What Is an Index?

By Andrew W. Lo

Reviewed by James E. McWhinney

Index-based investing in the form of fund flows into passive products has been making news and gathering assets at a record pace. For most investors, this topic immediately brings to mind the S&P 500, a market-capitalization-weighted benchmark that consists of a relatively static list of large-cap companies that has become the standard-bearer for index-construction methodology. To Andrew W. Lo, that much-touted standard is outdated and limiting.

“Modern trading technology opens up a whole new spectrum of possibilities for defining indices and creating financial products around them,” Lo writes in his recent article for the *Journal of Portfolio Management*. His perspective on this topic is underscored by his credentials. Lo is the Charles E. and Susan T. Harris Professor at the MIT Sloan School of Management, principal investigator at the MIT Computer Science and Artificial Intelligence Laboratory, and serves as both chairman and chief investment strategist at AlphaSimplex Group, LLC, a firm that he founded.

Among the range of indexes and products, Lo cites “target-date and life-cycle funds, which change their asset allocation characteristics as they approach their target dates; hedge-fund replication strategies, which replicate the betas of entire classes of hedge funds; trading-strategy indices, which use transparent mechanical rules to implement trading strategies, such as carry trades or risk arbitrage; and ‘fundamental’ indices, also called ‘smart beta’ indices, where stocks within a portfolio are weighted according to their fundamental or other non-market-cap factors.”

In light of the promise and perils of technology, Lo argues for a redefinition of the term “benchmark.” He recommends that the new framework for benchmarks requires that they be “transparent, investable, and systematic” if active managers are to be judged against them. This new framework permits the development of “dynamic” benchmarks around “portfolio strategies that involve more active trading, such as target-date funds and publicly disclosed, rules-based 130/30 strategies.”

Lo notes that these new possibilities for benchmarks come with advantages as well as potential pitfalls. Risks, he explains, are not always “adequately rewarded, especially in the face of market distress.” And that can be particularly true where technology is involved. Lo also cites “more subtle risks, such as tail, illiquidity, or credit risk.” Backtest bias is another concern. In addition, he explains that “one of the most important implications . . . is that investing and risk management can be decoupled: passive investing need not, and should not, imply passive risk-taking, as it currently does.”

Lo notes that passive investing in its traditional form offers no risk management: “an index manager will not be punished for suffering losses if all index funds experienced similar losses.” Investors, on the other hand, are “not so fortunate.” Losses aside, volatility is another issue that can be of great concern to investors but of no concern to index managers.

These issues, Lo believes, can now be addressed “thanks to the many technological advances in algorithmic trading, securities exchanges, derivatives, telecommunications, and back-office and accounting systems infrastructure.” For example, the creation of a “dynamic index fund that contains no alpha, but is actively risk-managed to a target level of volatility” is one such possibility. Such a fund could reduce market exposure “when risk becomes too high . . . restoring it when risk returns to normal—but doing so more systematically and at a higher frequency than all but the most active traders can manage.” According to Lo, in such a fund, “investors are more likely to stay invested . . . rather than exiting after a large loss and waiting too long before reinvesting.” He argues, “This simple example illustrates the potential benefits of separating active risk management from active investment management—one need not be tied to the other, given current trading technology, algorithmic overlay strategies, and a wide spectrum of liquid index futures contracts.”
Lo concludes:

A confluence of technological advances has caused tectonic shifts in the financial landscape, creating winners and losers overnight. The winners are the technology-savvy investors who understand their own risk preferences and financial objectives and can appreciate the full spectrum of risks and rewards offered by today’s dizzying array of smart-beta and index products. The losers are the technophobes and Luddites who don’t know and don’t care about investing—the investment ecosystem has become much more dangerous for them.

In an environment where buy-and-hold investment strategies “may not be as effective,” Lo also reminds investors that the same technology that offers “more sources of diversification and risk sharing, cheaper ways to meet individual needs, and greater flexibility in reflecting investment views” also requires a higher level of interest, attention, and vigilance on the part of investors.

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