

University of Nevada, Reno

Think Before You Invest: Motivations Behind Ponzi Scheme Investor Behavior

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Abstract

Ponzi schemes lead to significant financial losses. Prior research has investigated motivations behind Ponzi scheme investor behavior, but only one study has used an experiment to simulate a Ponzi scheme to investigate investor behavior (Sadiraj & Schram, 2018). I expand on this research by designing and conducting my own experiment to test my hypothesis that both investment exclusivity and manager reputation lead investors to ignore potential investment risks and trust the promise of high investment returns. The results suggest that manager reputation and investment exclusivity are individually significant in explaining investor behavior, but investment exclusivity has a smaller effect on investor motivation.

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Introduction

Imagine that one day your friend tells you about an exciting investment opportunity. You are always eager to learn about new investment opportunities, so you ask for more information. Your friend tells you that this investment was created by Charlie Pritchett, a well-known and respected Wall Street Executive, and offers a consistent return of 11% per year, which is 4% higher than the market return. The catch is that this opportunity is limited to 250 investors. You have recently heard about the dangers of Ponzi schemes in the news, but you figure that this is a safe investment because of your knowledge of Pritchett's experience and the reasonable return. You are also enticed by the exclusivity of this opportunity. Therefore, you decide to start with an investment of \$10,000.

Two years go by and you receive a return of 11% each year, meaning \$11,100 in the first year and \$12,321 in the second year, which convinces you to place the remaining contents of your savings account into this investment, approximately \$200,000. After all, you know from experience that this investment is trustworthy, and you want to make more money. Five years later, after a consistent series of returns on your investment, you pick up the local news and notice an unwelcome headline: *Experienced Wall Street Executive, Charlie Pritchett, Indicted for Ponzi Scheme*. After reading the article, you realize that all of your savings are gone. It turns out that, over the past ten years, Pritchett had been using the funds of incoming investors to finance returns for other investors, collecting over \$260 million. The investment finally collapsed when there were no new investors, which resulted in investors losing all of their invested funds.

Just like the above scenario, Ponzi scheme investors often risk their life savings for the promise of more money. It is important to note, however, that the investors do not know their savings are at risk. According to the U.S. Securities and Exchange Commission (n.d.), “a Ponzi scheme is an investment fraud that pays existing investors with funds collected from new investors [and] Ponzi scheme organizers often promise to invest your money and generate high returns with little or no risk.” Ponzi schemes are an ongoing problem even today. For example, the Woodbridge Group of Companies LLC was implicated on January 28, 2019, for “a massive \$1.2 billion Ponzi that defrauded 8,400 retail investors nationwide, many of them seniors who had invested retirement funds” (U.S. Securities and Exchange Commission, 2019). Demonstrably, Ponzi schemes are a major source of investment fraud with significant consequences for all involved. Three of the most well-known Ponzi schemes with significant consequences were created by Charles Ponzi, Bernard Madoff, and Robert Allen Stanford.

In 1920, Charles Ponzi offered investors a 50% return on their investment and collected over \$10 million. His scheme was successful for three reasons: “First, he convinced a group of people about an investment idea [...] Second, he promised them a high return on their investment [...] And third, he built credibility by initially delivering on his promises” (Bhattacharya, 2003, pp. 2–3). Madoff, starting around 1970, operated the largest scheme, to date, with over \$65 billion collected. His scheme was successful because he was an experienced Wall Street entrepreneur who “knew that he needed to make his investments sound just good enough to be attractive, but never too good to be true” (Henriques, 2018, p. 757). He also accepted a limited number of investors, with varying degrees of wealth, which not only created an exclusive investment opportunity

but also helped him avoid suspicion. Stanford operated the second largest scheme, starting around 1997, with over \$6 billion collected. “He offered certificates of deposit from a supposedly regulated Antiguan bank that paid just a few points more than US banks” (Henriques, 2018, p. 758). Like Madoff, Stanford offered enough of a return to entice investors, but not enough to generate suspicion.

