MarketCoins®

Tune Out the Noise© Series

Index Fund Advisors
WEALTH MANAGEMENT • TAXES


DAVID G. BOOTH
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
EUGENE F. FAMA
TUNE OUT THE NOISE®
NOBEL LAUREATE 2013
PIONEERS OF PORTFOLIOS
KENNETH R. FRENCH
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
ROBERT C. MERTON
TUNE OUT THE NOISE®
NOBEL LAUREATE 1997
PIONEERS OF PORTFOLIOS
REX A. SINQUEFIELD
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
JOHN A. MCQUOWN
TUNE OUT THE NOISE®
1934–2024
PIONEERS OF PORTFOLIOS
GERARD O'REILLY
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
DAVE P. BUTLER
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PIONEERS OF PORTFOLIOS
PAUL A. SAMUELSON
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NOBEL LAUREATE 1970
1915–2009
PIONEERS OF PORTFOLIOS
ROBERT NOVY-MARX
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
ROGER G. IBBOTSON
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PIONEERS OF PORTFOLIOS
JEANNE CAIRNS SINQUEFIELD
TUNE OUT THE NOISE®
PIONEERS OF PORTFOLIOS
SAVINA B. RIZOVA
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DAN M. WHEELER
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1945–2023
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MARK T. HEBNER
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IFA
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NORM M. MINDEL
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SENATOR BILL W. BRADLEY
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PIONEERS OF PORTFOLIOS
ERROL M. MORRIS
TUNE OUT THE NOISE®
PIONEERS OF DOCUMENTARIES
HEADS ABOVE • TAILS BELOW THE MEDIAN RETURN
BUTTONWOOD AGREEMENT
1792
IFA MARKETCOIN®

IFA MarketCoins®
Tune Out the Noise© Series

This series of 18 commemorative coins honors many of the economists, founders, practitioners, and a filmmaker whose work created and championed the evidence-based investing movement. Each coin has a portrait on the obverse and a Buttonwood Agreement scene on the reverse.

The Buttonwood Agreement was signed on May 17, 1792, when 24 New York stockbrokers gathered under a buttonwood tree on Wall Street and agreed to trade securities exclusively among themselves at fixed commission rates. It became the founding document of what would evolve into the New York Stock Exchange.

A BRIEF HISTORY OF THE COIN

Part I — Before the Coin: Africa

The story of the coin does not begin with metal. It begins with the human need to trade, measure value, and trust. Long before the first stamped disc changed hands, Africa was already running one of the world's most sophisticated monetary systems. The cowrie shell — small, uniform, nearly impossible to counterfeit — traveled inland from the Indian Ocean through vast trade networks, stable enough that kingdoms used them to pay soldiers, collect taxes, and ransom captives. In the gold-rich kingdoms of West Africa, the Akan people's precision brass weights (abrammuo) managed gold dust with remarkable accuracy — works of art and instruments of commerce simultaneously. Salt, worth its weight across Saharan trade routes, functioned as solid currency. Copper crosses known as the Katanga Cross circulated across Central and Southern Africa; iron, cloth, cattle, and manilla bracelets served monetary roles across different regions. Africa was not waiting to be introduced to commerce.

Part II — The First Coins: Lydia (~630 BC)

The world's first official coin was struck in Lydia (present-day western Turkey) around 630 BC: small bean-shaped lumps of electrum — a natural gold-silver alloy — stamped with a roaring lion's head, the royal symbol of King Alyattes. Before this, metal was weighed out for every transaction, imprecise and trust-demanding. The king's stamp certified weight and purity, transforming a commodity into currency backed by royal authority. His son Croesus refined the system into the world's first bimetallic coinage of pure gold and silver — giving rise to "rich as Croesus" still used today. The idea spread rapidly: Greek city-states adopted the model, and the Athenian tetradrachm became the trusted currency of the Mediterranean. Rome's silver denarius, introduced in 211 BC, became the economic backbone of Western civilization for four centuries.

Part III — Islam, Gold & the Piece of Eight

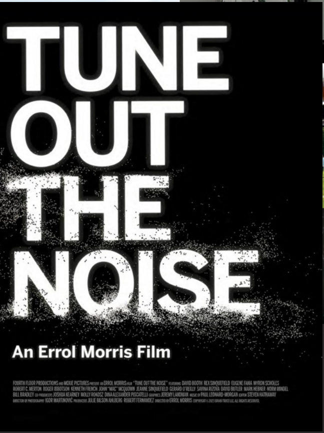
After Rome's fall, the Byzantine solidus anchored Mediterranean trade for 700 years.

