Do Investors Capture the Value Premium?

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Do investors realize higher returns by investing in value stocks instead of growth stocks? Examination of a sample of equity indexes, mutual funds, and large-cap stocks reveals no evidence that value firms have earned higher returns than growth firms. The value premium reported in the literature is historically strongest for small-capitalization firms, yet average annual returns for small-cap equity funds are 14.10% for value funds compared to 14.52% for growth funds. Despite dramatic increases in mutual fund expense ratios from 1965 to 2001, fee differences across style funds cannot explain the absence of a value premium.

Style investing has attracted considerable attention following the research of Fama and French (1992, 1993). They report that small-capitalization firms realize higher average returns than large firms, and high book-to-market (BE/ME) value stocks earn significantly higher average returns than low BE/ME growth stocks. Fama and French propose that size and BE/ME proxy for risk, so portfolios of the presumably riskier value firms should outperform portfolios of the presumably less risky growth firms over time.

We look at whether investors actually capture this abnormal performance. There is no evidence of a significant value premium in the returns of style indexes, large-capitalization firms, or equity mutual funds. For example, the Standard & Poor's (S&P) 500/Barra value index outperforms the growth index by only an insignificant 11 basis points per month over 1975-2002. Large-cap value funds return on average 11.41% annually compared to 11.30% for large-cap growth funds.

While the book-to-market effect is absent in large-cap stocks and indexes, Kothari, Shanken, and Sloan (1995) and Loughran (1997) have reported that the value premium is strongest for small-cap firms. Our evidence is that small-cap value funds realize insignificantly lower annual returns than small-cap growth funds: 14.10% versus 14.52%. Thus, there is no value premium for small-caps, the one place it is reported to be strongest. Higher transaction costs and the price impact of trading may dominate the book-to-market effect for these smaller and less liquid firms.

One reason value funds might not outperform growth funds is that operating expense ratios increased dramatically during our sample period. The average fund expense ratio nearly doubled, from 0.71% in 1965 to 1.41% in 2001. Since mutual fund returns are reported net of expenses, cost differences could impact our measure of the value premium. As style investing became more popular in the late 1980s, growth and value funds charged significantly higher operating expenses than neutral funds. Growth funds also have significantly higher expenses than value funds over

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the period. By 2000-2001, the median expense ratio for growth funds was 11 basis points higher than for value funds. Since growth funds also realized slightly higher average returns, expense ratios cannot explain the absence of a value premium across mutual fund styles.

We suggest that the increased marketing of style funds in the past two decades may have created an environment allowing funds to justify charging higher expenses. Higher fees and the price impact on trading smaller stocks appear to make the value premium unobtainable for the typical mutual fund investor. In the stock universe available to most institutional investors, it seems highly unlikely investors can generate abnormal performance from a value strategy.

The rest of the paper is organized as follows. Section I studies the performance of two leading equity indexes across the growth and value style classification. Section II evaluates the performance of value and growth mutual fund returns. Section III provides cross-sectional regression results for the stock sample across size, book-to-market, and prior return dimensions. Section IV explores the expense ratios of funds that target investment styles. Section V summarizes our results and concludes the study.

I. S&P 500/Barra and Russell 3000 Style Index Returns

We study value and growth style returns of two major equity indexes, the S&P 500 and the Russell 3000. The large-cap S&P 500 index includes the foremost companies in leading industries. The broad market Russell 3000 index represents the 3,000 largest companies incorporated in the US and its territories. Monthly S&P 500 returns are obtained from Barra for 1975 through 2002 (336 months). Monthly Russell 3000 returns are obtained from Bloomberg for 1979 through 2002 (287 months).

S&P collaborates with Barra to create style indexes based on the BE/ME ratio as of one month before semi-annual rebalancing. High BE/ME firms are assigned to the value index, and low BE/ME firms to the growth index so that the total market capitalization of the two portfolios is equal. The Russell style indexes are formed annually using a proprietary model that sorts on adjusted price-to-book ratios and long-term analyst consensus growth rates.

Figure 1 plots the monthly returns of the S&P 500/Barra value index minus the Barra growth index from January 1975 through December 2002. There is substantial volatility between style index returns over time. Sometimes growth stocks generated higher returns than value stocks, and vice versa.

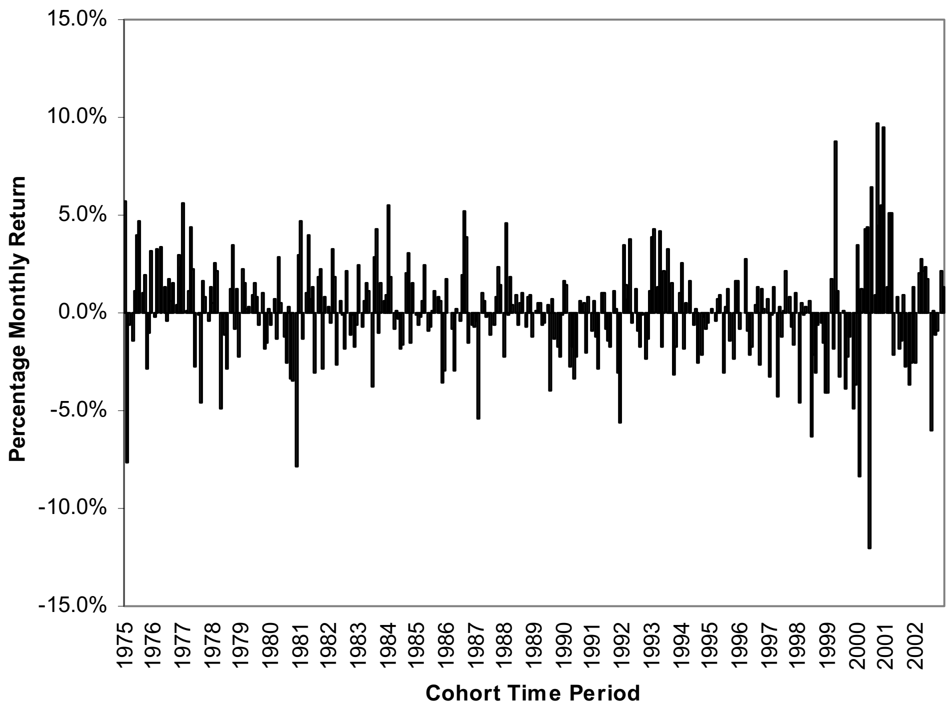
Table I reports summary statistics for monthly returns of the growth and value indexes. The S&P 500/Barra returns in Panel A show that value outperformed growth by a statistically insignificant 11 basis points per month over 1975-2002. Panel B provides summary returns for the Russell 3000 since its inception in 1979. The Russell 3000 value index returns also exceed the growth index by an insignificant 11 basis points per month. In other words, we find no significant value premium when we look at the historical returns of either the S&P 500 or the Russell 3000, two broad market indexes that, respectively, represent 78% and 98% of the capitalized value of all US equities.[1]

