

Behavioral Finance: A study of gender affects on investing decisions

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There is a current debate in the literature as to whether females are more risk averse than males. The studies finding females to be more risk averse studied male and female behavior in the realm of retirement fund selection, while research finding that females exhibit similar levels of risk as males were studies comparing male and female mutual fund managers. In addition to these distinctly different contexts, much of the research that found females to exhibit similar risks as males were completed more recently. To further research the relationship between risk aversion and gender I am investigating what factors affect a person's risk aversion and whether or not risk aversion is related to gender. My research comes from a study of college-aged students (ages 18-22) participating in a classroom investing assignment where students were divided into groups randomly based on gender and given a hypothetical \$500,000 to invest in the market with a goal of earning the highest returns. I find that females are shown to be more risk averse. Even when controlling for financial knowledge and experience, females were more risk averse.

Key words: Gender differences, investing, behavioral finance, risk aversion

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1. Introduction

It is a common belief that females are more risk averse than males. This becomes a problem for females in two situations: retirement funds and careers. According to Bruce (1995), 80-90% of females will be responsible for their finances at some point in their lives. Since females are perceived to be more risk averse than males, investment brokers tend to urge females to invest in less risky portfolios, which results in lower expected returns (Wang, 1994). This becomes a huge problem as females tend to outlive males and will need more funds than males to support themselves throughout retirement. In addition, not all females may be more risk averse, but brokers are assuming without question that females would prefer to invest their assets in less risky options. Second, since females are perceived to be less risk-prone than males, there is a glass ceiling on how they are able to climb the corporate ladder (Johnson and Powell, 1994). Females may not be able to be promoted to the same levels as males because the position requires risk-taking and it is believed that females will not be capable of handling such a position.

Prior research on gender and risk aversion shows mixed results. There are many sources that show females to be more risk averse, but since the 1980s there have been many studies done that show females take similar risks as males. Given the discrepancies in the results found, this thesis conducts a study on college-aged students to provide some insight on what factors affect risk aversion and whether or not it is truly gender-related. I hypothesize that risk aversion is affected by financial knowledge, financial experience, and wealth. When controlling for these factors, I expect that males and females will exhibit similar levels of risk. When they are not controlled for, females will demonstrate more risk aversion than males.

To explore these ideas, I conduct a study on male and female college-aged students in a semester long investing project who were randomly assigned into an all female, all male, or

mixed gender group. After the project is finished, the students complete a survey to link the individual students to their group's portfolio of assets. The survey also addresses their financial knowledge, confidence, and risk aversion. I examine the relationship between gender and risk aversion, as well as the relationship between individual risk aversion and group risk aversion and examine whether this relationship differs by group composition.

Section two is a discussion of past research done on gender and investing decisions. This section is broken down into factors affecting risk aversion, male and female investing behavior and decisions, group composition and risk aversion, and investment behavior of undergraduates. Section three is a description of my methodology. Within this section is a list of my hypotheses that were tested, how I tested them, and the measures I used within my study. Section four is the results. Section five is my discussion. Section six concludes my thesis.

2. Literature Review

Most of the past research on gender and investing has found that females tend to have greater risk aversion when compared to males in investing decisions (Graham, Stendardi, Myers, Graham, 2002). But in more recent studies, the results are mixed (Arano, Parker, Terry, 2010). Below I discuss the different factors (financial knowledge and wealth) that may affect risk-taking behavior of individuals in investment in order to provide insight into what may be generating the mixed results. Next, I discuss the impacts of risk aversion on male and female investing behavior and decisions. Then, I discuss how group composition may play a role in risk aversion. Finally, I discuss past research that has used the investing decisions of undergraduates to learn about important aspects of investing behavior.

