VOL. 30, NO. 19

Ophthalmology Times®

All the Clinical News in Sight

OCTOBER 1, 2005
www.ophthalmologytimes.com

Developing a strategy

Successful investing hinges on a long-term outlook

Past performance should not be only criterion for choosing money managers

Money Matters

By John J. Grande, CFP®, Traudy F. Grande, CFP®, and John S. Grande, CFP®

Q My approach to investing has not changed since I first began investing during my residency. However, now, between my profit sharing and personal investments, I have a total portfolio that is in the mid-seven figures, but with no real overall strategy. Is there a way to get more out of my portfolio? Also, it seems as though the funds I purchase, which have great past performance history, seem to have done well right up until I invest in them. Is there any way to pick managers before they have their best years?

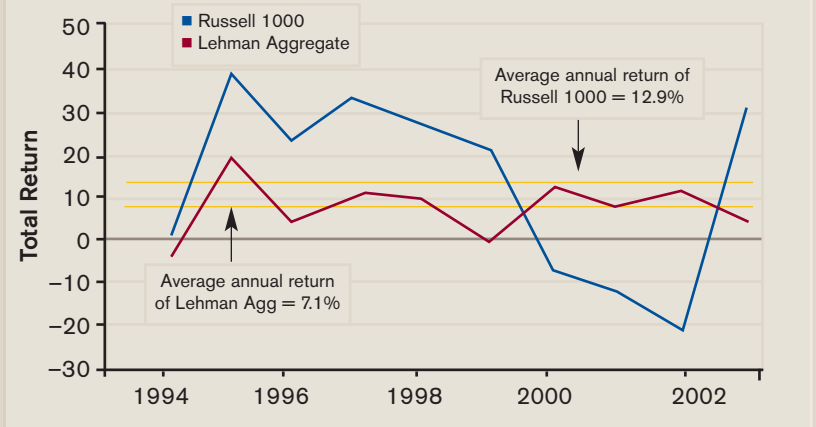
A Past performance is not the only criterion to use when choosing a money manager. Retail investing long has relied on showing potential clients what can be impressive charts of a manager's performance. A manager's past performance, that is. And many financial advisors can explain some of the concepts (e.g. total risk, total return) that may go into producing those results. But we believe retail investors would be better served by taking more of an institutional-type approach to investing.

We find that many ophthalmologists are still using the same investment strategies as when they started out in practice.

However, like you, the majority of ophthalmologists have assets that would allow for the same type of sophistication as used at the institutional level. This means,

Figure 1 Mean and standard deviation 1994-2003

Annual Returns (in %)	Russell 1000	Lehman Aggregate
1994	0.4	(2.9)
1995	37.8	18.5
1996	22.5	3.6
1997	32.9	9.6
1998	27.0	8.7
1999	20.9	(0.8)
2000	(7.8)	11.6
2001	(12.5)	8.4
2002	(21.7)	10.3
2003	29.9	4.1
Average Annual Return	**17.9**	**7.1**
Standard Deviation	**18.1**	**4.1**



Ophthalmology Times / Source: Raymond James Asset Management Services

Figure 1 As expected, large-cap stocks have had a higher average return than fixed income during the 10 years shown, but they have also been much more volatile.

Figure 2 Investment performance

Year 1	–25%
Year 2	+25%
Arithmetic Mean: (–25% + 25%)/2 = 0%	
Geometric Mean: $[(1 - 0.25) * (1 + 0.25)]^{0.5} = -3.2\%$	

OT Graphic

Ophthalmology Times / Source: Raymond James Asset Management Services

among other things, looking more forward than backward in making asset-allocation and other investing decisions.

Using a "rearview mirror" approach to investing usually means buying high and selling low.

Long-term outlook

Successful investing begins with a long-term view. That means developing forward-looking, long-term assumptions about the risk, return, and correlation of various asset classes (e.g., domestic stocks, international stocks, fixed income) to lay the foundation for an investment portfolio.

We will discuss the concepts of risk and return as well as explore the reasons that capital-market assumptions are critical to the investment process.

