

Research

FTSE
Russell

The Russell Pure Style Indexes

Tools for the next level of style investing

Executive summary:

- The Russell Pure Style Indexes are designed to provide focused exposure to the value and growth segments of the U.S. equity market.
- The Pure Style Indexes methodology extends that of Russell's standard Value and Growth Indexes.
- While aligned with the standard style indexes, the Pure Style Indexes have increased exposures to value and growth style factors, which resulted in greater distinction in returns, in historical simulations.

On April 7, 2015, Russell Indexes launched the Russell Pure Style Index Series, which builds on Russell Indexes' long history of index innovation. The index series has Russell's standard style methodology at its core and is further enhanced to offer a more concentrated expression of the growth and value investment styles. Covering all capitalization components of the Russell 3000® Index, the series comprises:

- Russell Top 200® Pure Growth Index
- Russell Top 200® Pure Value Index
- Russell Midcap® Pure Growth Index
- Russell Midcap® Pure Value Index
- Russell 2000® Pure Growth Index
- Russell 2000® Pure Value Index
- Russell 1000® Pure Growth Index
- Russell 1000® Pure Value Index

While the standard Russell Value and Growth style indexes can be used as performance benchmarks or as asset class proxies, the Pure Style Index Series provides tools that allow more precise refinement of equity exposures.

In the first part of this paper, we review the uses of style indexes and Russell's motivation for creating these new Pure Style Indexes. We also briefly touch on the methodology behind the Pure Style Indexes. In Part 2, we examine the characteristics and factor capture of the new indexes, contrasting them with standard style indexes. We also examine the behavior of the Pure Style Indexes over style cycles.

Part 1

Style index uses

Russell style indexes have been the primary benchmarks for use by style investors ever since the launch of Russell's first value and growth indexes in 1987. As of year-end 2014, more than half of all U.S. institutional equity products are benchmarked to a style index, and of those products, 99 percent are benchmarked to a Russell style index.¹

¹ "U.S. Equity Indexes: Institutional Benchmark Survey," *Russell Research*, Russell Investments, January 2015.

From their inception, style indexes have mainly been used in two ways. The first use is to serve as benchmarks for two types of active managers, who are fishing in distinctly different waters. Roughly speaking, one type of active manager searches for “bargain” stocks, where perceived potential value is most often defined by low price-to-book or price-to-earnings ratios. Another type of active manager looks for stocks with high expected earnings growth and sales trends. The different approaches to stock picking are known as value and growth styles, respectively, and the groups of stocks associated with these styles can reasonably be distinguished by stock characteristics. Accurate measurement of styles with style indexes has both led to increased awareness and validation of styles and has fueled the rise of style investing.

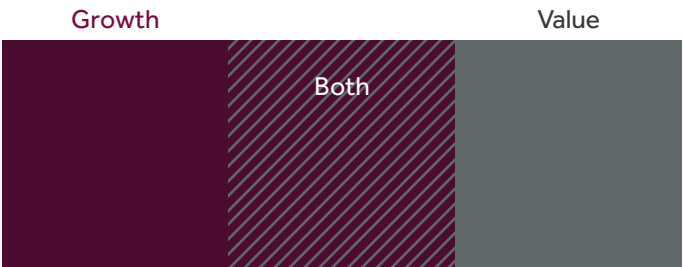
The second main use of style indexes is to support institutional investors’ strategic asset allocation processes. After a pension plan sponsor, for example, decides on an overall percentage allocation to equities, there is usually another step: deciding on the segmentation of the equity allocation into “core” investments (a category with no overall style or cap bias), and then into value, growth, small-cap, mid-cap and large-cap investments. Indexes are used as proxies for the market segments in asset allocation analysis. In that context, value and growth indexes are typically constructed to be modular and to split the overall market into complementary components that neatly roll up to the overall broad market index.

A simple “knife-edge” dividing line between the market’s value and growth segments would result in some stocks near the dividing line being arbitrarily classified as (for example) value, even though their characteristics were very similar to those of stocks classified as growth, just on the other side of the dividing line. Stocks near the line might actually be held by both value and growth managers. As we discuss in more detail in our methodology overview, this problem is elegantly solved by Russell’s nonlinear probability (NLP) algorithm, which allows stocks with neither strong value nor strong growth characteristics to be included, with diminished weight, in both indexes. This scoring system successfully accomplishes the goals of modular and all-inclusive style indexes. Russell style indexes continue to be the primary benchmarks for active value and growth managers in the U.S. institutional market place, and they continue to attract index users seeking exposure to broad segments of the market with style tilts.

The next level of style investing

The modular approach of Russell’s standard style methodology leads to an intentional overlap of roughly 30 percent of the total market value weight in the two indexes (Figure 1), which results in a reduction in the strength of the style exposure. This may not suit the needs of all investors.

Figure 1. Russell’s standard style indexes, by design, divide some stocks between growth and value indexes.



While standard style indexes are useful for benchmarking and strategic asset allocation, some investors want to have even greater control over style exposures within their portfolios. They seek to more precisely construct portfolios by striking a balance between growth and value segments with large-, mid- and small-cap exposures. Dynamic and tactical tilting may also be part of their strategy. They want indexes to support their decisions with exposures that are sharp, focused and non-overlapping.

With its creation of the Russell Pure Style Indexes Series, Russell Indexes has responded to this demand. These new indexes include only stocks with purely growth and purely value characteristics. There is no overlapping (Figure 2), and stocks are weighted according to their relative style attractiveness.

Figure 2. Russell’s Pure Style indexes include only stocks with purely growth and purely value characteristics.



Table 1 highlights the differences in stock selection rules between Russell’s standard style and Pure Style indexes.

Table 1. Summary of stock-selection rules

	Standard style indexes	Pure style indexes
Universe coverage	Exhaustive. All parent index stocks are included	Selective. Only pure style stocks are included
Overlapping stocks in value and growth indexes?	Yes	No
Weights ²	Market cap	Style scores

² This is a simplification. For detail on weighting, see “Russell Pure Style Indexes: Construction and Methodology,” Russell Indexes, March 2015.

