

# The Index Investor

*Why Pay More for Less?*

## Model Portfolio Update

The objective of our first set of model portfolios is to deliver higher returns than their respective benchmarks, while taking on no more risk. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of October, this benchmark had returned (17.4%), while our model portfolio had returned (16.5%). For the sake of comparison, we have also compared our model portfolios to a set of global benchmarks. In this case, the global benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of October, it had returned (13.3%).

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned (11.5%), while our model portfolio had returned (10.4%), and the global benchmark had returned (6.9%).

The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 0.2%, while our model portfolio had returned 0.4% and the global benchmark 5.8%.

The objective of our second set of model portfolios is to deliver less risk than their respective benchmarks, while delivering at least as much return. The benchmark for the first portfolio in this group is an aggressive mix of 80% domestic equities, and 20% domestic bonds. Through the end of last month, this benchmark had returned (17.4%), while our model portfolio had returned (14.8%). For the sake of comparison, we have also compared our model portfolios to a set of global benchmarks. In this case, the global

benchmark is a mix of 80% global equities, and 20% global bonds. Through the end of June, it had returned (13.3%).

The benchmark for the second portfolio in this group is a mix of 60% domestic equities and 40% domestic bonds. Through the end of last month, it had returned (11.5%), while our model portfolio had returned (10.0%), and the global benchmark had returned (6.9%).

The benchmark for the third portfolio in this group is a conservative mix of 20% domestic equities and 80% domestic bonds. Through the end of last month, it had returned 0.2%, while our model portfolio had returned 2.3% and the global benchmark 5.8%.

The objective of our third set of model portfolios is not to outperform a benchmark index, but rather to deliver a minimum level of compound annual return over a ten-year period. Thus far this year, our 12% target return portfolio has returned (15.3%), our 10% target return portfolio has returned (9.2%) our 8% target return portfolio has returned 0.6%, and our 6% target return portfolio has returned 5.8%.

Finally, on the active management front, our benchmark, the Fidelity Global Balanced Fund is down (7.1%) year to date, while our active model portfolio (which we initially kept in Vanguard Total Bond Market Index, but switched at the end of June to the Vanguard Inflation Protected Securities Fund) is up 8.2%.

## **Equity Market Valuation Update**

As we have previously noted, our valuation analysis rests on two fundamental assumptions: that over the long term, labor productivity growth in our six major regions will converge at 3.5% per year, and that the long term real equity risk premium is 4.0% per year. Given those assumptions, here is our updated analysis at 31 October, 2002:

Country	Real Risk Free Rate	Equity Risk Premium	Expected Real Rate of Return on Equities	Expected Real Growth Rate*	Current Dividend Yield
Australia	3.25%	4.0%	7.25%	4.3%	3.7%
Canada	3.42%	4.0%	7.42%	4.1%	2.2%
Eurozone	2.94%	4.0%	6.94%	3.5%	3.4%
Japan	2.40%	4.0%	6.40%	3.2%	1.0%
U.K.	2.32%	4.0%	6.32%	3.5%	3.5%
U.S.A.	1.93%	4.0%	5.93%	4.4%	1.8%

\*This reflects not only 3.5% productivity growth, but also expected labor force growth.

Country	Implied Index Value	Current Index Value at 10/31	Current/Implied (productivity growth @3.5%)	Current/Implied (productivity growth at 2.5%)
Australia	256.69	204.66	80%	107%
Canada	127.61	192.58	151%	196%
Eurozone	111.10	112.41	101%	131%
Japan	23.48	75.12	320%	420%
U.K.	315.34	254.07	81%	109%
U.S.A.	426.01	362.11	85%	141%

In the table above, we have also included a column showing the valuation impact of reducing our long term real productivity growth assumption from 3.5% to 2.5%. As you can see, depending on your view of future productivity growth, three of our six key equity markets may be in undervalued territory.

## Forecasting Growth Rates: Another Challenge for Active Managers

The value of a share or index is broadly driven by three factors: the current cash flow it generates, how fast this will grow in the future, and the rate at which these future cash flows should be discounted back to their present value. Only the first term is a fact; the latter two are only uncertain estimates of their true values. Financial economists have written extensively about the different approaches one can use to estimate the "correct" discount rate to use when trying to value a given security (for an example of this, see our June, 2002 article on equity market valuation). Far less has been written about the right way to estimate future cash flow growth rates.

