# Value and Growth Investing: Review and Update

Louis K.C. Chan and Josef Lakonishok

*A great deal of academic empirical research has been published on value and growth investing. We review and update this literature, discuss the various explanations for the performance of value versus growth stocks, review the empirical research on the alternative explanations, and provide some new results based on an updated and expanded sample. The evidence suggests that, even after taking into account the experience of the late 1990s, value investing generates superior returns. Common measures of risk do not support the argument that the return differential is a result of the higher riskiness of value stocks. Instead, behavioral considerations and the agency costs of delegated investment management lie at the root of the value–growth spread.*

The topic of value and growth investing is a prime example of the fruitful exchange of ideas between academic research and investment practice. The results from academic studies have formed the basis for investment strategies that are widely applied in equity markets. Going the other way, issues encountered by portfolio managers and consultants, such as procedures for identifying value or growth styles and the design of style-specific benchmark indexes for performance evaluation, have spurred ongoing analysis and extensions in the research literature.

The explosion of academic interest in value and growth investment strategies can be traced back to Fama and French (1992) and Lakonishok, Shleifer, and Vishny (1994). The Fama and French results delivered a stunning blow to the explanatory power of the capital asset pricing model and sparked debates about the "death of beta." In the wake of this study, academics shifted their attention to the ratio of book value to market value of equity and company size as the leading explanatory variables for the cross-section of average stock returns. This work built on earlier studies of stock market "anomalies." Basu (1977), for example, showed that stocks with low P/Es subsequently tend to have higher average returns than stocks with high P/Es. Chan, Hamao, and Lakonishok (1991) studied Japanese data and found strong support for the superior performance of value investment strategies.

*Louis K.C. Chan is professor of finance at the University of Illinois at Urbana-Champaign. Josef Lakonishok is Karnes Professor of Finance at the University of Illinois at Urbana-Champaign.*

Based on the accumulated weight of the evidence from studies on the book-to-market effect and related anomalies, the academic community has generally come to agree that value investment strategies, on average, outperform growth investment strategies. Much less consensus exists, however, about the underlying reasons for the superior returns. Fama and French (1992) took the position of the efficient market hypothesis and attributed the higher returns of value strategies to their increased risk. Lakonishok, Shleifer, and Vishny (1994) suggested that cognitive biases underlying investor behavior and the agency costs of professional investment management were at the root of the rewards to value investing. Yet another explanation for the returns to value investing rested on methodological issues of data-selection bias (see Kothari, Shanken, and Sloan 1995). A careful study by Chan, Jegadeesh, and Lakonishok (1995), however, suggested that no such bias can explain the differential performance of value and growth investing.[1]

The academic work on value investing has had a strong impact on professional investment management. Value and growth are now widely recognized distinctive specializations adopted by money managers. Additionally, the research studies have been instrumental in the development of style-specific benchmarks that have proliferated in performance evaluation and attribution analysis. Many such benchmarks are based on a variable that has been extensively used in academic studies—book value to market value of equity (BV/MV)—and this ratio has become an important indicator of a portfolio's orientation toward either growth or value.

In this article, we review and update the empirical academic research on value and growth investing. Several other articles have provided extensive surveys of the theoretical issues involved in the debate over value–growth investing (see, for example, Fama 1998 and Campbell 2000). And numerous articles have covered explanations put forth in the burgeoning field of behavioral finance or reviewed alternative explanations for the value premium in a formal manner (Scott, Stumpp, and Xu 1999; Shleifer 2000; Hirshleifer 2001; Barberis and Thaler 2002). To avoid a duplication of these efforts, we focus on the empirical aspects of the debate.

We begin by surveying the evidence on the performance of value investment strategies. Because the underlying reasons for the performance are more controversial than the performance findings themselves, we also give an overview of the evidence for and against various explanations for the returns on value strategies. Finally, we provide some fresh evidence for the U.S. and non-U.S. markets.

