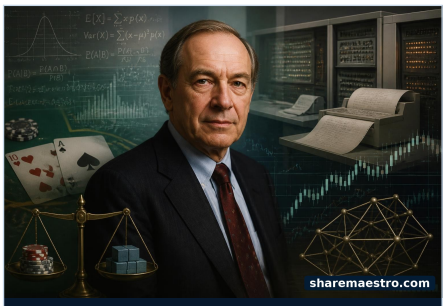
INVESTOR | MARKET-NEUTRAL QUANTITATIVE ARBITRAGE

# Edward Thorp Turned the Casino Edge Into the Operating System of Quant Investing




Ed Thorp's career is defined by turning mathematical edge from blackjack and roulette into convertible arbitrage, market-neutral investing, and the discipline behind modern quant finance.

**Ed Thorp moved from blackjack tables to convertible arbitrage and market-neutral funds, proving that a small mathematical edge, sized correctly and protected from ruin, could become a durable financial machine.**

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## In brief

Edward O. Thorp is best known to the public as the mathematician who beat blackjack, but his greater importance to finance lies in what he carried from gambling into markets: probability, computers, disciplined sizing, hedging, and skepticism toward smooth returns. His career ran from the 1961 proof that blackjack could be beaten to Beat the Dealer, the wearable roulette computer built with Claude Shannon, Beat the Market with Sheen Kassouf, Princeton/Newport Partners, and later work on Kelly sizing, statistical arbitrage, and investment education. His record was exceptional where numbers are verifiable, including Princeton/Newport's rise from a small bicoastal partnership into a large market-neutral operation, though the firm was ultimately destroyed by a legal crisis around its trading partners. Thorp's legacy is neither a casino romance nor a simple quant triumph. It is the case study

- Thorp's central contribution was not card counting alone, but the transfer of positive-expectation thinking, computer analysis, hedging, and Kelly-style sizing into securities markets.
- Beat the Market, coauthored with Sheen Kassouf, treated warrants and convertibles as mathematically related securities, helping anticipate the later institutionalization of options pricing and convertible arbitrage.
- Princeton/Newport Partners became an early model of market-neutral quantitative investing, using research in Newport Beach and trading execution on the East Coast.
- The Princeton/Newport legal crisis showed that even a mathematically disciplined strategy can be vulnerable to legal, operational, and counterparty risks outside the model.
- Thorp's later warnings about leverage, crowding, and active-management arithmetic make his influence especially relevant in a market filled with systematic funds, factor products, and private quantitative platforms.

## Performance markers

| | |
|---|---|
| Beat the Market author experience | 25% per year over five years<br>Thorp and Sheen Kassouf wrote in Beat the Market that they had used their method in the market for five years to earn 25% a year. |
| Beat the Market historical basic system | More than 25% per year over 17 years<br>The book states that its basic system gained more than 25% per year for seventeen years after commissions and before taxes. |
| Princeton/Newport capital base by 1979 | $1.4 million to $28.6 million<br>UCI's career timeline says Princeton/Newport's original $1.4 million capital base had grown to $28.6 million by its tenth anniversary. |
| Princeton/Newport size by 1988 | $273 million capital base with $1 billion in positions<br>UCI records that by the 1988 closure, Princeton/Newport's original capital base had grown to $273 million, with investment positions totaling $1 billion. |
| Princeton/Newport quarter record, as reported in 1988 | No money-losing quarter reported by Thorp<br>The Los Angeles Times reported Thorp saying in 1988 that the partnership had never had a money-losing quarter. |
| Ridgeline Partners | 18% per year over eight years<br>UCI records that Ridgeline Partners, launched in 1994 and closed in 2002, gained 18% per year over its eight years of operation. |

# Charts and timelines

| Risk | |
|---|---|
| Leverage risk | Small edges can become fragile |
| Crowding risk | Too many players can compress or reverse trades |
| Operational risk | Hardware can defeat theory |
| Legal and institutional risk | A model cannot hedge every human or legal exposure |
| Model specification risk | Details change the formula |

| Timeline | |
|---|---|
| Blackjack computation begins | IBM 704 research |
| Academic proof | A Favorable Strategy for Twenty-One |
| Wearable roulette computer | Expected gain about 44% in lab tests |
| Public blackjack rupture | Beat the Dealer |
| Market translation | Beat the Market |
| Fund launch | Convertible Hedge Associates |
| Institutional scale | Up 409% for decade |
| Closure | $273 million capital base |

| Philosophy | |
|---|---|
| Positive expectation first | Edge before action |
| Hedge what is not needed | Relative pricing over prediction |
| Size to survive | Growth balanced against ruin risk |
| Expect edge decay | Competition compresses anomalies |
| Distrust smooth stories | Process must support the return stream |

| Performance | |
|---|---|
| Beat the Market claimed operating record | 25% per year for five years |
| Basic system historical record | More than 25% per year for 17 years |
| Princeton/Newport first decade | 409% cumulative gain |
| Princeton/Newport capital growth | $1.4 million to $273 million |
| Ridgeline Partners | 18% per year |

