Dimensional

SMAs: Measuring the Impact of Personalization

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June 2021

Many investors want their portfolio to not only pursue reliable premiums but also to seek tax efficiency; reflect their environmental, social, and governance (ESG) values; respect any specific security restrictions they might have; and complement their human capital effectively.

Dimensional's expanded separately managed account (SMA) offering aims to help advisors deliver exactly that. Dimensional's systematic and broadly diversified investment approach is well suited for personalization, as it allows for efficient integration of specific investor considerations into portfolio design and management. The starting point for the SMAs is a set of broadly diversified strategies that systematically pursue higher expected returns. Investors can then customize those investment solutions by excluding specific securities, industries, sectors, or countries; incorporating ESG considerations; and requesting account-specific tax management.[1]

As the investment solution gets more personalized, however, it moves further away from the initial investment strategy. While forecast tracking error is a commonly used measure, we believe that overlap is a better way to evaluate deviations between a personalized portfolio and a starting investment universe. We show how overlap, along with a few other aggregate portfolio characteristics, can inform investors' expectations about both short- and long-term performance differences.

Limitations of Tracking Error

Tracking error is a commonly used metric to evaluate performance differences between two investments. It is important to distinguish between two ways of calculating different types of tracking error. Ex post tracking error measures the volatility of the difference in realized returns between two portfolios. Ex post, or realized, tracking error can be useful but is not available for a newly constructed strategy. Investors may therefore turn to ex ante tracking error.

Ex ante, or forecast, tracking error is the expected tracking error derived from a forecasting model and is often used to measure how much the performance of a personalized portfolio is likely to deviate from the performance of the starting strategy. While ex post tracking error may be informative for investors, it is important to exercise caution when interpreting ex ante tracking error. The estimate necessarily relies on many assumptions, typically informed by historical outcomes. Examples include assumptions about the right factor model to use, variances and covariances of the factors included in the model, and the sensitivity of individual securities in a portfolio to those factors. As a result, measures like ex ante tracking error can be highly sensitive to even small changes in the estimation choices, such as factor selection and construction, time period, and data frequency. For more on this topic, see Lee (2013) and Davis (2008).[2]

Another caveat: tracking error cannot help us distinguish between two types of deviations from a starting strategy: (1) deviations in holdings that can generate short-term differences in realized returns but have no systematic impact on expected performance and (2) deviations in holdings that can generate persistent differences in expected performance. For both of those reasons, we prefer to focus on alternative ways to evaluate deviations from a starting strategy.

We focus on overlap, a measure of deviation that we believe is more robust than, but still closely related to, tracking error.

Understanding Overlap

Overlap can provide clients with a more intuitive and robust measure of proximity to the starting strategy. It measures the proportion of the starting strategy that ends up in the personalized investment solution. The greater the overlap between the two, the lower the expected dispersion in returns. A 99% overlap between the initial strategy and the final portfolio means that $99 out of $100 in the final strategy is invested the same way as in the initial strategy.

Exhibit 1 illustrates the overlap between a hypothetical starting portfolio (represented in yellow) and the investor's personalized portfolio (blue). Both portfolios hold 10 stocks. Nine are in both portfolios, while stocks D and H are in only one or the other, so D and H both contribute 0% to overlap. The shading indicates overlap, which consists of the nine stocks held in both portfolios. In this example, stocks are equally weighted, and each makes up 10% of the portfolio. Therefore, the overlap is 90%.

Divergence between a starting portfolio and a personalized portfolio can stem not only from differences in holdings but also from differences in the weights of those securities. Two strategies can hold identical securities but at very different weights. High overlap occurs when two strategies have similar holdings and weights. Low overlap occurs when holdings or weights are substantially different.

Exhibit 2 offers another example. Again, both portfolios hold 10 stocks, and nine are held in both strategies but at different weights. Overlap is represented by the shaded bars and indicates the minimum weight of each stock across both portfolios. In this example, stocks D and H still contribute 0% to overlap, while the other stocks have varying contributions due to differences in weighting, ranging from 4% for stock G to 20% for stock I. In total, the overlap of this investor's portfolio vs. the starting portfolio is 81%. In other words, if one investor puts $100 in the starting strategy and another puts $100 in the final strategy, $81 of their investments will be identical.

