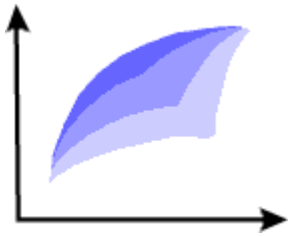
Efficient Frontier



An Online Journal of Practical Asset Allocation

Edited by William J. Bernstein

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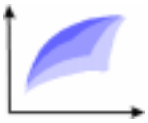


William J. Bernstein

The Retirement Calculator from Hell

Most of you have seen the nifty retirement software available from the likes of Vanguard and T. Rowe Price which provides the mathematical muscle to help you plan your retirement. Input your retirement age, expected lifespan, required annual income, rate of inflation and investment return, and hey presto, you find out that to avoid a golden years diet of Alpo you need the GDP of the average Central American republic.

Problem is, it may quite possibly be worse than that. These calculators all make the same erroneous assumption -- that your expected rate of return is the same each and every year. In other words, let's assume that the real (inflation adjusted) rate of return of the S&P 500 will be 7% in the future. You might conclude that you can withdraw an inflation adjusted $70,000 of your $1,000,000 Vanguard Index Trust 500 IRA each and every year indefinitely, and maintain yourself with the same real income in the long run. And you'd be wrong.

It turns out that if you have rotten returns in the first decade you will run out of money long before reversion to the mean saves your bacon in later years. To illustrate this phenomenon I went back to good old Uncle Fred's infamous coin toss, with its return of either -10% or +30%. Let's assume that these represent real returns. If over 30 years you toss 15 heads and 15 tails you earn a compounded rate of 8.17%. (If you don't understand why you don't earn the average return of 10% (the average of -10 and +30), then go back and read Chapter One of ***The Intelligent Asset Allocator***.) If you start with a $1,000,000 portfolio and roll alternating heads and tails over the 30 year period, then you indeed can withdraw $81,700 (8.17% of the initial amount) over the next 30 years before all the money runs out. However, if you are unlucky enough to roll 15 straight tails before rolling 15 straight heads, you can withdraw only $18,600 per year. Reverse the process and roll the 15 heads followed by 15 tails, and you can withdraw $248,600 per year.

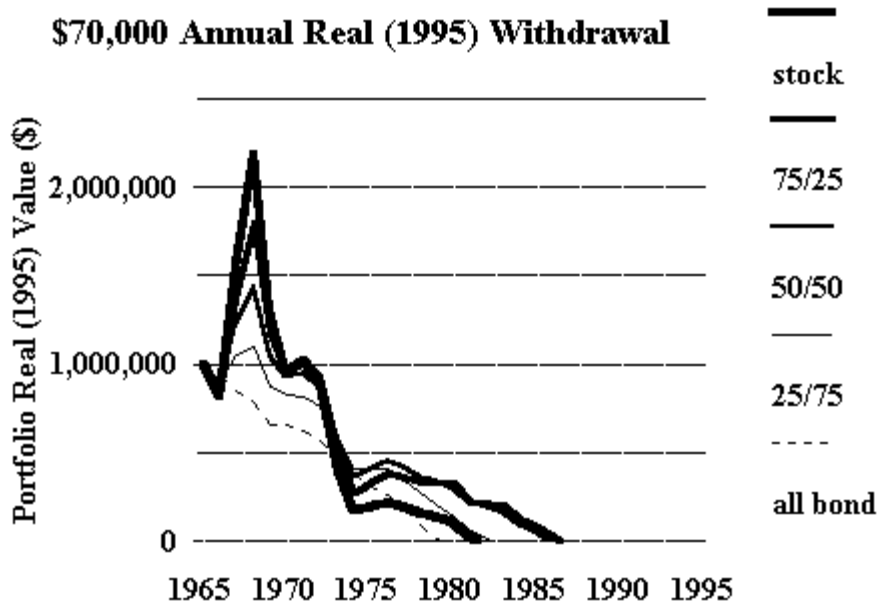
This phenomenon was first brought to the attention of the investing public by Philip L. Cooley, Carl M. Hubbard, and Daniel T. Walz from Trinity University. They looked at the "success rate" of various withdrawal strategies over numerous historical periods, and came to the conclusion that only a withdrawal rate of

4%-5% of the initial portfolio value (i.e., $40,000-$50,000 of a $1,000,000 portfolio) had a reasonable expectation of success. This article can be found in the February 1998 ***AAII Journal***. You can also obtain a lucid explanation of their work as well as their "success tables" on Scott Burns' excellent website.

On a more basic level, however, you can apply a much simpler acid test to your withdrawal strategy: What would happen if the day you retired marked the beginning of a long, brutal bear market, say on January 1, 1966, and you lived for another 30 years, until 12/31/95? For the first 17 years (1966 to 1982) the return of the S&P 500 was a paltry 6.81%. By gruesome numerical coincidence, this was identical to the rate of inflation for the period, making the real stock return for the whole 1966-82 period zero. The return for the next 13 years (1983-95) was spectacular, bringing the real return for the whole 30 year 1966-95 period up to 5.3%, not too far below the historical norm of 7%.

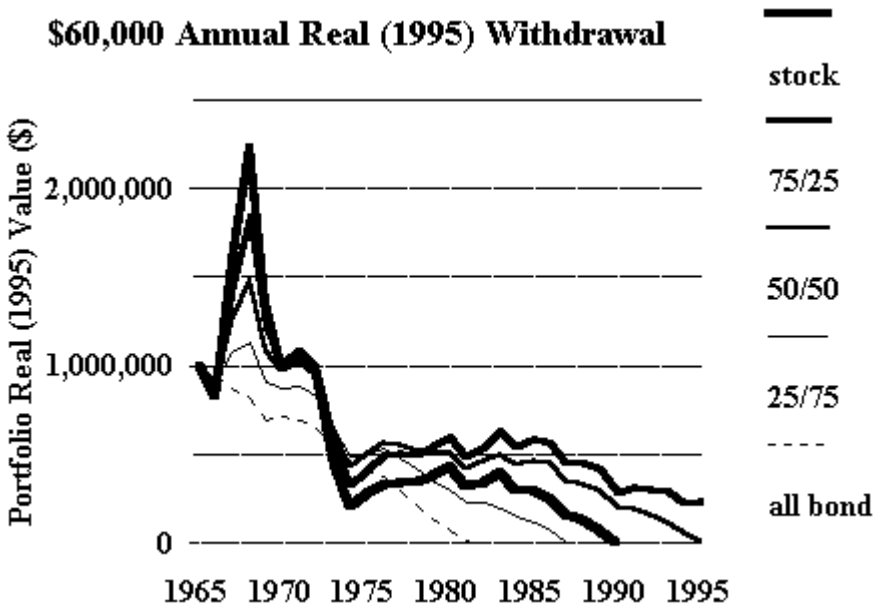
I next constructed an all equity portfolio consisting of 80% S&P 500 and 20% US small stocks, and mixed this with 5 year treasuries. I assumed that one began the period with $1,000,000 and then calculated results of various withdrawal rates from the following mixes: 100% stock, 100% bond, and 75/25, 50/50, and 25/75 mixes of both. The results are plotted below. The all stock portfolio is the thickest line, and the thinner the line, the less stock. Again, it is important to realize that the amounts on the y axes are in *inflation adjusted* 1995 dollars. This is the simplest and clearest way of performing retirement calculations.

