

Chapter 1

A Red Wagon in a Field of Snow

On the morning of December 11, 2008, a New York real estate developer on a JetBlue flight from New York to Los Angeles was watching CNBC on the small seat-back television. A crawl across the bottom of the screen reported that Bernard Madoff, a legendary Wall Street figure and the former chairman of NASDAQ had been arrested for running the largest Ponzi scheme in history. The developer sat silently for several seconds, absorbing that news. *No, that couldn't be right*, he thought, but the message streamed across the screen again. Turning to his wife, he said that he knew that she wasn't going to believe what he was about to tell her, but apparently Bernie Madoff was a crook and the millions of dollars that they had invested with him were lost. He was right—she didn't believe him. Instead, she waved off the thought. “That’s not possible,” she said, and returned to the magazine she was reading.

The stunned developer stood up and walked to the rear of the plane, where the flight attendants had gathered in the galley. “Excuse me,” he said politely, “but I’m going to be leaving now. So would you please open the door for me? And don’t worry—I won’t need a parachute.”



At about 5:15 that December afternoon, I was at the local dojo in my small New England town watching my five-year-old twin boys trying to master the basic movements of karate. It had been a gloomy

day. Rain continued intermittently, and there was a storm in the air. I noticed there were several voice mails on my cell phone. *That's curious*, I thought; I hadn't felt it vibrate. I stepped into the foyer to retrieve the messages. The first one was from a good friend named Dave Henry, who was managing a considerable amount of money as chief investment officer of DKH Investments in Boston. "Harry," his message said clearly, "Madoff is in federal custody for running a Ponzi scheme. He's under arrest in New York. Call me." My heart started racing. The second message was also from a close friend, Andre Mehta, a super-quant who is a managing director of alternative investments at Cambridge Associates, a consultant to pension plans and endowments. I could hear the excitement in Andre's voice as he said, "You were right. The news is hitting. Madoff's under arrest. It looks like he was running a huge Ponzi scheme. It's all over Bloomberg. Call me and I'll read it to you. Congratulations."

I was staggered. For several years I'd been living under a death sentence, terrified that my pursuit of Madoff would put my family and me in jeopardy. Billions of dollars were at stake, and apparently some of that money belonged to the Russian mafia and the drug cartels—people who would kill to protect their investments. And I knew all about Peter Scannell, a Boston whistleblower who had been beaten nearly to death with a brick simply for complaining about a million-dollar market-timing scam. So I wouldn't start my car without first checking under the chassis and in the wheel wells. At night I walked away from shadows and I slept with a loaded gun nearby; and suddenly, instantly and unexpectedly, it was over. Finally, it was over. They'd gotten Madoff. I raised my fist high in the air and screamed to myself, "Yes!" My family was safe. Then I collapsed over a wooden railing. I had to grab hold of it to prevent myself from falling. I could barely breathe. In less time than the snap of my fingers I had gone from being supercharged with energy to being completely drained.

The first thing I wanted to do was return those calls. I needed to know every detail. It was only when I tried to punch in the numbers that I discovered how badly my hand was shaking. I called Dave back and he told me that the media was reporting that Bernie Madoff had confessed to his two sons that his multibillion-dollar investment firm was a complete fraud. There were no investments, he had told them;

there never had been. Instead, for more than two decades, he had been running the largest Ponzi scheme in history. His sons had immediately informed the Federal Bureau of Investigation (FBI), and agents had shown up at Madoff's apartment early that morning and arrested him. They'd taken him out in handcuffs. It looked like many thousands of people had lost billions of dollars.

It was exactly as I had warned the government of the United States approximately \$55 billion earlier. And as I stood in the lobby of that dojo, my sense of relief was replaced by a new concern. The piles of documents I had in my possession would destroy reputations, end careers, and perhaps even bring down the entire Securities and Exchange Commission (SEC), the government's Wall Street watchdog—unless, of course, the government got to those documents before I could get them published. I grabbed my kids and raced home.

My name is Harry Markopolos. It's Greek. I'm a Chartered Financial Analyst and Certified Fraud Examiner, which makes me a proud Greek geek. And this, then, is the complete story of how my team failed to stop the greatest financial crime in history, Bernie Madoff's Ponzi scheme. For the previous nine years I had been working secretly with three highly motivated men who worked in various positions in the financial industry to bring the Bernie Madoff fraud to the attention of the SEC. We had invested countless hours and risked our lives, and had saved no one—although eventually, after Madoff's collapse, we would succeed in exposing the SEC as one of this nation's most incompetent financial regulators.

For example, it was well known that Madoff operated his legitimate broker-dealer business on the 18th and 19th floors of the Lipstick Building on New York's East Side. But what was not generally known was that his money management company, the fraud, was located on the 17th floor of that building. Months after Madoff's collapse, the FBI would reveal to my team that based on our 2005 submission providing evidence that Madoff was running a Ponzi scheme, the SEC finally launched an investigation—but that its crack investigative team during the two-year-long investigation “never even figured out there was a 17th floor.” I had provided all the evidence they needed to close down Madoff—and they couldn't find an entire floor. Instead they issued three technical deficiency notices of minor violations to Madoff's

broker-dealer arm. Now, that really is setting a pretty low bar for other government agencies to beat. But sadly, all of this nation's financial regulators—the Federal Reserve Bank, the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, and the Office of Thrift Supervision—are at best incompetent and at worst captive to the companies they are supposed to regulate.

As I would later testify before Congress, “The SEC roars like a mouse and bites like a flea.” In retrospect, considering how much I have learned since then, and how much my team has learned, that probably was inaccurate: I was being too kind. Tens of thousands of lives have been changed forever because of the SEC's failure. Countless people who relied on that agency for the promised protection have lost more than can ever be recovered. In some cases people lost everything they owned. And truthfully, the SEC didn't even need to conduct an extensive investigation. My team had given them everything they needed. With the materials we submitted, it would have taken investigators no more than the time it took to ask Madoff three questions for his fraud to be discovered and his operation to be shut down. The magnitude of this Ponzi scheme is matched only by the willful blindness of the SEC to investigate Madoff.