This evidence casts doubt on the idea that investors can capture the value premium with the universe of securities of greatest interest to them. The results support Kothari, Shanken, and Sloan (1995), who find no book-to-market effect in S&P industry portfolio returns. More recently, Brav, Lehavy, and Michaely (2005) have found that expected returns of high BE/ME

[1]*Source*: Wilshire Associates, Inc. (http://www.wilshire.com/Indexes/Comparisons.html), June 30, 2002; Frank Russell Company (http://www.russell.com/US/Indexes/US/commentary.asp), December 31, 2002.

Figure 1. Monthly Return of S&P 500/Barra Value Minus Growth Indexes (1975-2002)

Monthly S&P 500/Barra index returns were obtained from Barra. January 1975 is the first month of reported returns. Barra ranks firms in the S&P 500 index by book-to-market ratio and categorizes the firms into two equal market capitalization groups. The low book-to-market group is defined as Barra growth, and the high book-to-market as Barra value.



firms are no higher than those of low BE/ME firms.

Fama and French (1992) assert that a portfolio of value firms should consistently outperform a less risky portfolio of growth firms. In Fama and French (1993) they argue that three factors based on market returns, size, and book-to-market ratios describe most of the cross-sectional variation in portfolio returns. Carhart (1997) shows that combining these three factors with a fourth momentum factor can almost completely explain performance persistence across equity mutual funds.

Table II presents time series regression results for the sample of monthly index returns. Consistent with our expectations, the S&P 500 index returns in row 1 of Panel A show a beta coefficient equal to the market, a negative loading on small-capitalization stocks, and a neutral loading along the value-growth dimension. The Russell 3000 regression coefficients in row 1 of Panel B are similar.

The beta coefficients indicate that the style portfolios of rows 2 and 3 display levels of market risk similar to the benchmark. As anticipated, the small-minus-big (SMB) parameter confirms that Barra growth tends to hold larger firms than Barra value, while the high-minus-low (HML) coefficient is strongly negative for the growth indexes and strongly positive for the value indexes. Finally, momentum effects are positive for the growth indexes, but become

Table I. Average Monthly Returns of S&P 500/Barra and Russell 3000 Value and Growth Style Indexes from Inception Through 2002

S&P 500/Barra index returns were obtained from Barra. January 1975 is the first month of reported returns. Barra ranks firms in the S&P 500 index by book-to-market ratio and categorizes the firms into two equal market capitalization groups. The low book-to-market group is defined as Barra growth, and the high book-to-market is defined as Barra value. Russell 3000 index returns were obtained from Bloomberg. February 1979 is the first month of reported returns. Russell uses a proprietary non-linear probability method to assign stocks to the growth and value style indexes.

Index	Average Return (%)	t-Statistic	Positive (%)
Panel A. S&P 500/Barra Indexes (Jan. 1975-Dec. 2002, 336 months)			
S&P 500 Index	1.15	4.70	61.6%
S&P 500/Barra Value Index	1.20	5.07	59.5%
S&P 500/Barra Growth Index	1.09	4.02	64.3%
Value Index – Growth Index	0.11	0.81	54.8%
Panel B. Russell 3000 Indexes (Feb. 1979-Dec. 2002, 287 months)			
Russell 3000 Index	1.12	4.12	62.1%
Russell 3000 Value Index	1.17	4.72	65.9%
Russell 3000 Growth Index	1.06	3.30	61.4%
Value Index – Growth Index	0.11	0.63	51.9%

significantly negative for the value indexes. This trend appears stronger for the large-capitalization S&P 500 index.

Since the style indexes and HML factor returns are both created by sorting on the BE/ME ratio, the factor model should capture any performance disparity between value and growth index returns. Instead, the growth portfolios in Table II display significant abnormal performance. Barra growth outperforms the four-factor benchmark by 12 basis points per month in row 2 of Panel A, while Russell 3000 growth outperforms by 11 basis points in row 2 of Panel B.

II. Value and Growth Mutual Fund Returns

For mutual funds we obtain data from the Center for Research in Security Prices (CRSP) Survivor Bias-Free US Mutual Fund Database. The sample includes all surviving and non-surviving funds with positive total net assets and at least 75% of fund assets invested in common stocks (including warrants) for each calendar year. Monthly returns come from the CRSP database for 1962-2001. All returns are reported net of operating expenses.

We focus on funds holding mainly US equities by removing particular fund types from the sample universe: Wiesenberger fund codes of INT (international equity) and C&I (Canadian and international); ICDI fund objective codes of GE (global equity) and IE (international equities); and Strategic Insight fund objective codes relating to international equities (ECH, ECN, EGG, EGS, EGT, EGX, EID, EIG, EIS, EIT, EJP, ELT, EPC, EPX, ERP, ESC, FLG, and GLE).