First, let's look at withdrawing 7% of the initial amount, or $70,000 (inflation adjusted), per year:



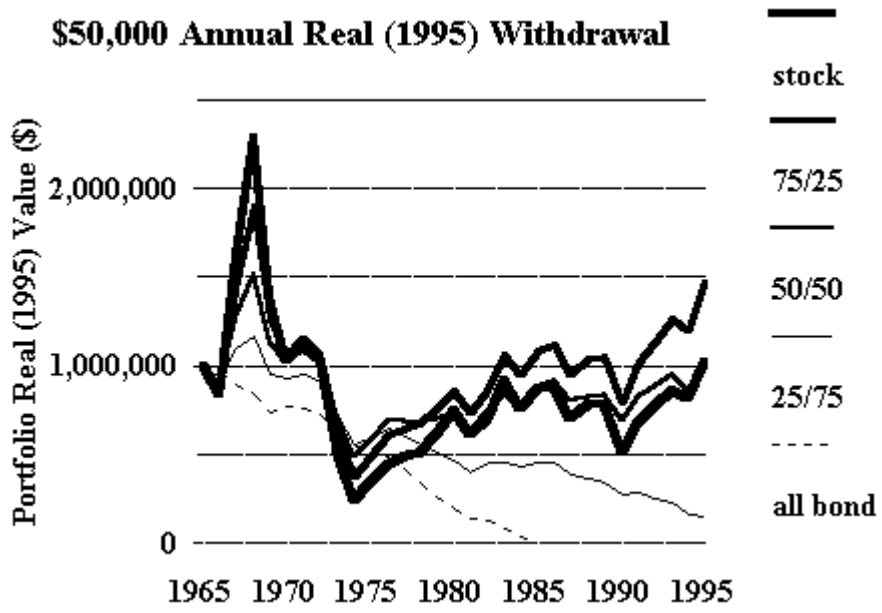
As you can see this is an unmitigated disaster, particularly for the all stock portfolio. All 5 portfolios run out of money, with the 75/25 and 50/50 portfolios lasting the longest. The great bull market beginning in 1984 came far too late to save even the most patient investor.

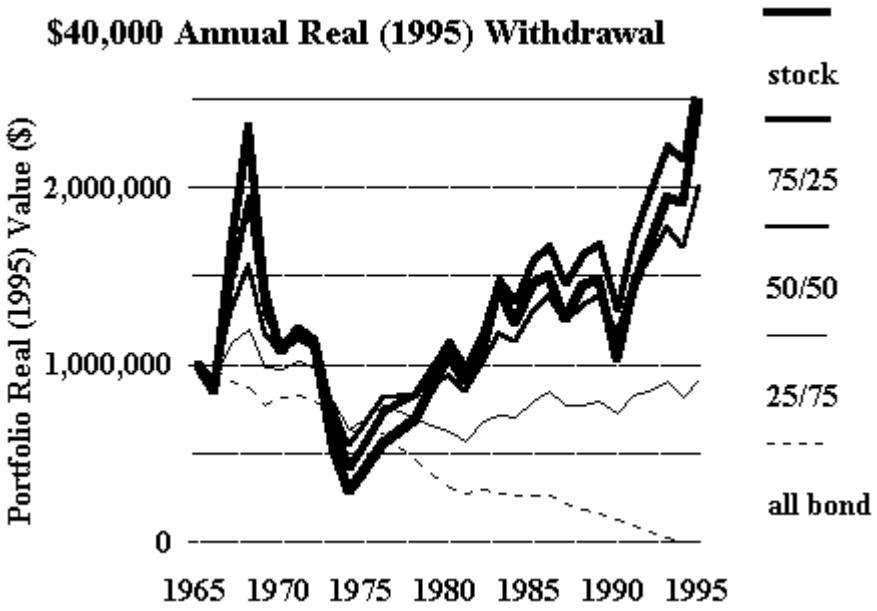
Next, $60,000 (6% of the initial amount):



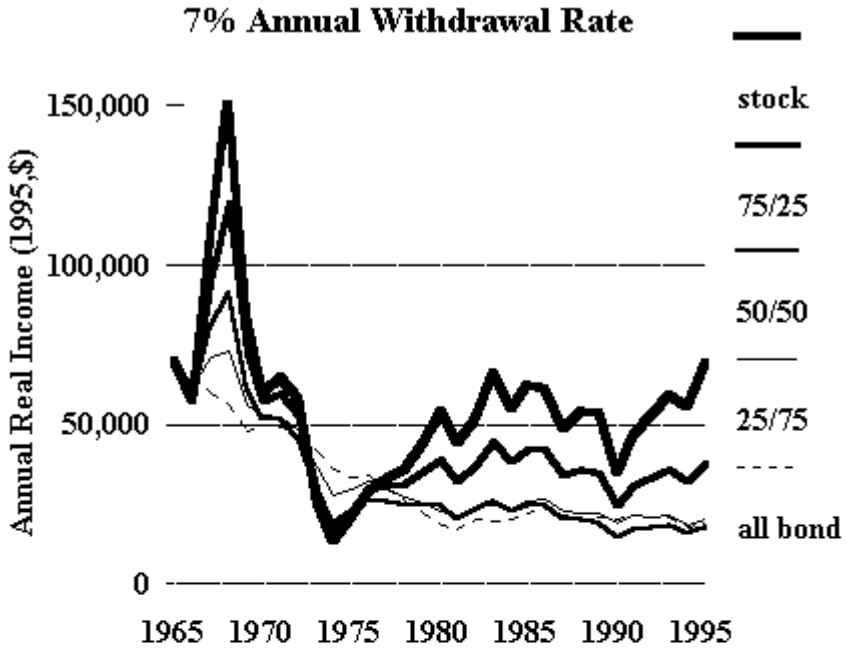
Once again, only the 75/25 portfolio comes out with even a fraction of the corpus intact, and the 50/50 portfolio barely keeps in the black by the ending period. The other three portfolios lead straight to the alms house.

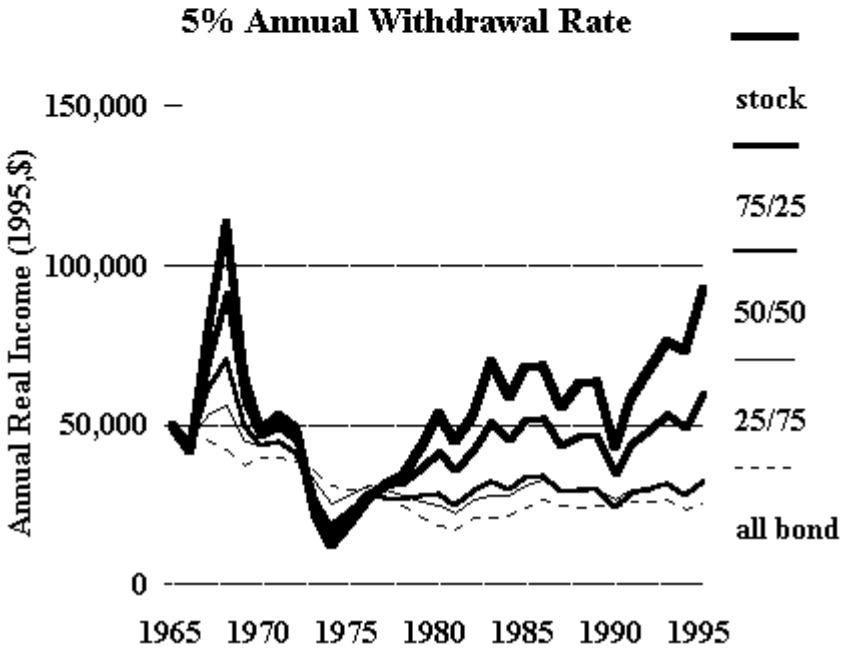
Only at $50,000 (5% of the initial amount) and $40,000 (4% of the initial amount) withdrawal rates, shown below, do things look a little less grim. The best strategy at a $40,000 withdrawal rate is the 75/25 mix, which handily survives the 30 year period. However, even this route was one wild ride. Beginning with a $1,000,000 real value in 1966, it rose to a real $1,943,000 in 1968, fell to a real $421,000 in 1974, rising again to a real $2,706,000 by the end of 1995.





