PART ONE

OVER 50 YEARS OF LEARNING TO INDEX

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MY HALF-CENTURY ODYSSEY

Well into my second year at Harvard Business School (HBS), spring was coming, Boston's snow was melting, and classmates were accepting job offers when one of them asked one day at lunch, "Charley, have you decided on a job yet?"

"Not yet. Several good interviews, but no definite offers. Why do you ask?"

"My father has a friend who's looking for an MBA to work at Rockefeller. Could that interest you?"

Thinking he meant the Rockefeller Foundation, I said I was interested. "Great!" he said, "Expect a call from a man with an unusual name: Strange."

So I soon agreed to meet Robert Strange—at his suggestion in the remarkably unremarkable third-floor "apartment" of three rooms off one open landing in an old Victorian frame house where my wife and I were living. At the appointed time, Bob Strange rang the doorbell and cheerfully followed me up the stairs. Sitting together on secondhand chairs that might have come from Goodwill, we began to talk. After half an hour, I knew I could learn a lot from a man as thoughtful, informed, and articulate as Bob Strange, so if he offered me a job I would take it. But while it was becoming clear that he did *not* work at the Rockefeller Foundation, it wasn't clear what kind of work he did do. I'd better find out.

During the next half hour, I learned his work involved investing, a field I knew nothing about but that sounded interesting, and his employer was Rockefeller Brothers, Inc., which managed investments for Rockefeller family members and philanthropies they had endowed. The interview seemed to go well, and

near the end Bob said, "Well, we've covered quite a lot of ground, Charley. Would you like to join us?" I said yes. Then Bob asked, "When would you like to start?" and, smiling, went on to suggest, "With vacations and all, summers are rather quiet, so why don't you come in on Tuesday after Labor Day?" I said "Fine. I'll be there," and that was that.

After Bob left, I went to tell my wife, who had been discreetly reading in the bedroom with the door closed. "Good news! I got the job."

"Great! What will you be doing?"

"Investing."

"Sounds interesting! What will you get paid?"

"Gosh, I forgot to ask."

Setting my pay at $6,000 was, I later learned, easy. That's what the Rockefeller bank—Chase Manhattan—paid first-year MBAs and also what the Family paid beginning domestic servants.

That was in 1963. Few of my Harvard Business School classmates went into investments and only a very few went to Wall Street. Several went into commercial banking, almost always for the training programs and a few years of experience before moving on to a corporate job—but almost never for a career.

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"Chahley, Chahley, didn't you learn *anything* about investing at Hahvud?" My supervisor, Phil Bauer, had just finished reading my first report—on textile stocks—at Rockefeller Brothers, Inc. He was *not* pleased. My report was all too obviously the work of a rank beginner.

Confessing the obvious, I explained that the only course on investing at Harvard Business School was notoriously dull, given by a boring professor and dealing largely with the tedious routines of a local bank's junior trust officer administering trusts for the family of a wealthy widow, Miss Hilda Heald. Instead of the usual class size of 80, the course had only a dozen students—all looking for a "gut" course where decent grades were assured because the professor needed students for his course. Meeting from 11:30 to 1:00, the course was aptly known as Darkness at Noon.

"Well, Chahley, the Rockafellahs ah rich people, but not so rich they can afford a complete beginnah like *you!* You gotta learn somethin' about investin'—and *soon*!" Before the day was over, arrangements were made for me to join the training program at a Wall Street firm, Wertheim & Company, to learn the basics of securities analysis; to join the New York Society of Security Analysts so I could hear

companies' presentations and meet other analysts; and to enroll in night courses on investment basics at New York University's downtown business school. Tuition would be paid so long as my grades were B+ or better—generous terms and important for a married guy living in New York City on a salary of $6,000. The fall term was about to begin, so I went to register for courses.

Arriving at a large room where a sign said REGISTRATION, I joined one of several long lines of twenty-somethings and eventually stood in front of a card table with a typewriter on it and a young woman sitting behind it. "Special or regular?" she asked. Since I didn't answer quickly, she rephrased her question: "Are you a special student or a regular student?"

"Can you explain the difference?"

"Sure, special students are just taking one or two courses; regular students are in a degree program. What's your latest school and last degree?"

"Harvard Business School—MBA."

"Oh wow! Harvard Business School! That's really great! Well, since you already have your MBA, you should be in our PhD program!"

"Does it cost more?"

"Same price. Why not try it? You can always drop out."

Since nobody in my family had ever earned a PhD, I thought, "Why not?" It might be interesting and it would surprise my sister and brother, who had always gotten higher grades. I signed up with no idea that it would take me 14 long years to complete the PhD.

At NYU, I took two courses three nights a week, starting with proudly traditional courses in securities analysis, where the older faculty showed us how to analyze financial statements, estimate capital expenditures and their incremental rates of return, and create flow-of-funds statements. We also learned, during the 15-minute break between classes, how to dash two blocks to the hamburger shop, wolf bites of hot hamburger with gulps of cold milkshake to obtain a tolerable average temperature, and dash back to class.

The theoretical part of my training came from courses taught by the younger faculty, who were excited about and deeply engaged in the then new world of efficient markets, Modern Portfolio Theory, and the slew of research studies made possible by large new databases.

The *practical* part of my training took far less time: six eye-opening months at Wertheim & Company. Training was led by Joseph R. Lasser, a superb financial analyst with a warm personality who enjoyed showing us that

the accounts in financial reports were a language that could be translated into a superior understanding of business realities *if* you got behind the reported numbers. A patient teacher-coach—"Let me show you how … and then you show me you can do it"—Joe believed in clearly written reports because clear writing required clear thinking and thorough understanding of a company's business. Joe also believed each report should tell an investment story that would hold the reader's interest without ever promoting the stock beyond the two underlined words in the upper left corner of page one of each report: Purchase Recommendation.

As research director of a major securities firm and an accomplished financial analyst and investor, Joe was one of the first to become a Chartered Financial Analyst, or CFA. That new certification—presumptuously described as the equivalent of a Certified Public Accountant (CPA) or a Chartered Life Underwriter (CLU), which at first it certainly was not—would soon require passing three all-day written examinations that assessed the candidate's skills in financial analysis and portfolio management. Joe said he thought we should all enroll in the study program, take the exams, and earn CFA Charters.[1] So we sent off for the study materials and the list of books we

should read, studied on our own, and took the exams—invariably given each year on the most beautiful Saturday in June.

I was declared too young to take the third and final exam in 1968, and had to wait a year to mature. That same year, that third exam devoted the entire afternoon to one essay question: "Please Comment" on a recently published article brazenly titled "To Get Performance, You Have to Be Organized for It." It advocated separating the operational roles of active portfolio managers from the policy-setting role of an investment committee. Frustrated to be told, "You're too young," I quietly savored a delicious irony: I had written that article for the January 1968 issue of *Institutional Investor* magazine.

The article championed pursuing higher rates of return by putting an individual, research-centered, swiftly acting portfolio manager in charge of managing a mutual fund or pension fund. While establishment banks and insurance companies were usually opposed to such unstructured investing because it seemed dangerously distant from fiduciary responsibilities, the high-performance results being achieved seemed compelling.

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Fifty years ago, it seemed to me and to almost everyone else employed in investments entirely reasonable to believe that bright, diligent analysts and portfolio managers who were serious about doing their homework—interviewing senior corporate executives after several weeks of preparation, doing extensive financial analysis, studying industry trends and competing companies, interviewing customers and suppliers, and studying in-depth reports by Wall Street's leading analysts—could regularly do three things: buy stocks that were underpriced, given their prospects; sell stocks that were overpriced; and construct portfolios that would produce results clearly superior to the overall market. Those of us privileged to be participants in the new ways of managing investments knew we were part of a major change. So, of course, we were all confidently "active investors."

The dark decades of the 1930s, 1940s, and 1950s were giving way to an exciting era during the later 1960s. Just a few years before, Donaldson, Lufkin & Jenrette and several other new brokerage firms—Baker Weeks, Mitchell Hutchins, Faulkner Dawkins & Sullivan, Auerbach Pollack & Richardson—had been formed to provide in-depth research reports to the fast-growing mutual funds that

were rapidly taking market share from the banks that managed the mushrooming assets of corporate and public pension funds.

