The Man Who Outsmarted Casinos – and then Wall Street

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by Michael Edesess

A Man for All Markets is an interesting autobiographical account of the life and work of Ed Thorp, a brilliant, accomplished, but humble man who has lived a long (he is now 85), prosperous and happy life. And yet, it is vaguely dissatisfying. It is an odd combination of 1) an explanation of how the author performed certain magical intellectual feats; 2) a manual of instruction in simple arithmetical concepts in finance (apparently for the lay public); and 3) a vehicle for the expression of the author's opinion on a few topics in modern life. It is a nice story – if a bit of a hodge-podge – but there is a certain inner tension about it that the author neither feels, recognizes, nor expresses.

The early life

In Thorp's account of his early life I kept recognizing parallels with my own: the interest in chemistry in childhood, especially chemicals that could explode; the tinkering with a crystal set radio; the living in a low-cost co-op in college in the company of a collection of international students; the threadbare but serviceable clothing, as evidenced by his remark about "the clean but faded Levi's that I generally wore in the 1940s for want of money and how I was astonished fifty years later when stylish people paid up for intentionally tattered and hole-filled jeans in far worse condition than my high school pants."

But his zeal for exploding chemicals went far beyond mine. Listen to this:

> "I built and tested bigger versions designed to explode, bombs made from short lengths of steel plumbing pipes, which I used to blow craters in cliff faces at the nearby undeveloped Palos Verdes Peninsula."

And then, this:

> "One quiet Saturday I bundled myself up, put on a safety visor, and moistened the tip of a glass tube with nitro. Using far less than a drop, surely a safe amount, I heated it over the gas flame and suddenly there came a CRACK!—with a duration much shorter than and violently different from all my other slower-acting explosives. Tiny bits of glass were embedded in my hand and arm, blood seeping from the myriad holes. I picked the bits out with a needle over the next few days as I found them. Next I put some nitro on the sidewalk and used the sledgehammer to blow another crater."

Whew.

The early signs of an inveterate risk-taker, you would think. And yet, in the later parts of the book he doesn't seem like one. Inveterate risk-takers are in it for the thrill and the reward. Thorp took risks, playing Blackjack in hostile casinos for example, not for the high of getting rich, but "partly to silence that irritating jeer often leveled at academics, 'Well, if you're so smart, why aren't you rich?'"

Thorp was born gifted. He sailed through competitive examinations with top marks and won scholarships to the best California universities – attending, in the end, the ones he could afford.

He and his wife expected they would live a quiet and satisfying and adequately – though certainly not abundantly – rewarding academic life. That was all changed by a paper he gave in 1960 as an instructor at MIT, at an academic meeting of the American Mathematical Society, about a scheme he had devised to beat the game of Blackjack.

As Thorp says, "In the manner of mathematics meetings, I had prepared a matter-of-fact talk," however, "My terse technical presentation didn't deter my audience. I finished and placed a woefully inadequate fifty copies of my speech on the table in front of me. The group surged toward them like carnivores competing for fresh meat."

A young journalist for *The Washington Post* named Tom Wolfe, later to become famous for books like *The Electric Kool-Aid Acid Test*, *The Right Stuff*, and *The Bonfire of the Vanities*, wrote it up in a story headlined, "You Can So Beat the Gambling House at Blackjack, Math Expert Insists." Thorp says that when the national AP wire service ran Wolfe's story it caused thousands of letters and phone calls to pour into MIT's math department. As is well known, Thorp went on to write the 1962 book, *Beat the Dealer*, spawning hundreds or thousands of card-counters at Blackjack, and followed up in 1967 with another book titled, *Beat the Market*.

Trying to disprove the "you can't beat it" assumption

Thorp was motivated by an urge to show that universally-held impossibility assumptions weren't necessarily true. The assumption that you couldn't beat Blackjack was the first. Following on that, he took on the assumption that you couldn't beat the casino game of roulette.