This was not my first fraud investigation. My first investigation, which had a much more satisfying conclusion, concerned stolen fish. At one time my dad and two uncles owned a chain of 12 Arthur Treacher's Fish & Chips restaurants in Maryland and Delaware. Eventually I became the assistant controller, which was basically a glorified bookkeeper. Then I became the manager of four units in Baltimore County. If you own a chain of restaurants, you will learn more about retail theft than you care to know. We had one manager who was using the restaurant as a front for his major income activity, which was selling drugs out of the drive-through window. Customers would place their order with him and find something other than fish and chips in their bags. We had another manager we knew was stealing from the restaurant, but we couldn't figure out how he was doing it. Finally my uncle parked across the highway in the International House of Pancakes parking lot and watched him through a pair of binoculars. He discovered that when the

cashier took her break, this manager would literally bring in another cash register from his car, and for the next hour he would ring up sales for himself. He had a nice business going; unfortunately, it was my family's business.

We had a limited number of family members; so to eliminate fraud we had to rely on professional management, using the most advanced computers available at that time, to manage inventory. We had formulas for the components that went into every order: the amount of fish, chicken, shrimp, and clams. Every portion was controlled by size. I learned accounting in those restaurants. We continually matched our inventory to our sales and in that way could determine where our shortfalls were. Our goal was 3 percent waste. We wanted some waste, and some leftovers, because at the end of the night if you don't have waste it means you've given your customers cold fish or spoiled shrimp that should have been thrown out. Too little waste meant you were not providing a quality product; too much waste meant there was theft.

When I discovered more than 5 percent waste in my district, I began examining the numbers. The numbers told me that something was fishy in one of our fish and chips stores. I appreciate mathematics, and I knew the answer was in front of me; I just had to be smart enough to find it. I enjoy watching the choreography of the numbers. There is a certain satisfaction I get from it. I wasn't always that way; in seventh and eighth grades I struggled with math and needed a tutor to lead me through algebra. In high school I excelled in math and enjoyed it. I studied finance in college and had terrible calculus teachers. They were PhD's who didn't know how to teach. I couldn't understand them, and I dropped the subject three times. I finally hired a PhD student in physics to tutor me, and eventually I was doing differential equations. I turned out to be a natural in math.

More than a natural, in fact. I'm a quant, which is the slang term for a quantitative analyst. Basically, that means I speak the language of numbers. Numbers can tell an entire story. I can see the beauty, the humor, and sometimes the tragedy in the numbers. Neil Chelo, a member of my Madoff team and a close friend, describes quants as people who conceptualize things in the form of numbers. As he says, quants look at numbers and see associations that other people aren't even aware exist, and then understand the meaning of those associations in a unique way.

A lot of my friends are quants. Neil is a quant; he can be obsessive about balancing not only his monthly bank statements, but even his credit card bills—to the penny. Quants are nerds and proud of it.

I look at numbers the way other people read books. For example, obviously computers are pretty darn fast doing math and calculating the value of derivatives, but even today there are certain calculations that are so math intensive that even a computer can choke on them. Occasionally a situation arises in which there is a second derivative, called gamma, which is the rate of change in the first derivative, delta. Don't try to understand this calculation, unless you intend to trade options. You'll never need to know how to do it and there is no test at the end. And you certainly won't need to know it to understand how Bernie Madoff successfully ran his worldwide Ponzi scheme for decades. Bernie's fraud was much less sophisticated than that. But in those situations prices can move literally at an infinite rate. A computer can't track it very quickly. I can. After working in the financial industry for several years I could calculate those prices faster than a computer. Generally there were a couple of times every year when I had to throw out the computer and look at the price of a stock or the market and calculate my own option prices in a few seconds. In one of those situations, my ability to do the calculations rapidly and correctly could salvage our investment or even allow us to make a lot of money. Actually, it was that same combination of ability and experience that enabled me to look at the returns of Bernie Madoff and know almost instantly that his claims were impossible.

It was my ability to understand the numbers that allowed me to catch the thief in my fish and chips store. I started by inventorying every shift for a week or two, which allowed me to pinpoint those shifts on which the thefts were occurring. That allowed me to identify the suspects. Finally I determined that there was only one person working all those shifts. Once I knew who the thief was, I was careful not to catch him. He was putting food in a shopping bag and carrying it out to his car. If I had caught him doing it I would have had to fire him, which probably would have meant paying unemployment. The amount of money involved was too small for law enforcement to become involved, but significant for my business. So rather than firing him, I didn't say a word. Over time I just cut back his hours until he

was working only one shift a week—not enough to survive on—and he quit.

Bernie Madoff was a much bigger fish, but oddly enough not much more difficult to catch.

Actually, it was another fraud that first brought me into the financial industry. My father's former banker, the man who got the family into fast food, was working as a registered representative, a salesman, at a firm called Yardley Financial Services. It was shut down after the CEO was caught selling fake London gold options. The former banker joined several other former Yardley employees and opened Makefield Securities. My dad bought a 25 percent interest in the firm, and I went to work there in 1987.

I began by doing oil and gas partnership accounting, completing depreciation schedules, matching trade confirms—all relatively basic and often very boring work. I probably was underpaid for the work I was doing, but whenever you work for family you're going to be underpaid. Look at Bernie Madoff's two sons. Their father was running the most successful fraud in history and—at least according to Bernie—he wouldn't let them participate.

My first day as a licensed broker was October 19, 1987. I remember it well because that was the day the stock market crashed. Makefield was an over-the-counter market maker that traded between 12 and 25 stocks. We relied on Harris terminals—dumb terminals I called them because they did not automatically update prices. They simply provided the quote at the moment you hit the stock ticker. But they showed who was bidding and asking on shares at different prices. I came in to work that morning ready to begin my career as a broker, and instead walked into chaos.