Mutual fund managers often diverge from a fund's stated investment objectives, so classifying funds by self-reported styles is tenuous at best. Examining performance attributes, Kim, Shukla, and Tomas (2000) find misclassified objectives in over half of all funds. Thus,

Table II. Time Series Regressions of S&P 500/Barra and Russell 3000 Index Returns on Market, Size, Book-To-Market, and Momentum Factors

Monthly S&P 500/Barra index returns were obtained from Barra for January 1975-December 2002. Russell 3000 monthly index returns were obtained from Bloomberg for February 1979-December 2002. R_{pt} is the index return in month *t*; R_{ft} is the risk-free interest rate in month *t*; R_{mt} is the return on the value-weighted index of NYSE/Amex/Nasdaq stocks in month *t*; SMB_t is the average return on small firms minus large firms in month *t*; HML_t is the average return on high book-to-market stocks minus low book-to-market stocks in month *t*; and MOM_t is the return on high-momentum (measured by prior one-year return) stocks minus low momentum stocks. The factor definitions are given in Fama and French (1993). All t-statistics in parentheses are computed using the heteroskedasticity-consistent method.

$$R_{pt} - R_{ft} = a + b[R_{mt} - R_{ft}] + s\text{SMB}_t + h\text{HML}_t + m\text{MOM}_t + e_t$$

Mutual Fund Portfolio	a	b	s	h	m	Adj. R^2
Panel A. S&P 500 Index, Jan. 1975-Dec. 2002 (336 months)						
(1) S&P 500	0.08	1.00	-0.21	0.01	-0.03	0.99
	(3.21)	(140.64)	(-26.98)	(0.68)	(-4.15)	
(2) Barra Growth	0.12	0.98	-0.28	-0.30	0.04	0.96
	(2.20)	(56.10)	(-12.93)	(-10.13)	(2.38)	
(3) Barra Value	0.03	1.01	-0.14	0.32	-0.10	0.97
	(0.69)	(67.99)	(-8.16)	(13.94)	(-7.61)	
(4) Value – Growth	-0.09	0.03	0.14	0.62	-0.14	0.60
	(-0.96)	(1.15)	(3.90)	(12.53)	(-5.12)	
Panel B. Russell 3000 Index, Feb. 1979-Dec. 2002 (287 months)						
(1) Russell 3000	0.02	1.01	-0.07	0.02	-0.01	1.00
	(1.58)	(238.30)	(-10.23)	(2.87)	(-2.41)	
(2) R3K Growth	0.11	1.01	-0.09	-0.39	0.00	0.98
	(2.19)	(71.61)	(-5.27)	(-16.49)	(0.22)	
(3) R3K Value	-0.04	1.02	-0.07	0.44	-0.06	0.97
	(-0.83)	(80.85)	(-3.53)	(18.49)	(-3.24)	
(4) Value – Growth	-0.15	0.01	0.02	0.83	-0.06	0.81
	(-1.64)	(0.46)	(0.59)	(18.75)	(-1.96)	

we define fund styles according to the characteristics of past performance.

For each year beginning in 1965, we assign mutual funds with continuous 36-month prior returns to size and style categories on the basis of coefficients in four-factor regressions over the pre-formation period. Funds with SMB coefficients above the yearly median are classified as small-cap and funds with coefficients below the median as large-cap. We also sort funds into style categories using HML coefficients, classifying the top HML quartile as value, the lowest quartile as growth, and the remaining funds as neutral. Davis (2001) and Chan, Chen, and Lakonishok (2002) identify mutual fund styles using this methodology and the three-factor model.

Table III presents average fund returns (net of expenses) for 1965-2001 over a one-year post-formation period. We see considerable variation in yearly style fund returns. Consistent with trends reported by Siegel (1995), each style displays extended periods of strong performance. For example, value funds outperformed growth funds over 1973-1977, but underperformed over 1978-1980. Growth funds dominated value funds during the technology bubble of 1998-1999, only to see their fortunes reversed during the subsequent market correction of 2000-2001.

Style funds also generate almost identical average returns across size categories. Large-

Table III. Equally Weighted Mutual Fund Returns for One-Year Post-Formation Period (1965-2001)

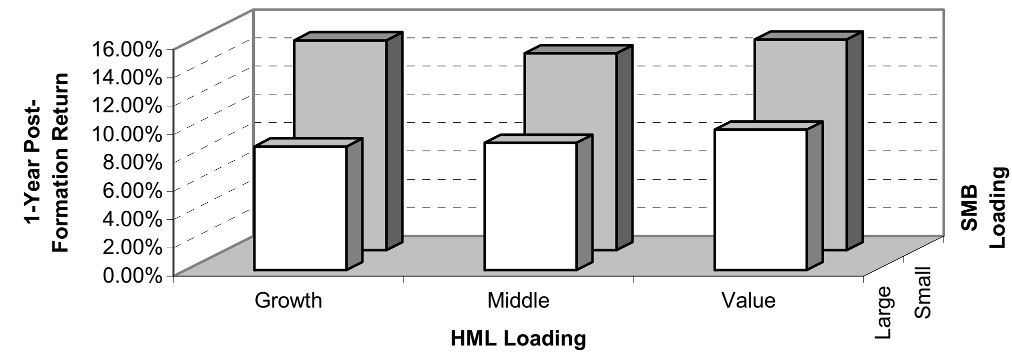
The data come from the CRSP Survivor Bias-Free US Mutual Fund Database. Fund returns are reported net of expenses. Equity mutual funds are independently categorized into size and style categories by their HML and SMB factor loadings from four-factor regressions over the 36-month pre-formation period. Mutual funds in the highest (lowest) quartile of HML loadings in a calendar year are classified as value (growth). Mutual funds in the top (bottom) half of SMB loadings in a calendar year are classified as small (large).

