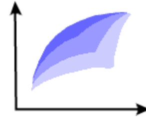
Efficient Frontier



An Online Journal of Practical Asset Allocation

Edited by William J. Bernstein
and Susan F. Sharin

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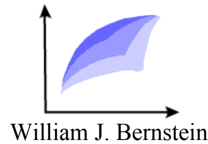

Open Letter to the New SEC Chairman

Dear Mr. Donaldson:

First, the investment world wishes you Godspeed in what may well be the most thankless job in the federal government. You are made of stern stuff indeed for bearing up so well under a confirmation process that has become exponentially more humiliating and partisan with each year and for accepting a substantial pay cut in the process. I salute your stout heart and clear eyes.

You certainly have your work cut out for you. Your predecessor, in spite of his background as a spear-carrier for the securities industry, bent over backwards in the interest of impartiality. Mr. Pitts' downfall related more to a political tin ear than to any deficit of attention, knowledge, or fairness. His years of expertise were both a blessing and a curse. His command of the minutiae of securities law, while nonpareil, blinded him to the larger issues that plague the industry. Mr. Pitt did not simply miss the forest for the trees; he was obsessed with the pinecones.

What ails the industry is not IPO spinning, accounting irregularities, or even the inherent conflict of interest between investment banking and retail brokerage. Rather, the problem is the nature of the industry itself.

The best way to expose the rot at the core of this business is to lay it alongside three other professions: accounting, law, and medicine. All three have rigorous educational requirements, and all three have an ethical core that you can cut with a knife. The securities industry has neither.

Consider accounting. The profession reacted swiftly to the Enron and WorldCom scandals. The mere mention of their names was enough to make most CPAs wince, and accounting organizations reiterated and clarified their strict standards faster than you could say "Arthur Anderson."

More to the point, while it is true that an incompetent or dishonest accountant can substantially damage a client, a wayward broker can devastate a customer with much greater dispatch. Yet the educational requirements in accounting are far more stringent than for brokerage. This is not saying much, since in brokerage, *there are none*. While the equivalent of a graduate degree is required to certify a tax return, not even a high school diploma is needed to manage a client's life savings.

Consider law. Whatever one thinks of attorneys in general, those admitted to the bar are considered officers of the court, and even a trivial ethical lapse can result in disbarment. This is accomplished almost entirely without government regulation—attorneys have always zealously regulated the behavior of their peers and have also fiercely guarded the privilege of doing so. The history of the brokerage industry, on the other hand, is of steadily increasing government regulation necessitated by the industry's chronically blind eye towards its chronically miscreant members.

Finally, consider medicine. The academic requirements are exceedingly rigorous—biochemistry, anatomy, physiology, histology, pathology, pharmacology, and epidemiology. All this before one ventures onto the wards to learn the disciplines of medicine itself: surgery, internal medicine, pediatrics, orthopedics, and the like. The bad news is that once you've mastered these areas, several more years of backbreaking general and specialty training lie ahead before you are certified. Even then, you're not home free; if you don't assiduously keep up with the torrent of journals crossing your desk, both you and your patients will suffer. A very old joke involves a pre-med taking Physics 101 and repeatedly challenging his instructor about its relevance to a medical education. Each time, his professor replies, "Physics saves lives." Exasperated after half a dozen such exchanges, the student finally asks, "Professor, just *how* does physics save lives?" "Why, by keeping the morons out of medical school!"

Manifestly, there are many brokers and advisors who simply do not have the intellectual horsepower to be managing money. Mathematics is the language of investing, and many will never speak it, no matter how hard they try. These individuals, along with the hordes of moral cripples who are attracted to a financial career, should not be allowed past the starting line. The sad fact is that today, the average broker is completely ignorant of the most basic principles of modern finance: marketplace efficiency, the nature of systematic and nonsystematic risks, how to estimate expected returns, the critical role and sources of investment expense, and the mechanics of proper diversification.

There was a time when the accounting, legal, and medical professions were not as solidly grounded as they are today. The state of medical education in particular was so bad in the early twentieth century that the profession commissioned a study—the Flexner Report—that transformed undergraduate and postgraduate medical education into its modern university-based format.

