Third-Generation Indexing

IndexIQ's Rules-Based Alpha Process

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Abstract

The modern index fund has been an unmitigated boon for investors. Since the first retail index fund launched in 1972, index funds have provided low-cost, tax-efficient and reliable market returns for millions of investors.

But recent market events, such as the Tech bubble of the 1990s, have revealed the flaws of traditional market-capitalization-weighted indexes. Investors who purchased index funds at the height of the Technology bubble lost tremendous amounts of money, as those funds were most invested in the very companies that were the most overvalued. We believe market-cap-weighted index funds systematically overweight overvalued companies, while underweighting undervalued companies. If there are two companies with the same shares outstanding and the same fundamental value (e.g., sales, earnings, dividends, cash flow, etc.), the company with the higher price will be overvalued relative to the company with the lower price. Since market-cap-weighted index funds use price as a determinant of a component's weight in an index, the company with the higher price will also be overweight in the index. Researchers and fund developers seized upon this realization in the wake of the Internet bubble to launch second-generation indexes based on fundamental factors such as dividends, earnings and sales. These are among the factors that sophisticated institutional investors use to evaluate the equities market, looking past price toward the reality of company operations. Proponents say that these indexes provide a better proxy for the average investor's experience of an efficient market, and avoid the core problem of traditional indexing by breaking the link between price and weight. The market now contains numerous fundamental indexing strategies, offering consumers the benefits of indexing with the potential for improved portfolio characteristics.

Third-generation indexing takes this evolution a step further. Developed by IndexIQ in its Rules-Based Alpha process, this third way looks to provide investable, index-based access to the kind of institutional strategies and alternative asset classes used by the most sophisticated investors in the world. In this sense, the "market" being indexed is no longer a simple universe of securities, but a specific strategy used to provide a pattern of returns unavailable in other products, such as the alternative (and noncorrelated) beta offered by hedge funds. By packaging these nontraditional asset classes into index-based baskets, third-generation indexing maintains the efficiency, investability and structure of traditional index products while providing access to a new type of investment return.

First Generation: Market-Cap Indexes

From the first pooled asset funds created before the Great Depression to the present day, financial engineers have constantly searched for new and improved ways to limit risk, build wealth and deliver the best possible returns. But in this quest for performance, they discovered a simple fact: Most active investment managers did not beat the market.

The first generation of indexing arose from this simple recognition.

By now, the story is legend: An unknown economics student at Princeton University decided to study the performance of actively managed mutual funds for his senior thesis. After reviewing the data, he realized that the majority of actively managed mutual funds failed to beat the market after costs. But the student—John Bogle, later chairman of The Vanguard Group—wouldn't capitalize on his discovery until the launch of the first index fund 30 years later.

In the intervening decades, a groundswell of academic support heavily scrutinized the under-performance and excessive fees of the investment management industry. Large institutions began to realize that by simply buying the market in their portfolios and paying vastly lower fees, they could be well ahead of most of their peers.

But in the 1970s, indexing emerged from the conference rooms of institutional investing and into the public consciousness. In 1973, economist Burton Malkiel published "A Random Walk Down Wall Street," one of the first popular investment books to put forth the Efficient Market Hypothesis in terms any investor could understand.

In the wake of this growing understanding, John Bogle saw the opportunity to bring index investing to the masses with the Vanguard 500, a passive index designed to operate at the lowest possible cost.

History has proven John Bogle correct: At nearly $100 billion in net assets, the Vanguard 500 has become the world's largest mutual fund, and it has beaten the vast majority of actively managed funds along the way. As it turns out, low costs, low turnover and the inherent tax efficiency of indexing *are* a potent combination. Overall, more than $1.7 trillion was indexed in mutual funds and exchange-traded funds at the end of 2007 to S&P indexes alone[1]—not including the billions invested to other indexes, and investments in institutional separate accounts and pooled trusts.

Today, index funds form the core of most institutional investment portfolios, and play an increasingly important role with individual investors as well.

While a tremendous boon to investors, the hidden trap of these first-generation index funds is simple—the indexes on which they are based. The relatively simplistic indexes underlying the vast majority of investment products weight their allocations based only on size.

Second Generation:
Fundamentally Weighted Indexes

As powerful as market-cap-weighted index funds are, they are imperfect.