	Large-Cap Stock Funds				Small-Cap Stock Funds			
Year	Growth	Neutral	Value	Value-Growth	Growth	Neutral	Value	Value-Growth
1965	19.36	15.68	18.77	-0.58	28.91	30.45	35.10	6.19
1966	-5.88	-5.37	-14.03	-8.15	1.27	-1.51	-3.01	-4.28
1967	25.80	24.38	13.64	-12.16	53.42	44.89	57.30	3.87
1968	8.72	12.21	22.04	13.32	17.21	12.82	9.37	-7.84
1969	-0.49	-8.11	-12.45	-11.97	0.81	-16.27	-16.30	-17.11
1970	-13.34	-0.56	7.86	21.20	-12.46	-8.46	-5.31	7.16
1971	22.95	16.67	11.17	-11.78	25.48	19.51	16.45	-9.04
1972	16.14	14.05	11.87	-4.28	13.48	10.84	9.67	-3.81
1973	-20.77	-19.92	-15.82	4.95	-30.74	-28.42	-27.31	3.43
1974	-32.36	-26.81	-21.13	11.23	-33.66	-30.45	-20.43	13.22
1975	27.04	30.91	40.63	13.59	43.20	45.93	44.74	1.54
1976	15.10	21.12	28.36	13.26	30.03	29.51	43.00	12.96
1977	-4.59	-5.05	-1.77	2.82	4.75	10.80	11.72	6.97
1978	14.76	10.35	6.52	-8.24	19.06	15.29	16.96	-2.10
1979	23.38	24.07	21.74	-1.64	38.31	38.40	29.83	-8.48
1980	42.30	31.99	26.77	-15.52	43.96	40.33	29.93	-14.03
1981	-9.12	-4.57	-0.68	8.44	-5.57	0.06	0.51	6.08
1982	21.70	20.05	24.42	2.72	26.65	27.16	26.79	0.14
1983	15.25	19.88	20.64	5.39	17.53	23.39	23.83	6.30
1984	-5.78	2.94	4.99	10.76	-10.34	-4.98	0.88	11.22
1985	29.39	28.71	29.66	0.26	30.70	29.89	27.40	-3.30
1986	17.14	15.25	18.15	1.02	11.94	11.74	19.15	7.21
1987	5.53	4.41	4.35	-1.18	1.26	-0.60	4.79	3.53
1988	8.27	12.10	16.80	8.53	13.10	18.64	11.74	-1.36
1989	29.17	29.66	26.83	-2.34	28.32	24.61	28.20	-0.12
1990	1.59	-3.66	-4.91	-6.50	-6.40	-10.18	-13.21	-6.81
1991	47.62	31.14	20.21	-27.41	57.77	36.78	21.69	-36.09
1992	0.89	7.77	-2.82	-3.71	6.18	9.82	11.20	5.02
1993	5.81	14.89	22.28	16.47	14.54	13.39	40.58	26.04
1994	1.71	-2.49	-2.31	-4.02	-1.72	-2.72	-1.10	0.62
1995	34.41	31.17	30.80	-3.61	37.39	26.91	24.91	-12.48
1996	19.49	20.69	18.98	-0.51	16.06	18.00	18.89	2.83
1997	25.48	29.05	27.82	2.34	13.53	21.99	18.21	4.68
1998	33.91	21.40	13.15	-20.76	16.29	6.94	-5.68	-21.97
1999	37.21	15.84	3.21	-33.99	66.17	30.70	8.80	-57.37
2000	-16.42	-2.84	9.63	26.04	-12.95	1.74	14.23	27.18
2001	-23.27	-10.67	-3.03	20.24	-26.31	-9.32	8.31	34.63
Yr. Ave.	11.30	11.25	11.41	0.11	14.52	13.18	14.10	-0.42
t-stat				(0.05)				(-0.16)

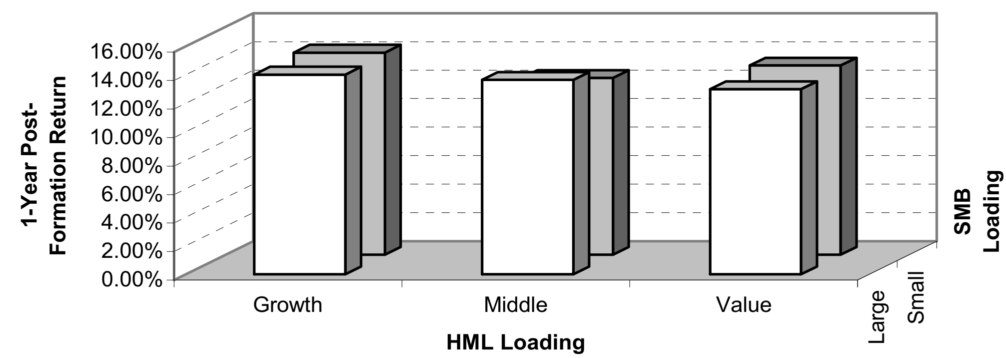
Figure 2. Yearly Average Post-Formation Returns for Mutual Fund Sample Categorized by Period

The data come from the CRSP Survivor Bias-Free US Mutual Fund Database. Fund returns are reported net of expenses. Equity mutual funds are independently categorized into size and style categories by their HML and SMB factor loadings from four-factor regressions over the 36-month pre-formation period. Mutual funds with the highest quartile HML loading values in a calendar year are classified as value; funds with the lowest quartile loading are defined as growth. Funds are divided evenly along the size dimension. Funds with the highest SMB loading are defined as small; funds with the lowest SMB loading are defined as large.