2.1 Factors that Affect Risk Aversion: Financial Knowledge and Wealth

Although many females control the day-to-day finances of their household, not many have any experience in investing their assets. In general, males tend to have more financial knowledge and wealth, which means they are more confident in their investing decisions, and more apt to take risks (Bruce, 1995). A study done over the period of 1993 – 2003, found that male and female fund managers have the same returns, but that they each have different strategies to obtain their returns (Glover, 2006). The study also discovered that the mutual fund industry is dominated by males, with females representing only ten percent of the industry. Since females are underrepresented, the majority of females are uneducated on how to best invest their assets.

According to past research, as financial knowledge and wealth increase, a person's risk aversion decreases. In particular, Arano, Parker, and Terry (2002) conducted a mail survey from September to October 2003. The mail surveys were sent to tenure-track faculty at Kansas Regents institutions who were 50 years of age or older. The survey collected information on income, wealth, distribution of retirement assets, and investment decisions made by married households. Arano, Parker, and Terry (2002) found that greater risks are taken when a person has greater wealth. They also found that in general males have larger incomes, so this could be one reason why males take greater risks when investing their assets. As wealth increased, risk aversion decreased.

These researchers also found that males tend to have more work experience than women, and that they earned a higher salary on average. In general, males have more financial knowledge and wealth, which may cause them to be more confident in their investing decisions. Confidence, in turn, may lead to more risk-taking. Therefore, males believe that they have less to

lose, and can take more risk because their level of income allows for mistakes. Wealth and confidence could be two reasons why males are more apt to make risky investing decisions, while females are not.

Atkinson, Baird, and Frye (2003) also considered the effects of financial knowledge and wealth on gender investing decisions. This study looked at data on male and female mutual fund managers. To control for financial knowledge and wealth, the researchers studied comparable managers. To decide if managers were comparable, they used managers' fund sizes and tenure. When controlling for financial knowledge and wealth, it was found that female managers have similar performance and risk levels as males do. Females in the finance industry may take greater risks because they have knowledge of the industry and investing, so they are more confident and comfortable with taking risks.

2.2 Group Composition and Risk Aversion

Bem, Kogan, and Wallach (1962) conducted an experiment on how groups affect or change an individual's risk-taking when making decisions. This experiment is based on the idea of a "risky-shift" that has been discussed in previous studies. The "risky shift" occurs when individuals are placed into a group and take greater risks in decision-making than they previously would as individuals.

Their experiment was completed with undergraduate students from the University of Colorado – Boulder. Students were divided into all male and all female groups of six. This was done to determine if there were any differences between genders. For the experiment, each student was asked to answer a series of questions, each with two courses of action. In each question, the more risky option was always more rewarding if it proved to be successful. An example of one question is: An engaged couple must decide, in the face of recent arguments

suggesting some sharp differences in opinion, whether or not to get married. Discussions with a marriage counselor indicate a happy marriage, while possible, would not be assured. The student would then need to determine what the lowest level of probability of success would be needed for them to choose the riskier option. Each student answered 12 questions similar to the example given.

After each student individually answered each question, they were brought into a group of six to discuss the questions one by one, and decide as a group what level of probability to choose. The group had to come to a consensus and all chose the same level of probability. Finally, after the group finished the 12 questions, each student answered the questions again individually with their present level of probability to determine if the group had an influence on the risk each student would be willing to take.

The results of this study proved that there is a “risky shift”. There were very strong results for both genders demonstrating increased risk taking when compared to their pre-discussion individual decisions. Both group decisions and post-discussion individual decisions increased in risk compared to the pre-discussion individual responses. It was also found that there was “a positive relationship between degree of risk taking in pre-discussion individuals and the extent to which group members are perceived by one another as influencing group decisions” (Bem, Kogan, and Wallach, 1962, p. 85). The notion of risk shift implies that group composition has the potential to influence decisions involving risk.

2.3 Investment Behavior of Undergraduates

The following studies focus on undergraduates as the subjects for their studies. Felton, Gibson, and Sanbonmatsu (2003) considered the role of optimism in investing decisions and the effect optimism has on genders. The research was conducted on a group of undergraduate

students in a Principles of Finance course. Researching undergraduate students is beneficial because most students wouldn't be experts in investing and their risk preferences would not have been altered as much by the views of others.

