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How Did the Most Sophisticated Investors Fall into Madoff's Trap?

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Abstract

This paper examines how intelligent people can be easily fooled by others. To do this, it examines how Bernard Madoff's clients bought into his investment firm despite many signs that he might be running the biggest Ponzi Scheme in U.S history. Specifically, I examine the nature of his fraudulent scheme and how the clients fell into his trap. Why did they not do their due diligence and investigate Madoff's fund more closely before investing millions of dollars into his fund? Was there something about his personality that made them trust him instantaneously? Did they have enough knowledge to figure out the fraud themselves? By investigating these issues, we can examine how humans can be deceived in financial matters and therein come up with several safeguards to ensure that investors do not make the same mistakes again.

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Introduction

In late 2008, one of the most respected men in the financial industry – Bernard Madoff, a former NASDAQ chairman, and manager of three successful companies – was accused and later convicted of the largest fraud in U.S. history – the Ponzi Scheme. Instead of running a legitimate hedge fund, Bernie Madoff took in his client's money but did not make any real investments in actual stocks. Instead, he used the money of his new investors to pay off the returns to his old investors and kept all of his clients' money in his private bank account.

What is so amazing about the Madoff case is that he perpetuated the fraud for more than 35 years in secret. Indeed, the only reason that the world was able to find out about the fraud is that he self-admitted it in late 2008 to the Securities and Exchange Commission (SEC). As a result, some of the largest international banks, hedge funds, charities, pension funds, and wealthy investors lost millions of dollars and had to declare bankruptcy. This fraud proves to investors that they should not assume due diligence even if the reputation of the person they are investing with is very high. In fact, it is critical that an analysis should be done to see whether the returns that Madoff was producing were achievable compared to the market at that time. In this thesis, I will examine the nature of his fraudulent scheme and how the clients fell into his trap. Why did they not do their due diligence and investigate Madoff's fund more closely before investing millions of dollars into his fund? Was there something about his personality that made them trust him instantaneously? Did they have enough knowledge to figure out the fraud themselves? By investigating these issues, we can examine how humans can be deceived in financial matters and therein come up with several safeguards to ensure that investors do not make the same mistakes again.

Section 1. The importance of Madoff

Bernard. L. Madoff Investment Securities, LLC (BLMS) was founded in 1960 and operated as a securities broker-dealer in the United States and abroad. It provided executions for broker-dealers, banks, financial institutions and wealthy investors. In 1989, the company became one of the largest independent trading operations in the securities industry, and handled around 5% of the trading volume on the NYSE (Rimkus). However, in December 15, 2008, BLMS was liquidated.

The firm created a private investment portfolio division, where Bernard Madoff managed money for his investors. There were about 4,800 clients and included investment management firms such as Fairfield Sentry and KSM Capital Advisors, international banks such as Royal Bank of Scotland, Banco Santander, Bank Medici, Fortis, HSBC, BNP Paribas and BBVA, many Jewish charities like Los Angeles Jewish Community Foundation and Chais Family Foundation, and wealthy investors like Steven Spielberg, Ruth and Carl J. Shapiro, Fred Wilpol and many more. “The scam by Madoff wiped out $19 billion that wealthy investors, charities and celebrities had entrusted to him starting as long ago as the 1970s, based on approved claims so far” (Larson, Cannon). The impact was enormous and many places had to declare bankruptcy.

Low volatility and high returns is a strategy that all investors dream to achieve and this is exactly what Madoff claimed to do. He had a consistent 1% return a month and 12% return a year no matter how the market moved for years (Markopolos). When in 2008, Bernard Madoff turned himself to FBI, he was all over the news with titles like “All Just One Big Lie”, “Talented Mr. Madoff”, “Inside the mind of Bernie Madoff”.

Section 2. Madoff's Personality

So who exactly is Madoff? Bernard Madoff was born in 1938 in Queens, New York. Using his $5,000 in savings that he earned from lifeguarding and installing sprinkler systems, Madoff created his investment firm called Bernard. L. Madoff Investment Securities, LLC. He was considered to be an affable, charismatic, smart man who had respect among Wall Street financiers and investors. As his stature grew, he became chairman of the NASDAQ stock exchange. In this role, he helped shape securities regulations.

In terms of his personality, there was no indication of him being a narcissist, manipulator or a liar when he was younger. One of his classmates from college said, "Bernie was very industrious, He was going to school and working at the same time" (Creswell). Another fraternity brother of Madoff, Martin Brill, said: "There isn't much about Bernie that stands out in my mind. He was a low-key sort of guy who stayed out of trouble but also lacked any outstanding personality trait" (Salkin). However, as he got older, and became the head of his firm, his former colleagues recall the other side of Madoff - very impulsive, narcissistic and manipulative. Julia Fenwick, who was the office manager for Mr. Madoff's London operations firm from 2001 until the unit was shuttered in 2008, said that "everything had to be perfect" and that "you never left the paper on your desk — ever" (Creswell). They also said that Mr. Madoff's obsession with order and control of his environment never led them to believe that bigger problems existed. Indeed, his other former colleague said that "He had, from my perspective, a way of controlling you that was so subtle, it turns out that you didn't actually realize that you were being controlled" (Dennys).