EXHIBIT 1: Illustrating Overlap–Differences in Holdings

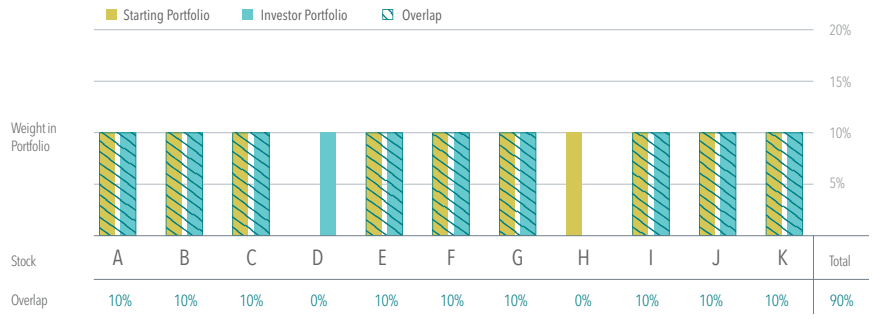
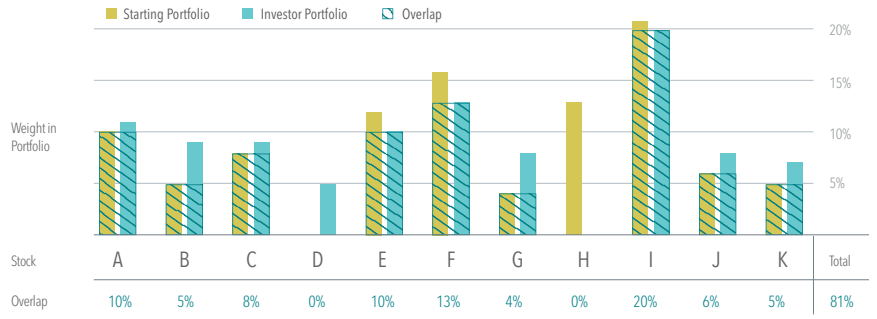


EXHIBIT 2: Illustrating Overlap–Differences in Holdings and Weighting



Differences in Tilts and Overlap

For varying levels of overlap across portfolios, how much performance deviation do we observe over time? To study that, we first examine the historical overlap and tracking error of three Dimensional US all cap core equity indices vs. the Dimensional US Market Index. The three all cap core equity indices start with the same universe as the Dimensional US Market Index but overweight stocks with higher expected returns (stocks with smaller market capitalization, lower relative price, and higher profitability[3]), underweight stocks with lower expected returns, and exclude stocks with extremely low expected returns (small growth low profitability firms and small high investment firms). The three all cap core equity indices differ from each other in the emphasis they place on stocks with higher expected returns. Hence, we can consider these indices as three personalized investment strategies and the market index as the starting strategy.

In **Exhibit 3**, we present the overlap each decade from 1979 through 2020 for the three personalized strategies vs. the starting strategy. The first personalized strategy, "Light," has modest deviation from the starting strategy. As a result, the overlap ranges between 90% and 92%. The second strategy, "Medium," with a stronger emphasis on the same drivers of higher expected returns, has a moderate deviation from the

market index, with overlap ranging from 80% to 84%. The third personalized strategy, "Strong," exhibits the strongest deviation from the market index, with an overlap in the range of 72% to 76%.

We also provide average year-end overlap for the period 1979 through 2020, as well as the annualized historical tracking error of each strategy vs. the market. Average overlap of 91% corresponds to 1% tracking error for the Light strategy, compared to 81% overlap and 2% tracking error for the Medium, and 74% overlap and 3% tracking error for the Strong strategy.

To further examine what varying levels of overlap suggest about performance deviation over time, we plot the rolling annualized three-year tracking error of each strategy vs. the starting strategy (the Dimensional US Market Index) in **Panel A** of **Exhibit 4** and the rolling three-year average overlap in **Panel B**. As expected, the strategy with the highest overlap exhibits the lowest tracking error against the market: tracking error for the Light strategy is around 1% over the period 1981 through 2020 and also has the highest overlap throughout. The Strong strategy, with the lowest overlap throughout the period, exhibits the highest tracking error, ranging from 2% to over 6%. The highest tracking error occurs in 2001, at 6.1%. Tracking error and overlap of the Medium strategy fall between those of the Light and Strong strategies throughout the period.