If you think that attacking the peripheral issues surrounding the current crisis—accounting and analyst standards, 401(k) reform, primary offering procedures, and the like—will improve public trust in the capital markets, you will fail just as ignominiously as Mr. Pitt. What is needed is a Flexnerian process that will transform brokerage from a den of incompetence and deceit into an honored profession. At a bare minimum, the following must be accomplished:

- Solid educational and licensing requirements must be defined for brokers and investment advisors. Anyone who cannot grasp and apply the foundations of financial economics should not be allowed to manage other people's money. Minimum standards of practice must be established, and deviations below it should not be tolerated. Brokers or advisors who put most of a client's assets into a small number of securities or into one or two sectors, or who invest funds needed in less than several years in risky assets, cannot be tolerated.

- Returns and expenses must be made transparent. Just as the nutritional composition of a can of tuna is available on the package label, so too must a brokerage's average total expenses, inclusive of all fees, spreads, and impact costs, be available to each investor. In addition, each individual account's expenses, return, and standard deviation should be reported with every statement and compared against well-matched and well-defined benchmarks.

- Effective federal licensing of brokerages themselves should be undertaken. A hospital whose physicians systematically fail to meet minimal standards risks severe sanction; so too should firms whose brokers routinely fail to curb expenses and diversify properly.

Mr. Donaldson, you are charged with overseeing a profession, if it can be called a profession at all, that operates at a medieval level of competence and honesty. Only by bringing its educational, ethical, and reporting requirements into the modern era can public trust be restored.

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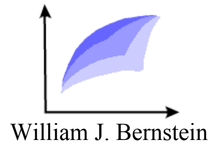


William J. Bernstein

The Probability of Success
(Or, Confessions of a Personal-Finance Writer)

Having spent nearly a decade writing about investment management for the little guy, I have come to the conclusion that I no longer believe in the basic premise of my public persona—a surreal cross between Harry Markowitz and Johnny Appleseed, as a friend put it.

A decade ago, I really did believe that the average investor could do it himself. After all, the flesh was willing, the vehicles were available, and the math wasn't *that* hard.

I was wrong. Having emailed and spoken to thousands of investors over the years, I've come to the sad conclusion that only a tiny minority, at most one percent, are capable of pulling it off. Heck, if Helen Young Hayes, Robert Sanborn, Julian Robertson, and the nation's largest pension funds can't get it right, what chance does John Q. Investor have?

Why the sad state of affairs? It's pretty simple. To invest competently, you need four faculties:

- An *interest* in investing. It's no different from cooking, gardening, or parenting. If you don't enjoy it, you'll do a lousy job. Most people enjoy finance about as much as Carmela Soprano enjoys her husband's concept of marital fidelity.
- The horsepower to do the math. As Scott Burns explained to me years ago, fractions are a stretch for 90% of the population. The Discounted Dividend Model, or at least the Gordon Equation? Geometric versus arithmetic return? Standard deviation? *Correlation*, for God's sake? Fuggedaboudit!
- The knowledge base—Fama, French, Malkiel, Thaler, Bogle, Shiller—all seven decades of evidence-based finance back to Cowles. Plus, the "database" itself—a working knowledge of financial history, from the South Sea Bubble to Yahoo!
- The emotional discipline to execute faithfully, come hell, high water, or Bob Prechter. Mr. Bogle makes it sound almost easy: "Stay the course." Alas, it is not.

I expect no more than 10% of the population passes muster on each of the above points. The devastating part is, to succeed *you need to string all four together*. Thus, in a state of nature, just 0.01% of investors have what it takes. An optimist might guess a 30% success rate on each count, in which case one percent of the population can make all four.

Perhaps I overstate the case. After all, these four abilities are not entirely independent: if you're smart enough, it's more likely you'll be interested in finance and be driven to delve into the appropriate finance literature. But even if true, more than a little luck is involved. Head down to the personal-finance section of your local Barnes and Noble, and you're more likely to run into Suze Orman than Jack Bogle. You'll need a telescope to find the really important stuff. Worse, I'm here to tell you that the last condition—the ability to deploy what Charley Ellis calls "the emotional game"—is completely independent of the other three. I wish I had a nickel for every smart, savvy, and motivated financial type I've met who simply could not execute.

There are exceptions. Come to a Vanguard Diehards meeting and you'll think there is hope. Then travel a few feet down the hall where the gurus of the month are holding forth and you're quickly brought back to reality.

