

# Value vs. Glamour Revisited

Historical P/B Ratio Disparities and  
Subsequent Value Stock Outperformance

September 2009

## Executive Summary

In previously published reports, the Brandes Institute (“Institute”) documented that between 1968 and 2008, value stocks consistently outperformed glamour stocks worldwide. Recently, we revisited our “Value vs. Glamour” research to study the difference in value and glamour stock valuations and subsequent returns. We quantified disparities in valuations across our universe of stocks by dividing the median decile 1 (glamour stock) price-to-book (“P/B”) ratio by the decile 10 (value stock) P/B ratio. We found that when this multiple has peaked, value stocks delivered meaningful outperformance over the subsequent 5-year period.

While past performance is not a guarantee of future results, we think an understanding of market history can be instructive. Our recent research suggests that the current expansion in the gap between median P/B ratios for U.S. value and glamour stocks indicates that value stocks may be poised for meaningful outperformance over the next five years.

## Introduction

Recently, the Institute revisited our Value vs. Glamour research, with a focus on two aspects:

1. The difference in P/B ratios between decile 10 stocks (value) and decile 1 stocks (glamour)
2. The relationship between that valuation difference and subsequent relative performance

In previous studies on performance differences between value and glamour stocks, the Institute has sought to build on the approach of academics Josef Lakonishok, Andrei Shleifer, and Robert Vishny (collectively, “LSV”). In 1994, LSV published a seminal entry in the Value vs. Glamour canon.<sup>1</sup> Using data from 1968 through 1994, LSV grouped U.S. stocks into value and glamour deciles based on price-to-book, price-to-cash flow, and price-to-earnings ratios, as well as sales growth. The researchers concluded that, for a broad range of definitions of value and glamour, value stocks consistently outperformed glamour stocks by wide margins. In addition, this outperformance remained robust when the stock samples under review were limited to the larger-capitalization stocks typically favored by large investors.<sup>2</sup>

## Methodology Recap

The universe of stocks for the Institute’s most recent Value vs. Glamour-based study consists of a market capitalization-constrained subset of all companies domiciled in the United States in the Compustat database.<sup>3</sup> Starting with all U.S.-based Compustat constituents, we excluded the smallest 50% of companies based on market capitalization. The Compustat database includes U.S. companies with market capitalizations ranging from hundreds of billions of dollars to less than \$1 million. The removal of micro caps, or firms with prohibitively small market capitalizations, yielded a sample that more accurately represented a truly “investable” universe, in our opinion, vs. the universe created by LSV.<sup>4</sup>

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<sup>1</sup> At the time of their study’s publication, Lakonishok taught at the University of Illinois, Shleifer at Harvard University, and Vishny at the University of Chicago. In 1994, the trio founded their own asset management firm.

<sup>2</sup> LSV’s conclusions are summarized on pages 1543-1544 of their report.

<sup>3</sup> By comparison, LSV focused on companies traded on the New York Stock Exchange (NYSE) or the American Stock Exchange (AMEX) from April 1968 through April 1989.

<sup>4</sup> Before excluding the smallest 50% of companies, the smallest stock in our universe had a market capitalization of less than \$1 million. After the adjustment the smallest capitalization in the sample was \$87 million. 1968 through April 1989.

Next, we sought to mirror the approach outlined by LSV as described in their article, “Contrarian Investment, Extrapolation, and Risk.”<sup>5</sup> LSV’s methodology can be condensed into three basic steps:

1. The sample of companies, starting April 30, 1968, was divided into deciles based on various valuation measures, such as P/B ratio.
2. The aggregate performance of each decile was tracked for each of the next five years on each April 30.
3. The first and second steps were repeated for each April 30 from 1969 through 2004.

Stocks with the highest P/B ratios were grouped in decile 1. For each consecutive decile, P/B ratios decreased; this culminated in stocks with the lowest P/B values forming decile 10. In essence, this process created 10 separate portfolios, each with an inception date of April 30, 1968. The lower deciles, which consisted of higher-P/B stocks, represented glamour portfolios. In contrast, the higher deciles – those filled with lower-P/B stocks – represented value portfolios.<sup>6</sup> For this study, we note that the median P/B ratios for decile 10 value and decile 1 glamour stocks were 0.50 and 7.69, respectively, as of April 30, 2009. See Exhibit 1 for more details.