This is a bit odd, because expected future growth is often a very large part of a security's current value (the other part being the present value of the current cash flow it generates). For example, consider the following table. In it, we have calculated the present value of the current dividend yield on a number of major FTSE indexes. The difference between this value and the current market value of the index is the value of expected future growth (also known as the value of the "growth options" assumed to be inherent in the security or index). As you can see, in most cases expected future growth accounts for a substantial percentage of total value. In the case of individual securities, the percent of value due to expected future growth can be much higher.

Index	Current Dividend	Real Discount Rate*	Present Value of Current Dividend	Current Index Value	Current Dividend Value as % of Total	Future Growth Value as % of Total
Australia	7.57	7.25%	104.45	204.66	51%	49%
Canada	4.24	7.42%	57.10	192.58	30%	70%
Eurozone	3.82	6.94%	55.07	112.41	49%	51%
Japan	.75	6.40%	11.74	75.12	16%	84%
U.K.	8.89	6.32%	140.70	254.07	55%	45%
U.S.A.	6.52	5.93%	109.92	362.11	30%	70%

\* See Market Valuation Update for derivation of this discount rate

Before deciding to be an active manager (at least one who employs a fundamental or value based approach, rather than one based on momentum), you need to confront three critical questions about future growth rates:

- (1) Is there an optimum rate of growth? Or does higher growth simply translate into higher rates of value creation?
- (2) Do growth rates persist over time, or do they tend to revert to the mean (that is, the average for an industry or economy)?
- (3) To what extent can you accurately forecast companies' future growth rates?

Let's look at each of these in turn. Most people instinctively answer yes to the first question, and believe that higher rates of growth are associated with higher rates of shareholder value creation. To the extent that they are thinking about cash flow or dividend growth, then, by definition, they are right. Unfortunately, what many investors, analysts, and corporate executives think about when they hear this question is sales (revenue) growth. For example, market/book ratios tend to increase in an almost linear fashion with increases in companies' rates of sales growth. In this case, the instinctive answer is dead wrong.

As anyone who has ever worked in a fast growing company can tell you, once a firm's growth rate rises above a certain level, chaos tends to ensue, and inefficiencies mount. The usual result is continued increases in sales revenue with declining profitability. The exact growth rate at which this transition takes place isn't absolute; rather, it depends upon the organization in question, and its ability to handle the rapid change necessitated by rapid growth. However, one thing is certain: this "profitable growth limit" exists in every company; no company can handle ever increasing growth rates without sacrificing profitability. A recent research paper ("Growth, Corporate Profitability, and Shareholder Value Creation", by Ramezoni, Soenen, and Jung) examined this issue in some detail. Consistent with most people's intuition, they found that beyond a certain point, rapid

revenue growth ended up destroying rather than creating shareholder value. Firms in the third quartile of revenue growth were the ones that maximized shareholder value creation.

The second question is whether or not these optimum growth rates tend to persist over time, or to revert back to the average rate for an industry or economy. Both economic and organizational theory suggest that above average growth rates tend not to persist. Economic theory suggests that firms whose rate of return on capital is greater than their cost of capital will come under increasing competitive pressure (particularly if they are also experiencing high rates of sales growth, and therefore substantial increases in the dollar value of their profits). This increase in competitive pressure can come from many directions, including demands from powerful customers for price cuts, demand by suppliers for price increases, entry into the market by new competitors, increasing pressure from substitute products, and, in the most extreme cases (e.g., where profit growth results from a monopoly), demands for more government regulation.

Organization theory suggests that reversion to average profitability can be caused by a number of factors. On the one hand (and especially if their compensation is closely tied to their company's stock price), managers may try to maintain growth by expanding the business into areas where they wrongly believe it will have a competitive advantage. For example, one can argue that once Enron began to move beyond its roots in the natural gas business (where it was legitimately very successful) it headed down this slippery slope. On the other hand, once a business becomes successful, many management teams will resist making big changes to its basic strategy, and instead focus on improving the efficiency with which it is implemented. In other words, successful businesses tend to become very resistant to change ("why mess with a good thing?"), which causes them to respond more slowly than other companies to important changes in their competitive environment. In other words, success tends to breed its own future undoing.