It might make the most sense to clarify some common terms. Investors hear a lot about "risk" and "return" but those words can mean different things in different contexts. Return could mean total return, return in excess of cash (the risk-free asset), or return in excess of a benchmark. Risk could mean total volatility, downside-only volatility, or shortfall risk (the risk of failing to achieve a specified rate of return). Here are the standard definitions:

- **Total return.** A measure of performance of an asset over a particular holding period. Total return is generated by three sources: income, capital appreciation, and reinvestment of income.
- **Total risk.** The uncertainty of an asset's expected return as measured by standard deviation. Standard deviation is a statistical measure of the dispersion of returns over the selected time period.

All risk and returns should be stated on an arithmetic basis to build optimized portfolios properly. Historic returns are typically stated on a geometric basis.

Defining standard deviation

Total return is fairly straightforward while total risk may require some explanation. Standard deviation measures the extent to which actual returns vary from the average, or mean, return. A lower standard deviation means the actual returns are expected to be closer to the average, while a higher standard deviation means that they are likely to be further away.

Consider large-cap stocks, as represented by the Russell 1000 Index, and fixed income, as represented by the Lehman Brothers Aggregate Index (Figure 1).

Although the thin blue line, representing the average annual return, or mean, of the Russell 1000 is higher than the thin red line, which represents the mean of the Lehman Aggregate, it is also apparent that large-cap stocks have been subject to much greater volatility. Specifically, the average distance between the actual returns (the thick lines) and mean (the thin straight lines) is much greater for the Russell 1000 than for the Lehman Aggregate. This "average distance" can be thought of as standard deviation.

Standard deviation provides an estimate of the range of expected returns. If returns are normally distributed (and we typically assume that they are), then 68% of the actual returns are expected to fall within plus or minus one standard deviation of the mean.

Similarly, 95% of the actual returns are expected to fall within plus or minus two standard deviations, and 99.75% are expected to fall within plus or minus three standard deviations. Applying this to the statistics in Figure 1, we would expect that 95% of the time, the Russell 1000 would return between –23.3% and 49.1% (12.9% plus or minus two times 18.1%) and the Lehman Aggregate between –1.1% and 15.3%. The much lower variability of returns of the Lehman Aggregate means that fixed income has less "risk" than large-cap stocks.

	Russell 1000	Lehman Aggregate
Arithmetic Mean	12.9%	7.1%
Standard Deviation	18.1	4.1
Geometric Mean	11.0%	7.0%
Difference from Arithmetic	1.9%	0.1%

Volatility on returns

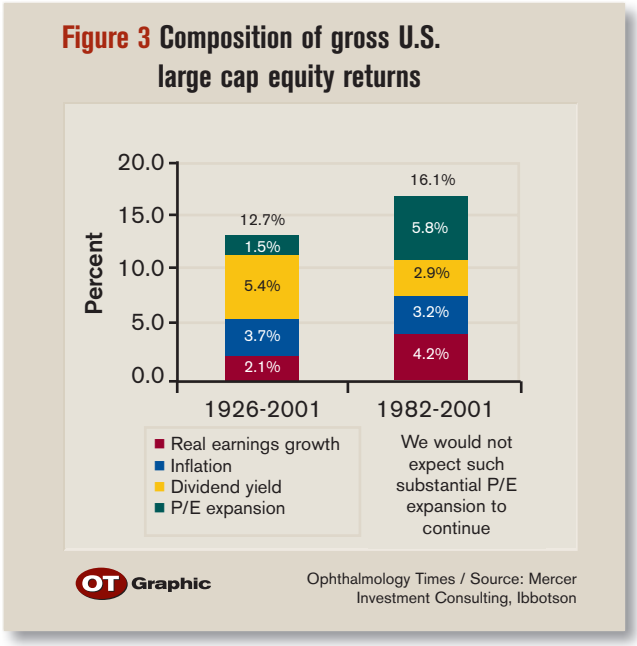
Thus far, we have discussed average return and standard deviation. It is important to understand that these are single-year numbers. However, clients usually hold investments for more than 1 year. Therefore, we should explore the concept of compound return and the impact of volatility on compound return. We will use the term "arithmetic mean" to refer to the simple average and "geometric mean" to refer to the year-over-year compound return.

High volatility reduces the geometric mean return relative to the arithmetic mean return. This is most easily seen in a simple example. Suppose an investor's account goes down 25% in 1 year and goes up 25% the next (Figure 2).