For the assignment, the students each had a Stock-Trak account, which allowed them to simulate stock trading. The competition took place 1997 and lasted 13 weeks. Everyone started with a hypothetical \$500,000 and two rules: \$300,000 must be invested in ten different common stocks within the first four weeks, and then students could do what they wanted to reach the highest returns, with a maximum of 100 trades. There were both academic and monetary benefits and risks, but the risks were minimized. There were four measures of risk: (1) number of investments in futures and options contracts, (2) number of total transactions, (3) number of companies invested in that trade on the National Association of Securities Dealers Automated Quotations (NASDAQ), and (4) number of companies invested in that trade on the New York Stock Exchange (NYSE).

Before the competition began, each student was given a survey to test his or her optimism level. The research discovered that males who are optimistic tend to invest in more risky stocks. The reason females appear more risk averse is they are compared to this optimistic group of males (Felton, Gibson, Sanbonmatsu, 2003). In reality, there are also males who experience the same levels of risk aversion as females. This is relevant to my research because I hypothesize that females are, to some extent, misjudged in the finance world.

In addition, Although, Brachinger, Brown, Gysler, and Schubert (1999) completed a study considering whether or not females were truly more risk averse than males. Their experiment considered the choice behavior of male and female undergraduate students from the University of Zurich and the Swiss Federal Institute of Technology. The choice behavior was used to

analyze the risk behavior. For the actual experiment, the subjects were asked to make many different investment decisions. After this was completed, the subjects were asked to answer the same questions, but these questions were framed as insurance decisions. For each question there was a choice between a risk and a defined payoff.

The results from the experiment were that females tended to make just as many risky financial decisions as males. It also found that males and females make a decision differently. Males tended to be more risk-prone toward gains and females were more risk prone toward losses (Brachinger, Brown, Gysler, et al., 1998). Similar to these studies, my research is also conducting on undergraduate students.

Most of past research discusses gender differences in investing risk aversion. One important limitation is that researchers are considering different samples. Some of the researchers are not considering whether or not the males and females being researched are comparable to one another. Does it make sense to compare females with less financial knowledge to males with more financial knowledge, and then state that females are more risk averse?

Since the conclusions of past research vary in whether or not females were more risk averse than males, additional research is essential. In particular, such research needs to take into account whether or not males and females are comparable in relevant dimensions, including financial knowledge, financial experience, and confidence. I accomplish this in my thesis using data from a classroom experiment with undergraduates. In particular, by randomizing group composition, I am able to not only evaluate the relationship between gender and risk aversion controlling for things like financial knowledge and financial experience, I can also evaluate how the gender composition of the group affects risk taking. My research evaluated (via survey)

students at the end of the semester after the group influence would have taken affect (if there was any). In Section three, I discuss the details of my study and methodology.

3.0 Methodology

This thesis is examining what factors affect risk aversion and also whether or not risk aversion is gender related. This section provides a detailed discussion of the data collection, the hypotheses I evaluate, as well as the specific measures and method of analysis. This is followed by the assumptions, limitations, and appropriateness of this methodology.

3.1 Hypotheses

Most of the past research on gender and investing has found that females tend to have greater risk aversion when compared to males in investing decisions (Graham, Stendardi, Myers, Graham, 2002). In the 1989 Survey of Consumer Finances, 60 percent of females responded that they were unwilling to accept any financial risks, and only 40 percent of males were unwilling to accept any financial risks. In general, males tend to be the ones to take greater risks.

Hypothesis 1: Females are more risk averse than males.

Although many females control the day-to-day finances of their household, not many have any experience in investing their assets. Arano (2010) compared a sample of males and females and found that females tend to be more risk averse because they have less financial knowledge than males. Prior research shows, as financial knowledge and wealth increase, a person's risk aversion decreases.

