

THE DETERMINANTS AND IMPLICATIONS OF MILLENNIALS' STOCK MARKET  
INVESTMENT HABITS AND OPINIONS

by

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## **Abstract**

Millennials possess high levels of risk aversion when investing in the stock market. While it is true that the average investor, regardless of age, is typically risk averse, the primary determinants of millennials' investment habits and opinions are much different than what has been observed in earlier generations. This research aims to take a closer look at what drives the decision making process that millennials go through when forming opinions and making decisions related to their finances, narrowing in on what specific determinants have shaped their views. Many argue that despite having loan debt and low salaries, 20-somethings are at the most prime points in their lives to begin investing. However, an array of factors ranging from amounts of business education to biases and values continue to prevent a large number of college-age students from taking that leap. Those who have already begun investing are taking revolutionary routes to do so. Means of stock market investment are changing globally and rapidly, and eventually, the future of the market and involved companies will depend on millennials to perpetuate further growth. In order to adapt to the changes brought by millennials' opinions and habits, many financial institutions may need to consider significant restructuring of their current strategies. With less than half of all Americans and 1 in 3 millennials having money invested in the stock market, there is much to wonder about how millennials have gotten to this point, and what can be done to address it.

## **Acknowledgements**

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## Introduction

### Problem

Millennials, especially those that are currently finishing up college, are faced with an important question that has the potential to shape the rest of their lives: how, and where, are they going to save or invest their money? As a business major, I have been educated in key principles of business. Because of this education, I understand trends in business and economics, and I will make saving and investing decisions knowing the importance of building a financial foundation. While a student at Appalachian State University, however, I have noticed that many of my peers who are not business majors have limited knowledge of important financial instruments and concepts. Moreover, few possess a desire to invest in the stock market. Much of the information on financial trends that they follow are from major media outlets, both online and through cable networks, which are sometimes known for sensationalizing stories and using misleading headlines to shape facts into different narratives.

After observing these attitudes towards investing in the stock market, I began to wonder what the future implications may be for the stock market and related financial services as a consequence of this reluctance to invest. I questioned what the specific determinants of these attitudes towards investing were, and pondered how they could be addressed by financial services in the future. Initially, when asking fellow students why they had no interest in investing in the stock market, many said that they did not make enough money to justify doing so. While that may be true for now, the problem is that when these students reach the earning years of their life, where they are likely to make enough money to justify investing, they may not know *where* or *how* to start investing. For those who do feel ready to invest in the stock

market when the time is right, they may not take the appropriate and most fruitful course due to inherent biases towards finances that they have picked up throughout their lives.

Thus, a problem is created. While college students and the rest of their millennial generation are entering the earning years of their life, the financial services industry is trying to keep up and respond to their remarkably new attitudes towards investing. However, just as young people do not know how and where to start investing, many financial advisors and related financial services companies do not know how or where to start attracting young people to do business with them. The lack of connection and communication between the two entities illustrates a potentially troubling future for companies heavily reliant on personal investment for revenue.

College-age students today are often in national news headlines as a result of the ever-growing issue of accumulating student debts. Multiple ad campaigns have been launched from the premise of students struggling to pay off their debts as they enter adulthood, thus insinuating that students are generally financially starved. A unique factor at play is that today's college students lived through the 2008 financial crisis. Many witnessed familiar elders face financial distress at a time when they were just beginning to figure out the workings of the economy. Financial issues continue to accumulate for millennials as a potential 401(k) crisis continues to rise due to more companies decreasing or eliminating their employee benefits packages. As a result, young investors may need to be more self-reliant with their means of investment. As it stands, only around 52% of all millennials have 401(k) plans (Eisenberg). There is a significant access issue for the other 48% of millennials due to being either self-employed, having part-time jobs, or working at small businesses that do not offer

such plans (Eisenberg). Where will those other millennials turn to, and given the potential state of their current investment habits and opinions, will they even know which method is best?

### **Research Questions**

I have chosen four research questions that address this topic. In order to narrow the research topic, I conducted a study of Appalachian State University students in Boone, North Carolina to create a sample that represents the segment of college-age students referenced in this research. The questions and methodology of this study will be addressed later on. With all the above considered, the primary goal from the foundation of this thought has been to question the following:

**R1)** *what specific determinants drive the stock market investment habits and opinions of the millennial generation?*

**R2)** *is the level of aversion in stock market investment habits and opinions among millennials present and significant?*

**R3)** *how could those habits and opinions inherently be negative for the future of personal investment in the stock market and the financial services that facilitate those transactions?*

Along with researching the presence and impact of these determinants, there is also curiosity as to what potential biases could be associated with them, as well as how knowledge of those biases could be used to combat any negative influences that the determinants may have. Thus, the fourth research question is:

**R4)** *what potential means of innovation can be applied to existing investment habits and opinions to adapt for the changes that millennial investors may bring upon the financial services industry in the future?*



## **Purpose**

This thesis has been divided into a literature review of existing research on millennial investing as well as new, personal research which focused specifically on college-age students attending Appalachian State University in Boone, North Carolina. Because of the scarce amount of studies done on millennial investing, the new study presented in this thesis is meant to add to the existing repertoire in hopes of broadening the scope of understanding behind financial decision making of college-age students specifically. The sample of 106 students across all majors at Appalachian State University is used to illustrate trends among similar samples of college campuses across the nation. It is hoped that the findings in this research are helpful to movements calling for more extensive financial literacy education among youths; that these findings aid financial service companies which are beginning to assess their business models in order to adapt to the changing investment strategies of today's young people. While there are many sources that individually provide research and commentary on both investment habits and opinions between millennials and various events and policies that have aided in shaping them, there has yet to be one abbreviated, comprehensive source that links them together.

## **Literature Review**

### **Preferences**

A majority of millennials have only recently begun entering the earning years of their lives or are soon to begin, thus there is scarce quantitative research available to represent their investment preferences. Yet, across all of the studies that were analyzed for the formation of this thesis, there was a consistent trend that an overwhelming majority of millennials do not currently invest in the stock market compared to 51% of Generation X and 48% of Baby

Boomers (Shekhtman). Bankrate.com, a leading financial rate information aggregator, was among the first to conduct a study of millennial financial habits. According to their study, which surveyed 1,000 people, only 1 in 3 millennials age 25 and older and less than ¼ of millennials aged 18-25 have money invested in the stock market (Shekhtman). The main reason cited among respondents for not investing in the stock market was that they did not believe they could afford to.