## Returns on Value Investing

The results from three key early studies of the returns from value–growth investment strategies are summarized in **Table 1**. Panel A of the table draws from Fama and French (1992), who sorted stocks on the NYSE, Amex, and Nasdaq markets into 10 portfolios based on the stocks' BV/MV (Panel A1) or ratio of earnings to price (Panel A2). As the portfolio numbers across the top indicate, the top and bottom decile portfolios were each further divided into equal halves.

In the sort by BV/MV, the highest ranked portfolio was dubbed the "value" portfolio and the lowest ranked was dubbed the "glamour" portfolio. Panel A1 of Table 1 shows that the value portfolio, Portfolio 10B, as defined by BV/MV, generated an average monthly return of 1.83 percent. Compared with the average monthly return on the companion glamour portfolio (Portfolio 1A) of 0.30 percent, the value stocks come out ahead by 1.53 percentage points (pps) a month. At the same time, the market betas of the portfolios are very close to each other, so systematic risk is not an obvious suspect for explaining the differences in returns. In this study, value stocks with high BV/MVs, on average, tended to be smaller than growth stocks: The logarithm of size for the top (bottom) portfolio is 2.65 (4.53). Thus, the possibility exists that part of the BV/MV effect reflects the historical premium of small companies over large companies (see Banz 1981).

As Panel B of Table 1 shows, Lakonishok, Shleifer, and Vishny (1994) provided similar findings based on NYSE and Amex stocks. Because they reported buy-and-hold returns over several years following portfolio formation, their results are particularly relevant from the perspective of a long-term investor. When sorted by BV/MV (Panel B1), the value stocks of Portfolio 10 (identified as those with the highest BV/MVs) outperformed the "growth" stocks of Portfolio 1 (defined as the opposite of value stocks, lowest BV/MVs) by 10.5 pps a year, on average, over the five years following portfolio formation. The superior returns persisted even after the authors controlled for differences in size. The average size-adjusted return over the five postformation years for the value portfolio was 3.5 percent, which is a spread of 7.8 pps over the return for the growth portfolio. The BV/MV effect, in other words, was not subsumed by the size effect.

Although BV/MV has garnered the lion's share of attention as an indicator of value–growth orientation, it is by no means an ideal measure. To take an example from market conditions as of mid-2002, a stock such as AOL-Time Warner would generally be classified as a "cheap" stock in terms of the book-to-market ratio. By many other yardsticks, such as earnings or dividends relative to price, however, the stock would look less attractive from the value standpoint. This disparity suggests that other measures might also serve as the bases for investment strategies. For example, as Panels A2 and B2 show, return spreads based on earnings to price were generally lower than the spreads based on BV/MV. For instance, the sort by E/P in Panel A2 of Table 1 yielded a return spread of 0.68 pps a month between the extreme portfolios. The spread shown in Panel B2 for size-adjusted average returns was 5.4 pps a year. Note that in both cases, the sorts used only those stocks that had positive earnings at the portfolio formation date. The narrower spreads associated with the earnings yield, E/P, may be a result of the noisy nature of earnings. For instance, the category of stocks with low E/Ps includes not only stocks that are conventionally deemed to be growth stocks (those whose current earnings are low but whose future growth prospects are perceived to be high) but also stocks that have stumbled and have temporarily depressed earnings.

Another valuation indicator that has generally received less attention in academic research is the ratio of cash flow to price (CF/P). In its simplest form, cash flow is measured as earnings plus depreciation. Portfolios formed on the basis of this investment strategy generate relatively larger return spreads than portfolios based on BV/MV.