Combined, all three creators collected over \$71 billion before prosecutorial action was taken, a fact that suggests the need to implement effective preventative regulations. Currently, three existing regulations are meant to prevent Ponzi schemes. The first regulation is fraud auditing, where external fraud auditors peruse financial documents to help provide clarity and transparency (Ragothaman, 2014). A second regulation is internal control evaluation. This regulation makes sure that company employees are aware of investment risks and identifies gaps in the knowledge base (Ragothaman, 2014). A third regulation is implemented by the Securities and Exchange Commission (SEC), which conducts private investigations to look for suspicious transactions (Ragothaman, 2014). In addition to these regulations, regulatory agencies, like the SEC, also provide a list of Ponzi scheme investment warning signs for public investor use. Overall, while these measures are designed to reduce Ponzi scheme losses, they are often not enough to prevent Ponzi schemes.

However, before further regulatory action can be implemented, researchers first need to understand why investors choose to participate in Ponzi schemes. Tennant (2011) noted:

It is clear that irrespective of financial sophistication or regulatory strength there will always be a demand for offers that are too good to be true. More effective

preventative measures therefore, hinge on an investigation of the factors which drive such demand. (p. 330)

Understanding the motivations behind Ponzi scheme investor behavior is the first step to implementing effective, preventative measures. Research on Ponzi scheme investor motivations is limited as scholars have mainly focused on effects on investors and reasons for scheme success. While this research is not directly related to investor motivations, it can be used to help identify key motivational factors in the Ponzi scheme investment decision process.

Reasons for Ponzi Scheme Success

Lewis (2012) implies that trust is a major factor in Ponzi scheme success. A charming personality and financial experience go a long way towards convincing the investor to take part in the investment. Carey and Webb (2017) agree and add that this trust will prevent investors from questioning investment stability. Another factor is market bubbles. Characterized by an upward trend due to continuous investor participation, this bubble causes the investment to appear popular. However, after the steady investor participation is over, the bubble will burst and take investors' money down with it (Lewis, 2012). The final factor is the relationship between friends, family members, and the investor. Like the Ponzi scheme scenario, close connections can lead to an increased sense of trust. These close connections can be detrimental to the would-be investors since the investors have a high level of trust in their family members and friends, which may cause them to overlook warning signs associated with a recommended investment by that family member or friend (Lewis, 2012). Through considering these three factors, it appears that Ponzi schemes thrive on emotion in a

sense. Not wanting to be the odd one out, investors may not always think through their actions before making an investment decision.

The Bernard Madoff Ponzi Scheme

In addition to these three factors, Gibson (2016) also considers the role of secrecy and deception, specifically in the context of Madoff's Ponzi scheme. He believes that this Ponzi scheme succeeded for many years because Madoff could carefully manage money, was an excellent liar, and was able to maintain a boundary of knowledge between investors and insiders (Gibson, 2016). To illustrate his argument, Gibson (2016) analyzes a phone conversation between Madoff and two executives from Fairfield Greenwich, an investment firm with one of the largest investments in the scheme that would play an important role in the eventual SEC investigation against Madoff.

According to Gibson (2016), Madoff was concerned with addressing four specific issues ahead of the upcoming investigation:

The first was the suspicion, prevalent in the industry and shared by the SEC, that he was engaged in a form of insider trading called "front-running" [...] The second was Madoff's precise role in the investment process, and in particular whether his contribution was such that he warranted designation, and regulation, as a full-fledged investment adviser. The third [...] was whether the Fairfield executives took as hands-off an approach to the other funds they invested in as they did with Madoff's [...] The fourth concerned the exact status of the option's contracts in Madoff's strategy; this was the matter that led the SEC to call on Fairfield in the first place. (p. 227)

To accomplish his strategy of maintaining a boundary, Gibson (2016) noticed that Madoff employed an interesting three-part technique. First, Madoff taught the two executives how to respond to questions to maintain the secrecy of his scheme, without letting the executives know exactly what the secrets were. Second, Madoff would occasionally stop and restart sentences when he needed to lie. This technique created confusion and would be especially useful for maintaining his lies during the SEC investigation. Finally, when Amit Vijayvergiya, the Chief Risk Officer for Fairfield, asked for the specifics of how Madoff's scheme was run, he offered evasive answers. These three techniques enabled Bernard Madoff to avoid being implicated in the 2004 SEC investigation, and he was able to run his Ponzi scheme successfully for four more years.