### **Exhibit 1: Universe, Decile 10, and Decile 1 Characteristics**

	Universe	Value Stocks (Decile 10)	Glamour Stocks (Decile 1)
<b>Number of Securities</b>	2,674	267	267
<b>Median P/B Ratio</b>	1.53	0.50	7.69
<b>Avg. Market Cap. (millions)</b>	\$3,799	\$1,086	\$6,884

Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09

### **Valuation Disparities and Subsequent Performance**

We measured the difference in value and glamour stock valuations using a P/B multiple derived by dividing the decile 1 P/B ratio by the decile 10 P/B ratio over the study period. This measures the disparity (or uniformity) in valuations across the universe of stocks for a given point in time. Greater dispersion in valuations potentially indicates uncertainty or lack of confidence in asset prices. Then we tracked subsequent, 5-year annualized relative performance by subtracting the decile 1 results from decile 10 returns.

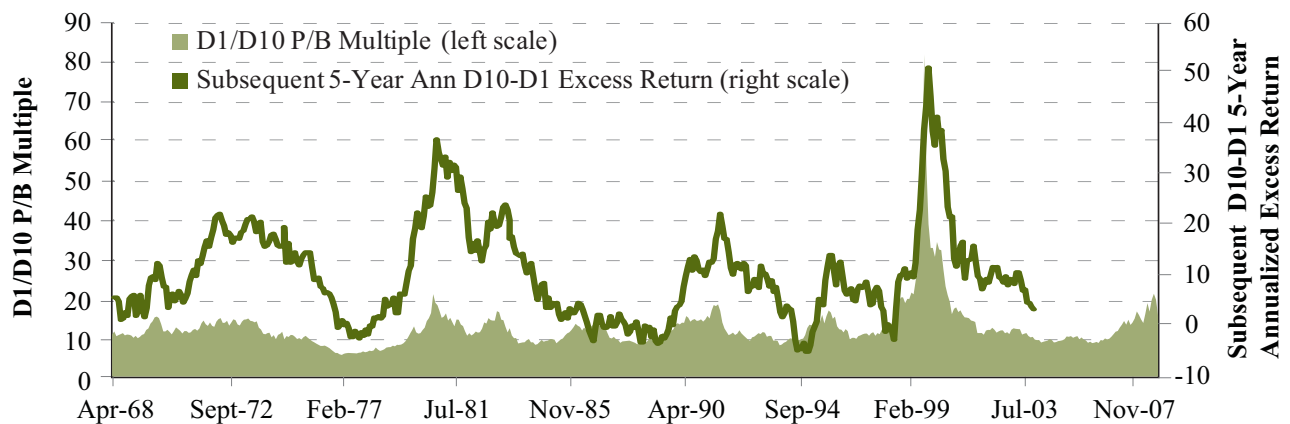
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<sup>5</sup> Lakonishok, Josef, Andrei Shleifer, and Robert Vishny. 1994. “Contrarian Investment, Extrapolation, and Risk.” *Journal of Finance* 49 (December): pages 1541-1578.

<sup>6</sup> To generate a deeper, more robust sample of observations so as to better measure the relationship between value and glamour stock valuations and subsequent returns, we divided the universe into deciles each month. The universe of securities in our more detailed “Value vs. Glamour: A Global Phenomenon” study is rebalanced each year. Beyond generating a larger sample, this difference in methodology vs. our more detailed study had no material effect on the results.

As shown in Exhibit 2, historically, when this multiple peaked (left scale), value stocks delivered meaningful outperformance over the subsequent 5-year period (right scale).<sup>7</sup> At the extreme, the multiple expanded to 81.1 in February 2000, reflecting a period of inflated share prices where glamour stocks were more than 80 times more expensive than value. From that point in 2000, decile 10 stocks outperformed decile 1 stocks by 50.6% annualized over the next five years. (The most current performance plot point is April 30, 2004, which reflects performance between that date and April 30, 2009.) More recently, the multiple climbed above 20.0 in February 2009 for the first time since January 2001; it was 15.4 on April 30, 2009.<sup>8</sup> Between 1968 and 2008, the average multiple was 12.3; the median multiple was 11.1.

**Exhibit 2: Value vs. Glamour P/B Multiple and Subsequent 5-Year Annualized Excess Returns**



Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09  
 Past performance is not a guarantee of future results.