What devastates the above scenarios is the withdrawal of a predetermined inflation adjusted stipend from a portfolio already ravaged by the market. What happens if instead we withdraw a fixed *percentage* (as opposed to a fixed amount) of our principal? In other words, if we start with a nest egg of $1,000,000, and withdraw 7% each year, we will begin withdrawing at a rate of $70,000 per year. If our principal then falls 50%, we are left with only $465,000, so we can now only withdraw payments at a rate of .07 x $465,000 = $32,550 per year. This approach has the advantage that we never run out of money, although the stipend amount will fall dramatically in some years. I've plotted annual income for 5% and 7% constant percentage withdrawals below. Whereas the plots above showed the real residual portfolio wealth after constant real withdrawals, the below plots show the annual stipends from a *constant percentage* withdrawal:





Note that for a constant percentage withdrawal the all stock portfolio does better than the mixed portfolios. This is because one is effectively "value averaging" into a falling market by reducing one's withdrawals when stock prices are low. If one is willing to tolerate a stipend amount which dramatically fluctuates with market conditions, then one can indeed withdraw 7% per year from an all stock portfolio in the long run. This strategy is not for the faint of heart. It produced a real $70,000 income in 1966, which rose to a real $151,000 in 1968, fell to a real $13,700 in 1974, rising back to a real $69,000 by the end of 1995.

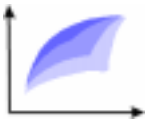
Although historical market analogizing can be both embarrassing and dangerous to one's wealth, this market looks an awful lot like 1966. It would behoove anybody with an investment horizon stretching another 30 years to consider the

1966-95 as a useful reality check.

One point cannot be made often enough -- when you retire, are you going to be withdrawing *a fixed inflation adjusted amount* on a regular basis, or are you going to be withdrawing *a fixed percentage* of your portfolio? This is not a semantic fine point. If you need a fixed amount, plan on withdrawing no more than about 4.5% of your starting amount in inflation adjusted terms. A fair dollop of bonds won't hurt in this situation.

If you can be more flexible and spend a *fixed percentage* of your nest egg each year, then you can indeed keep you entire retirement stash in stocks and spend 7% annually. Just remember that your stipend will likely fluctuate wildly over the decades of your retirement. Keep a few cans of Alpo in the cupboard if you decide to go this route .

Efficient Frontier



William J. Bernstein

Stocks? For the Long Run?

"We don't invest where we can't drink the water." -annual report, Tweedy Browne

Most of you have heard the apocryphal story of the financier who prayed all of his life for a peek, just a little peek, at the next day's ***Wall Street Journal***. Finally granted his wish, the first item he comes across is . . . . his own obituary. (Probably the best variation on this theme is "A Special Story," told in the inimical style of Barton Biggs. You can find it in ***Classics, an Investor's Anthology***, ed. Charles D. Ellis.)

Well, if you made me that offer I wouldn't want tomorrow's WSJ. Nope, I would have too much trouble finding enough leverage to exploit the juiciest 24 hour option play, and besides, I'd get an industrial grade case of sweaty palms. What I'd really want is a fast look at a copy of that venerable rag dated about *5 years after I plan to retire.* The real gold mine (Remember, the dude in the white turban gives me only a brief look.) lies in the long term returns from the world's major national stock, bond, and commodity markets.

Problem is, until relatively recently we didn't even know the answer for *past* global stock returns. Oh, sure, the return of the EAFE and the S&P from 1969 were both about 12.5%. However, you may recall that shortly prior the human saga had a few military and economic bumps. Some cynics have even suggested that, like history in general, financial history is also written by the winners. Long term equity returns of 10-13%? Maybe if you were lucky to be living in the right place at the right time, but not in Lima, Delhi, or Budapest. In fact, like the detritus of some ancient terrestrial asteroid encounter, there was a mass extinction of entire equity markets from the 1930s to the 1960s. Stocks for the long run? Not if you lived someplace where they took Karl Marx more seriously than Groucho Marx. Not if you found yourself in the immediate proximity of a self proclaimed military and racial genius.

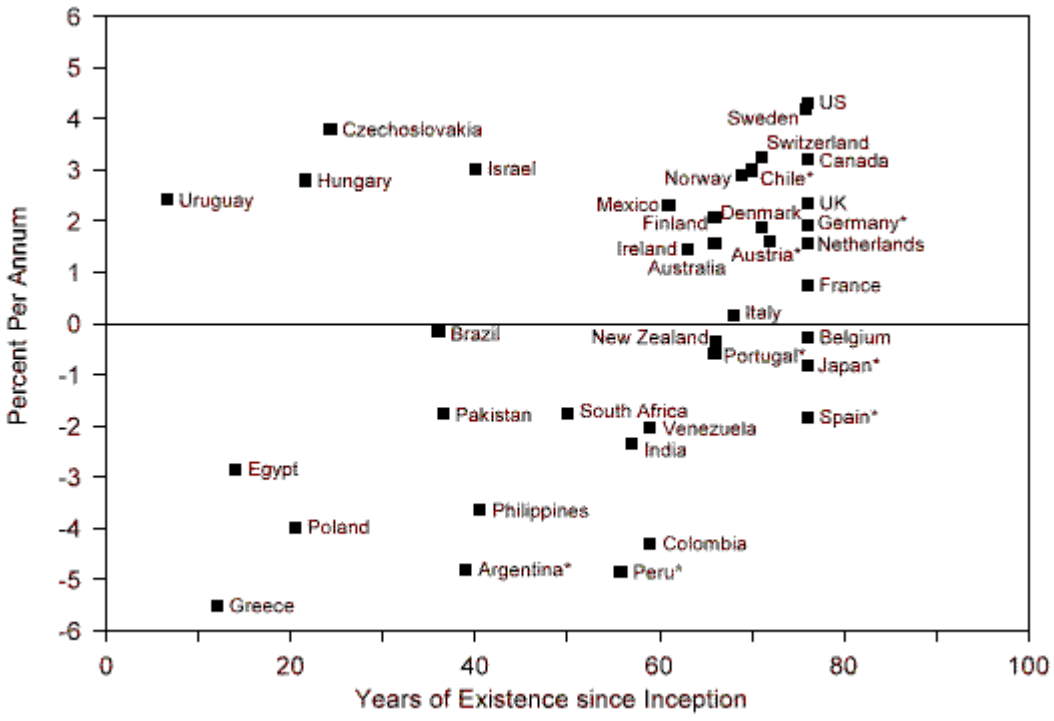
Since the founding of the New York Stock Exchange under a buttonwood tree in 1792, inflation adjusted total returns of domestic equity have been in the 6%-7% range. However, not until this century did this fact become known, and even then

not popularly appreciated until a decade or so ago. Consider the implications of a 7% real return. If you really could invest $1 for 200 years at a 7% real rate, then you have a real $752,000 after 200 years. Invest $1 at a 7% real rate at the birth of Christ and you will have real $6 x 10^{58}. Does that seem like a lot of money to you? It is - it's the value of a solid gold sphere 43 light years in radius.

Clearly, something is fishy here. Returns of global equity (or even debt) simply cannot be that high. A recently published article by Philippe Jorion (UC Irvine) and William Goetzmann (Yale) , as well as some data from Bryan Taylor (Global Financial Data) shed some much needed light on the topic.