Case in point: The dizzying drop of the S&P 500 Index after the burst of the Technology bubble in 2000. Indexes like the S&P 500 had heavily invested in sectors that, in retrospect, were obvious market bubbles. This problem is a key and unavoidable flaw in traditional, market-capitalization-based index funds; by definition, they overweight overvalued stocks and underweight undervalued stocks. All else being equal, a company whose share price has appreciated gains a larger and larger percentage of the index, leaving the fund more susceptible should those high-momentum stocks correct.

Looking to avoid this systematic drag, innovators in the index industry have searched for new ways to deliver better risk-adjusted returns while retaining the key advantages of passive investing, including low costs and tax efficiency.

Poking Holes In The Efficient Market Hypothesis

Since the 1950s, mainstream investment research has been based on the Efficient Market Hypothesis (EMH), which holds that a) markets are inherently rational, and b) on average, they price stocks correctly. The corresponding assumption is that indexes weighting stocks on market capitalization capture the best available estimate of fair market value. Compared with the opaque strategies of most traditional active managers, this has been a solid foundation for years of investment management.

But research has begun discovering flaws in the EMH, and by proxy, in the perfection of market-cap-weighted indexes. The bias toward excessive valuations and market bubbles does not necessarily benefit the index investor, regardless of whether it might be a theoretically "correct" view of a theoretically rational market.

All Else Equal ...

The simplest solution to the market-cap problem is to eliminate weighting concerns altogether: Add each security to the index in equal measure.

There's some evidence that over long time periods (greater than five years), such a strategy can add value versus a pure market-cap approach. However, implementation is challenging—theoretically, an equal-weight portfolio must be constantly rebalanced.

In practice, any equal-weight strategy must include rules for rebalancing to manage turnover and the implied cost and tax issues.

One of the first groups to sidestep the EMH was the research team behind the Fortune 500 Index, who developed an index that selected components based on revenues rather than market capitalization. To the surprise of many academics at the time, the group showed that the use of a *nonmarket-cap* fundamental factor resulted in a consistent relative performance advantage compared to the S&P 500.

Looking at the two indexes between January 1992 and June 2001 (a period including bull and bear markets), the fundamentally based Fortune 500 delivered higher returns with lower volatility and a higher dividend yield. Relative results show the Fortune 500 Index provided more participation in up markets and less exposure to down markets than the S&P 500 (Figure 1).[2]

Academics took immediate notice of these results. Here was evidence that a structured index based on something other than market cap could consistently provide enhanced returns and reduced risk—the proverbial "free lunch" for investors.

	S&P 500		FORTUNE 500	
	Return	Std. Dev.	Return	Std. Dev.
1992	4.5%	7.5%	0.8%	7.7%
1993	7.1%	5.9%	6.7%	6.8%
1994	-1.5%	11.0%	3.1%	11.3%
1995	34.1%	5.1%	25.8%	5.4%
1996	20.3%	10.8%	21.1%	10.6%
1997	31.0%	10.8%	32.9%	10.6%
1998	26.7%	21.5%	29.5%	21.2%
1999	19.5%	13.1%	15.3%	13.1%
2000	-10.1%	17.1%	-7.6%	16.6%
2001	-13.0%	19.8%	-11.3%	18.0%
2002	-13.8%	13.6%	-12.6%	12.8%
AVERAGE	8.6%	14.1%	9.5%	13.8%

Note: Annual price increases are year-to-date ending in June 2002.
Sources: Standard & Poor's Corporation and FORTUNE Indexes.
Past performance is no guarantee of future results.

Figure 1

The early part of the 21st century saw an explosion of academic research and product development in this new kind of index.

Notable financial engineer Jack Treynor also analyzed ways to construct fundamental indexes, and uncovered a significant incremental return advantage. He showed that the key flaw of pure cap-weighted indexes is that they overweight overvalued stocks and underweight undervalued stocks. Conversely, he concluded that a "valuation-indifferent" approach would balance overpriced positions with undervalued positions.[3] Harry Markowitz, one of the original fathers of the Modern Portfolio Theory (MPT), showed that once real-world constraints are taken into account, cap-weighted indexes may no longer be mean-variance-efficient.[4] Rob Arnott, Jason Hsu and Philip Moore advanced the theory further by evaluating the performance of indexes weighted by various factors in their seminal 2005 paper, "Fundamental Indexation."[5]

Today's fundamental index strategies rely on financial accounting measures like earnings, revenues and dividends to select and weight stocks in a portfolio, rather than a single, simple factor. By breaking the link between a stock's price and its weight in an index, these fundamental strategies sidestep market bubbles and, on a backtested basis, deliver higher risk-adjusted returns.