Given the strong outperformance of decile 10 value stocks over decile 1 glamour stocks, we sought to discern how consistent this relationship was at various D1/D10 P/B multiples. Was there a strong correlation between value and glamour stock relative valuations and the subsequent relative performance value stocks delivered? To answer this question, we segmented the time-series of D1/D10 P/B multiples into quartiles so those periods of the study containing the 25% highest multiples constituted quartile 1 and so forth. Exhibit 3 shows the multiple ranges for each quartile over the entire period. To measure performance, we compared subsequent 5-year annualized returns of value stocks (D10) relative to glamour stocks (D1) for each quartile. Exhibit 3 suggests the relationship between value/glamour relative valuations and subsequent relative returns was highly monotonic: higher disparity in valuations translated into higher subsequent excess returns for value stocks.

<sup>7</sup> While some of the decile 10 stocks' outperformance can be attributed to their smaller capitalization, the small-cap premium generally was not evident in the United States between 1982 and 2002 – nearly half of the period covered by our study. Tests we conducted but not included in this report confirm that the majority of the relative returns between value and glamour stocks is attributable to differences in their collective valuations.

<sup>8</sup> The multiple was 15.2 on June 30, 2009 and 15.2 on July 31, 2009.

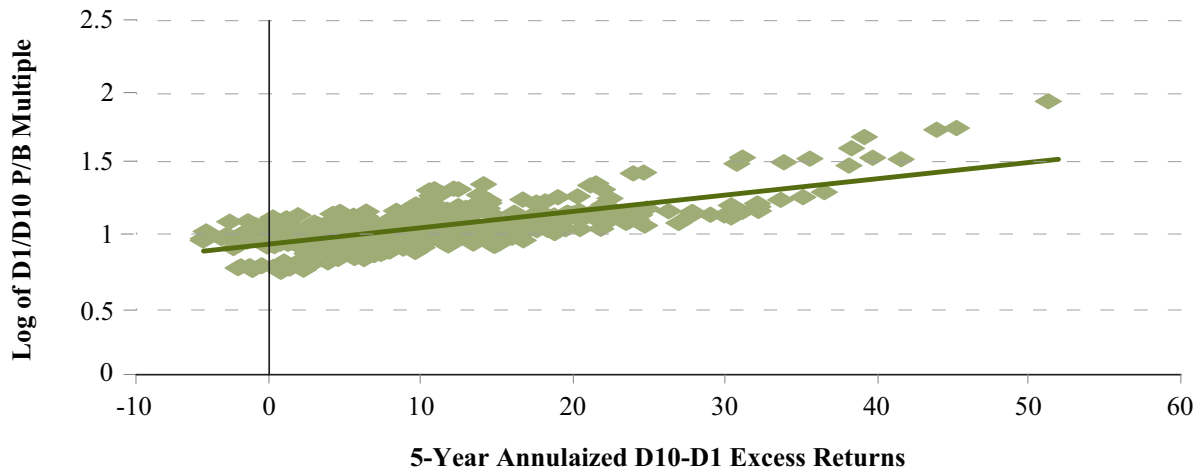
### Exhibit 3: Universe Quartiles, Multiple Ranges and Subsequent 5-Year Annualized Excess Returns

Quartile	Multiple Range		# Obs.	5-Year Ann. Excess Returns	
	High	Low		Avg.	Median
1	84.63	13.50	108	19.55	17.47
2	13.49	11.01	109	10.21	9.67
3	11.01	9.42	109	7.62	7.28
4	9.42	5.46	107	3.76	3.09

Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09  
Past performance is not a guarantee of future results.

To further gauge the significance of our D10 vs. D1 findings, we conducted a linear regression of the multiple with excess returns and plotted the results. As shown in Exhibit 4, the slope of the “best fit” line underscores the robust relationship between these variables.

### Exhibit 4: Linear Regression of P/B Multiple and D10-D1 5-Year Annualized Excess Returns



Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09  
Past performance is not a guarantee of future results.

Exhibit 5 provides additional details on the validity of our regression work. We draw attention to the high correlation of 0.54 and the t-stat of 13.2 (a t-stat above 2.0 typically is considered statistically significant). Recognizing that the error terms in our study showed high serial correlation, we sought to account for this by applying autoregressive estimation techniques, including the Durbin-Watson test statistic. Given the Durbin-Watson statistic<sup>9</sup> of 2.1, we believe there is still a statistically meaningful relationship.