Why does a relatively steady overlap in Panel B sometimes lead to variation in tracking error over time in Panel A? Ex post tracking error, which measures the standard deviation in realized performance differences, can vary over short periods due to wider-than-normal return differences in the cross-section of stock returns. For example, we see an uptick in tracking error in Panel A for all three strategies around 2001, a period characterized by extreme variation in performance across stocks.

In summary, systematic differences in emphasis on size, value, and profitability result in systematic differences in overlap and realized tracking error. In these

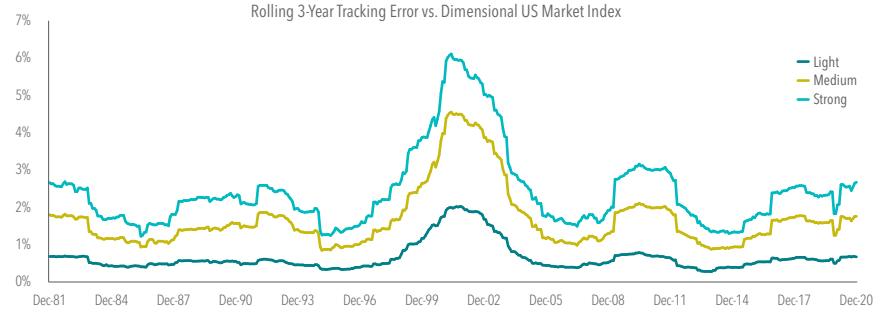
EXHIBIT 3: Overlap with Dimensional US Market Index, *1979–2020*

Year End	Light	Medium	Strong
1979	91%	81%	73%
1989	91%	82%	75%
1999	90%	80%	72%
2009	92%	82%	75%
2019	92%	84%	76%
2020	92%	82%	75%
Average Year-End Overlap	91%	81%	74%
Annualized Tracking Error	1%	2%	3%

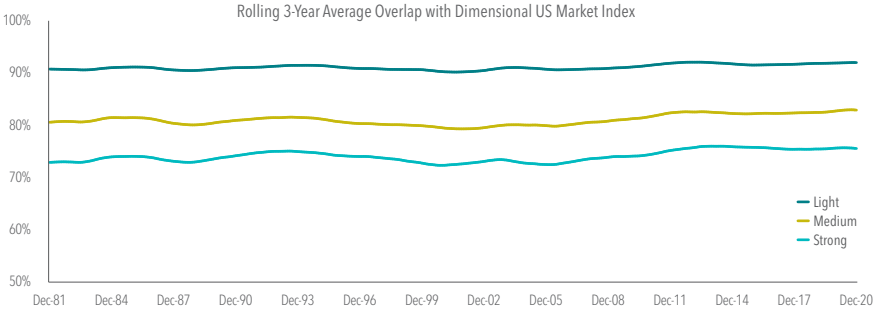
Notes: Light is represented by the Dimensional US Core Equity Market Index; Medium is represented by the Dimensional US Adjusted Market 1 Index; Strong is represented by the Dimensional US Adjusted Market 2 Index. Overlap is calculated by taking the minimum weight of each security in the Dimensional US Market Index and the strategy, for each security in the Dimensional US Market Index, and summing the minimum weights for all securities. Average overlap is computed over every quarter from January 1979 through December 1986 and monthly from January 1987 through December 2020. ***Past performance is no guarantee of future results. Actual returns may be lower.*** *The Dimensional Indices represent academic concepts that may be used in portfolio construction and are not available for direct investment or for use as a benchmark. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment See "Index Descriptions" in the appendix for descriptions of the Dimensional and Fama/French index data.*

EXHIBIT 4: Rolling Annualized 3-Year Tracking Error and Rolling 3-Year Average Overlap vs. Dimensional US Market Index, *1981–2020*

PANEL A: Tracking Error



PANEL B: Overlap



Notes: Light is represented by the Dimensional US Core Equity Market Index; Medium is represented by the Dimensional US Adjusted Market 1 Index; Strong is represented by the Dimensional US Adjusted Market 2 Index. Overlap is calculated by taking the minimum weight of each security in the Dimensional US Market Index and the strategy, for each security in the Dimensional US Market Index, and summing the minimum weights for all securities. ***Past performance is no guarantee of future results. Actual returns may be lower.*** *The Dimensional Indices represent academic concepts that may be used in portfolio construction and are not available for direct investment or for use as a benchmark. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment See "Index Descriptions" in the appendix for descriptions of the Dimensional and Fama/French index data.*

examples, a steady overlap of about 90% corresponds to a historical annualized tracking error of about 1%, whereas a steady overlap of about 80% is associated with a 2% per year tracking error.