It turns out that the good old USA was the winner in the global equity sweepstakes in this century. Unfortunately, many of the other horses ran badly behind, and some even broke their legs and were put down. Heard much about the Cairo Stock Exchange lately? In the 1920s it was one of the world's largest. It was done in not by war or revolution, but by a colonel who should have paid better attention in Econ 101 at U. Egypt.

The article does have a "Picture Worth a Thousand Words." Here it is:



At first glance, things look downright ghastly - the very best returns are no higher than 4%, and many markets seem to have negative returns. In reality, things aren't that grim. It has to be realized that the y axis plots *inflation adjusted, capital only*, returns. In other words, inflation is already adjusted into the prices, and dividends are not included. (This is because for most of the markets reliable dividend information was not available for the whole period.) The

authors found about a 4% long term dividend rate for those markets for which reliable information was available, so in reality real total rates of return were positive for all but the hard luck cases - the Philippines, Poland, Columbia, Argentina, Peru, and Greece. Even here, nominal total returns in US dollars were positive.

Just as important, there is a modestly positive slope to the data - the longer a market has been around, the higher tend to be its returns. This is a good demonstration of "survivorship bias," a prominent characteristic of mutual funds and rock musicians - the bad ones are quickly taken out and shot, so the ones that are left give an overly favorable representation of the genre.

The authors immediately point out that this data presents an "equity risk premium puzzle" - i.e., why are investors in some nations not rewarded for bearing the risk of stock ownership? In classical Ibbotsonian terms the "equity risk premium" is defined as the excess return of stocks over t-bills. Since short duration bond returns can be difficult to come by in many markets, long bond rates may be used for comparison instead. The answer, according to Bryan Taylor of Global Financial Data, is that in nations with low stock returns, bond returns were even worse. So even in the nations with low stock returns there is, indeed, an equity risk premium. Hence no puzzle. This provides scant comfort to emerging markets bond investors; it's well to recall that for nearly a century Latin American nations defaulted on sovereign debt with near clock like regularity.

But so much for academic quibbling. What does this data mean to the average Josephine, scanning the library copy of ***Forbes*** for the Honor Roll list of foreign mutual funds? That all depends on two issues, more philosophical than financial:

1. Is history progressive or cyclical? The cataclysmic events of this century devastated entire nations, races, and social systems. Were they a singular occurrence, the likes of which we shall never again encounter? Or were they merely a depressing human commonplace, an intrinsic vicissitude of the species? (My favorite quote from the paper: "Had the outcome of the Second World War been different . . . . the beta of the U.S. on the world index would likely have been different." Yep, suffering a global cataclysm is bad enough, but even worse, it really screws up your portfolio parameters.)

2. Even a cursory look at the above graph demonstrates that the winners and losers segregate on the basis of their avoidance of the twin scourges of Armageddon and Marx. What is the likelihood that

the century's winners (the U.S., Canada, Sweden, and Switzerland) will also escape the next march of folly? For those not current on the state of the art in strategic weaponry, the correct answer is "not very."

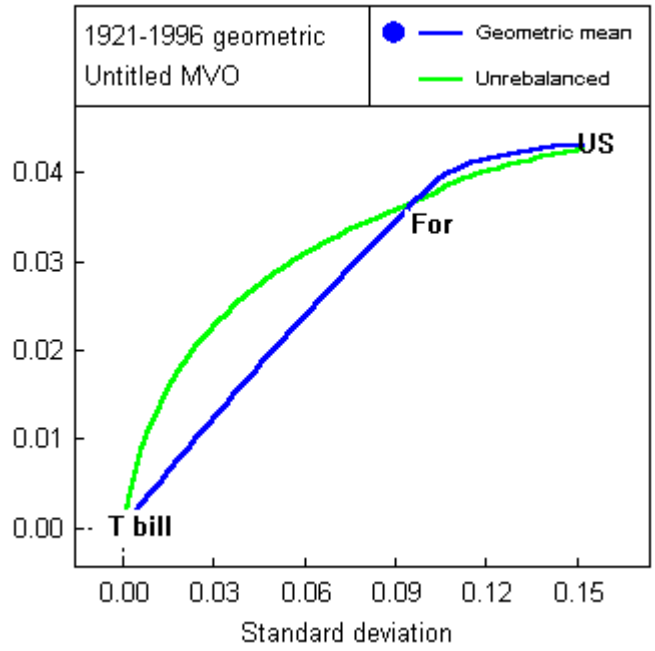
As to portfolio risk from the next generation of Marxist star gazers, the issues are more subtle. In 1900 who would have predicted the state takeover of the means of production in much of the globe? The key point here is that at the beginning of the century investors, blissfully unaware of the havoc Juan Peron and Gammal Nasser would wreak on their nations, probably demanded very similar risk premiums from the US, Egypt, and Argentina. These particular horses are now long out of the barn; the risks of investing where you dare not drink the water are baldly obvious. Which is why valuations in Asia and Latin America in general are currently about half of what they are in the US and Europe. In other words, the manifest risks of emerging markets investing are already priced into the markets in a way they were not at the turn of the century. It is thus quite likely that the emerging markets investor will be appropriately compensated in the coming decades. There's no Midas Muffler guarantee on this one of course. The compensation of risk with reward in the capital markets is true only in a statistical sense, and the lot of the individual financial statistic is often disagreeable.

It also has to be admitted that like generals fighting the last war, we tend to prepare ourselves for troubles which do not occur, and are woefully unprepared for those which do. It's quite likely that the forces which obliterate nations and capital in the next century will look nothing like those of the past.

Finally, Jorion and Goetzmann evaluate the long term returns of a global investment strategy by putting together an index of all of their national indexes, weighted by GDP. Even accounting for the markets which vaporized, the return of this global index was 4.04%, versus 4.32% for the US for the 1921-96 study period. (Remember, this is inflation adjusted, without dividends included.) While the authors correctly point out that the 0.28% gap makes a very big difference when compounded over 76 years, they also demonstrate that their global portfolio was a good deal less risky, with a standard deviation of returns of just 11.05%, versus 15.8% for the US market. Even more interesting, the non-US index, including the deadsters, returned 3.39% with an even lower SD (risk) of 9.96%.

Those of you familiar with these pages know what's coming -- if one applies standard optimization techniques to the Jorion/Goetzmann data, does foreign equity belong in an efficient portfolio for the

1921-96 period? Does it pay to rebalance assets with a 1% return difference compounded over 76 years? To answer this, I assumed a 1% domestic stock advantage, a 0.5 correlation between US and foreign markets, and a zero return/zero SD for t-bills, and fed the data into MvoPlus, a multiperiod optimizer produced by Efficient Solutions. A screenshot of the output is reproduced below:



The above plot shows the "efficient frontier" for these 3 assets; in the low risk region (SD < 0.1) the preferred foreign/domestic ratio was about 70/30. Only in the high risk/high return upper right corner are US stocks more strongly preferred. Secondly, and somewhat surprisingly, you were better off not rebalancing annually in the low risk/return (SD0.1) region. In the 60/40 stock/bond world that most of us inhabit, it really doesn't matter.

This data will be widely discussed in the coming years. Many will look at the first graph and conclude that it's better to stay at home. And, as I hope I've shown, they'd be wrong. The fairest appraisal of the data comes from the authors themselves - "Based on these long term series, the main benefit of going international appears to be risk reduction rather than increased returns." Amen.