# The professor at the table

In the popular telling, Edward O. Thorp is the young mathematics professor who walked into Nevada casinos, counted cards, and forced blackjack to admit that probability could beat folklore. That story is true enough to be useful, but it is too small for the investor he became. The more important scene is not a single winning hand. It is the moment when a scholar realized that a casino and a securities market could be treated as related problems: both were noisy systems, both rewarded positive expectation, and both punished bad sizing before the edge had enough time to appear.

Thorp's gift was to reduce the romance of risk to testable arithmetic. At blackjack, that meant understanding when the remaining deck had shifted the odds. At roulette, it meant treating the wheel as a physical system. On Wall Street, it meant comparing related securities, hedging away broad market exposure, and letting many small advantages compound. The continuity matters because Thorp did not simply move from gambling to finance. He carried a whole operating discipline with him.

That discipline made him one of the earliest and clearest bridges between probability theory and modern quantitative investing. He helped popularize card counting with Beat the Dealer, built a wearable roulette computer with Claude Shannon, coauthored Beat the Market, developed and used option-pricing ideas before they became standard Wall Street equipment, and ran Princeton/Newport Partners as a bicoastal market-neutral investment operation. His career is a reminder that the quant revolution began not with server farms, but with a question that still defines serious trading: do the odds really favor you, and can you survive long enough for them to matter?

# Why Thorp matters beyond blackjack

Thorp matters because he was early in several places where finance later became institutional. He used computers to search for exploitable patterns before that became normal. He treated derivatives as instruments that could be priced by formula and hedged against an underlying security. He framed investing as a problem of excess risk-adjusted return rather than persuasion, narrative, or market prediction. In a field often divided between storytellers and technicians, he made the technician's case with a rare public record.

The arc of his career also cuts across the development of hedge funds themselves. Convertible Hedge Associates, later renamed Princeton/Newport Partners, began in 1969 and grew into a sophisticated private partnership. UCI's account of Thorp's career says the firm's original $1.4 million capital base had grown to $28.6 million by its tenth anniversary, and to $273 million by the time Princeton/Newport closed in 1988, with investment positions totaling $1 billion. Those figures help explain why the blackjack origin story, colorful as it is, understates the financial significance of the man.

His importance is intellectual as much as financial. The public learned from him that blackjack was not only a game of luck. Wall Street learned, more slowly and profitably, that mispriced warrants, convertibles, options, and statistically

related stocks could be approached with the same cold logic. In later interviews, he became more skeptical of the capacity of active managers to produce alpha after fees, more attentive to crowding, and more blunt about leverage. The pioneer did not end as a salesman for quantitative mystique. He became one of its more credible internal critics.

## A scientific childhood reaches Wall Street by way of Nevada

Thorp was born in Chicago in 1932 and came of age in Southern California, where his appetite for science and experiment emerged early. The biographical record is full of the details that later made the blackjack story plausible: radio, physics, improvised experiments, and a young mind attracted to systems whose hidden rules could be exposed. He earned a PhD in mathematics at UCLA and taught at MIT before later joining UC Irvine, where he became part of the founding generation of the mathematics department.

The academic path is essential because Thorp's career was not built on gambler's nerve. He began from mathematical training and scientific habit. When he encountered blackjack, he saw a problem in conditional probability. When he studied roulette, he saw mechanics and measurement. When he entered markets, he saw relative pricing. The common feature was not bravado. It was the belief that a supposedly random environment might contain structure that could be observed, measured, and monetized.

That distinction separates Thorp from the folk image of the lucky speculator. In casinos, most players experience variance as fate. In markets, many investors experience it as confirmation or betrayal. Thorp treated it as a distribution. His later financial career rests on the same intellectual temperament: distrust intuition until it has been tested, distrust a strategy until its failure modes are understood, and distrust a return stream that is too smooth to be reconciled with its claimed mechanics.