Panel A. 1965-1983 Style Fund Returns



Panel B. 1984-2001 Style Fund Returns



cap growth funds average 11.30% annually compared to 11.41% for large-cap value funds. Small-cap growth funds average 14.52% annually compared to 14.10% for small-cap value funds. Thus, even though we use HML factor loadings to classify fund styles, we find no evidence of a value premium among small- or large-cap mutual funds.

Figure 2 charts average mutual fund returns categorized by size and style for two approximately equal periods. Over 1965-1983 (Panel A), a period widely known to favor the value style, large value funds returned an average 9.92% annually, compared to 8.73% for large growth funds. This performance differential reverses over 1984-2001 (Panel B), as large growth funds generated a 14.01% average return compared to 12.99% for large value funds. We identify a similar result for small-cap funds. Small value funds outperformed small growth funds by a mere six basis points over 1965-1983. Small growth funds posted higher returns over 1984-2001, averaging 14.20% compared to 13.28% for small value funds. Overall, the relationship between style and fund performance is essentially flat, so investors gained little by targeting the value style.

Figure 2 also shows that small-cap funds averaged substantially higher returns than large-cap funds over the 1965-1983 period, evidence consistent with the small-firm effect reported by Keim (1983). Yet Schwert (2003) contends that many anomalies disappear shortly after they are identified. During the 1984-2001 period, small-cap funds earned average returns similar to large-cap funds. Thus, the size anomaly, like the value premium, is not a consistent attribute of equity fund returns.

III. Fama and MacBeth Regressions for the Universe of Stocks

To explore additional reasons the value premium is not found in index and mutual fund returns, we look at individual stock returns. The sample selection process follows Fama and French (1992) and includes all non-financial New York Stock Exchange (NYSE), American Stock Exchange (Amex), and Nasdaq firms with available CRSP and Compustat information. Stock returns and market capitalizations are from the monthly CRSP file. The book value of equity is obtained from Compustat. The sample includes only firms with ordinary common equity as defined by CRSP. We exclude firms with negative or missing book values.

The book value of equity is Compustat data item #60 plus balance sheet deferred taxes and investment tax credit (item #35) minus the book value of preferred stock. Preferred stock (if available) is defined in the order: redemption (item #56), liquidation (item #10), or par value (item #130). To avoid Compustat's back-filling bias, we require that firms also have two years of Compustat information prior to entering the sample.

Stock returns are measured from July 1963 through December 2001. Using the Fama and French (1992) methodology, we form the sample in June of year *t*. A firm's size is its market capitalization as of June of year *t*. The BE/ME ratio is the firm's prior-year book value of equity divided by the market value as of December of year *t*-1. The prior return is defined as the buy-and-hold return for the 12 months before portfolio formation. Stock returns are from July of year *t* through June of year *t*+1.

We use the Fama and MacBeth (1973) methodology to run monthly regressions from July 1963 through December 2001:

$$r_{ij} = a_{0j} + a_{1j}\ln(\text{Size})_{ij} + a_{2j}\ln(\text{BE/ME})_{ij} + a_{3j}\ln(\text{Prior Return} + 1)_{ij} + e_{ij} \quad (1)$$

The dependent variable, r_{ij}, is the month *j* percentage stock return for firm *i*. The independent variables are size, the natural log of market capitalization as of June year *t* for firm *i*; BE/ME, the natural logarithm of the book-to-market ratio for firm *i*; and prior return, the natural logarithm of one plus the buy-and-hold stock return in the 12 months prior to the formation period. Independent variables are winsorized at the 1% and 99% levels to limit the impact of outliers. As in Fama and French (1992), the t-statistics are determined by dividing the average coefficient by its time series standard error.

The Fama-MacBeth (1973) procedure provides several advantages. First, it does not force firms into growth or value portfolios, so it accounts for the entire BE/ME spectrum across each monthly regression. Second, the analysis weights all 462 months equally. Months that include few firms have the same impact as months with many firms. As Fama and French (1992) also use the Fama-MacBeth methodology, our analysis can easily be compared to

Table IV. Average Parameter Values from Monthly Cross-Sectional Regressions of Monthly Return on Size, Book-to-Market, and Prior Returns, July 1963-December 2001 (462 months)

The universe of firms (NYSE, Amex, and Nasdaq) includes all operating companies reporting CRSP and Compustat information as of June of year *t*. The dependent variable is the raw monthly return for firm *i* in calendar month *j*. A firm's size is its market capitalization (price times shares outstanding) as of June of year *t*. The book-to-market ratio (BE/ME) is the prior year's book value of equity divided by the firm's market value as of December of year *t*-1. The prior return (PR) is defined as the buy-and-hold return for the 12 months prior to portfolio formation (i.e., July of year *t*-1 through June of year *t*). Small firms have a market capitalization at or below the 75th percentile NYSE firm in a given year. Large firms have a market capitalization above the 75th percentile NYSE firm in a given year. The t-statistics in parentheses are determined by dividing the average coefficient value by its time-series standard error.

$$r_{ij} = a_{0j} + a_{1j}\ln(\text{Size})_{ij} + a_{2j}\ln(\text{BE/ME})_{ij} + a_{3j}\ln(1 + \text{PR})_{ij} + e_{ij}$$

Model	Intercept	ln(Size)	ln(BE/ME)	ln(1 + PR)
(1) All Firms	2.09	-0.14	0.30	
(1963-2001)	(4.88)	(-2.58)	(3.91)	
(2) Fama-French	1.77	-0.11	0.35	
(1963-1990)	(3.77)	(-1.99)	(4.44)	
(3) All Firms	2.04	-0.14	0.30	0.12
	(5.13)	(-2.75)	(3.94)	(0.78)
(4) Small Firms	2.24	-0.19	0.32	
	(5.08)	(-2.85)	(4.03)	
(5) Small Firms	2.19	-0.19	0.31	0.14
	(5.37)	(-3.04)	(4.06)	(0.87)
(6) Large Firms	1.46	-0.06	0.07	
	(2.39)	(-0.87)	(0.70)	
(7) Large Firms	1.44	-0.07	0.07	0.51
	(2.32)	(-0.99)	(0.80)	(1.85)

results in the literature.