Two recent research papers by well known authors arrive at the same conclusion. "Forecasting Profitability and Earnings" by Fama and French provide evidence that profitability reverts to the average in the U.S. over approximately three years, and does so more quickly the further away from the average it is. "Forecasting Profitability and Earnings" by Allen and Salim reached the same conclusion based on a study of U.K. firms.

This brings us to our third question, which is whether one can accurately forecast companies' future growth rates. Research suggests that this is extraordinarily hard to do. A recent research paper ("The Level and Persistence of Growth Rates" by Chan, Karceski, and Lakonishok) presents a thorough quantitative analysis of this issue. Their data covers the period from 1951 to 1998. They found that the number of firms which grow their cash flow at a rate above the median rate was basically equivalent to the number that would be predicted by luck alone. They conclude that "valuations that assume persistently high [cash flow] growth over long periods of time rest on shaky foundations...Investors should be wary of stocks that trade at high multiples. Very few firms are able to live up to the high hopes for consistent growth that are built into such stellar valuations." They also found that growth forecasts by securities analysts were too optimistic and did a poor job of predicting realized long term growth rates. As they noted, the implication for investors is clear: "put more bluntly, [this means that] the chances of being able to identify the next Microsoft are about the same as the odds of winning the lottery."

Another recent paper ("The Accuracy and Bias of Equity Values Inferred From Analysts' Earnings Forecasts" by Sougiannis and Yaekura) found that "there was no forecasting advantage from using company-specific growth rates instead of a constant rate of 4% [assumed to be future GDP growth] across all firms."

Unfortunately, the wide dispersion in companies' valuation multiples (e.g., market/book or price/earnings) suggests that many investors persist in the belief that they can accurately forecast future company growth rates over long periods of time. A logical

final question to ask is why this might be so, given the evidence against this proposition. As in other cases, we see three possible explanations. First, investors may actually be acting rationally. If many of them realize they have not saved enough to achieve their financial goals absent the realization of extremely high portfolio returns, then betting on companies with high valuation multiples is, as previously mentioned, like buying a lottery ticket. Despite its low chance of success, this strategy makes sense if an investor doesn't realize he or she has other, less risky options (e.g., like increasing their rate of saving, reducing their goals, or taking more time to achieve them).

The second possible explanation is simply that most investors have not heard the messages contained in this article. In other words, they are acting the way they do because they lack accurate information about the likely effectiveness of the investment strategy they are pursuing.

The third possible explanation is that investors are acting irrationally. In this case, their estimates of future company growth rates may be influenced by our human tendency to actively search only for information which confirms our existing opinions, to underweight information which contradicts them, and to give too much weight to recent events (e.g., last quarter's growth) while ignoring "base rate" data (e.g., the tendency of growth rates to revert to the mean).

Whatever the cause of the behavior we observe (and we suspect that all three explanations are involved) the fact remains that people's general inability to accurately forecast future growth rates makes it extremely difficult to be a successful active investor over the long term. One more reason to be an index investor...

## **Life Insurance As An Asset Class**

When it comes to financial mysteries, few seem as impenetrable as life insurance. The basic product is quite simple: you (and a lot of other people) contribute a fixed amount



of money each year (called a premium) for a certain period of time (called the term of the insurance policy) into a common pool. Some of these funds are used to pay the life insurance company's operating expenses (including the commissions they pay to the people who sell their product). The remaining funds are invested so that they grow over time. If you die during the term of the life insurance policy, your beneficiary receives a predetermined amount (the death benefit) to make up for the income that is lost through your death. This simple product is known as "term insurance", and it is a pure risk management product.

The confusion about life insurance is caused when life insurance companies bundle investment products with their basic risk management offering. Because these bundled policies have no fixed expiration date, they are known as "permanent" insurance. Conceptually, they all work the same way. First, you pay the life insurance company an annual premium. As in the case of term insurance, some of these funds are used to pay the insurance company's operating and distribution expenses. Most funds are invested in a mix of asset classes (e.g., equity, bonds, real estate, etc.). From this investment pool, some payments are made for death benefits. The funds not used for this purpose are distributed back to the policyowners at the end of the year in the form of what life insurance companies call a "dividend" payment. Over time, these dividend payments increase the "cash value" of the policy. This is the amount the policyholder would receive if he or she terminated the policy before his or her beneficiary received the death benefit (in insurance speak, this is known as "surrendering" the policy).