A Simulated Experiment on Investor Behavior

While the majority of the literature has focused on the design of actual Ponzi schemes, Klarita Sadiraj and Arthur Schram are currently the only researchers that have investigated Ponzi scheme investor behavior by using an experiment to simulate a Ponzi scheme.

For their experiment, Sadiraj and Schram (2018) used groups of informed and uninformed investors to test Ponzi scheme investment behavior. All investors, both informed and uninformed, decided whether to invest in the Ponzi investment in each round of investments. The informed investors were aware that the investment was a Ponzi scheme, and they received information about the investment choices made by the uninformed, at the end of each round. This enabled the informed to profit from the investment decisions of the uninformed since the informed could more accurately time

their withdrawal from the Ponzi investment. Throughout the experiment, the uninformed were not aware that the investment was a Ponzi scheme. However, the researchers did design their experiment so that the uninformed investors would have a one-period delay before finding out the investment choices of the informed. Even though the uninformed were not aware that the investment was a Ponzi scheme, after the one-period delay, the two researchers found that uninformed investors followed the investment choices of the informed. For instance, if, in the previous period, an informed investor had chosen to continue to invest their funds, the uninformed would also choose to continue to invest. If in the previous period, the informed investor chose not to continue to invest, then the uninformed investor would choose not to invest. However, what the uninformed investor did not know, was that the investment would collapse due to lack of reinvestment. Therefore, the informed investor could withdraw their funds, but the uninformed would lose their investment when they followed the same behavior. This result illustrates that a lack of information increases susceptibility to Ponzi schemes.

Current Study

From the previous studies, I identified two key motivational factors that I believe are central to the Ponzi scheme investment decision process. The first factor is investment exclusivity. This concept is illustrated in both Bernard Madoff's scheme and Sadiraj and Schram's (2018) research. In Madoff's scheme, only a limited number of investors were selected to participate for the dual-purpose of creating exclusivity and avoiding suspicion (Henriques, 2018). In Sadiraj & Schram's (2018) experiment, only some investors knew the investment was a Ponzi scheme, thereby creating an exclusive opportunity through the privilege of information. While only Madoff knew the true

nature of his investment operations, experienced financiers in the industry and the SEC did have their suspicions about his operations (Gibson, 2016). This was an exclusive opportunity in and of itself since only experienced financiers would have the experience and knowledge to know the investment was suspect.

The second factor is manager reputation. This concept is illustrated in both Bernard Madoff and Robert Allen Stanford's schemes, as well as the research done by Lewis (2012) and Carey and Webb (2017). Both Madoff and Stanford were experienced financiers. Madoff had around five decades worth of experience on Wall Street (Henriques, 2018) and Stanford had around three decades worth of banking experience, although not all of this experience came from successful banking ventures (Ibrahim, 2012). Lewis (2012) found that trust played a major part in convincing the investor to participate in the investment and Carey and Webb (2017) found that this trust reduced investors' suspicions.

Based on the two key motivational factors that I have identified, I hypothesize that both investment exclusivity and manager reputation lead investors to ignore investment risks and trust the promise of high investment returns. To test my hypothesis, I will use an experiment with a two-by-two factorial design, which will incorporate investment exclusivity and manager reputation into four different treatments.

Experimental Design

We now present the experimental study. The study is designed to determine whether the reputation of the Ponzi scheme manager and exclusivity of the Ponzi scheme matter for investment in the Ponzi scheme.

Participants

I conducted six experimental sessions at a large public university using undergraduate and graduate students as human subjects. A total of 156 subjects participated in the experiment which took place in the university's college of business lab. Students learned of the experiments through on-campus flyers, in-class presentations, and email distribution via the honors program, and they registered for the experiment through an online registration system. While the flyers were distributed to the entire student population, I specifically chose to present to classes in the economics and finance departments to ensure a mix of students with and without formal investment education. This design was meant to replicate the conditions experienced by Madoff's investors which included both experienced financial professionals and regular citizens, with no investment background (Henriques, 2018). I also reasoned that this design would help determine the impact that financial education might have on my two hypothesized motivations.