Table IV reports average time series parameters for monthly regressions of stock returns on size, book-to-market, and prior return over July 1963-2001. Row 1 largely replicates the results of Fama and French (1992). The average size and BE/ME parameters are statistically significant. Small firms realize higher returns than large firms, and value stocks (high BE/ME) earn higher returns than growth stocks (low BE/ME). Row 2 provides the regression slopes from Fama and French (1992) for 1963-1990. Row 3 shows that prior return is not a significant predictor of stock returns. Including momentum does not change the average size and book-to-market coefficients from row 1.

One potential concern with regard to the Fama-MacBeth framework is that the regressions weight all firms equally, regardless of size. To more directly illustrate the predictive power of the independent variables for a typical US money manager, we divide the sample into two groups: small firms, defined as NYSE, Amex, and Nasdaq stocks with a market value at or below the 75th percentile of NYSE market capitalization as of June each year, and large firms, defined as those with a market capitalization above the 75th percentile of NYSE market value. This definition better replicates the universe of firms US money managers can invest in without the liquidity constraints posed by lower market value securities.

Rows 4 and 5 of Table IV report the average slope coefficients for regressions of small firms. The parameter values and t-statistics change very little from the regressions for the full sample. Rows 6 and 7 indicate that size and BE/ME have neither an economically nor a statistically significant impact on the returns of large firms. During the 1963-2001 period, only prior return has significant explanatory power for returns of the large firms that are of interest to the majority of US money managers.

Table IV provides a powerful explanation for the absence of a value premium in our analysis of stock indexes or equity mutual funds. Small firms drive the BE/ME effect that has been reported in the literature. Higher transaction costs and the potential price impact of trading likely dominate any book-to-market effects operating in these less-liquid securities.

IV. Expense Ratios Across Mutual Fund Styles

The 1990s witnessed a dramatic rise in the popularity of style investing, and mutual funds expanded their product offerings to vie for a share of this growing market. Khorana and Servaes (1999) contend that new fund offerings are positively related to the fund's ability to generate additional fee income. If value or growth funds charge higher expenses, these fees may make it hard to see a value premium.

Figure 3 plots the quartile distribution of mutual fund operating expense ratios, defined as the percentage of total assets paid by shareholders for annual operating expenses, including management fees, 12b-1 fees, and other expenses. Expense ratios increased across all quartiles of the sample. Although our work covers a much longer time series, this evidence is consistent with rising fund expenses documented by Chance and Ferris (1991), McLeod and Malhotra (1994), and Malhotra and McLeod (1997).

Table V reports median expense ratios for growth, neutral, and value funds by time period. Expenses for each fund style rise across the sample periods. The median expense ratio of growth funds rose from 0.63% in the 1960s to 1.39% in the 2000s; while the median expense ratio of value funds rose from 0.70% to 1.28%. The z-statistics test the distributional equality of fund expenses. Beginning in the late 1980s, growth and value funds began charging substantially higher fees than neutral funds. The differential widened even further in the 1990s.

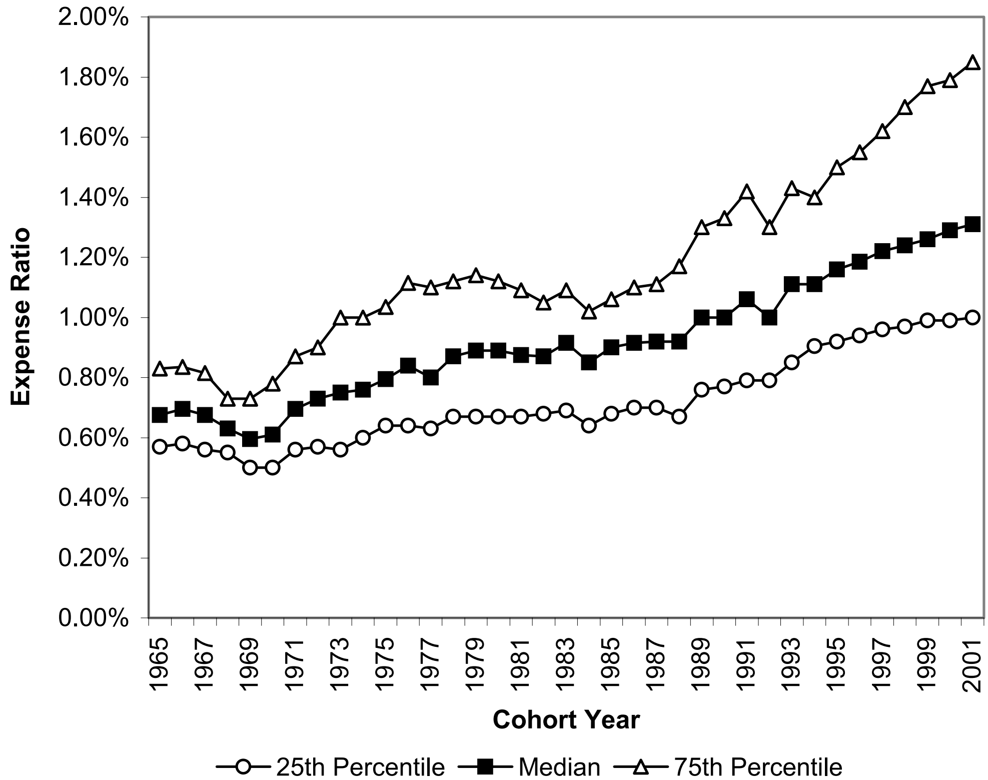
The expense ratios for growth funds are also significantly higher than for value funds starting in the 1980s. By the 2000-2001 period, growth funds charged annual expenses 11 basis points higher than value funds (1.39% versus 1.28%). Since higher fees represent a drag on the performance of growth funds, they should actually make it more likely we would observe a value premium, yet we do not. Thus, cost differences cannot explain the lack of supporting evidence for differences in style fund returns.