The rise of Islam produced a rival monetary order: in AD 697 the Umayyad Caliphate issued the dinar and dirham — stripped of all figural imagery and inscribed with Quranic calligraphy — which circulated from Spain to Southeast Asia and deep into West Africa along the trans-Saharan gold routes. When Spanish conquistadors opened the Americas in the 16th century, they unlocked the world's greatest silver deposit: Cerro Rico in present-day Bolivia. Between 1556 and 1783, it yielded an estimated 41,000 metric tons of silver. The resulting coin — the 8 reales, or piece of eight

— became history's first truly global currency, accepted from China to colonial America. The dollar sign "$" is widely believed to derive from its face.

Part IV — The IFA MarketCoin®

Mark T. Hebner, Founder and CEO of Index Fund Advisors, created the IFA MarketCoin as a direct expression of the Efficient Market Hypothesis developed by Nobel laureate Eugene Fama. Where the Lydian stater was stamped with a lion to certify metal, and the piece of eight bore the Pillars of Hercules to announce imperial power, the MarketCoin is inscribed with the language of probability. The obverse of all the MarketCoins refers to "Above the Median Return"; the reverse refers to "Below the Median Return." Because prices already incorporate all available information, future market direction, relative to the median, is no more predictable than a coin flip. Markov Chain analysis of more than 6,600 trading days confirms the 50/50 rule: whether the prior period was above or below the median, the probability of each outcome next period is approximately 50%. The market has no memory. In a history spanning 2,600 years — from the first electrum stater to the latest digital token — the MarketCoin may be the first ever struck that honestly represents not just value, but the limits of our knowledge about value's future direction.

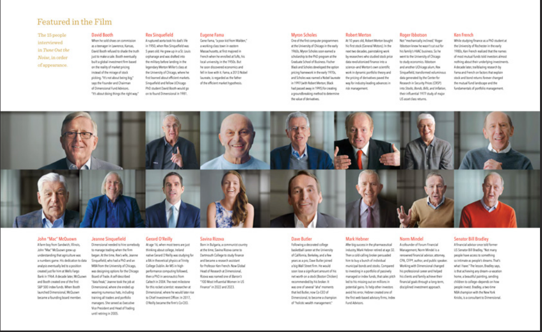


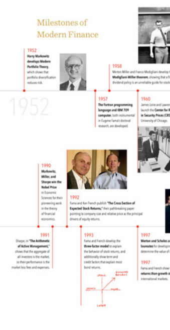
A Documentary Film
Directed by Errol Morris

What if everything you believed about investing was wrong?

Tune Out the Noise **is an Academy Award–winning director's investigation into one of the most consequential ideas in modern finance — and why so few people act on it.**

Directed by Errol Morris, the film brings together Nobel laureates, pioneering economists, and the practitioners who translated half a century of financial research into real portfolios for real people. Eugene Fama, Kenneth French, Robert Merton, David Booth, and Roger Ibbotson appear alongside the founders and advisors who built the industry around their ideas — each filmed through Morris's Interrotron, which lets subjects look directly at both filmmaker and camera simultaneously.

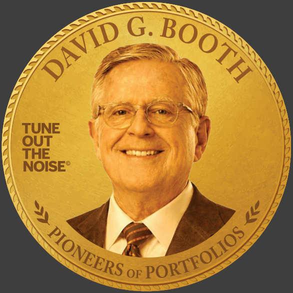




The central argument is simple and radical: markets are efficient. Prices already reflect all available information. No amount of analysis, intuition, or market timing can reliably beat the market after costs — yet an entire industry is built on the promise that it can. The film traces how that insight, born in Chicago in the 1960s, quietly transformed investing from a game of guesswork into a discipline of evidence.

This MarketCoins series honors the eighteen figures whose work made that transformation possible. Each coin is a portrait. Each portrait is a chapter in the same story.

The film has earned praise from economists, advisors, and investors alike for making rigorous financial science accessible without dumbing it down. With over 30 million views on YouTube, it remains one of the few documentaries to take the efficient market hypothesis seriously as a human story.



David G. Booth

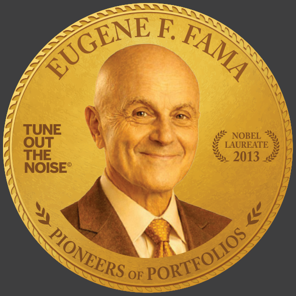
Founder & Chairman
Dimensional Fund Advisors

Born in 1946, in Lawrence, Kansas, David Booth sold shoes on commission as a teenager and refused to shade the truth even when it cost him the sale. That instinct carried into finance. Discovering Eugene Fama's work at the University of Chicago — where he became Fama's research assistant — he left convinced that markets work and that most of what active managers sell cannot deliver what it promises.

