial risk to achieve no financial return. These results indicate that proportionately more males than females are willing to take substantial and above average financial risks, however, independent sample *t*-tests were conducted to determine whether these differences are significant at each level.

Three variables were tested by gender using the independent sample *t*-tests. These were “high risk (substantial and above average risk) vs. low risk (below average and no risk);” “substantial risk vs. lower risk (above average, average, and no risk);” and “any risk (substantial, above average, and average risk) vs. no risk.” Results of the *t*-tests indicate that there are significant gender differences for all three variables. Males were significantly more likely than females to be willing to take high financial risk versus low financial risk ( $t=-22.00, p<.01$ ). Males were also significantly more likely than females to take substantial risk versus lower levels of risk ( $t=-.904, p<.01$ ). As was expected, females were significantly more likely than males to take no financial risk versus any financial risk at all ( $t=-15.75, p<.01$ ).

## **Independent Variables**

### **Demographic information**

As was stated earlier, the sample was composed of 64.9% females and 35.1% males. Of these, 35.5% of males and 41.0% of females had financial education in high school ( $\chi^2=51.44, p<.01$ ), and 12.3% of males and 7.8% of females had financial education in their communities ( $\chi^2=87.71, p<.01$ ). Although the vast majority of both

males and females were white, there were also significant racial differences by gender ( $\chi^2=43.65, p<.01$ ). Significant differences in marital status also existed with 88.1% of males and 85.5% of females single and 11.9% of males and 14.5% of females married or cohabitating ( $\chi^2=22.87, p<.01$ ). Finally, there were also significant differences in income between genders ( $\chi^2=121.39, p<.01$ ). All of these variables have been identified in the literature as being associated with willingness to take risks and are controlled for in the cumulative logistic regression.

### **Social learning opportunities**

For social learning opportunities, each of the four social learning opportunities scores was compared by gender via independent sample *t*-test. The results of the *t*-test indicate overall significant gender differences for each form of financial socialization. For financial discussions with parents, males had an average score of 21.6 and female had an average score of 21.9 ( $t=2.349, p<.05$ ), indicating that females had significantly more social learning opportunities where they discussed financial matters with their parents. For financial discussions with peers, males had an average score of 16.8 and females had an average score of 17.3 ( $t=4.861, p<.01$ ), indicating that females also had significantly more social learning opportunities where they discussed financial matters with their peers. For observing parents' financial behaviors, males had an average score of 25.7 and females had an average score of 27.5 ( $t=11.252, p<.01$ ), indicating that females had significantly more social learning opportunities where they observed their parents engaging in positive financial behaviors. For observing peers' financial behaviors, males had an average score of 16.6 and females had an average score of

17.7 ( $t=8.795$ ,  $p<.01$ ), indicating that females had significantly more social learning opportunities where they observed their peers engaging in positive financial behaviors.

These t-tests indicate that, in general, female college students tend to have had more financial social learning opportunities than male college students. Additional t-tests were run by social learning topic within each social learning dimension to determine whether there were also significant gender differences between exposure to individual topics with within each dimension. The results of these tests are presented in [Table 4-2](#).

For financial discussions with parents, there were significant gender differences in frequency of exposure to all topics, except checking the credit report and buying/maintaining health insurance. Females were significantly more likely than males to have had discussions with their parents about managing expenses and avoiding overspending ( $t=9.510$ ,  $p<.001$ ), paying bills on time ( $t=7.059$ ,  $p<.001$ ), and saving and investing money ( $t=4.783$ ,  $p<.001$ ). Males were significantly more likely than females to have had discussions with their parents about working with a mainstream financial institution ( $t=-4.776$ ,  $p<.001$ ), buying and maintaining auto insurance ( $t=-2.914$ ,  $p<.01$ ), and buying and maintaining renters' insurance ( $t=-3.572$ ,  $p<.001$ ).

For financial discussions with peers, there were significant gender differences in frequency of exposure to all topics, except checking the credit report. Females were significantly more likely than males to have had discussions with their peers about managing expenses and avoiding overspending ( $t=21.628$ ,  $p<.001$ ), paying bills on time ( $t=8.493$ ,  $p<.001$ ), saving and investing money ( $t=3.845$ ,  $p<.001$ ), and buying and maintaining health insurance ( $t=2.870$ ,  $p<.01$ ). Males were significantly more likely than

females to have had discussions with their peers about working with a mainstream financial institution ( $t=-6.157, p<.001$ ), buying and maintaining auto insurance ( $t=-2.790, p<.01$ ), and buying and maintaining renters' insurance ( $t=-4.505, p<.001$ ).