We had only four phone lines coming in. They started ringing at 9 A.M. and never stopped. Not for a second. I knew that it was unusual, but I hadn't been in the market long enough to understand it was unprecedented. I did know that it wasn't good. We were one of the few companies buying that day, because we were short; we had been betting that the market would go down, and needed to cover our positions. For much of the time we didn't even know where the market was—our computers couldn't keep up with the price declines. The New York Stock Exchange tape was delayed about three hours, so at

1 o'clock in the afternoon we were still getting trades from 10 A.M. There wasn't a moment of calm the entire day. Everybody in the office was shell-shocked. They were trading every step down. I had been trained, but I wasn't ready to be thrown into the battle. I was so junior that they certainly weren't going to trust me. I spent the day running errands and setting up trading calls so that our traders could handle their calls more efficiently. We knew the market was crashing, but we didn't have enough information to understand how bad it was. The end of the day was the ugliest close anybody would ever want to see. We worked through much of the night processing trades, trying to get some understanding of where we were. The market had fallen almost 23 percent.

So much for my first day as a licensed broker.

What surprised me from the very beginning of my career was the level of corruption that was simply an accepted way of doing business. Bernie Madoff wasn't a complete aberration; he was an extension of the cutthroat culture that was prevalent from the day I started. This is not an indictment of the whole industry. The great majority of people I've met in this industry are honest and ethical, but in a business where money is the scoreboard there is a certain level of ingrained dishonesty that is tolerated. I became disillusioned very quickly. I learned that the industry is based on predator-prey relationships. The equation is simple: If you don't know who the predator is, then you are the prey. Frank Casey, who discovered Madoff for our team, referred to those elements on Wall Street that conduct their business for bottom-line profits rather than serving their clients as "rip your face off financing." I don't know where my education went wrong, but my brother and I had been taught that there was no such thing as a minor lapse of ethics. Either you were honest or you were not. It was not possible to be partly honest. I learned that at Cathedral Prep in Erie, Pennsylvania. It was the kind of Catholic school that had a very strict rule that every teacher followed: Once a teacher knocked you down he had to stop beating you.

I was one of the better-behaved students and was knocked out cold only once. At the beginning of the year we had to turn in two bars of soap to use in the showers after gym. I brought two bars of Pet'um Dog Soap, which leaves your coat shiny, clean, and tick-free. It had a nice drawing of a Scottish terrier on the wrapper, which I showed to

my classmates. That was my mistake. The teacher called us individually to drop our soap in a box at the front of the room. When my name was called, the rest of the class started laughing loudly. The teacher looked in the box and found my Pet'ums. "Come here, Meathead," he commanded. He grabbed a thick textbook and beat me with it until I went down. He followed the rules! When I got a beating like that I couldn't go home and tell my parents, because my father would then give me another beating for causing a problem in school.

A prank I did get away with was infesting the school with fruit flies. In 10th-grade biology class we were breeding fruit flies for a series of experiments. I managed to sneak a vial home and secretly bred two complete cycles, so I had tens of thousands of fruit flies in a five-gallon jar. I explained to my mother that I was breeding them for a special science project. One morning I convinced her to bring me to school early. I slipped into the school through an open door by the cafeteria and released them all. It took them three days to infest the entire building, which had to be fumigated over the weekend.

More often, though, I got caught. Detention was held on Saturday mornings, when our job was to clean the school. I was a regular in detention. My parents never knew, though; I managed to convince my mother that I was in a special honors program that met on Saturday mornings. She would brag to her friends that her son Harry was so smart he was invited to attend honors classes on Saturdays!

At Cathedral Prep the difference between right and wrong was demonstrated to me on a daily basis. I learned there that actions had consequences. When I began working in the financial industry I learned very quickly that dishonest actions also had consequences—often you ended up making a lot more money. The most valuable commodity in the financial industry is information. Manipulating the market in any way that gives an individual access to information not available to other people on an equal basis is illegal. In early 1988 I was promoted to over-the-counter trader. I was making a market in about 18 NASDAQ stocks. One of the companies with which I traded regularly was Madoff Securities. That was the first time I had ever heard the name. All I knew was that it was a large and well-respected company at the other end of the phone. Madoff was a market maker—the middle-man between buyers and sellers of stocks—and if you were dealing

in over-the-counter stocks, eventually you had to do business with Madoff. It was soon after I started trading that I encountered massive violations taking place on an hourly basis. This was not true at Madoff specifically; in fact, I don't remember a single incident in which its brokers were dishonest. But I had just learned all the regulations, and I saw them broken every day, every hour; and everybody knew about it and nobody seemed to care. The regulations were quite clear. The sellers in a deal have 90 seconds to report a trade. By not reporting it they were allowing the price to stay at levels different from those that would have resulted if the trading volume had been reported. Basically, it meant they were trading on inside information, which is a felony. It causes a lack of the transparency that is necessary to maintain fair and orderly markets.

This happened in my trades every day. It was an accepted way of doing business, although I couldn't accept it. I would report it regularly to the district office of the National Association of Securities Dealers (NASD) in Philadelphia, and they never did a thing about it.

My younger brother had similar experiences. At one point he was hired by a respected brokerage firm in New Jersey to run its trading desk. On his first morning there he walked into the office and discovered that the Bloomberg terminals that supposedly had been ordered hadn't arrived. Then he found out that the traders didn't have their Series 7 licenses, meaning they weren't allowed to trade. And then he learned that the CEO had some Regulation 144 private placement stock, which legally is not allowed to be sold. But the CEO had inside information that bad news was coming and he wanted to sell the stock. My brother explained to the CEO, "You can't sell this stock. It's a felony." The CEO assured him he understood.

My brother went out to lunch with the Bloomberg rep to try to get the terminals installed that he needed to start trading. By the time he returned to the office, the unlicensed traders had illegally sold the private placement stock based on insider information. My brother had walked into a perfect Wall Street storm.

He called me in a panic. "What do I do?"

I said, "These are felonies. The first thing to do is write your resignation letter. The second thing you do is get copies of all the trade tickets; get all the evidence you can on your way out the door. And

the third thing you do is go home and type up everything and send it to the NASD.” That’s exactly what he did. The NASD did absolutely nothing. These were clear felonies and the NASD didn’t even respond to his complaint.