 

**Table 1. Returns and Characteristics for Value–Growth Investment Strategies**

| Study/Measure | 1A | 1B | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10A | 10B |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A. Fama and French (1992)** | | | | | | | | | | | | |
| *1. Sorted by book-to-market ratio* | | | | | | | | | | | | |
| Monthly return (%) | 0.30 | 0.67 | 0.87 | 0.97 | 1.04 | 1.17 | 1.30 | 1.44 | 1.50 | 1.59 | 1.92 | 1.83 |
| Beta | 1.36 | 1.34 | 1.32 | 1.30 | 1.28 | 1.27 | 1.27 | 1.27 | 1.27 | 1.29 | 1.33 | 1.35 |
| Log size | 4.53 | 4.67 | 4.69 | 4.56 | 4.47 | 4.38 | 4.23 | 4.06 | 3.85 | 3.51 | 3.06 | 2.65 |
| *2. Sorted by earnings-to-price ratio* | | | | | | | | | | | | |
| Monthly return (%) | 1.04 | 0.93 | 0.94 | 1.03 | 1.18 | 1.22 | 1.33 | 1.42 | 1.46 | 1.57 | 1.74 | 1.72 |
| Beta | 1.40 | 1.35 | 1.31 | 1.28 | 1.26 | 1.25 | 1.26 | 1.24 | 1.23 | 1.24 | 1.28 | 1.31 |
| Log size | 3.64 | 4.33 | 4.61 | 4.64 | 4.63 | 4.58 | 4.49 | 4.37 | 4.28 | 4.07 | 3.82 | 3.52 |

| **B. Lakonishok, Shleifer, and Vishny (1994)** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| *1. Sorted by book-to-market ratio* | | | | | | | | | | |
| Annual return (%) | 11.0 | 11.7 | 13.5 | 12.3 | 13.1 | 15.4 | 15.4 | 17.0 | 18.3 | 17.3 |
| Average annual return over 5 years (%) | 9.3 | 12.5 | 14.6 | 15.4 | 15.8 | 16.6 | 18.4 | 18.9 | 19.6 | 19.8 |
| Size-adjusted average annual return (%) | –4.3 | –2.0 | –0.30 | 0.4 | 0.6 | 1.2 | 2.4 | 2.8 | 3.3 | 3.5 |
| *2. Sorted by earnings-to-price ratio* | | | | | | | | | | |
| Annual return (%) | 12.3 | 12.5 | 14.0 | 13.0 | 13.5 | 15.6 | 17.0 | 18.0 | 19.3 | 16.2 |
| Average annual return over 5 years (%) | 11.4 | 12.6 | 14.3 | 15.2 | 16.0 | 16.7 | 18.8 | 19.1 | 19.6 | 19.0 |
| Size-adjusted average annual return (%) | –3.5 | –2.4 | –0.9 | –0.1 | 0.5 | 1.3 | 2.6 | 2.6 | 2.9 | 1.9 |
| *3. Sorted by cash-flow-to-price ratio* | | | | | | | | | | |
| Annual return (%) | 8.4 | 12.4 | 14.0 | 14.0 | 15.3 | 14.8 | 15.7 | 17.8 | 18.3 | 18.3 |
| Average annual return over 5 years (%) | 9.1 | 12.2 | 14.5 | 15.7 | 16.6 | 17.1 | 18.0 | 19.2 | 19.9 | 20.1 |
| Size-adjusted average annual return (%) | –4.9 | –2.5 | –0.6 | 0.5 | 1.3 | 1.9 | 2.5 | 3.4 | 3.7 | 3.9 |

| **C. Chan, Hamao, and Lakonishok (1991)** | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| *1. Sorted by book-to-market ratio* | | | | |
| Monthly return (%) | 1.3 | 1.7 | 1.9 | 2.4 |
| Monthly standard deviation | 4.3 | 4.3 | 4.3 | 4.6 |
| *2. Sorted by earnings-to-price ratio* | | | | |
| Monthly return (%) | 1.5 | 1.7 | 1.8 | 1.9 |
| Monthly standard deviation | 4.3 | 4.1 | 4.1 | 4.3 |
| *3. Sorted by cash-flow-to-price ratio* | | | | |
| Monthly return (%) | 1.4 | 1.7 | 1.9 | 2.2 |
| Monthly standard deviation | 4.1 | 4.1 | 4.3 | 4.6 |

*Notes*: The sample for Panel A was all NYSE, Amex, and Nasdaq stocks with data on returns and accounting information. Monthly returns were measured for equally weighted portfolios. Results in Panel B came from all NYSE and Amex stocks with data on returns and accounting information. Buy-and-hold returns on equally weighted portfolios were measured annually from April each year for 1968–1989. Panel C results were based on all stocks in the first and second sections of the Tokyo Stock Exchange. Monthly equally weighted portfolio returns were measured from June 1971 to December 1988. In the sorts by earnings to price and cash flow to price, results were provided only for stocks with positive earnings or positive cash flow at the portfolio formation date.