The arithmetic mean is a simple average of the annual returns. The geometric mean is calculated by multiplying together the annual returns and taking the Nth root, where N is the number of annual returns.

Investors who hold portfolios experience geometric returns. Someone who invested $100 in this portfolio will have $93.75 at the end of the second year, which is an annualized return of –3.2%. The volatility of the returns has driven down the geometric mean relative to the arithmetic mean.

Real earnings growth, dividend yield, inflation, and price-to-earnings (P/E) expansion (or contraction) drive stock returns.



The higher the volatility, the larger the gap between the two means. Consider if the investment had been down 50% in year one and up 50% in year two instead. The arithmetic mean would still be 0%, but now that investor would only have $75.00, for an annualized return of –13.4%.

As a final example, we have already shown the 10-year arithmetic mean and standard deviation of the Russell 1000 and the Lehman Aggregate in Figure 1.

Because of the higher volatility of the Russell 1000, there is a larger gap between the arithmetic and geometric mean (12.9% – 11%, or 1.9%) than for the Lehman Aggregate (7.1% – 7%, or 0.1%).

It is important to understand the difference between arithmetic and geometric mean when developing and using capital-market assumptions. All risk and returns should be stated on an arithmetic basis to build optimized portfolios properly. Historic returns are typically stated on a geometric basis (e.g., the 10-year annualized return for the Russell 1000 was 11.0%). If someone were trying to use historic numbers as their forward-looking assumptions, it would be necessary to convert the geometric returns to the arithmetic returns to complete the exercise properly.

Risk and return assumptions

Institutions use major institutional investment consulting firms to perform detailed analysis of the capital markets. We use Mercer Investment Consulting, which provides this service on more than $2 trillion of institutional funds. Companies such as these provide the risk, return, and correlation assumptions that institutions use in making asset allocation decisions. This service is utilized primarily for two reasons. First, developing assumptions is a time-consuming process that requires specialized resources and skills and we felt it would be more efficient to use outsourced resources than to build them in-house. Second, by hiring an institutional consultant, or an investment advisor who uses such a consultant, you place yourself on the same playing field as hundreds of billions of dollars in institutional assets. Institutional investors are typically extremely sophisticated and have the most at stake in the quality of their investment theory.

Following their lead, it seems to us, is a sensible strategy. We will briefly describe the process of developing the assumptions before discussing the reasons that using forward-looking assumptions is crucial.

The assumptions are developed using a rigorous, building-block approach. The basic steps are as follows:

Historic risk and return parameters are developed, looking at annual levels, trends, and relationships among asset classes.

The historic analysis is combined with a subjective, forward-looking view based on the current market environment. Although the assumptions are certainly influenced by market conditions, the explicit forecast period is 10 to 12 years. The assumptions generally do not change dramatically from year to year, although they may change over the course of several years in response to major trends (e.g., a reduction of the expected future return of large-cap stocks due to the technology bubble in the late 1990s).

Inflation is modeled separately because it is a key component of the returns of most asset classes. Surprise inflation has a much greater impact than expected inflation.

Historic analysis, the subjective forward-looking view, and inflation expectations are combined to create nominal expectations for the passive indices.