In fact, after the Madoff scandal broke in late 2008, many people in the media have portrayed him as sociopath. Harvard Professor Eugene Soltes notes in his book <u>Why They Do It</u>

that "to a psychiatrist, Madoff displays many symptoms associated with psychopathy. His lack of remorse, failure to take responsibility, inability to plan ahead, and persistent deceitfulness all contribute to such a designation" (Eren). Madoff never seemed to consider what could happen to his clients. In fact, in a personal interview with Madoff, he even self-admitted that "It wasn't like I was being blackmailed into doing something, or that I was afraid of getting caught doing it." He continues, "I, sort of, you know, I sort of rationalized that what I was doing was OK, that it wasn't going to hurt anybody" (Nobel). This self-explanation of his behavior indicates that he really lacked remorse in what he was doing and showed a complete lack of empathy for his clients. One of the arguments is that when people are pressured to succeed, knowing the difference between right and wrong is not enough to dissipate the temptations of these behavioral traps. In this case, Madoff was under intense pressure since he was realizing that his deceit could not last indefinitely. In an interview with Madoff, while he was in prison, he said, "I allowed myself—and I really have to say 'allowed,' since no one put a gun to my head—to keep taking in more money. I kept on waiting for the environment to change and of course it never did… It turned into a total fiasco" (Nobel). This shows the psychological tendencies that can lead to irrational behavior.

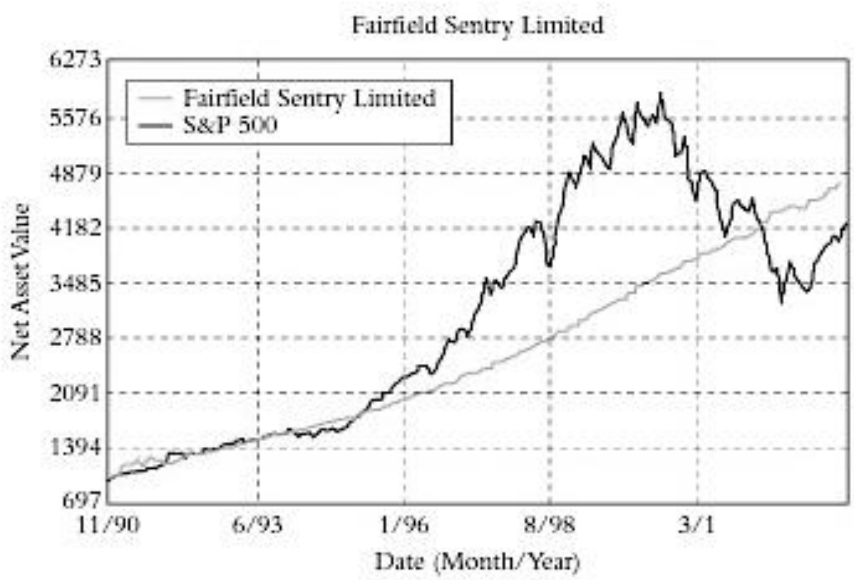
When his former colleagues discuss more about his abnormal behavior, they remembered how obsessive and compulsive he was about the floors where the legitimate businesses were. Indeed, one former colleague recalled that "Everything had to be black. The computers, the tables, even the picture frames. If he saw a kid's picture in a silver frame, for instance, he would order the offender to get a black frame. If you had a jacket over the back of your chair, he would take it off" (Franks). This odd behavior seemed to suggest that Bernie Madoff wanted to make his business look perfect in order to get an impression of a legitimate and profitable firm.

As one said: "Narcissists focus their lives on appearances--they aren't strong enough to be killers, but they can be thieves--stealing to make themselves look better" (Lee). Bernie Madoff did not fear getting caught, and seems to be very narcissistic with a strong sense of entitlement. He was also strategically thinking about how to make his employees stay at the firm. Indeed, one of the employees said, “The salaries were so large because Madoff wanted to keep people happy; he wanted allies in case they found out what was really happening” (Lee). Having a good compensation is a smart way of making sure people stay at the firm.

Section 3. How did Madoff do it? Explanation of the scam.

So how did Madoff achieve his remarkable returns? He claimed to use “a split-strike conversion strategy” to achieve his reported returns. Split Strike Strategy, also known as "collar" or "bull-spread", is a strategy of buying a basket of 30-35 blue-chip stocks of S&P100 and then protecting the stocks with put options. As Harry Markopolos, a mathematician and financier, who figured out the fraud in just a few hours, said, “Madoff had a consistent 1% return a month and 12% return a year no matter how the market moved” (Markopolos). This alone should have been a red flag to his investors. When Harry Markopolos was investigating the case, he spoke with different derivatives traders, heads of research, portfolio managers and investors about Bernie Madoff’s firm. Surprisingly, Markopolos realized that these people were, in fact, suspicious of Madoff’s fraud. So how come so many intelligent people were left unaware? The bottom line is that these people were willing to accept his nonsensical explanations as long as the returns kept coming in.

The interesting examination again is that no matter if the index went up or down, Bernie Madoff returned the same 1% per month. Madoff's strategy description claimed that his returns were market-driven, yet his correlation coefficient was only 6 percent to the market. By looking at these numbers, we can tell that his performance line was certainly not coming from the stock market. Moreover, it is a well-known fact that volatility is an important part of the market. However, it seemed like it did not apply to Madoff because he was reporting a 45-degree rise consistently. As we can see from the table below that was taken from Harry Markopolos's book "No one would listen," we can see that Bernie Madoff's fund of funds Fairfield Sentry Limited indeed shows a 45-degree rise, while S&P 500 shows some volatility and cycles.