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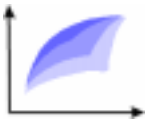


William J. Bernstein

How to Beat the Benchmark

Indexing's Ultimate Irony

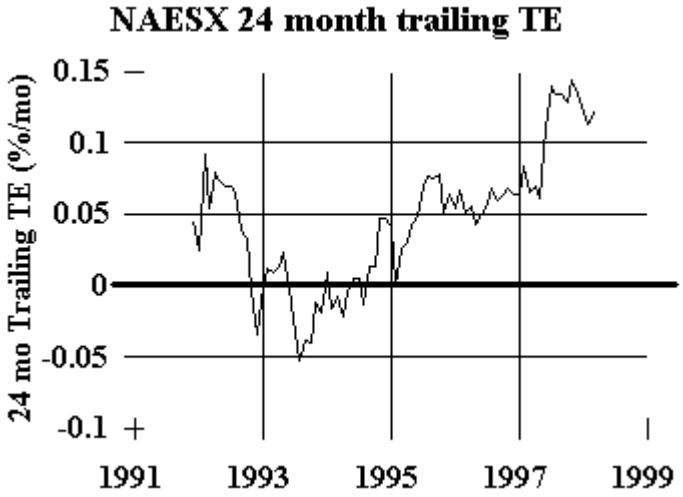
Something funny is going on in the financial skunkworks of Valley Forge and Santa Monica. The high priests of indexing, George U. ("Gus") Sauter and Rex Sinquefield, have created funds which are beating their benchmarks. Even after expenses. Like clockwork. Spookier still, they are doing it with index funds.

The ultimate measure of the efficiency of an index fund is its "tracking error" (TE). This is the difference between the return of the fund and its benchmark. If an index fund is doing its job perfectly, then its TE will be a small negative number, equal to the opposite of its expense ratio. For example, the Vanguard Index Trust 500 has an expense ratio of 0.20%. If it is performing as advertised, it should thus have a return 0.20% less than the S&P500 each and every year. In fact, it pretty much does that. (Well, actually slightly better. More about that later.)

One of the small pleasures of being a Vanguard shareholder are the handsome and informative annual reports. Chairman Bogle is always entertaining, and the reports contain a wealth of data. There's also something satisfying about being reminded of your connection, no matter how minuscule, with thousands of corporations. Even better, you get to explain ownership of a few shares of McDonalds, Coke, Disney, or Electronic Arts to your children. For the past several years the careful reader has noticed something else: The tracking error of the Vanguard Small Cap Index Fund (symbol NAESX) has been persistently *positive*, and by no small amount either - about 1.38% annually since 1994. And that's *after* expenses.

The first few years I wrote this seeming anomaly off to statistical noise - the fund does not own all 2000 stocks in the index, and a TE much larger than with the S&P500 was expected. But with succeeding annual reports the same positive TE was noted. So, with a little help from Morningstar's Principia software, I computed the monthly TE for the fund since it converted to an index fund in 1990, and plotted the 24 month trailing TE: (The y axis plots the average monthly TE, in %. Since the numbers are small you can convert this to an annualized rate

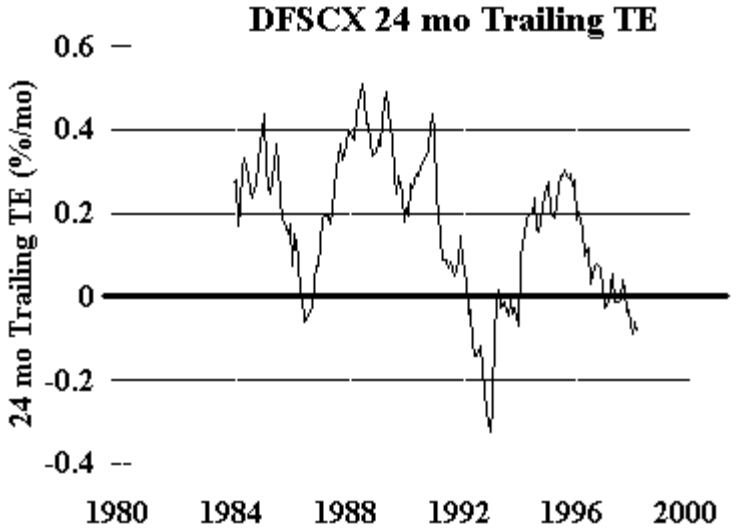
by multiplying by 12.)



For the entire history of the index fund, it beats the benchmark by 0.038% per month, or 0.46% annually . Remember that this includes the fund's expense ratio of 0.25%. The actual before expense TE is the sum of these two figures, +0.71%, per year, since 1990. This is highly statistically significant, with p = 0.038 after expenses, and p=0.0083 before expenses.

Look closely at the graph - it looks as though Gus learned something around 1994, because after that the average net TE increases to +0.095% per month (+1.15% annually), or +0.115% (+1.39% annually) before expenses. The post 1994 rise in TE may not be due to random noise, as the p values for this period are 0.0036 after expenses and 0.00063 before expenses. In the world of mutual funds, benchmark outperformance of such statistical power is unparalleled, sort of like batting .450 ten seasons in a row.

The granddaddy of small cap indexing actually resides in Santa Monica, in the form of the DFA (Dimensional Fund Advisors) 9-10 Small Cap Index Fund (symbol DFSCX). Founded in 1982 by Rex Sinquefield and David Booth, the fund's benchmark is the CRSP (Center for Research in Security Prices) 9-10 Decile Index, which comprise stocks in the smallest quintile of the NYSE/AMEX, and NASDAQ stocks with the same capitalization included as well. Again, I've plotted the 24 month TE of the fund since inception:



As you can see, its TE is also persistently positive, but if anything seems to be declining over time. In fact, the average net TE for the whole period is +0.155% per month, or an astounding +1.88% pa net after expenses. The fund expense ratio is 0.61% annually, for a whopping before expense TE of +2.5% annually. This is once again highly statistically significant, with p values of 0.015 after expenses and 0.0022 before expenses. (The SD of the TE is higher for DFSCX than for NAESX, lowering its degree of statistical significance.) It is remarkable enough for any fund to beat its benchmark by 2.5% annually over 17 years, but it is downright eerie to see this done by an *index fund*.

To complete the picture, since 1992 the Vanguard Extended Index Fund has beaten its benchmark (the Wilshire 4500) by 0.56% per year after expenses (0.81% net of expenses), and even the Vanguard Index Trust 500 has beaten its benchmark by a razor thin 0.08% annually before (but not after) expenses in the same period.

So what is going on here? A hint is found in DFA's 1996 Reference Guide:

> The 9-10 Portfolio captures the return behavior of U.S. small comannuallyny stocks as identified by Rolf Banz and other academic researchers. Dimensional employs a "annuallytient buyer" discount block trading strategy which has resulted in negative total trading costs, despite the poor liquidity of small comannuallyny stocks. Beginning in 1982, Ibbotson Associates of Chicago has used the 9-10 Portfolio results to calculate the performance of small comannuallyny stocks for their Stocks, Bonds, Bills, and Inflation yearbook.

A small cap index fund cannot possibly own all of the thousands of stocks in its benchmark; instead it owns a "representative sample." Further, these stocks are usually thinly traded, with wide bid/ask spreads. In essence what the folks at DFA learned was that they could tell the market makers in these stocks, "Look old chaps, we don't have to own your stock, and unless you let us inside your

spread, we'll pitch our tents elsewhere. Further, we're prepared to wait until a motivated seller wishes to unload a large block." In a sense, this gives the fund the luxury of picking and choosing stocks at prices more favorable than generally available. Hence, higher long term returns. It appears that Vanguard did not tumble onto this until a decade later, but tumble they did.