In 1981 he co-founded Dimensional Fund Advisors with Rex Sinquefield from the spare bedroom of his Brooklyn apartment, moving a refrigerator-sized computer through the front door to run market data. The firm grew to over $1 trillion under management by building portfolios around evidence — size, value, and profitability premiums — rather than guesswork. The University of Chicago renamed its business school in his honor after his $300 million gift. A serious collector of contemporary art, he plans to open his Lake Austin estate — home to works by Heizer, Turrell, LeWitt and other artists — to the public.

Eugene F. Fama

Nobel Laureate 2013
Father of the Efficient Market Hypothesis
Co-creator Fama-French Models
Dimensional Director and Consultant



A third-generation Italian-American from working-class Medford, Massachusetts, Gene Fama enrolled at Tufts to teach French before an economics elective changed everything. His 1964 Chicago PhD argued that short-term stock prices follow a random walk — they already reflect all available information, making systematic outperformance unlikely after costs. His 1970 paper formalizing the Efficient Market Hypothesis became one of the most cited works in economic history.

With Kenneth French he published the three-factor model (1992) and five-factor model (2015), showing that size, value, profitability, and investment systematically explain expected returns. As he put it in the film: if active managers win, it has to be at the expense of other active managers — a zero-sum game before costs. The Nobel Committee awarded him the Economics Prize in 2013; many felt it was fifty years overdue. He has been on Dimensional's board since 1982. An avid golfer and opera buff, he is a member of Malden Catholic High School's athletic hall of fame.

Kenneth R. French

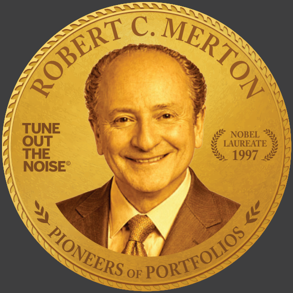
Roth Family Distinguished Professor, Dartmouth
Co-creator Fama-French Models
Dimensional Director and Consultant

Ken French studied mechanical engineering at Lehigh University before earning his finance doctorate at Rochester in 1983. When he looked at mutual fund names as a student, he saw marketing language: not one told him how a portfolio would actually behave, what risks it was taking, or what returns to expect. He joined Chicago's Booth School faculty, where he met Fama, and their collaboration produced some of the most important research in applied finance.

Their 1992 paper showed that size and value are persistent return dimensions beyond the CAPM — extended to five factors in 2015 to include profitability and investment. A former faculty member at MIT, Yale, and Chicago's Booth School, he is chair of the Board of Directors of the Valpo Surf Project — a nonprofit mentoring at-risk youth in Valparaíso, Chile through surfing, academic tutoring, and professional development. He introduced Savina Rizova to Dimensional after she worked as his research assistant at Dartmouth.

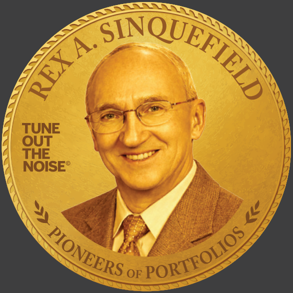
Robert C. Merton

Nobel Laureate 1997
Resident Scientist
Dimensional Fund Advisors



At age eight, Merton created his first fictitious bank — the RCM Savings of Dollars and Cents Company — collecting deposits from family and friends. He owned his first stock at ten and was trading convertible bonds before class in college. He thought seriously about becoming an automobile engineer — understanding early that complex systems with clear rules reward those with the right model. After engineering mathematics at Columbia and applied math at Caltech, he completed his PhD under Paul Samuelson at MIT in 1970.

The Black-Scholes-Merton model (1973) gave markets their first rigorous pricing method for derivatives — now embedded in virtually every serious financial institution. When he reviewed Black and Scholes's formula, he told them: you are right, but for the wrong reason. His proof was more rigorous and general. He earned a Nobel Prize in 1997 alongside Myron Scholes for their work on derivative pricing. As Resident Scientist at Dimensional, he develops lifecycle investing frameworks including SmartNest, which reframes retirement from accumulating a number to securing sustainable monthly income.



Rex A. Sinquefield

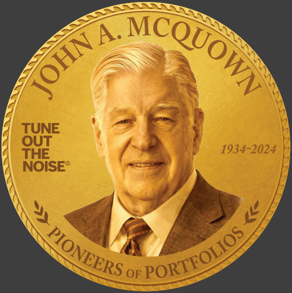
Co-Founder
Dimensional Fund Advisors
Co-author, *Stocks, Bonds, Bills and Inflation*

Rex Sinquefield's father died when he was five; two years later he was in a Catholic orphanage in St. Louis run by nuns with strict discipline. After seminary, St. Louis University, and Army service in Vietnam, he arrived at the University of Chicago, heard Merton Miller explain market efficiency in the first class, and had an immediate conviction: this has to be true — the organizing principle for all of the market data.