While millennials still believe whole-heartedly in hard work and saving money, they are by no means currently planning to rely on long-term investment as a primary resource for reaching their goals (“UBS”). Some millennials are even choosing to be “unbanked.” For millennials, utilizing long-term investing ranks fourth among five potential determinants of success, falling behind “remembering the important things in life,” “a good education,” “working hard,” and “saving/living frugally” (“UBS”). They are more focused on personal success rather than chasing higher returns, with 36% citing that they would be content if their potential returns tracked closely with the overall market, and 24% citing that they would rather be concerned with their progress towards meeting personal goals and less on their performance relative to the market (“UBS”). An additional 12% would be content if they were guaranteed a small rate of return in order to avoid losses (“UBS”). UBS also studied what millennials were likely to do with “found money.” Contrary to 33% of non-millennials, only 12% of millennials would invest the extra money into the stock market. Instead, they would prefer to pay off debt (42%), increase savings and liquidity (17%), and purchase real-estate (16%). All of these figures contribute to the overarching theme of how millennials currently and will likely continue to manage their money; many millennials are going to require the financial services industry to re-evaluate many of their business models.

## **Education**

1 in 4 millennials say that they do not invest because they have limited understanding of how to invest, which is linked to a nationwide lack of business education and overall financial literacy (Shekhtman). Many analysts believe that number should be higher, though, and this is mainly due to the vast overconfidence present in the millennial generation. A study done by Forbes in 2016 found that while 70% of millennials claim to have “high financial knowledge,” only 22% of them have ever received financial education from school or an employer (“Generational Research”). Of their millennial respondents, only 8% could answer all 5 questions on their financial literacy test correctly. According to a different study by U.S. Bank titled “Student Perspectives on Money and Finance,” 49% of students rated themselves with a “C” in money management skills (Williams). As it stands, only 17 out of 50 states in the United States of America require financial literacy education in high school, and only 6 require students to pass a financial management exam in order to graduate (Berman). Claes Bell, a banking analyst at Bankrate, believes that as a result, people are not coming into their careers and earning years of their lives with the practical knowledge to invest (Berman).

Many experts believe that “avoiding the stock market entirely is a dangerous move for young people, who need the higher returns of riskier assets to build sustainable retirement savings” (Weiss). Stash, a start-up company which aims to help unsophisticated investors with a mobile app, recently conducted a similar study regarding millennial investing habits. Their Harris poll of 500 Americans aged 18-34 found that nearly 80% of millennials are not invested in the stock market, and 34% cited that they do not know how to invest along with 13% specifically blaming student debt for their reason for not investing (Weiss). Stash’s study further examined millennial investing habits by breaking their data down between genders.

Their research found that 75% of female respondents claimed that investing in the stock market was confusing versus 60% of male respondents (Weiss). In response to the study results, Stash's CEO David Ronic said that millennials are "missing the boat" on investing.

## **Technology**

Stash is one of many investing apps that are attempting to draw young people in. New technologies appeal to young investors, but there are downsides to relying primarily on a smartphone app for investing (Weiss). Investing in markets while they're on the rise is easy, but in order to succeed, investors need to know how to navigate rougher periods with their investments – a skill that cannot so easily be obtained with only an app (Weiss). Regardless, millennials are in high demand for quality digital access to financial services. Selma Finance cited in a recent study that millennials care more about the quality of the digital experience of their financial services than the cost (Zeitung and Sanomat). Because millennials have grown up with digital services, mobile apps, and online media, it has become a permanent aspect of their lifestyles. The research found that millennials demand simplicity and directness with digital services, and while traditional banking services have relied on face-to-face interactions between clients and bankers, millennials prioritize real-time access online. In fact, they are highly likely to switch financial service providers if doing so meant obtaining a better user experience, no matter how desirable some of their other services or perks may be (Zeitung and Sanomat).

Selma Finance also found that Google is currently the biggest weapon millennials have to cross-check and compare product information on their own before, during, and definitely after consulting a financial advisor; in fact, some utilize Google as a substitute for an advisor (Zeitung and Sanomat). Conducting searches about investment on platforms such as Google

has taken the number one place for millennials to inform themselves where to best invest their money, followed by advice from family and friends and financial blogs (Zeitung and Sanomat). Expanding on the millennial reliance on tech firms such as Google,  $\frac{3}{4}$  of millennials would rather partake in financial services from Google, Amazon, Apple, Paypal, Square, and other similar companies rather than banking institutions (Winograd and Hais).

### **Distrust and Values**

The prioritization of digital experience over face-to-face interaction for investment exemplifies another significant determinant: mistrust in banks. A key factor for the formation of this widespread distrust is undoubtedly the fact that financial crisis and eventual Great Recession occurred during the “financially formative” years for many millennials (Shekhtman). For many, seeing the turbulence in the stock market during the recession and the effects it may have had on their families has been enough to discourage them from looking into investing (Berman). Research done by UBS Investment Bank shows that millennials, much like the WWII era generation who witnessed the impacts of the Great Depression, are likely to have a highly conservative risk tolerance due to their observations of market volatility and job security issues following the financial crisis (“The ties”). This conservative risk tolerance is also reflected in the fact that approximately 52% of millennials currently prefer to keep their assets in cash versus only 28% in equities, which directly counters most long-term wealth management advice (“The ties”). Providing a comparative example, non-millennials hold approximately 46% of their assets in equities versus 23% in cash (“The ties”).

Researchers from Deloitte state that “banks need to compensate for the risk-aversion of millennials resulting in lower revenue models” (Kobler, Hauber, and Ernst). Many millennials do not only mistrust the system, but the advisors as well. According to Deloitte’s

researchers, millennials make less than 10% of financial decisions on their own, but that doesn't mean that they are running to consulting firms for help (Kobler, Hauber, and Ernst). Selma Finance found that many millennials view financial advisors as too pricy, and many of them believe that working with a financial advisor inherently means there will be hidden costs associated with the services (Zeitung and Sanomat). As a result of this mistrust, millennials have begun to require high transparency in prices and product selection before considering investing.