To complete the picture, this strategy works best in the thinnest markets, so the excess returns are greatest in the smallest stocks, which is why the positive TE is greatest for the DFA 9-10 Fund, less in the Vanguard Small Cap Fund, less still in the Vanguard Index Extended Fund, and minuscule with the S&P500.

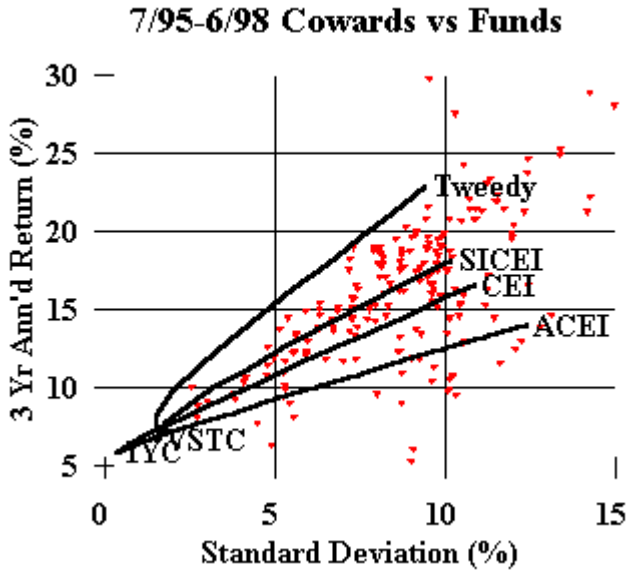
There are some who say the biggest joke in the world of finance is the idea of value added active management. If so, then the punch line seems to be this: If you really want to beat the indexes, then you gotta buy an index fund.

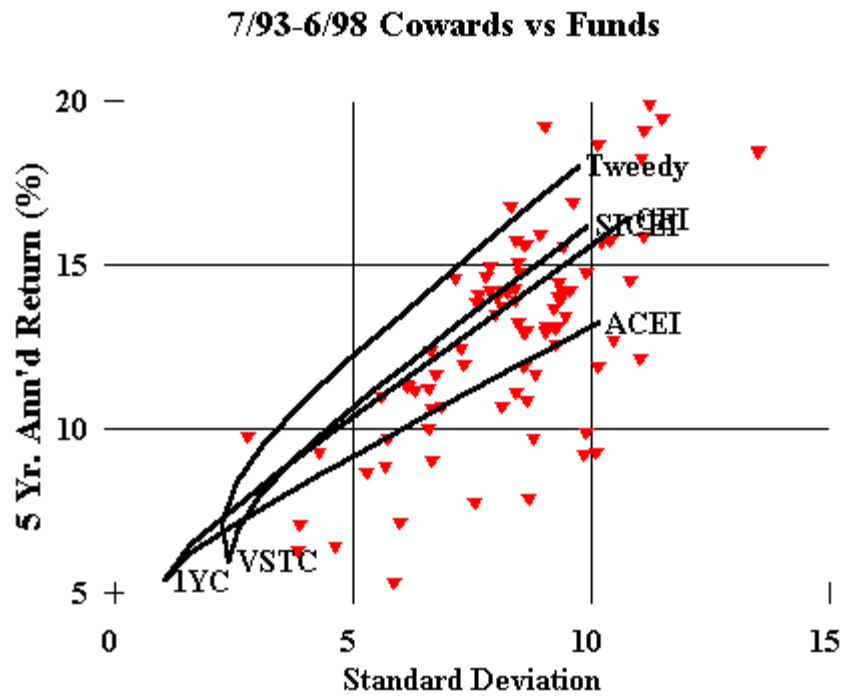
William J. Bernstein

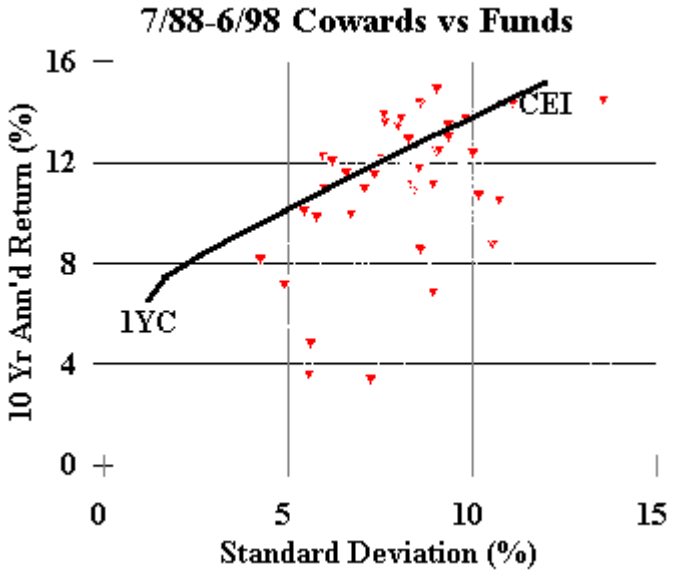
The Coward's Portfolios

The past several years have not been kind to the diversified global investor. Although large cap domestic and European stocks have done well over the past decade, the Far Eastern and Emerging markets have fared poorly, and in all areas small stocks have underperformed their larger cousins.

Our cowards, who spread their bets widely across the globe and market cap, have suffered accordingly. (For more information about the exact makeup of the cowards, click here.) Their performance relative to the actively managed competition (Morningstar's "asset allocation" and "global multiasset" mutual funds) has begun to slip. The reason for this is that the actively managed funds generally use an orthodox allocation model, with large cap US stocks being the dominant component. Since the S&P has been the hottest global asset category over the past 5 years, this has favored the actively managed funds. The 3, 5, and 10 year plots are shown below:







Roughly speaking, the cowards have maintained their superior 10 year performance, have slipped to merely average over 5 years, and actually perform worse than the actively managed funds over the past 3 years. Unless the large cap US/European dominance of the past several years continues the cowards should bounce back, but no excuses are offered.

Active versus Passive

A more subtle, and troubling, phenomenon is evident in the 3 and 5 year data.

Over both periods strictly passive global management seems to have fallen flat. The CEI and the ACEI, which are exclusively indexed, have underperformed the SICEI (the coward available to the average small investor), which of necessity contains some actively managed funds. All three strategies underperform by a wide margin the Tweedy-Browne strategy, which is entirely actively managed along classic Graham-and-Dodd lines.

Those of you familiar with these pages know that there is a powerful body of evidence that even the "best" professional managers cannot pick stocks or time markets, and that a passive strategy beats the active manager most of the time. (The folks at DFA, as is their wont, refer to this as "active manager risk.") So what's going on here? First, the Tweedy and SICEI strategies are not as exposed to the Far Eastern markets as the CEI and ACEI, and have benefitted accordingly. But there may be something else going on as well.

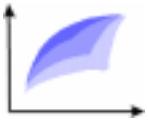
A purely passive global strategy buys the "global market" in cap weighted fashion. In other words, if the market cap of country A is 10 times that of country B, then the strictly indexed global investor will own 10 times as much A as B.

This tends to overweight the most expensive nations, and underweight the cheapest. For example, in 1989 the Japanese market contained nearly 50% of global market capitalization, whereas now it makes up less than 15%. The investor whose global allocation mirrored the 1989 market caps suffered mightily.

Many global managers, including our friends at Tweedy-Browne, recognized this problem and largely avoided Japanese equity. (With the deflation of Japanese equity this has changed. Tweedy now considers Japanese equity the cheapest the developed world, and is beginning to overweight it.)

Put another way, while managers may not be able to time markets or pick stocks, the global Graham-and-Dodder may just be able to choose *countries* to advantage.