Overlap and Differences in Sector Preferences

In addition to tilting away from the market to emphasize higher expected returns, deviation from the market can arise due to other personal investment preferences. One common instance is ESG-focused investing: investors who wish to align personal values with their investments may seek to limit exposure to certain stocks or sectors in their portfolios. For example, an investor who wishes to reduce exposure to firms with high greenhouse gas emissions or fossil fuel reserves may reduce holdings in the energy or utility sectors. An investor who wishes to reflect their social values, by avoiding firms that are involved with abortion or stem cells, for example, may reduce holdings in the health care sector.

We construct portfolios of the US market excluding the energy, utilities, or health care sectors to serve as broad proxies for select ESG considerations. Deviations between an investor's portfolio and the market driven by sector differences are not expected to contribute to long-term differences in performance. However, sector differences result in a smaller overlap between the investor portfolio and the market and may contribute to short-term differences in performance.

We illustrate the impact on overlap of excluding each of the three sectors from the US market in **Exhibit 5**. Over the period 1979 through 2020, the Market ex Utilities portfolio has the highest average overlap with the market at 95%, corresponding to 1% annualized tracking error. The Market ex Energy and Market ex Health Care portfolios have similar average overlap over the entire period, 92% and 91%, respectively. However, the Market ex Energy has more variation over time, with overlap falling to 82% in 1979. It is therefore intuitive that the annualized tracking error for Market ex Energy of 2% is higher than the tracking error of 1% for Market ex Health Care.

EXHIBIT 5: Overlap with US Market, *1979–2020*

Year End	Market ex Energy	Market ex Utilities	Market ex Health Care
1979	82%	92%	95%
1989	91%	92%	93%
1999	96%	97%	90%
2009	90%	96%	90%
2019	97%	97%	90%
2020	98%	97%	90%
Average Overlap	92%	95%	91%
Annualized Tracking Error	2%	1%	1%

Notes: Data are based on the 10 Industry Portfolios, sourced from the Ken French Data Library, available at mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. *Market represents all US common stocks. Overlap equal to the weight of the market minus the weight of specified industry. Average overlap is computed over every month from January 1979 through December 2020.* ***Past performance, including hypothetical performance, is not a guarantee of future results. Actual results will vary.*** *Returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment*

By plotting ex post tracking error and overlap over time in **Exhibit 6**, we can see that the Market ex Energy had much higher tracking error and much lower overlap in the early 1980s than in the latter part of the period. Some investors will recall the dominance of the energy sector in the US in the late 1970s and early 1980s, when it briefly comprised over 25% of the US market. When rolling three-year average overlap for Market Ex Energy hit a low over the period of 80% in 1980, the rolling three-year annualized tracking error also hit a high of over 5%. Market ex Utilities and Market ex Health Care exhibit variation over the period, but average overlap remains around 90% to 95% and annualized tracking error around 1% to 2%.

Overall, the analysis of portfolios carving out sectors shows that overlap (and realized tracking error) can vary over time, depending on the sector composition of the market. Once again, however, a steady overlap of 90% or more is associated with a historical tracking error of about 1% per year.

Expanding the Toolkit

Overlap can help inform investor expectations about differences in performance through time, but it should be supplemented by other data lenses. Top holdings, aggregate equity characteristics, and relative over- and underweighting by market segment are also powerful tools to set expectations about short- and long-term differences in performance.

Top holdings are particularly informative about short-term performance deviations. For example, consider a portfolio that has 95% overlap with a starting strategy. Suppose the 5% difference in weights comes from differences of 5 basis points (bps) across 100 small holdings. It is unlikely that the small weight differences across many names will have a meaningful impact on performance deviation in the short term. Some of the small overweights will probably outperform; others will probably underperform. Similarly, some of the small underweights will probably outperform, while others will probably underperform. The spread of weight differences across so many names and the small sizes of those weight differences make it likely that the noise in their realized returns will be

diversified away and will not have a large impact on short-term relative performance. Now consider an alternative portfolio, also with 95% overlap, but where the 5% deviation is driven entirely by one large stock. With the weight deviation concentrated in one name, investors are more likely to experience noticeable day-to-day and month-to-month performance deviations between the starting portfolio and the final portfolio.