Permanent insurance goes by many names. In general, four broad categories of products can be distinguished. In the case of traditional "whole life" policies, your premium amount is fixed, and you have no control over how the insurance company invests the funds you give them. In "universal life" policies, you have some ability to vary the size of your premium payment, but no control over how your funds are invested. In the case of "variable life", your premium is fixed, but you control how it is invested between different separate accounts offered by the life company (e.g., a bond account, a U.S. equity account, etc.). Conceptually, these separate investment accounts are like mutual

funds. Finally, a "universal variable" policy allows you to both vary the size of your premium payment and control how those funds are invested.

All this complexity raises an obvious question: why would someone choose a bundled product over the apparently simpler alternative of purchasing term insurance and investing in mutual and exchange traded funds? The first reason is that, thanks to very effective lobbying by the insurance industry many years ago, the build-up of life insurance policy cash values is exempt from annual income tax. However, if the policy is surrendered before death, ordinary income tax is owed on the difference between the cash value received and the sum of premium payments made over the policy's life (unless the cash value is rolled into another life policy or annuity, in which case no tax is owed). In this case, if a person had already made their maximum contribution to other tax advantaged savings vehicles (like a 401k and IRA), then a permanent life policy might make sense.

The second reason is that a person might prefer level premiums over time. While some term policies offer level premiums for certain periods, their cost increases quite sharply with age. Only permanent insurance offers a constant premium payment over the life of the policy.

The third reason a person might choose a bundled policy is because he or she believes (usually based on a sales agent's presentation) that in addition to risk protection, it offers an attractive investment alternative. The problem we face is that the life insurance industry makes it virtually impossible to ascertain the accuracy of such assertions. While life insurance companies disclose their gross dividend rates, they do not, as a rule, clearly disclose either the operating or mortality expenses that are charged to arrive at the net dividend that is added to a policy's existing cash value. As a result, the question of whether or not a whole life policy is a good investment can only be answered approximately.

In light of this, we have chosen to address this question by looking at the example of a single type of policy from a single company. To keep it simple, we have chosen a whole life policy. To put the insurance industry in the best light, we have chosen to look at the gross dividend yields on a whole life policy from Northwestern Mutual Life (NWML), which for years has been widely regarded as the best company in the industry.

As an aside, we should note that, beyond good underwriting, investment management, and cost control skills, Northwestern Mutual's top performance rating also derives from its mutual ownership structure. In mutual companies, policyholders own the company, and receive the entire benefit of investment returns that are in excess of operating and mortality charges. In an investor-owned insurance company, these benefits must be divided between shareholders and policyowners. We should also note that in the mutual fund world, only Vanguard is owned by its fundowners, which is another reason it is able to keep the expenses charged on its index funds at such low levels.

But we digress. Back to our NWML example. Between 1971 and 2000 (a period chosen to allow comparisons with other asset classes), the gross dividend on our NWML whole life policy averaged 8.21%. Various writers have noted that operating expense and mortality charges typically reduce gross dividend rates by two to three percent. At most, this would reduce NWML's average dividend yield to 5.21% per year. However, as regular readers know, return is only one third of the investment story. The variability of those returns (as measured by their standard deviation), as well as their correlations with returns on other asset classes are also important.

When these are taken into account, the NWML whole life policy looks quite attractive. First, the standard deviation. At only 2.05%, it yields a return per unit of risk ratio of between 4.00% ( $8.21/2.05$ ) and 2.54% ( $5.21/20.05$ ). Over the period we analyzed, only one year U.S. treasury bills could come close to this performance, at 2.33% (average return of 7.71% divided by a standard deviation of 3.31%).

The correlations with other asset class returns are also impressively low, as shown in the following table:

<b>Asset Class</b>	<b>Correlation with NWML Whole Life Gross Dividend Yield</b>
U.S. Investment Grade Bonds	.36
U.S. High Yield Bonds	.24
Non-U.S. Dollar Bonds	.66
Commercial Real Estate (REITS)	.08
Commodities (GSCI)	(.21)
U.S. Equities	.18
European Equities	.25
Pacific Equities	.00

Despite these results, we caution against drawing any broad conclusions from this analysis. While it clearly indicates that a whole life policy from Northwestern Mutual seems to provide attractive diversification benefits in an overall asset portfolio, it does not in any way suggest that this is the case with other whole life policies (or other types of policy) from other life insurance companies, whose investment, operating, and mortality experience will undoubtedly be different from NWML's.