<sup>9</sup> The Durbin-Watson statistic measures the amount of autocorrelation in the error terms of a regression. As the statistic approaches 2.0, there is no autocorrelation. If the error terms are highly positively correlated, the statistic would be less than 1.0 and may approach zero. If the error terms are highly negatively correlated, the statistic would be greater than 3.0 and could approach an upper limit of 4.0.

### Exhibit 5: Regression Statistics Summary

	Universe
Correlation	0.54
R Square	0.29
Adjusted R Square	0.28
Standard Error	1.90
Durbin-Watson	2.10
Observations	433

#### ANOVA (Analysis of Variance)

	df	SS	MS
Regression	1	629.18	629.18
Residual	429	1554.53	3.62

#### Regression Coefficients

	Unstandardized Coefficients				
	B	Std. Error	Standardized	t-stat	Sig
Log of D10/D1 B/P Multiple	35.57	2.70	0.54	13.18	0.00
(Constant)	-27.42	3.58		-7.66	0.00

The Cochrane-Orcutt estimation method was used.<sup>10</sup>

Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09

Past performance is not a guarantee of future results.

We took an additional step in evaluating the validity of our findings by applying historical valuation multiples to the coefficient – and comparing the output from this model to the actual difference in returns between D10 and D1 over the course of our study. In other words, we derived a relationship between valuation multiples and returns. Then we applied that relationship historically to each month’s actual valuation multiple to illustrate what future performance the model would have “predicted.” Then we compared the differences between the model’s predicted returns and the actual returns. See Exhibit 6. Looking ahead, the model predicts meaningful outperformance for value stocks through early 2014.<sup>11</sup>

<sup>10</sup> Cochrane-Orcutt estimation is an algorithm for estimating a time series linear regression in the presence of auto correlated (or serial correlated) errors.

<sup>11</sup> Several articles document various approaches to modeling expected returns for value and glamour stocks. Among the articles we reviewed in conjunction with our work are: Asness, Clifford S., Jacques A. Friedman, Robert J. Krail, and John M. Liew. “Style Timing: Value vs. Growth. Is Value Dead?” *The Journal of Portfolio Management*. Vol 26. No. 3. Spring 2000 and Cohen, Randolph B., Christopher Polk, and Tuomo Vuolteenaho. “The Value Spread.” Available at [www.ssrn.com](http://www.ssrn.com). February 26, 2002.

**Exhibit 6: Actual D10-D1 5-Year Annualized Excess Return vs. Predicted Excess Returns**



Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09  
 Past performance is not a guarantee of future results.  
 Predicted excess returns are hypothetical and are intended for illustrative purposes only. Actual results will vary.

Next, we segmented the universe constituents by capitalization and ran the predicted output again. Exhibits 7 and 8 illustrate similar patterns to those in the “all cap” work shown in Exhibit 6.

**Exhibit 7: Actual D10-D1 5-Year Annualized Excess Return vs. Predicted Excess Returns for the Large-Cap Segment of the Universe**



Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09  
 Past performance is not a guarantee of future results.  
 Predicted excess returns are hypothetical and are intended for illustrative purposes only. Actual results will vary.

### Exhibit 8: Actual D10-D1 5-Year Annualized Excess Return vs. Predicted Excess Returns for the Small-Cap Segment of the Universe



Source: Compustat via FactSet; the Brandes Institute, as of 4/30/09

Past performance is not a guarantee of future results.

Predicted excess returns are hypothetical and are intended for illustrative purposes only. Actual results will vary.

### Rebalancing Opportunities?

Given the relationship between value and glamour stock multiples and subsequent returns, we studied whether an institutional investor could have used our findings to enhance a rebalancing strategy. For this segment of our research, we used constituents of the Russell 3000 Value and Russell 3000 Growth Indices instead of the Compustat universe of securities. We believed these indices reflect more commonly referenced proxies for value and growth investment styles for the purposes of asset allocation.

Replicating the methodology described earlier, we derived a P/B multiple for value and growth stocks in the Russell indices and found a very similar relationship between this multiple and subsequent returns.

Next, we made a variety of assumptions about a hypothetical institutional investor and its rebalancing approach:

- \$1 million allocation split 50-50 between value and growth stocks
- Rebalancing would restore the 50-50 policy allocation

We then tested periodic and weight-triggered rebalancing approaches, proxies for often-used approaches. We document our findings in Exhibit 9.