So how come so many smart investors did not understand that it is not possible for the market to perform so well for so long. My hypothesis consists of the fact that investors had enough data and analysis to identify a possible scam. In order to prove that, I will examine the relationship between Madoff's fund and S&P 100 and S&P 500. I will be using the data of Fairfield Sentry Fund from Harry Markopolos' book because there is no available online data today. At that time, Harry Markopolos started working with Access, which was a large feeder fund to Madoff and Markopolos's primary source of achieving this data. There were also a lot of arguments involved regarding the fact that Madoff's purchased options were not reflected in the market activity, and therefore, no one could see the footprints of his trades. According to Harry Markopolos, “You can realistically purchase only $ 1 billion of these, and at various times Madoff needed $ 3 billion to $ 65 billion of these options to protect his investments — far more than existed” (Markopolos). In other words, there simply were not enough options in the entire system for him to be doing what he claimed he was doing. This should have been another red flag for his investors if they did a little bit of due diligence themselves.

Section 4. Trust that investors had for Madoff.

Many of his clients were considered to be sophisticated investors who would never question his ethical or moral standards. Among them were international banks, U.S based hedge funds, U.S individuals, endowments and charities, family offices, insurance companies and more. Many of them neither met nor heard of him, however, some investors were very close to Madoff. They all trusted him and were amused by his personality. In fact, one of his clients said, "He walked in, Bernie, and it was like you were subsumed by him. He had an aura about his confidence the way he was set up, the way he looked, the way he spoke. The self-confidence, that he knew he was in control, and if he was around, everything was fine” (Lewis). The description of his personality, shared by many of his clients, demonstrates his capability of manipulating so many intelligent investors, and for such a prolonged time. In fact, Madoff embodied the disciplined performer.

Moreover, it is essential to introduce the availability bias concept to this paper, because this may explain why clients of Madoff so blindly trusted him. Availability bias is defined as a heuristic whereby people make judgments about the likelihood of an event based on how easily an example, instance, or case comes to mind (Behavioral Economics). In this case, investors judged the quality of investing with Madoff based on the information that was recently heard or on all the good things they have heard about Madoff. In fact, a successful NASDAQ chairman and respectable financier would not scam his investors for millions of dollars. People would only pay attention to vivid things, and the more vivid the information is, less likely it would happen in real life. In this case, because Madoff was so powerful and famous on Wall Street, investors paid less attention to what he was doing with their money.

Moreover, due to his extraordinary skill of impression management, he was able to influence a great number of smart people for a very long time. Moreover, Madoff's seemingly random decisions to reject some potential investors, while accepting others was interesting. His main goal was to make the clients who had accounts with him feel special, part of the chosen fellowship. In fact, one of the really famous models, Carmen Dell'Orefice, who lost most of her savings with Bernie, remember how in Madoff's office, her boyfriend, Levy, who was Madoff's friend told her "This is very special, what I am doing for you," indicating what an honor it was to be admitted into Bernie's exclusive fund (Seal).

Madoff was also targeting specific communities such as the members of the US Jewish community who were acquainted with Madoff through country clubs and social networks in Long Island and Palm Beach. There were charities, benefactors and showbiz names such as Pedro Almodóvar, Steven Spielberg and Kevin Bacon (Clark). Indeed, in the interview with Harry Markopolos, he mentioned how Bernie Madoff used "the affinity scheme," which is targeting the community that is similar to you. In this case, Bernie Madoff was Jewish and therefore, many of his clients were Jewish investors who already created a connection with him instantly. Moreover, if some people still thought that Madoff is not trustworthy, the fact that his closest relatives and associates invested with him could have provided a non-conscious signal that he was an actually trustworthy advisor. In addition to that, according to Rebecca Lake, “More than half of the clients surveyed by Vanguard found their current advisor through a referral” (Lake). This statement suggests that referrals are critical for growing a client base. Many of Madoff’s clients were referred to him by their friends, which suggests that his clients highly trusted him.

The most interesting part is that none of these investors were able to catch his fraud, even though Harry Markopolos was able to prove it in just 4 hours using the data analysis. “If you could not trust Bernie Madoff with your money, there was no one who could be trusted” (Markopolos). This statement has been said multiple times by people who invested with Madoff and it clearly illustrates why investors should never assume due diligence, even if the person’s reputation they are investing with is very high. In 2008, many investors started withdrawing their money from Madoff’s company at a hastened pace due to the financial crisis. Some investors were even concerned by how Bernie Madoff was able to get such high returns for his clients even when the stock market was about to collapse. At this point, it was extremely difficult for Madoff to keep everything secret. As a result, he turned himself into the FBI and SEC. According to interviews, no one from his family or work knew that the whole firm was a big fraud; he was running the scheme by himself.

To this day, Mr. Madoff’s victims are trying to receive their money back. According to Irving H. Picard, the trustee appointed by a federal bankruptcy court to liquidate the Madoff firm and return assets to investors, more than $13.3 billion has now been recovered (Picard). That amounts to 76 percent of the $17.5 billion in principal lost in the scam. Moreover, Picard’s office announced it was seeking court approval to distribute another $419 million of that money to his clients, bringing the total amount returned to more than $12 billion.