Active investment managers were competing against two kinds of easy-to-beat competitors. Ninety percent of trading on the New York Stock Exchange was done by individual investors.[2] Some were day traders speculating on price changes and rumors. The others were mostly doctors, lawyers, or businessmen who bought or sold stocks once every year or two when they had saved several thousand dollars or needed cash to buy a house or make a tuition payment. They were, perhaps, advised by a retail stockbroker who may or may not have read a two-page, backward-looking, nonanalytical "tear sheet" from Standard & Poor's. Even with fixed commissions averaging 40 cents a share, the broker's earning a good living depended on high turnover in his customers' accounts. So his focus was on transactions by his customers. This made it exceedingly unlikely that the broker had time for research or serious thinking about investment strategy or portfolio structure.

Over the years, researchers found that individual investors—not you, not me, but that fellow behind the tree—*lost*, through their own efforts to "do better,"

some 30 percent of the returns of the mutual funds or the stocks they invested in.[3] For ambitious MBAs armed with in-depth research and easy access to virtually any corporate executive, and focusing entirely on the stock market, these innocent retail investors were not hard to beat: They were easy prey. Their status echoed a famous military observation by Heraclitus: "Out of every 100 men, 20 are real soldiers … the other 80 are just targets."

In private rooms at elite clubs and fancy restaurants, corporate executives in candid off-the-record talks outlined their strategic plans, their earnings expectations, their acquisition policies, their financing plans—and then answered probing questions by analysts and portfolio managers roughly the age of their grown children. Analysts following a company closely might meet executives at headquarters four to six times a year, conducting one-on-one interviews of an hour or more with 5, 10, or even more executives who told what they knew. These interviews were combined with information from important customers and suppliers and many pages of detailed financial analysis. A major research report might run over 50 pages—even 100 pages. One firm bound its reports in hard covers to signal their importance.

During the late 1960s, the great growth stocks like IBM, Xerox, Avon, and Procter & Gamble (P&G) skyrocketed, and so did a new group of conglomerates such as Litton Industries, Gulf & Western, and LTV. They created fast-rising reported earnings through debt leverage, acquisitions of companies with low price-earnings ratios, and accounting prestidigitation. Investment counsel firms concentrated investments in both kinds of dynamic stocks and reported much higher returns than their establishment competitors. Back then, conservative bank trust departments and insurance companies were structured to be deliberate and prudent. Senior executives, with most of their careers behind them, met weekly or monthly to compose "approved lists" of the blue-chip stocks that their subordinates could then buy. In stocks, unseasoned issues were avoided, dividends were prized, and buy and hold was standard to avoid taxes. In bonds, laddered maturities and holding to maturity were hallowed norms.

A dramatic change came into institutional investment management when A. G. Becker & Company introduced its Funds Evaluation Service. It collected, analyzed, and reported how each pension fund—and each manager of each pension fund—had performed, quarter by quarter,

in direct comparison with other funds. This changed everything. When the reports came out, they would prove that the big banks and the insurance companies were underperforming the market—again and again—while the active managers were repeatedly outperforming.

A remarkable new desktop device[4] could provide an investor who typed in the New York Stock Exchange (NYSE) symbol of a stock with the most recent price, the day's high and low, and the trading volume. Previously, an investor had to call a broker or, or if he had one, watch the ticker tape that Thomas Edison had invented back in 1869. Like all the others, I worked with a slide rule (mine was a beautiful log-log-decatrix). We filled out spreadsheets on bookkeeping paper with No. 2 pencils and rummaged through the NYSE files of Securities and Exchange Commission (SEC) reports, hoping to find nuggets of information. We talked by phone with analysts covering companies we thought might be interesting. Bonds were—and should be—boring. Very few investors ever owned foreign stocks.

The work was interesting, but nobody expected to make much money—unless you uncovered a great growth stock, which was what we all secretly hoped to do. MBAs were uncommon. PhDs were never seen. Commissions

still averaged 40 cents a share. All trading was paper based. Messengers with huge black boxes on wheels, filled with stock and bond certificates, scurried from broker to broker trying to complete "good deliveries" of stock and bond certificates. They are all gone now; automation displaced them years ago. Many other changes since then have been substantial, so a few reminders of what Wall Street was like 50 years ago will provide perspective:

- Brokers' research departments—then usually fewer than 10 people—were expected to search out "small-cap" stocks for the firm's partners' personal accounts. One major firm put out a weekly four-page report covering several stocks, but most of the time provided no research for customers. But new firms were starting to break all the rules, concentrating on and being well received for providing in-depth research to win burgeoning institutional business.
- Block trading—with firms acting as dealers rather than brokers—had traditionally been scorned as too risky by the partners of establishment firms, but was now starting to develop, if only in trades of up 5,000 shares. (Today, trades of 100,000

shares are routine, and 500,000-share trades are not uncommon.)

- Computers were confined to the back office or "cage." Computers were certainly not used in research or on trading desks.

In 1966, Charlie Williams, my HBS classmate, called and suggested I visit his employer, the research-based institutional stockbrokerage firm Donaldson, Lufkin & Jenrette (DLJ). After half a day of interviews, I was astonished by the offered salary—more than twice my current pay plus opportunity for a bonus, 15 percent profit sharing, and eventual stock ownership. Even better, I would be working with the leading investment managers at many of the nation's leading institutions in New York and Boston, the two centers of institutional investing.

DLJ and several other new "institutional" brokerage firms were different from traditional Wall Street firms. We worked harder for longer hours than people at those firms, thought we were smarter, knew we had more education, and were sure we knew much more about the investment prospects of the companies we studied and recommended to our clients. Portfolio managers at mutual funds and pension managers, the fast-growing

institutions we focused on, were quicker to take action than the committee-centered, tradition-bound insurance companies and bank trust departments that still dominated institutional investing.

Our extraordinary self-confidence was reinforced by the media. Circulation at the *Wall Street Journal* was soaring, and major newspapers around the country were expanding their coverage of business and the stock market. Magazines like *Institutional Investor*, *Barron's*, and *Financial Analysts Journal* were widely read, and a book called *The Money Game*[5] was a national best seller. It explained what performance investing was all about and why anyone who could certainly should get on the bandwagon with one of the hot-shot active investment firms.

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My first *Institutional Investor* article vigorously advocated an approach to investment management that was considered best practice by its young practitioners then, but would, in three decades, be as out of date as the Underwood typewriter. During that passage of time, the stock market had become dominated by hundreds of thousands of professional investors, who all have superb information technology (IT) equipment

and the same instant access to copious information, and compete with each other to find any pricing errors made by others.

The article declared that a major, game-changing breakthrough was revolutionizing institutional investing. Any organization that hoped to be competitive in the coming decades would need to change from the obsolete policy-based "closed" organizational structure dominated by investment committees of near-retirement seniors to an "open" structure with decision making dominated by research-trained young portfolio managers who scrambled every day to beat the market *and* the competition.

The single objective of these new organizations was to maximize investors' returns. The successful new investment managers achieved superior operating results because they were better organized for performance than more traditional investors. Capital productivity (*not* capital preservation) dominated the structure and activities of their entire organizations, and the efforts of every individual were aimed at maximizing portfolio profit.

The new organizations, seeing the market differently than the traditionalists, redefined portfolio management and organized themselves to exploit a changing set

of problems and opportunities. The article cited these untraditional examples of the apparent virtues of active trading:

- A short-term orientation is wrong only if the long-term view is more profitable. Holding a stock for a long time does not really avoid the risk of adverse daily, weekly, or monthly price changes, but does prevent taking profitable advantage of these changes.
- Only skilled risk takers can hope to achieve outstanding results, since high returns usually involve braving risk and uncertainty. Liquidity allows the portfolio manager to abandon a holding whenever the risk-opportunity ratio becomes unsatisfactory and therefore allows him to buy a stock that has high risks but even higher profit potential.
- Since large investors act on or in anticipation of current corporate developments, and market prices respond quickly to the new consensus, the profit-maximizing investment manager will move quickly to avoid price declines or to capture price increases.
- The stock market is a uniquely competitive arena in which the investment manager not only buys

> from but also sells to his competitors and, in general, can only buy from and can only sell to these competitors. To obtain superior results, he simply must be an outstanding competitor.

The new managers were convinced that the traditional organizational structure had important weaknesses that could be reduced or eliminated by changes in management organization and method. The competent individual would have important advantages over a committee in making decisions. In portfolio management, time is money, and the necessarily slow decision process of an investment committee looked very expensive in opportunity costs. Memoranda prepared for investment committees took analysts' time away from productive research efforts. Formal procedures delayed actions, often until, because of price changes, it was too late to act.