When I started at Makefield in 1987, the industry was just beginning to become computerized, so most of the business was still done on the phone. I would spend all day with a phone hanging from my ear. I spoke with many of the same people every day and often got to know them well—even though I never met them in person. Among the people I most enjoyed speaking with was a client named Greg Hryb, who was with Kidder Peabody’s asset management arm, Webster Capital. Greg was nice enough to take time during those calls to teach me the business. When he started his own asset management firm, Darien Capital Management, in June 1988, he hired me as an assistant portfolio manager and an asset manager trainee. I moved to Darien, Connecticut, that August, and it was there that my education really began.



Darien Capital Management was a small firm; there were only four or five of us working there. But in the early 1990s we were managing slightly more than a billion dollars. And that’s when a billion dollars was a lot of money. We considered ourselves an asset management firm, but we operated as a hedge fund. Because we were so small, each of us had to wear many hats, which was a great opportunity for me. I did everything there from routine correspondence, monthly client statements, and handling of compliance issues to assisting a very good fixed-income portfolio manager. It was a lot of grunt work, but I was in on all the action. I got to learn the business of being a money manager by being an assistant portfolio manager. I learned more there in three years than I might have learned elsewhere in a decade.

Certainly one of the more important things I learned was that the numbers can be deceiving. There is a logic to mathematics, but there is also the underlying human element that must be considered. Numbers can’t lie, but the people who create those numbers can and do. As so many people have learned, forgetting to include human nature in an equation can be devastating. Greg Hryb showed me the value of networking; he

helped me build the wide spectrum of friends and associates I was able to call upon during the nine years of our investigation.

I stayed at Darien Capital for three years. One of the people who marketed our products was a woman named Debbi Hootman. Eventually I became friendly with Debbi and her future husband, Tim Ng, who was working at Smith Barney at that time. Eventually Tim recommended me to Dave Fraley, the managing partner at Rampart Investment Management Company, in Boston, who hired me as a derivatives portfolio manager.

Rampart was an eight- or nine-person institutional asset management firm that ran almost nine billion dollars, the majority of it for state pension plans. When I began working there it had a suit-and-tie, kind of starchy New England atmosphere. It exemplified the conservative Wall Street firm. Gradually, though, just like in the industry itself, standards were relaxed and we evolved into a more casual dress-down-Fridays place to do business. It was at Rampart that I began my pursuit of Madoff and my battle with the SEC.

The relentless quest pursued by just about every person working in the financial industry is to discover inefficiencies in the market that can be exploited. It's sort of like trying to find a small crack in a wall—and then driving a truck through it. At one time, the business of Wall Street consisted almost entirely of selling stocks and bonds; it was a staid, predictable business. Stocks went up; stocks went down. But then some very smart people began developing an array of creative investment products, among them indexed annuities, exchange-traded funds, structured products, and mortgage-backed securities. The business of basic investments became extraordinarily complicated, far too complicated for the casual investor to understand. Every firm in the industry and practically every person in the business had a theory and developed their own niche product in which they became expert. Everybody. These products were created to take advantage of every move the market made. Up, down—that didn't matter anymore. So rather than simply picking stocks in companies whose names they recognized and whose products they used, investors suddenly had a supermarket of esoteric—meaning sometimes speculative and risky—investment opportunities from which to choose. Rampart's investment strategy was called the Rampart Options Management System. It's not important that you understand what we did, but simply that Rampart sold call options against client portfolios

in a highly disciplined fashion, which would generate cash flow while reducing the overall risk. We were writing covered calls on big stock portfolios for institutions. It was a strategy that over an entire market cycle increased income while decreasing risk—as long as our client didn't panic at the top. Unfortunately, as I learned, too many clients panicked right before the market topped and pulled out just before the strategy was about to become highly profitable.

Each summer Rampart would bring in an unpaid intern from a local college and I would mentor him or her. In the summer of 1993 that intern was Neil Chelo, a confident, wiry young man from Bentley College, a business school in Waltham, Massachusetts. Several years later Neil was to become a member of my Madoff team. Neil almost didn't take the intern job. Although his father encouraged him to work for the experience, telling him that Wall Street people were smart and that if he got down in the trenches with them, eventually he would make a lot of money, his mother was strongly against it. "Be something respectable," she told him. "Be a doctor or a lawyer." He pointed out to her that they were Turkish-Albanian, not Jewish. But what really upset her was the fact that her Turkish-Albanian son was going to work for a Greek! She told him, "Oh, my God, Neil. That's why you're not getting paid. The Greeks always take advantage of the Turks!"

Of course, as I would occasionally point out to Neil, that's not exactly the way Greeks interpret the Greek-Turkish relationship.

When Neil began his internship, he assumed he was going to sit down at the trading desk and learn by participating in the business. Instead, I handed him a reading list of about 14 books and told him his job that summer was to read all of them so we could discuss them. Among the books on my list were *Market Wizards* by Jack Schwager (New York Institute of Finance, 1989); Justin Mami's *The Nature of Risk* (Addison-Wesley, 1991); and *Minding Mr. Market* (Farrar Straus & Giroux, 1993) by James Grant. My objective was to provide him with the education he wasn't going to get in an academic curriculum. Although I don't dislike business schools, I believe half of what they teach students will be obsolete within five years and the other half is just outright false. Generally, they teach formulas that no one uses, case studies that no longer apply in the real world, and concepts that are just going to get people into trouble if they try to apply them. These formulas are an attempt to model the financial

world in a simplified form, but they can't possibly take into account the extraordinary complexity of the markets. It's important to know these formulas, though; once you've mastered them you can begin to make the necessary adjustments for the real world.