For the young people who do take the initiative to invest in the stock market, there are, as stated before, typically strict requirements that they enlist before making transactions. One in particular that is shifting the trends of investing is the requirement that companies many young people invest in partake in business practices that align with the investor's personal beliefs and morals. Selma Finance found that millennials prioritize beliefs and morals over profit for their investment portfolios, and that many of them want to express themselves via their portfolio (Zeitung and Sanomat). Deloitte's research supports this, as it found that 75% of millennials refuse to compromise family or personal values, meaning many of their investments will be made only after careful analyzation of a company's business practices (Kobler, Hauber, and Ernst). This could also mean that some millennials would be likely to pull their money out of a company's stock as a result of scandal. With millennials being highly in tune with media coverage, volatility in their investment strategies in response to news breaks may be of concern. Winograd and Hais have compiled research on millennials and morals as they pertain to investment as well, noting that "understanding the generation's values offer a window into the future of corporate America" (Winograd and Hais). In addition to personal moral requirements for investments, 2/3 of millennials also want to see employers contribute

to social causes, versus half of Baby Boomers. To further build on the millennial moral and personal belief code, it should be noted that 64% of millennials would rather make \$40,000 at a job they enjoy than \$100,000 at a job they deem as boring (Winograd and Hais). 2/3 of them think that businesses earn too much profit.

### **Generational Shift**

A significant problem lies within the timing of the current state of millennial investment habits and opinions: the Baby Boomer generation is reaching old age. There is not much time until millennials replace the Baby Boomers as the largest generation of investors. It is widely known that the Baby Boomers had their financially formative years in what many consider to be the “Golden Age” of investing. Returns were as high as the confidence that many of the young investors at that time had in the financial market.

During the period that Baby Boomers were born (January 2, 1946 – January 2, 1964), the Dow Jones Industrial Average (DJIA) rose from 191 to 766. If the oldest Baby Boomer began investing at age 20, the period for initial investments among the generation would be from 1966 to 1984, during which the DJIA rose from 785 to 1,211 (Yu). These figures posed a significant advantage to young Baby Boomers, as they watched their initial investments reap capital appreciation, thus providing them with a more positive view of investing than their millennial counterparts. At age 20, the oldest millennial would have begun investing in 2008, when the DJIA went from 12,800 at the cliff of a bear market to a low of 6,443 (Yu). This equated to a nearly 50% loss for the new, 20 year old millennial investor.

The difference in investment philosophies between the two generations provides for a colossal gap in preferences. Baby Boomers hold a significantly larger amount of their net worth in investments, but there remains widespread financial distrust among millennials.

Currently, millennials have a strong preference for holding their assets in cash. A recent study done by UBS found that unlike Baby Boomers, who prefer a buy and hold strategy with their investments as well as to follow a plan, millennials would much rather time the market and make decisions by trusting their gut (“The ties”). A problem arises with this because as found before, many millennials do not have the educational background and subsequent financial knowledge to know how time the market on their own.

### **Biases**

The aforementioned findings regarding millennial investment habits may be traced by firms to certain biases which correspond to behavioral finance. The Research Foundation of CFA Institute defines behavioral finance as being “based on the alternative notion that investors, or at least a significant minority of them, are subject to behavioral biases that mean their financial decisions can be less than fully rational” (Byrne and Brooks). Researchers at Cambridge further define behavioral finance as the “study of the influence of psychology on behavior of financial practitioners and the subsequent effect on the market” (Sewell).

Two biases in particular that can be applied to investment habit and opinion among current college students are conservatism and availability bias. Conservatism is defined by the Research Foundation of CFA Institute as when “forecasters cling to prior beliefs in the face of new information.” Other research has shown that many millennials are hesitant to invest because of the experiences they faced during the financial crisis. Despite new evidence stating that the economy is coming back and now is a great time to invest, many millennials resist and “cling” to the beliefs they formed during the crisis. Availability bias is defined by the Research Foundation of CFA Institute as when “investors overstate the probabilities of recently observed or experienced events because the memory is fresh.” This thought process can also be linked



to other research on millennials' responses to the financial crisis and the impact it has on their investment strategies. The widespread mistrust of the banking system and financial advisors may be traced to overstating the probability that banks and financial advisors are corrupt due to the evidence of unethical actions during the financial crisis.

Evidence that millennials are more likely to be prone to investment bias can be further supported by Sahi, Arora, and Dhameja in their article, "An Exploratory Inquiry into the Psychological Biases in Financial Investment Behavior." As noted by Southeastern University's Robert Hammond, some of these biases include the tendency to:

- Prefer known risks over unknown risks
- Make investment decisions based on easily available information
- Play it safe with regards to risk
- Invest with a view of social responsibility
- Feel that past decisions could have been better or were inevitable
- Be averse to losses
- Be confident in one's own ability
- Rely on family and friends (Hammond).

If more financial institutions take the initiative to recognize behavioral finance and alter their business practices to reflect trends found in the field, they may be able to break through the barrier between them and millennial investors. As stated by Winograd and Hais, banks will continue to lose ground with millennials as investors because of the fundamental mismatch between the generation's beliefs and the culture of Wall Street. Dr. Peggy Doviak, a certified financial planner and founder of D.M. Wealth Management, Inc., vouches for the importance of incorporating behavioral finance into one's practice (Doviak). She writes that once one feels comfortable with a method to apply behavioral finance to interactions with their clients, doing so would help them "reach their financial goals, manage risk, and create effective portfolios." Doviak recognizes that some financial planners feel more comfortable with the quantitative side of finance and thus would prefer not to incorporate behavioral finance into their practice.

Regardless, there is much to gain by simply reading up on financial literature that explains the field – especially for financial planners who are trying to reach out to millennials.

## **Study**

### **Method**

A 28 question survey was administered to students on Appalachian State University's campus in Boone, North Carolina. The survey's purpose was to measure their varying opinions and habits, along with the level of potential aversion towards investing in the stock market and to find the determinants behind it all. It also measured electronic use among college-age students to see if the ability to invest electronically increases the likelihood of investing. Additionally, it examined the question of whether there is a self-perceived connection between financial uncertainty and a student's level of prior business education. The survey can be seen in Appendix A. Additional survey analysis was conducted through running statistical t-tests and Pearson's correlation coefficients. All t-tests conducted in the analysis were independent two-sample, assumed unequal variances, and had statistical criteria of ( $p < 0.05$ ). Because most of the survey data was collected in qualitative form, each of the variables used in the individual tests were converted to integers which will be noted in the text.