"The flow of money to these new managers is impressive evidence that the public recognizes their success. Investment managers that are organized along more traditional lines should seriously consider the nature and importance of the new approach to investment management." So I wrote and believed back in 1968. Only two years later, though, I began to see a few clouds on the performance horizon.

In my work at DLJ, I was in almost continuous contact with the portfolio managers and analysts at the major institutional investors in Boston, Hartford, New York City, and Philadelphia. This privileged experience showed me that while each institution knew it had bright, experienced, and highly competitive professionals, so did every other institution. "Performance investing is not nearly as easy as it looks to one of the noncombatants," I cautioned in a new article:

> *Not only is performance investing hard to do, the most effective practitioners face serious problems that raise the question: Will success spoil performance investing? The problem with success is simple: You get too big, almost "money bound" and increasingly limited to "big-cap" stocks and paying high tolls in transition costs to get in or out of each position, the costs of operation increase, and there is not enough profit from good ideas to go around. That's why success is beginning to spoil performance investing.*[6]

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"You can observe a lot," proclaimed America's folk hero Yogi Berra, "just by watching." As usual, he was right—as

I would find out when studying the academic literature in preparation for my PhD oral examination a few years later. While there were continuing arguments over specific questions among academics, the major concepts of market efficiency had been fully resolved. Practitioners who ignored the evidence would continue to scoff, but the more data gathered and analyzed, the easier it was to make a convincing, fact-based case that stock markets, while not perfectly efficient, were becoming too efficient for most active managers to beat, particularly after fees. But that reality failed to discourage those devoting their time, skills, and energy to beating the market and earning a handsome living through active, "performance" investing.

Back in the late 1960s and early 1970s, the differences in the prevailing academic view of active investing versus the prevailing view of leading practitioners were substantial—and have been remarkably enduring ever since. In one way, I was caught in a crossfire, but in another way, I had the best of both worlds. My PhD degree depended on mastering the academic, but my day job depended on mastering the pragmatic. There were, it became clear, two cultures on Wall Street. One, clearly taking control at university finance faculties, held

traditional practitioners in disdain—evenly matched by the disdain in which practitioners held the academics. The two camps believed in totally different concepts, used different data and different methods to support their different beliefs, spoke and wrote in different jargons, communicated with different constituencies, and continuously talked past each other. Few corporate executives read the academic journals reporting the theory and supporting evidence on indexing and the increasing evidence-based doubts about active investing. Academics, writing for their academic colleagues and using formal equations with Greek letters and arcane terms, didn't care. Corporate executives were not part of their intellectual community. If anything, acclaim within the ivory tower made it even less likely that pragmatic corporate executives would want to listen to new ideas expressed in unfamiliar language that seemed in conflict with their confident beliefs.

The academic world believed the evidence was both consistent and overwhelming and that there was no reason to keep arguing.

Academics agreed that the securities markets are open, free, competitive arenas where large numbers of informed and price-sensitive professionals compete as both buyers

and sellers in price discovery, so markets are efficient at processing information to discover the correct price of each security. Around this correct price, specific prices will deviate in a "random walk." Investment managers operating in this stock market will not be able to find patterns in these market prices that will enable them to predict future price changes on which they can profit.[7] Moreover, because other competing investors are also well-informed buyers and sellers—particularly in the aggregate—it's unlikely that any one investment manager can regularly obtain profit increments for a large portfolio through fundamental research.[8]

The assertion that a market is efficient implies that current prices reflect all that is knowable about the companies whose stocks are being traded.[9] While there is some specialized evidence that quarterly earnings reports[10] and information on insider transactions[11] are not immediately and completely discounted in securities prices, the opportunities to be exploited are very limited, so managers of large funds will not be able to make effective use of this kind of information. The conclusion was clear: markets were too efficient for active managers to do better.

Academics consequently believe that financial analysis and security analysis are unprofitable activities. Evidence

derived from observing a large number of professionally managed portfolios over a long time shows that not only were these funds not able, on average, to predict securities prices well enough to outperform a simple buy-the-market-and-hold investment policy, but also that there was little evidence that any *individual* fund would be able to do significantly better than would be expected from mere random chance.[12] The chances are that the securities the investment manager sells after doing fundamental research, and the stocks he doesn't buy will do about as well as the stocks he does buy. Some of the information he gets will be valid, but some will be invalid, and he won't know which is which. What he gains on good information, he will lose on bad information, so, taken as a whole, the information he gets will not be valuable.[13] Not only did academics declare investment managers unable to predict prices for individual securities successfully, they found managers unable to predict price movements for the market as a whole.

Academics believed that, as a result of their inability to make superior predictions of security prices, either individually or in aggregate, investment managers were unlikely to outperform a passive buy-the-market-and-hold portfolio strategy. Their evidence supported the

theoretical expectation: professionally managed portfolios had, on average, done no better than the market.[14]

Practitioners had not begun to fight, nor did they feel any need to. Active management was obviously better. They knew they were smart, creative, and hardworking. They saw opportunities every day. Oh, sure, there might be rough patches here and there, but they knew they would win in the long run. After all, they were the best and brightest.

I grappled with exactly these matters in my PhD dissertation. Table 1.1 summarizes the two views.

The difference between the academic and practitioner views back in the 1970s could easily be explained by observing both in an historical context. In the first place, the academic view was relatively new—less than 10 years old. In practical terms, index funds had been in operation only since 1971, when Wells Fargo began managing a fund for the pension plan of Samsonite Corporation. No index fund was available to individual investors. The practitioners' view was internally consistent, which gave it strength in resisting major changes in either concept or technique. Moreover, the notion of achieving superior results by devoting outstanding professional resources to the task of investment management was intuitively appealing.

Table 1.1 Summary of Academic View and Practitioner View

Topic	Academic View	Practitioner View
Ability of investment managers to outperform the market averages	No evidence to support this belief; probability of success at best very low; not possible to identify in advance which managers will do so.	Can be done by many managers. Past results and capabilities of an investment organization can be used as evidence to select managers that can be expected to succeed in the future.
Fees to managers	A cost that should be minimized by explicit policy because higher fees obtain little or no benefit for the investor.	A cost that should be accepted gladly to obtain the services of superior managers that will outperform the market by more than enough to warrant the fee.
Index funds	Should be used widely because their long-term results will be superior in both predictability and rate of return versus active management.	Should not be used because superior active managers can be identified, and clients should seek out those superior managers.

Most of the academic research had been reported primarily in journals not usually read by investors. Research findings were generally presented in mathematical formulations that were unfamiliar and might even be intimidating. Few books dealt effectively with the subject on a nontechnical level, and the seriously selective information clients had been getting through conventional communication channels continued to support the traditional view of investment management.

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Hindsight makes clear that active investing was going through the early stages of an elongated, half-century version of the classic bell-curve life cycle of innovation: small, hard-won gains; then larger and larger gains made more easily and more rapidly; then, at a somewhat slower pace, still more gains; then, even more slowly, smaller and smaller gains; then, after peaking, small declines that would grow larger and larger.

By 1971, while I was still fairly optimistic about the opportunities available to active investment managers, the increasing difficulty of achieving significantly superior performance was becoming evident. The number of active investment firms had increased substantially, and not all

had been successful. In another article in the *Financial Analysts Journal*, I observed:

> *Game theorists describe as zero sum those situations in which neither side will gain a significant advantage unless the other side suffers an equally significant failure. And if, over the long haul, the players are as evenly matched in skills, information, experience, and resources as professional investors today certainly appear to be, little systematic advantage will be gained and maintained by any of the players and their average annual experience will be to lag behind the market by the cost to play.*[15]

When selling their capabilities, investment managers still exuded confidence in their ability to prevail in the highly competitive money game. All those who got to selection finals had the gee-whiz charts of superior past results and the compelling projections of surefire winners, and they dressed their parts. Investors were sure they could and would find talented, deeply committed managers with impressive records who would

beat the market for them. Institutional investors, often with the help of well-known consultants, in a bake-off with three to five finalists would choose the best. No matter that the rates of return were not risk adjusted. No matter that the record's starting date might be carefully chosen to make the manager look good. No matter that the benchmark with which comparisons were made might be selected from a variety of possibilities. Investment managers soon learned that the dominant factor in most institutions' manager selection decisions was "performance," particularly over the past few years. Little did it matter that past performance has been shown to have almost no power to predict future investment performance. In the scramble to find "top-quartile" managers, there would be no interest in settling for averages or in *passive* investing. No matter that the manager might select certain of its funds that showed the best results. And no matter that the selected data for the selected fund for the selected period were often reported "gross" of fees—*before* fees were deducted.