For example, in Panel B3, the portfolio ranked highest by CF/P (Portfolio 10) earned, on average, 3.9 percent a year over five years after adjusting for size, which is 8.8 pps higher than Portfolio 1. When BV/MV was used, the difference between the extreme portfolios with respect to average size-adjusted returns over five years was 7.8 pps. To the extent that the different indicators are not highly correlated, these results suggest that a strategy based on several signals may enhance portfolio performance. We follow up on this suggestion later in this article.

One might argue that these findings are the result of a collective data-snooping exercise by many researchers sifting through the same data. If so, the success of value strategies may not hold up in other periods or other markets. Some comfort that this supposition is not the case is afforded by another early study—one by Chan, Hamao, and Lakonishok. Their contribution was to study the Japanese stock market, which had not previously been examined in depth, even though at that time it was almost as large as the U.S. market in terms of capitalization. Panel C of Table 1 provides some of their key findings. The return differential between the highest and lowest quartile of stocks ranked by BV/MV was 1.1 pps a month. Their results for E/P and CF/P were similar to the U.S. evidence. Finally, the Japanese evidence did not indicate that value stocks have higher total risk, as measured by standard deviation of monthly returns, than growth stocks.

The Chan–Hamao–Lakonishok findings take on added force in light of conditions in the Japanese market at the time they conducted their study. In particular, the popular sentiment was that, given the spectacular run-up in Japanese stock prices in the 1980s, equity values in Japan could not be analyzed by using conventional approaches developed with U.S. data. The fact that the same overall findings emerged in two markets with very different conditions bolsters confidence that data mining is not driving the findings.

**Table 2** provides the Fama and French (1998) results for a broad sample of countries. Value and glamour were defined by a variety of indicators—BV/MV, E/P, CF/P, and dividends to price (D/P). The consistency of the evidence is impressive. In almost every country, the value portfolio generated a higher average return than the glamour portfolio. Moreover, the results hold up across the variety of value–growth indicators. Table 2 also reports the standard deviations of the returns on each portfolio, and in general, the return volatilities of the value portfolios are not notably different from the volatilities of the glamour portfolios. Fama and French also reported results similar to those shown in Table 2 for emerging stock markets.

These results indicate that value stocks, in general, outperform glamour stocks across all eligible stocks. In practice, however, the investable equity universe for many portfolio managers is limited to large-cap stocks, which tend to be the more liquid class. **Table 3** shows the Fama–French (1992) findings on whether the performance of value strategies holds up for large-cap stocks. In the category of the smallest companies (Size Decile 1), the portfolio of value stocks (Portfolio 10) had an average return (1.92 percent) that was 1.22 pps higher than the average return of the glamour stock portfolio (Portfolio 1). Value stocks still earned higher returns in the category of the largest stocks, but the margin was less substantial (0.25 pps a month). Putting aside risk-based explanations, one could conjecture that small companies are less widely followed and the costs of arbitrage may be higher for these stocks. As a result, mispricing patterns may be more pronounced in the small-cap segment of the market, yielding richer opportunities for a value strategy than in the large-cap segment.

