CAN WE ALL INVEST LIKE YALE?

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David Swensen is regarded as one of the greatest capital allocators of all time, if not the greatest.

Before his passing in 2021, Swensen's tenure at the Yale University endowment office was legendary. The endowment returned over 13% per annum, higher than any relevant benchmark, including the unstoppable US stock market, and with lower volatility, too.

Swensen's massive success led many investors to attempt to adopt the "endowment style" of investing, or more specifically, the "Yale model."

What does this phrase mean?

Meb Faber penned his first book, *The Ivy Portfolio*, to attempt to answer this question.

Fifteen years have passed since the book's publication; what's changed in markets, and what's stayed the same?

Below, we look at the endowment model, its main features, and if we can, in fact, invest like Yale.

Endowment Style Investing

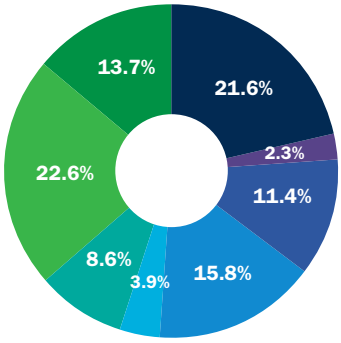
> *"Three basic investment principles inform asset-allocation decisions in well-constructed portfolios. First, long-term investors build portfolios with a pronounced equity bias. Second, careful investors fashion portfolios with substantial diversification. Third, sensible investors create portfolios with concern for tax considerations. The principles of equity orientation, diversification, and tax sensitivity find support both in common sense and academic theory."*
>
> **- David Swensen**

University endowments have a few advantages over normal investors. First, they don't pay taxes. Second, their time horizon extends past our lifetimes.

Typically, an endowment's primary goal is to outpace inflation with additional returns to ensure both sustainable spending and long-term growth of the endowment. Since endowments can take the long-term view regarding portfolio design, this feature has resulted in what most consider to be the defining characteristic of the endowment model: a focus on equity and equity-like investments. A secondary feature is a focus on active management where appropriate.

Alternatives (Alts) have historically played a huge role in these portfolios, and the most recent Yale endowment target allocation included a whopping 60% allocation across absolute return (hedge funds), leveraged buyouts (private equity), and venture capital. The lines have blurred over the years between definitions of active/passive and public/private and what is or isn't an alt, but it is clear the endowment is not indexing their portfolio.

What does the endowment allocation look like? According to Yale's 2020 Endowment Update, Yale had allocated to:



Yale Endowment Allocation			
Absolute Return	21.6%	Natural Resources	3.9%
Domestic Equity	2.3%	Real Estate	8.6%
Foreign Equity	11.4%	Venture Capital	22.6%
Leveraged Buyouts	15.8%	Cash and Fixed Income	13.7%

Some readers may jump out of their chair and exclaim, "They only have 2.3% in US stocks?!" However, the broad categories of private equity and venture capital give similar exposure to the US stock market, just in a different way.

If you exclude absolute return and group the Private Equity and Venture Capital allocations into the equity bucket, then normalize the allocations, the ballpark Yale allocation from Meb's book rounded to 50% stocks, 15% fixed income, and 35% real assets.

We simplified this further in a portfolio we dubbed the "IVY" portfolio, with 20% each in US stocks, foreign stocks, US bonds, REITs, and commodities.

Swensen recommended an allocation for individuals in his 2005 book *Unconventional Success*: 20% US stocks, 20% foreign stocks, 10% emerging market stocks, 20% REITs, 15% US bonds, and 15% TIPS.

Might the IVY portfolio and Swensen's individual portfolio hold up against the Yale endowment and other relevant benchmarks over the years?

Can any of us really invest like "Yale"?

Trying to Invest Like Yale

Let's begin by examining the returns of the Yale endowment over the past 40 years to establish our baseline.

For some broad context, we'll compare the returns to the "average" endowment.

We'll also include traditional benchmarks like the 60/40 allocation and the S&P 500 allocation.