Section 5. Consequences of his trust.

Bernie Madoff's scandal negatively affected the economy from quantitative and qualitative perspectives. According to Umit Gurun, "The spread by word-of-mouth happens very fast and local media plays a big role in publicizing the bad news in the local community" (Gurun). When the news about Bernie Madoff came out, his clients and other members of the financial community were affected by it tremendously. In fact, because investors were so skeptical about advisors after finding out about this fraud, they pulled over $363 billion from their advisors in favor of the relative safety of banks (Gurun). The withdrawals were so big in some areas that some investment firms ended up going out of business.

This indicates that investors not only lost billions of dollars, but also lost trust in the financial system and advisory. Many people still question how it was possible for the smartest, richest and most sophisticated people in the world to not figure out what was going on with their money for over 20 years. Therefore, it is important to analyze and understand the psychological part of the trust that people had for Bernie Madoff. Trust underlies most financial transactions. When people go to the bank to deposit their money, they trust the system and the bank. When investors put a huge amount of money with an advisor hoping to gain some big returns, they trust that advisors will do their best job. Madoff's fraud was explicitly a shock to trust, as is made clear by the 45 mentions of "trust" in the 113 victim impact statements that were submitted to the court (Guiso). Additionally, the loss of trust was strongest in areas that were home to both Madoff victims and a large number of the affinity group.

The social network plays an important role in having clients who can trust you. One of the investors said: "My money is in a fund managed by someone who resembles Bernie Madoff. If Madoff can defraud these investors of their savings, maybe my advisor can too" (Gurun). This phrase clearly indicates what kind of mentality investors had during that time. In fact, "Vanguard found that clients were more likely to trust their advisors when they believed that their functional, emotional and ethical needs were being met" (Lake). This statement from Investopedia clearly indicates that after Madoff's scandal, other investors had a very hard time trusting their advisors, specifically knowing that if one of the most respected advisors was not ethical with his clients, then other advisors are most likely not ethical either.

Section 6. SEC Failure

According to the Wall Street Journal, "Bernard L. Madoff Investment Securities LLC was examined at least 8 times in 16 years by the Securities and Exchange Commission and other regulators, who often came armed with suspicions" (Scannell). What is SEC's excuse on not identifying such a big scam? One of the researches shows that SEC main efforts were to look into the possibility of unlawful front-running, not the underlying legitimacy of Madoff's advisory operations. Hence the Commission missed what seems to be a relatively easy opportunity to mitigate, if not prevent, the tragic investor losses that later occurred (Langevoort). Moreover, Madoff was not registered as an investment firm, therefore he was not regulated with the SEC. It is a well-known fact that Harry Markopolos, a Wall Street Executive, submitted reports to SEC that there is a possible Ponzi Scheme several times. He said: "It took about five minutes of reading through a one page Madoff marketing brochure to know it was a fraud scheme" (Jackson).

One of the statements during the Congress hearing suggested that the SEC was simply creating the illusion of genuine regulatory effort. Moreover, Bernie Madoff had personal connections to SEC and very big respect from that system. Indeed, "He was smart in understanding very early on that the more involved you were with regulators, you could shape regulation. If you're very close with regulators, they're not going be looking over your shoulders that much. Very smart" (Creswell). This could imply that the SEC needed a massive change in its system because it missed the biggest fraudulent event. Additionally, Harry Markopolos in his book repeatedly said that SEC does not have resources or people who specialize in identifying financial frauds of that sort. In fact, "if you can't do the math and if you can't take apart the investment products of the 21st century backward and forward and put them together in your sleep, you'll never find the frauds on Wall Street" (Solomon).

Fortune Magazine published an article called "How they failed to catch Madoff", that describes how SEC indeed tried to investigate Madoff's firm but was not successful at finding anything. When one of the complaints about Madoff got to SEC, two examiners - Peter Lamore and William Ostrow, had to investigate the case and speak with the firm. Both of them arrived at Bernard L. Madoff Securities in 2005 and Madoff himself greeted them which was a little bit surprising that the head of the firm is handling SEC examination. Throughout the whole interview and examination that last quite some time, investigators left with nothing because Bernie Madoff was very good at lying and impressing people with his knowledge about Wall Street trading and the evolution of the business. He pointed out that his firm is using the algorithm that can only be executed by Madoff himself. The article further explains that, "On June 16, Ostrow and Lamore met with their boss, Nee, who directed them not to visit or contact any of Madoff's feeder funds. Ostrow recalled that Nee warned them that Fairfield "is a $7 billion customer and if you go and raise red flags there and they go ahead and pull all of their money from Bernie and we're wrong, then we'll be sued personally or the SEC itself." (Fortune). This indicates how power plays a big role in what a person can get away with. People are scared of what powerful people can do and therefore, prefer not to get involved.

Martin Reimann and Oliver Schilke in their article “How Power Shapes Trust” introduced to readers a concept of the rational actor theory. That theory states that people will be trustworthy toward someone else only if being so is instrumental in maintaining that relationship. “Given that powerful people tend to have many partners to choose from, they place—relatively speaking—less value in any particular relationship, reducing the likelihood that they will behave in a trustworthy fashion" (Reimann). In other words, a powerful individual like Bernie Madoff can afford to betray others since he can easily find new people to work with. In this case, Mr. Madoff was extremely powerful in the financial world, therefore it was important for SEC to maintain that good relationship with him.