Active investment managers assured clients and prospects that they would beat the market by significant

margins.[16] In their drive to win more business, which would produce wide incremental profit margins, investment managers engaged in modest deceptions to look their best in review meetings, sales meetings, brochures, and media advertisements. They would, wouldn't they? Believing numbers don't lie, few clients were familiar with the difficulties of evaluating long-term and complex continuous processes with small samples of only a few years of data—samples that often were seriously biased by retroactive deletions of failed funds or late and also retroactive additions of successful funds. (See Part Two, Chapter 2.)

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Shortly after my classmates and I left Harvard Business School, mutual funds and pension funds were growing rapidly in assets and were increasing portfolio turnover in a quest for superior performance.[17] A dynamic young professor named Colyer Crum created an entirely different course that caught the leading edge of what would become a major revolution in institutional investing: the first-ever course on professional investing. It was a phenomenal success. Within two years, it was taught six times each year to nearly 500

students. Only 100 of the MBA students did *not* take the course. Professor Crum came to one of the early portfolio manager seminars I'd been leading for DLJ. At the seminar, Colyer insisted, with his usual provocative style, that those who did not accept the burgeoning new reality were doomed to experience disruptive innovations.

Colyer invited me to be a guest speaker in his new course and then, after that one class, invited me to teach an 80-student section of his course on institutional investing. Understandably, my wife did not react positively. "You are doing too much already, including studying for your PhD. You can't teach a whole Harvard Business School course, too!" She was right, of course, so I declined. But a year later, the "to die for" invitation was renewed. The demand for the course had surged, and I would have two sections of 80 students. Accepting the invitation, I decided, would require being away from home only one night each week. This could be done by flying to Boston as early as possible on the first day of classes each week.

This would work if I cut everything close: take the 7:00 A.M. Eastern Airlines shuttle out of LaGuardia to

Boston's Logan in time to catch a taxi to the school—arriving just in time for class at 8:40. Ollie's Taxi Service agreed to pick me up at home at 6:10 that first morning and take me to LaGuardia, but Ollie overslept and came badly late, still in his pajamas. He promised to drive as fast and aggressively as humanly possible; I promised a big tip if we made it on time. Because of heavy snow during the week before, traffic was slow, but Ollie took chances. By the time we got to Eastern's very temporary "terminal" at LaGuardia, it was already flight time. I ran 50 yards to the gate.

"Too late!" cried out the gate agent, as he saw me coming—and gestured to the Convair that was folding its stairway up and into itself. Seeing my intention, he barked: "You *cannot* go out there!" I pushed my ticket into his chest and ran out onto the tarmac. The pilot looked down at me from the cockpit. I gestured with both arms outstretched, palms up, in a silent plea for mercy.

Please. *Please.*

For the first and only time in my life, the plane's stairs were reextended. I scrambled aboard. Out of breath, I fell into a seat and buckled up, knowing that fate must be on my side—again. Unless something went terribly wrong, I was not going to be a disastrous hour late for

my first class at HBS. At Logan, I ran to get the first taxi. More snow made traffic slow, but the driver knew a back route and, when I promised a $20 tip, drove as though *he* were late for class—including running two red lights. He earned the full $20, and I walked quickly toward my assigned classroom.

Working my way through the crowd of students, I was 10 feet from the door to Aldrich 108 and just two minutes before the 8:40 start of my first class when I recognized the man coming the other way: Paul Lawrence, one of my favorite teachers. Knowing I was there to teach my first class—just seven years after graduation—he smiled warmly and gently wished me the one thing I had already so much lots of that morning: "Good luck!"

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The course went well, more than fulfilling my hopes. The last of the 34 sessions centered on a critical question: with all the analytical talent and computer power being gathered into the many new investment firms, was it possible that they would make markets so much more efficient or correctly priced that most investment firms would be unable to beat the market? Near the end of the last

class, one of the students asked, "Charley, we all know the school does not allow the faculty to declare their own views because you want us to think for ourselves. But just this once, please tell us what *you* really think."

Silence—and 80 expectant faces waiting.

"I believe that it's clearly possible to organize a first-rate group of analysts and portfolio managers into an investment firm that can significantly outperform the market averages."

Pause.

"And … I'm wrong!"

Class dismissed.

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At NYU, the younger faculty, committed to such new ideas as efficient markets and Modern Portfolio Theory, were in a Young Turks struggle with the Old Guard to take control of the PhD program. My academic adviser made it clear that the only way I could pass the comprehensive exam, which he had personally designed, was to become proficient in the new thinking. So, of course, that's what lay ahead: 18 months of reading articles and books about how and why serious academic researchers were convinced that, while there was still room for argument about the "strong form" versus the "semi-strong form" of

market efficiency, extensive examination of the data then becoming available proved time and time again that markets were surprisingly efficient—and that analysts and portfolio managers, still using slide rules, were surprisingly *in*efficient in making decisions to buy or sell stocks.

Another call came from HBS five years after my prior faculty appointment. Colyer Crum's course had been taken over by Jay O. Light.[18] To avoid being away more than one night a week, I arranged to meet with Boston clients of Greenwich Associates, the consulting firm I had launched in 1972, on the same day that classes met. I could teach two classes of 80 students each morning and be downtown working with clients by noon. Sensing that the Institutional Investment course might have changed, I made inquiries and was startled by the magnitude of change and glad I'd learned efficient market theory at NYU. As Jay put it, "We now begin at about where you concluded five years ago. Everyone comes into the class already having learned during first-year finance about Modern Portfolio Theory."

The class culture had also changed. Five years before, knowing students would be disappointed to have a "visiting fireman" instead of Colyer Crum, I had decided to master most of the students' names from picture cards

given to the faculty. I'd impressed the students by calling out "Mr. Smith" or "Mr. Jones" to those with hands raised to participate in class discussion. Hoping for another success, I decided to try the same stunt. The presence of numerous women in the class was not the only change, as I found out when one of them, Laura Daignault, came toward me at the end of class. "You can call me Laura. We're all on a first-name basis at HBS." Ouch! Back I went to my flash cards to learn 160 *first* names.

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One of the early clients of Greenwich Associates was a unit of San Francisco's Wells Fargo Bank[19] led by James Vertin.[20] He had sponsored a small group of creative "quants" or quantitative analysts to develop the first capitalization-weighted index fund for Samsonite's pension fund. (Their earlier "index" fund was not really an index fund because, instead of being capitalization weighted with each stock held in proportion to its market capitalization, it had weighted all stocks equally, Jim was confident that his team had found a rational pathway to successful index investing.) Consulting on business development year after year with Jim and his team, I became confident that low-cost indexing could be a winning investment strategy—even if it was a hard sale.

Always looking for ideas for the three-day DLJ seminars for investment practitioners, I scheduled one of the five working sessions as an exploration of the academics' research and the practical application of it via indexing. Time and again, however, discussing indexing and Modern Portfolio Theory met with zero interest. I was cautioned more than once to "be careful with all that academic stuff, Charley." Active managers did not need to learn about it: they instinctively knew indexing had to be bogus. When leading academics were invited to participate in the seminars, the investment professionals made little effort to explore the evidence or the logic behind their views. Nor did the usually gregarious investors make any effort to befriend the academics. It was odd to watch the two groups—like two separate tribes—keeping their distance when both groups had so much to learn from each other.

Establishing Greenwich Associates as the leading consultant in institutional financial services was demanding more and more of my time and energy. One evening, as snow began to fall, my six-year-old son Harold, who had a new shovel, and I went out to shovel a little snow in the light of the streetlamps. After a while, thinking he might like to rest, I suggested we stop and talk.

"How's school, Harold?"

"Good. I like my teacher." Then he asked me, "And how's school for you, Dad?"

"The new firm really takes so much time and effort, it looks like I'll have to stop, Harold."

"Have you finished?"

"No, I haven't finished."

"Well, you know, Dad, you can't stop school until you finish," and he turned to start shoveling snow again. The next day, I was back in school, determined to complete the PhD.

Meanwhile, in Greenwich Associates' research on investment managers, most of the investment firms that made it to the Top 10 or Top 20 managers could not stay up there very long. Working with investment consulting firms confirmed that, despite extraordinary efforts, pension executives were unable to select managers that would consistently beat the market.