The Pure Style indexes have been further differentiated by cap size. The well-known Russell 1000® Index comprises mega- and mid-cap stocks. To ensure that there is no overlapping between indexes in the new series, we employ the Russell Top 200® Index universe for our Top 200 Pure Style indexes, and the Russell Midcap® Index universe for our Midcap Pure Style indexes. The Top 200 universe had about 68% of the market value of the Russell 1000, while the Midcap universe had about 32% of the market value of the Russell 1000 as of the 2014 reconstitution. The Russell 2000® Index universe is employed for the small cap Pure Style indexes. Taken together, as shown in Table 2, there are six Pure Style indexes drawn from universes without any gaps or overlaps (two styles by three cap tiers).

Table 2. Pure Style indexes by cap tier and styles

Cap tier	Pure value	Pure growth
Top 200	Russell Top 200 Pure Value Index	Russell Top 200 Pure Growth Index
Midcap	Russell Midcap Pure Value Index	Russell Midcap Pure Growth Index
Small	Russell 2000 Pure Value Index	Russell 2000 Pure Growth Index

Two additional Pure Style indexes are based on the Russell 1000 universe, which, again, encompasses the Top 200 and Midcap universes. Thus there are eight Pure Style indexes in all.

While we have touched on some of the key aspects of both the standard and the Pure Style methodologies, in the next section we expand on them, so the reader may get a deeper understanding of Russell's index methodology.

Methodology overview

The overall objective of the Pure Style methodology was to produce a series of concentrated style indexes, where the constituent companies of each index are either fully growth or fully value. How is this done? To explain, we first present an overview of the style methodology used in the construction of Russell's standard style indexes. From there, we look at how the Pure Style methodology builds on this – and then extends it – to create a comprehensive series of more concentrated, “pure” style indexes. While the standard style indexes are the best *representation* of a given stock *universe*, the Pure Style methodology narrows that universe and delivers a tailored exposure to only those stocks considered to be either fully value or fully growth.

³ For a full description of Russell's style methodology, see “Russell U.S. Equity Indexes: Construction and Methodology,” Russell Indexes, March 2015.

Starting from the basics: An overview of Russell's standard style methodology³

As mentioned, value and growth managers tend to construct their portfolios from different initial groups of stocks. These groupings can be distinguished by various stock characteristics, such as valuation ratios or growth metrics. As of 2015⁴, the stock characteristics used by Russell Indexes for measuring value and growth styles are:

- Book-to-price ratio (value variable)
- I/B/E/S forecast medium-term EPS growth (growth variable)
- Historical sales per share growth (growth variable)

For each variable, stocks of the parent index are sorted on the variable and assigned a score ranging from zero to 1, representing the strength of value exposure indicated by the variable. For example, a book-to-price score of zero represents the greatest growth (or least value) exposure within the group, while a score of 1 represents the greatest value exposure within the group.

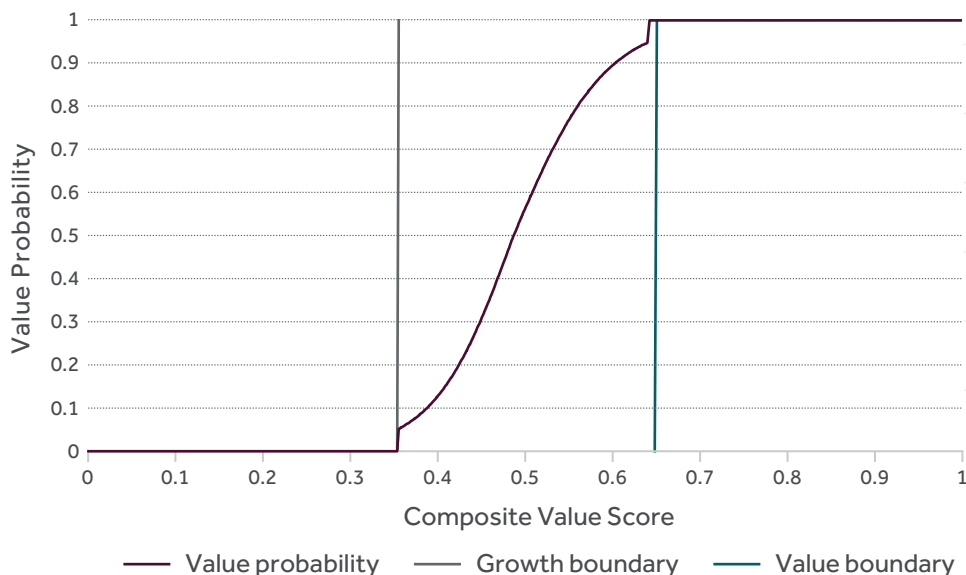
Given the scores for each variable, the methodology combines the scores in a weighted average to form a composite value score (CVS), which also ranges from zero to 1. Again, a CVS of zero represents the greatest combined growth exposure among stocks of the parent index, while a CVS of 1 represents the greatest combined value exposure within the group. This sorting and scoring is done separately for stocks of the Russell 1000 and Russell 2000 indexes. CVS scores from the Russell 1000 are used for the Russell Top 200 and Midcap Pure Style indexes.

The CVS measures the exposure of a stock to value or growth. The final step of the standard style methodology is to divide the parent index's constituents into equal market value halves, after sorting on the CVS. Instead of simply separating the constituents into two parts, above and below a breakpoint, the Russell methodology employs a nonlinear function to assign a probability to each stock, where a probability of zero indicates membership wholly in the growth index, while a probability of 1 indicates membership wholly in the value index. The probability, in turn, is multiplied by the number of shares (and thereby the market value) of the stock in the parent index, so that each stock is fully apportioned between the value and growth indexes. An example of this function is shown in Figure 3. The function is calibrated so that roughly 35% of the market value of the parent index is wholly in the growth index, 35% is wholly in the value index, and about 30% is divided between the growth and value indexes. This middle range represents stocks that might reasonably appear in both value managers' and growth managers' portfolios. Conversely, value managers' portfolios are not likely to hold stocks where the probability is zero, and growth managers' portfolios are not likely to hold stocks where the probability is 1.

⁴ There has been some evolution in the variables used over time. In 2011, the medium-term growth variable replaced a long-term growth variable, and the historical sales per share growth variable was added. To create the index history, we used the actual scores and probabilities computed at annual reconstitutions, beginning in 1998.

Figure 3. Russell 1000 value/growth style probability assignment, as of the 2014 reconstitution.

Value probability is shown; growth probability equals 1 minus value probability.