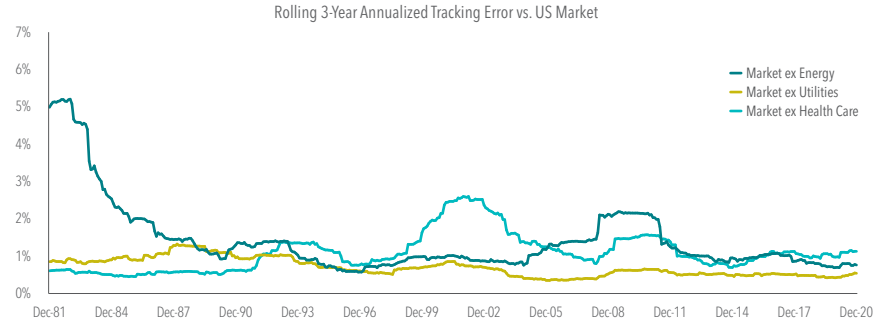
We present the top 10 holdings for the Dimensional US Market Index, and the Light, Medium, and Strong hypothetical strategies in **Exhibit 7**. Focusing on the largest five holdings, the security weighting in the Light strategy is closest to that of the Dimensional US Market Index, with the Strong strategy generally exhibiting the largest deviations in weight from the index. Starting with the largest holding, the difference in the weight of Apple between the index and the Light strategy is 19 bps, compared to around 5 bps for the Medium and Strong strategies. The next largest holdings exhibit wider differences between the Dimensional US Market Index and the Strong strategy: 142 bps for Microsoft and 248 bps for Amazon, for example.

Similarly, examining sector weights across strategies informs investors about the magnitude of potential return deviations from a benchmark or a starting strategy. Sector weights for the Dimensional US Market Index and the Light, Medium, and Strong strategies are presented in **Exhibit 8**. Once again, the differences from the market generally increase moving left to right, with about 3% to 4% sector weight differences between Dimensional US Market and the Strong strategy in Industrials and Information Technology.

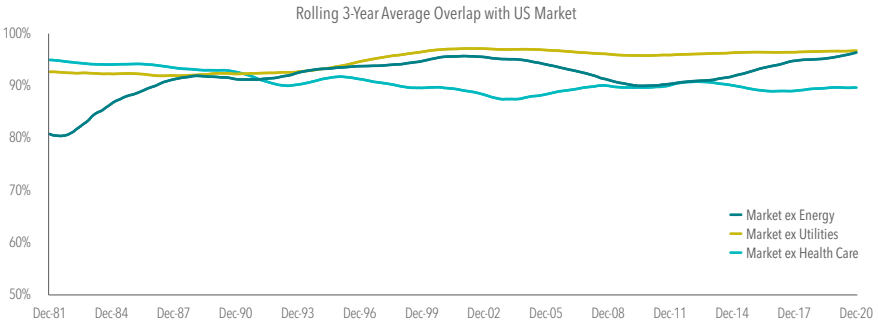
Differences across top holdings and sector weights can help investors better understand drivers of potential performance deviations vs. the market over shorter time horizons. For example, over a given time period, some sectors will outperform the overall market, and some stocks will perform better than others. Differences in stock and sector weights can therefore inform investors about drivers of short-term performance deviation.

EXHIBIT 6: Rolling Annualized 3-Year Tracking Error and Rolling 3-Year Average Overlap vs. US Market, *1981–2020*

PANEL A: Tracking Error



PANEL B: Overlap



Notes: Data are based on the 10 Industry Portfolios, sourced from the Ken French Data Library, available at mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. *Market represents all US common stocks. Overlap equal to the weight of the market minus the weight of specified industry.* **Past performance is no guarantee of future results. Actual returns may be lower.** *Indices are not available for direct investment. Index returns are not representative of actual portfolios and do not reflect costs and fees associated with an actual investment.*