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The early history of index funds was short. Wells Fargo began to manage an index-based pension account for Samsonite Corporation, investing approximately $8 million in a sample of 100 stocks, to match the performance of the New York Stock Exchange index.[21] It was not a

success. Shortly thereafter, Wells Fargo created a second fund, open to any pension fund. Based on the Standard & Poor's 500 stock index, it was called The Index Fund. By 1974, Wells Fargo had been joined by two other indexing firms: Batterymarch Financial Management and American National Bank. But neither of these two organizations had any clients for the new service.[22]

The first index mutual fund—First Index Investment Trust—was started by a remarkable innovator, John C. Bogle of Vanguard. Jack Bogle was a creative and driven entrepreneur—who would later be widely admired as Saint Jack, the brave and strong centurion-advocate of the regular, everyday investors. After Bogle was fired as CEO of Wellington Management Company in January 1974, he created a new company—Vanguard, owned by its own fund shareholders. The board of directors of the new company limited Bogle and Vanguard to administrative activities. A skillful reader of legal documents, Bogle was determined to break out of the box in which most observers believed he would be confined forever. But Bogle was too creative and too determined to be confined.

After discussion, Bogle convinced the Vanguard board of directors to support a strategic move at the newly

founded firm. It appeared to be trivial but would, after a painfully slow start, become a triumph. Asserting that a well-run index fund needed only formulaic "administration," *not* "investment management," Bogle got authorization to distribute an index fund and assigned one of his key assistants to construct what would be the world's first index mutual fund. It would eventually become the world's largest mutual fund.

While Bogle was preparing to launch his index mutual fund, AT&T sponsored a series of seminars in 1974 and 1975 for Bell System companies, then the largest pension fund complex in the nation, to inform executives of the logical case for index funds and to encourage them to adopt index matching on an experimental basis. A year earlier, Illinois Bell, the first Bell System affiliate to adopt index funds, had assigned $10 million—only about 3 percent of its total pension fund—to index management by Wells Fargo.[23]

By the end of 1975, New Jersey Bell and Southern Bell had placed $20 million and $50 million, respectively, with Batterymarch; New York Telephone had placed $50 million with the American National Bank; and Western Electric had placed $50 million with Wells Fargo.[24] In all these cases, the amounts placed in index funds were small

relative to the total pension funds—in Western Electric's case, 2 percent of total assets. John English of AT&T said he believed the Bell System would invest as much as one-third of its equity—or $2.3 billion—in index funds "in the foreseeable future."[25] Around the same time, other companies began to experiment with indexing, including Exxon and Ford.[26] Pension funds' index investments rose from $18 million in 1971 to $2.9 billion by year end 1977.

In the fall of 1974, Nobel Laureate Paul Samuelson had written "Challenge to Judgment,"[27] an article arguing that a passive portfolio would outperform a majority of active managers and pleading for a fund that would replicate the Standard & Poor's (S&P) 500 index. Two years later, in his regular *Newsweek* column, Samuelson reported, "Sooner than I expected, my implicit prayer has been answered. There is coming to market, I see from a crisp new prospectus, something called the First Index Investment Trust." The IPO for Bogle's new fund took place on August 31, 1976.

Samuelson notwithstanding, the First Index launch was not a success. Planned to raise $150 million, the offering raised less than 8 percent of that, collecting only $11,320,000. It was initially a "load" fund, with a 5.67 percent sales charge (scaled down to 1 percent for

purchases of more than $1 million). Aiming to achieve only the performance of the S&P 500 Index, it did not gain traction. Returns on the S&P 500 itself were disappointing. While the S&P 500 had outperformed two-thirds of actively managed funds in the five years preceding the launch of First Index Investment Trust, the index trailed the average actively managed fund for the next four years.

Renamed Vanguard 500 Index in 1980, the fund grew to $100 million in 1982, largely because $58 million—more than half—came by merging into the fund another Vanguard fund that had "outlived its usefulness." Finally, as index funds began to gain acceptance with some investors, the Vanguard fund reached $500 million in 1987.[28]

Indexing was beginning to make inroads in the investment establishment. In 1976, *Fortune* reported that Bankers Trust's pension-fund division "believed that index funds were particularly desirable for employee-thrift and profit-sharing plans. With an index fund, the company can tell employees that it is simply 'buying the market' and it would then be protected against hindsight charges that it failed to deliver as promised."

A prominent Wall Streeter who had reluctantly accepted the case for index funds was Gustave Levy, senior partner of Goldman Sachs. Levy, a leader in large-scale

block trading, did not take readily to index funds, which, of course, meant less trading and fewer commissions for brokers. But as a member of the pension committee of New York Telephone's board of directors, he gave the critical nod of approval for the company's investment in American National's index fund.

"None of us were negative on it," Levy said. "You couldn't be. Personally, I don't like the concept of the index fund, but, unfortunately, I have no arguments against them. I feel we ought to do better than the averages, but over long periods of time, managers can't beat the averages."[29]

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Meanwhile, my own thinking had continued to evolve and change as I kept learning: In addition to the lucky accident of consulting with each of the leading index fund managers, I was getting a pragmatic education in the power of indexing. The disappointing experiences of our other clients who were active investors continued to give strong evidence of how difficult it had become to beat the market. I was also working with Bob Brehm at A. G. Becker in Chicago on building that firm's new Funds Evaluation Service to measure investment performance. This immersed me in the overwhelming evidence that a majority of active managers were falling short of

their chosen benchmarks, just as the academics had been predicting. At the *Financial Analysts Journal*, I served as an associate editor with its editor and market theorist Jack Treynor. Jack understood efficient markets and indexing thoroughly and explained why he believed it was sure to succeed. I also got to know William Burns, who had trained as an engineer and was treasurer of AT&T, guiding the Bell System companies toward indexing (and who later became a director of Greenwich Associates).

Consulting on strategy with leading active investment managers all over America, I was exposed as a trusted adviser to many investment firms. Each firm thought it was unusual, and they *were.* But I noticed an important reality they could not see because they did not have the access I had to many other firms' people, capabilities, and commitment. Compared to the many other superstar investment firms they were competing with, they were *not* unusual in capabilities nor in commitment. Moreover, the SEC's Regulation FD (Fair Disclosure) would eventually require that all information that might be useful to *any* investor must be made available simultaneously to *all* investors, thus making exclusive information and insight—once the secret sauce of successful active investors—into mere "everybody knows" commodities.

Professor James Lorie of the University of Chicago urged a constructive view of indexing: "Some people say that if you accept market funds, you are accepting mediocrity. You're not; you're accepting superiority. Market funds have been superior year after year—five-year period after five-year period, decade after decade—for as long as these measurements have been made. The people who seek superiority by trying to play the timing and selection games correctly have—on the average and with no single conspicuous exception—had worse performance than a market fund."[30]

Conventional active investment management became subject to sporadic skepticism during the 1970s. As a trade magazine commented early in the decade, "Just a few years ago, everyone was expecting to do at least 25 percent better than the S&P 500 and many investment counselors, in their [sales] efforts to pry the pension business away from the banks, were promising 50 percent."[31] The same article, reporting data that showed rates of return in managed pension funds to be lower than the unmanaged S&P 500 index, said, "There is plenty of evidence that professional money managers, on balance, fail to turn in superior performance." A. G. Becker's study of the performance of the equity portion of 300 large pension funds

for the 11 years ended December 31, 1972, shows that the median fund returned 7.8 percent per year. Over the same period, the S&P 500 was up 8.1 percent. Of course, the reality that the *average* fund underperformed the stock market only increased the determination among clients to try to discover and hire top-quartile managers who, they hoped, would consistently produce superior results.