For observing parents' financial behaviors, there were significant gender differences in frequency of exposure to all topics, except working with a mainstream financial institution and buying/maintaining renters' insurance. For the remaining topics, females were more likely than males to have observed their peers managing expenses and avoiding overspending ( $t=15.678, p<.001$ ), checking their credit report ( $t=5.211, p<.001$ ), paying bills on time ( $t=12.823, p<.001$ ), saving and investing money ( $t=11.669, p<.001$ ), buying and maintaining health insurance ( $t=12.247, p<.001$ ), and buying and maintaining auto insurance ( $t=11.320, p<.001$ ).

For observing peers' financial behaviors, there were significant gender differences in frequency of exposure to all topics, except checking the credit report, working with a mainstream financial institution, and buying and maintaining renters' insurance. For the remaining topics, females were more likely than males to have observed their peers managing expenses and avoiding overspending ( $t=19.400, p<.001$ ), paying bills on time ( $t=12.858, p<.001$ ), saving and investing money ( $t=10.025, p<.001$ ), buying and maintaining health insurance ( $t=2.741, p<.01$ ), and buying and maintaining auto insurance ( $t=2.955, p<.01$ ).

### **Cumulative Logistic Regression Analysis**

This section will present the results of the cumulative logistic regressions. For this analysis, parallel cumulative logits were run utilizing gender as the selection variable. The cumulative logistic regression technique allows for rotation of the reference variable, which, in this case, were the various comparisons of levels of willingness to

take financial risks (any vs. none, high vs. low, and substantial vs. lower). The purpose of this analysis was to determine the effect of gender and financial social learning opportunities on varying levels of willingness to take financial risks, controlling for marital status, race, income, and prior financial education. The results of the cumulative logit analyses are presented in [Tables 4-3, 4-4, and 4-5](#).

### **Willingness to Take Financial Risks: Any vs. None**

The first parallel cumulative logit analyzed gender differences in willingness to take any financial risks (substantial, above average, or average) and willingness to take no financial risks. The results of this analysis are presented in [Table 4-3](#).

Marital status was not a significant predictor for either males or females. Race, however, was a significant predictor for both males and females. Compared to otherwise similar white males, Asian males had a 61.2% decrease, and males of “other” races had a 59.6% decrease, in the odds of being willing to take any financial risk over no financial risk. Compared to otherwise similar white females, black females had a 59.2% decrease, and females of “other” races had a 29.5% decrease in the odds of being willing to take any financial risk over no financial risk. Income was a significant positive predictor for both males and females, but only at the \$1000 and above level ( $p < .05$ ). Compared to otherwise similar males with no income, males with \$1000 and above in monthly income were had a 55.9% increase in the odds of being willing to take any financial risk over no financial risk. Compared to otherwise similar females with no income, females with \$1000 and above in monthly income had a 34.0% increase in the odds of being willing to take any financial risk over no financial risk. Prior personal financial education was only significant for females who had taken personal finance in their community ( $p < .05$ ). Compared to otherwise similar females who had not taken a

personal financial class in their community, females who had taken such a class had a 32.0% increase in the odds of being willing to take any financial risk over no financial risk.

For the main independent variable of financial social learning opportunities, varying results were found for males and females. Financial discussions with parents were only mildly significant for males ( $p < .10$ ) and not significant at all for females. For every one point increase in the financial socialization opportunity score for financial discussions with parents, males were expected to have a 1.7% increase in likelihood of being willing to take any financial risk over no financial risk. Financial discussions with peers were positively associated with choosing any level of willingness to take financial risks over no willingness to take financial risks for both males and females. For every one point increase in the financial socialization opportunity score for financial discussions with peers, males were expected to have a 2.8% increase, and females were expected to have a 1.6% increase in likelihood to choose any risk over no risk. Observing parents' and peers' behaviors were not significant predictors of willingness to take any financial risks over no financial risks.

### **Willingness to Take Financial Risks: High vs. Low**

The second parallel cumulative logit analyzed gender differences is willingness to take high financial risks (substantial and above average) and willingness to take low financial risks (average and none). The results of this analysis are presented in [Table 4-4](#).