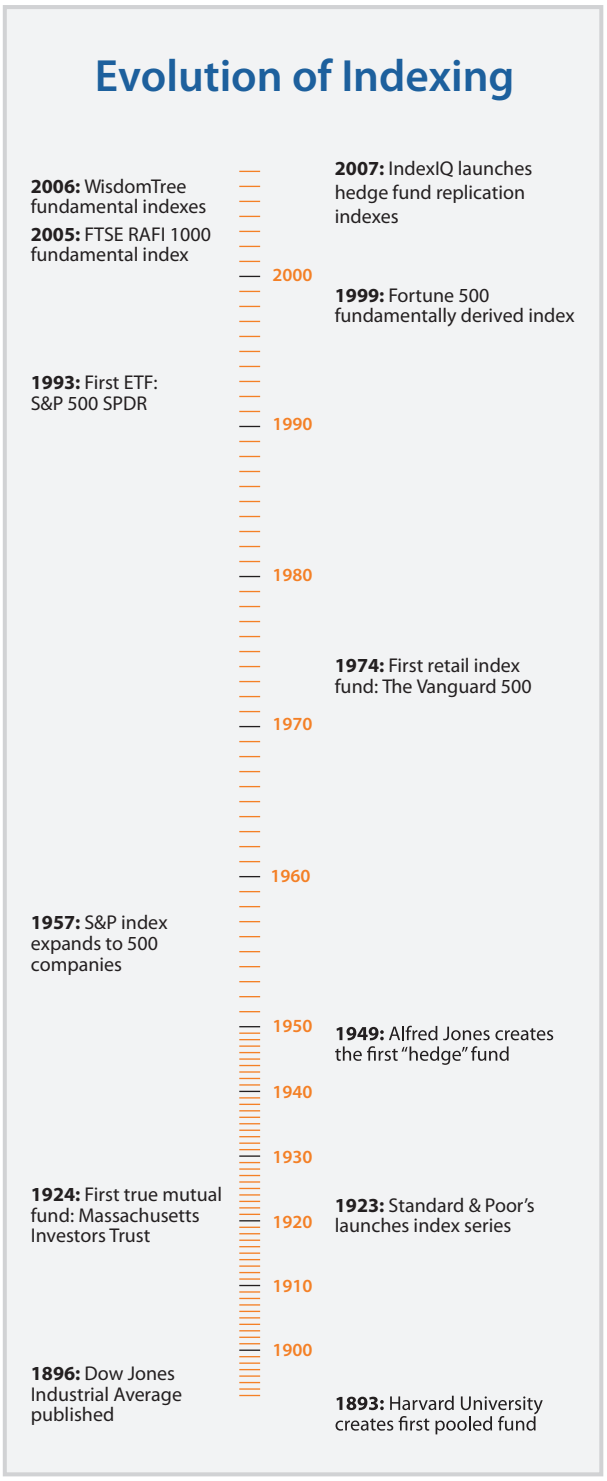

Figure 2

Depending on which specific strategy you choose—and there are many—fundamental indexes claim to regularly outperform the market by 2–5 percent per year on a historical basis.[6]

An example of fundamental indexing is the FTSE RAFI Index Series, developed by Research Affiliates LLC (chaired by Rob Arnott). These 10 indexes cover a wide range of global markets, making their allocations across a pool of equities based on cash dividends, free cash flow, total sales and book value.

Based on a simple set of calculations, each stock in the FTSE RAFI universe is weighted, and that index is then turned into an investible product: an exchange-traded fund, mutual fund or private account. In essence, these funds capture "better beta"—passive exposure to asset classes in a more effective way than simple market-cap weighting.

Fundamental indexes track the underlying market the same way an average investor would: by looking at measurements of value beyond size to create a proxy for the market that represents the real economic value of these companies. They represent the hypothetical efficient market more closely, while capturing information widely available to investors.

Third Generation: Rules-Based Alpha™

Recent events have shown the limits of these aforementioned fundamental strategies. By using a blunt approach that examines only a handful of "real-world-" or "financial-accounting-" based measures, the fundamental indexes are just as flawed. Because they tend to follow accounting measures as rigid as market cap in their construction, fundamental indexes can be susceptible to different kinds of bubbles: dividends, earnings, book value, etc.