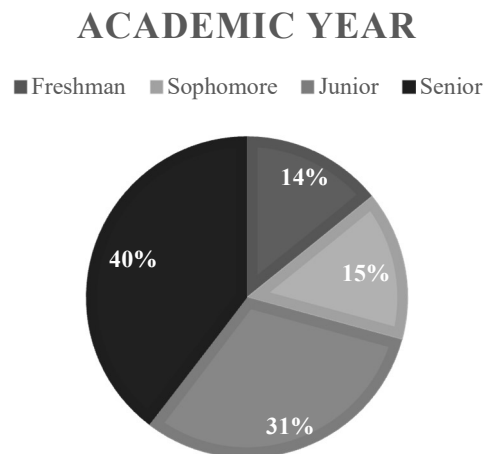
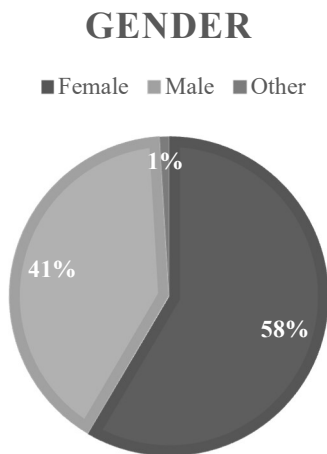
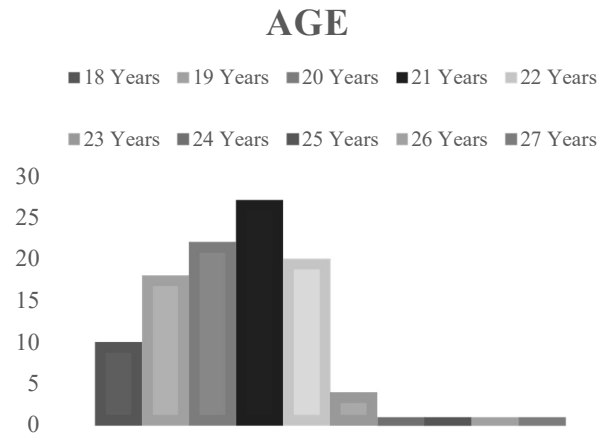
### **Participants**

106 college students attending Appalachian State University anonymously responded to the survey, which was administered through Google Forms. Study participants were recruited through various Appalachian State University affiliated Facebook groups and webpages.

In order to gather data representative of a large student body, efforts were made to reach beyond the Walker College of Business. As a result, the final survey results reflected a vast

representation of different majors across the campus. 40 different majors are represented in this data.

The basic demographics of the respondents as reported in the survey results is shown in the following figures:



### Survey Results and Analysis

When asked how likely they were to invest in the stock market within the next 5 years, 24% of students reported that they were already invested versus 32% who reported that they were not likely to invest, 31% that reported they were likely, and 13% that reported being

unsure. It was not clarified through the survey what types of investments respondents held, if any. When asked how they feel about personally investing their own money in the stock market, 56% had a positive reaction, 12% had a negative reaction, and 32% felt neutral. A strong positive correlation ( $r = 0.54$ ) between whether students have a positive or negative view of personally investing their money and whether they believe the rewards outweigh the risks when investing in the stock market was found using Pearson's correlation coefficient. A two sample t-test also found a strong relationship between the two variables as exemplified in Table 1. Positive views were assigned 2, neutral views were assigned 1, and negative views were assigned 0. "No" was assigned 0, and "yes" was assigned 2.

Table 1: Relationship between students' views of investing and if they believe investment rewards outweigh risks

|                 | Positive view | Negative view | Difference | t-score (p-value)     |
|-----------------|---------------|---------------|------------|-----------------------|
| Mean ( $\mu$ )= | 1.767         | 0.167         | 1.6        | 2.11 ( $p < 0.0001$ ) |
| N=              | 60            | 12            |            |                       |

The results in Table 1 conclude that the null hypothesis ( $h_0 =$  no relationship) is rejected. Students who have a negative view of personally investing their own money in the stock market are significantly less likely to believe that the rewards outweigh the risks when investing.

To gage the generational gap in terms of investing habits, respondents were asked whether their parents or grandparents were invested in the stock market; 70% said that they were, with only 11% citing that they did not know. Pearson's correlation coefficient was computed to assess the relationship between whether a student's parents or grandparents invest in the stock market and the student's perception of whether investing in stock market is important for saving money for the future; a weak positive correlation was found between the

two variables ( $r = 0.245$ ). Table 2 shows a two-sample t-test that was conducted. “Yes” to both questions was assigned 1, and “no” was assigned 0.

Table 2: Relationship between grandparents/parents (G/P) investing and student’s perception of investment importance

|                 | G/P do not | G/P do | Difference | t-score (p-value) |
|-----------------|------------|--------|------------|-------------------|
| Mean ( $\mu$ )= | 0.4        | 0.689  | 0.289      | 1.05 (0.018)      |
| N=              | 20         | 74     |            |                   |

The results in Table conclude that  $h_0$  is rejected. There is a strong relationship between whether a student views investing as important for saving money for the future and whether their parents or grandparents have invested in the stock market before; students with parents and grandparents who have invested are more likely to view investing as important. Respondents were also prompted to describe why they would or would not invest in the stock market, and the following are a sample of those responses:

Would invest in the stock market:

- “I would invest in the stock market to ensure I have the financial security I would need to retire. Also there is no guarantees with social security and congress may change the laws regard ira and Roth IRA rules.”
- “You don't have to invest a whole lot of money. If you lose it, you lose it. If you choose a good company to invest in, you could make a lot of money back.”
- “It is a great way to leverage knowledge and monetary risk into future potential with a managed maximum investment.”
- “Stocks are the only widely accessible asset class that currently offer the returns our generation will need to retire. They are easy to trade, liquid, and exciting, and offer numerous strategies for investors with different risk tolerances.”

Would not invest in the stock market:

- “I wouldn't invest in the stock market if the money I would potentially put in could be used for something better at the time.”
- “The markets are constantly changing and it's disconcerting. I mean every major political decision affects the market. Plus globalization is an issue, i.e. China last year cause a huge dip in the markets.”
- “It took a big hit when I was growing up. Looks pretty risky, and I think there are safer investments to make, even if that rate is potentially lower.”
- “There are risks involved which make me weary of putting my money into something where the outcome isn't guaranteed.”