He built one of the first S&P 500 index funds at American National Bank in 1973. When Wall Street called it settling for average, his response was simple: the average beats most of what they're selling. He co-founded Dimensional with David Booth in 1981 and co-authored *Stocks, Bonds, Bills and Inflation* with Roger Ibbotson (1977), still the standard reference for long-run returns. Since retiring, he and his wife, Dr. Jeanne Sinquefield, have endowed Powell Symphony Hall and co-founded the Saint Louis Chess Club — making St. Louis the permanent home of the U.S. Chess Championship.

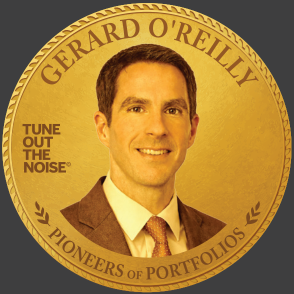
John A. “Mac” McQuown

Financial Engineer
Founding Director
Dimensional Fund Advisors
1934–2024



Mac McQuown grew up on a twelve-hundred-acre farm in Sandwich, Illinois and became a farmhand at eight when WWII took the men away. After mechanical engineering at Northwestern and an MBA at Harvard, he rented time on an IBM 7090 mainframe on weekends to prove data-driven analysis could beat Wall Street’s guesswork. A talk about that work caught the attention of Wells Fargo Bank President Ransom Cook, who offered him a job running a new internal think tank.

As Director of Management Sciences at Wells Fargo beginning in 1964, he assembled a team including Fama, Scholes, Black, Sharpe, Markowitz, Miller, and Jensen — with five eventual Nobel laureates among them. In 1971 they deployed $6 million from Samsonite’s pension into a portfolio designed to own every NYSE share: among the first institutional index funds. That division eventually became the iShares ETF franchise, acquired by BlackRock in 2009 — the foundation of a twelve-trillion-dollar industry. David Booth put it simply: people like Mac don’t win Nobel Prizes; they implement the ideas of the guys who do. Mac passed away on October 22, 2024.



Gerard K. O'Reilly

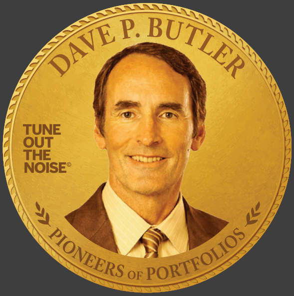
Co-Chief Executive Officer
Co-Chief Investment Officer
Dimensional Fund Advisors
Dimensional Director

Gerard O'Reilly grew up in Waterford, Ireland, in a household where both parents worked in a laboratory. He earned First Class Honours in theoretical physics at Trinity College Dublin, then a doctorate in aeronautics at Caltech. When aerospace doors closed to non-citizens near the end of his degree, one word described what followed: serendipity. A chance conversation pointed him to Dimensional Fund Advisors.

He joined Dimensional's research department in 2004 and rose from junior researcher to Co-CEO in thirteen years. His first lesson: check your ego at the door when learning finance from Nobel laureates — and don't make the same mistake twice. As Co-CEO with Dave Butler and Co-CIO with Savina Rizova, he leads the investment and research side of a $1 trillion firm. He oversaw the launch of Dimensional's ETF business, which gathered assets far faster than projected. The leadership structure he built reflects a core conviction: rigorous research and human-centered advice are both necessary, and neither is sufficient alone.

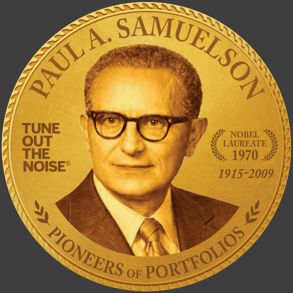
Dave P. Butler

Co-Chief Executive Officer
Dimensional Fund Advisors
Dimensional Director



Dave Butler was 6-foot-9, an Academic All-American at UC Berkeley who aspired to be a Rhodes Scholar and was drafted by the Boston Celtics — the night before camp, the NBA went on strike. Istanbul wanted him instead. Back in the U.S., a broker's Boston Chicken tip cost him half his net worth. He decided to quit financial services entirely — then found a classified ad on page 17 of the Wall Street Journal: 'Money Manager — Santa Monica, California.'