Subjects were not allowed to participate in more than one session. After the completion of the study, each participant received a \$5 Amazon gift card for their participation. In addition to the gift card, some participants also received extra credit from their professors. This project was approved by the university's Institutional Review Board (#1492979-1). *Qualtrics Survey Software* was used to develop the experiment and

collect the data. After arriving at the lab, subjects were randomly assigned seats. Once the experiment began, the subjects responded to the questions. All decisions and responses were either made by mouse or keyboard. The study lasted about thirty minutes.

Procedures

This experiment consisted of a 2x2 factorial design with two treatment variables: investment exclusivity and manager reputation. The investment exclusivity variable took on two values: not exclusive and exclusive. The manager reputation variable took on two values: not prestigious and prestigious. There was a total of four treatments. (See Table 1 for a list of treatments).

Table 1: List of Treatments

	Not Exclusive	Exclusive
Not Prestigious	Treatment 1 (Not Exclusive and Not Prestigious)	Treatment 3 (Exclusive and Not Prestigious)
Prestigious	Treatment 2 (Not Exclusive and Prestigious)	Treatment 4 (Exclusive and Prestigious)

I set up the experiment so that each participant would participate in one of the four treatments (See Appendix A for treatment details), with an equal distribution of participants amongst the treatments. For each treatment, the participants were offered two investment options. The subject was asked to select one investment. Both investment options were based on conditions that occurred during Bernard Madoff's Ponzi scheme since information about Madoff's operations was readily available. The first investment option used the two factors that I controlled for, and these two factors

changed based on the treatment. I also used the investment return characteristics of Madoff's scheme, which are described in the following paragraph. For the second investment option, I used the average market conditions of the S&P 500 over the same time that Madoff's scheme took place. I obtained the average market conditions from *Yahoo Finance* and used this investment option as a control investment.

According to Hamilton (2008), "Madoff claimed an average annual return of better than 11% but with very little volatility" (p. 4). While the returns for Madoff's scheme were known, the volatility was not. Therefore, I chose to use an average annual standard deviation of 1%. I chose this standard deviation because of the research done by fraud investigator Harry Markopolos, who was one of the first individuals to alert the SEC about Madoff's operations (Jackson, 2010). Markopolos discovered that "[Madoff's] performance line went up at a 45-degree angle – and those angles only exist in high school geometry classes" (Jackson, 2010, p. 45). In finance, a 45-degree angle means that Madoff's Ponzi scheme recorded consistent returns with few, if any, losses during its operation. As a result, the volatility of Madoff's investment would have been around 1% each year.

Exclusive treatment. For Treatments 1 and 2, I designed the not exclusive factor so that participants were informed that there was no limit on the number of investors, and the investment fund manager would allow anyone to invest in the fund. The participant was informed that "His fund allows anyone to invest with no limits on the number of investors". For Treatments 3 and 4, I designed the exclusive factor so that participants were informed that the number of investors was limited, and the investment fund manager would select individuals allowed to invest in the fund. The participant was

informed that they were selected by the fund manager to invest in the fund. This was worded as “His fund only allows 30 investors to participate in his fund, and he has invited you to be one of the participants”.

Reputation treatment. For Treatments 1 and 3, I designed the not prestigious factor so that participants were informed that the investment fund manager was experienced. However, they were not well known in the finance community. The participant was informed that “Charlie Pritchett has previous experience with investment fund management. However, he is not well known in the finance community”. For Treatments 2 and 4, I designed the prestigious factor so that participants were informed that the investment fund manager was experienced. Additionally, they were well known and highly regarded in the finance community. This was worded as “Charlie Pritchett has previous experience with investment fund management. Additionally, he is well known and highly regarded in the finance community”.

Data Analysis

To analyze my data, I used *Stata*. I decided to use regression analysis to test for the statistical significance of different variables contained in my experiment, by comparing p-values. To conduct the regression analysis, I started by coding participant responses using dummy variables.

I separated the treatment responses into three categories: investment, exclusive, and reputation. For the investment category, a participant received a dummy value of 1 if they chose to invest in the Ponzi scheme investment. Otherwise, the participant received a dummy value of 0. For the exclusive category, a participant received a dummy value of 1 if they participated in treatment 3 or 4. Otherwise, the participant received a dummy value of 0. For the reputation category, a participant received a dummy value of 1 if they participated in treatment 2 or 4. Otherwise, the participant received a dummy value of 0.