In order to detect possible correlations to the amount of business education a student receives relative to their opinions towards stock market investment, subjects were asked to specify how much exposure they have had to personal finance and investment topics throughout their education. A staggering 46% of the students surveyed reported having no exposure to financial and investment topics throughout their education, while 23% reported having one semester, and 25% reported having 1 or more years of education. When asked if they feel as though they have received enough education regarding personal finance and investment to make them comfortable enough to invest in the stock market, 73% said no. This ties into the question of whether students should be required to take courses on business education throughout their education. Subsequently, 86% of respondents think that they should, and 69% think that they would be more likely to invest if they had received more business education.

Multiple tests were conducted using students' individual amounts of business education related to other variables. Pearson's correlation coefficient was calculated to measure the

relationship between the amount of students' business education and their likelihood to invest in the next five years; a moderate positive correlation was found ( $r = 0.421$ ). Table 3 shows a two sample t-test that was conducted. In converting descriptive data to a qualitative format, students that had one year or more of business education were assigned 2, students with one semester were assigned 1, and students who had no business education were assigned 0. Students who were likely to invest or already invested were assigned 2, those who were unsure were assigned 1, and those who would not be likely to invest were assigned 0.

Table 3: Relationship between level of business education and likelihood to invest in the next five years

|                 | Education | No education | Difference | t-score (p-value) |
|-----------------|-----------|--------------|------------|-------------------|
| Mean ( $\mu$ )= | 1.52      | 0.857        | 0.663      | 1.99 (0.0002)     |
| N=              | 50        | 49           |            |                   |

The data in Table 3 is significant;  $H_0$  is rejected, meaning there is a strong relationship between the amount of business education a student receives and their likelihood to invest in the next five years. Students with a semester or more of business education were much more likely to invest in the near future than students who had no level of business education at all.

The amount of business education respondents received was also compared to their opinion of whether investing in the stock market is an important means of saving money for the future. The Pearson's correlation coefficient ( $r = 0.413$ ) showed a moderate positive correlation between the two variables. A t-test, as shown in Table 4, revealed a strong relationship between business education and perception of the importance of investing in the stock market. Students with any amount of business education were assigned 1, and those with no amount of business education were assigned 0. "No" was assigned 0, and "yes" was assigned 1.

Table 4: Relationship between amount of business education and perception of stock market investment importance

|                 | Education | No education | Difference | t-score (p-value) |
|-----------------|-----------|--------------|------------|-------------------|
| Mean ( $\mu$ )= | 0.82      | 0.429        | 0.391      | 1.98 (0.00004)    |
| N=              | 50        | 49           |            |                   |

According to the means of students' perceptions corresponding to their levels of education, students with one semester or more of business education are much more likely to believe investing in the stock market is important for saving for the future than students who have not received business education.

Technological preferences for investing can also be linked to the amount of business education students receive. In order to compare the data, students with one year or more of business education were assigned 2, students with one semester were assigned 1, and students with none were assigned 0. The results can be observed in Tables 5, 6, and 7.

Table 5

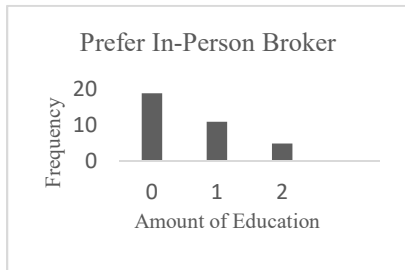


Table 6

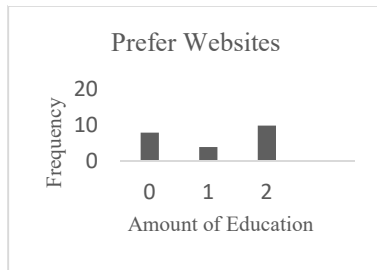


Table 7

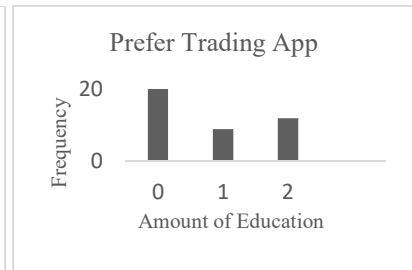


Table 5 shows that students who have no amount of business education typically prefer to trade with an in-person broker. This supports the idea that they do not have the education or confidence level to make investment decisions as autonomously as those with more educational experience. Table 6 shows that students who have one year or more of experience prefer investing via a website more than those with either a semester or no business education, likely because their level of education and increased financial literacy leads to the capability



and desire to be more autonomous with financial decisions. Table 7 shows that a significant amount of students with no business education would prefer to invest via a trading app on a smartphone. Although trading with an app would likely require more financial literacy to navigate the options, the perceived ease and simplicity of a technological investing interface may be appealing to those with little knowledge or experience of investing.

Overall, the evidence supporting the argument of requiring more business education for students is compelling. It appears to be true that the significant lack of business education early in a student's life is contributing to a lack of enthusiasm and understanding in regards to investing. Reversing this is not something that can be done by the average citizen, unfortunately. Other than taking the initiative to self-teach finance topics, the most effective way to combat these levels of aversion related to lack of ample business education would be to implement it into school systems. That, of course, is under the jurisdiction of state legislatures; since seventeen states already require business education in their curriculums, it is possible that other states will follow suit after seeing the potential benefits of having such programs.

The study also aimed to measure potential opinions and preferences that students have towards investing regardless of their existing frequency of investing. 43% would prefer to invest via a trading app on a smart phone contrary to 33% who would prefer an in person broker and 25% who would prefer a website. This trend will undoubtedly result in a decrease in foot traffic to brick and mortar financial institutions. At least 89% of respondents report checking their online banking accounts on a smartphone at least 1 to 3 days a week, along with at least 90% reporting that they use their smartphone or other device to make monetary transactions at least a few times a month. This information further supports the fact that young investors have

a strong preference for digital convenience when handling their finances. Investment firms seeking to capitalize on millennials will need to adapt to these changing tides, and given that 54% of respondents reported that they would be more likely to invest if investing was as easy as shopping online, there is a great potential for acquiring millennial investors if the type of technology they seek is made available. A t-test comparing the relationship between students' opinions about investing with the ease of shopping online and their positive or negative view of investing their own money in the stock market can be seen in Table 8. Positive views were assigned 2, neutral views were assigned 1, and negative views were assigned 0. Students that were less likely to invest were assigned 0, those who were neutral were assigned 1, and those who were more likely to invest were assigned 2.