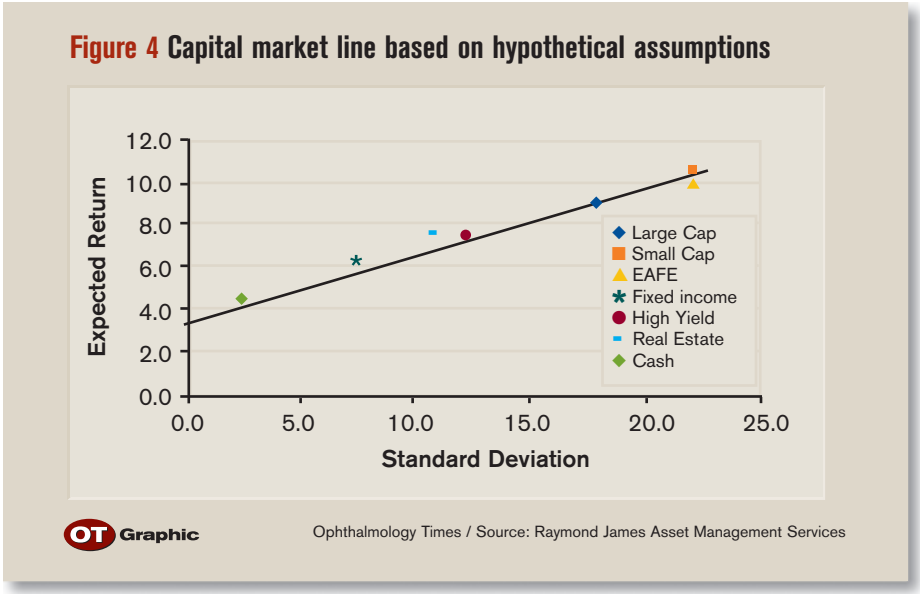
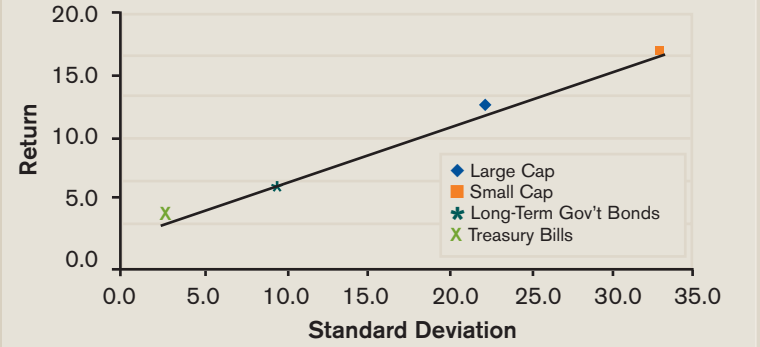


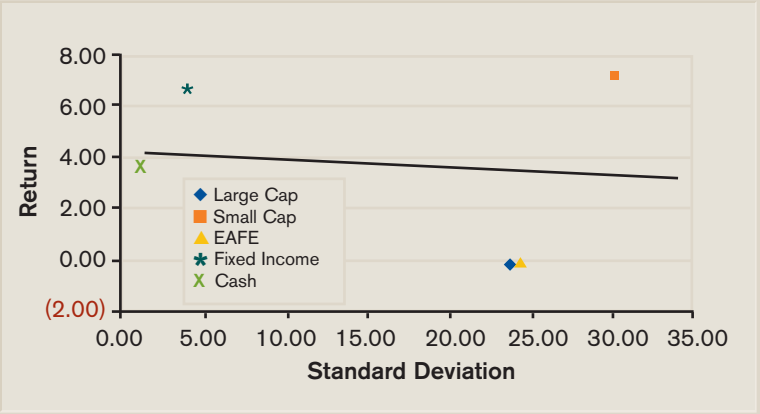
Figure 5 Capital market line (1926 to 2002)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

Figure 6 Capital market line (5 years ended 12/31/03)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

We are speaking here of active managers versus index investing. Therefore, we explicitly include an "active overlay" in the assumptions. Specifically, we add the expected risk and return of a median manager in a particular asset class to the passive expectations to create a final set of assumptions for active asset classes. The practical impact of this active overlay is that in less-efficient asset classes where we expect managers to add more value relative to the benchmark, the active expectations are significantly higher than the passive expectations. In more efficient asset classes where it is harder to beat the benchmark, the active and passive assumptions are closer together.

Where applicable, each asset class is further divided into its components to assist in the development of the assumptions (Figure 3).

Real earnings growth, dividend yield, inflation, and price-to-earnings (P/E) expansion (or contraction) drive stock returns. Our institutional-investing consultant models each of these components separately to improve the accuracy of their domestic equity assumptions. Over the period from 1926 to 2001, U.S. large-cap stocks, as measured by the Ibbotson series, returned 12.7% per year on an arithmetic basis. During the bull market of the 1980s and 1990s, however, they returned 16.1% per year on an arithmetic basis. However, breaking these returns into their components, it is clear that P/E expansion—price appreciation in excess of earnings growth typically reflecting investor sentiment—drove the highest returns of the bull market. Excluding P/E expansion, the 75-year arithmetic mean on stocks was 11.2%, while the 20-year arithmetic mean was only 10.3%. We do not expect substantial P/E expansion or contraction going forward, so the historic baseline for arithmetic large cap U.S. equity expectations is around 10% to 11%.