Beyond the interaction between BV/MV and company size, some studies have explored the links between BV/MV and other return regularities. For example, Asness (1997) and Daniel and Titman (1999) studied the interaction between the value effect and past return (price momentum). Chan, Lakonishok, and Sougiannis (2001) incorporated intangible assets in the book value of equity and found that doing so improved the performance of the value approach. Piotroski (2000) used various financial statement data to identify more sharply successful value stocks. Ferson and Harvey (1999) used conditioning information to help predict the value premium. The results of these studies suggest that blending various investment approaches, such as value and momentum, may allow an investor to reap larger returns than can be obtained by using only indicators related to value versus growth. Our objective in this article, however, is not to select the most profitable investment strategy, so we do not pursue these refinements of the basic value approach.

## Explaining the Performance of Value Strategies

Although the evidence on returns is relatively uncontroversial, the situation is far less settled when it comes to providing an explanation for the differences between the performance of value and growth portfolios.

**Table 2. Annual Returns (Measured in U.S. Dollars) in Excess of U.S. T-Bill Rate for Value and Glamour Portfolios by Country, 1975–95**
(standard deviations in parentheses; all data in percents)

| | | BV/MV | | E/P | | CF/P | | D/P | |
|---|---|---|---|---|---|---|---|---|---|
| Country | Market | Value | Glamour | Value | Glamour | Value | Glamour | Value | Glamour |
| United States | 9.57 | 14.55 | 7.75 | 14.09 | 7.38 | 13.74 | 7.08 | 11.75 | 8.01 |
| | (14.64) | (16.92) | (15.79) | (18.10) | (15.23) | (16.73) | (15.99) | (13.89) | (17.04) |
| Japan | 11.88 | 16.91 | 7.06 | 14.14 | 6.67 | 14.95 | 5.66 | 16.81 | 7.27 |
| | (28.67) | (27.74) | (30.49) | (26.10) | (27.62) | (31.59) | (29.22) | (35.01) | (27.51) |
| United Kingdom | 15.33 | 17.87 | 13.25 | 17.46 | 14.81 | 18.41 | 14.51 | 15.89 | 12.99 |
| | (28.62) | (30.03) | (27.94) | (32.32) | (27.00) | (35.11) | (26.55) | (32.18) | (26.32) |
| France | 11.26 | 17.10 | 9.46 | 15.68 | 8.70 | 16.17 | 9.30 | 15.12 | 6.25 |
| | (32.35) | (36.60) | (30.88) | (37.05) | (32.35) | (36.92) | (31.26) | (30.06) | (33.16) |
| Germany | 9.88 | 12.77 | 10.01 | 11.13 | 10.58 | 13.28 | 5.14 | 9.99 | 10.42 |
| | (31.36) | (30.35) | (32.75) | (24.62) | (34.82) | (29.05) | (26.94) | (24.88) | (34.42) |
| Italy | 8.11 | 5.45 | 11.44 | 7.62 | 12.99 | 11.05 | 0.37 | 10.07 | 12.68 |
| | (43.77) | (35.53) | (50.65) | (42.36) | (54.68) | (43.52) | (38.42) | (38.28) | (56.66) |
| Netherlands | 13.30 | 15.77 | 13.47 | 14.37 | 9.26 | 11.66 | 11.84 | 13.47 | 13.05 |
| | (18.81) | (33.07) | (21.01) | (21.07) | (20.48) | (33.02) | (23.26) | (21.38) | (30.81) |
| Belgium | 12.62 | 14.90 | 10.51 | 15.12 | 12.90 | 16.46 | 12.03 | 15.16 | 12.26 |
| | (25.88) | (28.62) | (27.63) | (30.47) | (27.88) | (28.84) | (25.57) | (26.47) | (29.26) |
| Switzerland | 11.07 | 13.84 | 10.34 | 12.59 | 11.04 | 12.32 | 9.78 | 12.62 | 10.44 |
| | (27.21) | (30.00) | (28.57) | (31.44) | (28.81) | (36.58) | (27.82) | (31.00) | (27.83) |
| Sweden | 12.44 | 20.61 | 12.59 | 20.61 | 12.42 | 17.08 | 12.50 | 16.15 | 11.32 |
| | (24.91) | (38.31) | (26.26) | (42.43) | (24.76) | (30.56) | (23.58) | (29.55) | (25.13) |
| Australia | 8.92 | 17.62 | 5.30 | 15.64 | 5.97 | 18.32 | 4.03 | 14.62 | 6.83 |
| | (26.31) | (21.03) | (27.32) | (28.19) | (28.89) | (29.08) | (27.46) | (28.43) | (28.57) |
| Hong Kong | 22.52 | 26.51 | 19.35 | 27.04 | 22.05 | 29.33 | 20.24 | 23.66 | 23.30 |
| | (41.96) | (48.68) | (40.21) | (44.83) | (40.81) | (46.24) | (42.72) | (38.76) | (42.05) |
| Singapore | 13.31 | 21.63 | 11.96 | 15.21 | 13.12 | 13.42 | 8.03 | 10.64 | 13.10 |
| | (27.29) | (36.89) | (27.71) | (29.55) | (34.68) | (26.24) | (28.92) | (22.01) | (33.92) |