Hypothesis 2: Females with similar knowledge, experience, and confidence will exhibit similar risk to males.

I believe when females are placed with males, they will either be convinced to take more risks or will gain the confidence to do so. This is termed the "risky shift", which is when

individuals that are placed into a group switch their decision to a more risky one (Cartwright, 1973). This could be due to the individual's level of fear deteriorating because if they make a poor decision, it will not be entirely their fault, but the group's fault. This is a diffusion of responsibility (Wallach, Kogan, and Bem, 1962).

Hypothesis 3: Group composition will impact the relationship between individual's risk preference and group risk decisions.

3.2 Data Collection

For my research, I used a group of students that were studying abroad in Paderno del Grappa, Italy. The groups of students were all from different universities in the United States and were spending a semester abroad. With these students I conducted an experiment through a classroom project. The students participated in semester long investing project as part of their International Finance course. The students were randomly assigned into fourteen different groups. Each group consisted of three to four students divided by gender. There were seven all male groups, four all female groups, and three mixed gender groups.

As part of the assignment, each group was given a hypothetical \$500,000 to invest in the international market however they wanted with a goal of earning the highest profits. Throughout the assignment, the groups kept track of all their investing decisions, transactions, and portfolio returns. I was able to attain the group's data directly from their professor.

To measure risk-taking behavior of the group, I used the group's initial investments. Throughout the class the students were learning about international finance and investing in international markets. I believed learning this information in the class would impact how the students changed their investment decisions throughout the class. By using the initial

investments, the groups' decisions were not impacted by the course and were based on the knowledge that they began the course with.

At the end of the assignment, the students were asked to complete an optional survey and forty-four of the fifty students participated. The survey addressed the student's financial background, financial literacy, risk aversion, and confidence. The survey also had a question asking which group the individual student was apart of to link the student to its group's investing portfolio. Another important question was about the student's role in the investing assignment. This was to help determine how much influence each person had on which investments were chosen. Appendix A includes a copy of my survey.

Since there was both group level data (from the group's investing decisions) and individual level data (from the surveys), there were many different measures to determine.

3.3 Measures

Dependent Variable:

The dependent variable used in the analysis is measures of risk aversion. This was measured in two different ways. First, on the survey, I asked the student to evaluate their personal risk aversion on a scale from high risk for high reward to zero risk for zero reward.

Second, I used the groups' investing portfolio. In finance a common measure of risk is standard deviation, which captures the variability of an asset's return. To determine the risk of a group's investing portfolio, I used the standard deviation of the returns on their investments. To calculate this, I used Yahoo Finance and looked up each stock the group invested in. I recorded the returns over the last three years and then took the standard deviation of those returns. To determine the risk of the entire portfolio, I averaged¹ the standard deviations of all the

¹ Assuming equal weight.

investments the group made. This is a group measure of risk aversion based on their investing decisions.

Independent Variables:

The independent variables are the students' gender (male or female) and the group composition (all male, all female, or mixed). I used the survey to gather information on the students' gender and I used the class records to identify the group composition.

Control Variables:

The control variables are financial knowledge, experience, and confidence. These were measured in the survey with statements that were rated by the students on a one to five scale (one is strongly disagree and five is strongly agree). A couple of examples of the statements are: "I am pretty good at math" and "I understand the stock market reasonably well". In addition, I included two finance type math problems to evaluate a student's financial knowledge. From the past research, I have found that it is important to consider the variables affecting the investors. Each investor has a different background with different financial knowledge, experience, confidence, and wealth. I believe that knowledge, experience, and wealth all play a role in an investor's confidence, which is why I used these control variables in hypothesis two.

3.4 Analysis

To evaluate my hypotheses, I did a regression analysis. To evaluate hypothesis 1, I only consider the relationship between gender (measured with a dummy variable, female, which equals 1 if the individual is female) and risk aversion, which is the individual's self-reported risk aversion. The regression is: $\text{Risk Aversion} = \alpha + \beta_1 \text{female} + \varepsilon$ and a test of Hypothesis 1 amounts to evaluating if β_1 is greater than zero.