Testing the assumptions

The natural question to ask about the development of the risk and return assumptions is, "How good are the assumptions?"

There are any number of problems with assessing assumptions relative to realized market results. Therefore, a more appropriate question might be, "How can we determine whether the assumptions make sense?" This question is easier to answer.

Modern investment theory is based on the concept that risk and return are rationally related. Specifically, as risk increases, expected return must also increase to compensate investors for the additional risk. If expected return did not increase, then every investor would choose to hold lower-risk assets and arbitrage would occur. Let's take an example.

We have already illustrated the 10-year historic risk and return of the Russell 1000 and the Lehman Aggregate indices. Recall the following statistics:

	Russell 1000	Lehman Aggregate
Arithmetic Mean	12.9%	7.1%
Standard Deviation	18.1	4.1

Suppose now that the large-cap stocks returned 7.1% instead of 12.9%. In this situation, almost everyone likely would prefer to own fixed income because they could earn 7.1% in either large-cap stocks or fixed income, but have dramatically lower risk in fixed income.

Investors generally are risk-averse: All other things equal, they prefer less risk to more risk. Because in our example almost everyone would prefer to own fixed income, investors would buy fixed income and sell large-cap stocks.

This would, in turn, drive the price of large-cap stocks down and fixed income up.

As large-cap stocks become less expensive, the expected return would increase due to the lower initial investment while

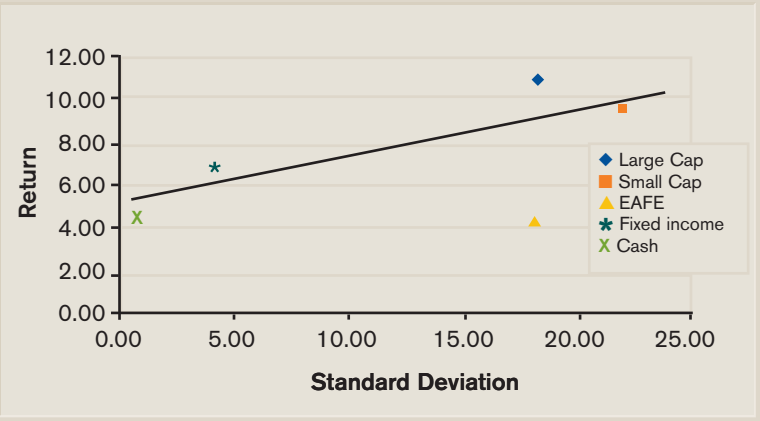
the rising price of fixed income would reduce its expected return. This arbitrage process continues until both large-cap stocks and fixed income are "properly priced" relative to their risk characteristics (i.e., investors are fully compensated for the risks they bear in holding each asset class).

The important point of this is that there is a market mechanism (arbitrage) that ensures that risk and return are rationally related over the long run. Obviously, short-term fluctuations in markets and changing investor preferences can influence the risk premium that higher-risk asset classes must earn to be "properly priced," but over the long run, the relationship between risk and return holds. In light of this relationship, it becomes possible to determine whether the assumptions make sense. If they make sense, we would expect to see a strong positive relationship between risk and return, such that investors are fully compensated for taking on increasing levels of risk.

The "Capital Market Line" (CML) (Figure 4) plots a linear relationship between risk and return. When we plot the assumptions on a risk/return scattergram, we can see that they all fall roughly along the CML. There are no "super" asset classes that offer substantially higher returns at lower levels of risk. Note that the line starts at cash, the risk-free asset, and traces the risk/return relationship out to riskier asset classes, such as small cap and international.

When we see risk and return assumptions falling along the CML, we have confidence that the assumptions make sense for the purposes of building asset allocations that will stand the test of time.