Figure 1 – Yale Endowment Returns vs. Benchmarks, 1985-2024

	Average Endowment	Yale Endowment	60 40	SPY
Return	8.84%	13.16%	10.12%	11.86%
Volatility	9.87%	12.14%	10.33%	15.50%
Sharpe Ratio	0.56	0.81	0.66	0.55
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%
Max Drawdown			-29.28%	-50.95%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment and Yale Endowment portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

On first pass, it is clear there may have been something special in the water up in New Haven. Higher returns, higher Sharpe ratios, and reasonable volatility all point to Yale's exemplary track record.

Yale returned over three percentage points above 60/40!

The average endowment is basically a 60/40 portfolio but slightly worse across all metrics.

All these strategies have good returns, Yale's performance just happens to be great.

But 40 years is a long time, what if we examined the more recent past?

The SPY in the Room

Many endowments famously struggled in the 2008-2009 bear market. Liquidity seized up, and these aggressive allocations resulted in the worst year ever for these strategies. As a reminder, these endowments and many other institutional pools of capital report returns on a fiscal year ending June 30th and only once a year.

Subsequently, the maximum drawdown for many of these strategies intra year was likely two times larger than the "worst year" statistic. A benefit of only peeking once a year! It's hard to know how much illiquid alternatives benefit from smoothed returns, a practice that drives many investors like Cliff Asness crazy. Cliff has labeled the practice "volatility laundering" if an unscrupulous manager claims much lower volatility than reality. We would all like to allocate to equities at a 4% volatility!

If you narrow the analysis to the past 15 years, nothing comes close to US stocks. We featured their historic run in a piece titled "*The Bear Market in Diversification*." Humorously, stocks have appreciated another 25% since publication.

The massive outperformance of US stocks has even pulled the 60/40 portfolio up as well. The Sharpe ratio of 1.11 for US stocks is nearly triple the historical average. 1.25 Sharpe ratio for 60/40 would make most hedge funds jealous…Good times indeed!

Figure 2 – Yale Endowment Returns vs. Benchmarks, 2010-2024

	Average Endowment	Yale Endowment	60 40	SPY
Return	7.93%	10.79%	9.86%	14.82%
Volatility	9.40%	10.09%	7.04%	12.41%
Sharpe Ratio	0.73	0.96	1.25	1.11
Worst Year	-8.00%	0.80%	-10.67%	-10.62%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment and Yale Endowment portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

Now to be fair to Yale, if we examined 25 years from 1985 – 2009, Yale looks exceptional once again and the average endowment, well, pretty average.

Figure 3 – Yale Endowment Returns vs. Benchmarks, 1985-2009

	Average Endowment	Yale Endowment	60 40	SPY
Return	9.38%	14.61%	10.27%	10.12%
Volatility	10.28%	13.16%	12.01%	17.16%
Sharpe Ratio	0.46	0.76	0.47	0.32
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%
Max Drawdown			-29.28%	-50.95%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment and Yale Endowment portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

This is the challenge of picking a particular time window for analysis, given the various time frames chosen, you could come to totally different conclusions! Ennis and others have demonstrated that the 1994-2007 period could be labeled the "Golden Age" for endowments, while other periods didn't look as rosy.

Zooming out a bit, we can make some broad generalizations, one of which is: "The average endowment is pretty average." That's nothing to be ashamed of, however. Compounding at around 9% per year for 40 years is still impressive! It seems less impressive than anyone who allocated to 60/40, forgot about it, and ended up in the same place.

Many assume the world's largest and most connected institutions would be able to leverage resources to produce strong returns. Historically, that just hasn't been the case, and this average performance isn't limited to the endowments. We've written articles comparing giant investment organizations like CalPERS and Bridgewater and found that most would be simply better off buying some ETFs and calling it a day. One of the performance drags for all investors, professional and retail alike, is fees. Ennis estimates that the endowments allocating to alts generate total operating costs of at least 3% per year, and calls it "an impossible burden."

While the average endowment has been average, we can also generalize that "Yale has been pretty darn special over time." So, what's the deal?

And again, whatever that "deal" is, can we replicate it ourselves?

Replicating the Yale Endowment

The Yale endowment has done an excellent job investing over the past 40 years. Does Yale have the magical formula, or is it possible for the public market investor to achieve anything near Swensen's returns? Could we buy some ETFs and achieve anything like this historical track record? Most investors don't have access to the velvet rope alternative funds that Yale and others do, so where to even begin?