Today's leaders in the index industry work to move the field one step further, by leveraging the best thinking on Wall Street and academic finance to deliver alternative indexes representing the real-world performance of sophisticated investment strategies that go far beyond simply "buying the market."

In a sophisticated institutional portfolio, asset allocation is the primary driver. After assessing the potential risks and returns of the available markets, the institutional investor establishes target allocations between equity, fixed income, international and other asset classes. These allocations establish the portfolio's core market exposure, or "beta." These allocations are then turned into real-world investments across a variety of low-cost managers.

While this sounds similar to the process many individual investors use, there's a critical difference: The institutional investor looks at markets—or "alternative beta," from vehicles such as hedge funds—that individual investors have been traditionally unable to tap. Further, the allocation to potential market-beating managers—Alpha managers—is done irrespective of those managers' underlying markets. The performance of those managers has been stripped and separated from the underlying market beta. (For additional information, see the IndexIQ white paper "Alpha/Beta Separation.")

IndexIQ's Rules-Based Alpha (RBA) approach applies the analytical framework laid down by the previous generation of indexes to these sophisticated investment techniques.

RBA is predicated on the idea that alpha (versus traditional benchmarks) exists in the marketplace, but that it can only be captured through focused, emotion-free analysis and the application of the most sophisticated investment techniques available.

The firm has assembled a world-class product team led by Chief Investment Strategist Robert Whitelaw, Ph.D., one of the world's leading financial thinkers. It is supported by Salvatore Bruno, Head of Research and Product Development, and formerly a senior executive and portfolio manager at Deutsche Asset Management. The two work together with the team at IndexIQ to create and fine-tune products that address the historical gap in meeting investors' demands to deliver consistent returns with low-cost, highly transparent products.

Rules-Based Alpha In Action

Investable. Transparent. Liquid.

The point of any index is to track a particular pattern of returns in a consistent, transparent way.

IndexIQ's investment strategies are developed with a focus on investability. During portfolio construction, the liquidity of the underlying securities is always taken into account. The analytical and construction processes focus on real-world investment options such as exchange-traded funds, rather than theoretical market proxies. The net result is a systematic process that creates strategies for truly investable products that maximize potential returns with the lowest possible cost.

How It Works

Rules-Based Alpha starts with defining the asset classes to be indexed. IndexIQ currently focuses on alternative sources of beta, specifically those represented by hedge funds.

Institutions and high net worth individual investors have long turned to hedge funds to achieve better risk-adjusted returns. These alternative assets are also often minimally correlated with other asset classes such as equities or fixed-income securities. Through detailed research, IndexIQ has discovered that the traditional strategies employed by hedge funds—leverage, short-selling, arbitrage and other approaches using illiquid securities—could in fact be indexed using liquid, publicly traded securities, such as exchange-traded funds.

A traditional index fund starts with a universe of securities, such as the shares of publicly traded companies on the major U.S. stock exchanges. From there, an index committee makes decisions about what to include, and what to exclude. This set of rules becomes the index construction methodology. In the case of a first-generation index like the S&P 500, for example, the rules are very straightforward: Pick 500 stocks, in weights proportional to their float-adjusted market cap.

A second-generation index takes this a step further. In a fundamental index, the rules are generally more complex, and based on accounting factors. They usually result from analytical work that matches certain factors to higher-performance stocks. These fundamental rules provide an alternative weighting scheme for the universe of securities, under- or over-weighting each particular security relative to a cap-weighted version.

In the RBA process for IndexIQ's Hedge Fund replication indexes, the "market" being indexed is itself an investment strategy. Although it is impossible to know with

Each IndexIQ Strategy Offers:

Process integrity: The implementation of an IndexIQ strategy must embody and reflect the underlying investment thesis accurately and effectively.

Distinct methodologies tailored to specific investment objectives: There is no one-size-fits-all strategy. Each IndexIQ product is designed to meet the goals of a specific type of investor.

Innovative product construction: Investment products are more than just portfolios—they're packages with specific turnover and tax implications. IndexIQ keeps this in the forefront, so investors can maximize their real-world returns.