## Blackjack as the first laboratory of edge

The breakthrough that made Thorp famous began with a simple but disruptive insight. Blackjack is not a sequence of independent trials if the deck is not reshuffled after every hand. Cards already played change the composition of cards remaining. That means the player's odds can shift during play, sometimes in favor of the house and sometimes in favor of the player. Thorp's 1961 paper, A Favorable Strategy for Twenty-One, made the point in formal academic language and settled the question for a mass audience soon afterward through Beat the Dealer.

UCI's exhibit on Thorp notes that he used an IBM 704 computer while at MIT to run through 34 million different card-dealing combinations. This was not casino lore dressed up in mathematics. It was computing applied to a practical stochastic problem. The paper's publication in the Proceedings of the National Academy of Sciences also led him to Claude Shannon, whose role in communicating the paper became the start of a deeper collaboration.

Beat the Dealer changed the economics and culture of blackjack because it made the method public. Casinos could respond by changing rules, shuffling earlier, barring players, and watching counters more closely, but the central point could not be erased. A game sold as chance had a vulnerability. Thorp had shown that the edge was not mystical. It could be counted, and once counted, it could be attacked.

## The wearable computer and the physical edge

The Shannon collaboration expanded Thorp's approach from probability to physics. In their roulette work, the problem was not card composition but motion: the speed of the ball, the speed of the rotor, the timing of revolutions, and the likely sector where the ball would fall. Thorp later described the project in The Invention of the First Wearable Computer, a 1998 paper that traced the idea from 1955 to the operating version tested in 1961.

The device was tiny by the standards of its time, an analog computer roughly the size of a cigarette pack, using toe-operated switches and sound signals. The aim was to predict favored octants of the roulette wheel. Thorp reported that the laboratory expectation was roughly 44 percent when betting on the most favored octant, though hardware problems limited serious casino use. The episode is often treated as a colorful side story, but for finance it

contains a more serious lesson.

The lesson is that Thorp was not attached to one kind of edge. He would take a conditional-probability edge in blackjack, a mechanical-prediction edge in roulette, a relative-pricing edge in warrants, and a statistical edge in stock pairs. The tool changed. The discipline did not. Find a measurable advantage, size it, conceal or protect it if necessary, and expect competitors or counterparties to reduce it once they understand it.

## From beating the dealer to pricing the market

Thorp's entry into securities markets was not seamless. In the AQR interview, he recalled that he began teaching himself about investing after making early mistakes with money earned from gambling and books. That admission is important. It shows a mind that did not confuse success in one probabilistic domain with mastery of another. Finance required new instruments, new frictions, new institutions, and new dangers.

The opportunity that attracted him was the market for warrants and convertible securities. Warrants, like call options, had value because they offered exposure to a company's stock above a specified price. If the warrant and the stock were mispriced relative to one another, an investor could buy one, sell or short the other, and reduce exposure to the market's direction. Thorp and Sheen Kassouf turned that logic into Beat the Market, published by Random House in 1967.

The book's argument was radical for its intended audience. It said investors did not need to predict the price of an individual security to win. They could predict and analyze the relationship between convertible securities and common stock. That move from directional forecast to relative pricing is one of the great conceptual shifts in modern trading. It is the difference between asking where a stock is going and asking whether two linked claims on the same economic reality are priced consistently.

## Beat the Market and the architecture of convertible arbitrage

Beat the Market is not remembered as widely as Beat the Dealer, but for investors it may be the more consequential book. Its table of contents reads like a blueprint for systematic convertible arbitrage: warrants, short selling, hedging, historical records, portfolio management, convertible bonds, convertible preferreds, puts, calls, and the question every arbitrageur eventually faces, what can go wrong. The book claimed that the authors had used the method for five years to earn 25 percent a year, and presented historical evidence for a basic system that averaged more than 25 percent a year over a seventeen-year period after commissions and before taxes.

Those numbers should be read with the caution appropriate to a historical strategy described by its authors, in markets very different from today's. But the structure was forward-looking. Thorp and Kassouf were formalizing the idea that a portfolio could be engineered from offsetting long and short positions, with expected return coming from mispricing rather than broad market exposure. In today's vocabulary, the book points toward option pricing, convertible arbitrage, and market-neutral portfolio construction.