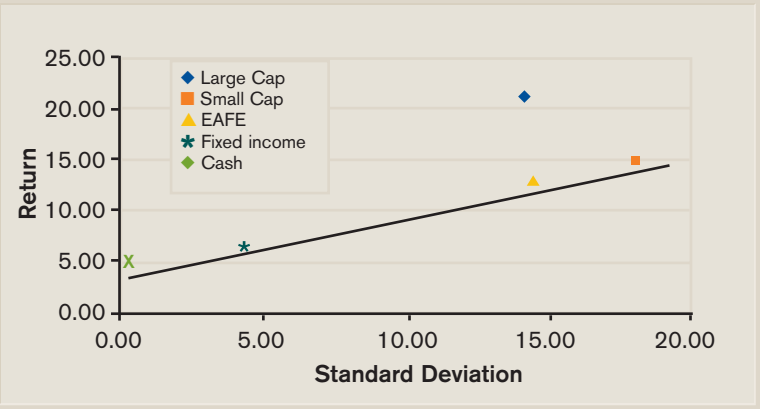
Figure 7 Capital market line (10 years ended 12/31/03)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

Figure 8 Capital market line (7 years ended 3/31/00)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

Why not historic?

We utilize long-term, forward-looking risk-and-return assumptions and test the validity of those assumptions primarily by whether they illustrate a positive relationship between risk and return. Many other programs available to financial advisors utilize historic returns as the inputs for asset allocation, primarily because historic returns are readily available at a very low cost.

So why not just use historic risk and return? The answer lies primarily in the concept of the CML. Historic returns may or may not reflect a positive relationship between risk and return. "Super" asset classes may appear to exist, and the resulting asset allocation will tend to be skewed in the direction of whatever asset class has been performing the best recently. This trend-chasing approach to asset allocation is a major source of risk in investment portfolios.

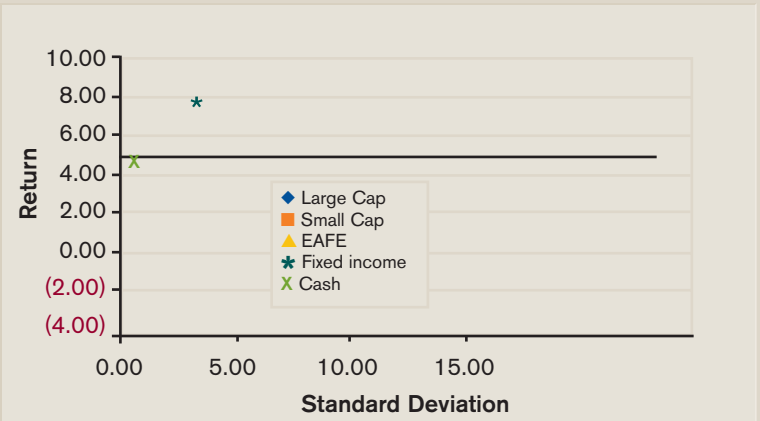
The time period problem

The first challenge when using backward-looking data is determining what time period to use. The chosen time period can have a dramatic impact on the assumptions. The longest reliable data set of historic returns is published by Ibbotson Associates in their annual SBBI (Stocks, Bonds, Bills, and Inflation) Yearbook. Plotting the historic risk and return from the beginning of the data series in 1926 through 2002 (Figure 5) demonstrates that the CML holds over the long run.

However, there are three main problems with using extremely long-term historic data for the assumptions. First, long-term data do not reflect the creation of new asset classes such as international, high-yield bonds, real estate, and the like. Second, current market conditions may or may not reflect long-run conditions (recall the discussion of P/E expansion). Finally, even the most patient clients do not have a 75-year time horizon. At the other end of the spectrum, 1-year data (e.g., from the past year) are virtually useless for making asset-allocation decisions.

Between these two obvious extremes are any number of intermediate time periods (e.g., 3, 5, 10, 15 years). The time period selected can have a significant impact on the assumptions and whether the CML even holds. Over the 5-year period ending 12/31/03 (Figure 6), the line is flat or even

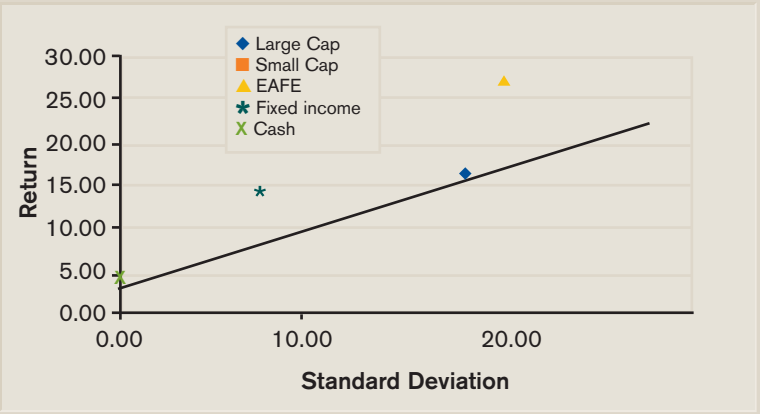
Figure 9 Capital market line (7 years ended 3/31/03)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