That ad led to Dimensional. His first lunch was with Merton Miller, who gave him three principles he never forgot: markets work, costs matter, diversification is your buddy. Joining in 1995 as Regional Director, he spent twelve years on the road visiting fee-only advisors across the country — building the human network that carries Dimensional's philosophy to individual investors. The academics discovered the ideas; the founders built the firm; Butler spent decades doing something equally essential: ensuring the advisors who serve ordinary investors actually understood and believed. Named Co-CEO in 2017, he travels the world on behalf of Dimensional.



Paul A. Samuelson

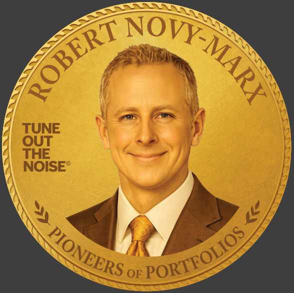
Nobel Laureate 1970
Father of Modern Economics
Institute Professor, Massachusetts Institute of Technology
1915–2009

Paul Samuelson was born in Gary, Indiana in 1915 and, in his own words, was born as an economist at 8:00 am on January 2, 1932, in a University of Chicago classroom during a lecture on Thomas Malthus. He was sixteen. Harvard's anti-Semitism denied him a faculty post; MIT hired him instead and he stayed seven decades, building one of the world's great economics departments and mentoring Robert Merton, who would win the Nobel Prize himself in 1997.

The first American Nobel laureate in economics (1970), Samuelson made the discipline testable by evidence. His 1974 article 'Challenge to Judgment' called the industry to account and challenged someone to create an S&P 500 index fund as an honest benchmark. Bogle read it and launched Vanguard's first index fund in 1976; Samuelson responded that his explicit prayer had been answered sooner than he dared expect. He also praised Mark Hebner's Index Funds book, lending Nobel weight to evidence-based investing at the exact moment IFA was taking it to ordinary people.

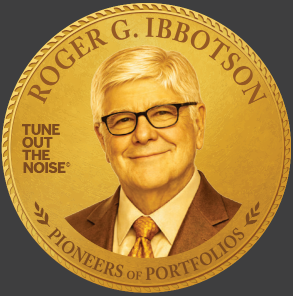
Robert Novy-Marx

Zekelman Distinguished Professor of Finance, University of Rochester
Consultant, Dimensional Fund Advisors



A competitive triathlete who studied physics at Swarthmore before earning his finance doctorate at UC Berkeley, Robert Novy-Marx trains to find the most efficient path to the finish line — then asks the same question about stocks. He joined Chicago's Booth School faculty before moving to the Simon Business School at the University of Rochester, where he holds the Zekelman Distinguished Professorship in Finance.

His 2013 Journal of Financial Economics paper 'The Other Side of Value' won the Fama-DFA Prize by identifying gross profitability as a systematic dimension of expected return: profitable companies earn higher returns even after controlling for price. The insight extends the Fama-French framework — cheap and profitable beats cheap alone. His research is formally cited in the Tune Out the Noise companion materials as one of the defining milestones of modern finance and is embedded in how Dimensional constructs portfolios today; he serves as a Research Consultant to the firm. He has also published widely cited work on public pension underfunding.



Roger G. Ibbotson

Professor Emeritus, Yale
Co-author, *Stocks, Bonds, Bills and Inflation*

Roger Ibbotson's pre-academic career spanned four countries — analyst at Citibank, ranch coordinator in Nevada, economist at the Bank of Japan, developer in Botswana — before he arrived at the University of Chicago. His PhD committee was Fama, Fischer Black, Scholes, and Merton Miller: all Nobel laureates or Nobel-caliber economists. Working under those four, at that moment in Chicago, was among the most remarkable doctoral experiences in the history of modern finance.

In 1977 with Rex Sinquefield, he published *Stocks, Bonds, Bills and Inflation* — organizing decades of CRSP return data into what is widely regarded as the most persuasive chart in financial history: one dollar in U.S. stocks in 1926 compounding to an extraordinary sum while bonds and cash barely moved. Updated annually for nearly fifty years, SBBI remains the global standard for long-run capital market return data. He founded Ibbotson Associates, sold to Morningstar in 2006, then launched Zebra Capital. He championed the Stock Market Game, introducing schoolchildren to how markets work.

Jeanne Cairns Sinquefield, Ph.D.

Executive VP & Head of Trading
(1982–2005)
Dimensional Fund Advisors

Jeanne Cairns Sinquefield earned an MBA and doctorate in demography at the University of Chicago — where she met Rex Sinquefield at the judo club. Between 1980 and 1982 she designed the first options on futures contracts at the Chicago Board of Trade, one of the most technically demanding assignments in financial markets, and co-authored the first serious book on the subject. When David Booth and Rex asked her to build a trading department in 1982, Dimensional was still a Brooklyn bedroom operation.