Table 8: Relationship between ease of online shopping and personal view of investing in the stock market

|                 | Negative view | Positive view | Difference | t-score (p-value) |
|-----------------|---------------|---------------|------------|-------------------|
| Mean ( $\mu$ )= | 1             | 1.55          | 0.55       | 2.14 (0.029)      |
| N=              | 12            | 60            |            |                   |

The data in Table 8 shows that  $H_0$  is rejected, therefore there is a relationship between whether a student would be more likely to invest if it were as easy as shopping online and their positive or negative view of investing their own money in the stock market. Students with a positive view of investing their own money in the stock market are 55% more likely to invest if it were as easy as shopping online. Students with a negative view of investing are completely neutral to the idea that investing could be as easy as shopping online. The added ease would not make them more or less likely to invest.

It appears that risk associated with making transactions with a smartphone are of average concern to millennials, as 48% believe they are taking neutral risk with their money

while doing so, and 45% believe they are taking more risk. Seeing that 51% of respondents feel that they would spend more money when using a device to make transactions rather than making them in a physical store, and 49% feel that they would spend *as much* money, millennials may prove to be more willing to spend money on investments if the transactions are made with ease through electronic means.

Existing research on how millennials handle their money, much of which is discussed in the literature review, mostly presents that millennials are risk averse, meaning they are typically disinclined to take financial risk. This study found that the risk aversion has different magnitudes at varying levels of financial management and millennials' opinions on investing. It appears that the college students surveyed were less likely to be risk averse when presented with hypothetical situations. When presented with the scenario that entails investing money today in order to receive growth over the next 20+ years, 79% reported that they would take the risk, and 21% reported that they would not. Additionally, 70% of respondents reported that they felt as though the rewards outweigh the risks when investing in the stock market. Despite the positive reactions to hypothetical situations about investing, 40% of respondents do not feel that investing in the stock market is important for saving money for the future at all. This is evident when considering the figure that 32% of respondents will not be investing in the stock market in the next 5 years, and 13% are still unsure.

Aforementioned research from Deloitte displays how a majority of millennials refuse to compromise their family or personal values, thus reasoning that their investments will likely be made or eventually revoked based on whether the companies they choose fall in line with these values. To back this claim and measure it specifically among current college students, respondents were asked whether they would still invest in a company that does not uphold the

same moral code as them, even if it meant receiving higher returns on their investment. 57% responded that they would not contrary to 43% who responded that they would. It may be the case that these figures will continue to grow further apart as millennials continue to involve themselves in advocacy and remain highly in tune with media coverage of controversial issues. The study also found a link between students' genders and whether they would invest in a company that did not uphold their personal moral code in order to achieve higher returns on investments. Pearson's correlation coefficient was computed to assess the relationship between the two variables, and a moderate positive correlation was found ( $r = 0.401$ ). Table 9 shows a t-test that compared the two as well. Females were assigned 0, and males were assigned 1. "No" was assigned 0, and "yes" was assigned 1.

Table 9: Relationship between gender and willingness to invest in companies that do not share one's morals

|                 | Female | Male  | Difference | t-score (p-value) |
|-----------------|--------|-------|------------|-------------------|
| Mean ( $\mu$ )= | 0.170  | 0.674 | .504       | 0.988 (0.0002)    |
| N=              | 63     | 43    |            |                   |

The results in Table 9 conclude that  $h_0$  is rejected, meaning that there is a significant relationship between gender and investing with a moral compass. Males are much more likely than females to invest in a company that does not share their personal moral code in order to receive a higher return on their investment. As mentioned before, Winograd and Hais believe that understanding millennials' values provides a window into the future of corporate America. Even despite the difference in preferences between genders, with a tense political climate and media surveillance continuously monitoring the actions taken by corporations, it may be more important now than ever before for financial institutions to fully seek to understand the wide

scope of their young clientele. These results complemented by those in the literature review provide for a strengthened commentary on the significance of values-based investing.

Another way to deduce the reasons for investment opinions and habits among millennials is to gage their feelings towards the banking industry as well as their opinions regarding the 2008 financial crisis. When asked if living through the financial crisis made them feel more or less comfortable with investing in the stock market, 50% reported being unaffected and maintaining the same amount of comfort, while 48% reported being less comfortable. However, when asked if living through the financial crisis made them willing to take more or less risk with their money, only 42% reported that their risk levels were unchanged, while 54% reported that they were now willing to take less risk with their money than before the crisis occurred. There is a clear divide in the center of the sample that suggests that there are ample mixed feelings about the implications of the crisis. Of those surveyed, 57% feel that they understand what caused the financial crisis to begin with, with 43% reporting they still do not know. Pearson's correlation coefficient was computed to compare the relationship between students' understanding of the financial crisis and how much risk they are now willing to take with their money as a result of the crisis; a weak positive correlation was found ( $r = 0.212$ ). A more significant relationship was found when computing a t-test, exemplified in Table 10. Willingness to take more risk was assigned 2, neutral risk was assigned 1, and less risk was assigned 0. Not understanding the financial crisis was assigned 0, and understanding it was assigned 1.

Table 10: Relationship between understanding of the financial crisis and willingness to take risk with money

|                 | Understand | Do not understand | Difference | t-score (p-value) |
|-----------------|------------|-------------------|------------|-------------------|
| Mean ( $\mu$ )= | 0.6        | 0.356             | 0.244      | 1.98 (0.025)      |
| N=              | 60         | 49                |            |                   |

The results in Table 10 show that  $h_0$  is rejected, meaning there is evidence of a strong relationship between the perceived level of understanding a student has regarding what caused the 2008 financial crisis and their subsequent willingness to take on risk with their money as a result of it. Based on the means of the samples, neither of the groups are willing to take on more risk, and neither are fully willing to take on as much risk as they did before the crisis. Those who do not understand what caused the crisis are taking less risk with their money now than those who feel that they do understand. These results provide positive evidence that the perceptions of the causes and implications of the financial crisis are not overwhelmingly preventing millennials from having faith in the system – however, they remain a significant determinant of the decision making process and related risk aversion. It is imperative that initiatives involving millennial investments take into account the need for recognizing and adapting to the shifting opinions that were caused by living through the financial crisis. As it stands, 55% of students would still rather to go a parent, Google, or a friend for help making financial decisions instead of a financial advisor.