A good starting point would be Swensen himself. We can use Swensen's recommended allocation for individuals as our guide: 20% US stocks, 20% foreign stocks, 10% emerging market stocks, 20% REITs, 15% US bonds, and 15% TIPS.

We'll add this portfolio to our table (as "Swensen") and see how it performed over the past 40 years.

Figure 4 – Yale Endowment Returns vs. Strategies and Benchmarks, 1985-2024

	Average Endowment	Yale Endowment	60 40	SPY	Swensen
Return	8.84%	13.16%	10.12%	11.86%	9.65%
Volatility	9.87%	12.14%	10.33%	15.50%	10.57%
Sharpe Ratio	0.56	0.81	0.66	0.55	0.60
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%	-20.59%
Max Drawdown			-29.28%	-50.95%	-41.60%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment, Yale Endowment, and Swensen portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

Not bad! The portfolio performed in line with other benchmarks like the 60/40 and the average endowment. We found that most buy and hold global asset allocation portfolios performed similarly in our book *Global Asset Allocation*. If we added columns for the global market portfolio or former Harvard endowment head El-Erian's recommended portfolio, they would be similar, which is to say...good!

But that's not the question we're asking. We're asking...how do we look more like Yale?!

So, first of all, we all know Yale targets active management where appropriate. Peter Mladina found you could replicate much of what Yale did with factor exposure and some leverage. He also found they were pretty good at private equity and venture capital allocation, too.

What if we decided to apply factor exposures to the stocks portion of the Swensen Portfolio? We'll use factors like shareholder yield, value, and momentum.

Is this cheating by using hindsight bias? Of course it is! We also need to acknowledge much of Swensen's and his managers' brilliance was incorporating many of these concepts *at the time*. It's one thing to implement these ideas today, it's another to do it back in the 1980s and 1990s. Don't forget the Yale endowment allocation hasn't been static like our portfolios but rather morphed and changed over the decades. It would likewise have been impossible to implement many of these strategies decades ago, and we're presenting returns without the drag of manager fees. While low today, they would not have been 30 years ago.

Will all this in mind, how do these factor bets play out?

Historically, they would add a little over one percentage point in returns to the overall portfolio (shown as "Swensen +" below). Good, but again, not quite there.

Figure 5 – Yale Endowment Returns vs. Strategies and Benchmarks, 1985-2024

	Average Endowment	Yale Endowment	60 40	SPY	Swensen	Swensen +
Return	8.84%	13.16%	10.12%	11.86%	9.65%	11.03%
Volatility	9.87%	12.14%	10.33%	15.50%	10.57%	12.03%
Sharpe Ratio	0.56	0.81	0.66	0.55	0.60	0.64
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%	-20.59%	-20.66%
Max Drawdown			-29.28%	-50.95%	-41.60%	-40.44%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment, Yale Endowment, Swensen and Swensen + portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

One of the potential benefits of using active management and getting exposure to certain asset classes like private equity is that you get some leverage, explicitly or implicitly.

So, what if we decided to leverage the overall portfolio? As noted a moment ago, Peter Mladina found that leverage was part of the key to replicating much of Yale's active equity management returns. Might we have similar success applying leverage across the entire allocation?

Dialing up the leverage increases overall returns in line with Yale. Now, to be fair, you see a pickup in volatility and a subsequent loss in Sharpe ratio, so this portfolio would not be for the faint of heart. However, most endowments have an unlimited time horizon, so for those looking to try to "be like Yale." it could be a potential solution.

Observers will also note you could probably leverage the 60/40 portfolio and end up in a similar place, and they'd be right. We get quite nervous making this analogy at this point in time with US stock valuations at near or record levels. But as mentioned previously, we would have said that last year too!