**Exhibit 9: Various Rebalancing Approaches and Subsequent Annualized Return  
(Dec. 31, 1978 to June 30, 2009)**

	Ending Portfolio Value	Number of Rebalances	Ann. Return
<i>No Rebalance</i>	\$22,740,010	0	10.79%
<i>Fixed Recurrence</i>			
Monthly	\$22,870,289	366	10.81%
Quarterly	\$23,126,021	123	10.85%
Semiannually	\$23,481,805	62	10.90%
Annually	\$23,254,805	30	10.87%
Biennially	\$22,943,115	16	10.82%
Every 5 Years	\$22,909,702	7	10.81%
<i>Weight-Triggered</i>			
+/- 1%	\$22,913,164	71	10.81%
+/- 2%	\$22,978,393	31	10.82%
+/- 5%	\$23,023,236	7	10.83%

Source: FactSet, Russell Indices, the Brandes Institute, as of 6/30/09

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Actual results will vary.

Note there are minimal differences in annualized returns across the various rebalancing approaches – and only an 11 basis-point difference between the best-performing approach and an approach which never rebalanced over the 30-plus years of this study.

Given these results, we investigated whether an approach based on valuation multiples would enhance returns. After dividing the time series of historical multiples into quartiles, we studied the effects of rebalancing when the multiple eclipsed levels equivalent to Quartile 1 or Quartile 4. For example, Quartile 1 represented periods of the study in which the multiple between value and growth stocks was at its highest (i.e., value stocks were their most undervalued). When the multiple climbed into Quartile 1, it would have triggered a rebalance to policy if the value stock allocation was below policy. A similar strategy would be applied when the multiple fell into Quartile 4 for growth stocks. Once a rebalance occurred, a subsequent rebalance could not occur for six months to prevent potential month-to-month recurrences of the same rebalancing event.

This strategy resulted in 18 rebalances, an ending portfolio value of \$23,681,453 and an annualized return of 10.93%. This annualized return was higher than those generated by any of the fixed- or weight-triggered rebalancing approaches, but even when compounded over 30 years was still not, in our opinion, meaningfully different from the “no rebalancing” approach.

Lastly, we used the same rebalancing approach that created the 18 Quartile 1 and Quartile 4 valuation-triggered points, but added the potential for strategic overweighting of +/- 5%, +/- 10%, and +/-25%. For example, if the multiple climbed to Quartile 1, it would effect a rebalance to a 55%, 60%, or 75% weight to value stocks. Exhibit 10 on the following page illustrates the results.

## Exhibit 10: Quartile 1- and Quartile 4-Triggered Rebalancing Approach and Strategic Overweighting (Dec. 31, 1978 to June 30, 2009)

	Ending Portfolio Value	Number of Rebalances	Ann. Return
+/- 5%	\$24,509,543	18	11.06%
+/- 10%	\$25,332,183	18	11.18%
+/- 25%	\$27,752,171	18	11.51%

Source: FactSet, Russell Indices, the Brandes Institute, as of 6/30/09

Past performance is not a guarantee of future results.

Actual results will vary.

While annualized returns for each of these approaches were the highest of any approach we studied, the most aggressive strategic approach only generated 70 basis points of excess return over an allocation that was never rebalanced. Further, the potential for shifting to a 75% allocation to one style vs. the other seemed unlikely, given typical restrictions for institutional investors.

Why so little benefit to rebalancing between value and growth? The results reflect high correlations for these styles of stocks over our study period which generated few opportunities for impactful rebalances. We also acknowledge that for institutional investors to take advantage of potential, strategic rebalancing opportunities, they likely must be prepared to take meaningful deviations from traditional value-growth asset allocations.

Ultimately, we believe our findings underscore the historical outperformance advantage of value stocks and value stocks' outperformance potential in periods after multiples climb above their historical average.

### Summary

While past performance is not a guarantee of future results, we think an understanding of market history can be instructive. Our most recent value vs. glamour work described here suggests that the current expansion in the gap between median P/B ratios for U.S. value and glamour stocks indicates that value stocks (across the large- and small-cap segments) may be poised to meaningfully outperform glamour stocks over the next five years.

As described in greater detail in our study, "Value vs. Glamour: A Global Phenomenon," the Brandes Institute has identified a persistent value premium for the world's developed markets in aggregate and on an individual country basis. A value premium was evident or probable for individual countries that offered enough robust data to provide reasonable conclusions. In short, value stocks consistently outperformed glamour stocks worldwide during our study period – 1968 to 2008.

Price/Book ("P/B"): Price per share divided by book value per share.

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