While not a significant predictor for males, marital status was a significant predictor for females. Compared to otherwise similar single females, married females had an 18.2% increase in the odds of being willing to take high financial risk over low financial

risk. Race was also a significant predictor, though its associations differed for both males and females. Compared to otherwise similar white males, Hispanic males had a 42.4% increase, and males of “other” races had a 41.2% decrease in the odds of being willing to take high financial risk over low financial risk. Compared to otherwise similar white females, Asian females had an 88.3% increase, and females of “other” races had a 39.0% increase in the odds of being willing to take high financial risk over low financial risk. Income was a significant predictor as well, but again, the associations differed for males and females. Compared to otherwise similar males with no income, males who made \$1000 and above per month had a 38.3% increase in the odds of being willing to take high financial risk over low financial risk. Compared to otherwise similar females with no income, females who made between \$1 and \$499 per month had a 14.7% decrease, and females who made \$1000 and above per month had a 25.4% increase in the odds of being willing to take high financial risk over low financial risk. Prior personal financial education was significant for both males and females who had taken personal finance in their community. Compared to otherwise similar males who had not taken a personal finance class in their community, males who had taken such a class had a 40.2% increase in the odds of being willing to take high financial risk over low financial risk. Compared to otherwise similar females who had not taken a personal finance class in their community, females who had take such a class had a 69.1% increase in the odds of being willing to take high financial risk over low financial risk.

For the main independent variable of financial social learning opportunities, varying results were found for males and females. Financial discussions with parents were not significant predictors for males, but they were significant for females ( $p < .05$ ).

For every one point increase in the financial socialization opportunity score for financial discussions with parents, females were expected to have a 1.0% increase in the likelihood of being willing to take high financial risk over low financial risk. Financial discussions with peers were positively associated with choosing willingness to take high financial risks over low financial risks for both males and females. For every one point increase in the financial socialization opportunity score for financial discussions with peers, males were expected to have a 3.1% increase, and females were expected to have a 1.1% increase in the likelihood of being willing to take high financial risk over low financial risk. Observing parents' and peers' behaviors were not significant predictors of willingness to take high financial risks over low financial risks.

### **Willingness to Take Financial Risks: Substantial vs. Lower**

The third parallel cumulative logit analyzed gender differences in willingness to take substantial financial risks and willingness to take lower financial risks (above average, average, and none). The results of this analysis are presented below in [Table 4-5](#).

Marital status was not a significant predictor for either males or females. While not a significant predictor for males, race was a significant predictor for females. Compared to otherwise similar white females, black females had a 44.3% increase, Asian females had an 11.8% increase, and females of "other" races had a 39.8% increase in the likelihood of being willing to take substantial financial risk over lower financial risk. These results are interesting as they show a reverse of the high risk vs. low risk analysis. Income was not a predictor of choosing substantial financial risk over lower levels of financial risk for either gender. Prior personal financial education was only significant for males who had taken personal finance in their community ( $p < .05$ ).

Compared to otherwise similar males who had not taken a personal finance class in their communities, males who had taken such a class had a 65.1% increase in the likelihood of being willing to take substantial financial risk over lower financial risk.

For the main independent variable of financial social learning opportunities, varying results were found for males and females. For females, none of the social learning opportunities were significant predictors of choosing substantial financial risks or lower levels of financial risk. For males, only discussions with peers were significant. For every one point increase in the financial socialization opportunity score for financial discussions with peers, males were expected to have a 2.9% increase in the likelihood of being willing to take substantial financial risk over lower financial risk.

### **The Combined Influence of Social Learning and Gender on Willingness to Take Financial Risks**

While the results of the parallel cumulative logistic regressions show different significant predictors, including social learning predictors, of willingness to take risks for males and females, these results do not fully answer the research question. The question asks whether the relationship of social learning opportunities on willingness to take financial risks differs by gender. In order to fully test the research hypothesis, the coefficients of each social learning variable need to be tested against one another for males and females. In order to do this, the Wald Chi-square statistic was computed for each set of coefficients. The results of this test are presented in [Table 4-6](#).

As this table shows, a significant difference between the relationships of social learning opportunities on willingness to take financial risks only significantly differs by gender when looking at the high risk vs. low risk category. Within this category, the relationship is only significant for the variable of having financial discussions with peers.

For this variable, males who had financial discussions with their peers were significantly more likely than females who had financial discussions with their peers to choose high risk over low risk.