Its intellectual timing was striking. Thorp later told AQR that he had developed a useful option-pricing formula before the Chicago Board Options Exchange opened and before the Black-Scholes model became the canonical reference point. He did not become famous for publishing the academic formula that transformed finance. His path was more practical. He wanted a tool that helped manage warrant hedges and identify trades. The distinction fits his career: publication mattered, but the market was the sterner referee.

## Princeton/Newport and the industrialization of small edges

The institutional expression of Thorp's ideas began in 1969 with Convertible Hedge Associates, formed with stockbroker Jay Regan and later renamed Princeton/Newport Partners. The firm's structure was revealing. Newport Beach was the research engine, where Thorp and a quantitative staff generated trade ideas. The East Coast operation handled business and execution. Long before the hedge-fund industry became a global machine, Princeton/Newport

was using a division of labor that looked modern: research, computing, trading, capital, and controls.

The firm specialized in hedged investments. A 1988 Los Angeles Times profile described it as a partnership built from Thorp's computerized investment program and Regan's brokerage experience, with Thorp leading a team that included mathematicians, statisticians, economists, computer scientists, and finance specialists. The computers identified candidates across options, warrants, bonds, and futures contracts. The traders still used judgment, but the center of gravity was the machine and the model.

The verifiable growth was extraordinary. UCI's career timeline records that Princeton/Newport's original $1.4 million capital base reached $28.6 million by 1979 and $273 million by 1988, while investment positions totaled $1 billion. The Los Angeles Times reported Thorp saying in 1988 that the partnership had never had a money-losing quarter. Even allowing for the privacy of partnership accounts and the limits of public data, the evidence supports the central point: Thorp built one of the early durable businesses around quantitative market neutrality.

## The process: hedge first, predict later

Thorp's investing process inverted the common Wall Street sequence. Many investors begin with a view about direction, then decide how much exposure they can tolerate. Thorp began with a relationship that could be modeled, then sought to hedge away what he did not need. In warrants and convertibles, that meant pairing the derivative-like instrument with the common stock. In statistical arbitrage, it meant exploiting patterns across many securities rather than betting the firm on one grand forecast.

This process was not purely mechanical in the crude sense. It required data, pricing assumptions, execution, borrow availability, financing, transaction-cost awareness, and constant checking of whether the edge still existed. Thorp's own account of options pricing shows how practical details, such as the treatment of short-sale proceeds, could change the correct formula for a real-world trade. The model did not float above the brokerage account. It had to match the plumbing.

The best way to understand Thorp's method is as controlled opportunism. He was happy to profit from an anomaly, but he wanted the anomaly hedged, measured, and distributed across enough trades to let the law of large numbers work. The portfolio was not designed to be exciting. It was designed to make the outcome of any single market move less important than the persistence of the edge.

## Kelly, sizing, and the discipline not to die

The Kelly criterion runs through Thorp's career like a capital-allocation spine. In his 1997 paper on blackjack, sports betting, and the stock market, Thorp framed the central problem for gamblers as finding positive expectation bets and then deciding how much to wager. In securities markets, he wrote, the analogous problem is finding excess risk-adjusted return. Kelly's rule, in its classic form, seeks to maximize expected logarithmic growth of wealth.

The power of that framework is also its danger. Full Kelly betting can produce large drawdowns when estimates are wrong or variance is severe. Thorp understood this better than many later admirers because he learned it in games where ruin was visible. The criterion did not mean bet everything on a favorable situation. It meant connect bet size to edge, odds, bankroll, and uncertainty. In his wearable-computer paper, he described Kelly as a way to trade some expectation for a large reduction in risk by diversifying among favorable numbers.

That idea migrated naturally into Princeton/Newport. Small mispricings could be attractive if they were repeatable, hedged, and not overlevered. But a small edge levered beyond the tolerance of the balance sheet becomes a trap. Thorp's later comments on Long-Term Capital Management were especially pointed: small edges with excessive leverage can produce impressive early returns and then leave no margin for bad events. In that sense, his deepest risk lesson is not to find edges. It is to keep the edge from becoming an excuse for fragility.

## The record, where it can be checked

The available public record on Thorp's performance is fragmented because much of it occurred in private partnerships. Still, several data points are unusually concrete. Beat the Market reported that the authors had earned 25 percent a year over five years using their method, and that a historical version of the basic system averaged more than 25 percent a year over seventeen years after commissions and before taxes. These figures are important as evidence of what Thorp and Kassouf believed the warrant strategy could do, but they should not be treated as directly comparable to audited modern fund returns.