Call Me Vladimir Illych

In my opinion, about the only way to disseminate financial competency among more than a few percent of the population would involve totalitarian methods—establishing an Efficient Markets Propaganda Ministry. Investment reeducation camps would be set up for the likes of Jim Glassman, Abby Cohen, and the Beardstown Ladies, featuring several hours per day of remedial math

and statistics.

Short of that, the Forces of Darkness will remain ascendant. It cannot be any other way. In a society with an increasingly abbreviated attention span and burgeoning innumeracy, the logic of asset-class-based passive investing has about as much appeal as the vegetarian buffet at a cattleman's convention. There is no place for CNBC and 95% of the nation's financial journalists in the World According to Bogle.

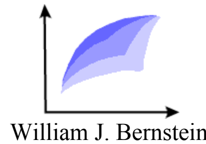
Of course, I'm not recommending the establishment of efficient-market martial law, administered with an iron fist from Valley Forge, Chicago, and Santa Monica. Rather, I'm pointing out that in a liberal democracy, the overwhelming majority of the population will always invest incompetently. Our society pays many costs for our precious civil liberties; this is surely one of the smaller ones.

The good news is that this increases the rewards to those who make the effort. After all, in a world where everyone knows how to calculate realistic expected returns, eschews high expenses, and trades little (and then only concavely), the marginal reward for doing so is low.

The main purpose of this exposition is not to consider how we can increase aggregate investor competence. This is a process so glacially slow that the grim reaper easily outruns it. Take a look around after every bubble and you'll find that the only investors left reasonably intact have gray hair.

Rather, I want to focus debate on just *who* should be running the nation's investment pools. An overriding concern for public safety mandates that those commanding the nation's airliners, nuclear power plants, and military hardware obtain and maintain a precisely defined degree of competence. We should demand no less of those managing the country's retirement portfolios. The events of the past few years underline the bankruptcy of the notion that every worker can be his or her own portfolio manager. The default option for retirement accounts should be a professionally managed low-cost balanced approach, preferably passive. Only those who can demonstrate competence in evidence-based finance should be *licensed* to drive their retirement vehicles on the public highways of our capital markets.

Efficient Frontier



William J. Bernstein

Retirement Calculator from Hell, Part IV: A Nation of Wal-Mart Greeters

In the previous three pieces of this series (Part I, Part II, Part III), we discussed the grim mechanics of retirement planning. While a basic spreadsheet run shows that saving 10% or so of your income at an after-inflation return of 4% beginning at age twenty pencils out to twenty successful years of retirement after age sixty-five, the vicissitudes of the real world make this a chancy proposition. Retire in the wrong year and you're in deep trouble very quickly. Start saving at a later age and things go to hell even faster: For every ten years that you delay, you approximately double the amount you need to save. If you start after age forty-five, it is virtually impossible to plan for a normal retirement.

Our national savings rate is truly dismal. As traditional defined-benefit retirement plans go the way of liberal democrats and disco, most workers are left with Social Security and 401(k) plans as their exclusive sources of retirement income. A recent survey of 401(k) participants shows that the median plan balance for employees nearing retirement (the sixty to sixty-four age group) was *$25,000*. Plug that into your financial calculator and smoke it!

Surely, then, the solution must be for workers to save more. Let's say 100% of workers woke up tomorrow morning, smelled the coffee, ate their Wheaties, and began salting away 25% of their salaries into retirement savings. In very short order, this would do to corporate earnings and stock prices what Genghis Khan did to the steppes. The tradeoff between increased savings and the resultant depression in asset prices (from decreased consumer spending) is a mind-boggling macroeconomic calculation, but a fast look at Japan, with its high savings rate, is not encouraging.

There's a simpler way to examine things. I am grateful here to Thornton Parker, who first raised the issue in *What if the Boomers Can't Retire*, and, more recently, to Robert Arnott and Anne Casscells, who kindly supplied me with their working paper on the topic. At base, what we have is *x* number of workers supporting *y* number of retirees with goods and services. The retirees may be paying the workers with saved dollar bills, stock certificates, or Krugerrands, but at the end of the day, the method of savings/payment is irrelevant. As the number of retirees increases, the goods and services produced by the remaining workers become thin on the ground. In this case, it does not matter how much retirees have saved—the value of their dollar bills, stock certificates, and Krugerrands will fall to the point where the workers are finally willing to take them in exchange for those goods and services.