Figure 6 – Yale Endowment Returns vs. Strategies and Benchmarks, 1985-2024

	Average Endowment	Yale Endowment	60 40	SPY	Swensen	Swensen +	Swensen + 150%
Return	8.84%	13.16%	10.12%	11.86%	9.65%	11.03%	13.98%
Volatility	9.87%	12.14%	10.33%	15.50%	10.57%	12.03%	18.67%
Sharpe Ratio	0.56	0.81	0.66	0.55	0.60	0.64	0.57
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%	-20.59%	-20.66%	-32.13%
Max Drawdown			-29.28%	-50.95%	-41.60%	-40.44%	-56.25%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. Data as of 6/30/24. Performance of the Average Endowment, Yale Endowment, Swensen, Swensen +, and Swensen + 150% portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

What could be some further extensions?

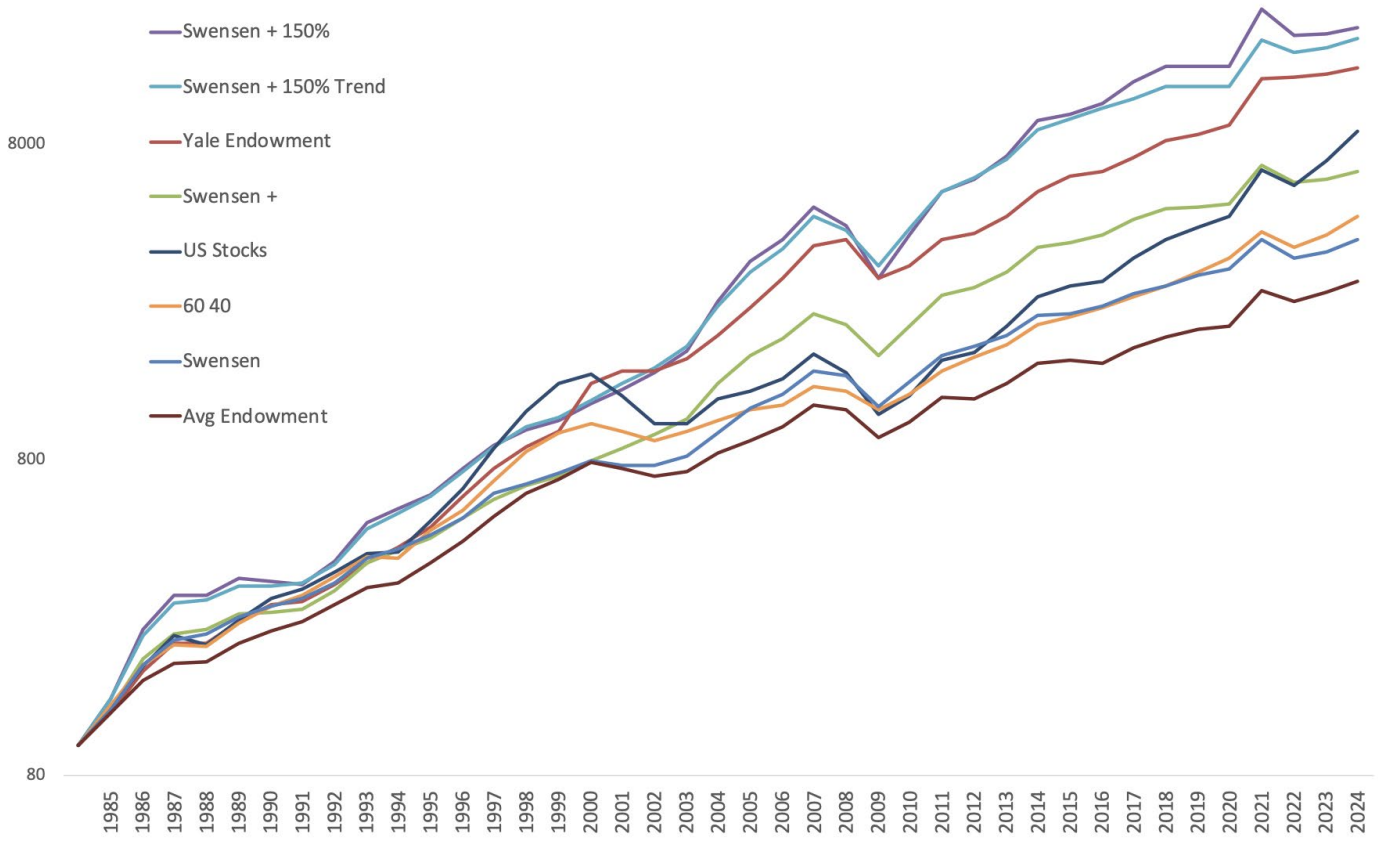
Cambria has long been a proponent of trend following strategies to complement a traditional buy and hold portfolio. If you utilized a 30% allocation to trend (out of the "Swensen + 150%" model), you would have generated similar returns to the leveraged portfolio but with reduced volatility and drawdowns. We don't know many endowments incorporating much in the way of trend or managed futures, however.