EXHIBIT 7: Top 10 Holdings by Strategy

Stock	Dimensional US Market Index	Light	Medium	Strong
Apple Inc	5.95%	6.14%	6.00%	5.89%
Microsoft Corp	4.40%	4.15%	3.40%	2.98%
Amazon.com Inc	4.25%	4.00%	3.04%	1.77%
Alphabet Inc	2.90%	2.65%	1.81%	1.69%
Facebook Inc	1.72%	1.54%	1.31%	1.02%
Johnson & Johnson	1.08%	1.15%	0.94%	1.16%
Berkshire Hathaway Inc	1.46%	1.37%	1.29%	1.12%
Walmart Inc	1.07%	1.01%	0.89%	0.90%
Tesla Inc	1.72%	1.47%	–	–
Visa Inc	–	–	–	0.86%
JPMorgan Chase & Co	1.02%	1.11%	1.33%	1.01%
Verizon Communications Inc	–	–	0.93%	–
Total Weight	**25.6%**	**24.6%**	**20.9%**	**18.4%**

Notes: Light is represented by the Dimensional US Core Equity Market Index; Medium represents the Dimensional US Adjusted Market 1 Index; Strong represents the Dimensional US Adjusted Market 2 Index. Data are as of December 31, 2020.

What about drivers of long-term differences in expected performance? These differences arise from systematic differences in emphasis on the reliable long-term drivers of expected returns, which are the size, value, and profitability premiums in equities. Hence, a useful starting point is to compare the weighted average market capitalization, relative price, and profitability of the strategies.

Exhibit 9 presents such information for the Dimensional US Market Index and the three hypothetical strategies. Unsurprisingly, the Strong strategy deviates most from the index and has the smallest weighted average market capitalization and the lowest aggregate price-to-book ratio. However, stocks with smaller market caps and lower relative price tend to have lower profitability. The interactions across the premiums mask the stronger emphasis on profitability for the Strong strategy, and it ends up with the same weighted average profitability as the Light and Medium strategies.

While aggregate equity characteristics are a helpful tool in setting expectations for long-term systematic performance differences between two strategies, they cannot always paint the full picture. In other words, aggregate equity characteristics are like evaluating the condition of a car based only on its outward appearance. While the outward appearance is relevant, it does not tell the whole story. You need to look under the hood. For equity portfolios, we can use our relative positioning lens, which breaks down the market into size-value-profitability subsets and shows the relative weights of strategies subset by subset. This data lens provides a granular evaluation of the expected return differences between the strategies and can show whether the personalized portfolio has a similar emphasis on the groups of securities with higher expected returns (small, value, high profitability names) as the starting strategy.

We present the relative positioning for the Light, Medium, and Strong strategies in Exhibit 10 compared to the broad US equity market, represented by the Russell 3000 Index. The universe is first broken down into large caps, mid caps, and small caps, and then within large and mid caps and within small caps, divided along relative price and profitability dimensions into four groups. The gray boxes indicate the weight in the market in each group—for example, 65.5% in large caps, 16.6% in mid caps, and 8.5% in small caps, with 2.0% within the small, value, high profitability group. The blue, dark gray, and yellow boxes indicate the weight in each group for securities in the Light, Medium, and Strong strategies, respectively. Above each box is a multiple of the strategy weight relative to the market weight. A multiple greater than 1 indicates that the strategy has an overweight relative to the market in that group; a multiple below 1 indicates underweight.

EXHIBIT 8: Sector Weights

	Dimensional US Market Index	Light	Medium	Strong
Communication Services	10.6%	10.1%	8.9%	8.4%
Consumer Discretionary	13.6%	14.0%	13.4%	12.6%
Consumer Staples	6.8%	6.9%	6.7%	6.6%
Energy	2.0%	2.3%	2.6%	2.7%
Financials	11.1%	11.9%	13.4%	14.1%
Health Care	13.8%	12.4%	11.6%	11.6%
Industrials	9.4%	10.7%	12.2%	13.6%
Information Technology	27.3%	25.9%	24.7%	23.8%
Materials	2.6%	3.1%	3.9%	4.4%
Real Estate	0.2%	0.2%	0.2%	0.3%
Utilities	2.7%	2.7%	2.4%	1.9%
REITs	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**

Notes: Light is represented by the Dimensional US Core Equity Market Index; Medium represents the Dimensional US Adjusted Market 1 Index; Strong represents the Dimensional US Adjusted Market 2 Index. Data are as of December 31, 2020. Real Estate Investment Trusts (REITs) are shown as a separate category to illustrate their exclusion from certain funds. REITs are classified according to GICS Industry code. GICS was developed by and is the exclusive property of MSCI and S&P Dow Jones Indices LLC, a division of S&P Global.