To evaluate hypothesis two, I will control for financial experience and financial knowledge. My regression is: Risk Aversion = $\alpha + \beta_1 \text{female} + \beta_2 \text{financial experience} + \beta_3 \text{financial knowledge} + \epsilon$. Support for Hypothesis 2 implies that β_1 should equal zero.

For hypothesis three, my regression is: Group Risk Aversion = $\beta_0 + \beta_1 \text{individual risk aversion} + \beta_2 \text{mixed} + \beta_3 \text{male} + \beta_4 \text{mixed*individual risk aversion} + \beta_5 \text{male*individual risk aversion} + \beta_6 \text{male*mixed} + \epsilon$.

Support for Hypothesis 3 implies that the relationship between an individual's risk aversion and group risk aversion is affected by group composition, or a test of the coefficients on the interaction between group and individual risk aversion, which amount to $\beta_4 \neq 0$ (i.e. mixed group different from all female group), or $\beta_5 \neq 0$ (i.e. all male group difference from all female group) or $\beta_4 \neq \beta_5$ (i.e. mixed different from male group).

3.5 Assumptions and Limitations

A major limitation of my data is the small sample size. It will be hard to draw conclusions based on a larger population with only 50 students, but I hope that my research will encourage someone to repeat the experiment on a larger scale. Despite this limitation, my results are likely still relevant to a smaller population, such as college-aged students who study abroad. Also, since the investing was done in a group, I had to make the assumption that the groups investing risk was representative of individuals. Even though, within the group there could have been some people who had more influence on the investing decisions.

In addition, I made the assumption that the questions on my survey were valid questions to measure financial knowledge and confidence. I am making the assumption that each student interpreted the questions similarly, so that the question is comparable across multiple students. My final assumption is that I did not omit any relevant variables in my survey and my analysis.

3.6 Appropriateness

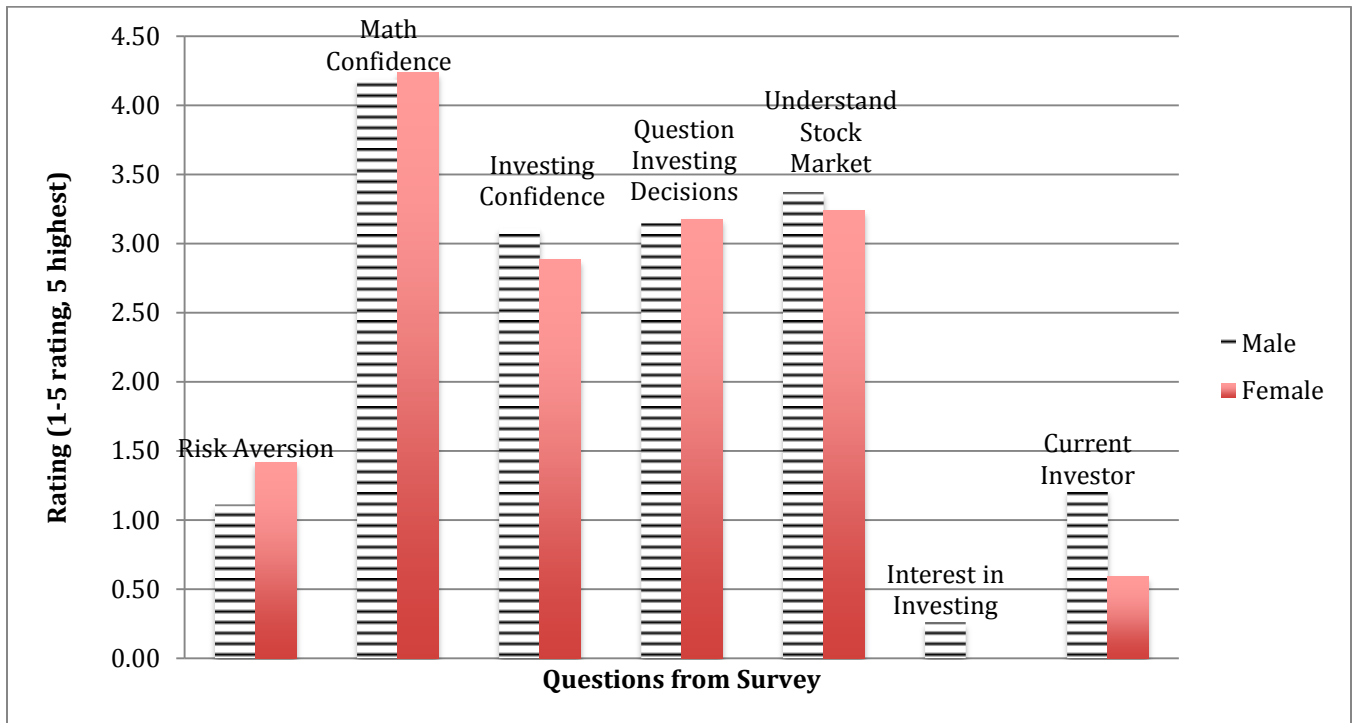
Based on the past research, I conduct my study similar to the Felton (2003) study discussed above. Both of our studies were a classroom simulation. My study focused on what affects risk aversion and then determined whether or not it is truly related to gender, or whether risk aversion solely depends on the other control factors included in the study.