Low cost: IndexIQ products are designed to provide a cost advantage over marketplace comparables; including both traditional enhanced indexing and actively managed portfolio alternatives.

certainty the construction of every hedge fund in the marketplace due to the opaque nature of hedge funds, it is possible to examine the pattern of returns for those funds, on average and over time.

IndexIQ takes those publicly available patterns of returns and conducts a proprietary analysis of each, deconstructing the returns into a set of hypothetical exposures to other asset classes. It's this set of hypothetical exposures that is used to create an index of investable securities (Figure 3).

Each year, IndexIQ reanalyzes the pattern of returns both for the target hedge fund strategy and the available universe of investible asset classes, and the index is reconstituted.

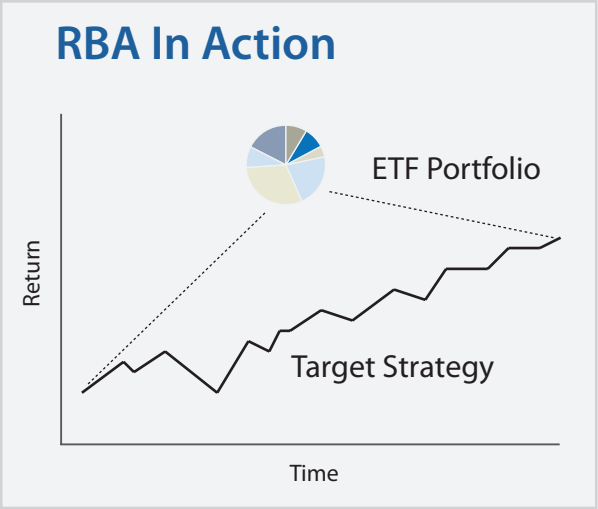

Figure 3

The result is an index of efficient, low-cost and highly liquid securities that seeks to deliver the returns and risks of a particular style of hedge fund management.

From Principle To Product

Based on the Rules-Based Alpha principles, IndexIQ has developed index-based strategies designed to fill an unmet need in the investment landscape—low correlations at a low cost.

IndexIQ has developed a broad spectrum of IQ Hedge Indexes based on a full range of hedge fund investment styles, including:

- IQ Hedge Composite Beta Index
- IQ Hedge Long/Short Beta Index
- IQ Hedge Market Neutral Beta Index
- IQ Hedge Fixed Income Arbitrage Beta Index
- IQ Hedge Global Macro Beta Index
- IQ Hedge Event-Driven Beta Index
- IQ Hedge Emerging Markets Beta Index

IndexIQ has created these indexes using ETFs as the underlying investments and they are able to capture the risk and return characteristics of hedge fund styles based on broader, more systematic factors.

The IQ Hedge solutions provide exposure to hedge fund strategy returns with daily liquidity and full transparency.

More information on hedge fund replication can be found in the IndexIQ white paper "Democratizing Alternatives" as well as on IndexIQ's Web site www.indexiq.com.

The IQ Hedge Solutions Offer:

Hedge Fund-Like Returns: Risk-adjusted returns and key ratios comparable to various hedge fund styles

Liquidity: Daily liquidity and leverage opportunities

Risk Mitigation: Index basket reduces manager-specific risk inherent in active hedge fund management and provides attractive tools to reduce risk

Transparency: Greater transparency of underlying portfolio components

Real-Time Dissemination: Real-time delivery of index values

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About IndexIQ

IndexIQ is the leading developer of index-based alternative investment solutions that combine the benefits of traditional index investing with the risk-adjusted return potential sought by the best active managers. The company's philosophy is to democratize investment management by making institutional class investment strategies available to all investors in low-cost, liquid, transparent and tax-efficient products. IndexIQ strategies are marketed through the company's proprietary investment products and select partnerships with leading global financial institutions. Additional information about the company and its products can be found at www.indexiq.com.

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Robert Whitelaw is the Edward C. Johnson 3d Professor of Entrepreneurial Finance and Chairman of the Finance Department at the Leonard N. Stern School of Business, New York University. He has a Ph.D. in Finance from Stanford University, Graduate School of Business, and a B.S. in Mathematics from MIT. Professor Whitelaw teaches corporate and managerial finance in the M.B.A. and undergraduate programs. He also teaches fixed-income securities, equity investments, derivatives and risk management at the executive level, and asset pricing at the doctoral level.