Source: Russell Indexes

Creating a “pure” style index: Extending the traditional style methodology

The Russell Top 200, Russell Midcap, Russell 1000 and Russell 2000 indexes are the parent indexes from which candidate Pure Style constituents are selected. Except where noted, the methodology described below is applied to all four market capitalization segments.⁵ The Pure Style methodology addresses issues of liquidity, pure style exposure, constituent style weighting and index-level sector concentrations.

Liquidity

Pure Style indexes are more concentrated than their standard style index counterparts, and stock liquidity is a concern. To address this, Russell utilizes a four-week average daily dollar trading volume (ADDTV) to measure liquidity. An ADDTV cutoff is established such that ADDTV must be greater than or equal to the bottom 10% of the Russell 2000 Index when sorted by ADDTV. All candidate constituents, for any of the Pure Style indexes, must meet this minimum ADDTV requirement.

Pure style exposure

Once a pool of liquid candidates is created from the parent index, the style probability assignments from the standard style indexes are used to further narrow the list. Only those stocks having a value probability of 1 are considered for inclusion in the Pure Value Index, and only those stocks having a growth probability

⁵ The reader is encouraged to consult “Russell Pure Style Indexes: Construction and Methodology,” Russell Indexes, March 2015, for more detailed information.

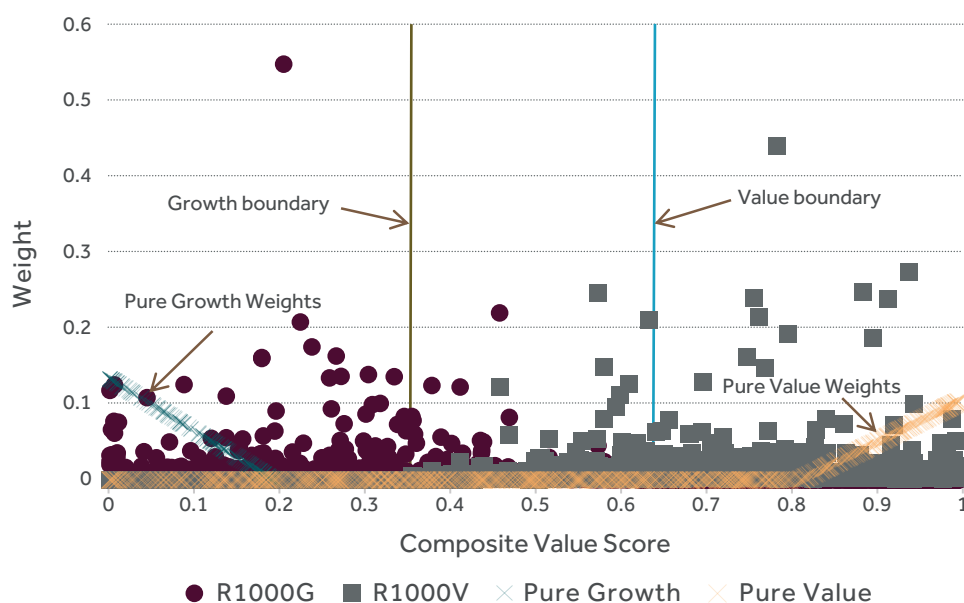
of 1 (equivalent to a value probability of zero) are considered for inclusion in the Pure Growth Index. The group of stocks with a value probability of 1, as shown above in Figure 3, corresponds to roughly 35% of the candidates in the parent index. The candidate list is then further reduced by half, retaining the half with the highest CVS scores for the Pure Value Index, or the lowest CVS scores for the Pure Growth Index.⁶

Assigning style weights

In order to further focus the exposure of the index on value or growth, the selected stocks for the Pure Value Index are weighted in proportion to their CVS, and the selected stocks for the Pure Growth Index are weighted inversely to CVS. It is easiest to grasp the weighting scheme in a picture. The weights for Russell 1000 Pure Value and Pure Growth Indexes, as of the 2014 reconstitution, are depicted in Figure 4. This illustrates that the Russell 1000 Pure Value Index constituent weights have a clear, direct relationship to the constituent CVS scores. For comparison, the weights of the Russell 1000 Value Index are shown. Clearly, the Pure Value Index concentrates the exposure on those stocks with the highest value exposure, as measured by the CVS score. Similarly, the Pure Growth Index concentrates on the highest growth exposure.

Figure 4. Comparative constituent weights for Russell 1000 Pure Style and Russell 1000 standard style indexes as of the 2014 reconstitution.

Pure Style weights shown are prior to application of sector constraints.



Source: Russell Indexes

⁶ This concentration refinement is not applied to the Russell Top 200 Pure Style indexes, which were determined to be sufficiently concentrated.

Managing sector exposures

Alternatively weighted indexes may have notable sector deviations from the parent benchmark. To ensure that index characteristics are driven by intended exposures, rather than by sector biases, the Russell Pure Style Indexes methodology incorporates sector constraints. Simply put, a Pure Style Index may not have a sector deviation greater than 10% from its parent style index's sector weight. Any weight in excess of 10% is redistributed pro-rata across the constituents of the unconstrained sectors.

The net result of the above methodology is to create a more focused exposure, while maintaining adequate liquidity and diversity in a tradable index. The minimum liquidity requirement ensures that the least-liquid stocks of the Russell 3000 Index universe do not enter these concentrated portfolios, while the sector caps restrict overconcentration in sectors.

The inherent reduction in diversification due to concentration is also partially mitigated by the weighting scheme. All Pure Style Indexes have far fewer actual stocks than their standard style counterparts, in order to maintain highly concentrated style exposure. All else equal, that would make Pure Style Indexes far less diversified than their standard style counterparts. However, all is not equal, due to differences in weighting schemes. The standard style weights are based on capitalization levels, which tend to be top-heavy, resulting in the largest stocks often dominating the returns. The Pure Style weights are based on style scores, and by the index construction, only those stocks with high scores are included. The resulting indexes are less top-heavy compared to capitalization-weighted, which partially (or in some cases, completely) offsets the reduction in diversification from having fewer actual stocks. See Appendix A for an analysis of this effect.

We've described the standard Russell Style methodology and its role in the Pure Style methodology. In Part 2 we review the resultant style factor capture, performance and portfolio characteristics that these indexes would have exhibited over time.

Part 2

Concentration of the value and growth investment styles is a primary objective of the Pure Style Indexes. By construction, these indexes have greater exposure to value and growth as measured by the composite value scores. We would expect to confirm greater exposures to value and growth factors by using factor models and other metrics commonly employed in the industry. We demonstrate that this is the case when using a standard set of portfolio characteristics and two different factor models.