After the scheme, investors and the financial community, in general, were furious that SEC and the government failed to investigate the fraud of that magnitude. So what have they done to prevent further schemes? The Housing Banking Committee created a bill to prevent another Bernie Madoff scheme. It features 4 parts of the bill that the SEC has to follow for further identifying the potential Ponzi schemes. For example, one of the features proposes that “The bill would authorize the SEC to pay cash bounties to whistleblowers who supply information leading to SEC enforcement cases and these bounties could go as high as 30% of the monetary sanctions in the relevant cases” (Pozen).

Furthermore, another document that was made by the Securities and Exchange Commission thoroughly explains the post-reforms that have been made after Bernie Madoff's case. For example, the revitalization of the Enforcement Division. This division would focus on cases that will have a meaningful impact. The specialized units are industry experts who will work directly with teams of experienced attorneys and accountants. These units focus on the key areas of Structured and New Products, Market Abuse, Municipal Securities and Public Pensions, Asset Management, and violations of the Foreign Corrupt Practices Act (SEC). In addition to that, the SEC provided 14 steps to reduce the possibility of fraud, and obviously, the agency is still improving and creating new ways to detect the Ponzi schemes. For example, one of the rules that the SEC created was for "A broker-dealer that maintains custody of customer securities and cash would be required to undergo a compliance examination — by a Public Company Accounting Oversight Board-registered public accounting firm — that would include an audit of the controls the broker-dealer has in place to protect customer assets." This rule means that the third party will be required to evaluate the legitimacy of the investments.

Some authors analyze actions that regulators should take to prevent Ponzi schemes from taking root and spreading, because Ponzi schemes are usually not easy to detect, since many of them operate in an opaque—even secretive—way, requesting confidentiality from investors. Therefore, the article emphasizes for "Regulatory agencies to increase efforts to detect Ponzi schemes by developing effective investigative tools, including red flags that point to investment fraud, tools to facilitate research on the Internet as well as through other mass media, and mechanisms to receive and act on complaints from the public" (Monroe, Hunter).

So how can we, future investors, protect ourselves from another fraud? What have we learned?

One of the biggest mistakes that these investors had is not doing their due diligence. This is something that we, as future investors, should always prioritize when investing a big amount of money with one advisor. Comparing the returns of your portfolio to the returns of the market would give a good indication of whether the returns can be legitimate.

Methodology

My study consists of both qualitative and quantitative methods that will be explained further. Firstly, I retrieved data of the S&P500 and S&P100 index closed prices from Yahoo Finance and

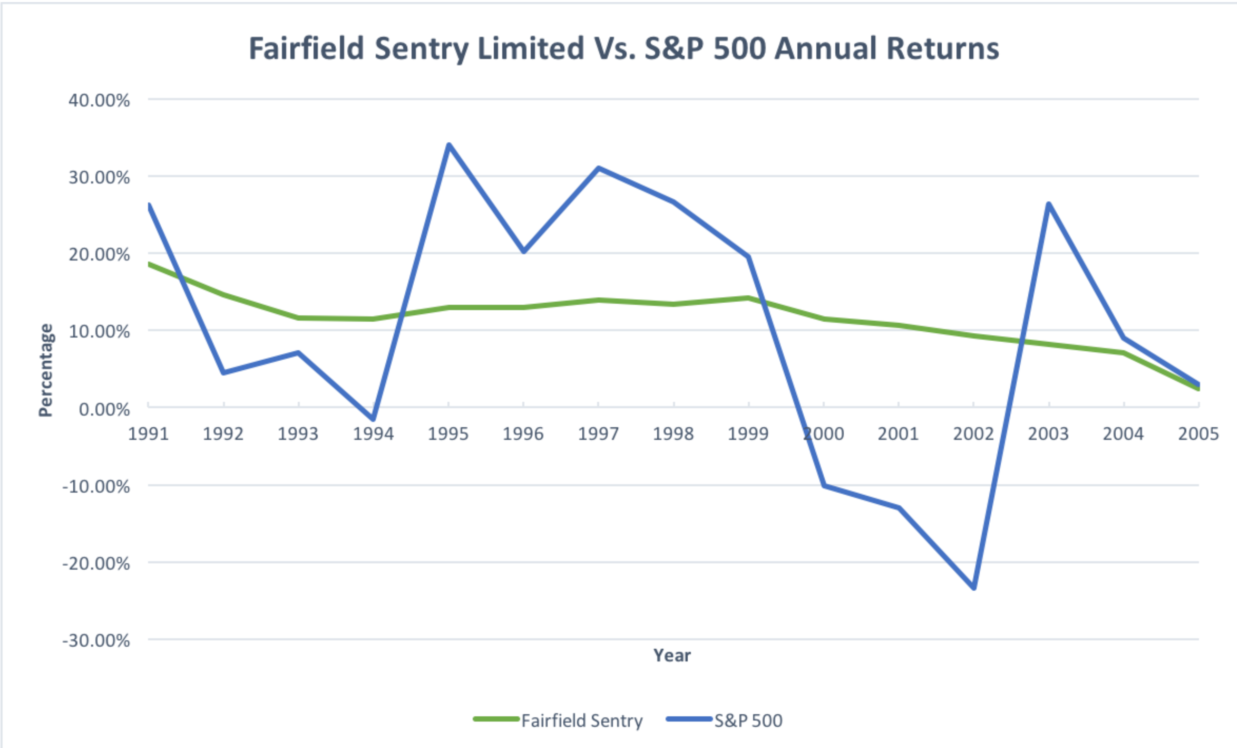
Bloomberg from 1991 to 2005 and measured yearly returns. Since there is no available data of Fairfield Sentry online, I took the data from the Harry Markopolos book "No One Would Listen," who officially got the data at that time from a company called Access that worked with Bernard Madoff directly. I compared the S&P100 and S&P500 fund returns to the returns that Bernie Madoff Firm was reporting to his clients. I used this method since this will show whether his clients could have analyzed the data that was available to them at that time. Moreover, I measured the monthly returns of the S&P100 and Fairfield Sentry in order to calculate the Sharpe Ratio. Sharpe Ratio is used to help investors understand the return of an investment compared to its risk. The greater the portfolio's Sharpe ratio, the better its risk-adjusted performance.