Dr. Whitelaw's research interests include the relation between risk and return in the stock and bond markets, the pricing and hedging of fixed-income derivative securities, risk measurement and management, and market efficiency. His papers have been published in academic journals such as the *Journal of Finance*, the *Journal of Financial Economics* and the *Review of Financial Studies*, as well as practitioner journals such as the *Journal of Derivatives*, the *Journal of Fixed Income*, and *Risk*. In addition, he is a research associate at the National Bureau of Economic Research (NBER), Program on Asset Pricing and a past associate editor of the *Review of Financial Studies* and the *Journal of Finance*.

Dr. Whitelaw's work experience includes two years spent in the Public Finance Department at Shearson Lehman, where he was involved in structuring tax-exempt bond financings. He also provides consulting services to corporations and financial institutions, specializing in pricing and hedging complex securities, risk management and equity trading.

Salvatore J. Bruno
Senior Vice President, Head of Research and Product Development

Sal joined IndexIQ from Deutsche Asset Management (DeAM), where he held a number of senior positions. Most recently, Sal was a Director and Portfolio Manager for a U.S. large-cap core equity mutual fund with approximately $6 billion in assets under management. The fund's strategy combined traditional fundamental equity research with a multifactor quantitative model in a disciplined, risk-managed process.

Prior to becoming Portfolio Manager, Sal was the Head of Advanced Quantitative Research at DeAM. In this role, he directed the quantitative research effort to support numerous products including quantitative equity strategies, global asset allocation, passive risk-based alternative beta portfolios, and probabilistic efficient frontiers. He also co-developed the strategy to combine fundamental and quantitative research into a single portfolio. This strategy became widely used to manage several equity strategies within DeAM, including the mutual fund for which Sal would subsequently become a portfolio manager.

As the Global Head of Active Equity Quantitative Strategies for DeAM, Sal managed a team of 13 analysts around the world. The team provided quantitative tools and support for the Active Equity fundamental portfolio managers and research analysts on a variety of topics including quantitative equity models, portfolio construction, risk management, and performance measurement and analysis.

Sal earned a Bachelor of Science degree in Applied Economics & Business Management from Cornell University and an M.B.A. in Finance & Economics from New York University Leonard N. Stern School of Business. He is a member of the NYSSA and the CFA Institute.

Anthony B. Davidow, CIMA
Executive Vice President, Head of Distribution

Tony joined IndexIQ from Morgan Stanley where he was a Managing Director and Director of Sales and Training for Morgan Stanley's Consulting Services Group. He helped build Morgan Stanley's $140 billion Consulting Services Group Business. Tony was responsible for delivering solutions across the market segments – Institutional, Private Clients and Retail. He joined Morgan Stanley in 1995, and originally was responsible for Morgan Stanley's Institutional Consulting Services business. He was later the Director of Business Development for Graystone Wealth Management Services, and a member of the firm's Client Strategy Group.

Prior to joining Morgan Stanley, Tony spent five years in Kidder Peabody's Asset Management business, where he was responsible for their NOVA Consulting business and Director of the Portfolio Services Group. He also spent time as Analyst on the American Stock Exchange, Inc. Tony began his career 25 years ago working for a family office.

Tony is a graduate of Bernard Baruch University, with a BBA in Finance and Investments. Tony received his Certified Investment Management Analyst (CIMA) designation from the Investment Management Consultants Association and the Wharton School of the University of Pennsylvania. Tony currently serves on the IMCA Board of Directors, and serves as the Board Liason to the National Conference Committee. He is a member of the International Who's Who of Professionals. Tony is a frequent industry speaker on the institutional and high net worth marketplace, as well as the author of several white papers on investment trends and opportunities.

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Definitions

Alpha is a measure of a portfolio's actual excess returns and expected performance, given its level of risk (as measured by Beta).

Beta reflects the sensitivity of a portfolio's return to fluctuations in a particular market (in this case, as measured by the S&P 500 Index).

Volatility is a measure of the range of a portfolio's performance, meaning the degree to which it rises above and falls below its average return.

Return/Volatility is a portfolio's annualized 5-year return divided by its annualized 5-year standard deviation.

Sharpe Ratio is a measure of a portfolio's risk-adjusted performance (return per unit of risk).

Correlation is a measure of the relationship between two variables (e.g., portfolio returns and the S&P 500 Index).

Up/Down Capture is a measure of a portfolio's performance in up/down markets relative to a benchmark index (in this case, the S&P 500 Index).

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