Active managers typically asserted that somehow the evidence was inaccurate, misrepresented, or incomplete. The Investment Company Institute, the trade association of the mutual fund industry, ran an ad showing that $10,000 invested in the average mutual fund 23 years before would have grown to be $103,898 by the end of 1972, for an average annual return of 10.7 percent. Jack Bogle, then president of Wellington Management Company, the manager of a large balanced fund, pointed out that if the computation had been limited to the all-equity mutual funds, the ending value would have approximated a nicely higher $120,000, for an overall rate of return of 11.4 percent. The article's writer went on to report, "But in the 23 years ended December 31, 1972, the S&P 500—which most major index funds were designed to replicate—had risen by [a significantly higher] 13.2 percent per year."[32]

Harvard Business School Professor Jay O. Light observed: "The 1969–1970 bear market caused enormous disenchantment among investors with professional money managers. People no longer believe the professionals' inflated claims that they can beat the market averages by 20 percent to 30 percent, and it's only a matter of time before a lot of investors start questioning whether the pros can outperform the average at all."[33]

Institutional investors often responded with sophistry, claiming that their relative performance during the early 1970s had somehow been unusually adversely affected by the recent bear market and that they would outperform again when more normal upward trending markets returned. But then, in 1975, when the market rose by more than one-third, most institutional investors' portfolios failed to keep pace, let alone achieve superior performance. A major *New York Times* article said, "There is plenty of evidence that professional money managers, on balance, fail to turn in superior performance. This relatively poor performance undoubtedly will add fire to the argument of those who believe money managers should invest some part of their assets in so-called market index funds."[34]

As Table 1.2 shows, not only did the performance of the median pension fund measured by A. G. Becker fall short of the S&P 500, but the magnitude of the shortfall got worse in each successive cycle.

Table 1.2 Performance of the Median Pension Fund

	S&P 500 Index	Becker Median	Difference
Three market cycles 9/30/62 to 12/31/74	5.3%	4.1%	–1.2%
Two market cycles 12/31/66 to 12/31/74	2.1%	0.4%	–1.7%
Single market cycle 9/30/70 to 12/31/74	2.2%	–0.3%	–1.9%

Analysis showed that the unmanaged S&P 500 index ranked consistently in the upper quartile among several hundred actively managed equity portfolios of pension funds in the Becker sample.[35] In addition to lagging the index, studies also found that 90 to 95 percent of professionally managed equity portfolios had been more *risky*

than the S&P 500 as measured by relative volatility.[36] Paul Samuelson chimed in: "What is at issue is not whether, as a matter of logic or brute fact, there are managers capable of doing better than the average on a repeatable, sustainable basis. There is nothing in the mathematics of random walks or Brownian movements that proves or even postulates that it is impossible. The crucial point is that when investors look to identify those minority groups or methods that are endowed with sustainable superior investment prowess, they are quite unable to find them."[37]

In the summer of 1975, the *Financial Analysts Journal* published my article "The Loser's Game," crystallizing my conclusions about the low chances of active managers beating the market regularly because, due to the growth of institutional investing, they *were* the market and their skills and efforts were creating a major problem for all active managers: superb competition. While "The Loser's Game" won the Graham & Dodd award as the year's best article in the *Financial Analysts Journal*, most professional investors patronizingly said that they appreciated the concept and reasoning but went right ahead with their customary practices and with their same expectations to succeed—apparently confident that the

article's thesis might apply to many *other* investors but not to them.

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The early proponents of indexing, understandably enamored of the technology of their operations, concentrated on (and forced prospects to listen to) detailed technical explanations of how their index funds worked. Advocates of indexing might quantify their case with data, but those who felt uncomfortable with algebraic equations fought back: "Passive is giving up and is for losers!" "Nobody ever won by settling for just average!" Besides, opponents of indexing could always find at least a few active managers who had outperformed.

Nobody will ever know just how much harm was done by wrapping the term *passive* around indexing, but it certainly was not trivial. We do know that the most popular insurance product had little success until its name was changed from death insurance to life insurance. Indexers, trained as engineers and mathematicians, may never have realized how much names matter. But doing better by working harder and smarter and knowing more than the average has long been central to our competitive culture. Names do matter. To prove it, try saying, "This is my

husband. He's … *passive*." Or "Our football team captain is … *passive.*" Or "What America needs is a president who is … *passive.*" Future growth of indexing will gain strength if and when *passive*—with all its negative implications—disappears from our thinking.

The process by which new or different concepts are accepted by those who can use them is seldom speedy or reliable or efficient. Charles Darwin believed that his theory of evolution would not achieve general acceptance until his professional generation had all died off. On the occasion of the paperback release of John Maynard Keynes's *The General Theory of Interest and Money* 29 years after the book's original publication in England, John Kenneth Galbraith explained in his review: "The economists of established reputation had not taken to Keynes. Faced with the choice of changing one's mind versus proving that there is no need to do so, almost everyone opts for the latter."[38] Two more decades would pass before an American president would publicly acknowledge that he was a Keynesian.

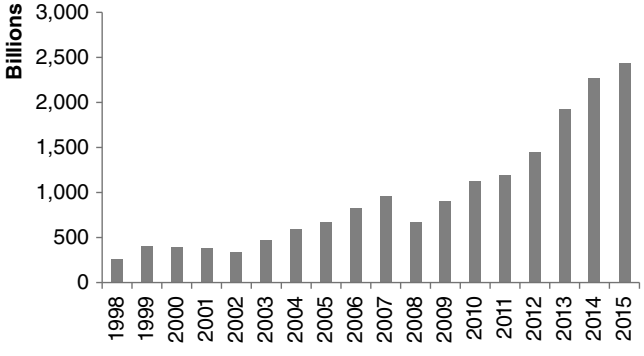
The way worldviews change is discussed by Thomas S. Kuhn in *The Structure of Scientific Revolutions*. While Kuhn's concern was with changes in scientific theories, his analysis of the process of change is relevant to the

acceptance of any fundamentally new concept—including index funds. Kuhn wrote:

> *Any new interpretation of nature, whether a discovery or a theory, emerges first in the mind of one or a few individuals. It is they who first learn to see the world differently, and their ability to make the transition is facilitated by two circumstances that are not common to most other members of their profession. Invariably their attention has been intensely concentrated upon the specific crisis-provoking problem. In addition, they usually are so young or so new to the crisis-ridden field that not having many years of past practice has committed them less deeply than most of their contemporaries to the world view and the rules of the old paradigm.*[39]

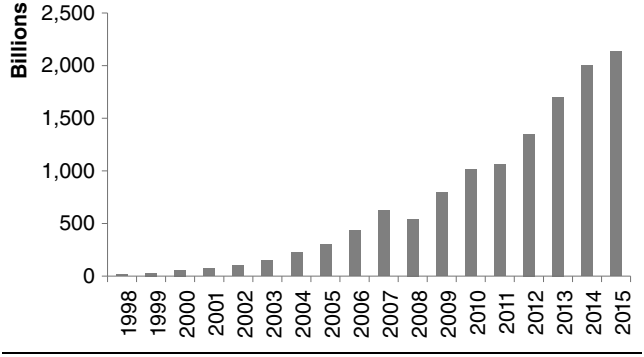
Resistance to indexing continued for a long time. But as the years went by, and the markets changed and competition increased, the logical and economic case for indexing grew stronger and stronger. As Figures 1.1 and 1.2 show, demand for index funds has been increasing at an accelerating rate.

Figure 1.1 Index Mutual Funds



Source: 2016 Morningstar, Inc.

Figure 1.2 Index ETFs



Source: 2016 Morningstar, Inc.

In 1998, assets of index funds totaled $240 billion, just 6 percent of total mutual fund assets of $3.8 trillion, while ETF assets were only $15 billion. But, the Index Revolution steadily intensified. Ten years later, index mutual fund assets had more than doubled to $570 billion—representing 10 percent of total mutual fund assets—while ETF assets had soared to $535 billion. By 2015, the Revolution was sweeping the industry. Assets of index mutual funds and ETFs had each grown to $2.1 trillion. That total of $4.2 trillion of index fund assets represented 30 percent of fund industry assets.

The increase in index fund cash flow has been even more dramatic. Back in 1998, investors added net cash flow of $44 billion into index mutual funds and $6 billion into ETFs—together totaling 23 percent of industry net cash flow. Then, following the 2007–2009 global financial crisis and the subsequent recovery, indexing has come to dominate mutual fund cash flows. In 2015, investors added $170 billion of net cash flow into index mutual funds and $210 billion into ETFs, $380 billion in all. Much of that inflow came at the expense of actively managed funds, which suffered net cash outflows of $225 billion during the year. Index funds represented a remarkable 240 percent of industry net cash flow for the year. Bogle's

Vanguard oversees almost 80% of traditional index fund assets, and 23% of ETF assets, $2.1 trillion in all. The leader in the ETF field is BlackRock, overseeing $800 billion of ETF assets, a 38% market share.