4.0 Results

As discussed above, I collected data from a classroom experiment, as well as a survey. With the survey data, I create a pivot table to compare the male and female responses. To simplify the information, I display the averages for males and females. This will be discussed in the first section. In addition to the pivot table, I perform regression analysis. In the second section, I discuss the results of my three regressions.

4.1 Pivot Table Results

Figure 1: Gender Difference in Risk Aversion, Investment Experience, and Confidence



Note: Means by gender.

As you can see from the graph of the pivot table above, on average females are more risk averse than males. In the sample, males on average were more confident in their investing decisions and were less likely to question their choices in investments. This may be because the males in this sample were more interested in investing and more males than females were currently investing their own funds, as shown in Figure 1. More male respondents felt that they understood the stock market than females. Lastly, females were more confident in their math skills than males.

4.2 Regression Analysis [This is still a work in progress]

In Table 1 and 2, I report the results of the three regression models. In both tables, the first line is the coefficient and the second line is the standard error for the coefficient.

Table 1: Predictors of individual-level risk aversion

Variables	Regression 1	Regression 2
Female	0.352* 0.206	0.334 0.210
Experience		0.017 0.026
Knowledge		-0.228 0.352

Note: $*p < 0.10$

Regression 1 was shown to be a significant result in my research and the results in this regression were what I had anticipated. I expected that the female coefficient would be positive, and it was 0.35. This means my first hypothesis, that females are more risk averse than males, is shown to be correct.

When I add experience and knowledge to the regression, the coefficient on female is essentially unchanged. While it loses significance likely due to the small sample size, the magnitude of the estimates implies that my second hypothesis is rejected.

Table 2: Predictors of group-level risk taking

Variables	Regression 3
Individual Risk Aversion (IRA)	-0.084 0.318
Male	0.839 0.642
Mixed	0.028 0.547
IRA*Male	0.024 0.411
IRA*Mixed	0.058 0.434
Male*Mixed	-0.954 0.595

Note: $*p < 0.10$

Regression three was also not found to be statistically significant. This implies that the relationship between individual risk aversion and group risk aversion does not seem to be influenced by group composition. Hypothesis 3 is also rejected.