Figure 10 Capital market line (7 years ended 12/31/88)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

The "Capital Market Line" (CML) plots a linear relationship between risk and return. When we plot the assumptions on a risk/return scattergram, we can see that they all fall roughly along the CML.

a negative relationship between risk and return. This cannot be an appropriate long-term assumption, because there would never be any incentive to hold risky asset classes.

Over the 10-year period ending 12/31/03 (Figure 7), the CML again slopes upward, but the asset classes are fairly dis-

exactly where to draw the line. Moreover, the asset classes are not tightly related to the CML. Specifically, large cap lies above the line, while international lies significantly below the line. The asset-allocation consequence of using these historic parameters as assumptions would be an overweight in large cap and a substantial underweight in international. If the CML holds in the long run, then we should see mean-reversion behavior in the asset classes. In other words, international would do better than large cap to move back toward the line. Therefore, underweighting international and overweighting large cap would be exactly the wrong decision going forward.

The essence of the time period problem is that different historic time periods can yield very different results. For the periods ending December 31, 2003, the 75-year time period shows a strong positive relationship between risk and return. The 5-year results show an inverse relationship between risk and return, while the 10-year results show a positive relationship, but with asset classes that fall far from the CML. Utilizing long-term, forward-looking assumptions allows us to mitigate the time period problem.

The end-point problem

The second problem with using historic risk-and-return parameters instead of forward-looking assumptions is the likelihood of being unduly influenced by current market conditions. At any point in time, one or more asset classes are outperforming the others, even on a risk-adjusted basis. Sometimes these deviations from the CML are large enough to influence longer-term risk-and-return parameters. When this happens, the asset class that is outperforming will look like a "super" asset class that provides the maximum return per unit of risk, and asset-allocation optimization software will tend to over-allocate to the presumed super asset class. That leads to an asset allocation skewed in the direction of the asset class that has been performing the best recently. Again, if the CML holds over the long run and mean reversion exists, then this strategy will inevitably lead to underperformance.

The late 1990s large-cap bubble and crash in 2000 provide the clearest example of the end-point problem. Utilizing 7-year time periods, at the peak of the bubble in March 2000, the CML showed a strong positive relationship between risk and return with most of the asset classes falling along the line (Figure 8). However, large-cap stocks were a super asset class, returning far more than international or small-cap stocks with less risk. Most asset-allocation software, seeing those parameters, would increase the

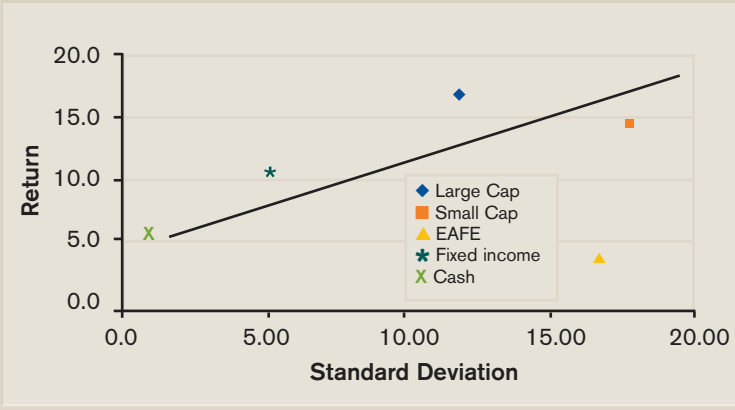
allocation to large-cap stocks.

Three years later, at the trough in the market, the 7-year CML was horizontal (Figure 9), with fairly wide dispersion of the asset classes away from the line. Small-cap and international were dramatically below the line, while fixed income was the "super" asset class of the day. The resulting asset allocation that underweighted small cap and international while overweighting fixed income would have failed to participate in the 2003 rally in which small caps and international were the best-performing asset classes.