Neil spent about half his time helping prepare monthly statements, confirming trades, tracking dividends, downloading reports, and doing all the other work done in the back office. The other half was spent reading books on my list. He sat across the desk from me, and I literally would quiz him. If he didn't know the answer, I'd expect him to find it. And I insisted he do all the math by hand. Neil remembers (I don't) that one afternoon I gave him the Dow Jones Industrial Average for 30 stocks and their price fluctuations for a day and asked him to calculate the actual point change in the Dow. It was not difficult to pull it up on a calculator, but I insisted he do the math.

Neil was obviously smart, but even as an intern, he was headstrong and opinionated. If he disagreed with something I said, he would not hesitate to let me know quickly and forcefully. And like a pit bull, once he got his teeth into an argument he wouldn't let it go. Now, I had spent 17 years in the military. Among the lessons I had learned was that you can raise an objection once, maybe twice; but once a command decision was made, you didn't continue to question it. Neil hadn't learned that lesson, so when he believed he was right he wouldn't let go. But these weren't frivolous arguments; he knew his stuff. That's what made him so valuable when we began to analyze Madoff's numbers.

Math came naturally to Neil. Like me, maybe even more than me, he could glance at numbers and draw meaningful conclusions from them. At Bentley College, he played a lot of poker, ran a small bookie operation, and came to believe firmly in the efficient markets hypothesis. Believing that concept was where Neil and I differed most. The efficient markets hypothesis, which was first suggested by French mathematician Louis Bachelier in 1900 and was applied to the modern financial markets by Professor Eugene Fama at the University of Chicago in 1965, claims that if all information is simultaneously and freely available to everyone in the market, no one can have an edge. In this hypothesis having an edge means that for all intents and purposes you have accurate information that your competitors don't have. It basically means that you can't beat the market, that there is no free lunch.

After the first few weeks, Neil and I began going out to lunch together, to a local Greek place, naturally. The most important thing I taught Neil that summer was that what he learned in the office was not going to determine his success in this business. The only possible way of gaining an edge in the financial industry is by gathering information that others don't have. There are so many smart people in this business that it's impossible to outsmart them, so you simply have to have more and better information than they do. Information on a database that can be purchased is available to everyone; there's no advantage to having it, but the knowledge that one day might make a difference is best obtained from others in simple conversations. It's stuff you can't buy from a database provider; you have to learn it one relationship at a time. In the army we called it human intelligence gathering.

I had established the one-third rule: For every three hours you spend at work you have to spend at least one hour outside the office on professional development. That might mean reading material that might improve your life, but more likely it meant—just as I had learned at Darien Capital—social networking. I encouraged Neil to take advantage of the pub culture in Boston, to go to professional association meetings, and to go to dinners. As I explained to him, that's where the information that one day may make the difference is learned. That's where you find out what other firms are doing to be successful and where they are failing, what their problems are, and how they're dealing with them. For example, in those social conversations you hear about the idiosyncrasies of different traders, so when you see them making a move you know how to properly interpret it. I taught him that it is important to know everything that's going on in your field, in your industry, and in your sector in the industry, and that the only real way to do that is going to lunches and dinners and happy hours and meetings and getting there early and staying late. I taught him that ignorance begins where knowledge ends, so to be successful he needed to be a gatherer and a hoarder of information.

These were the tools we depended on throughout our investigation.

When Neil returned to college in the fall of 1992 to earn credit for his work as an intern, he had to write a paper. This will tell you what you need to know about Neil: The paper he wrote criticized the basic investment strategy we used at Rampart because it violated the efficient markets hypothesis.

Three years later, after working in various jobs at several different types of investment companies, Neil returned to Rampart. Initially he was hired to upgrade our accounting system, with the unspoken hope that eventually it might become something more. For several months Neil ran two accounting systems—our legacy system and the new system—in parallel, and reconciled everything to the penny. If he couldn't get that last penny to balance, he'd work at it until it did. But what he really wanted to do was portfolio management. Eventually our desks were back-to-back; so we sat directly across from each other, separated only by a divider about 18 inches high, for nine hours a day, five days a week. Over several years we got to know each other better than we knew our families. Neil and I were both research geeks who loved the hunt, and we spent considerable time searching for ways to optimally create portfolios that had the highest chance of beating the benchmark with the lowest risk. We pushed each other. So when we first encountered Bernie Madoff it was only logical that we would see it as an academic exercise, as another strategy to be taken apart and analyzed to help us develop a strategy that would benefit our clients, and not as the largest fraud in Wall Street history. We weren't looking for a crime; we simply wanted to see how he made his numbers dance.

It was Frank Casey who first brought Bernie Madoff to my attention. Frank Casey worked on the other side of the ledger; years ago he would have been known as a customer's man, but now he was a marketing representative. Frank is a gregarious Irishman, a man who attacks life and has combined his gift of language with his effervescent personality to become a successful salesman. In addition to selling our financial products, he also would find needs in the market that we might fill. On Wall Street a salesman is an interpreter of numbers. While Frank isn't a quant, being the middleman between the customers and the quants meant that he had to have enough understanding of the market to bring needs and products together.

Frank had been working in the industry doing a great variety of jobs for more than a quarter century when we met. He grew up with a love for the market, using money he earned running a jackhammer on a summer job while still in high school to buy his first stock, Botany 500, a men's clothier. At that time he didn't own a suit, but he had the stock. He doubled his money, and he was hooked. He remembers

spending much of his junior and senior years in high school reading the stock market pages and books about investing—and writing poetry. He learned the realities of the market less than a year later; when the 1967 Israeli-Arab War started, he figured American Jews would become patriotic, so he invested in Hebrew National—and watched as the stock sat unmoved. But after that there was no doubt in his mind where he wanted to work. After four years in the military, finishing as an army captain, Airborne Ranger qualified, he started as a trader at Merrill Lynch in 1974 with an interesting strategy: “I figured everybody else who was starting as I was, cold-calling from the Yellow Pages, went from the front to the back. My buddy and I split the book in the middle, he worked middle to the back and I worked middle to the front. We called every business in the Boston Yellow Pages. That was our sophisticated strategy.” By 1987 Frank was hedging more than a billion dollars in mortgages for banks. Because during most of his career he has earned his paycheck from commissions rather than from a fixed salary, mostly by creating and executing sales of his own products, he has developed an intuitive feeling about the people working on Wall Street and the products they market. So while at the very beginning he couldn’t quite figure out what Bernie Madoff was doing, whatever it was, it just didn’t feel right to him.