In addition to the quantitative analysis, I used published reports about the Bernie Madoff Ponzi Scheme. I included the interview and testimony of Harry Markopolos in regards to how he tried to turn Madoff to SEC for many years. Moreover, I used Markopolos' official book called "No one would listen" that describes in more detail his process of figuring out the fraud and trying to turn it to the SEC. Lastly, I used legal documents from the Securities and Exchange Commission and the Housing Banking Committee that mostly focus on the post-reforms and the implementation of regulations.

Empirical Results

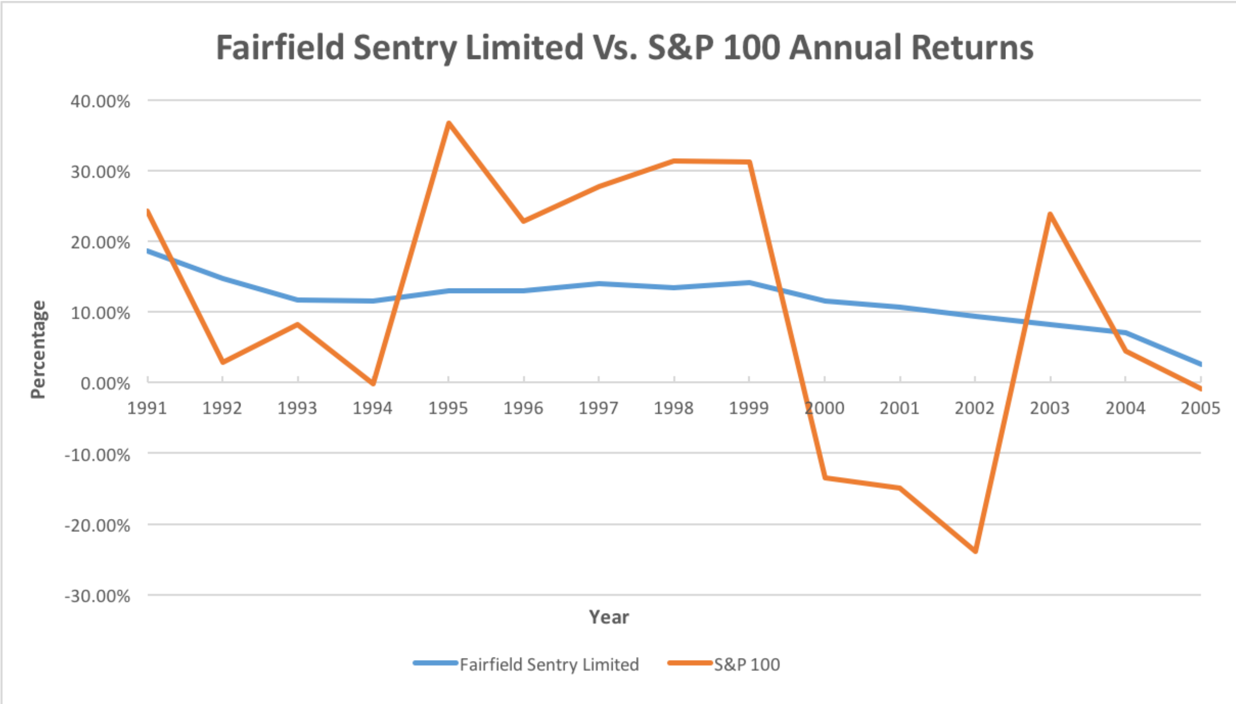
To reiterate, I hypothesized that the clients of Bernie Madoff had enough knowledge to identify the fraud earlier if they did their due diligence. Below, in table 1, I created the graph that illustrates the relationship between the S&P500 Index and Fairfield Sentry Limited Fund annual returns from 1991 to 2005 that have been obtained by a split-strike strategy. We can see that S&P500 is very volatile compared to Fairfield Sentry Fund which has very low volatility and linear growth. Investors highly valued the combination of high returns and low volatility that Madoff's funds provide.