EXHIBIT 9: Aggregate Equity Characteristics

	Dimensional US Market Index	Light	Medium	Strong
Overlap with Market Index	–	91.7%	82.0%	74.7%
Number of Holdings	2,798	2,600	2,600	2,600
Weighted Average Market Cap ($MM)	427,193	412,797	354,815	312,114
Aggregate Price-to-Book	3.91	3.77	3.16	2.98
Weighted Average Profitability[2]	0.44	0.47	0.47	0.47

Notes: Light is represented by the Dimensional US Core Equity Market Index; Medium represents the Dimensional US Adjusted Market 1 Index; Strong represents the Dimensional US Adjusted Market 2 Index. The Light, Medium, and Strong strategies have fewer holdings than the Dimensional US Market Index due to the exclusion of small cap stocks with the highest relative price and lowest profitability and with the highest investment. Data are as of December 31, 2020.

EXHIBIT 10: Relative Positioning to the Market

Light Strategy
Medium Strategy
Strong Strategy
Market Weight

Large Cap		
0.98x	0.86x	0.76x
64.3%	56.0%	50.0%
65.5%		

Mid Cap		
1.14x	1.25x	1.38x
19.0%	20.8%	23.0%
16.6%		

Small Cap		
1.17x	1.99x	2.57x
9.9%	16.8%	21.8%
8.5%		

Large and Mid

	Low Prof			High Prof		
Growth	0.85x	0.66x	0.53x	1.03x	0.93x	0.87x
	8.1%	6.3%	5.0%	32.4%	29.4%	27.3%
	9.5%			31.5%		
Value	1.00x	0.95x	0.91x	1.18x	1.16x	1.23x
	31.3%	29.8%	28.6%	11.6%	11.4%	12.0%
	31.4%			9.8%		

	Low Prof			High Prof		
Growth	0.56x	0.90x	1.11x	1.27x	2.09x	2.72x
	1.1%	1.8%	2.2%	2.9%	4.8%	6.3%
	2.0%			2.3%		
Value	1.31x	2.31x	3.07x	1.49x	2.59x	3.31x
	2.9%	5.1%	6.7%	2.9%	5.1%	6.6%
	2.2%			2.0%		

REITs, Utilities, and Other Stocks		
0.72x	0.68x	0.56x
6.8%	6.4%	5.3%
9.4%		

Notes: The Market is represented by the Russell 3000 Index. Light is represented by the Dimensional US Core Equity Market Index; Medium is represented by the Dimensional US Adjusted Market 1 Index; Strong is represented by the Dimensional US Adjusted Market 2 Index. In the US, Large Cap is defined as approximately the largest 70% of market capitalization, Mid Cap the next 20%, and Small Cap the smallest 10%. Designations between value and growth are based on price-to-book ratios. Value is defined as the 50% of market cap with the lowest price-to-book ratios by size category, and growth is the highest 50%. Profitability ("Prof") is measured as operating income before depreciation and amortization minus interest expense scaled by book. High profitability is defined as the 50% of market cap with the highest profitability by size category, and low profitability is the lowest 50%. REITs, Utilities, and Other Stocks includes REITs and Utilities, identified by GICS code, and stocks without size, relative price, or profitability metrics. Underlying holdings in rights, warrants, cash, cash equivalents, ETFs, and bonds are excluded. Weights may not total 100% due to rounding. Frank Russell Company is the source and owner of the trademarks, service marks, and copyrights related to the Russell Indexes.

The relative positioning lens makes clear that all three strategies have a balanced emphasis on the size, relative price, and profitability premiums. We can see this by the overweight to small caps and underweight to large caps, as well as the greatest overweight within small caps in each strategy occurring across value stocks with high profitability. Compared to the market, the Light strategy overweights this group of stocks by 1.49x, with overweights of 2.59x and 3.31x for the Medium and Strong, respectively. On the flip side, each strategy exhibits greater relative underweight within large cap growth stocks with low profitability.

Key Takeaways

As investors embrace personalization in the pursuit of their goals, it is critical to understand differences in their personalized portfolio compared to a starting strategy to inform expectations about short-term and long-term differences in performance. While a common metric, forecast tracking error has limitations, as it relies on a lot of assumptions and estimation choices. We believe that overlap is a more robust metric for evaluating the proximity of two portfolios. However, no metric is self-sufficient. A comprehensive evaluation of a personalized equity strategy relative to a starting strategy should include not only overlap but also a review of top holdings and aggregate equity characteristics, along with a relative positioning lens, in order to set proper expectations about short-term and long-term deviations in performance.