5. Discussion

Just because all of the results were not statistically significant, it does not mean that they are not relevant. The results can still be compared to the prior research. Regression one, which tested whether or not females were more risk averse than males, was found to be both statistically significant and correct. This is consistent with prior research done on people investing for retirement, which showed that females invested in less risky assets. This is important because, as discussed in my introduction, females are treated differently in the workplace and when investing with a broker because of this risk aversion. Females need to be

aware of this because it could negatively impact their lives. In addition, simply being aware of the issue could be helpful.

The results of the second regression, which tested hypothesis two, were not statistically significant and were not consistent with my expectations that females would exhibit similar risk taking to males if financial knowledge and financial experience being controlled for. These results do not match the current literature, which states that as financial knowledge and experience increase, risk aversion should decrease. The difference could be due to the small and convenient sample that was used in this experiment.

The outcomes in the third regression, used to test hypothesis three, were also not statistically significant and were not consistent with my expectations. Although the results for regression three were not significant, the magnitude of the results can still be discussed. There was a negative relationship between individual risk aversion and group risk-taking. This relationship makes sense because the more risk averse individuals were a part of the groups that took lower risks. Male and mixed groups have a positive relationship with group risk taking. The slope for male groups is greater than that for mixed groups, which would make sense because males are more prone to taking risks. The mixed groups have both males and females, so females may have been the reason for the less steep slope. In regression one, it showed that females were more risk averse than males, so it would make sense that the mixed group risk taking was lower than the all male group.

6. Conclusion

In conclusion, there has been a lot of research done on gender differences in risk aversion and what other factors could impact risk aversion. The results of this research have been inconclusive, which is why I began my study. Much of the past research compares gender

differences in investing in retirement funds and mutual fund managers. My research is looking at college-aged students, which is different from most of the past research, so it brings a new perspective. Also, it considers more than how gender affects risk aversion. It looks at what factors besides gender can affect risk aversion.

I had hoped to be able to shed some light on the debate of whether or not females are truly more risk averse than males. Unfortunately, my results were unable to support my hypotheses, but I think this could potentially be because of my small sample size. In addition, all of the students I used were taking a finance course and were business students. In order for there to be a difference between hypothesis one (females are more risk averse than males) and hypothesis two (females with similar knowledge, experience, and confidence will exhibit similar risk to males), it probably would be best to use a combination of students with different majors and not focus on business students. By doing this there would be greater variation between the students and it would allow for the researcher to better control for financial knowledge and financial experience in hypothesis two. All of the students in my experiment were business students. I would expect them to understand the stock market and investing better than another student (without an investment background) who does not have the same exposure to these things.

I believe if this study was completed in a setting with greater resources the results would show that there is some validity to my hypotheses. Regrettably, this was a short-term project and it had to be done with convenient sampling.

If the results had been statistically significant, I believe they would be useful for investors, companies, as well as, men and women who are involved in making personal financing decisions. It is important for people to understand whether or not females are more risk averse for both retirement funds and careers. Females need to understand the stereotypes about

them and how they can affect their future financial and career growth. When a person becomes more knowledgeable about something, it can only help them be more successful.

If someone were to repeat this experiment on a larger scale, I think it would be useful to start with college aged students and follow them through retirement. Watching their investing decisions to determine how risk aversion changes throughout one's life, what factors affect risk aversion at different points in life, and if risk aversion is related to gender.