Table 4-1. Sample profile by gender

Variable	Mean/proportion		Significance test
	Male	Female	
<b>Dependent</b>			
Willingness to take financial risks			$\chi^2=609.14^{***}$
Substantial risk	6.6%	2.7%	
Above average risk	32.7%	16.8%	
Average risk	51.0%	60.6%	
No risk	9.7%	20.1%	
High risk (1) vs. low risk (0)	.39	.21	$t=-22.00^{***}$
Substantial risk only (1) vs. lower risk (0)	.07	.03	$t=-.904^{***}$
Any risk (1) vs. No risk (0)	.80	.90	$t=-15.75^{***}$
<b>Independent</b>			
Previous financial education			
High school	35.3%	41.0%	$\chi^2=51.44^{***}$
Community	12.3%	7.8%	$\chi^2=87.71^{***}$
Race			$\chi^2=43.65^{***}$
White	81.8%	80.7%	
Black	3.6%	5.4%	
Hispanic	4.7%	5.4%	
Asian	6.3%	5.0%	
Other	3.7%	3.5%	
Marital status			$\chi^2=22.87^{***}$
Single	88.1%	85.5%	
Married/cohabitating	11.9%	14.5%	
Income			$\chi^2=121.39^{***}$
\$0	41.8%	37.6%	
\$1-\$499	29.7%	37.8%	
\$500-\$999	16.1%	15.2%	
\$1000 and above	12.4%	9.4%	
Social learning opportunities score			
Financial discussions with parents	21.6	21.9	$t=2.349^*$
Financial discussions with peers	16.8	17.3	$t=4.861^{***}$
Observe parents' behaviors	25.7	27.5	$t=11.252^{***}$
Observe peers' behaviors	16.6	17.7	$t=8.795^{***}$

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

Table 4-2. Exposure to social learning topics by gender

Variable	Mean Score		t-value
	Male	Female	
Financial discussions with parents			
Managing expenses/avoiding overspending	3.5	3.72	9.510***
Checking credit report	2.03	2.05	1.025
Paying bills on time	3.34	3.52	7.059***
Saving and investing money	3.54	3.65	4.783***
Working with a mainstream financial institution	2.57	2.45	-4.776***
Buying/maintaining health insurance	2.28	2.32	1.717
Buying/Maintaining auto insurance	2.62	2.55	-2.914**
Buying/Maintaining renters' insurance	1.78	1.71	-3.572***
Financial discussions with peers			
Managing expenses/avoiding overspending	2.86	3.36	21.628***
Checking credit report	1.69	1.67	-1.117
Paying bills on time	2.52	2.72	8.493***
Saving and investing money	2.83	2.92	3.845***
Working with a mainstream financial institution	1.84	1.72	-6.157***
Buying/maintaining health insurance	1.74	1.79	2.870**
Buying/Maintaining auto insurance	1.79	1.74	-2.790**
Buying/Maintaining renters' insurance	1.49	1.42	-4.505***
Observe parents' behaviors			
Managing expenses/avoiding overspending	3.73	4.11	15.678***
Checking credit report	2.25	2.39	5.211***
Paying bills on time	3.94	4.25	12.823***
Saving and investing money	3.66	3.96	11.669***
Working with a mainstream financial institution	3.37	3.40	1.089
Buying/maintaining health insurance	3.33	3.67	12.247***
Buying/Maintaining auto insurance	3.47	3.78	11.320***
Buying/Maintaining renters' insurance	1.93	1.91	-.565
Observe peers' behaviors			
Managing expenses/avoiding overspending	2.80	3.27	19.400***
Checking credit report	1.59	1.61	1.392
Paying bills on time	2.67	2.99	12.858***
Saving and investing money	2.39	2.63	10.025***
Working with a mainstream financial institution	2.22	2.21	-.333
Buying/maintaining health insurance	1.62	1.68	2.741**
Buying/Maintaining auto insurance	1.89	1.96	2.955**
Buying/Maintaining renters' insurance	1.40	1.37	-1.725

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

Table 4-3. Willingness to take financial risks: any vs. none

Variable	Male		Female	
	$\beta$	Odds ratio	$\beta$	Odds ratio
Marital status	.016	1.016	-.115	.819
Race (reference=white)				
Black	-.254	.776	-.735***	.408
Hispanic	-.136	.873	-.154	.857
Asian	-.946***	.388	-.246	.782
Other	-.907***	.404	-.350*	.705
Income (reference=none)				
\$1-\$499	.062	1.064	-.063	.939
\$500-\$999	.006	1.006	.008	1.008
\$1000 and above	.444*	1.559	.293*	1.340
Personal finance				
High school	.037	1.037	.108	1.114
Community	.156	1.169	.278*	1.320
Social learning				
Financial discussions with parents	.017	1.017	.007	1.007
Financial discussions with peers	.028*	1.028	.016**	1.016
Observe parents' behaviors	.013	1.013	.004	1.004
Observe peers' behaviors	-.007	.993	.008	1.008
Constant	1.243***	3.467	.738***	2.093
Chow test statistic for full vs. reduced model			203.788	<.0001