Princeton/Newport's public markers are stronger institutional evidence. UCI records the capital base growing from $1.4 million at inception to $28.6 million by 1979 and $273 million by 1988, while a Los Angeles Times interview reported that Thorp said the partnership had never had a losing quarter. AQR's interview summary states that Thorp's hedge-fund strategies, principally at Princeton/Newport and later Ridgeline Partners, were profitable every year from 1966 to 2002. UCI also reports that Ridgeline Partners, launched in 1994 and closed in 2002, gained 18 percent per year over its eight years.

These figures place Thorp among the most successful early quantitative investors, but they also reveal the historian's caution. The record is not a single continuous audited composite available for public inspection. It is a mosaic of partnership milestones, interview summaries, book claims, and institutional accounts. That is enough to support the broad conclusion: Thorp's methods produced a long and unusually consistent record. It is not enough to reduce his career to one clean performance number.

## The legal crisis that models could not hedge

The great break in Thorp's investment story came not from a market crash, but from law enforcement. In 1988, federal prosecutors brought racketeering and securities-related charges against several Princeton/Newport figures connected to the East Coast trading side. The Los Angeles Times reported at the time that Thorp was not included in the indictments and that the separation between the Newport Beach research operation and the Princeton trading side appeared to matter to investigators.

The case was part of the broader 1980s Wall Street enforcement era surrounding Drexel Burnham, Ivan Boesky, Michael Milken, and the aggressive use of RICO in securities cases. Justia's record of United States v. Regan shows how severe the legal machinery could be, including restraints on partnership interests and defendants' assets tied to potential forfeiture. Even before final outcomes, the process imposed pressure that an arbitrage model could not neutralize.

The ultimate legal aftermath was complex, including convictions for some defendants and later reversals or vacated sentences in parts of the case. The investment consequence was simpler. Princeton/Newport closed. For Thorp, who had built a career on controlling measurable risk, the episode exposed another category: institutional risk. A fund can hedge stock exposure, interest-rate exposure, and derivative mispricing. It cannot fully hedge the conduct, judgment, legal exposure, or reputational vulnerability of every person and counterparty attached to its operating system.

## Madoff and the value of a skeptical return eye

One of the more revealing episodes in Thorp's later career was his early suspicion of Bernard Madoff. UCI's career timeline says that in 1991 Thorp discovered Madoff's Ponzi scheme when a client asked him to review a portfolio that included an investment with Bernard L. Madoff Investment Securities. Forbes later reported that Thorp identified Madoff's operation as fraudulent long before the 2008 collapse made the name synonymous with financial crime.

The episode fits Thorp's method because Madoff's attraction was precisely the kind of smoothness that should make a probabilist uneasy. The right question was not whether the reported returns looked pleasant. It was whether they were possible under the stated strategy, visible market volumes, and option activity. Thorp's career had been built on converting small, real edges into long-term compounding. That made him unusually alert to the difference between improbable excellence and mechanical impossibility.

This is an underrated part of his influence. Quantitative discipline is often associated with finding trades, but it is equally powerful in rejecting claims. A return stream is not credible because it is consistent. It is credible if the process can plausibly create it, if the instruments exist in sufficient volume, if costs and constraints are accounted for, and if the pattern survives contact with external evidence. Thorp's skepticism toward Madoff was the same mental habit that led him to blackjack and convertibles: do the arithmetic before you believe the story.

## The critic of quant excess

Thorp's later commentary is valuable because it did not turn his success into a blanket endorsement of active quantitative management. In the AQR interview, he invoked William Sharpe's arithmetic of active management: in liquid asset classes, active investors collectively own the market before costs and lag low-cost indexing after costs. He estimated active manager costs around 200 basis points and argued that many institutions battling for edge in liquid markets would be better served by indexing those portions of their portfolios.

He was equally alert to the decay of edge. In the 1960s, the warrant and convertible markets were inefficient, transaction costs were high, and competition was limited. Later, computing improved, trading became cheaper, data broadened, and the number of players chasing anomalies grew. Thorp's answer to whether quantitative investing had become more attractive was conditional. Some firms could still succeed, including certain high-frequency traders, but a large pool of alternative-investment money was chasing alpha and often not finding it.