Table 1: Comparison of annual returns of Fairfield Sentry and S&P500 from 1991 to 2005



In addition to Table 1, below I provided Table 2 graph that illustrates the relationship between the S&P100 Index and Fairfield Sentry Index annual returns. It is important to look at the S&P100 as well because Bernie Madoff was claiming to buy a basket of 30-35 blue-chip stocks of the S&P100 index. This graph shows that the market was very volatile, however, Fairfield Sentry remained stable with linear growth. The average rate was 12% for Fairfield Sentry no matter how the economy or market was moving.

Table 2: Comparison of annual returns of Fairfield Sentry and S&P100 from 1991 to 2005



Moreover, I provided two tables with monthly returns of the Fairfield Sentry Fund and the S&P 100 Index from January 1991 to December 2008. As we can see, from table 3, the red tabs indicate negative returns for Fairfield Sentry. It shows that there were almost no negative returns from 1991 to 2008. On the other hand, table 4 below illustrates that the S&P100 returns show many negative monthly returns.

Table 3: Fairfield Sentry Monthly Returns from January 1991 to December 2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991	3.01%	1.40%	0.52%	1.32%	1.82%	0.30%	1.98%	1.00%	0.73%	2.75%	0.01%	1.56%
1992	0.42%	2.72%	0.94%	2.79%	-0.27%	1.22%	-0.09%	0.86%	0.33%	1.33%	1.36%	1.36%
1993	-0.09%	1.86%	1.79%	-0.01%	1.65%	0.79%	0.02%	1.71%	0.28%	1.71%	0.19%	0.39%
1994	2.11%	-0.44%	1.45%	1.75%	0.44%	0.23%	1.71%	0.35%	0.75%	1.81%	-0.64%	0.60%
1995	0.85%	0.69%	0.78%	1.62%	1.65%	0.43%	1.02%	-0.24%	1.63%	1.53%	0.44%	1.03%
1996	1.42%	0.66%	1.16%	0.57%	1.34%	0.15%	1.86%	0.20%	1.16%	1.03%	1.51%	0.41%
1997	2.38%	0.67%	0.80%	1.10%	0.57%	1.28%	0.68%	0.28%	2.32%	0.49%	1.49%	0.36%
1998	0.85%	1.23%	1.68%	0.36%	1.69%	1.22%	0.76%	0.21%	0.98%	1.86%	0.78%	0.26%
1999	1.99%	0.11%	2.22%	0.29%	1.45%	1.70%	0.36%	0.87%	0.66%	1.05%	1.54%	0.32%
2000	2.14%	0.13%	1.77%	0.27%	1.30%	0.73%	0.58%	1.26%	0.18%	0.86%	0.62%	0.36%
2001	2.14%	0.08%	1.07%	1.26%	0.26%	0.17%	0.38%	0.94%	0.66%	1.22%	1.14%	0.12%
2002	-0.04%	0.53%	0.39%	1.09%	2.05%	0.19%	3.29%	-0.14%	0.06%	0.66%	0.10%	0.00%
2003	-0.35%	-0.05%	1.85%	0.03%	0.90%	0.93%	1.37%	0.16%	0.86%	1.26%	-0.14%	0.25%
2004	0.88%	0.44%	-0.01%	0.37%	0.59%	1.21%	0.02%	1.26%	0.46%	0.03%	0.79%	0.24%
2005	0.51%	0.37%	0.85%	0.14%	0.63%	0.46%	0.13%	0.16%	0.89%	1.61%	0.75%	0.54%
2006	0.70%	0.20%	1.31%	0.94%	0.70%	0.51%	1.06%	0.77%	0.68%	0.42%	0.86%	0.86%
2007	0.29%	-0.11%	1.64%	0.98%	0.81%	0.34%	0.17%	0.31%	0.97%	0.46%	1.04%	0.23%
2008	0.63%	0.06%	0.18%	0.93%	0.81%	-0.06%	0.72%	0.71%	0.50%	-0.06%		