Once you see why he thought that assumption was wrong, you realize that he wasn't so crazy in his belief. The key is that the ball begins to spin in the roulette wheel before the last bets are placed. Thorp thought that if you could observe the ball for that very short interval before you placed your bet and apply the laws of physics very carefully, you might be able to increase the probability that you would guess right.

Working with the mathematician Claude Shannon, famed for his invention of information theory, Thorp created what was effectively the first wearable computer, to help count the cards at Blackjack and calculate the trajectory at roulette, transmitting to the (covert) wearer of the device what should be done. Using this wearable computer, Thorp was able to get an edge in both games and come out ahead.

He then transitioned to the investment markets, facing down the efficient market theory that was much in vogue in academia at the time (and still is), devising hedging strategies, and starting a hedge fund company, Princeton Newport Partners, in 1969.

I remember reading his book *Beat the Market*, which was first published in 1967 but I read it perhaps 10 years later. In the version of the book I read, there was a preface written by Thorp in which he said something like, "You may ask, if this is such a winning strategy, why I am letting you know about it instead of using it to get rich myself? The answer is simple. It doesn't work anymore."

I have been unable to find this passage in the versions of the book I have seen since, but that's what it said. This is key, I think, to understanding Thorp's slightly strange disconnect between what worked for him, and what works in general.

Bête noire: the efficient market theory

For Thorp, the efficient market theory is a lot of nonsense. He never says anything good about it. One example is his astounding account of being asked in 1991 by a well-known international consulting company to review its hedge fund investments. He says he approved the portfolio with one exception. "The story from Bernard Madoff Investment didn't add up."

Thorp suspected fraud. This is Thorp's account of his investigation:

> "After analyzing about 160 individual options trades, we found that for half of them no trades occurred on the exchange where Madoff said that they supposedly took place. For many of the remaining half that did trade, the quantity reported by Madoff just for my client's two accounts exceeded the entire volume reported for everyone. To check the minority of remaining trades, those that did not conflict with the prices and volumes reported by the exchanges, I asked an official at Bear Stearns to find out in confidence who all the buyers and sellers of the options were. We could not connect any of them to Madoff's firm."

Thorp understandably concluded that the trades were fake and that Madoff's investment operation was a fraud, and told his client so. Remember, the client was a "well-known international consulting company" and this was 1991. And yet, the fraud did not come to light until 2008. Thorp's comment: "…thirteen thousand investors and their advisers didn't do elementary due diligence because they thought the other investors must have done it."

But they did, a few of them – they just didn't tell anyone else about it. If it is not a crime not to report a crime when one has obtained very strong evidence that it has been committed, as was the case with the consulting firm that employed Thorp, it should be.

For Thorp, at least in this book, everything is a lesson about what nonsense the efficient market theory is. He says, "What does this swindle (and others) say about the academic theory that markets are 'efficient,' with its claims that investors quickly and rationally incorporate all publicly available information into their selections?"

The little recognized subtleties of the efficient market debate

He is right that the assumption that all investors are aware of all publicly available information and rationally incorporate it into their investment decisions is absurd. But that doesn't invalidate the assumption that the market is efficient.

The great economist Friedrich von Hayek would have pooh-poohed the idea that all investors are aware of all publicly available information. He would have argued that this information is not available to everyone but is dispersed widely. Since prices are determined locally in a dispersed manner, at the point of transaction, between parties that are more knowledgeable about their reasons for agreeing to the price they agree on than the general public, this lends itself to efficient pricing.

Efficient market theory says, of course – except when poorly stated or poorly interpreted – that the market is nearly efficient, not perfectly efficient. It says that it is efficient because when inefficiencies appear, they are quickly closed by investors and speculators who seek out inefficiencies, such as Thorp.

The problem with the efficient market hypothesis is not that it is rigidly believed (except perhaps by certain academicians) but that it is not more widely known, believed, or understood. Grab 100 people at random and try to convince them that studying the history of performance of a mutual fund is of no use whatsoever in deciding whether to invest in that fund. You'll have a hard time convincing even five of them.