Frank Casey and Rampart cofounder Dave Fraley had met while both of them were working at Merrill Lynch in the mid-1970s. Like many relationships on Wall Street, their paths had crossed several times through several companies since then. When Frank found out that Rampart was specializing in options, an area in which he had a lot of experience, he approached Fraley, the managing partner in charge of marketing our products, and began working on commission. He was a Wall Street prospector, finding companies that would benefit from Rampart’s products. In return, Dave Fraley directed me to execute trades through Frank, for which he earned a small commission. That’s how we met. To me, he was an aggressive marketer. As I later found out, to him I was just another geek portfolio manager. It was a typical Wall Street retail versus institutional relationship. We needed each other, so we got along. That began changing in February 1998 when Fraley hired him to market products and develop new business.

It was impossible not to know Frank was there. His office was right next to the trading room and he was salesman-loud. At first we simply shut his door; but his voice boomed right through that closed door, so eventually management had to erect a glass wall so we could concentrate. I got to know him pretty quickly because he would sit down at my desk and ask me to explain our products to him. He understood the marketing aspect, but he wanted to understand exactly how they worked. Frank wanted to know the nuts and bolts of each product, how it worked under various market conditions, and where it fell short. He asked endless questions. What are the trading rules? What are your stop losses? What triggers a trade? What causes you to sit on a position? He wasn't a mathematician, but he wanted us to explain the math to him until it made sense. This was his way of getting that edge over the competition.

There are few things quants like more than explaining their math to an interested listener. And Frank does have that Irishman's way of making you feel comfortable with him. So it was only a matter of time before we were continuing our discussions after work in the better pubs of Boston. Over time we discovered several things we had in common, including the fact that although I was a reserve army officer while he had been regular army, both of us had been commissioned as second lieutenants in the infantry, which allowed us to tell plenty of funny stories about military life; and neither of us had a lot of respect for the corner-cutting ways business was often done in the financial industry.



It is surprising that nobody actually knows how many hedge funds or money management firms operating as hedge funds exist in this country. There are no regulations that require funds to register; in fact, there are actually few regulations that they have to follow. But there at least 8,000 hedge funds, and perhaps thousands more. So out of all of those funds, how did I manage to find and identify the single most corrupt operation in the world? (Or at least I certainly hope he was the most corrupt one.) Our investigation of Bernie Madoff started with these conversations between Frank Casey and me.

A properly managed firm invests its clients' money in a variety of financial products. The firm's goal is to create a balanced portfolio that has the potential to earn substantial profits while being protected from

any drastic losses. A conservative portfolio, for example, consists of about 60 percent equity—stocks—and 40 percent bonds. Frank would meet regularly with portfolio managers to see what kinds of investments they were looking for and try to fulfill those needs.

Like Neil and me, Frank was always looking to expand the number and quality of Rampart's products. He had been hired because our two primary products, the Rampart Options Management System and a covered call writing program, had lost their sizzle and we needed something new to sell. So almost immediately he began trying to develop innovative ways to market our expertise. Among the products he and Neil worked on were principle-protected notes, which provide the chance of making a profit with the guarantee that you can't lose the principle. Basically they involved using part of the investment to buy zero-coupon Treasury bonds, knowing the return over five or 10 years would equal the entire investment, and using the rest of the money to invest in hedge funds with leverage. The worst-case scenario was that after five or 10 years you'd get the original investment back but without any earnings. Basically, if the investment went south, the most a client could lose was the interest he or she would have made on the principle over five or 10 years. Frank's plan was to have certain banks construct a blended pool of fund managers that could use the investment portion to produce something close to a 1 percent monthly return to the client, with the triple-A-rated bank guaranteeing the return of the original investment. Dave Fraley was supportive, telling Frank to try to build that part of the business. So Frank began prospecting institutions throughout New England, all the way into New York City.

The financial industry is a business of contacts and relationships. No one ever buys a product and says, "That product is the sexiest thing I've ever seen. I don't care who's selling it." Generally people do business with people they trust and like, or people who are recommended by someone they trust. So like any good salesman, Frank was always looking for leads. He was constantly asking us who we knew at what firms. Who could we introduce him to? He used to complain that I never introduced him to my friends, and there was some truth to that. Finally, though, I referred Frank to my old friend Tim Ng, who was then a junior partner at a Madison Avenue fund of funds, Access International Advisors. Basically, Access was a hedge fund of funds whose investments

were spread among several other hedge funds. It was what I always referred to as fighting size, meaning it managed more than \$1 billion. I only found out later that almost all of its clients were European royalty or high-born old money.

As I told Frank, “I’ve heard from Tim Ng that his boss found a manager who’s putting out one to two percent a month or more net to client. Would that help you in building these principle-protected notes?”

The fact is that I was curious to see how this manager could consistently generate such a high return. Nobody ever beats the market month after month—nobody. The market can go up, remain neutral, or go down. There is no single strategy that provides a consistent return no matter what the market does. So I told Frank, “Why don’t you go down there and figure out what their game is?”

Frank wanted to know about this manager, too; if he really was that good, Frank could refer him to the banks that were building portfolios for Rampart. If he actually had discovered the holy grail, we could use him in our products.

They met in Access’s Madison Avenue office. Unlike so many of the elaborately decorated financial offices, this one was tastefully but simply decorated. It was an open plan, with steel desks side by side: a working office. Tim explained to Frank that he didn’t handle that side of the business and set up an appointment for him with the CEO of Access, a Frenchman named Thierry de la Villehuchet. Like Frank, I would eventually get to know and like Thierry very much. Rene-Thierry Magon de la Villehuchet was a terrific person, a French nobleman who, as it tragically turned out, truly was a noble man, a man of honor. He wasn’t an expert in financial math, but he was a great salesman. He and another Frenchman, Patrick Littaye, had founded Access. Both Thierry and Patrick had lived in the United States long enough to consider themselves Americans. They loved the American entrepreneurial spirit and considered themselves Americans in spirit. Thierry believed completely in American values. He took the Statue of Liberty very seriously. As Thierry once explained to me, in a French accent tempered by the years he’d lived here, “The French are socialists; we’re not socialists. Americans are capitalists; we’re capitalists. We believe in economic freedom; therefore we’re Americans.”