Index Descriptions

Dimensional US Market Index
June 1927–Present: Dimensional US Market Index Composition: Market-capitalization-weighted index of securities of all US companies. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies Source: CRSP and Compustat.

Dimensional US Adjusted Market 1 Index
June 1927–December 1974: Dimensional US Adjusted Market 1 Index Composition: Targets all the securities in the Eligible Market with an emphasis on companies with smaller capitalization and lower relative price. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat.

January 1975–Present: Dimensional US Adjusted Market 1 Index. Composition: Targets all the securities in the Eligible Market with an emphasis on companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within the small cap universe. The index also excludes those companies with the highest asset growth within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat.

The calculation methodology for the Dimensional US Adjusted Market 1 Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index.
The calculation methodology for the Dimensional US Adjusted Market 1 Index was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

Dimensional US Adjusted Market 2 Index
June 1927–December 1974: Dimensional US Adjusted Market 2 Index Composition: Targets all the securities in the Eligible Market with an emphasis on companies with smaller capitalization and lower relative price. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat.

January 1975–Present: Dimensional US Adjusted Market 2 Index. Composition: Targets all the securities in the Eligible Market with an emphasis on companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within the small cap universe. The index also excludes those companies with the highest asset growth within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year. The Eligible Market is composed of securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market. Exclusions: Non-US companies, REITs, UITs, and Investment Companies. Source: CRSP and Compustat.

The calculation methodology for the Dimensional US Adjusted Market 2 Index was amended on January 1, 2014, to include profitability as a factor in selecting securities for inclusion in the index. The calculation methodology for the Dimensional US Adjusted Market 2 Index was amended in December 2019 to include asset growth as a factor in selecting securities for inclusion in the index.

The Dimensional US Market Index, Dimensional US Adjusted Market 1 Index, and Dimensional US Adjusted Market 2 Index have been retrospectively calculated by Dimensional Fund Advisors and did not exist prior to March 1, 2007. Accordingly, the results shown during the periods prior to March 1, 2007, do not represent actual returns of the Indices. The monthly returns to each index are computed as the simple average of the monthly returns of 12 sub-indices, each one reconstituted once a year at the end of each month of the year. The Indices are unmanaged and are not subject to fees and expenses typically associated with managed accounts or investment funds.

Dimensional US Core Equity Market Index
January 1975–Present: Compiled by Dimensional from CRSP and Compustat data.

Targets all securities of US companies traded on the NYSE, NYSE MKT (formerly AMEX), and Nasdaq Global Market with an emphasis on companies with smaller capitalization, lower relative price, and higher profitability, excluding those with the lowest profitability and highest relative price within the small cap universe. The index also excludes those companies with the highest asset growth within the small cap universe. Profitability is defined as operating income before depreciation and amortization minus interest expense divided by book equity. Asset growth is defined as change in total assets from the prior fiscal year to current fiscal year.

Exclusions: non-US companies, REITs, UITs, and investment companies. The index has been retroactively calculated by Dimensional and did not exist prior to August 2020. Dimensional Index data compiled by Dimensional.

The Dimensional Indices have been retrospectively calculated by Dimensional Fund Advisors LP and did not exist prior to their index inception dates. Accordingly, results shown during the periods prior to each index's index inception date do not represent actual returns of the index. Other periods selected may have different results, including losses. Backtested index performance is hypothetical and is provided for informational purposes only

to indicate historical performance had the index been calculated over the relevant time periods. Backtested performance results assume the reinvestment of dividends and capital gains. Indices are not available for direct investment.

The Dimensional Indices represent academic concepts that may be used in portfolio construction and are not available for direct investment or for use as a benchmark.

1. Certain UMA account types such as IRAs, solo 401(k)s, and other non-ERISA tax-advantaged accounts may only select no tax management when choosing a tax management approach.
2. Marlena Lee, "Stress Testing Monte Carlo Assumptions" (working paper, Pension Research Council, October 2013); Jim Davis, "Efficient Frontiers Constructed with Historical Data Can Be Misleading" (white paper, Dimensional Fund Advisors, October 2008).
3. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book equity.

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