Value and growth portfolio characteristics

How do the Pure Style Indexes compare to their standard style counterparts?

Table 3 presents statistics that summarize index-level characteristics as of March 2015 for the four Pure Value Indexes and compares those statistics to their standard value index counterparts.

Table 3. Index characteristics as of March 2015 for Pure Value vs. standard value

	Top 200 Pure Value Index	Top 200 Value Index	Midcap Pure Value Index	Midcap Value Index	R2000 Pure Value Index	R2000 Value Index	R1000 Pure Value Index	R1000 Value Index
Number of holdings	65	126	143	574	326	1,357	176	700
Dividend yield	0.026	0.025	0.029	0.021	0.027	0.020	0.028	0.024
Price to earnings (x Neg)	17.5	19.2	23.6	24.6	23.6	25.4	22.7	20.8
Price to Book	1.41	1.84	1.37	1.95	1.27	1.61	1.35	1.88
5-year historical sales growth	0.43	3.50	-0.96	4.73	-4.10	2.39	-1.46	3.87

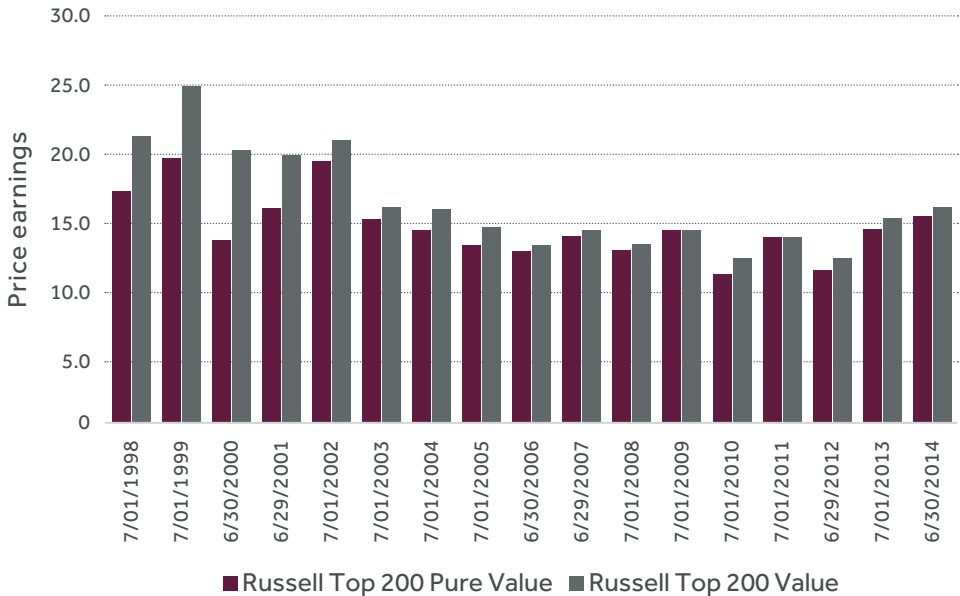
Data courtesy of Russell, BNYMellon. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

In terms of valuations, as intended, the Pure Value indexes had lower price-to-earnings⁷ and price-to-book ratios than the standard value indexes. Also worth noting is that the Pure Value indexes had higher dividend yields than the standard value indexes.

⁷ The calculated P/E ratio excludes negative earnings. Additionally, P/E and P/B are computed as the harmonic mean.

Looking at characteristics over time, since 1998, using the Top 200 value indexes as an example, the Russell Top 200 Pure Value Index has exhibited a lower P/E versus the standard Top 200 Value Index, as evidenced in Figure 5. This is a good robustness check for value capture, since P/E ratios are not explicitly used in the creation of the CVS style scores.

Figure 5. Historical P/E comparison, 1998 – 2014, Russell Top 200 Pure Value Index vs. standard Russell Top 200 Value Index



Source: Russell Indexes, date as of June30, 2014. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

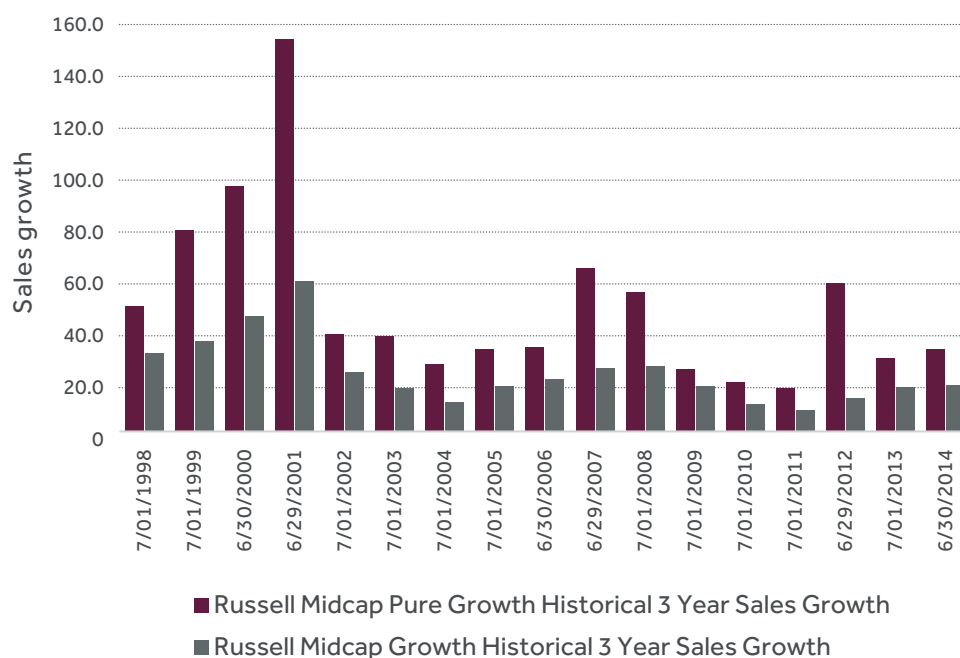
We find parallel confirmation of greater style exposure in the Pure Growth Indexes in Table 4, which depicts the index-level characteristics as of March 2015 (as in Table 3). In terms of valuations, again, as expected, the Pure Growth Indexes had higher valuation ratios as evidenced by the sizeable differences in price-to-earnings and price-to-book ratios. Five-year historical sales growth was notably higher for all cap tiers of the Pure Growth Indexes. The Russell Midcap Pure Growth Index had almost double the sales growth rate of the standard growth index (19.0% vs. 12.3%). This was not a one-time occurrence: as Figure 6 shows, Midcap Pure Growth constituents have consistently exhibited higher sales growth relative to standard Midcap Growth constituents since inception, especially during the earlier years.