The world's first government-sponsored retirement system was Bismarck's, begun in Germany in 1883. The Iron Chancellor, wishing to co-opt the Socialists, decided on sixty-five as the retirement age, and we have been stuck with it ever since. In an age without adequate nutrition, antibiotics, high blood pressure medicine, and rudimentary occupational safety, only a few percent made it past the finish line, and those that did survived only a few years. Even when Franklin Roosevelt signed the Social Security Act in 1935, relatively few lived to qualify—in that year, there were forty workers for every beneficiary.

How things have changed. Today, the median life expectancy for men is seventy-five years; it's eighty for women. Currently, there are three workers for every retiree; by 2050, there will be only 1.5 workers supporting each retiree.

Imagine, if you will, a desert island on which there are only five inhabitants—four workers and one older retired person. Each of the four workers does several odd jobs: growing various foodstuffs, building shelter, providing rudimentary medical care, and the like. The medium of exchange is coconuts. Every month, each of the four workers gives a few of his coconuts to the retiree.

One day, one of the remaining four workers turns sixty-five and decides that he, too, wishes to retire. If he does so, instead of each worker supporting 0.25 retirees, each would be supporting 0.67 retirees. Not only that, but the total GDP of the island would fall by 25%; so would per capita GDP. What do you suppose the response of the remaining three workers will be to an apparently healthy-looking colleague who demands that they support his idleness?

Let us further assume that the candidate-retiree has planned for his nonproductive years by accumulating a disproportionate number of the coconuts. In doing so, he has done nothing to increase the productivity of the island. Now that he must spend the coconuts, the island will find an increased number of them chasing 25% less goods and services. The result is a predictable bear market in coconuts and dramatically more expensive goods and services.

Worse yet, to the extent that he has planned ahead and saved, he sows social discord, for even if he himself has accumulated enough coconuts to counteract the effects of higher prices, he has raised prices for everyone else in the process.

This example was not arbitrarily chosen. The 4:1 and 3:2 ratio of workers to retirees is about what was the case in 1990 and what will be the case in 2050, respectively.

In an era when a small number of people lived past sixty-five, society could easily support them for the very few years they survived beyond that point. Now that citizens are routinely living two decades longer, it is simply not mathematically possible, let alone politically feasible, to expect each worker to support 0.67 retirees, no matter how many coconuts, dollar bills, stock certificates, or Krugerrands they save up in the meantime. It is also not reasonable to expect productive younger individuals to support large numbers of healthy older non-workers.

As Arnott and Casscells succinctly conclude, what we have is not a *savings* crisis, but rather a *demographic* crisis. We will not be rescued by increased voluntary or enforced savings. The idea of investing Social Security funds in stocks, so fondly embraced by right-wing think tanks, is a prescription for capital-market instability. (The most salient feature of the American Enterprise and Heritage Institutes is just how little thinking actually goes on inside them.)

The solution, then, is for folks to retire later. We've already started down that road by raising the retirement age for future retirees to sixty-seven. Unfortunately, we have a ways to go. In order to keep the current worker-to-retiree ratio at 3:1, Arnott and Casscells estimate that the retirement age will gradually have to be raised to seventy-three. Of course, the government need take no action; politically, it will prove far simpler to let poor asset-class returns and low savings force older Americans to postpone their retirements. In the past few years, millions rudely awakened to the fact that they weren't going to retire at forty. Over the next few decades, most of the remainder will discover they won't be doing so at sixty-five, either.

That's the bad news. The good news is that this analysis pertains only to society at large; if you're reading this article, you are likely saving more than average. To the extent that you do, you'll be able to retire that much earlier than seventy-three. The really good news is that your cohorts are saving so pitifully little that this will be relatively easy to do.

The above applies only to the Boomers. The X-ers, and those coming after, will have a *much* harder time of it. If you are currently under forty, you will shortly be traumatized by the sight of large numbers of your parents' generation subsisting on cat food, and your generation will begin to save prodigiously. In such an environment, it will be very difficult to gain a comparative advantage over your peers.

If you want to retire early, what matters is not how much you save, but *how much more than everyone else* you save. In a world where everyone saves as if they're going to retire at fifty-five, or even at sixty-five, none can.