Finally, when faced with the question of whether they trust the banking industry, only 17% responded “yes,” versus 41% responding “no” and 42% responding that they are neutral. There was no statistical significance found when comparing whether students feel like they understand what caused the 2008 financial crisis and if they trust the banking industry. Students were asked to elaborate on the reasons for their level of trust in the banking industry. The

following are a selection of responses from the gathered results, listed under each answer option:

“Yes”

- “There are systems set up to keep our money safe”
- “They are trained and educated individuals”
- “I haven’t had any issues with the banking industry”
- “I currently work for a bank so I have an understanding of what happens behind the scenes”

“No”

- Even with the updated legislation, fractional banking is still risky no matter the internal controls in place. Fiat money is an economic equalizer, but comes with an adherent level of risk.
- “Just look at Wells Fargo this past year. Total lack of trust when it comes to the big banks. That’s why I stick with my credit union.”
- “They are willing to do whatever it takes to make money, even if it is highly irresponsible. They are too big to fail and they know that, so they have no consequences to their actions.”
- “The people who were unethical in 08 are still out there.”

“Neutral”

- “Living in paranoia doesn't do you much good, however it is important to be aware and keep track of your finances.”
- “We hear so many bad things about the banking industry, with Wells Fargo be the most recent, that you really question these big banks. I, however, hold a more favorable opinion on smaller more local banks.”
- “Banking companies are always being exposed for scandals (Wells Fargo). I mostly look at it as a place to store my money, I don't think they'd ever put millions of customers accounts in danger.”

- “I bank with NC SECU and I trust them a lot. It is hard to give a blanket statement of "Yes, I trust the banking industry" when there are regularly new scandals in the media.”

### **Remarks and Recommendations**

The determinants of investment habits and opinions among millennials, and more specifically college students as noted in the above study, construct a gateway into understanding what the implications of these trends may impose on financial services in the future. While it is true that the average investor, regardless of age, is typically risk averse, the primary determinants of millennials’ investment risk aversion are significantly different than what has been seen in earlier generations. The fact that millennials are both reluctant to invest and have more qualifications for their financial services is attributable to so much more than simply not having enough money to invest. Eventually, they are likely to have enough money, and the question then becomes a matter of whether the habits they have accrued up to that point in their lives will lead them to seek investments at all.

As of now, there is an unsettling amount of uncertainty linked to a lack of financial literacy regarding investments among the millennial generation. Significant adaptations must be made in an attempt to gain the trust of these potential investors who will hold a majority of the world’s wealth within the next twenty years. An important step in the process of gaining that trust will be accounting for the significant lack of financial literacy, and ultimately finding ways to alleviate the circumstances of it. There are seemingly two ways to observe these circumstances and how/when to address them: via the present, which includes existing college students and all other millennials beginning the earning years of their careers; and via the future, which includes reaching younger generations who still have a chance to obtain the resources they need to achieve financial literacy earlier in life than their predecessors.



The determinants causing millennials to resist investing in the stock market can also be used to encourage them to *begin* investing. For instance, while a lack of adequate financial education is holding back many of today's millennial investors, a shift in educational policies and requirements can reverse much of the potential damage for future generations. Despite the challenges current millennials face due to this deficit, a majority want to learn and are willing to learn – the only thing lacking measure is their initiative to do so. An educational alternative that could help solve this problem is implementing digital financial guidance in online programs that millennial investors already use, or may feel inclined to use.

Millennials are drawn to technology; they have been raised with it far more than the generations older than them. Technology is a staple in their every-day lives and will likely never cease to be. There are infinite opportunities for the financial services industry to implement more advanced technology to appeal to young people. If they don't, the implications may be far from desirable. Trading commissions for broker-dealers have already been declining, now averaging at around 2.46 cents per share in the United State (“Trading Commissions”). With technological, autonomous trading on the rise, it seems that the downward trend in commission amounts will continue. The financial services industry needs to work towards adapting to a generation that has high distrust in their employees and services; distrust that is leading them to prefer investing in many start-up, independent trading apps that do not require direct interaction with a financial institution or advisor. Many young traders who do invest with financial institutions, as stated before, are willing to switch service providers to gain access to an institution with better digital tools. Millennials typically associate lower transaction costs and fees with digital investing. While there are certainly always going to be people who prefer face-to-face interactions with broker-dealers and

financial advisors, existing evidence, such as the figures in this study, suggest that a majority of young investors will continue to push for growth in technological advancements for investing and financial management. Broker-dealers and financial advisors will certainly never cease to exist, however the appeal of the careers may decline due to rising, efficient means of autonomous trading.

Aside from technology, there are other means of attracting young investors that financial institutions may be able to implement. Using facets of behavioral finance to better understand the biases millennials possess may be extremely useful to firms working towards reconstructing their business models to adapt to millennial preferences. Most of the determinants which were found in this research can be linked to the aforementioned biases. Significant risk aversion was found to be a prominent determinant of the found investment habits and opinions, both through the qualitative and quantitative survey results. Reliance on easily available information to make investment decisions is also a significant bias which is supported by the survey results; 66% of respondents would rather use a form of technology to invest rather than an in-person broker, and 55% of respondents would trust a parent's, a friend's, or Google's financial information before a financial advisor's when making important investment decisions.

This research gives an alternative view to the opinion that many millennials have a distrust of financial advisors and institutions, therefore they would not reach out to them for that reason alone. Instead, it is probable that millennials, regardless of their actual opinion of financial advisors, would neglect their assistance not simply because of distrust, but because of the perceived inconvenience, physical costs, and opportunity costs associated with using one.

Another significant bias on the list involves making decisions based on the past. Although the bias is defined as feeling that past decisions could have been better or were inevitable, it can also be applied to how millennials are being heavily influenced by their experiences during the 2008 financial crisis. The primary issue with this mentality is the fact that while the emotions evoked from the crisis are valid, many of the misconceptions of banking and investing that came along with them have gone widely unaddressed and remain unresolved. In other words, many young investors still plan to operate financially based on false assumptions of the industry that were accrued because of the crisis which have never been truly corrected.