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The data that were persuasive to academics were not decisive or compelling to pension fund or mutual fund executives—the people who would have to make the change from active managers to index funds and would be accountable to their superiors if experience did not confirm their decisions. The vigorous, widespread blowback by active managers carried the day. During the winter of 1977, a poster addressed directly to that recent formation of Vanguard's First Index Investment Trust appeared in the offices of investment management companies nationwide depicting Uncle Sam stamping "Un-American" on computer printouts and the words: "Help Stamp Out Index Funds. Index Funds Are Un-American."[40]

Not surprisingly, much of the investment community took a dim view of both the random-walk theory—that market price changes are as unpredictably random as the steps made by a drunk unsure which way to go home—and index funds. The head of a major investment firm asserted, "It's a cop-out that you can't do better than the

averages. I know from the numbers that most managers don't beat the averages, but I don't feel that is any reason for giving up."[41] More of this generalized data-free resistance was described in an article in the *Wall Street Journal:* "Not surprisingly, the concept of index funds infuriates the traditional investment community. 'I hope the damn things fail because if they don't, it's going to mean the jobs of a lot of good analysts and portfolio managers,' says an officer of a major Boston bank."

The basic idea of being "only average" antagonized many investment managers. When the New York City pension funds began investing in index funds in the mid-1970s, the *New York Times*, in an article entitled "Why Indexing Frightens Money Managers," quoted Dave H. Williams, then chairman of the investment committee of Mitchell Hutchins & Company: "It's an avenue for seeking mediocrity."[42]

The CEO of a prominent investment firm, David Babson, asked, "What's so great about matching the S&P? Index funds are a negative approach. The S&P itself represents two-thirds of the market value of all stocks and so, by definition, cannot provide above-average results. If you settle for simply matching it, you're throwing in the towel—you're conceding defeat."[43] Another way of

arguing against index funds was to declare them to be just a fad and to associate them with other investment fads that had failed. Or, as another money manager put it, index funds are just another case of a response to something that has already happened, and, as such, represent an idea whose time has passed."[44]

Barton Biggs, the much admired Morgan Stanley partner in charge of investment research, wrote an extended essay for distribution to his firm's institutional investor clientele in which he attacked the thinking of two commentators who had written popular articles that argued in favor of indexing[45]:

> *Both … make several important mistakes that undermine their entire thesis. … The first error is they maintain that professional money managers cannot outperform the market. While it is true that professional money managers have not beaten the market in recent years, prior to 1970 they vastly outperformed the S&P.*[46]

Barton was right about the past, but not about the future. In 1976, the year at the start of which he wrote his essay, the total return on the S&P 500 was 24.0 percent, 4.7 percentage points greater than the return on the median actively managed equity fund.

In a letter to the *Wall Street Journal,* Erwin Zeuschner, director of research at Chase Manhattan Bank, stretched the early trend to future extremes and argued that,

> *the proliferation of index funds would lead to massively* inefficient *markets and a stock's price would become more a function of monies flowing into index funds than a reflection of its investment merits. The entire capital allocation process of the securities markets would be distorted, and only companies represented in indexes would be able to raise equity capital.*[47]

Concern over the potentially adverse impact of index funds on the capital markets was expressed by others, including the investment company Scudder, Stevens & Clark: "If everyone following an index fund approach adhered to the S&P 500 as the surrogate for the market portfolio, it would likely lead to an overvaluation of those securities relative to the other securities in the market. The very premise of the index fund strategy would crumble."[48] But, in contrast to the theoretical alarm, when Standard & Poor's changed the S&P 500 by adding 45 stocks and simultaneously deleting 45 other stocks, Dean LeBaron

of Batterymarch, then one of the largest index fund managers, said, "We were able to make all the changes within the week in which they were announced with no market impact."[49]

In January 1976, when the New York City pension funds, working through Goldman Sachs, sold a huge $240 million in stocks and bought $239 million in other stocks to create an index fund—all in one month—traders at other block trading firms were not able to detect the massive move even though it was widely known that such a large move was in the offing.[50] In fact, two weeks *after* the trades were completed, brokers were still calling—trying to be chosen to execute orders they did not realize had already been completed. (Years later, when inflows to index funds were setting volume records in 2015, the leading index fund managers experienced little or no market impact from their operations.)

According to William R. Grant, the widely respected vice chairman and former director of investment research for Smith Barney Harris Upham, in 1977:

> *The fiduciary responsibility of corporate directors is best discharged by assuring themselves that their pension funds are managed by those*

> *who practice successful active investment management rather than abdicating decisions to a mechanical structure just because it would have worked well over selected periods in the past or because it provides a comfortable release from potential legal anxieties. Those with a fiduciary responsibility cannot avoid decision making. There is no easy way or short cuts to success in any endeavor, especially investing.*[51]

This view was soon rejected by Richard Posner and John Langbein in the *American Bar Foundation Research Journal.* They argued that indexing was actually the *only* way to fulfill fiduciary responsibilities.[52]

Resistance to indexing was not universal across the investment profession. William Gray, senior vice president of the Harris Bank in Chicago and an active user of indexing, asked in an article, "With all of this research, why aren't the results better known and appreciated?" His response, in part:

> *The labels have a clear "ivory tower" ring, perhaps conveying a notion of irrelevance to the practical world. … Perhaps more important,*

> *some of the work has strongly suggested that certain elements of investment activity may not be particularly useful or not worth the cost. Can you think of any group that hasn't resisted the idea that their contribution may be worth less than they are being paid?*[53]

John Casey, a pension consultant, added:

> *I feel sorry for a lot of these guys. They were trained to do things a certain way and have spent years working hard to do it in that familiar way. Now, suddenly, they're beginning to discover that what they've been doing all their lives hasn't worked and they've been doing everything the wrong way. Think of the psychological shock these guys must be going through. Sometimes I wonder how they manage to get up in the morning.*[54]

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Fifty years ago, it was realistic to believe that a careful analyst, experienced in investing and working in a good investment organization armed with good information and access to the computer power, could and would beat the market.

Forty years ago, I was so impressed by the large numbers of talented, driven people coming into investments that I had begun developing serious doubts about the chances of most managers being able to beat the market significantly and regularly and began to wonder whether active investing was a game worth playing.

Since then, I've had an extraordinarily privileged opportunity to get to know many of the leading investors all over the world and to work with them as a strategy consultant and confidential adviser. As I learned how capable many professional investors had become, my doubts about the chances of any of them consistently outperforming all the others after fees and costs have grown—and grown.

I've also become convinced that almost all investors choosing to pursue active investing will prove unable to identify managers who will meet the performance expectations they encourage or, after costs and adjustments for risk, earn the fees being charged over the long term.

Over these many years, the reasons behind my changing views have been accumulating. More than almost anyone else, thanks to the unusual opportunities that have come my way, I've been immersed in the hard evidence of changes in the structure and composition of the stock market that make almost all the important information

available to almost all investors everywhere. I've also been immersed in the extraordinary increases in the quality and quantity of talent attracted to the persistent pursuit of superior price discovery—identifying the pricing errors of other experts (and doing so before still other experts can) and finding enough pricing errors to overcome the costs of portfolio operations and management fees.

In *Exit, Voice and Loyalty,*[55] Albert Hirschman explored the choices responsible people can make when their organization is failing. *Exit* means simply leaving. *Voice* means staying and arguing for a change in direction. *Loyalty* means staying and supporting the policies that are failing—and is a dead end. Exit has little effect, and voice, to be effective, must be forceful enough to be clearly heard.

Investment management has been my world for over 50 years and has provided me with a wonderful career; acquaintance with many bright, informed, interesting people; and many close friendships. So now, when the old ways that did work so well years ago—after so much change on so many dimensions—are no longer working because the markets have become so effective at price discovery, I've found that only one of Hirschman's three choices makes any sense: voice. I hope the hundreds of thousands of institutional investors who invest for

many millions of individual investors *and* the millions of individual investors will—using the reasoning and techniques explored in the following chapters—take advantage of my privileged opportunities to see why almost all investors would be wise to index now.

As shown in Figures 1.1 and 1.2, increasingly, investors are agreeing *and* joining the Index Revolution with increasing commitments to both index mutual funds and index ETFs. So now let's turn to a deeper study of each of the main reasons for joining the Index Revolution, starting with the Big Four reasons to shift from active investing to indexing.

NOTES

1. Over the years, my services to the CFA program would include two years on a committee creating exam questions and four long weekends in Charlottesville grading exams and learning about the cost of unreadable handwriting, the importance of rereading your exam paper before turning it in to be sure you hadn't left out an essential "not," reading the questions carefully so you don't, however eloquently, answer the wrong question, and not spending so much time on one question that you didn't have time to answer all the others; chairing the continuing education committee when we designed a major publications program based on specific subject conferences; and twice serving on the profession's governing board, finally as chairman.