The cowards are not (as some readers have assumed) portfolio recommendations carved in stone. They are a work in progress, intended to explore the basic allocation issues facing small investors. Stay tuned



William J. Bernstein

What's Cheap

It is helpful to know what's cheap, and what's not, in the global marketplace. ***Efficient Frontier*** regularly offers valuation data on various global index and closed end funds . Tabulated below are the DFA/Vanguard/Wilshire index fund data (from Morningstar Principia) as of 6/30/97.

	Month End	Tot Ret	Tot Ret Annlzd	Tot Ret Annlzd	Std Dev	P/E	12 Mo	P/B	P/C	Med
Fund Name	NAV	12 Mo	3 Yr	5 Yr	3 Yr	Ratio	Yield	Ratio	Ratio	Cap
Acorn International	21.74	11.59	15.67	13.5	12.1	32	2.31	8.5	16.8	
American Cent Global Gold	5.8	-31.72	-19.56	-12.01	27.63	37.9	1.08	2.2	16.8	
American Cent Global Nat Res	11.5	-4.23	8.6	-	12.2	24.8	1.69	2.9	12.3	
DFA Continental Small Compny	19.1	30.61	15.45	16.5	12.87	25	1.23	3	8.5	
DFA Emerging Markets	8.18	-37.1	-8.47	-	19.4	23.5	3.19	4.1	10.7	
DFA Intl High Book to Market	14.53	4.9	10.25	10.74	12.68	28.3	1.84	2.1	9	
DFA Intl Small Cap Value	8.09	-14.9	-3.5	-	12.57	22.5	1.42	1.4	10.5	
DFA Intl Value	12.52	4.8	10.17	-	12.67	28.6	1.86	2.2	10.4	
DFA Japanese Small Company	8.94	-45.56	-22.38	-17.36	26.85	31.4	1.17	1.3	13.2	
DFA Large Cap International	16.33	7.8	12.12	10.45	13.39	30.1	1.51	4.7	13.4	
DFA Pacific Rim Small Compny	5.85	-59.01	-20.42	-9.29	24.23	11.4	4.98	1.2	14.4	
DFA U.S. 6-10 Small Company	15.89	16.66	19.35	16.58	17.81	25.1	1.99	3.8	18.7	
DFA U.S. 6-10 Value	22.38	20.12	23.35	20.43	15.48	21.7	2.42	1.9	14.3	
DFA U.S. 9-10 Small Company	12.37	18.07	19.18	19.05	18.91	22.8	0.18	3.3	17	
DFA U.S. Large Cap Value	21.3	28.22	26.32	19.78	15.61	17.5	2.7	2.1	10.3	
DFA U.S. Large Company	33.63	30	29.93	22.84	15.15	30.4	1.25	7.2	20.5	
DFA United Kingdom Small Co	28.05	17.89	15.92	13.96	11.59	19.7	2.73	4.9	11.2	
DFA/AEW Real Estate Secs	14.51	8.33	18.18	11.28	12.15	24.6	5.17	1.7	15.9	
Schwab 1000 Inv	31.02	30.14	28.98	21.81	14.89	30.5	0.85	7	21.1	
Schwab International Idx Inv	15.2	8.53	13.14	-	12.95	30.1	1.01	4.8	13.1	
Schwab Small Cap Index Inv	18.58	17.58	19.14	-	18.06	25.6	0.34	4.2	19	
Scudder Latin America	22.58	-17.54	13.92	11.53	26.9	16.7	1.05	2.1	16.6	
Vanguard Index 500	105.3	30.05	30.13	22.94	15.2	30.6	1.25	7.3	20.8	
Vanguard Index Extend Mkt	33.21	23.76	22.96	18.35	16.18	27.5	1	4.3	19.9	
Vanguard Index Growth	27.61	34.73	33.26	25.18	17.29	36.9	0.83	10.7	25.4	
Vanguard Index Sm Cap Stk	24.69	16.94	20.07	17.04	17.12	24.7	1.06	3.9	18.6	
Vanguard Index Value	22.84	24.94	26.76	20.51	14.24	22.5	1.56	3.3	14.8	

Vanguard Intl Eqty Emerg Mkt	8.35	-37.89	-6.76	-	20.76	16.8	2.75	3.1	12.5	
Vanguard Intl Eqty European	25.53	37.43	27.14	23.22	13.64	29.1	1.44	5.6	12	
Vanguard Intl Eqty Pacific	7.24	-35.22	-11.19	-5.94	16.14	33.4	1.24	2.2	13.5	
Vanguard Spec Energy	23.81	6.48	19.16	12.67	18.39	25.4	1.32	3	10	
Vanguard Spec Gold&Prec Mets	6.58	-33.02	-16.3	-9.51	24.93	35.6	2.13	2.5	16.6	
Vanguard Spec Utilities Inc	15.56	26.44	18.07	11.9	10.66	21.8	3.63	2.9	8.4	
Vanguard Special REIT Index	13.18	7.74	-	-	-	26.7	5.9	1.7	16.5	
Wilshire Target Lrg Gr Inv	30.36	32.09	31.97	24.19	18.26	35.2	0.18	9.4	24.2	
Wilshire Target Sm Gr Inv	16.33	9.55	13.96	13.49	19.21	25	0	4.3	21.9	
Wilshire Target Sm Val Inv	16.88	19.13	19.81	13.79	11.4	19.6	1.98	2.3	13.4	

What is striking are the dramatically higher multiples commanded by the equity of domestic and European stocks relative to that of the Emerging and Far Eastern markets, and the premium commanded by large stocks of all categories.

This reflects the spectacular/dismal respective returns in these areas over the past decade. The same phenomenon is mirrored in the valuations of foreign closed end funds (also from Morningstar Principia). I've arranged the cheapest funds by price/book,:

			Price/					
		P/E	Cash	P/B	Med Mkt	Turnover	Exp	Income
Fund Name	Prem/Disc	Ratio	Flow	Ratio	Cap $MM	Ratio	Ratio	Ratio
Korea Equity	21.5	10.1	3.9	0.4	87	53	1.89	-0.73
Brazilian Equity	-20.3	7.3	8.7	0.5	241	69	1.86	-0.62
Fidelity Advisor Korea	10.2	11.7	5.3	0.6	211	51	1.88	-0.64
Templeton Vietnam and SE Asia	-12.3	6.6	11.3	0.7	4508	4	1.47	2.62
Brazil Fund	-23.4	8	7.6	0.8	355	6	1.46	1.91
Korean Investment	27.7	13.4	3.8	0.8	380	32	2.11	-0.73
Templeton China World	-14.4	8.8	12.7	1	1902	14	1.65	2.14
Latin America Smaller Co	-20.3	21.2	-	1.1	220	39	2.3	-0.08
Templeton Dragon	-12.6	8.3	12	1.1	4508	9	1.5	1.93
Korea Fund	11.9	15.4	3.5	1.3	1068	13	1.63	0.46
Singapore Fund	7.7	10.8	11.6	1.4	402	79	1.87	-0.29
Jardine Fleming China Region	-18.4	10.5	16.8	1.5	1747	44	2.18	0.26
China Fund	-10.4	11.6	19.4	1.6	1024	41	2.56	0.49
Argentina Fund	-20.9	12.6	10.2	1.7	1716	19	1.9	2.11
Greater China	-16.5	14.1	19.8	1.7	1554	37	2.07	0.65
Japan Equity	28.2	27.3	10.3	1.8	4190	62	1.03	-0.13
Asia Pacific	-7.2	13.4	13.1	1.9	5738	43	1.57	0.43
Chile Fund	-19.8	14.5	9.2	1.9	2139	36	3.34	0.38
Latin America Equity	-22.7	13.9	9.5	1.9	3571	112	1.89	0.77
Latin America Investment	-22	13.6	9	2	3174	50	1.7	1.47
Morgan Stan Asia-Pacific	-18.9	23.9	14.1	2	4939	28	1.39	0.16
Thai Capital	67.7	36.7	12	2	578	33	2.22	0.15
Austria Fund	-16.7	25	7.2	2.2	2032	19	1.71	0.07