*Notes*: The market return in each country is the cap-weighted average across all stocks. The value portfolio in each market contained the top 30 percent of stocks as ranked by the relevant ratio; the glamour portfolio contained the bottom 30 percent of ranked stocks.

*Source*: Results from Fama and French (1998).

Fama and French (1996) argued that stocks with high BV/MVs are more prone to financial distress and are hence riskier than glamour stocks. They used a version of the Merton (1973) multifactor asset-pricing model to ascribe value stocks' higher returns to the stocks' higher exposures to a financial distress factor. This argument, however, stretches credulity. On the basis of the risk argument, Internet stocks, which had virtually no book value but stellar market value in the 1990s, would be considered much less risky than traditional utility stocks, which typically have high book values relative to market values. Note also that the idea that value stocks have higher risk surfaced only after their higher returns became apparent. Data snooping is considered to be a sin, and coming up with *ad hoc* risk measures to explain returns should be regarded as no less of a sin.[2]

Lakonishok, Shleifer, and Vishny (1994) argued against the "metaphysical" approach to risk in which higher average returns on an investment strategy must necessarily reflect some source of risk. Following a conventional approach, they argued that risk does not explain the differences in returns. To develop the point, **Table 4** provides the returns and other characteristics of portfolios formed by classifying stocks along two indicators—CF/P and past growth in sales.[3] Panel A of Table 4 covers familiar ground: In this sample period, the portfolio of value stocks outperformed the growth stock portfolio, on average, by 10.7 pps (or 8.7 pps on a size-adjusted basis) a year. These differences

**Table 3. Monthly Returns for Value and Glamour Portfolios (Sorted by BV/MV) by Market-Cap (Size) Categories, July 1963–December 1990**

| | | Book/Market Category | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Size | All | 1 (glamour) | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 (value) |
| All | 1.23% | 0.64% | 0.98% | 1.06% | 1.17% | 1.24% | 1.26% | 1.39% | 1.40% | 1.50% | 1.63% |
| 1 (Small) | 1.47 | 0.70 | 1.14 | 1.20 | 1.43 | 1.56 | 1.51 | 1.70 | 1.71 | 1.82 | 1.92 |
| 2 | 1.22 | 0.43 | 1.05 | 0.96 | 1.19 | 1.33 | 1.19 | 1.58 | 1.28 | 1.43 | 1.79 |
| 3 | 1.22 | 0.56 | 0.88 | 1.23 | 0.95 | 1.36 | 1.30 | 1.30 | 1.40 | 1.54 | 1.60 |
| 4 | 1.19 | 0.39 | 0.72 | 1.06 | 1.36 | 1.13 | 1.21 | 1.34 | 1.59 | 1.51 | 1.47 |
| 5 | 1.24 | 0.88 | 0.65 | 1.08 | 1.47 | 1.13 | 1.43 | 1.44 | 1.26 | 1.52 | 1.49 |
| 6 | 1.15 | 0.70 | 0.98 | 1.14 | 1.23 | 0.94 | 1.27 | 1.19 | 1.19 | 1.24 | 1.50 |
| 7 | 1.07 | 0.95 | 1.00 | 0.99 | 0.83 | 0.99 | 1.13 | 0.99 | 1.16 | 1.10 | 1.47 |
| 8 | 1.08 | 0.66 | 1.13 | 0.91 | 0.95 | 0.99 | 1.01 | 1.15 | 1.05 | 1.29 | 1.55 |
| 9 | 0.95 | 0.44 | 0.89 | 0.92 | 1.00 | 1.05 | 0.93 | 0.82 | 1.11 | 1.04 | 1.22 |
| 10 (Large) | 0.89 | 0.93 | 0.88 | 0.84 | 0.71 | 0.79 | 0.83 | 0.81 | 0.96 | 0.97 | 1.18 |