This position led to a challenging role during the difficult discussions that finally resulted in merging the Financial Analysts Federation, a highly political, money-losing, and weak confederation of 30 different and very independently run local societies across North America, with the CFA Institute, a single, integrated, international organization then known as the Association for Investment Management Research (AIMR). Members were all analysts or portfolio managers (no salesmen or stockbrokers were allowed) and had earned the CFA Charter. The CFA Institute's members had consistent values and aspirations, and it had strong finances—because members' employers typically paid the significant exam fees *and* the annual dues.

In 2011, during one of my six week-long trips to Vietnam that year, it was my privilege to award eight CFA Charters to aspiring young professionals in that still communist country. I was particularly pleased when LeViet Nga came up to receive her charter. We had worked together in Hanoi at Vietnam Partners, an investment firm. By then, there were over 100,000 CFAs around the world, and the nations with the largest number of candidates other than the United States were India and China. The CFA Institute was certainly fulfilling Ben Graham's vision of an international standard-setter for the investment profession. Ben Graham had proposed a QFA—Qualified Financial Analyst—certification in the 1950s. At that time, most analysts thought the idea absurd.

2. Excluding market facilitation trading by NYSE Specialists—a group who have since disappeared.

3. The research was led by Terrance O'Dean.
4. From Scantlin Electronics, Inc. My employers, the Rockefeller family, had helped finance Jack Scantlin's new company.
5. By 'Adam Smith,' the pen name of George J. W. Goodman.
6. "Will Success Spoil Performance Investing," *Financial Analysts Journal*, September–October 1968.
7. See Richard A. Brealey, *An Introduction to Risk and Return from Common Stocks* (Cambridge, MA: MIT Press, 1969), 5, 6; Eugene F. Fama, "The Behavior of Stock Practices," *Journal of Business,* January 1965, 34–105; and Michael C. Jensen, "Random Walks and Technical Theories: Some Additional Evidence," *Journal of Finance,* May 1970, 469–482.
8. James H. Lorie and Mary T. Hamilton, *The Stock Market: Theories and Evidence* (Homewood, IL: Richard D. Irwin, Inc., 1973), 100.
9. Ibid., 80.
10. Charles P. Jones and Robert H. Litzenberger, "Quarterly Earnings Reports and Intermediate Stock Price Trends," *Journal of Finance,* March 1970, pp. 143–148.
11. James H. Lorie and Victor Niederhoffer, "Predictive and Statistical Properties of Insider Trading," *Journal of Law and Economics,* April 1968, 35–53.
12. Michael C. Jensen, "The Performance of Mutual Funds in the Period 1945–64," *The Journal of Finance* 23, No. 2 (May 1968): 389–416.
13. Fischer Black, "Implications of the Random Walk Hypothesis for Portfolio Management," *Financial Analysts Journal* 27, No. 2 (March–April 1971): 19.

14. See Wharton School of Finance and Commerce, *A Study of Mutual Funds*, Reports of the Committee on Interstate and Foreign Commerce, 87th Congress, House Report 2274, 1962; and Jensen, "The Performance of Mutual Funds."
15. "Portfolio Operations," *Financial Analysts Journal,* September–October 1971, 36–46.
16. See, for example, *New Breed on Wall Street* by Martin Mayer, in which several dozen investment managers are profiled.
17. Mutual funds directly and pension funds by moving money out of bank trust departments into newly formed investment firms.
18. Later, Jay Light became dean of the Harvard Business School—and a member of Greenwich Associates' board of directors.
19. Called Wells Fargo Investment Advisors, it was entirely separate from the bank's trust department. Later acquired by Nikko, which was acquired by Barclays Global and renamed BGI, which was acquired by BlackRock and is now a major part of the world's largest investment management organization.
20. As a project for CFA Institute, Jim Vertin and I jointly organized and selected the salient articles in the long literature of investing, which we published in two volumes of "Classics." In addition to seminal pieces form the past, those two volumes also had all the core papers of Harry Markowitz, Paul Samuelson, Fischer Black, Myron Scholes, Milton Friedman, and others.
21. Jonathan R. Laing, "More Pension Funds Try to Tie the Market Instead of Beating It," *Wall Street Journal,* November 12, 1975.
22. Two potential entrants failed to reach the stage of actively offering index funds. American Express Investment Management

Company was liquidated before its intended mutual fund was offered, and Wells Fargo's Stagecoach Fund, which would have been a leveraged index fund, was withdrawn from the registration due to inadequate demand from investors.

23. George P. Williamson, Jr., "Illinois Bell Answers the Index Fund Call," *Pension & Investments,* June 23, 1976.
24. Michael Clowes, "Index Funds Nabbing a Growing Share of the Market," *Pension & Investments*, June 23, 1976.
25. A. F. Ehrbar, "Index Funds—an Idea Whose Time Is Coming," *Fortune* 93, No. 6 (June 1976): 146.
26. Laing, "More Pension Funds," 1.
27. Paul A. Samuelson, *Journal of Portfolio Management* 1 (Fall 1974): 17–19.
28. In early 2016, the 500 Index Fund's assets were over $400 billion.
29. Ehrbar, "Index Funds—an Idea Whose Time Is Coming," 146.
30. James Lorie, "Index Funds Are Important," at the A. G. Becker Conference.
31. Barbara A. Patocka, "Is Superior Money Management Possible?," *Pensions* 2, No. 4 (October 1972): 25.
32. Ibid., 27.
33. Jonathan R. Laing, "Bye Bye, Go-Go?" *The Wall Street Journal*, June 7, 1973, p. 1.
34. Robert Metz, "Most Banks Do Poorly on Pooled Funds," *The New York Times,* March 21, 1976.
35. Becker Securities 1975 Institutional Funds Evaluation Service.
36. "Index Funds and Index Matching," *Atlanta Economic Review*.

37. Paul A. Samuelson, "Challenge to Judgment," *The Journal of Portfolio Management,* Summer 1975, 18.
38. John K. Galbraith, *New York Times Book Review,* May 16, 1965, 34.
39. Thomas S. Kuhn, *The Structure of Scientific Revolutions* (Chicago, IL: University of Chicago Press, 1962), 157.
40. The poster was distributed by the Leuthold Group, a small division of a regional broker, Piper Jaffray & Hopwood.
41. Robert J. Cirino, "If Index Funds Are So Great, How Come So Little Pension Money Has Been Going into Them?" *Institutional Investor,* June 1977, 3.
42. Vartanig G. Vartan, "Why Indexing Frightens Money Managers," *New York Times,* October 3, 1976, 58.
43. David L. Babson, "Index Funds, Why Throw in the Towel?" *Weekly Staff Letter of David L. Babson & Co., Inc.,* December 18, 1975, 1.
44. Nancy Belliveau, "Much Ado About Index Funds," *Institutional Investor,* February, 1976, 23.
45. Roger F. Murray, "Index Funds: An Idea Whose Time Has Passed," *Pensions & Investments,* February 16, 1976, 19; and Charles D. Ellis, "The Loser's Game" *Financial Analysts Journal*, 1971. To my very happy surprise, the book that grew out of the *FAJ* article, *Winning the Loser's Game,* published by McGraw-Hill and soon to be in its seventh edition, has sold over 500,000 copies.
46. Barton M. Biggs, *Investment Strategy*, Morgan Stanley & Co., January 23, 1976, 1.
47. Belliveau, "Much Ado About Index Funds," 18.

48. Scudder, Stevens & Clark, *General Information Memorandum #45-1,* October 1, 1976, 3.
49. "Index Funds Remain Unruffled by S&P Addition," *Pensions & Investments,* August 2, 1976, 10.
50. Michael Clowes, "New York Funds' Trading Goes Unnoticed," *Pensions & Investments*, March 28, 1977, 1.
51. William R. Grant, *Predestination and Pension Funds*, memorandum published privately, Smith Barney, Harris Upham, February 1977.
52. John H. Langbein and Richard A. Posner, "Market Funds and Trust-Investment Law," *American Bar Foundation Research Journal,* No. 1, 1976, 1–34.
53. William S. Gray III, "Index Funds and Market Timing," *Trusts and Estates,* May 1976, 18.
54. Ibid., 35.
55. Published in 1970 by the president and fellows of Harvard College.