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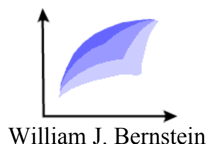


William J. Bernstein

The Final Cowards' Update

The Cowards continue to gain ground lost in the madness of 1995-1999. In 2000-2001, the asset-class scene had reversed course, with many "unconventional" assets outperforming the S&P 500. This happy trend continued in 2002. Below are the 3- and 5- year returns for some major asset classes. As you can see, the S&P has *not* been the place to be:

Index	**Index Fund Sampled**	**3 Yr. Return**	**5 Yr. Return**
Continental Small Companies	DFA Continental Small Co.	-1.30	2.27
Emerging Markets (Equally Weighted)	DFA Emerging Markets	-15.75	-1.44
Small Japanese Stocks	DFA Japanese Small Company	-8.95	0.11
EAFE Index	DFA Large Cap International	-16.53	-2.45
Pacific Rim Small Companies	DFA Pacific Rim Small Company	-4.45	3.75
U.S. Small-Medium Companies	DFA U.S. Small Cap	-2.26	2.04
U.S. Small Companies	DFA U.S. Micro Cap	0.87	4.31
U.K. Small Companies	DFA United Kingdom Small Co.	-7.58	-0.12
REITs	DFA Real Estate Securities	14.82	4.65
S&P 500	Vanguard 500 Index	-14.60	-0.61
Emerging Markets (Cap Weighted)	Vanguard Emerging Markets Index	-13.32	-4.99
EAFE-Europe	Vanguard European Stock Index	-5.15	-2.93
Precious Metals Stocks	Vanguard Precious Metals	13.50	12.60
U.S. Growth Stocks	Vanguard Growth Index	-19.74	-1.09
EAFE-Pacific	Vanguard Pacific Stock Index	-20.84	-4.41

U.S. Value Stocks	Vanguard Value Index	-9.57	-0.93

(For those of you unfamiliar with the cowards, the July 1997 update has a detailed description of these portfolios and the methodology used.)

Once again, a globally diversified, passive approach continues to best most active global management. Nevertheless, I'm killing the Cowards for three reasons:

- The point has been proven.
- The three passive Cowards were chosen purely for illustrative purposes; none of them represents an optimal approach on its own. The original Coward's Index is an institutionally oriented benchmark with no value exposure; the Small Investor's Coward is the retail version of the same, and the Academic Coward is an all-value version. All three are extreme cases. A more reasonable strategy blends the all-value approach of the Academic Coward with the all-market exposure of the other two and includes some REIT exposure, at least for those with sheltered accounts.
- Maintaining the Cowards takes a lot of time, which I'm growing increasingly short of. Since there's a dandy off-the-shelf global small- and value-weighted benchmark out there—the DFA "Balanced" portfolio, I'm going to defer to it. (It's also a benchmark we use in our advisory business.)

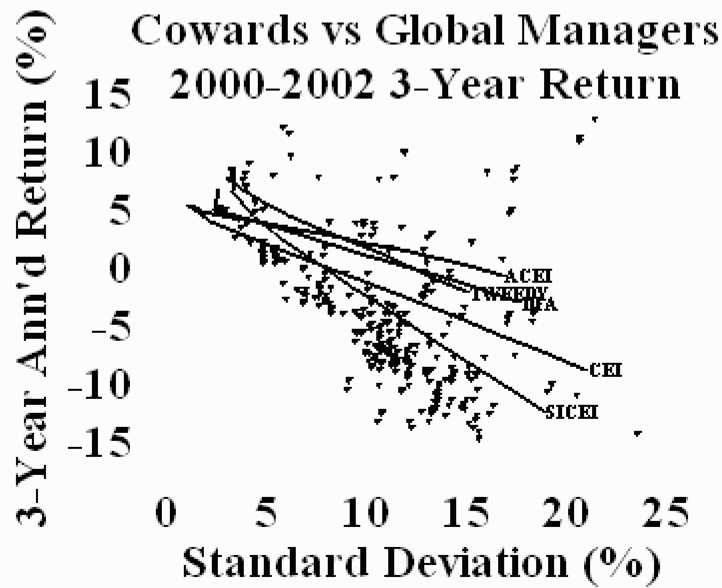
There are actually two DFA balanced strategies, one for stocks and one for bonds, which we then blend depending on equity exposure. Here they are:

Stocks
20% U.S. Large-Cap Growth
20% U.S. Large-Cap Value
10% U.S. Small-Cap Growth
10% U.S. Small-Cap Value
10% REIT
10% International Large-Cap Value
5% International Small-Cap Growth
5% International Small-Cap Value
3% Emerging Markets Large-Cap Growth
3% Emerging Markets Large-Cap Value
4% Emerging Markets Small-Cap Growth