For gender, a female participant was given a dummy value of 1 and a male participant was given a dummy value of 0. For ethnicity, I separated each ethnicity into six different categories, which included White, Black or African American, American Indian or Alaska Native, White – Hispanic, Asian, and Native Hawaiian or Pacific Islander. In each category, a dummy value of 1 was given if a participant identified with that ethnicity. Otherwise, participants were given a dummy value of 0 in that category. For citizenship, an American citizen was given a dummy value of 1 and a non-citizen was given a dummy value of 0. Finally, for risk preference, I separated each preference into three different categories, which included risk aversion, risk neutral, and risk seeking behavior. In each category, a dummy value of 1 was given if a participant identified with that risk preference. Otherwise, participants were given a dummy value of 0 in that

category. The values for age, number of economic classes taken, and number of finance classes taken remained in numerical form.

Results

Descriptive Statistics

The descriptive statistics are presented for this experiment in Table 2. More males than females participated in the experiment, although I do not find gender to significantly explain behavior for this experiment. Significantly more white (not Hispanic) students participated in the experiment, which is reflective of the student body at the university where this experiment was conducted. However, I do not find ethnicity to significantly explain behavior for this experiment. In fact, the addition of ethnicity to the regressions affected the significance of the results because of the disproportionate composition of student ethnicities.

Table 2: Select Descriptive Statistics

	Statistics
Gender	
Male	56.41%
Female	43.59%
Ethnicity	
White (not Hispanic)	51.28%
Black or African American	10.26%
American Indian or Alaskan Native	0%
White (Hispanic)	15.38%
Asian	16.67%
Native Hawaiian or Other Pacific Islander	0.64%
Other	5.77%

Regression 1 Results

I hypothesized that both investment exclusivity and manager reputation lead investors to ignore significant investment risks and trust the promise of high investment returns. To test this hypothesis, I regressed the decision to invest in a Ponzi scheme on

the explanatory variables for reputation, exclusive, and reputation*exclusive, which is the interaction term. The interaction term is used to examine the relationship between the reputation and exclusive variables for the treatment where both a manager with a positive reputation and exclusivity are present (Treatment 4). This regression controls only for the hypothesized treatment effects. It does not control for other factors that may influence Ponzi scheme investment. The results of this regression are summarized in Table 3.

I find that only reputation is individually significant in increasing investment in the Ponzi scheme, and this significance occurs at the 1% level. At the 5% level, the F-value of 2.85 indicates that the combination of reputation, exclusive, and reputation*exclusive is significant in explaining the investment decision process. This differs from the hypothesis because all three factors were hypothesized to significantly increase investment in the Ponzi scheme. One potential explanation for the insignificance of exclusivity and the interaction term is that other factors that impact Ponzi scheme investment have not been controlled for.

Regression 2 Results

To attempt to explain more of the investment decision process, I regressed the decision to invest in a Ponzi scheme on the explanatory variables for reputation, exclusive, reputation*exclusive, the number of economics courses taken, and gender. The results of this regression are summarized in Table 3.

I find that reputation and exclusive are both individually significant in explaining the investment decision for a Ponzi scheme. The significance for reputation takes place at the 1% level and the significance for exclusive takes place at the 10% level. At the

10% level, the F-value of 2.16 indicates that the combination of reputation, exclusive, reputation*exclusive, economics, and gender are significant in explaining the investment decision process. This result still differs from the hypothesis because an investment that is both exclusive and has a manager with a positive reputation is not significant in explaining investment in the Ponzi scheme. One potential explanation for this result is that there are still other factors that affect investment in the Ponzi scheme that have not been controlled for.

Regression 3 Results

For example, the risk preferences of decision-makers have been demonstrated to impact financial decision-making. To control for this effect, I included risk preference in the regression of the decision to invest in a Ponzi scheme on the explanatory variables for reputation, exclusive, and reputation*exclusive. The results of this regression are summarized in Table 3.