Table VI considers other determinants of fund performance, such as momentum and fund size. We report equally weighted average parameter values from monthly cross-sectional regressions of fund returns on prior return, total assets, style and size fund dummies, and expense ratio. The expense ratio coefficients are universally negative. Higher fees reduce fund returns. Expenses are marginally significant for the full sample and highly significant during 1984-2001 (row 3). Fund returns are also positively related to prior returns and negatively related to total assets under management.

The value and growth fund dummy variables are insignificant for the full sample (row 1).

Figure 3. Distribution of Operating Expense Ratios for Equity Mutual Funds (1965-2001)

The figure displays the 25th percentile, median, and 75th percentile expense ratios for equity mutual funds across the 1965 to 2001 cohort years. The data come from the CRSP Survivor Bias-Free US Mutual Fund Database for funds with continuous 36-month prior returns. Expense Ratio is defined by CRSP as the percentage of the total investment that shareholders pay for a mutual fund's operating expenses over the calendar year.



The value fund dummy coefficient, however, is marginally significant during 1965-1983 (row 2), when value stocks reported strong performance. The small-fund dummy coefficient is also positive and marginally significant for the full sample (row 1), but this result is dominated by the significantly positive loading during 1965-1983.

The regressions in Table VII test for key factors that drive mutual fund expense ratios by relating annual fund expenses to total net assets and value fund, growth fund, and small-fund dummies. The significantly negative coefficient on total net assets implies the presence of economies of scale throughout the sample. Larger funds generally charge lower fees. Meanwhile, small-cap equity funds charge significantly higher fees than large-cap equity funds in each subperiod. For the full sample, the average expense ratio of small-stock funds was 17 basis points higher than the expense ratio of large-stock funds.

Table V. Median Expense Ratio of Growth, Neutral, and Value Equity Mutual Funds at End of Formation Period 1965-2001

The data come from the CRSP Survivor Bias-Free US Mutual Fund Database. Equity mutual funds with continuous 36-month prior returns are categorized into growth, neutral, and value categories by their loading on the HML factor. In Fama and French four-factor regressions over the 36 months during the formation period, mutual funds with the highest quartile HML loading values in a calendar year are classified as value. Mutual funds with the lowest quartile HML loadings are classified as growth. Expense ratio is defined by CRSP as the percentage of the total investment that shareholders pay for a mutual fund's operating expenses over the calendar year. The z-statistic tests the equality of distribution between mutual fund portfolio expenses by decade using a two-sample Wilcoxon rank-sum test.

	Fund Classification			z-Statistic		
Time Period	Growth	Neutral	Value	Growth v. Neutral	Value v. Neutral	Value v. Growth
1965-1969	0.63%	0.64%	0.70%	0.03	2.97	2.37
1970-1979	0.83%	0.77%	0.76%	1.43	0.90	-0.43
1980-1989	0.99%	0.87%	0.91%	4.78	1.97	-2.10
1990-1999	1.28%	1.13%	1.24%	12.11	7.07	-4.24
2000-2001	1.39%	1.27%	1.28%	6.22	2.39	-3.49
1965-2001	1.22%	1.09%	1.18%	13.25	7.12	-5.42

The growth fund dummy coefficient in row 1 is significantly positive. Over 1965-2001, growth funds averaged a 14 basis point higher expense ratio than neutral funds. The growth fund coefficient grows more positive over time, from -3 basis points in the 1960s to a significantly positive 19 basis points in 2000-2001. The coefficient on the value fund dummy in row 1 is also positive, but not statistically significant. Value funds charged significantly higher fees than neutral funds throughout the 1980s and 1990s.

V. Summary and Conclusion

A comprehensive sample of popular industry indexes, mutual funds, and individual stock returns allows us to explore whether value portfolios realize better returns than growth portfolios. We find no evidence of a significant value premium in the historical returns of S&P 500 style indexes, Russell 3000 style indexes, or large-cap firms. Growth and value mutual funds also produce similar average returns along size dimensions. Average annual returns for small-cap growth funds were 14.52%, for example, compared to 14.10% for small-cap value funds.

Throughout the sample period, we see a dramatic rise in mutual fund operating expense ratios. Beginning in the 1980s, the median expense ratio for growth funds also grew significantly higher than for value funds. By the end of our sample period, growth funds charged fees amounting to a median of 11 basis points higher than value funds. Thus, cost differences cannot account for the absence of a value premium across style fund returns.