First Australia	-21.2	20.7	12.5	2.2	4245	270	1.39	1.68
Central European Value	-23.3	22.1	8.8	2.3	879	56	2	-0.87
Morgan Stan Russia & New Eur	-15.2	21.7	-	2.3	551	71	2.5	-1.27
Emerging Mexico	-15.1	17.8	12	2.4	1700	71	1.64	0.6
Mexico Equity & Income	-20.3	20	10	2.4	4696	127	1.49	3.29
Fidelity Advisor Emerg Asia	-10.4	15.6	15	2.5	4091	55	1.71	0.03
Mexico Fund	-23.9	20.5	12.5	2.5	3152	8	0.91	1.8

price/earnings,,

			Price/					
		P/E	Cash	P/B	Med Mkt	Turnover	Exp	Income
Fund Name	Prem/Disc	Ratio	Flow	Ratio	Cap $MM	Ratio	Ratio	Ratio
Templeton Vietnam and SE Asia	-12.3	6.6	11.3	0.7	4508	4	1.47	2.62
Brazilian Equity	-20.3	7.3	8.7	0.5	241	69	1.86	-0.62
Brazil Fund	-23.4	8	7.6	0.8	355	6	1.46	1.91
Templeton Dragon	-12.6	8.3	12	1.1	4508	9	1.5	1.93
Templeton China World	-14.4	8.8	12.7	1	1902	14	1.65	2.14
Pakistan Investment	-11.9	9	8.7	2.9	279	15	2.2	-0.36
Korea Equity	21.5	10.1	3.9	0.4	87	53	1.89	-0.73
Jardine Fleming China Region	-18.4	10.5	16.8	1.5	1747	44	2.18	0.26
Singapore Fund	7.7	10.8	11.6	1.4	402	79	1.87	-0.29
China Fund	-10.4	11.6	19.4	1.6	1024	41	2.56	0.49
Fidelity Advisor Korea	10.2	11.7	5.3	0.6	211	51	1.88	-0.64
Argentina Fund	-20.9	12.6	10.2	1.7	1716	19	1.9	2.11
Jakarta Growth	64.9	12.8	13.3	2.7	215	44	1.94	0.7
Indonesia Fund	92.1	13.1	15.1	3	301	35	1.91	0.1
Asia Pacific	-7.2	13.4	13.1	1.9	5738	43	1.57	0.43
Korean Investment	27.7	13.4	3.8	0.8	380	32	2.11	-0.73
Latin America Investment	-22	13.6	9	2	3174	50	1.7	1.47
Latin American Discovery	-11.5	13.6	24.2	5.3	4896	259	1.82	-0.07
Latin America Equity	-22.7	13.9	9.5	1.9	3571	112	1.89	0.77
Greater China	-16.5	14.1	19.8	1.7	1554	37	2.07	0.65
Chile Fund	-19.8	14.5	9.2	1.9	2139	36	3.34	0.38
Malaysia Fund	54	14.8	14.7	3.3	1098	50	1.29	-0.18
Korea Fund	11.9	15.4	3.5	1.3	1068	13	1.63	0.46
Fidelity Advisor Emerg Asia	-10.4	15.6	15	2.5	4091	55	1.71	0.03
Emerging Mexico	-15.1	17.8	12	2.4	1700	71	1.64	0.6
First Philippine	-11.7	17.8	17.8	2.8	1909	15	1.75	-1.1
Asia Tigers	-11	19	16.1	4.2	4901	78	1.65	0.71
Mexico Equity & Income	-20.3	20	10	2.4	4696	127	1.49	3.29
Mexico Fund	-23.9	20.5	12.5	2.5	3152	8	0.91	1.8
First Australia	-21.2	20.7	12.5	2.2	4245	270	1.39	1.68

and price/cash flow.

Fund Name	Prem/Disc	P/E Ratio	Price/ Cash Flow	P/B Ratio	Med Mkt Cap $MM	Turnover Ratio	Exp Ratio	Income Ratio
Korea Fund	11.9	15.4	3.5	1.3	1068	13	1.63	0.46
Korean Investment	27.7	13.4	3.8	0.8	380	32	2.11	-0.73
Korea Equity	21.5	10.1	3.9	0.4	87	53	1.89	-0.73
Turkish Investment	-15.6	31.2	4.6	11	890	51	1.91	2.57
Fidelity Advisor Korea	10.2	11.7	5.3	0.6	211	51	1.88	-0.64
Germany Fund	-13.6	30.4	6.1	4.5	32627	81	1.19	0.49
Emerging Germany	-12.3	31.5	6.5	4.1	32627	40	1.51	0.76
Austria Fund	-16.7	25	7.2	2.2	2032	19	1.71	0.07
Scudder Spain and Portugal	-9.8	29.1	7.2	4.7	9157	115	1.74	0.54
Brazil Fund	-23.4	8	7.6	0.8	355	6	1.46	1.91
Growth Fund of Spain	-8.6	27.5	8.4	3.5	10190	29	1.22	1.29
Italy Fund	-18.3	36.1	8.5	6.4	10258	16	1.29	0.61
Brazilian Equity	-20.3	7.3	8.7	0.5	241	69	1.86	-0.62
New Germany	-13.5	29.6	8.7	4.7	5236	76	0.99	0.41
Pakistan Investment	-11.9	9	8.7	2.9	279	15	2.2	-0.36
Central European Value	-23.3	22.1	8.8	2.3	879	56	2	-0.87
Latin America Investment	-22	13.6	9	2	3174	50	1.7	1.47
Spain Fund	-14.5	28.1	9.1	3.9	16646	45	1.55	0.38
Chile Fund	-19.8	14.5	9.2	1.9	2139	36	3.34	0.38
Latin America Equity	-22.7	13.9	9.5	1.9	3571	112	1.89	0.77
Central European Equity	-19	22.5	9.9	4.1	1510	68	1.1	0.32
Mexico Equity & Income	-20.3	20	10	2.4	4696	127	1.49	3.29
Argentina Fund	-20.9	12.6	10.2	1.7	1716	19	1.9	2.11
Japan Equity	28.2	27.3	10.3	1.8	4190	62	1.03	-0.13
France Growth	-16.1	32.8	10.9	4.2	17758	80	1.48	0.64
Portugal Fund	-20.9	34.7	11.1	5.4	3763	72	1.56	0.23
Irish Investment	-12.8	21.5	11.3	7.3	3717	11	1.54	0.78
Templeton Vietnam and SE Asia	-12.3	6.6	11.3	0.7	4508	4	1.47	2.62
Thai Fund	104.6	-	11.4	2.9	802	24	1.43	1.42
Singapore Fund	7.7	10.8	11.6	1.4	402	79	1.87	-0.29

What can be plainly seen is that the equity of many countries -- particularly Korea, Russia, and Brazil, are on fire sale. And, in each case, for good reason. It seems likely that the enormous economic and political risks in these markets are more than adequately priced into their equity prices, providing investors with a classic tableau of risk and expected return.

One should not read too much into the above data, however. There is certainly a statistical association between high/low present valuations, high/low prior returns, and low/high future returns. Is it money in the bank? Not by a long shot.

More than anything else, the data is a shot across the bow of those expecting a repeat of the past decade in the global capital markets. Caveat emptor.