I find that both reputation and exclusive are individually significant in explaining the investment decision process for a Ponzi scheme. Reputation is significant at the 1% level and exclusive is significant at the 10% level. At the 5% level, the F-value of 2.47 indicates that the combination of reputation, exclusive, reputation*exclusive, risk aversion, and risk seeking behavior are significant in explaining the investment decision process. These results still differ from the hypothesis because an investment that is both exclusive and has a manager with a positive reputation is not significant in increasing investment in the Ponzi scheme. It is possible that both gender, the number of economics courses taken, and risk preferences are all important for explaining investment in the Ponzi scheme and should be included together in the regression.

Regression 4 Results

So, I included all variables together in the regression. I regressed the decision to invest in a Ponzi scheme on the explanatory variables for reputation, exclusive, reputation*exclusive, risk aversion, risk seeking behavior, the number of economics courses taken, and gender. The results of this regression are summarized in Table 3.

I now find that reputation, exclusive, and reputation*exclusive are individually significant in explaining the investment decision process for a Ponzi scheme. Reputation is significant at the 1% level, exclusive is significant at the 10% level, and reputation*exclusive is significant at the 10% level. At the 5% level, the F-value of 2.16 indicates that the combination of reputation, exclusive, reputation*exclusive, risk averse, risk seeking, economics, and gender are significant in explaining the investment decision process.

While all hypothesized variables are significant in explaining the decision to invest in a Ponzi scheme, only the coefficients for reputation and exclusive have the hypothesized direction. Both the positive reputation of the manager and the exclusivity of the investment significantly increase investment in the Ponzi scheme when they individually describe the Ponzi scheme. However, when a Ponzi scheme has both a manager with a positive reputation and is exclusive, individuals become significantly less likely to invest in the Ponzi scheme. One potential explanation is that having both a manager with a positive reputation and an investment that is exclusive signals to the investor that the investment might be too good to be true. However, many real-world Ponzi schemes have both managers with positive reputations and exclusivity and individuals still choose to invest in the Ponzi scheme. This suggests that additional

factors help overcome individuals' beliefs that the investment might be too good to be true. These factors could include trust in the manager, trust in the person recommending the investment, and the charisma of the investment manager.

Table 3: Regression Results

	Regression 1	Regression 2	Regression 3	Regression 4
Reputation	0.2564 (0.0967)***	0.2598 (0.0966)***	0.2642 (0.0963)***	0.2678 (0.0961)***
Exclusive	0.1538 (0.0967)	0.1611 (0.0967)*	0.1606 (0.0962)*	0.1687 (0.0961)*
Reputation*Exclusive	-0.1795 (0.1367)	-0.2001 (0.1373)	-0.2043 (0.1366)	-0.2289 (0.1371)*
Risk Averse			0.0408 (0.0757)	0.0308 (0.0770)
Risk Seeking			-0.1810 (0.1230)	-0.2063 (0.1252)
Economics		0.0105 (0.0103)		0.0106 (0.0102)
Gender		-0.0681 (0.0696)		-0.0823 (0.0709)
R^2	0.0533	0.0617	0.0760	0.0928
F	2.85	2.16	2.47	2.16
N	156	156	156	156

Clustered robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Discussion

Scholars have emphasized the importance of understanding motivations behind Ponzi scheme investor behavior to implement effective regulations (Tenant, 2011; Sadiraj & Schram, 2018). This study set out to contribute to the body of research on the motivations behind Ponzi scheme investor behavior. Two primary motivations were hypothesized to be investment exclusivity and manager reputation. A survey was designed using a two-by-two factorial design, which controlled for the hypothesized motivations.

The findings of my research provide interesting insights into investor motivations. In all four regressions, manager reputation was found to be individually significant in explaining the investment decision process for a Ponzi scheme at the 1% level. This result is consistent with my hypothesis and matches the characteristics of both the Bernard Madoff and Robert Allen Stanford schemes since both individuals were experienced financiers (Henriques, 2018; Ibrahim, 2012). Therefore, my data suggest that manager reputation is a primary motivator for investment decision-making.