She led it for twenty-three years — training every trader and portfolio manager and building the execution infrastructure that made Dimensional's factor tilts actually reach clients. Markets don't reward good ideas; only good execution. Since retiring in 2005 she has co-founded the Saint Louis Chess Club, established the Cairns Cup women's chess tournament, instigated the Boy Scouts chess merit badge now earned by over 250,000 scouts, performed in two Missouri symphony orchestras, and was inducted into the U.S. Chess Hall of Fame in 2022. She is also co-author of *Taxes Have Consequences: An Income Tax History of the United States*.

Savina B. Rizova, Ph.D.

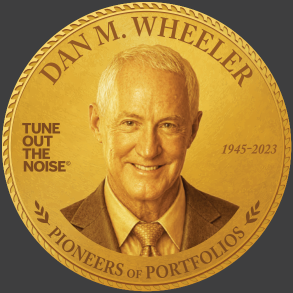
Co-Chief Investment Officer
Global Head of Research
Dimensional Fund Advisors

Savina Rizova grew up in communist Bulgaria, where stock exchanges did not exist as civic realities. She was eight when communism ended in 1989. She won full financial aid to Dartmouth, worked as Kenneth French's research assistant, earned her MBA and doctorate at Chicago's Booth School, and joined Dimensional in 2004. As she later described it: her younger self in Bulgaria had never heard of a stock exchange — yet she eventually rang the closing bell at the Deutsche Börse.

Her research centers on profitability and investment premiums, extending the Fama-French framework. Named Head of Research in 2017 and Co-CIO in 2024, she leads over 300 investment professionals across six countries and helped drive Dimensional's rapid ETF growth. Barron's has named her to its 100 Most Influential Women in U.S. Finance four years running; her nomination came from Robert Merton, who called her a standout across fifty-plus years of working with quantitative analysts. In *Tune Out the Noise* she represents the generation that received what was built, refined it, and extended its reach.

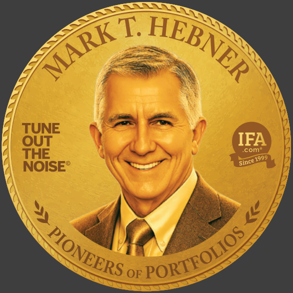
Dan M. Wheeler

Founder, Financial Advisor Services
Dimensional Fund Advisors
1945–2023



Dan Wheeler was born in East St. Louis in 1945, served as a Marine in Vietnam, then worked as a CPA and Merrill Lynch broker before concluding that commission-based advice was structurally incompatible with a client's interest. In one of the more improbable résumé entries in finance, he also served as comptroller for a Saudi arms dealer. He built one of the first fee-only RIA firms before that profession had a name and found Dimensional when it served only institutions.

In 1989 he joined as Director of Financial Advisor Services, requiring advisors to attend a two-day seminar on their own time before accessing DFA funds — he wanted believers, not customers. Year one: $70 million. Year three: $325 million. By retirement, roughly two-thirds of Dimensional's AUM was flowing through the channel he built from nothing. He died February 15, 2023. Dave Butler, who first met Wheeler at an elevator in Santa Monica, called him the man who made Dimensional's advisor business possible.



Mark T. Hebner

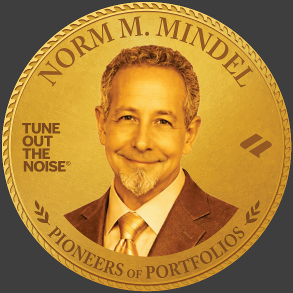
Founder & Chief Executive Officer
Index Fund Advisors, Inc.

Mark Hebner co-founded Syncor International, a leading nuclear pharmacy services company, in 1975 and served as President through 1985. A cold-calling broker's actively managed portfolio cost him over time. With a scientist's instinct (in nuclear pharmacy, you follow peer-reviewed protocols or people get hurt), he recognized the structural conflict at the heart of commission-based advice and decided to build something different.

On March 5, 1999, he founded Index Fund Advisors — one of the first web-based, evidence-based, fee-only RIA firms, with AUM of $6.5 billion (as of May 2026). His book *Index Funds: The 12-Step Recovery Program for Active Investors* earned praise from Nobel laureates Paul Samuelson and Harry Markowitz and from David Booth, Jack Bogle and Burton Malkiel. His Galton Board — a physical device that drops steel beads through hexagons to produce a perfect bell curve every time — is sold globally as a teaching tool for probability and markets. Hebner created four MarketCoin commemorative series, including this *Tune Out the Noise* documentary series.