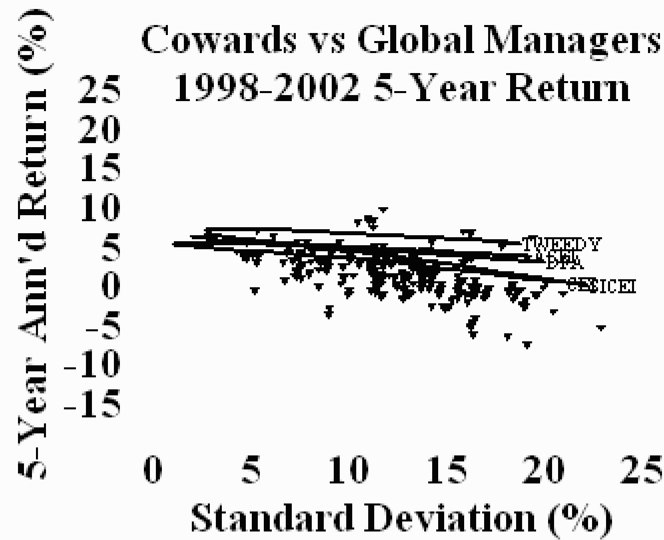
Bonds
25% One-Year Corporate Bonds
25% Two-Year Global Bonds
25% Five-Year U.S. Government Bonds
25% Five-Year Global Bonds

For those without access to DFA, Vanguard maintains analogous domestic funds, and its International Value fund tracks DFA's fairly closely. As to the other 20% (small international and emerging markets stocks), you're on your own—I'd suggest splitting them between the Vanguard European, Pacific, and Emerging Markets funds. (And, if you're going the Vanguard route, you might consider a "five-corners" domestic approach by equally weighting the four diversified domestic styles and REITs, because the small and value weighting of the Vanguard funds is lower than DFA's.)

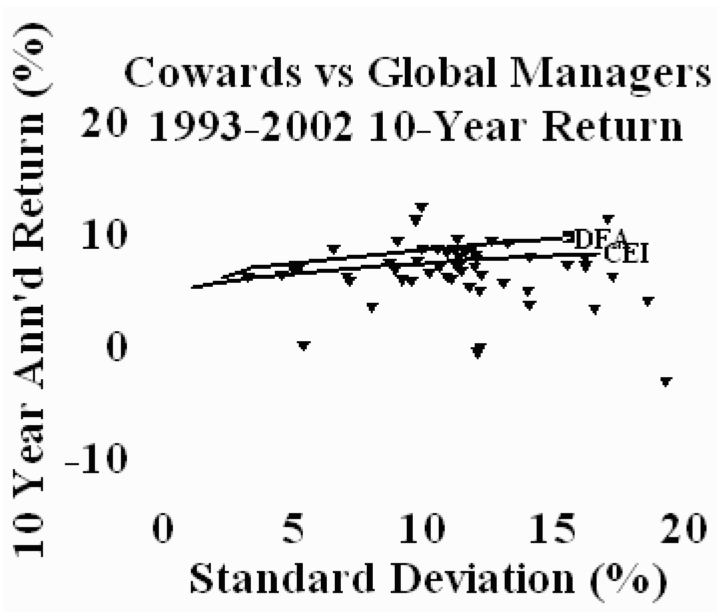
That said, here are the 3-, 5-, and 10-year plots for all five Cowards.



Cowards vs Global Managers
2000-2002 3-Year Return
3-Year Ann'd Return (%)
15
10
5
0
-5
-10
-15
0
5
10
15
20
25
Standard Deviation (%)
ACEI
TWEEDY
DFA
CEI
SICEI