Table 4. Russell Index characteristics for Pure Growth vs. standard growth as of March 2015

	Top 200 Pure Growth Index	Top 200 Growth Index	Midcap Pure Growth Index	Midcap Growth Index	R2000 Pure Growth Index	R2000 Growth Index	R1000 Pure Growth Index	R1000 Growth Index
Number of holdings	69	129	132	550	300	1,188	166	679
Dividend yield	0.01	0.02	0.01	0.01	0.00	0.01	0.01	0.02
Price to Earnings (x Neg)	29.0	24.1	36.5	29.6	37.0	31.6	35.5	25.8
Price to book	6.83	5.59	7.71	5.45	5.62	4.35	7.59	5.55
5-year historical sales growth	19.1	14.8	19.0	12.3	18.4	12.0	20.4	14.1

Data courtesy of Russell, BNYMellon. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

Figure 6. Historical 3-year sales growth, July 1998 through June 2014 – Russell Midcap Pure Growth vs. standard Russell Midcap Growth Indexes



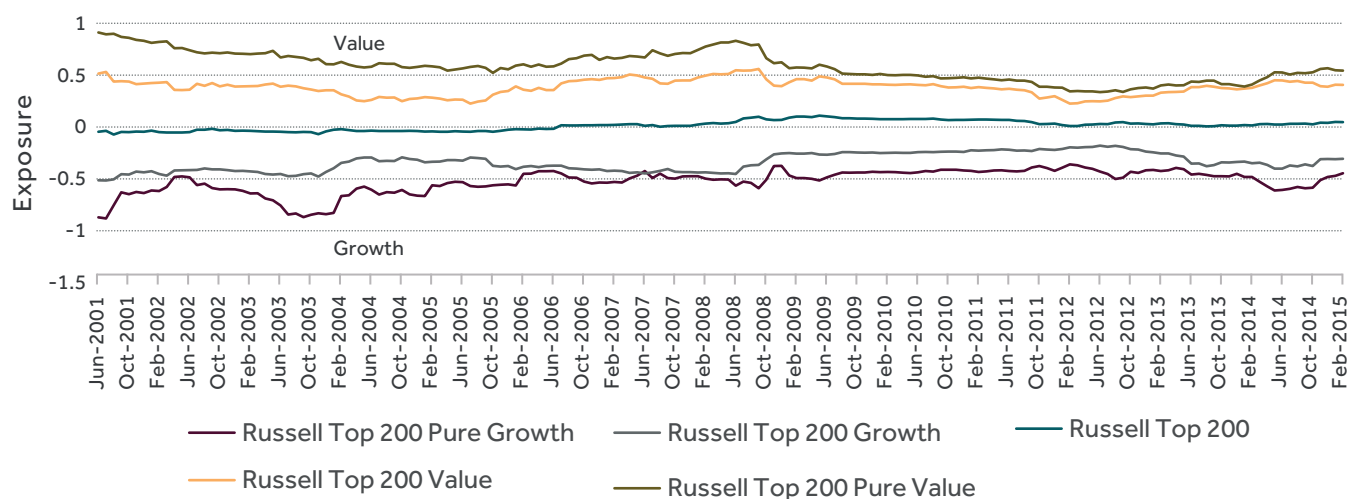
Data courtesy of FactSet. Data as of June 30, 2014. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

Value and growth exposures from factor models

One well-known model for measuring size and style exposure is the Fama-French three-factor model.⁸ We ran regressions against the Fama-French factor series and focused on the estimated coefficients of the Fama-French High Minus Low ("HML") factor return. HML is the return to a portfolio of stocks that goes long on high book-to-price stocks and shorts low book-to-price stocks. Book-to-price is perhaps the best-known indicator of how cheap or expensive a stock is, and it is indeed an important element of Russell's style methodology. Figure 7 plots rolling coefficients, which are estimates of exposures, to the HML value/growth factor for the Top 200 style indexes.⁹ A value index should have a positive coefficient, or exposure, to the HML factor return, while a growth index should have a negative coefficient. For comparison, we also plotted exposures to the standard style indexes as well as the corresponding parent index. The plot showed that on both the value and the growth dimensions, the Top 200 Pure Style Indexes consistently succeeded in delivering stronger exposures than did the standard style indexes.

**Figure 7. Russell Top 200 36-month Fama-French HML factor coefficients
June 2001 through February 2015**

Top 200: Rolling six-month coefficients on Fama-French HML factor



Source: Russell Indexes

Another type of commonly used factor model is a fundamental risk model, an example of which is the U.S. Fundamental Medium Horizon (AFMH) risk model developed by Axioma. While the Fama-French model is based exclusively on returns, the Axioma model uses the characteristics of the index holdings as inputs.¹⁰ Risk models such as Axioma's are frequently used by investors to take their portfolio analyses beyond just aggregate sector or fundamental characteristics. By performing a risk factor analysis, investors seek to understand

⁸ Fama, E., and K. French (1992), "The Cross-Section of Expected Stock Returns," *Journal of Finance* vol. 47: 427-465. Data is from Professor French's website: <http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/index.html>

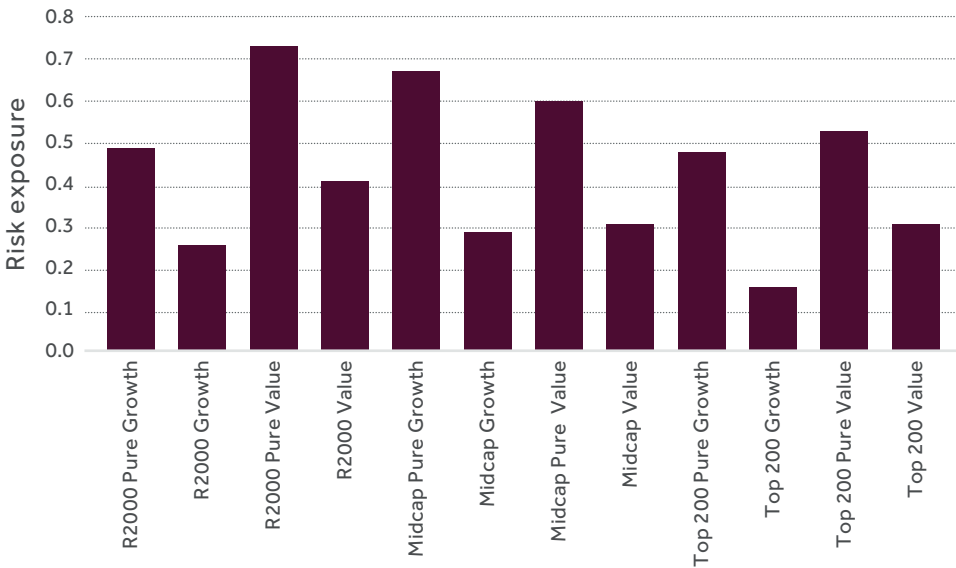
⁹ The reader is directed to the Appendix to view figures for the other Russell Pure Style indexes.