That stance gives Thorp's legacy balance. He was not a prophet of machines replacing judgment. He was a scientist of advantage, and science includes negative results. Many strategies that worked in a less crowded market become products, factors, crowded trades, or capacity-constrained scraps. Thorp's career says quant investing can work. His later reflections say the fact that it worked once is not evidence that it will work after publication, scale, imitation, and fees.

## Influence without a giant public institution

Unlike later hedge-fund legends, Thorp did not leave behind a brand-name public-facing asset-management empire. Princeton/Newport closed, and Ridgeline Partners later closed after an eight-year run. Yet his influence spread through books, papers, interviews, former colleagues, and the normalization of ideas that once seemed eccentric. The modern market-neutral hedge fund, statistical arbitrage platform, option-arbitrage desk, and factor researcher all work in a world that Thorp helped make intellectually plausible.

Scott Patterson's account of the quant movement presented Thorp as an original figure whose use of pure math to make money preceded later financial titans. AQR's interview placed him among early thought leaders who created tools and techniques for both gambling and investment management. UCI's exhibit traces a career that moved from blackjack and roulette to option pricing, statistical arbitrage, Berkshire Hathaway investing, endowment policy, and the Kelly criterion.

His influence is also cultural. Thorp changed the image of the market participant from the tape-reading operator to the experimentally minded analyst. He did not eliminate narrative from finance, and he did not make markets perfectly efficient. But he showed that a person outside Wall Street's social channels could use mathematics, computing, and discipline to find errors in prices. That example helped widen the door for physicists, mathematicians, computer scientists, and engineers who later entered finance in large numbers.

## What remains useful, and what remains dangerous

The useful part of Thorp's approach is not a specific blackjack count or a 1960s warrant table. It is the sequence: identify a positive expectation, understand the mechanism, hedge what is irrelevant, size the bet to survive variance, measure costs, diversify the expression of the edge, and assume that success will attract competition. That sequence remains a durable checklist for professional investors even when the original trades are gone.

The dangerous part is imitation without humility. Thorp's methods can tempt later investors to believe that a spreadsheet is a proof, that a backtest is a bankroll, or that a small statistical anomaly justifies large leverage. His own comments on 1929, 1987, Long-Term Capital Management, and 2008-2009 show that he saw leverage and feedback loops as recurring sources of disaster. Many quant failures occur not because mathematics is useless, but because the math is attached to false assumptions about liquidity, crowding, financing, or human behavior under pressure.

That is why Thorp's continuing relevance is sharper than nostalgia. In an age of machine learning, alternative data, factor crowding, and private trading firms, his career asks the same questions in more expensive form. Is the edge real? Who else has found it? What happens when financing disappears? What assumption makes the backtest beautiful? What risk sits outside the model? Thorp's answer, across six decades, was not to avoid risk. It was to make risk explicit enough that it could be priced, sized, and, when necessary, refused.

# Disclosure

Educational financial journalism and market research only. Not financial, investment, trading, tax, or legal advice. Market data and analysis may be delayed, incomplete, or inaccurate.

# Sources


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|---|---|
| SOURCE-01<br>Edward O. Thorp | Edward O. Thorp - Official Website |
| SOURCE-02<br>UC Irvine Libraries | A Winning Hand |
| SOURCE-03<br>Proceedings of the National Academy of Sciences | A Favorable Strategy for Twenty-One |
| SOURCE-04<br>Proceedings of the Second International Symposium on Wearable Computers | The Invention of the First Wearable Computer |
| SOURCE-05<br>Random House, hosted by UC Irvine Department of Economics | Beat the Market: A Scientific Stock Market System |
| SOURCE-06<br>UC Irvine Libraries | A Career in Quantitative Finance |
| SOURCE-07<br>Edward O. Thorp and Associates, hosted by Occidental College | The Kelly Criterion in Blackjack, Sports Betting, and the Stock Market |
| SOURCE-08<br>AQR Capital Management | Words From the Wise: An AQR Interview with Ed Thorp |
| SOURCE-09<br>Los Angeles Times | Indictment Splits Bicoastal Firm: Newport Beach Math Whiz Cleared but N.J. Partner Cited |
| SOURCE-10<br>Justia | United States v. Regan, 699 F. Supp. 36 (S.D.N.Y. 1988) |

| | |
|---|---|
| SOURCE-11<br>Los Angeles Times | Other News - Sept. 9, 1992: Princeton/Newport Sentences Canceled |
| SOURCE-12<br>NPR and VPM, excerpt from Scott Patterson's The Quants | Excerpt: The Quants |