

From Las Vegas to Wall Street

Ralph Waldo Gerard was one of the luckiest people in California, but he had a problem. It was 1968, and it was quite a high-class problem. But still a problem.

You see, Mr. Gerard, who at the time was the dean of the graduate school of the University of California, Irvine, had invested in a partnership run by none other than Warren Buffett. This lucky circumstance had earned Mr. Gerard incredible returns of 24 percent a year. But in 1968, recognizing that the market had become overvalued, Buffett decided to close his investment partnership. And therein lay the problem—to whom would he turn over the reins to his investment portfolio?

Mr. Gerard had come to know a professor at the university, Ed Thorp, who had been managing money for some colleagues using his own warrant hedging techniques that he had developed. Sensing another investing genius, Gerard invited the professor and his wife for dinner, along with Buffett and his wife Susie. If Buffett approved of Thorp, Gerard figured that he probably had found another winner.

Evidently, the thirty-eight-year-old Buffett made a good impression on the thirty-six-year-old Thorp. After the dinner, impressed by Buffett's intellect, Thorp predicted to his wife that Buffett would eventually become the richest man in America. That proved prescient, as Buffett indeed became the richest man in the world in 1993 and has been in the top three or four ever since.

It also appears that Thorp made a good impression on Buffett, as Mr. Gerard decided to make an investment in Thorp's fund. That turned out to be a very good idea. Thorp's hedge fund went on to beat the market for close to twenty years, not losing money in any single year.

An Extraordinary Mind

The story above is recounted in the new autobiography of Ed Thorp, *A Man for All Markets: From Las Vegas to Wall Street, How I Beat the Dealer and the Market*. The book takes us into the mind of a mathematical wizard, from college professor to blackjack card counter to market-beating hedge fund manager.

Ed Thorp was born in the early 1930s in the depths of the Great Depression. From a young age, it was evident that he had a unique mind, showing an early interest in mathematics. He learned to add, subtract, multiply, and divide numbers of any size in his head between the ages of three and five. At six, he could recite all the kings and queens of England in the order of their reign.

As he was turning seventeen, Thorp went to the University of California, Berkeley, to study physics, only to later transfer to UCLA. He went on to get an MA in physics and a PhD in mathematics. In 1959 he moved to MIT and it was during this time that Ed Thorp conquered black jack.



Beating the Casino

As a 26-year old mathematics instructor, Thorp became interested in casino games, as he was intrigued by the possibility of being able to beat the house. He turned his attention to blackjack and found how a player's edge varied by the proportion of high versus low cards that remained in the deck. Thorp taught himself FORTRAN and, using an IBM 704 computer at MIT, cranked out all the calculations to arrive at a winning strategy for the game. He went on to publish his findings in an article titled ["A Favorable Strategy for Twenty-One"](#) in the *Proceedings of the National Academy of Sciences* journal in 1961.

That got the attention of two wealthy gamblers, and they decided to bankroll Thorp and use his theoretical discoveries in an actual casino. Thorp, along with \$10,000 from the wealthy gamblers, headed for a weekend to Reno, Lake Tahoe, and Las Vegas to test his theories and card counting abilities. The experiment proved to be a great success. In thirty man-hours of play Thorp and his benefactors turned \$10,000 into \$21,000.

In 1962 Thorp made his blackjack strategy available to the masses with the publication of his book *Beat the Dealer*. The book became a classic guide in card counting and became a *New York Times* bestseller, with more than a million copies in print.

The Biggest Casino of Them All

With some capital from playing blackjack and from book sales, Thorp then turned his attention to the biggest casino of them all: the stock market. After receiving a thin pamphlet on warrants, he came up with a strategy to profit by trading warrants and hedging his risk by simultaneously trading the stock associated with the warrant. Since the prices of the warrant and the stock tended to move together, he could buy the relatively underpriced security and sell short the relatively overpriced security.