*Notes*: The sample was all NYSE, Amex, and Nasdaq stocks with data on returns and accounting information. Monthly returns on equally weighted portfolios were measured. Portfolios were formed in June each year by ranking stocks on size into 10 groups based on breakpoints from NYSE stocks. Within each size category, stocks were further classified into one of 10 portfolios based on BV/MV. The column labeled "All" reports equally weighted portfolio average returns for each size category; the row labeled "All" reports equally weighted average returns for all stocks classified in the specified BV/MV category.

*Source*: From Fama and French (1992).

in returns were not accompanied by notable differences in traditional measures of risk, including beta and volatility.

The possibility exists, however, that beta and volatility are crude proxies that do not capture all the relevant risks of the two portfolios. Thus, Panel B of Table 4 provides a more direct evaluation of the risk-based explanation. If the value strategy is fundamentally riskier, then it should underperform relative to the growth strategy during undesirable states of the world when the marginal utility of wealth is high. The key to the risk argument, then, is to identify such undesirable states. A natural choice is months when the overall stock market did poorly. Down-market months generally correspond to periods when aggregate wealth is low and thus the utility of an extra dollar is high. The approach of examining portfolio performance during down markets also corresponds to the notion of downside risk that has gained popularity recently in the investment community. Along the same lines, periods when the economy suffers downturns and growth shrinks could also be singled out as low-wealth states.

Panel B of Table 4 shows results for value versus growth with undesirable states defined by the market or defined by the U.S. economy. For the data shown in Part 1 of Panel B, Lakonishok, Shleifer, and Vishny (1994) isolated the 25 months with the worst stock market performance (the lowest return on the equally weighted market index), the remaining 88 months with negative market returns, the 122 months with positive market returns excluding the best 25, and the 25 months with the best market performance. When the market return was negative, value stocks outperformed glamour stocks, and the outperformance was somewhat more pronounced in the worst 25 months. When the market earned a positive return, the value portfolio at least matched the performance of the glamour portfolio. Panel B2 shows that the results were similar when good and bad times were defined by quarterly growth in real GNP; notably, rather than suffering more during periods of poor GNP growth, the value portfolio outperformed the glamour portfolio by 5 pps a quarter.[4] All in all, this evidence does not support the view that the superior returns on value stocks reflect their higher fundamental risk. Nonetheless, there are many possible proxies for risk, so the risk-based explanation cannot be definitively laid to rest.

A competing explanation for the returns on value stocks draws on behavioral considerations and agency costs. Studies in psychology have suggested that individuals tend to use simple heuristics for decision making, which opens up the possibility of judgmental biases in investment behavior.[5] In particular, investors may extrapolate past performance too far into the future. The analysis reported in Panel C of Table 4 explored this idea for value and growth stocks. As shown, value stocks tend to have a past history of poor