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

Table 4-4. Willingness to take financial risks: high vs. low

Variable	Male		Female	
	$\beta$	Odds ratio	$\beta$	Odds ratio
Marital status (reference=single)	-.087	.917	.167*	1.182
Race (reference=white)				
Black	.198	1.219	.199	1.220
Hispanic	.353*	1.424	.074	1.007
Asian	-.016	.984	.633***	1.883
Other	-.531*	.588	.329*	1.390
Income (reference=none)				
\$1-\$499	-.095	.909	-.159*	.853
\$500-\$999	-.122	.885	.050	1.051
\$1000 and above	.324**	1.383	.227*	1.254
Financial education				
High school	-.128	.880	.032	1.032
Community	.338**	1.402	.525***	1.691
Social learning				
Financial discussions with parents	-.002	.998	.010*	1.010
Financial discussions with peers	.030***	1.031	.011*	1.011
Observe parents' behaviors	.004	1.004	-.001	.999
Observe peers' behaviors	-.003	.997	.005	1.005
Constant	-.933***	.393	-2.042***	.130
Chow test statistic for full vs. reduced model			501.321	<.0001

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

Table 4-5. Willingness to take financial risks: substantial vs. lower

Variable	Male		Female	
	$\beta$	Odds ratio	$\beta$	Odds ratio
Marital status (reference=single)	.039	1.039	.252	1.286
Race (reference=white)				
Black	.358	1.431	1.236***	3.443
Hispanic	.347	1.415	.565	1.759
Asian	.302	1.353	1.137***	3.118
Other	-.219	.804	.875**	2.398
Income (reference=none)				
\$1-\$499	-.094	.910	.006	1.006
\$500-\$999	-.080	.923	.116	1.123
\$1000 and above	.030	1.030	-.610	.543
Financial education				
High school	-.100	.905	.295	1.344
Community	.501**	1.651	.448	1.565
Social learning				
Financial discussions with parents	-.008	.992	.013	1.013
Financial discussions with peers	.029*	1.029	.012	1.012
Observe parents' behaviors	-.008	.992	.003	1.003
Observe peers' behaviors	-.011	.989	.000	1.000
Constant	-2.634***	.072	-4.659***	.009
Chow test statistic for full vs. reduced model			119.274	<.0001

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

Table 4-6. Willingness to take financial risk as a function of social learning and gender

Social Learning Opportunity	Male		Female		Wald $\chi^2$
	$\beta$	SE	$\beta$	SE	
Any risk vs. no risk					
Financial discussions with parents	.017	.009	.007	.005	0.915
Financial discussions with peers	.028	.012	.016	.006	0.837
Observe parents' behaviors	.013	.008	.004	.004	1.023
Observe peers' behaviors	-.007	.010	.008	.005	1.663
High risk vs. low risk					
Financial discussions with parents	-0.002	.006	0.01	.005	2.580
Financial discussions with peers	0.030	.007	0.011	.006	4.645*
Observe parents' behaviors	0.004	.005	-0.001	.005	0.564
Observe peers' behaviors	-0.003	.006	0.005	.005	0.972
Substantial risk vs. lower risk					
Financial discussions with parents	-0.008	.011	0.013	.012	1.666
Financial discussions with peers	0.029	.012	0.012	.014	0.857
Observe parents' behaviors	-0.008	.009	0.003	.011	0.564
Observe peers' behaviors	-0.011	.012	0.000	.013	0.400

\* $p < .05$

## CHAPTER 5 CONCLUSIONS AND IMPLICATIONS

### **Conclusions**

#### **Gender and Willingness to Take Financial Risks**

Hypothesis 1 stated that male college students would have a greater willingness to take financial risks than female college students. The results of both the  $\chi^2$  test and independent sample *t*-test confirm this hypothesis. The  $\chi^2$  test indicated an overall gender difference in willingness to take financial risks, and the *t*-test results indicated that females were less likely to choose higher levels of willingness to take risks at all three levels of comparison. It can be concluded, then, that there are significant gender differences in willingness to take financial risks among college students, with males being more likely to be willing to take higher levels of financial risks than females.

#### **Gender and Financial Social Learning Opportunities**

Hypothesis 2 stated that exposure to financial social learning opportunities would differ by gender in college students. The results of the independent samples *t*-test between social learning dimensions confirm that there is an overall gender difference, with females having exposure to significantly more financial social learning opportunities overall.