In the second, third, and fourth regression, investment exclusivity was found to be individually significant in explaining the investment decision process for a Ponzi scheme at the 10% level. This result is surprising since I thought that investment exclusivity would have an equally significant effect as manager reputation since Ponzi schemes are often accompanied by exclusivity, in addition to manager reputation. Exclusivity was a primary characteristic of Madoff's scheme since he limited the number of investors to avoid suspicion and create an exclusive opportunity (Henriques, 2018). Stanford made his investors feel like they were members of an exclusive club (Swartz, 2009). At a

minimum, investors were treated to five-star dining experiences when visiting Stanford's headquarters. Wealthier clients received perks like free flights on the company's private jet. Charles Ponzi's scheme was exclusive since investors were recruited by word-of-mouth (Bhattacharya, 2003). This was an exclusive opportunity since only investors with inside information would have the knowledge about this investment. My regression findings suggest that even though exclusivity may be one component of a Ponzi scheme, its effect on investor motivation is smaller than the effect of an experienced fund manager. Regression results support this conclusion.

In all four regressions, the F-test results indicate that when taken together, the combination of manager reputation, investment exclusivity, reputation*exclusive are significant in explaining the investment decision process. In regression 2, these variables, along with the number of economics classes taken and gender, are significant altogether at the 10% level. In regression 3, the variables for manager reputation, investment exclusivity, reputation*exclusive, risk aversion, and risk seeking behavior are significant altogether at the 5% level. In regression 4, the variables for reputation, exclusive, reputation*exclusive, risk aversion, risk seeking, the number of economics classes taken, and gender are significant altogether at the 5% level. These regression findings suggest that even though investment exclusivity may not have as large of an effect as manager reputation at the individual significance level, both variables are integral to the factors that motivate investors to invest in a Ponzi scheme. In addition to manager reputation and investment exclusivity, risk preference, the number of economics classes taken, and gender all help to explain some of the motivations behind Ponzi

scheme investment. However, none of these variables are found to be individually significant.

One of the limitations of this research is the sample size. The survey was only administered to 156 participants. With more participants, investment exclusivity could have a more individually significant effect on the Ponzi scheme investment decision process. A second limitation is the sample population. While I initially hoped to compare the effect that the number of economics and finance classes would have on my hypothesized motivations, I was unable to do so because of the population that I sampled from. Of the 156 students that participated, 139 had taken at least one economics class and 47 had taken at least one finance class. 46 students had both taken at least one economics class and one finance class. Therefore, I decided to just include the number of economics classes taken in my regression since this variable was relevant to more of the population. This also helped me to avoid any multicollinearity issues. A third limitation is the amount of research on the topic. To my knowledge, this is only the second experiment that has been conducted to identify specific motivational factors, the first being Sadiraj and Schram's (2018). Therefore, there is still much research to be done on motivations before effective regulations can be implemented.

Future avenues for research include experimenting with other motivational factors, besides investment exclusivity and manager reputation. Such factors could include examining the role that risk preference plays in the decision process since the inclusion of risk when combined with investment exclusivity and manager reputation, produced a statistically significant result for my hypothesized motivations.

Another possible direction for research could include differences in the information given to participants about the nature of the investment, similar to Sadiraj and Schram's (2018) experiment. In their experiment, some participants knew the investment was a Ponzi scheme while others did not. Unlike in the United States, this information structure is common in countries like Colombia and Jamaica (Cortes, Santamaria, & Vargas, 2016; Tenant, 2011). One future direction for this research could be to examine the available data from previous Ponzi schemes that have an information gap and use the data to identify potential investor motivations. Researchers could then design an experiment that controls for the identified motivations, accompanied by differences in the information given to participants.

Overall, while my research has identified that investment exclusivity and manager reputation are factors that motivate Ponzi scheme investors, it is clear that more research must be done to identify other motivational factors before we have enough information to implement effective regulatory measures.

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Appendix A

Treatment 1 (Not Exclusive and Not Prestigious)

For Treatment 1, participants received the following scenario:

You have the option to invest in Charlie Pritchett's investment fund (Investment Option 1) or an alternate investment (Investment Option 2).

Investment Option 1 is managed by Charlie Pritchett. Charlie Pritchett has previous experience with investment fund management. However, he is not well known in the finance community. His fund allows anyone to invest with no limits on the number of investors. His fund offers an average annual return of 11%, with an average annual standard deviation of 1%. This means that on average, you can expect an 11% return on your investment, although your returns may fluctuate by approximately 1% each year. For example, if you invest \$100 in this fund, you can expect to make between \$10 to \$12 during your first year of investment.