Table 4: S&P100 Monthly Returns from January 1991 to December 2008

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1991	4.951%	6.829%	2.112%	-0.003%	4.139%	-4.598%	4.806%	0.921%	-2.536%	1.118%	-4.368%	9.531%
1992	-1.388%	1.236%	-1.894%	3.141%	0.349%	-1.806%	3.135%	-2.903%	-0.031%	-0.414%	2.648%	0.993%
1993	1.243%	1.517%	1.644%	-1.747%	2.564%	-0.196%	-0.559%	3.357%	-1.546%	1.539%	-0.572%	0.874%
1994	3.779%	-2.677%	-4.941%	0.672%	2.115%	-3.208%	3.615%	2.905%	-2.135%	2.256%	-3.726%	1.699%
1995	1.838%	4.376%	3.086%	3.832%	4.036%	2.099%	3.251%	-0.808%	4.820%	-0.038%	3.859%	1.488%
1996	4.103%	1.166%	0.831%	1.329%	2.466%	0.234%	-4.815%	2.153%	5.108%	2.859%	7.741%	-1.828%
1997	7.197%	-0.422%	-4.078%	6.579%	5.218%	4.167%	7.982%	-6.555%	5.166%	-4.421%	5.126%	0.183%
1998	1.924%	7.069%	5.375%	1.431%	-1.387%	4.824%	-0.655%	-14.525%	4.712%	8.897%	7.490%	4.650%
1999	6.028%	-3.438%	4.555%	4.494%	-2.515%	6.955%	-3.007%	1.310%	-2.870%	6.642%	3.028%	7.322%
2000	-4.865%	-2.071%	10.346%	-4.127%	-2.543%	3.769%	-0.963%	5.720%	-8.168%	-1.171%	-7.144%	-1.553%
2001	4.188%	-10.415%	-7.660%	9.100%	0.118%	-2.199%	-1.560%	-7.194%	-7.672%	2.125%	7.415%	-0.089%
2002	-1.847%	-1.932%	2.749%	-7.869%	-0.601%	-7.385%	-6.376%	0.421%	-11.621%	10.792%	6.128%	-7.121%
2003	-2.739%	-1.667%	0.886%	8.482%	3.796%	1.488%	1.811%	0.819%	-0.954%	4.296%	0.146%	5.769%
2004	1.730%	0.755%	-2.375%	-1.860%	0.786%	1.603%	-2.925%	0.205%	-0.726%	1.083%	3.111%	3.197%
2005	-1.810%	1.687%	-2.190%	-1.618%	2.126%	-1.137%	2.602%	-1.451%	0.447%	-1.775%	3.201%	-0.794%
2006	1.539%	0.354%	1.193%	1.385%	-2.465%	-0.282%	1.584%	2.257%	2.990%	3.313%	1.416%	1.658%
2007	0.965%	-3.455%	0.955%	4.733%	3.200%	-1.375%	-2.457%	1.734%	3.930%	1.387%	-4.469%	-0.922%
2008	-6.212%	-4.578%	0.015%	4.447%	-0.289%	-9.084%	0.485%	1.185%	-8.012%	-14.591%	-6.743%	-0.312%

In addition to that comparison, using the monthly returns, I calculated Sharpe Ratio for both Fairfield Sentry Fund and S&P100 index. Sharpe Ratio is used to help investors understand the return of an investment compared to its risk. As we can see from table 5 below, I measured Sharpe Ratio for Fairfield Sentry and S&P100 using monthly returns from 1991 to 2008. The table shows that Fairfield Sentry is almost always above 1 with an average of 1.346, while the Sharpe Ratio for S&P100 is always below 1 with an average of 0.262. Sharpe ratio greater than 1 is considered acceptable to good by investors, while the Sharpe ratio below 0 is considered not worth to invest in. The most interesting aspect of the performance for Fairfield is the very low volatility of the returns. This, in turn, leads to an unusually high Sharpe ratio. While the Sharpe ratio of the S&P100 is much less than the Fairfield Sharpe ratio, it is almost double the Sharpe ratio of investing in the Index over this period.

To reiterate, Fairfield Sentry was supposed to be highly correlated with the S&P100 according to Madoff's Strategy. This analysis indicates that Fairfield could not have such a high Sharpe Ratio with the S&P100 being below 1.

Table 5: Sharpe Ratio yearly performance of Fairfield Sentry and S&P100 Index

Year	Sharpe Ratio	
	Fairfield Sentry	S&P100
1991	1.473	0.435
1992	1.127	0.125
1993	1.052	0.423
1994	0.923	0.009
1995	1.620	1.498
1996	1.737	0.552
1997	1.453	0.433
1998	1.758	0.399
1999	1.450	0.554
2000	1.319	-0.199
2001	1.265	-0.185
2002	0.664	-0.317
2003	0.843	0.569
2004	1.194	0.190
2005	1.412	-0.030
2006	2.556	0.815
2007	1.201	0.120
2008	1.172	-0.668

Conclusion:

In all, this study shows that Bernard Madoff's investors indeed have enough knowledge to figure out the fraud before they lost all of their money. Particularly, by looking at the graph of Fairfield Sentry returns, we can see that it shows a 45-degree rise year after year, while the S&P 500 shows some volatility and cycles. The average rate was 12% for Fairfield Sentry no matter how the economy or market was moving. This is an interesting finding since it shows how intelligent people can be easily fooled by others and questions the idea of why the most sophisticated and smartest clients of the financial world did not do their due diligence and blindly invested with a very powerful financier. The psychology behind this fraud is very interesting both from Madoff's side and his clients. This research reveals that Bernard Madoff indicates some traits of the sociopath because of his lack of remorse, superficial charm, and pathological egocentricity. It also shows how power plays a big role in trust. Madoff was using an affinity scheme to target the Jewish community and made his clients feel very special. Therefore, investors did not do their due diligence because if a person could not trust Bernie Madoff, then he or she could not trust anyone.

Additionally, when it came to SEC, it needed a massive change in its system, because it does not have resources or people who specialize in identifying financial frauds of that sort, therefore the regulators came up with several safeguards and divisions to make sure this type of fraud does not happen again. The creation of a new Enforcement Division at SEC which consists of industry experts who will work directly with teams of experienced attorneys and accountants, will help further regulate investment firms.

From the investors' perspective, we have to always do the due diligence. Indeed, the actual steps we can take to prevent the fraud is to understand a company's business and its products or services before investing. It is important to look for the firm's financial statements on the SEC's EDGAR filing system and see if the firm is regulated by SEC. An investor should research whether the firm had run-ins with regulators or other investors. Moreover, it is essential to compare promised yields with current returns on well-known stock indexes.

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