To further explore this difference, each financial social learning opportunity dimension was broken down by topic to determine whether there were specific gender differences in topics discussed or behaviors observed with parents and peers. Significant gender differences were observed for many topics within each social learning dimension. For financial discussions with parents, females tended to have had

more discussions with their parents on managing expenses and avoiding overspending, paying bills on time, and saving and investing money, while males had more discussions on working with mainstream financial institutions, buying and maintaining auto insurance, and buying and maintaining renters' insurance. A similar relationship was found for financial discussions with peers. For this social learning dimension, females tended to have had more discussions with their peers on managing expenses and avoiding overspending, paying bills on time, saving and investing money, and buying and maintaining health insurance, while males had more discussions on working with mainstream financial institutions, buying and maintaining auto insurance, and buying and maintaining renters' insurance.

For both observing parents' financial behaviors and observing friends' financial behaviors, females tended to have more overall exposure to observing their parents and friends' behaviors. Females were more likely than males to have observed their parents managing expenses and avoiding overspending, checking their credit report, paying bills on time, saving and investing money, buying and maintaining health insurance, and buying and maintaining auto insurance. Females were more also likely than males to have observed their peers managing expenses and avoiding overspending, paying bills on time, saving and investing money, buying and maintaining health insurance, and buying and maintaining auto insurance. It can then be concluded that there are not only significant gender differences in overall exposure to financial social learning opportunities among college students, but also in topics discussed and observed with both parents and peers.

## **Willingness to Take Financial Risks as a Function of Gender and Social Learning Opportunities**

Hypothesis 3 stated that the relationship of social learning opportunities on willingness to take risks would differ by gender. The results of three parallel cumulative logistic regressions weakly support this hypothesis. While it was discovered that discussions with parents and peers had varying influence on the willingness to take financial risk between males and females, the actual difference in the relationship of social learning and gender on willingness to take risks was only significant for discussions with peers in the high risk vs. low risk category. Observations of parents' and peers' behaviors were not at all associated with gender differences in willingness to take financial risks, when controlling for other variables.

When looking at willingness to take any financial risks versus willingness to take no financial risks, there was a slight positive association for males when looking at discussions with parents, but no association for females. Males were expected to have a 1.7% increase in likelihood of being willing to take any financial risk over no financial risk with each one point increase in the financial socialization opportunity score for financial discussion with parents. Financial discussions with peers were positively associated with choosing any level of financial risk over no financial risk for both genders. Males were expected to have a 2.8% increase, and females were expected to have a 1.6% increase in likelihood of being willing to take any financial risk over no financial risk with each one point increase in the financial socialization opportunity score for financial discussion with parents. These results indicate that, when looking at gender differences in willingness to take any financial risks over no financial risks, male college students may be slightly more influenced by discussions with their parents than female

college students. While the *t*-test results indicated that female college students were significantly more likely than males to choose no risk as opposed to any risk, financial discussions with their peers may increase their likelihood of choosing some risk versus no risk. Financial discussions with their parents had no impact on this relationship for females.

When looking at willingness to take high financial risks versus low financial risks, we see a reverse of the significance of discussions with parents. In this comparison, discussions with parents were not significant predictors for males, but they were significant for females. Females were expected to have a 1.0% increase in likelihood of being willing to take high financial risk over low financial risk with each one point increase in the financial socialization opportunity score for financial discussions with parents. As with the previous comparison, financial discussions with peers were positively associated with choosing willingness to take high financial risk over low financial risk for both males and females. Males were expected to have a 3.1% increase, and females were expected to have a 1.1% increase in likelihood of being willing to take high financial risk over low financial risk with each one point increase in the financial socialization opportunity score for financial discussion with peers. These results indicate that, when looking at gender differences in willingness to take high financial risks over low financial risks, female college students may be slightly more influenced by discussions with their parents than male college students. Again, while the *t*-tests indicated that females were more likely to be willing to take lower levels of financial risk than higher levels of financial risk, financial discussions with their parents and/or peers may increase their likelihood of choosing high risk versus low risk.

When looking at willingness to take substantial financial risks only versus lower levels of financial risk, the effects of social learning opportunities fall off all together for females. For males however, discussions with peers are still significant predictors of choosing substantial financial risk over lower levels of financial risk. Males were expected to have a 2.9% increase in likelihood of being willing to take substantial financial risk over lower financial risk with each one point increase in the financial socialization opportunity score for financial discussion with parents. While the *t*-test results again indicate that females are more likely to choose lower levels of financial risk over substantial financial risks, the influence of financial conversations with parents and peers disappear at this level of comparison.

While each risk level comparison by gender seems to reveal varying influence of discussions with parents and peers, the actual difference in the relationship of social learning and gender on willingness to take risks was only significant for discussions with peers in the high risk vs. low risk category. At this level of comparison, males who had financial discussions with their peers were significantly more likely than females who had financial discussions with their peers to choose high risk over low risk. This is the only level of comparison in which Hypothesis 3 is supported.