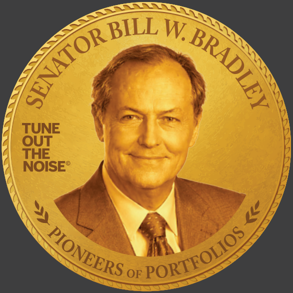
Norm M. Mindel

Co-Founder & Partner
Forum Financial Management
JD, CPA, CFP®



Norm Mindel studied accounting at Illinois Institute of Technology, then added a JD from Chicago-Kent — credentials in accounting, tax, and law that made him one of the most genuinely multidisciplinary advisors in the country. He founded Terra Financial Companies with six people, grew it to $3.4 billion in assets, and sold it to GE in 1998. In 2001 he co-founded Forum Financial Management on evidence-based principles, returning to working directly with clients.

In *Tune Out the Noise* he delivered a clear explanation of the DFA approach: active funds try to beat the market; index funds give you the market minus fees; DFA tilts toward small and value companies for higher expected long-run returns — low cost, tax efficient, and patient. He published *Wealth Management in the New Economy* (Wiley, 2010), appeared on CNBC Power Lunch, and co-hosts the 'School of Hard Knocks Investing' podcast with Big Bang Theory producer Dave Goetsch. He also races cars competitively.



Senator Bill W. Bradley

NBA Champion
Rhodes Scholar
U.S. Senator
Consultant, Dimensional Fund Advisors

Bill Bradley was born in Crystal City, Missouri in 1943. More than seventy colleges offered scholarships; he turned them all down to attend Princeton, averaged 30.2 points per game, won an Olympic gold medal in Tokyo (1964), and graduated magna cum laude. He turned down the Knicks to study at Oxford on a Rhodes Scholarship — playing pro ball in Milan on the side — before returning to win two NBA championships with New York in 1970 and 1973.

He won a U.S. Senate seat from New Jersey without ever holding a lesser office and served three terms, co-authoring the landmark Tax Reform Act of 1986. President Biden awarded him the Presidential Citizens Medal in 2025. As a Dimensional consultant he reframes the firm's message: not many professions have access to something as intimate as people's dreams — the cabin in Colorado, the college tuition, the piece of art. Evidence-based investing is not merely a technical achievement; it is a moral one, giving individual investors a fair chance at the life they are actually trying to build.

Errol M. Morris

Academy Award-Winning Filmmaker
Director, *Tune Out the Noise*

Errol Morris was born in Hewlett, New York in 1948. His father died when he was two; his Juilliard-trained mother raised him. He studied history at Wisconsin, dropped out of graduate programs at Princeton and Berkeley, and spent years as a private detective in New York — later calling it the best filmmaking school he ever attended. Werner Herzog bet publicly that Morris would never finish his first film. Morris finished it. Herzog ate his shoe in public.

Gates of Heaven (1978) made Roger Ebert's ten greatest list. *The Thin Blue Line* (1988) freed an innocent man from Texas death row. *The Fog of War* (2003) won the Academy Award for Best Documentary. Morris invented the Interrotron — named by his wife from 'terror' and 'interview' — allowing subjects to look directly at both filmmaker and camera. He has directed over a thousand commercials for Apple and Nike and holds MacArthur and Guggenheim fellowships. Every conversation in *Tune Out the Noise* was filmed through the Interrotron. His work is in the permanent collection of the Museum of Modern Art, and he has authored two books: *Believing Is Seeing* and *A Wilderness of Error*.

Test Your Knowledge

Answers at the end

1 David Booth grew up in Lawrence, Kansas. What job did he have as a teenager that he later said shaped his philosophy about honesty in business?

A. Newspaper delivery boy

B. Shoe salesman on commission

C. Farm hand

D. Bank teller

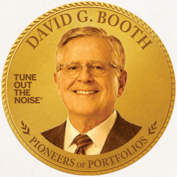
2 Eugene Fama's Efficient Market Hypothesis, formalized in 1970, makes which core claim about stock prices?

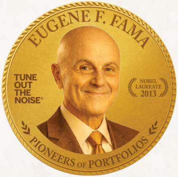
A. Prices follow predictable seasonal patterns

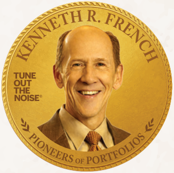
B. Prices are determined by company earnings alone

C. Prices already reflect all available information, making systematic outperformance unlikely

D. Prices rise over time at a rate equal to inflation







3 Rex Sinquefield heard Merton Miller explain market efficiency in his very first class at the University of Chicago. How did he describe his reaction?