Thierry had a medium build, and everything about him was impeccable. He was always formal, always dressed in a suit and tie. The product he was marketing was himself, and he sold it well. I never knew precisely how old he was, but I guessed he was in his mid-50s when we met. I never knew how wealthy he was, but clearly he was a quietly rich man. Like Frank, Thierry was passionate about sailing, and one afternoon I took him to a shop that specialized in miniature sailboats and nautical items for home decor. He bought a miniature sailboat for \$5,000 for his home in Westchester County, New York. "Maybe I overpaid," he told me, "but I loved that boat."

As it turned out, Thierry had his own motive for meeting Frank Casey. While his firm was called "International," almost all the investments managed by Access came from Europe, and Thierry was trying to raise Wall Street money. So during this first meeting with Frank, Thierry spent considerable time promoting his company. That's probably why he was unusually candid about the business. "At first I was the hedge fund unit of a French bank in the United States," he explained. "I built this business basically to find the best managers early in their careers and lock them up for capacity, so later when people wanted to invest with them I would have access to them. Therefore the name of our firm: Access to the best managers. That's what we provide for our clients."

When Frank asked him specifically about the manager who supposedly was producing a 1 to 2 percent net return each month, Thierry nodded. "It's true. I do have this manager who's producing a good steady one to two percent net, and I found him early in the development here. He's my partner. But I'm sorry—I'm not supposed to tell his name to anyone. If I do he might not give me any capacity."

That was curious. Generally, when someone is consistently able to produce such spectacular returns, they would want their name and success widely circulated. What could possibly be better for business? But this manager was threatening to turn away clients who dared mention his name. Frank asked why this manager wanted his identity kept secret.

"He doesn't hold himself out to be a hedge fund. He has only a few large clients. Actually he's a broker-dealer, but he's using hedge fund strategies in his money management business."

At that moment Frank had no reason to question any of this. And if what Thierry was telling him was true, this manager was a major find.

He told Thierry, “You know, we might be interested in doing business with Access if you could put together a portfolio. If you included managers like him I probably could get the banks to guarantee the return of principle.”

Thierry liked that concept. “His name is Bernie Madoff.”

Anyone who had worked in the stock market even for a short period of time knew that name, if not his background. The company he’d founded, Madoff Investment Securities LLC, was among the most successful broker-dealers on Wall Street, specializing in over-the-counter stocks. Madoff Securities was a well-known market maker, meaning he both bought and sold stocks, making his profit by selling for a few cents more per share than his purchase price. Madoff Securities was a pioneer in electronic trading, enabling the company to rapidly move large blocks of over-the-counter stocks. But what really set Madoff apart was his willingness to pay for order flow. Normally, the difference between what market makers paid for a stock and what they sold it for was about 12.5 cents. That was their profit. But instead of taking a fee for this service, as was normally done, Bernie actually paid firms as much as two cents per share for their business. Even though he was earning a penny or two less per share, he more than compensated for that with greatly increased volume. In the early 1990s Madoff Securities was reputed to be responsible for almost 10 percent of the daily trading of New York Stock Exchange-listed securities. By the end of the decade the company was the sixth largest market maker on Wall Street. That strategy had made Madoff rich, and had enabled him to become one of the most respected men in the financial industry. He marketed himself as a cofounder of NASDAQ and had served as its chairman; he was a prominent New York philanthropist and a member of numerous industry and private boards and committees. Thierry might have been born with royal blood, but Bernie Madoff was a Wall Street king.

Frank Casey had never heard anything about Bernie Madoff managing money, though. But even more unusual was the arrangement between Access and Madoff. As Thierry explained, “I opened an account with Madoff Securities and he gets to use the money any way he wants. I’ve given him full discretion to put my client’s money with his personal money when it’s needed.”

“So basically you’re loaning him the money, right?” Frank asked.

Thierry agreed, pointing out, “It’s secured by his good name.” In other words, if you couldn’t trust Bernie Madoff with your money, then there was no one who could be trusted. Madoff’s investment strategy was a technique known as split-strike conversion, a strategy that Frank knew a lot about—and knew that by design it would produce only limited profits. There was nothing unique or exotic about the split-strike conversion strategy. Option traders often referred to it as a “collar” or “bull spread.” Basically, it involved buying a basket of stocks, in Madoff’s case 30 to 35 blue-chip stocks that correlated very closely to the Standard & Poor’s (S&P) 100-stock index, and then protecting the stocks with put options. By bracketing an investment with puts and calls, you limit your potential profit if the market rises sharply; but in return you’ve protected yourself against devastating losses should the market drop. The calls created a ceiling on his gains when the market went up; the puts provided a floor to cut his losses when the market went down. As Thierry explained, Madoff had a big advantage: “He determines what stocks to buy or sell based upon his knowledge of the market and his order flow.” In other words, he would use the knowledge gained from his role as the middleman in stock trades, which sounded suspiciously like insider trading. Although this was the first time this possibility was raised, we were to hear variations of that claim numerous times in the following years. It was a convenient way of explaining the inexplicable. But however he was doing it, according to Thierry it worked extremely well: “This guy produces about one percent or more every month with almost no downside.”