¹⁰ This Axioma risk model is used to measure the various relative risks of a portfolio, and it attempts to estimate the future volatility of the portfolio based on its exposures to the risk factors as determined from holdings.

the risk exposures shared by the stocks in a portfolio. A risk model may incorporate dozens of risk factors. Here, we look only at the Axioma Value and Growth risk factors.¹¹

In this section we used the parent indexes (Russell 2000, Russell Midcap and Russell Top 200) as benchmarks to examine the benchmark-relative risk exposures of the Pure Style and standard style indexes. Figure 8 shows that both Pure Style Indexes (in orange) and standard style indexes (in blue) have shown the expected positive loading to either the growth or value factors. However, we can see substantial differences between Pure Style and standard style index factor loadings. Over the period July 1998 through December 2014, all Pure Style Indexes, whether value or growth, would have expressed higher benchmark-relative style loading relative to their respective benchmarks, as compared to the standard style indexes. For example, the Russell 2000 Pure Value Index had an Axioma value factor loading of 0.72, contrasted to the Russell 2000 standard style Index's loading of 0.42. The Midcap Pure Growth Index had the largest differential, with an Axioma Growth factor loading of 0.66 vs. the standard Russell Midcap Growth Index's 0.28 – more than double the growth exposure.

Figure 8. Average annual Axioma benchmark-relative value and growth exposure for Russell Pure Style and standard style indexes, July 1998 through December 2014



Data courtesy of Axioma, Inc.

Thus, the Pure Style Indexes have offered greater exposures to value and growth, as measured by various profile characteristics and formal factor models. Ultimately, factor exposures must translate to distinctive return patterns to be meaningful, and we analyze that next.

¹¹ The Axioma definition of value is calculated using two characteristics: book-to-price and earnings-to-price. The Axioma definition of Growth is calculated using three characteristics: dividend payout ratio, five-year trailing earnings and five-year trailing sales growth rate. For more information, consult Axioma's website (www.axioma.com).

Style cycles and performance

To the extent that returns of the standard value and growth indexes differ, we would expect the returns of the Pure Value and Pure Growth Indexes to differ *more*. One measure of this distinction is the correlation between a pair of indexes. Table 5 shows the correlations between the standard value and growth indexes, compared with the respective correlations between the Russell Pure Value and Russell Pure Growth Indexes. The table shows that the correlation is substantially reduced in the pure cases, indicating greater distinction between the returns.

Table 5. Correlations between Russell style indexes: July 1998 through March 2015

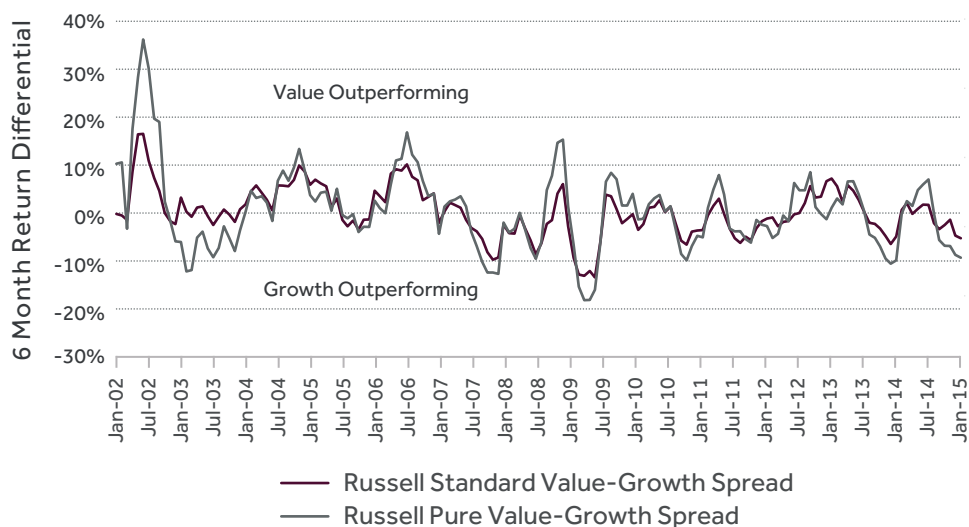
Parent index	Pure value vs. pure growth	Standard value vs. standard growth	Percent reduction in correlation
Russell Top 200	0.58	0.79	27%
Russell Midcap	0.44	0.73	40%
Russell 2000	0.64	0.84	24%
Russell 1000	0.44	0.79	44%
Average	0.52	0.79	34%

Source: Russell Investments.

Another way to observe distinctions between the returns is to simply plot the spread between the value and growth index returns. To smooth out the inevitable market noise of very short investment horizons, we've chosen six-month returns for this analysis. Figure 9 plots the Russell Top 200 standard and Pure Style spreads. It is clear that, with very few exceptions, the spreads between growth and value would have been much wider with the Pure Style Indexes, compared to the standard style indexes.

Figure 9. Russell Top 200 Pure Style spreads

Six - month value/growth return differential



Source: Russell Indexes, date as of January 31, 2015. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect

back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

Yet another way of assessing the performance differential in the ups and downs of the style cycle is to sort monthly returns into two categories: months when value outperforms growth, and vice versa. We calculated the excess returns of each of our Pure Style and standard style indexes over their matching parent indexes (the Russell Top 200, the Russell Midcap or the Russell 2000, as appropriate). In Table 6 we compare the excess performance of each style index during the two market states – months when the standard value index outperformed the standard growth index, and months when the standard growth index was the better performer.