### **Discussion of Findings**

The findings of this research study are interesting on several levels. First, from the aspect of gender differences in willingness to take financial risks, previous research has found that women tend to be more risk averse than men; however, these studies did not focus in specifically on college students. The current study confirms that this gender difference also exists in college students, implying that females tend to show less

willingness to take financial risk from the very beginning of the time when they are likely first exposed to managing their own finances.

Along the same line, when looking at exposure to financial socialization opportunities, female college students have significantly more conversations with their parents and friends about saving and investing money than male college students. At the same time, when controlling for other factors, female college students are significantly more likely to choose lower levels of willingness to take risks at all three levels of comparison. This means that while female students are having more conversations with their parents and peers about money, specifically saving and investing, they may be having conversations that lead them to more conservative saving and investment strategies.

It is also interesting to note that there is a relationship between gender and financial social learning opportunities as they relate to willingness to take financial risks; however this relationship apparently only significant at the discussion level. Discussions with both parents and peers had significant influence on levels of willingness to take financial risk, but observations of their behaviors did not show this effect. This would indicate that it is important for parents to actually talk with their children about money, not just demonstrate positive behaviors. While modeling appropriate behavior is still most likely a positive influence, it is the discussions that are showing a significant positive impact.

### **Implications**

There are several implications that come about as a result of this research. For college students, it is important to know that these gender differences exist. If women realize that they are less likely than men to choose higher levels of financial risk and

that they are potentially putting themselves at risk for financial problems down the road, then they can have the opportunity to change their investment behaviors, or at the very least, do some research on the actual risks versus returns of different investment strategies to see the kinds of investments with which they would realistically be comfortable.

For parents, it is important to realize that it is important to talk to their children about financial topics. It is also important not to let gender roles prevent them from discussing more risky investment options with their daughters. If parents know the impact that lower levels of willingness to take financial risks may have on their daughters' financial futures, they may have the opportunity to have different kinds of conversations with them about saving and investing.

For practitioners, this research indicates that financial socialization begins at home. While education, specifically in the community, may have an impact as well, it is important to consider intergenerational efforts at financial education. Developing programs that encourage parent participation in their children learning about money may be an effective way to reach not only children, but the whole family.

For researchers, this study provides several implications for future research. Future research should look at not only exposure to financial socialization and topics covered, but the content of the topics covered. This research showed that female students tend to talk more to their parents and peers about saving and investing than male students, but it is unclear the kinds of messages these conversations entail. Knowing these messages may prove useful in understanding more clearly why females tend to be more risk averse than men.

It may also be interesting to look at the source of parental financial socialization. Are girls talking more to their mothers or fathers about these financial topics? Are boys talking more to their mothers and fathers about these financial topics? The present study does not differentiate between which parent has been providing the majority of the college student's financial socialization, but this factor may influence the types of information each gender child is receiving.

In addition, this research only looked at the effects of gender and financial socialization on willingness to take financial risks. Future research can look at the effects on other attitudes, such as materialism and financial self-efficacy, and on actual behaviors, such as budgeting and saving. This will allow us to determine if the gender differences in financial socialization persist across topics.

## APPENDIX A SURVEY QUESTIONS

This appendix will present the survey questions that were used in the present study. These questions are taken from a larger online survey that was conducted on the effects of financial education policies in the U.S.

### **Gender**

**Question:** What sex are you?

**Answer Choices:**

- Male
- Female

### **Marital Status**

**Question:** Which of the following best describes your current household status?

**Answer Choices:**

- Married
- Living together (not married)
- Single (never married)
- Divorced/Separated/Widowed

### **Race**

**Question:** Which of the following best describes your race/ethnicity?

**Answer Choices:**

- White (non-Hispanic)
- African American/Black (non-Hispanic)
- Hispanic
- Asian-American; Asian (resident)
- Native American
- Other (please specify)

### **Income**

**Question:** On average, what is your amount of monthly income from working?

**Answer Choices:**

- \$0 (I am not employed at this time)
- \$1-\$249
- \$250-\$499
- \$500-\$749
- \$750-\$999
- \$1000-\$1999
- \$2000 or more.

### **Previous Financial Education**

**Question:** Were you taught about personal finances in high school?

**Answer Choices:**

- Yes
- No

**Question:** Have you ever taken a course, program, or seminar on personal finance issues in your community, religious institution, or 4H -- in other words not through school?