Frank shook his head. Almost a quarter century earlier he’d been working with a young math whiz from MIT named Chuck Werner who was creating new option strategies in his living room. Options were a brand-new business, and Werner was using a PDP 11, a computer about the size of a four-drawer filing cabinet, to figure out what could be done with them. One of those strategies turned out to be the split-strike conversion. Although he’d been in that living room, Frank didn’t consider himself an expert on that strategy; but he claimed he knew enough about options to be dangerous. And in all the years since then he’d never heard of anybody consistently producing such substantial returns

from a split-strike strategy. The 12 percent annual return was possible in some years; it was the consistent 1 percent a month return—month after month almost without exception, no matter how the market moved—that concerned him. A split-strike strategy certainly wasn't without risk. There were bound to be times when it lost money, much more than was implied by the results he had seen. How could Madoff possibly still be making a profit whether the market went up or down? But Thierry seemed to have an answer for every question. To prove to Frank that Madoff's returns were real, Thierry handed him several sheets of paper listing sales confirmations, explaining, "I get reports every day of which positions are bought, which are sold, and which options are purchased and which are sold." It was all the usual data: On this date he'd bought this many shares of this stock at this price. On that date he'd sold that many shares of that stock at that price. Frank had seen thousands of these confirmations in his career, enough to know that they contained very little real information. It was like opening the hood of a car and looking at the engine. All that confirmed was that there was an engine, but there was no evidence that it ran, or what horsepower it generated, or even if it was powered by seawater. The only thing these papers confirmed was that Madoff was producing paperwork. Frank wondered what Access did with these reports when it received them.

Thierry brought him into another room, where two clerks were busy typing these statements into a computer. "I want to make sure when I get the monthly statement that all of these trades actually show up on that statement," he said. "I'm also trying to reverse engineer what he's doing. I want to see where his edge is."

Frank was incredulous. Access wasn't receiving any electronic confirmation on execution from Madoff. It was simply getting sheets of paper with numbers on them, typing them into a computer, and logging them on a spreadsheet. "Thierry, basically you told me you give this guy your money. I don't know him from a hole in the wall, but I know he's got full discretion and he's the primary market maker. He writes his own trade tickets. It's not like you have an account at Charles Schwab or Fidelity; this guy is executing his own trades. He produces the trade tickets and the statements. I mean, there aren't even commissions on any of these things, right?"

Thierry agreed that everything was done in-house. Unfortunately, it was Bernie Madoff's house.

Frank may have been the first person to ask Thierry this question about Bernie Madoff: "Let me ask you this, Thierry. What if he's phonying up records? What if he's just printing these tickets?"

"No, no, no," Thierry responded quickly. "It's not possible. Listen, we know this guy. We've been doing business with him for a while and everything has always balanced out. It's got to be real, because I check to see that all the trades match against the monthly statement."

Frank suggested to Thierry that rather than having two men spend their time processing data that Madoff had generated, he should hire one person who should sit down on Friday night and confirm that every stock had actually sold for a price within the day's highs and lows. "If the ticket reports that a stock sold outside the day's highs and lows, you know he isn't doing what he says he's doing. But I don't see the value in what you're doing."

Several months later, we discovered another method Access used to conduct due diligence. When we started to work on another project, Thierry asked Frank and another man to submit handwriting samples, which were then sent to a handwriting analyst in France. This analyst supposedly could determine from an individual's handwriting whether he or she were honest. This pseudo science is called graphology, and in the United States it definitely is not admissible as evidence in the courtroom. In fact, voodoo magic probably has more credibility as a crime-fighting tool than graphology. We were never able to confirm that Madoff had submitted a handwriting sample; but as Access was very serious about it, we assumed that he did. Incredibly, that was the level of Access's due diligence, that and the fact that a check arrived every month, every single month. And money always makes a strong statement.

Frank came away from that meeting believing there was a real opportunity to do business with de la Villehuchet and Access. Madoff was too risky, and Frank didn't want Rampart to get involved with him; but Thierry was different. Although he didn't know precisely how much Access had placed with Madoff—we estimated it at about \$300 million but eventually learned it was considerably more, roughly 45 percent of its total investments, about \$540 million—Frank

believed that if we could create an options strategy that would enable Access to diversify its risk away from Madoff without sacrificing too much profit, Thierry would be able to sell a lot of it to the private banks of Europe.

As Frank has occasionally pointed out, Mother Teresa did not work on Wall Street. The object of the business is to use money to make money; there is no interest in saving souls. Whatever Madoff was doing and precisely how he was actually doing it didn't concern Frank as much as his results. When Frank got back to the office, he handed Dave Fraley copies of Access's revenue stream for at least the last year that Thierry had given him. "Look at this. Access has a guy who's producing one percent, one and a quarter percent a month with a split-strike conversion strategy."

Fraley looked it over. He didn't speak numbers like a quant, but he didn't need that kind of expertise to understand the kind of returns that Madoff was producing. The bottom line was right there. As Fraley stared at it, Frank suggested, "You know, if we can come up with something that'll produce anywhere near those returns, Access can raise a lot of money."

A few minutes later, Frank handed me the copies of the revenue stream. This comes from that manager in New York we were wondering about, he said. He's running a split-strike conversion. And then he added, "Harry, if we do something similar we can make a lot of money."

I glanced at the numbers. I'd spent countless thousands of hours preparing for this moment. And I knew immediately that the numbers made no sense. I just knew it. Numbers exist in relationships, and after you've studied as many of them as I had it was clear something was out of whack. I began shaking my head. I knew what a split-strike strategy was capable of producing, but this particular one was so poorly designed and contained so many glaring errors that I didn't see how it could be functional, much less profitable. At the bottom of the page, a chart of Madoff's return stream rose steadily at a 45-degree angle, which simply doesn't exist in finance. Within five minutes I told Frank, "There's no way this is real. This is bogus."

As I continued examining the numbers, the problems with them began popping out as clearly as a red wagon in a field of snow. There

was a stunning lack of financial sophistication. Anyone who understood the math of the market would have seen these problems immediately. A few minutes later I laid the papers down on my desk. “This is a fraud, Frank,” I told him. “You’re an options guy. You know there’s no way in hell this guy’s getting these returns from this strategy. He’s either got to be front-running or it’s a Ponzi scheme. But whatever it is, it’s total bullshit.”

And that’s when we began chasing Bernie Madoff.