The only debate about the efficient market theory should be about how quickly inefficiencies are closed. Thorp's Madoff example, does, indeed, argue for the view that they can stay open for a long time. Such examples are rare, however.

What happened with hedge funds?

Thorp's experience with hedge funds should make him one of the most important contributors to this debate. But this is where I find his book dissatisfying. He has little philosophy to offer on this topic.

Thorp ran his hedge fund at a time when there were few people executing strategies like his, and they were doing it with relatively small amounts of money. He ran the kind of hedging strategies, using convertible bonds and warrants, that he described in his 1967 book, *Beat the Market*. Also, in that same year, he developed his own formula for pricing options that was the same as the formula later derived by Fischer Black and Myron Scholes, and applied it in an options market that was infinitesimally smaller than it is now.

In his book, in two cases where he uses a hypothetical hedge fund as an example, Thorp assumes expected returns of 12% and 8% with low volatility. You would think he still believes they're a great investment. And yet, in a chapter on hedge funds, he points out how poorly they have performed. Like Buffett, he argues that it's hard to beat investing in the S&P 500.

The problem seems to be, as he says, that although some hedge funds, like Thorp's, performed well from the 1960s to the early 1990s, "Beginning in the late 1990s, you could, in effect, just put up a sign saying HEDGE FUND OPENING HERE, and a line of investors would quickly extend around the block."

Nevertheless, forces like the "well-known international consulting company" for which Thorp consulted in 1991 have perpetuated the notion that hedge funds have higher expected return with low risk. Thorp seems conflicted about whether he still believes that.

Warren Buffett, in 1967, conceded that he no longer could find underpriced stocks and dissolved his hedge fund, buying Berkshire Hathaway and running a diversified company instead. Since then, he has recommended investing in an S&P 500 index fund not only to ordinary small investors, but to the kinds of institutional investors who hire a "well-known international consulting company."

Ed Thorp dissolved his Princeton Newport hedge fund after its Princeton office was raided in December, 1987, by armed Federal officers as part of an overzealous campaign, according to Thorp, by U.S. Attorney for the Southern District of New York Rudolph Giuliani in order to find evidence to convict junk bond king Michael Milken. Thorp then continued both to run hedge funds, mostly for himself, and to invest in them – even funds of hedge funds.

Not long after that began an era when, by Thorp's admission, returns to the kinds of techniques he used declined, apparently because of market saturation. Does he still believe anyone should invest in hedge funds? With his chapter on how bad hedge fund performance has been, he seems to imply no, but he doesn't say so.

Other opinions

In his occasionally offered opinions, Thorp resembles the kind of academic professor of mathematics that he would have continued to be – and the temperament of whom he still seems to possess.

He laments rising inequality; finds even more dishonesty and lack of ethics in the financial world than in the casino gambling world; expresses no interest in, or regard for, the pursuit of wealth and fame or even of acknowledgement, applause, and honor for their own sake; feels sorry for those wealth-seekers who never have enough; argues for a “Tobin tax” on financial transactions to discourage high-frequency trading; believes in raising taxes to fund education because “To starve education” – especially education in science and engineering – “is to eat our seed corn. No tax today, no technology tomorrow;” disparages hedge fund managers who “bribe politicians to put a clause in the laws cutting the tax rate on much of their income to a fraction of the percentage the average worker pays,” as well as “star” corporate CEOs who pull down salaries many multiples the salaries of their average employee but drain the company’s coffers; and believes that “the group I call the politically connected rich are the dominant economic and political power in the United States. This is a key concept for understanding what happens in our society and why it happens.”

Surely, his intimate involvement with the hedge fund world must have put him in close touch with many of the people with characteristics like those he so plainly disdains – though real disdain seems not to be in his nature, at least not in this book. (Its introduction by Nassim Taleb is a different matter.) He could have written a tell-all book that would have been a very, very different book. But he did not.

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