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## ENHANCED INDEXING AND QUANTITATIVE INVESTMENT MANAGEMENT

Modern investment management of equity portfolios can be divided into passive and active investment strategies. The passive investment management approach is also commonly referred to as indexing, wherein the goal is to match the performance of a specific benchmark index. Active investment management, by contrast, aims to generate investment performance in excess of the specific benchmark index. The active approach can be further divided into two distinct strategies: these are referred to as the fundamental approach and the quantitative approach. This week we will focus on the quantitative approach in general and what is known as enhanced indexing in particular.

- A brief description of the quantitative approach
- Applying the quantitative approach to global equity portfolio construction
- Key characteristics of enhanced indexing.

In the equity department quantitative analysts and portfolio managers design and build models which sort stocks based on a variety of criteria. The models generate a signal or signals, otherwise known as the transfer coefficient, which ranks stocks based on their relative attractiveness in terms of expected return and risk. The models designed and utilized by quantitative analysts and portfolio managers are proprietary. Although the specific models in use are not public for competitive reasons the general methodology of quantitative investment management is widely known in the industry.



The methodology of quantitative investment management and quantitative portfolio construction utilizes a broad range of valuation methodologies in forming investment recommendations. These methodologies include measures based on cash flows and earnings; such as ratios of enterprise value to earnings before depreciation, amortization, interest and taxes; the ratio of enterprise value to free cash flow; and price to earnings. Additional valuation metrics include the ratio of price to the net asset value of the firm, commonly referred to as price/book; dividend yield and total yield; and the ratio of price to sales. Variables representing the firm's effectiveness in use of capital are also utilized, as well as variables such as the return on equity and the return on invested capital.

Academic research has contributed significantly to our understanding of the processes generating asset returns and the market valuation of asset prices. Academic research is continually attempting to explain asset pricing "puzzles" and insights from this research are quickly adapted by practitioners a part of the portfolio construction process. The continuous interaction between the academic and practitioner communities is also reflected in the presence of many quantitative analysts and portfolio managers with academic credentials such as doctorates in economics, finance, statistics, mathematics and physics.

In its simplest form quantitative management seeks to add value and generate returns in excess of a specified benchmark index by exploiting inefficiencies or mispricing in the market. For example, consider two similar firms operating in the same industry. If the firms are sorted by a small set of variables such as dividend or perhaps total yield, price to earnings, price to net asset (book) value and as a result of this sort one of the firms is revealed as relatively attractively valued while the other is relatively expensively valued, then a quantitative portfolio manager may increase the weighting in the portfolio of the attractively valued firm relative to its benchmark weight and simultaneously decrease the weighting of the expensively valued firm relative to its benchmark weight. What might attractive valuation look like utilizing the above criteria? In this — simplified — example attractive valuation might consist of a higher dividend yield, a lower price to book ratio and/or a lower price to earnings ratio, all else equal.

Since all else is rarely equal, however, quantitative models are in fact extremely complicated algorithms designed to generate signals amidst a highly competitive and — in technical terms — highly noisy environment.

A defining characteristic of the quantitative approach known as enhanced indexing is that it seeks to generate excess performance relative to a specified benchmark while still maintaining the overall characteristics of the index. This means that enhanced indexing does not make definitional bets such as weighting specific market sectors (i.e. financial services, utilities) significantly different than their weights in the index. Similarly, enhanced indexing as applied to global portfolios does not seek to make significant country or region bets. It follows from this approach that the tracking error of an enhanced indexing strategy — the relative risk vis-à-vis the specified benchmark index — is relatively low, particularly in comparison to traditional fundamental active management strategies.

Since enhanced indexing strategies do not incur large amounts of risk in comparison to traditional fundamental approaches — or other quantitative strategies — the expected excess returns generated by an enhanced indexing approach are modest. Conversely, however, the potential shortfall relative to the specified benchmark index is also small when enhanced indexing strategies are used.

For large institutional investors there are additional and very important advantages accruing to enhanced indexing strategies. One important advantage is that the algorithms utilized in enhanced indexing function to minimize trading activity and hence trading costs, which in turn help to minimize overall costs. A second important advantage is that employment of enhanced indexing strategies allows institutional investors to gain substantial additional active investment capacity. Particularly when quantitative and enhanced indexing strategies are used in conjunction with fundamental strategies, total active investment capacity is tremendously magnified. This is an important consideration for large institutional investors and helps to explain the widespread prevalence of enhanced indexing strategies by institutional investors around the world.

Enhanced indexing strategies are utilized to generate expected excess returns vis-à-vis a variety of benchmarks. For the U.S. the indices commonly used are the Russell indices such as Russell 1000 Value for the large-cap value space, Russell 1000 Growth for large-cap growth, and Russell 2000 for small-cap stocks. The international equity indices commonly used as benchmarks are MSCI EAFE + Canada for developed international, MSCI Emerging Markets for emerging markets, and MSCI Small-Cap EAFE + Canada for developed world international small-cap. In the case of the MSCI indices EAFE stands for Europe, Australasia, and Far East.

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