Figure 7 – Yale Endowment Returns vs. Strategies and Benchmarks, 1985-2024

	Average Endowment	Yale Endowment	60 40	SPY	Swensen	Swensen +	Swensen + 150%	Swensen + 150% trend
Return	8.84%	13.16%	10.12%	11.86%	9.65%	11.03%	13.98%	13.75%
Volatility	9.87%	12.14%	10.33%	15.50%	10.57%	12.03%	18.67%	15.26%
Sharpe Ratio	0.56	0.81	0.66	0.55	0.60	0.64	0.57	0.68
Worst Year	-18.70%	-24.60%	-13.18%	-26.21%	-20.59%	-20.66%	-32.13%	-23.17%
Max Drawdown	-37.40%	-49.20%	-29.28%	-50.95%	-41.60%	-40.44%	-56.25%	-42.77%

SOURCE: Yale Endowment Office, NACUBO, Finaeon. *Max DD is estimated for Average Endowment and Yale Endowment. Data as of 6/30/24. Performance of the Average Endowment, Yale Endowment, Swensen, Swensen +, Swensen + 150%, and Swensen + 150% trend portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

Figure 8 – Yale Endowment Returns vs. Strategies and Benchmarks, 1985-2024



SOURCE: Yale Endowment Office, NACUBO, Finaeon Data as of 6/30/24. Performance of the Average Endowment, Yale Endowment, Swensen, Swensen +, Swensen + 150%, and Swensen + 150% trend portfolios are hypothetical. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. Please see full disclosure for more details.[1]

As investors review the tables in this paper, many will come to varied, and possibly opposite conclusions. As the old Wall Street saying goes, "that's what makes a market".

Some investors will read this paper and conclude the best way to invest is to just buy US stocks and call it a day. Others see the historically strong returns of a US 60/40 portfolio and stop there. Some adventurous investors will follow the path of Swensen and diversify globally and add real assets. Some may index the public portfolio and then go on an alpha search in private markets. Others, like us, will explore our leveraged factor and trend based extensions of Swensen's core ideas.

We are reminded of the quote from William Feather, "One of the funny things about the stock market is that every time one person buys, another sells, and both think they are astute."

We feel the same could be said for asset allocation portfolios, too.

Can We or Can't We?

The question remains, "Can any of us invest like Yale"?

As we have seen in real-time, across many benchmarks as well as the average endowment, the answer is "no." Even Swensen's own recommended allocation, while solid, did not match the lofty returns of the Yale endowment. However,

by utilizing some widely available factor exposures and some leverage, a historical simulation gets pretty close. Will this approximation hold up in the future?

Perhaps David Swensen was a N of 1 individual, and something really is just different in the water in New Haven. Only time will tell.

Additional Reading

Foundation and Endowment Investing: Philosophies and Strategies of Top Investors and Institutions
by Lawrence E. Kochard and Cathleen M. Rittereiser

The Ivy Portfolio: How to Invest Like the Top Endowments and Avoid Bear Markets
by Mebane T. Faber and Eric W. Richardson

Pioneering Portfolio Management: An Unconventional Approach to Institutional Investment
by David F. Swensen

"Yale's Endowment Returns: Manager Skill or Risk Exposure?" Peter Mladina, Jeffery Coyle

"Do (Some) University Endowments Earn Alpha?" Brad M. Barber and Guojun Wang.

"Investment Returns and Distribution Policies of Non-Profit Endowment Funds" Sandeep Dahiya, and David Yermack.