Investing with a view of social responsibility has been heavily backed by many sources other than the survey of college students in this study, and may be the most important bias of them all due to the impact it can have on multiple industries other than just financial services. Living strong-willed and bound to one's social and moral standards is a defining characteristic of many of today's millennials, yet as stated before, tying those attributes to one's investments may cause unintended consequences such as lower returns or missed potential for better portfolios. Many millennials will only look to whether a company is contributing to socially responsible causes such as green initiatives rather than making decisions based on the complete analysis of a company. Forbes refers to this phenomenon as "social impact investing," citing that millennials may be the first generation to actually take the phrase "money doesn't buy happiness" seriously. On the other hand, social impact investing may be a way for millennials to directly influence the directions that companies go regarding social responsibility and ethics, seeing that financial services companies will be increasingly eager to find ways to attract their business.

There is no doubt that the millennial generation is one of a kind on a multitude of levels. As they transition into the largest earning generation in the world, the financial services industry will be watching intently and with caution. Although there may not be much physical data available now, there is increasing speculation that the institutions that have relied on older generations and their confidence in the industry for decades may be due for serious restructuring in the near future. While only time may tell if these assumptions are true of the millennials, the solemn truth is that habits and opinions among the young are being influenced by more variables than ever before, and the opportunities for gains and losses for all involved are infinite.

## Appendix A – Survey Questions and Results

1. How likely are you to invest your money into the stock market within the next five years?

|                     |     |
|---------------------|-----|
| a. Likely           | 31% |
| b. Not likely       | 32% |
| c. Unsure           | 13% |
| d. Already invested | 24% |

2. How do you feel about personally investing in the stock market?

|             |     |
|-------------|-----|
| a. Positive | 58% |
| b. Negative | 12% |
| c. Neutral  | 30% |

3. Do your parents or grandparents invest in the stock market?

|           |     |
|-----------|-----|
| a. Yes    | 70% |
| b. No     | 19% |
| c. Unsure | 11% |

4. If you received a large paycheck and had some of it left over after expenses, would you consider investing some of it in the stock market?

|        |     |
|--------|-----|
| a. Yes | 73% |
| b. No  | 27% |

5. How much exposure have you had to personal finance and investment topics throughout your education?

|               |     |
|---------------|-----|
| a. 1 year     | 24% |
| b. 1 semester | 23% |
| c. None       | 47% |
| d. Other      | 6%  |

6. Have you received enough education regarding personal finance and investment to make you feel comfortable investing in the stock market?

|        |     |
|--------|-----|
| a. Yes | 27% |
| b. No  | 73% |

7. Do you think students should be more exposed to personal finance and investment topics throughout their education?

|        |     |
|--------|-----|
| a. Yes | 86% |
| b. No  | 14% |

8. If you received more education on personal finance and investment topics, would you be more, less, or as likely as you currently are to invest in the stock market?

|                |     |
|----------------|-----|
| a. More likely | 69% |
| b. Less likely | 1%  |
| c. As likely   | 30% |

9. Do you think that investing in the stock market is important for saving money for the future?

|        |     |
|--------|-----|
| a. Yes | 60% |
| b. No  | 40% |

10. If investing in the stock market today meant your initial investment had the potential to grow significantly over the next 20+ years, would you take the risk?

|        |     |
|--------|-----|
| a. Yes | 79% |
| b. No  | 21% |

11. When investing in the stock market, would you rather invest via:

|                                  |     |
|----------------------------------|-----|
| a. A trading app on a smartphone | 41% |
| b. An in-person broker           | 33% |
| c. A telephone                   | 1%  |
| d. A website                     | 25% |

12. How often do you use your smartphone to check your online banking?

|                        |     |
|------------------------|-----|
| a. Every day           | 41% |
| b. 1-3 days a week     | 48% |
| c. A few times a month | 0%  |
| d. Never               | 11% |

13. How often do you use your smartphone or other device to make monetary transactions (shop, transfer funds between accounts, pay other people, pay bills)?

|                        |     |
|------------------------|-----|
| a. Every day           | 11% |
| b. 1-3 days a week     | 37% |
| c. A few times a month | 42% |
| d. Never               | 10% |

14. When using a device to shop online, do you feel:

|   |     |
|---|-----|
| a. More likely to spend more money                              | 51% |
| b. Less likely to spend more money                              | 0%  |
| c. Likely to spend as much money as I would in a physical store | 49% |

15. When using a device to make monetary transactions rather than doing it in person, do you feel that:

|   |     |
|---|-----|
| a. You are taking more risk with your money | 45% |
| b. You are taking less risk with your money | 7%  |
| c. There is neutral risk involved           | 48% |

16. If investing in the stock market was as easy as shopping online, would you be:

|                          |     |
|--------------------------|-----|
| a. More likely to invest | 54% |
| b. Less likely to invest | 40% |
| c. Neutral               | 6%  |

17. Do the rewards outweigh the risks when investing in the stock market?

|        |     |
|--------|-----|
| a. Yes | 70% |
| b. No  | 30% |

18. In a sentence or more, please explain why you would invest in the stock market.

19. In a sentence or more, please explain why you would not invest in the stock market.

20. At what point in your life could you see yourself investing in the stock market?

21. Has living through the 2008 financial crisis made you:

|  |     |
|--|-----|
| a. More comfortable with investing in the stock market                 | 2%  |
| b. Less comfortable with investing in the stock market                 | 48% |
| c. Neither more or less comfortable with investing in the stock market | 50% |

22. Would you invest in a company that didn't uphold the same moral code as you, even if it meant receiving higher returns on your investment?

|        |     |
|--------|-----|
| a. Yes | 43% |
| b. No  | 57% |

23. Has living through the 2008 financial crisis made you willing to take more or less risk with your money?

|                      |     |
|----------------------|-----|
| a. More risk         | 4%  |
| b. Less risk         | 54% |
| c. No effect on risk | 42% |

24. When making important financial decisions, whose information would you trust more?

|                          |     |
|--------------------------|-----|
| a. A friend's            | 2%  |
| b. A parent's            | 39% |
| c. A financial advisor's | 45% |
| d. Google's              | 14% |

25. Why would you trust their information more than the other options?

26. Do you feel that you understand what caused the 2008 financial crisis?

|        |     |
|--------|-----|
| a. Yes | 57% |
| b. No  | 43% |

27. Do you trust the banking industry?

|            |     |
|------------|-----|
| a. Yes     | 17% |
| b. No      | 41% |
| c. Neutral | 42% |

28. Why?



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