There are a couple of interesting observations we can make about this table. First, note the differences between value and growth overall. When growth was in favor, all of the growth indexes would have generated substantially positive excess returns; and when value was in favor, all of the growth indexes would have generated just as substantial negative excess returns. The value indexes would have shown a similar pattern, in reverse. Generally, but not always, Pure Growth's outperformance when the growth factor is in favor is greater than pure value's outperformance when value is in favor. This ties into the reputations the two styles have: growth has the reputation for delivering high returns over short periods of time compared to the steadier longer returns of the value style.¹²

The most interesting aspect of Table 6 is the contrasting return patterns between the standard style and the Pure Style Indexes. In this example, every Pure Value Index outperforms its standard value index counterpart when value is in favor, and every Pure Growth Index outperforms its standard growth index counterpart when growth is in favor. Similarly, in this example, every Pure Growth Index underperforms its standard growth counterpart when growth is out of favor and, with the exception of Midcap, every Pure Value Index underperforms its standard value counterpart when value is out of favor. Thus, the larger exposures of the Russell Pure Style Indexes series would have resulted in greater index returns than were available via standard style indexes when a style factor was in favor. However, the Pure Style methodology presents a double-edged sword: Pure Style Indexes would also have demonstrated lower index returns than the standard indexes when a style was out of favor.

¹² Koenig, David, "Value & Growth: The Beatles and the Stones," *Index Insights*, Russell Investments, May 2014.

Table 6. Russell Style and Russell Pure Style returns in different parts of the style cycle

Annualized average excess returns over the Russell Top 200, Russell Midcap and Russell 2000 respectively, July 1998 – April 2015

When Value Outperformed Growth					
Top 200 Value	Top 200 Pure Value	Midcap Value	Midcap Pure Value	Small Cap Value	Small Cap Pure Value
13.9%	19.9%	14.1%	21.0%	7.9%	13.5%
Top 200 Growth	Top 200 Pure Growth	Midcap Growth	Midcap Pure Growth	Small Cap Growth	Small Cap Pure Growth
-12.3%	-20.0%	-19.1%	-20.0%	-8.0%	-16.2%
When Growth Outperformed Value					
Top 200 Value	Top 200 Pure Value	Midcap Value	Midcap Pure Value	Small Cap Value	Small Cap Pure Value
-11.8%	-17.7%	-28.9%	-18.8%	-7.3%	-14.5%
Top 200 Growth	Top 200 Pure Growth	Midcap Growth	Midcap Pure Growth	Small Cap Growth	Small Cap Pure Growth
11.2%	21.3%	16.3%	34.2%	7.0%	11.4%

Source : Russell Indexes. Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

Conclusion

The Russell Pure Style Indexes series extends the methodology of the standard Russell Growth and Value Indexes. We have shown that, historically, Pure Style Indexes would have demonstrated greater exposure to value and growth factors. We have also seen that pure style exposures would have translated to greater distinction in returns between styles, compared to the standard style benchmarks. Given their focused exposure and their strong alignment with the standard Russell Growth and Value Indexes, the Russell Pure Style Indexes provide additional tools that could be useful in a style-based investment strategy.

Appendix A: Diversification reduction mitigated by weighting

To illustrate the differences in diversification between standard and Pure Style Indexes, we employ a metric called *Effective Number of Stocks (ENS)*. It is defined as the reciprocal of the Herfindahl Index, which is the sum of the squared weights.

The formula is:

$$ENS = 1 / \sum_{i=1}^N w_i^2$$

N is the actual number of stocks and w_i^2 is the squared weight of the *i*th actual stock in the index. ENS will range from 1, if one stock accounts for all the weight, to N when the index is equal-weighted. In general, a higher ENS in an index indicates greater diversification.

Table A-1 compares the actual and the effective number of stocks in Russell's standard and Pure Style indexes. The far right column illustrates the fact that the Pure Style indexes have a smaller reduction from the actual to the effective number of stocks, due to the score weighting, which partially offsets the effect of their having a smaller number of actual stocks than the standard style indexes. In the case of the Russell 1000, the effective number of stocks in the Pure Style Indexes is even greater than in the standard style indexes. The main takeaway from this table is that, even though the Pure Style Indexes have a smaller number of stocks compared to standard style indexes, there isn't a sharp drop-off in diversification.

Table A-1.

Data as of June 30, 2014

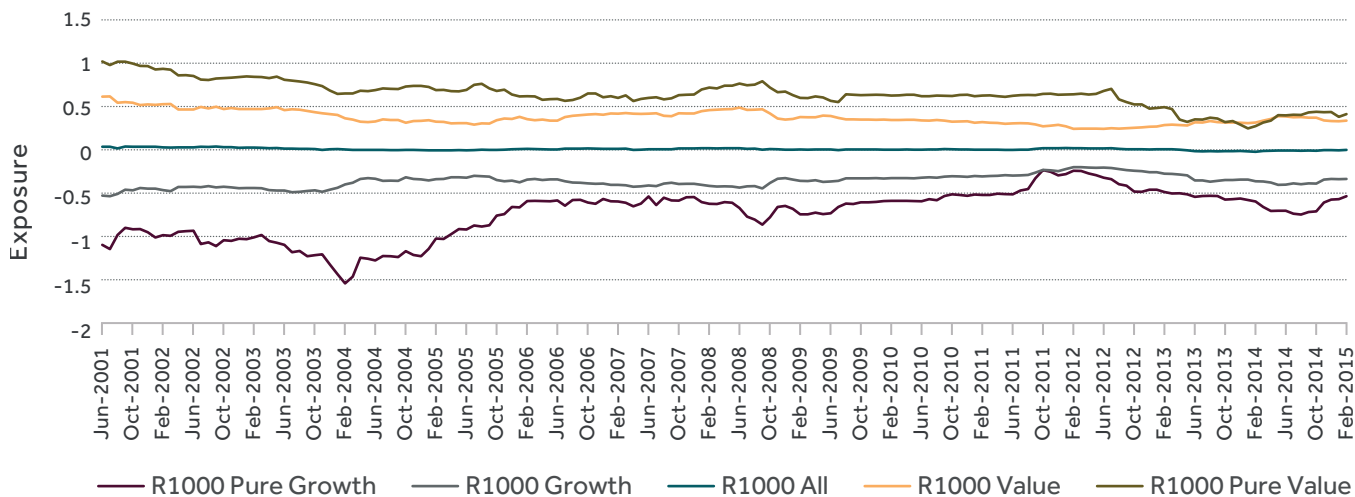
Indexes	Actual number of stocks	Effective number of stocks	Percent reduction from actual to effective
Top 200 Pure Growth	70	48	-30.9%
Top 200 Growth, standard	128	53	-58.8%
Top 200 Pure Value	66	48	-27.5%
Top 200 Value, standard	124	51	-59.2%
Midcap Pure Growth	136	89	-34.3%
Midcap Growth, standard	544	305	-43.8%
Midcap Pure Value	144	106	-26.1%
Midcap Value, standard	561	326	-41.9%
Small Cap Pure Growth	314	203	-35.3%
Small Cap Growth, standard	1,163	551	-52.7%
Small Cap Pure Value	338	231	-31.6%
Small Cap Value, standard	1,321	622	-52.9%
Russell 1000 Pure Growth	171	113	-34.1%
Russell 1000 Growth, standard	672	110	-83.6%
Russell 1000 Pure Value	177	116	-34.6%
Russell 1000 Value, standard	685	102	-85.1%