A. He was skeptical and challenged Miller directly

B. He found it interesting but unconvincing

C. He fell asleep during the lecture

D. He immediately thought: this has to be true — the organizing principle for all of the market data

4 Mac McQuown assembled a team at Wells Fargo in the 1960s that eventually included Eugene Fama, Myron Scholes, Fischer Black, William Sharpe, Harry Markowitz, Merton Miller and Michael Jensen. What remarkable distinction does this group share?

A. They all later worked at Dimensional Fund Advisors

B. Five of them eventually won Nobel Prizes

C. They collectively managed over $1 trillion in assets

D. They all co-authored *Stocks, Bonds, Bills and Inflation*

5 The Fama-French three-factor model (1992) identified two return dimensions beyond the overall market factor. What are they?

A. Momentum and quality

B. Liquidity and leverage

C. Size (small vs. large companies) and value (cheap vs. expensive stocks)

D. Profitability and investment

6 Dave Butler found Dimensional Fund Advisors in an unusual way. How did he first learn about the firm?

A. His MBA professor recommended it

B. He read about it in The Wall Street Journal's front page

C. A classified ad on page 17 of the Wall Street Journal: 'Money Manager — Santa Monica, California'

D. Eugene Fama personally recruited him

7 Robert Merton told Fischer Black and Myron Scholes something memorable when he reviewed their options pricing formula. What was it?

A. 'Your model only works in theory, not in practice'

B. 'You are right, but for the wrong reason'

C. 'This will win you a Nobel Prize'

D. 'The math is correct but the assumptions are flawed'

8 Paul Samuelson's 1974 article 'Challenge to Judgment' issued a famous call to action. What did he challenge the investment industry to do?

A. Reduce management fees by 50%

B. Publish all portfolio holdings publicly

C. Create an S&P 500 index fund that would give active managers an honest benchmark

D. Stop using leverage in pension portfolios

9 Errol Morris invented a device called the Interrotron, which he used to film every interview in Tune Out the Noise. What does it do?

A. It records audio without a visible microphone

B. It allows subjects to look directly at both the filmmaker and the camera simultaneously

C. It corrects for lighting differences between indoor and outdoor shots

D. It synchronizes multiple camera angles in real time

10 Senator Bill Bradley, in his Tune Out the Noise interview, described a financial advisor who said that few professions have access to something as intimate as people's dreams. Which of the following best captures the examples he gave?

A. Starting a business, paying off debt, buying a car

B. A cabin in Colorado, a piece of art, sending your kids to college

C. Retiring early, travelling the world, owning a boat

D. Donating to charity, funding a scholarship, building a legacy

Answer Key: 1-B | 2-C | 3-D | 4-B | 5-C | 6-C | 7-B | 8-C | 9-B | 10-B

Score: 10–9 = Great job! You have been paying attention.
8–7 = Solid foundation. The evidence is clearly working on you.
6–5 = Good start. A 2nd viewing of the documentary is recommended.
4–0 = The market is efficient. Your quiz score may not be.

About Index Fund Advisors

Index Fund Advisors
WEALTH MANAGEMENT • TAXES

Replacing Speculation with an Education

Index Fund Advisors, Inc. (IFA) is a fee-only advisory and wealth management firm that provides risk-appropriate, globally diversified, and tax-managed investment strategies with a fiduciary standard of care.

IFA is a registered investment adviser serving individuals, retirement plans, trusts, corporations, non-profits, and public and private institutions across the United States. Founded in 1999, IFA has spent over twenty-five years guiding investors away from speculation and toward disciplined, evidence-based investing.

The value of IFA extends beyond investment advice. As a holistic financial partner, IFA provides investment advice alongside wealth management and financial planning to assist clients in managing their financial journeys. IFA Wealth Advisors take a personalized approach to matching people with portfolios, offering a full range of wealth management services for a thoughtful and comprehensive client experience.

IFA seeks to avoid the unnecessary cost-generating activities often associated with stock, time, manager, and style picking. Instead, IFA employs a disciplined, quantitative approach designed to optimize diversification while remaining cost-efficient.

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The 12-Step Coin Series - Based on Mark Hebner's book Index Funds: The 12-Step Recovery Program for Active Investors. Each coin represents one step in the journey from speculative investing to evidence-based discipline — a tangible guide to the principles that protect investors from their own worst instincts.

IFA Index Portfolio Series - Maps the structure of a factor-based, globally diversified portfolio — one coin for each level of risk, from 100% to 20% stock indexes. A collection of risk exposures that can be matched to risk capacities.

The Original MarketCoin - One of the most financially savvy coins ever minted. One side reads UP above the median return. The other reads DOWN below the median return. No prediction. No promise. No forecast dressed up as advice. Just the truth about randomness — which is all a fair market can offer.

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