The history of the international index (the Morgan Stanley Europe, Australia, and Far East, or EAFE, Index) provides a longer-term example of the dangers of the end-point problem. The international index performed extremely well through the 1980s. Plotting the CML as of the end of 1988 (Figure 10) shows that international was a "super" asset class, providing substantially higher returns than both large cap and small cap with a risk level falling between those two asset classes. Asset allocation models in the late 1980s, if they used these historic parameters as their assumptions, likely would have substantially overweighted international.

International stocks then dramatically underperformed throughout the 1990s (Figure 11). This underperformance could be explained by a reversion to the mean and paying for the "free lunch" of the 1980s. Investors who were overweighted in international going into the 1990s paid for

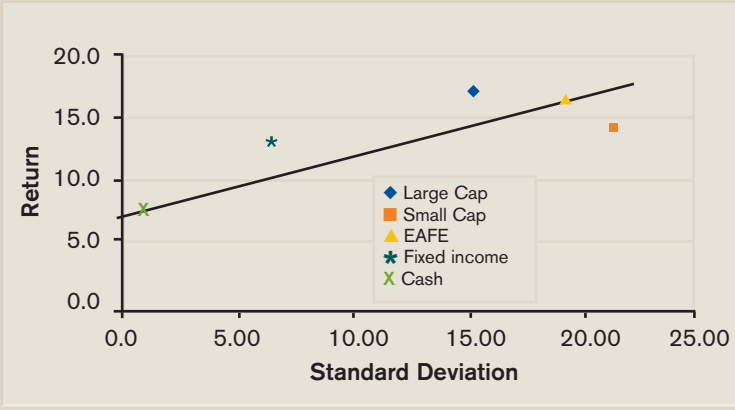
Figure 11 Capital market line (7 years ended 12/31/95)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

Figure 12 Capital market line (14 years ended 12/31/95)



OT Graphic

Ophthalmology Times / Source: Ibbotson Associates

John J. Grande, CFP®, Traudy F. Grande, CFP®, and John S. Grande, CFP® are co-editors of *Money Matters*. John J. Grande, CFP®, and Traudy F. Grande, CFP®, are owners and principals of Grande Financial Services Inc. and registered principals of Raymond James Financial Services Inc., member NASD/SIPC.

Their son, John S. Grande, CFP®, has been in business with them for 10 years. He has a degree in finance from Lehigh University, Bethlehem, PA. He lectures at Johns Hopkins University School of Medicine, and his work has been published in several medical journals.

The Grandes advise ophthalmologists across the country on a diverse range of investment and financial matters. Readers may submit their financial questions to them at 800/722-1258 or *Grande@raymondjames.com*. Readers may also access the Grandes' newsletters at *www.grandenewsletters.com*.

their trend-chasing behavior with a decade of underperformance.

Over the combined 14-year period—which includes the 1980s' outperformance and the mid-1990s' underperformance—the international index falls roughly on the CML. Over the long run, the line (Figure 12) holds. Reversion to the mean will improve the prospects of underperforming asset classes and bring "super" asset classes back to earth.

At any point in time, an investor who attempts to use historic parameters for asset allocation will face an end-point problem.

Admittedly, it is difficult to resist the allure of the asset class that is performing well and put money into asset classes that are trailing. We utilize long-term, forward-looking assumptions that fall along the CML to stabilize the asset allocation and mitigate the influence of current market conditions.

Summary

We have defined risk and return and explained the consequences of volatility on returns realized by investors over time. We have established a criterion by which one can judge the cohesiveness of capital-market assumptions (the CML). We have examined the shortcomings of using historic parameters as inputs for asset-allocation work and hypothesized the likely result of using historic parameters. And finally, we have illustrated this mean reversion in the subsequent underperformance of the super asset classes.**OT**

© Reprinted from OPHTHALMOLOGY TIMES, October 1, 2005 AN ADVANSTAR PUBLICATION Printed in U.S.A.

Grande Financial Services, Inc.
REGISTERED INVESTMENT ADVISOR
257 Monmouth Road • Oakhurst, New Jersey 07755 • 1-800-722-1258
Securities offered through **Raymond James Financial Services, Inc.** Member NASD/SIPC
john.grande@raymondjames.com
www.raymondjames.com/grande