Investment Option 2 is managed by your broker. Your broker has experience managing many investment funds. Your broker offers an average annual return of 8%, with an average annual standard deviation of 10%. This means that on average, you can expect an 8% return on your investment, although your returns may fluctuate by approximately 10% each year. For example, if you invest \$100 in this fund, you can expect to make between (\$2) to \$18 during your first year of investment, where the value in parentheses represents a loss.

At this time, please select which of the two investment options you would like to invest in.

- Investment Option 1
- Investment Option 2

Treatment 2 (Not Exclusive and Prestigious)

For Treatment 2, participants received the following scenario:

You have the option to invest in Charlie Pritchett's investment fund (Investment Option 1) or an alternate investment (Investment Option 2).

Investment Option 1 is managed by Charlie Pritchett. Charlie Pritchett has previous experience with fund management. Additionally, he is well known and highly regarded in the finance community. His fund allows anyone to invest with no limits on the number of investors. His fund offers an average annual return of 11%, with an average annual standard deviation of 1%. This means that on average, you can expect an 11% return on your investment, although your returns may fluctuate by approximately 1% each year. For example, if you invest \$100 in this fund, you can expect to make between \$10 to \$12 during your first year of investment.

Investment Option 2 is managed by your broker. Your broker has experience managing many funds. Your broker offers an average annual return of 8%, with an average annual standard deviation of 10%. This means that on average, you can expect an 8% return on your investment, although your returns may fluctuate by approximately 10% each year. For example, if you invest \$100 in this fund, you can expect to make between (\$2) to \$18 during your first year of investment, where the value in parentheses represents a loss.

At this time, please select which of the two investment options you would like to invest in.

- Investment Option 1
- Investment Option 2

Treatment 3 (Exclusive and Not Prestigious)

For Treatment 3, participants received the following scenario:

You have the option to invest in Charlie Pritchett's investment fund (Investment Option 1) or an alternative investment (Investment Option 2).

Investment Option 1 is managed by Charlie Pritchett. Charlie Pritchett has previous experience with investment fund management. However, he is not well known in the finance community. His fund only allows 30 investors to participate in his fund, and he has invited you to be one of the participants. His fund offers an average annual return of 11%, with an average annual standard deviation of 1%. This means that on average, you can expect an 11% return on your investment, although your returns may fluctuate by

approximately 1% each year. For example, if you invest \$100 in this fund, you can expect to make between \$10 to \$12 during your first year of investment.

Investment Option 2 is managed by your broker. Your broker has experience managing many investment funds. Your broker offers an average annual return of 8%, with an average annual standard deviation of 10%. This means that on average, you can expect an 8% return on your investment, although your returns may fluctuate by approximately 10% each year. For example, if you invest \$100 in this fund, you can expect to make between (\$2) to \$18 during your first year of investment, where the value in parentheses represents a loss.

At this time, please select which of the two investment options you would like to invest in.

- Investment Option 1
- Investment Option 2

Treatment 4 (Exclusive and Prestigious)

For Treatment 4, participants received the following scenario:

You have the option to invest in Charlie Pritchett's investment fund (Investment Option 1) or an alternative investment (Investment Option 2).

Investment Option 1 is managed by Charlie Pritchett. Charlie Pritchett has previous experience with investment fund management. Additionally, he is well known and highly regarded in the finance community. His fund only allows 30 investors to participate, and he has invited you to be one of the participants. His fund offers an average annual return of 11%, with an average annual standard deviation of 1%. This means that on average, you can expect an 11% return on your investment, although your returns may fluctuate by approximately 1% each year. For example, if you invest \$100 in this fund, you can expect to make between \$10 to \$12 during your first year of investment.

Investment Option 2 is managed by your broker. Your broker has experience managing many investment funds. Your broker offers an average annual return of 8%, with an average annual standard deviation of 10%. This means that on average, you can expect an 8% return on your investment, although your returns may fluctuate by

approximately 10% each year. For example, if you invest \$100 in this fund, you can expect to make between (\$2) to \$18 during your first year of investment, where the value in parentheses represents a loss.

At this time, please select which of the two investment options you would like to invest in.

- Investment Option 1
- Investment Option 2