Are there some alternative reasons for why the value premium is not identified in the returns of style indexes or equity mutual funds? Chan, Chen, and Lakonishok (2002) have noted that the career concerns of fund managers may lead them to effectively pursue a closet index strategy. If managers herd in the market to protect their reputations, we would see less variation in HML factor coefficients across the fund sample. While this effect might

Table VI. Average Parameter Values from Monthly Cross-Sectional Regressions of Mutual Fund Return on Prior Returns, Total Net Assets, Style Fund Dummies, Small Fund Dummy, and Expense Ratio, 1965-2001

The data come from the CRSP Survivor Bias-Free US Mutual Fund Database. Fund returns are reported net of expenses. The sample includes mutual funds with continuous 36-month prior returns and at least 75% of their assets in equities. The dependent variable is the raw monthly return for mutual fund *k* in calendar month *j*. Prior Return (PR) is the decimalized fund return over the prior calendar year. Ln(TNA) is the natural logarithm of a fund's total net assets in the prior year. The Value Fund Dummy equals one if the fund's HML loading during the formation period is in the top quartile, and zero otherwise. The Growth Fund Dummy equals one if the fund's HML loading during the formation period is in the bottom quartile, and zero otherwise. The Small Fund Dummy equals one if the fund's SMB loading during the formation period is above the median, and zero otherwise. The Expense Ratio, expressed as a percentage, is the fund's total operating expenses in the prior calendar year. The table reports the average coefficients from the monthly cross-sectional regressions. The t-statistics (in parentheses) are determined by dividing the average coefficient value by its time-series standard error. Average R^2 values of each row are 29.9%, 28.3%, and 31.7%, respectively.

$$\text{Mutual Fund Return}_{kj} = a_{0j} + a_{1j}\ln(1 + \text{Prior Return})_{kj} + a_{2j}\ln(\text{TNA})_{k\text{-}1j} + a_{3j}\,\text{Value Fund Dummy}_{kj} + a_{4j}\,\text{Growth Fund Dummy}_{kj} + a_{5j}\,\text{Small Fund Dummy}_{kj} + a_{6j}\,\text{Expense Ratio}_{kj} + e_{kj}$$

Time Period	Alpha	ln (1+PR)	ln (TNA)	Value Fund Dummy	Growth Fund Dummy	Small Fund Dummy	Expense Ratio
(1) All Mos.	1.04	0.84	-0.04	0.08	0.00	0.12	-0.12
(444 months)	(5.11)	(1.79)	(-3.51)	(1.28)	(0.04)	(1.75)	(-1.89)
(2) 1965-1983	0.98	1.00	-0.07	0.14	-0.04	0.18	-0.14
(228 mos.)	(3.57)	(1.65)	(-3.05)	(1.85)	(-0.63)	(2.25)	(-1.14)
(3) 1984-2001	1.11	0.67	-0.02	0.01	0.05	0.06	-0.11
(216 mos.)	(3.65)	(0.93)	(-1.93)	(0.12)	(0.46)	(0.52)	(-2.58)

partially explain some of our reported mutual fund evidence, it cannot account for the observations across style index returns.

Another explanation proposed in the literature relates the book-to-market anomaly to institutional ownership. Phalippou (2004) shows a decreasing relationship between institutional ownership and the value premium, even after accounting for risk using various asset pricing models. Nagel (2005) shows that the BE/ME effect is concentrated among the stocks that are most difficult to sell short; growth stocks with low institutional ownership have very low returns. Therefore, to the extent that institutional ownership coincides with mutual fund ownership, these studies suggest the value premium is generated elsewhere than in the securities most mutual funds hold.

We propose that the value premium is simply beyond the reach of investors. Returns of large-cap firms clearly show that the BE/ME ratio has no explanatory power during the 1963-2001 period. The book-to-market effect is strongest among small-cap firms. Yet we observe no significant difference between the realized returns of small-cap value and growth mutual funds. The bid-ask spread, transaction costs, and the price impact of trading likely work against capture of the value premium in small-cap stocks. Hence, investors should harbor no illusion that pursuit of a value style will generate superior long-run performance.■

Table VII. Regressions of Expense Ratio on Total Net Assets, Value Fund Dummy, Growth Fund Dummy, and Small Fund Dummy Variables 1965-2001

The data come from the CRSP Survivor Bias-Free US Mutual Fund Database. Mutual funds with continuous 36-month prior returns and at least 75% of their assets in equities are included in the sample. The dependent variable is the percentage expense ratio for mutual fund *k* defined as the fund's total operating expenses in the prior calendar year. Ln(TNA) is the natural logarithm of a fund's total net assets in the prior year. The Value Fund Dummy equals one if the fund's HML loading during the formation period is in the highest quartile, and zero otherwise. The Growth Fund Dummy equals one if the fund's HML loading during the formation period is in the lowest quartile, and zero otherwise. The Small Fund Dummy equals one if the fund's SMB loading during the formation period is in the top half, and zero otherwise. All t-statistics in parentheses are heteroskedasticity-consistent.

$$\text{Expense Ratio}_k = a_0 + a_1\ln(\text{TNA})_k + a_2\,\text{Value Fund Dummy}_k + a_3\,\text{Growth Fund Dummy}_k + a_4\,\text{Small Fund Dummy}_k + e_k$$

Time Period	Intercept	ln(TNA)	Value Fund Dummy	Growth Fund Dummy	Small Fund Dummy	Adj. R^2
(1) All Years (1965-2001)	1.68	-0.12	0.02	0.14	0.17	0.16
	(80.21)	(-28.82)	(1.62)	(10.59)	(19.50)	
(2) 1965-1969	1.04	-0.09	0.03	-0.03	0.11	0.53
	(36.17)	(-16.94)	(1.49)	(-1.59)	(6.58)	
(3) 1970-1979	1.63	-0.19	-0.04	0.07	0.12	0.34
	(21.50)	(-12.62)	(-1.43)	(2.05)	(5.34)	
(4) 1980-1989	1.43	-0.12	0.07	0.06	0.13	0.27
	(43.33)	(-20.32)	(3.58)	(3.35)	(8.20)	
(5) 1990-1999	1.81	-0.13	0.07	0.15	0.17	0.21
	(54.15)	(-20.86)	(4.72)	(7.99)	(14.51)	
(6) 2000-2001	1.82	-0.11	-0.06	0.19	0.16	0.17
	(54.79)	(-16.96)	(-3.40)	(7.19)	(10.71)	

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