Thorp also decided to study options. At that time investors did not have a good idea of how to value these derivative instruments. Thorp used his mathematical background and his insatiable curiosity and passion for puzzles to figure out a way to correctly value options. He developed a formula and found that he could generate returns close to 20% with minimal risk. Some time later, economists Fischer Black and Myron Scholes independently developed the very same formula, which is now known as the Black-Scholes formula, a feat which earned the two a Nobel Prize.

Thorp set up a hedge fund in 1969 and called it Princeton Newport Partners (PNP). It specialized in the hedging of warrants, options, convertible bonds, and other types of derivative securities. It was a huge success from the start. The fund made money every month in its first six years, except for one in early 1974 when it declined less than 1%. In 1973 and 1974 the market experienced a severe bear market, with the S&P 500 losing 14.7% in 1973 and 26.5% in 1974. In those two years PNP was up 6.5% and 9.0%, respectively.



PNP closed its doors in 1988. Since inception it generated a yearly return of 15.1%, net to its limited partners, for a total percentage increase of 1,382%. This compares with a total percentage increase of 545%, or 10.2% per year for the S&P 500. And PNP did it with much less risk: it never had a losing year, or even a losing quarter.

Detecting Fraud

In addition to telling us his life story, Thorp sprinkles the book with anecdotes and his thoughts on a variety of issues from the financial crisis and tax policy to education and personal finance. An interesting story is how in 1991 he uncovered the Bernie Madoff fraud—seventeen years before it was exposed in the media! Thorp had been hired by an international consulting company to review their hedge fund investments. Upon examining the returns of the Madoff hedge fund, he suspected fraud and went to visit the Madoff operation. When Thorp arrived, Bernie was away and his brother, Peter, did not allow him through the front door.

From the client records, Thorp analyzed about 160 individual option trades and found that for half of them no trades occurred on the exchange claimed by Madoff. For many of the remaining half, the quantity reported by Madoff exceeded the entire volume that traded on that day. Those facts were more than a red flag—they were the smoking gun.

On Education

As can be expected from a hedge fund manager that consistently beat the market, Thorp is not a fan of the Efficient-Market Hypothesis (EMH). EMH, while now less popular than it was in the 1970s and 1980s, is still widely preached by academics and taught in all the leading business schools. It posits that stock prices respond quickly and rationally to new information; thus, investors cannot beat the market and should not even try.

Thorp points out that academics have been reluctant to acknowledge widespread evidence to the contrary. To illustrate his point, he mentions the frequent inefficiencies in closed-end funds that he profitably exploited while managing money. Closed-end funds are, like mutual funds, pooled investment funds that are managed by a portfolio manager. They are “closed” because they sell shares to investors only once, when the fund is first launched. After that, they trade like a stock in an exchange. Closed-end funds have a net asset value (NAV), which is the value of all fund assets less liabilities divided by the number of shares outstanding. Since closed-end funds trade like stocks, their price varies with the emotions of investors and they frequently trade at wide discrepancies—a discount or a premium—from NAV. These wide inconsistencies are what Thorp uses against the proponents of EMH. To quote Thorp:

“The differences between the market price and the net asset value of closed-end funds leave nowhere to hide for those who believe the market does a good job of setting prices correctly. Why do investors sometimes pay \$1.80 for \$1 of assets and other times offer to sell \$1 worth of securities for 50 cents? It can’t be lack of information, since NAVs and calculated percentage price deviations are published regularly, along with actual portfolio holdings.”



Thorp also shares his thoughts on educating our children. He believes that simple probability and statistics should be taught from an early age. Additionally, he would like basic finance to be taught in elementary and secondary schools. We couldn't agree more. In our jobs as investment advisers, we never cease to be amazed at the amount of people we see—many with distinguished, professional careers—who do not know how to prepare a budget or how to read an income statement or a balance sheet. If our citizens are exposed to these topics at an early age, it can only benefit them later in life when they have to make decisions on whether they can afford a mortgage or how to save for retirement.

Conclusion

A Man for All Markets is a wonderful book about the interesting life of an extraordinary man. Ed Thorp takes us on a fascinating journey through science, mathematics, gambling, finance, and investing. Anyone even remotely interested in any of these subjects would be well served to read this book.



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