**Answer Choices:**

- Yes
- No

### **Social Learning Opportunities**

**Question:** How often did your parents/ caregiver discuss each of the following with you in the past five years?:

- Managing expenses and avoiding overspending
- Checking credit report
- Paying bills on time
- Saving and investing money
- Working with a mainstream financial institution like a bank or credit union (as opposed to payday lenders)
- Buying and maintaining health insurance
- Buying and maintaining auto insurance
- Buying and maintaining renters' insurance

**Answer Choices:**

- 1 (Never)
- 2
- 3
- 4
- 5 (Often)
- Don't Know

**Question:** How often do you discuss each of the following with your friends or other students?

- Managing expenses and avoiding overspending
- Checking credit report
- Paying bills on time
- Saving and investing money
- Working with a mainstream financial institution like a bank or credit union (as opposed to payday lenders)
- Buying and maintaining health insurance

- Buying and maintaining auto insurance
- Buying and maintaining renters' insurance

**Answer Choices:**

- 1 (Never)
- 2
- 3
- 4
- 5 (Often)
- Don't Know

**Question:** How often have you observed your parents/caregivers involved in the following during the past five years?

- Managing expenses and avoiding overspending
- Checking credit report
- Paying bills on time
- Saving and investing money
- Working with a mainstream financial institution like a bank or credit union (as opposed to payday lenders)
- Buying and maintaining health insurance
- Buying and maintaining auto insurance
- Buying and maintaining renters' insurance

**Answer Choices:**

- 1 (Never)
- 2
- 3
- 4
- 5 (Often)
- Don't Know

**Question:** How often have you observed your friends or other students involved in the following?

- Managing expenses and avoiding overspending
- Checking credit report
- Paying bills on time
- Saving and investing money
- Working with a mainstream financial institution like a bank or credit union (as opposed to payday lenders)
- Buying and maintaining health insurance
- Buying and maintaining auto insurance
- Buying and maintaining renters' insurance

**Answer Choices:**

- 1 (Never)
- 2
- 3
- 4
- 5 (Often)
- Don't Know

**Willingness to Take Financial Risks**

**Question:** Which of the statements on this page comes closest to the amount of financial risk that you are willing to take when you save or make investments?

**Answer Choices:**

- Take substantial financial risks expecting to earn substantial returns
- Take above average financial risks expecting to earn above average returns
- Take average financial risks expecting to earn average returns
- Not willing to take any financial risks

APPENDIX B  
VARIABLE CODING

Variable Coding: Bivariate Analysis

Variable	Coding
<b>Willingness to Take Financial Risks</b>	
Substantial Risk	3
Above Average Risk	2
Average Risk	1
No Risk	0
<b>Demographics</b>	
<b>Gender</b>	
Male	1
Female	0
<b>Financial Education</b>	
In High School	Yes=1; No=0
In the Community	Yes=1; No=0
<b>Race</b>	
White	1
Black	2
Hispanic	3
Asian	4
Other	5
<b>Marital Status</b>	
Single (including divorced, separated, widowed)	0
Married/Cohabiting	1
<b>Income</b>	
\$0	0
\$1-\$499	1
\$500-\$999	2
\$1000 and above	3
<b>Social Learning Opportunities</b>	
Financial discussions with parents	Scale Score
Financial discussions with peers	Scale Score
Observe parents' behaviors	Scale Score
Observe friends' behaviors	Scale Score

Variable Coding: Cumulative Logit

Variable	Coding
Gender	Male=1; Female=0
Marital Status (Reference=Single)	Married=1
Race (Reference=White)	
Black	Black=1; Other Races=0
Hispanic	Hispanic=1; Other Races=0
Asian	Asian=1; Other Races=0
Other	Other=1; Other Races=0
Income (Reference=None)	
\$1-\$499	\$1-\$499=1; Other incomes=0
\$500-\$999	\$500-\$999=1; Other incomes=0
\$1000 and above	\$1000 and above=1; Other income=0
Financial Education	
High School	Yes=1; No=0
Community	Yes=1; No=0
Social Learning	
Financial discussions with parents	Scale Score
Financial discussions with peers	Scale Score
Observe parents' behaviors	Scale Score
Observe peers' behaviors	Scale Score
Willingness to Take Financial Risks	
None vs. Any	1=Any; 0=None
High vs. Low	1=High; 0=Low
Substantial vs. Lower	1=Substantial;0=Lower

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Selena Garrison graduated from The King's Academy (West Palm Beach, FL) in 2004. She began coursework at the University of Florida in fall of 2004, graduating with a Bachelor of Science in psychology and a Bachelor of Science in Family, Youth, and Community Sciences in May of 2008. She began her graduate studies at the University of Florida in August of 2008, pursuing a Master of Science degree in Family, Youth, and Community Sciences, with special interest in family financial management.