Source: Russell Indexes.

Appendix B: Fama-French HML charts

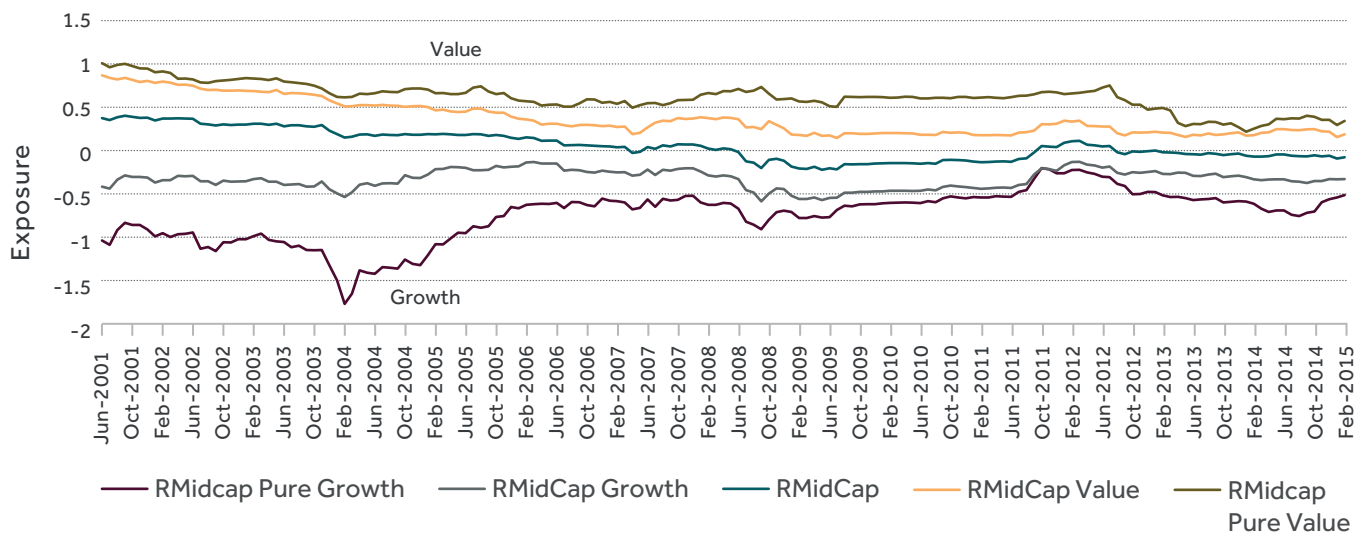
Figures B-1 to B-3 are plots of rolling 36-month coefficients (estimated exposures) to the Fama-French High Minus Low factor return, encompassing the three cap tiers not shown in the text.

Figure B-1. Russell 1000 rolling 36-month coefficients on Fama-French HML factor June 2001 through February 2015



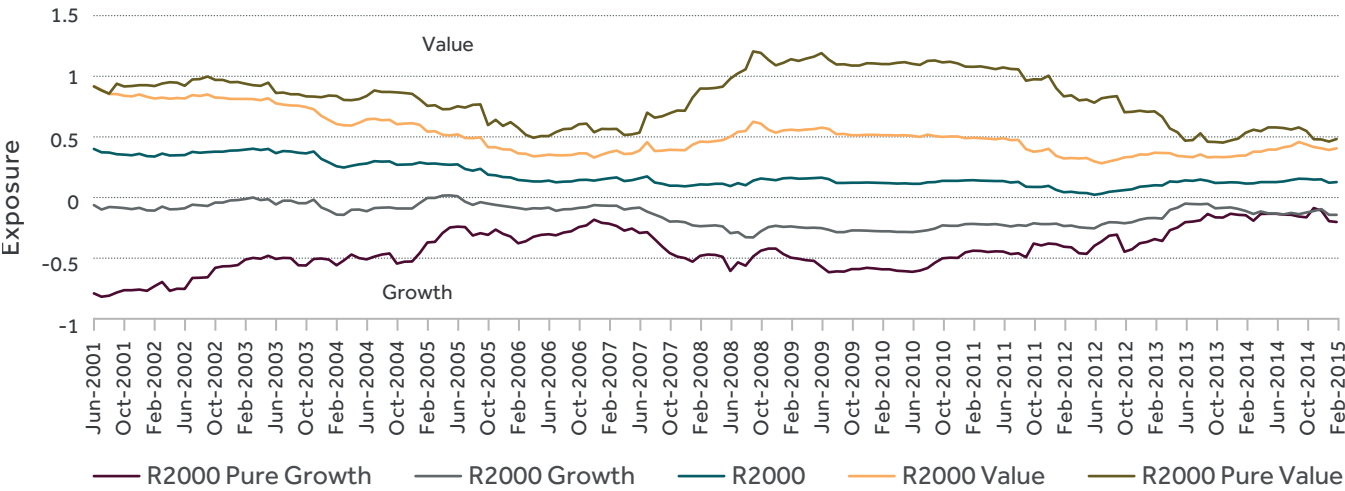
Source: Russell Indexes

Figure B-2. Russell Midcap rolling 36-month coefficients on Fama-French HML factor June 2001 through February 2015



Source: Russell Indexes

Figure B-3. Small Cap rolling 36-month coefficients on Fama-French HML factor
June 2001 through February 2015



Source: Russell Indexes

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