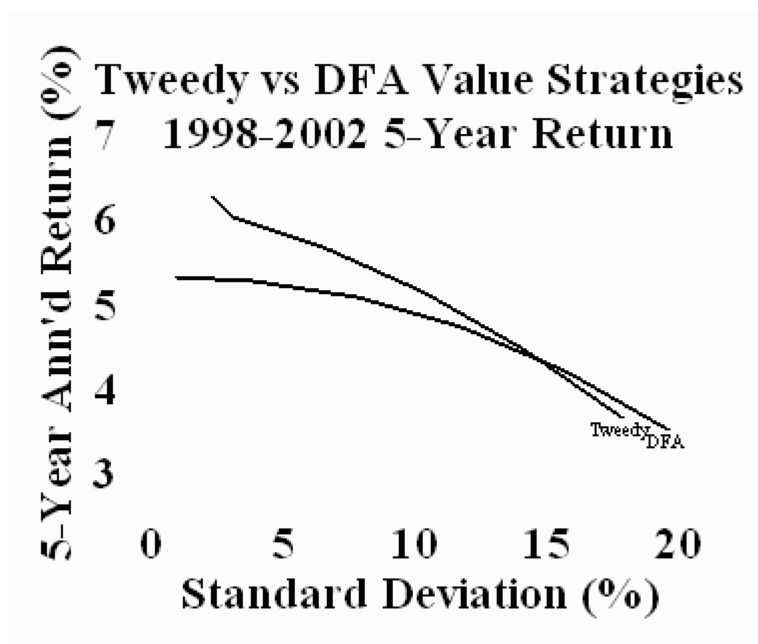


Cowards vs Global Managers
1998-2002 5-Year Return
5-Year Ann'd Return (%)
25
20
15
10
5
0
-5
-10
-15
0
5
10
15
20
25
Standard Deviation (%)
TWEEDY
DFA
SICEI



First, note that over the past three and five years, holding stocks was no great blessing, either with the Cowards or the active managers—even over ten years, equity was not that helpful. Second, I've used the "expanded" scale for this and last year's report to include the worst-performing funds, which illustrates an important point. Although over most time periods, it is not difficult to find a fund that did somewhat better than the Cowards, they do not do so by a great margin. However, if you are unlucky, you could get hit with a real clunker. Realize also that at five and ten years, there is considerable survivorship bias; the very worst funds have already been pruned away. Last of all, note how important value exposure has been—the Academic Cowards have shined over the past three years, and done pretty well over the past five.

The Tweedy Coward is slipping, as you can see by comparison to last year. This year has not been kind to the foreign currencies, and they have suffered accordingly. Tweedy no longer leads the Academics at three years. Also, truth be told, the Tweedy Browne Global Value Fund was a "lucky pick"—Tweedy also runs the domestically oriented Tweedy Browne American Value Fund, and it hasn't done nearly as well. A reasonable test of the Tweedy approach versus the Academics, which is only half foreign, is to construct a benchmark of 50% each of the two Tweedy funds. I've done so below, and the plot tells the tale.



I'll still tip my hat to Tweedy Browne. If you're going to actively manage a portfolio, this is how to do it; too bad their fees are so high. As to almost everyone else, the data are overwhelming. At long last, I'm relieving myself of the quarterly Coward

updating process, declaring victory, and going home. From time to time I may provide updates of active global allocators versus the DFA approach, but for now, the Cowards and I are taking a much-needed rest.

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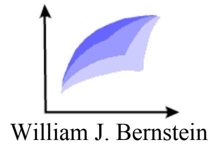

William J. Bernstein

Link of the Month: The SAD State of Stock Market Returns

Why is it that bear markets almost always seem to climax in the fall? October figures prominently in the history of the twentieth century's market panics and, also in the twentieth century, September carries the lowest returns of any calendar month.

I'm conflicted on this issue as an investor versus a clinician. One can slice and dice months and seasons of varying lengths and configurations, and the statistical significance of the fall dip does not knock one's eyes out. As an efficient marketeer, I'd be delighted to ascribe the Fall Doldrums to lady luck.

But when I put on my clinician's hat, I get a different perspective: Seasonal affective disorder (SAD) is a very real disease, and it can devastate a person's psyche. Depressed individuals tend to devalue everything in their lives, and their financial assets are no exception.

Mark Kanstra of the Atlanta Fed and his colleagues have put together a wonderful working paper examining the relationship between sunlight and markets and, indeed, there is something there. It is well-known that in the northern hemisphere, returns are lowest in the fall, but so are they in the southern hemisphere, where the seasons are six months out of phase with those north of the equator. There is also a nice correlation with latitude; the further from the equator, the lower are fall returns relative to the rest of the year.

For those wishing to reap great profits from this effect, beware—the R-squares on the "SAD variable," which in effect measures the hours of daylight, are not huge. But when October Blues hit the markets, it's well to remember that spring is just around the corner.

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