"Institutional Investment Strategy and Manager Choice: A Critique" Richard M. Ennis

"A Better Approach to Systematic Outperformance? 58 Years of Endowment Performance" Dennis Hammond

"The Challenge of Endowment Performance Evaluation" Bollinger 2020

"Endowments in the Casino: Even the Whales Lose at the Alts Table" (Ennis 2024)

The Endowment Syndrome: Why Elite Funds Are Falling Behind (Ennis 2024)

"Don't Give Up the Ship: The Future of the Endowment Model." Laurence B. Siegel

Other resources:

NACUBO

Markov Processes

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[1]The Average Endowment, Yale Endowment, Swensen, Swensen +, Swensen + 150%, and Swensen + 150% Trend portfolios presented in this paper are hypothetical. These portfolios were estimated based on publicly available information about their broad allocations; however, the specific underlying assets used in the actual allocations were not disclosed or were not established in the case a theoretical allocation was proposed. To construct the portfolios for this study, proxies were selected based on a reasonable assessment of what likely represents the intended exposures. Every effort was made to construct the portfolios in a manner that reasonably reflects the intended allocations based on available information, but investors should be aware that these results are estimates and do not reflect the actual performance of any real-world portfolio. Hypothetical performance does not represent actual performance, was not achieved by any investor, and actual results may vary substantially. The assumptions and criteria underlying the hypothetical portfolios may introduce material differences from real-world performance. Additionally, hypothetical performance has inherent limitations, as it does not account for trading costs, bid-ask spreads, market impact, slippage, execution constraints, or changes in market conditions, all of which could significantly affect realized results over time.

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Definitions:

60 40: The 60 40 portfolio referenced in this paper is represented by a 60% allocation to the S&P 500, and a 40% allocation to GFD Indices USA 10-year Government Bond Total Return Index.

S&P 500: The S&P 500 Index is an index of 500 stocks chosen for market size, liquidity and industry grouping, among other factors. The S&P 500 is designed to be a leading indicator of U.S. equities and is meant to reflect the risk/return characteristics of the large cap universe.

GFD Indices USA 10-year Government Bond Total Return Index: This index represents total returns of US 10-Year Government Bonds. Sources and notes related to GFD Indices USA 10-year Government Bond Total Return Index: Sources - Sydney Homer, A History of Interest Rates, Princeton: Rutgers, 1963 from Joseph G. Martin, Martin's Boston Stock Market, Boston: 1886 (1800-1862), Hunt's Merchants Magazine (1843-1853), The Economist (1854-1861), The Financial Review (1862-1918), Federal Reserve Bank, National Monetary Statistics, New York: FRB, 1941, 1970 (annually thereafter); and Salomon Brothers, Analytical Record of Yields and Yield Spreads, New York: Saloman Brothers, 1995. Notes - Current yields on the 6s of 1790 are used from 1800 through 1822, on the 6s of 1814-1827 are used from 1823 until 1829, and the 5s of 1821-1835 are used from 1830 to 1834. The Federal government completely paid off its debt in the 1830s, so the Boston City 5s are used from 1835 through 1841. The 6s of 1842-1863 are used from 1841 through 1845, and the 6s of 1848-1868 from 1846 to 1862. Data are taken from Hunt's Merchant's Magazine and are periodic with the previous month's quotation used where none is available for 1843, 1844 and 1846 through June 1848. Data are monthly from July 1848 through 1853 using NYSE quotations. Data for 1854 through 1857 are taken from The Economist with NYSE quotations used for 1854 and 1855, and London quotations for 1856 and 1857. The United States yield data are monthly from February 1862 until December 1933, and weekly thereafter. The annual data are taken from Joseph G. Martin, Martin's Boston Stock Market, Boston: 1886. From February 1862 until December 1877, the 6% U.S. Government bonds of 1881 are used. From January 1878 until January 1895, the 4% U.S. Government Bonds of 1907 are used, and from February 1895 until September 1917, the 4% U.S. Government Bonds of 1925 are used. Where no trades were recorded during a given month, the previous month's yield was used. The source for this data is William B. Dana Co., The Financial Review, New York: William B. Dana Co. (1872-1921) which reprinted data published by The Commercial and Financial Chronicle. The 4% Liberty Bonds are used from October 1917 through December 1918, and beginning in 1919, the Federal Reserve Board's 10-15 year Treasury Bond index is used. 10 year bonds are used beginning in 1941.