References

- Arano, K., Parker, C., & Terry, R. (2010). Gender-based risk aversion and retirement asset allocation. *Economic Inquiry*, 48(1), 147-155. doi:10.1111/j.1465-7295.2008.00201.x
- Atkinson, S. M., Baird, S. B., & Frye, M. B. (2003). Do female mutual fund managers manage differently? *Journal of Financial Research*, 26(1), 1-18. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=8954899&site=ehost-live>
- Bem, Daryl J., Kogan, Nathan, Wallach, Michael A. (1962). Group influence on individual risk taking. *The Journal of Abnormal and Social Psychology*, 6(2). 75-86. Retrieved from - <http://psycnet.apa.org/journals/abn/65/2/75.pdf>
- Bruce, M. (1995). Do Women Invest Differently? *ABA Banking Journal*, 87(6). 84-86. Retrieved from - <http://web.ebscohost.com.ezp1.lib.umn.edu/ehost/pdfviewer/pdfviewer?sid=3cc03e99-87ba-4c09-acd4-c826c1fec05e%40sessionmgr111&vid=4&hid=125>
- Brachinger, H. W., Brown, M., Gysler, M., Schubert, R. (1999). Financial Decision-Making: Are Women Really More Risk Averse? *American Economic Association*, 89(2). 381-385. Retrieved from - <http://pubs.aeaweb.org.ezp2.lib.umn.edu/doi/pdfplus/10.1257/aer.89.2.381>
- Felton, J., Gibson, B., & Sanbonmatsu, D. M. (2003). Preference for risk in investing as a function of trait optimism and gender. *Journal of Behavioral Finance*, 4(1), 33-40. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=9916823&site=ehost-live>
- Glover, H. (2006). Female Fund Managers Perform as Aptly as Males. *Money Management Executive*, 14(5). 6. Retrieved from - <http://web.ebscohost.com.ezp1.lib.umn.edu/ehost/pdfviewer/pdfviewer?vid=3&hid=125&sid=3cc03e99-87ba-4c09-acd4-c826c1fec05e%40sessionmgr111>
- Graham, J. F., Stendardi Jr., E. J., Myers, J. K., & Graham, M. J. (2002). Gender differences in investment strategies: An information processing perspective. *International Journal of Bank Marketing*, 20(1), 17-26. Retrieved from - <http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=6470380&site=ehost-live>
- Johnson, J. E. V., Powell, P. L. (1994). Decision Making, Risk and Gender: Are Managers Different? *British Journal of Management*, 5(2). 123-138. Retrieved from - <http://web.ebscohost.com.ezp2.lib.umn.edu/ehost/pdfviewer/pdfviewer?sid=977f828c-fd0b-423c-b737-a93868d539d3%40sessionmgr110&vid=2&hid=108>

Wang, Penelope. (1994). Brokers Still Treat Men Better Than Women. *Money*, 23(6). 108-110. Retrieved from - <http://web.ebscohost.com.ezp2.lib.umn.edu/ehost/detail?sid=878a538c-a186-4f6f-beaf-233d2695d114%40sessionmgr11&vid=1&hid=108&bdata=JnNpdGU9ZWZWhvc3QtbGl2ZQ%3d%3d#db=keh&AN=9406157591>

Appendix A: Survey

Instructions: This survey asks you questions about the Investment simulation you were involved with in International Finance as well as questions about your experience with financial matters.

Group Number: _____

1. Before taking International Finance at CIMBA, how many courses have you taken in finance?

- A. 0 courses B. 1 course C. 2 courses D. 3 courses E. 4 + courses

2. What is your previous internship/work related experience in a finance or finance-related position?

Type "0" if no previous experience.

_____ Months

3. If you had to decide individually, how would you invest your portfolio? Please indicate a percentage to each category for each type of investment. (If you have an "other" please list it)

Class project (i.e. short-term)

Commodities _____%

Bonds _____%

Stocks _____%

Mutual Funds _____%

Currencies _____%

Other:_____ %

TOTAL 100%

Large Purchase (i.e. long-term)

Commodities _____%

Bonds _____%

Stocks _____%

Mutual Funds _____%

Currencies _____%

Other:_____ %

TOTAL 100%

4. Do you invest of your own money? If so, how would you describe the purpose of the funds?

- A. I don't invest my own money.
B. Retirement
C. Spending money
D. To practice investing (i.e. for fun/a hobby)
E. Other:_____

5. If 5 people all have the winning number in the lottery and the prize is 2 million dollars, how much will each of them get?

\$_____ per person

6. Let's say you have 200 dollars in a savings account. The account earns 10 percent interest per year. How much would you have in the account at the end of two years?

\$_____