**Table 4. Returns, Risk ,and Past Performance for Value and Glamour Portfolios, May 1968–April 1990**

| Measure | Growth | Value | Difference (value – growth, in pps) |
|---|---|---|---|
| **A. Postformation returns and risk measures** | | | |
| Average annual return over 5 postformation years (%) | 11.4 | 22.1 | 10.7 |
| Size-adjusted average annual return (%) | –3.3 | 5.4 | 8.7 |
| Beta | 1.25 | 1.32 | |
| Standard deviation of return (%) | 21.6 | 24.1 | |
| Standard deviation of size-adjusted return (%) | 6.1 | 6.5 | |
| **B. Postformation returns in good and bad states** | | | |
| *1. By market* | | | |
| Return during worst 25 stock market months (%) | –10.3 | –8.6 | 1.8 |
| Return during months with negative market return excluding 25 worst (%) | –2.9 | –1.5 | 1.4 |
| Return during months with positive market return excluding 25 best (%) | 3.8 | 4.0 | 0.2 |
| Return during best 25 stock market months (%) | 11.0 | 12.4 | 1.4 |
| *2. By economy* | | | |
| Return during worst 10 quarters of GNP growth (%) | –0.9 | 4.1 | 5.0 |
| Return during next worst 34 quarters of GNP growth (%) | 1.1 | 2.7 | 1.6 |
| Return during next best 34 quarters of GNP growth (%) | 2.6 | 4.6 | 2.0 |
| Return during best 10 quarters of GNP growth (%) | 10.3 | 13.9 | 3.6 |
| **C. Preformation performance and returns** | | | |
| Average prior growth rate of earnings (%) | 14.2 | 8.2 | –6.0 |
| Average prior growth rate of cash flow (%) | 21.0 | 7.8 | –13.2 |
| Average prior growth rate of sales (%) | 11.2 | 1.3 | –9.9 |
| Cumulative stock return from three years before to portfolio formation (%) | 139.0 | 22.5 | –116.5 |

*Notes*: The sample was all NYSE and Amex stocks with data on returns and accounting information. Monthly returns were measured on equally weighted portfolios. Portfolios were formed in April each year from the largest 50 percent of eligible stocks. Stocks were sorted into three groups by CF/P and sorted independently by average growth rate of sales over five preformation years. The glamour portfolio contained the intersection of the lowest ranked category by CF/P and the highest ranked by past sales growth. The value portfolio was the intersection of the highest ranked category by CF/P and the lowest ranked by past sales growth. Betas in Panel A are reported with respect to the value-weighted CRSP index. Mean growth rates in Panel C are geometric.

*Source*: Results are from Lakonishok, Shleifer, and Vishny (1994).

performance (relative to growth stocks) with respect to growth in earnings, cash flow, and sales. Therefore, insofar as investors and brokerage analysts overlook the lack of persistence in growth rates (see Chan, Karceski, and Lakonishok 2003) and project past growth into the future, favorable sentiment is created for glamour stocks.

Furthermore, agency factors may play a role in the higher prices of glamour stocks. Analysts have a self-interest in recommending successful stocks to generate trading commissions, as well as investment banking business. Moreover, growth stocks are typically in exciting industries and are thus easier to tout in terms of analyst reports and media coverage (see Bhushan 1989; Jegadeesh, Kim, Krische, and Lee 2002). All these considerations play into the career concerns of professional money managers and pension plan executives (see Lakonishok, Shleifer, and Vishny 1992). Such individuals may feel vulnerable holding a portfolio of companies that are tainted by lackluster past performance, so they gravitate toward successful growth-oriented stocks. The upshot of all these considerations is that value stocks become underpriced and glamour stocks overpriced relative to their fundamentals. Because of the limits of arbitrage (see Shleifer and Vishny 1997), the mispricing patterns can persist over long periods of time.

Chan, Karceski, and Lakonishok (2003) provided some evidence of the existence of extrapolative biases in the pricing of value and glamour stocks. The common presumption is that BV/MV is a measure of a company's future growth opportunities relative to its accounting value. Accordingly, low BV/MV suggests that investors expect high future growth prospects compared with the value of assets in place. If these expectations are correct, a negative association should exist between BV/MV and future realized growth. To check whether BV/MV predicts future growth, the authors ranked stocks by growth in income before extraordinary items over a five-year horizon (only stocks with positive income in the base year entered the sample). Based on the ranking, stocks were placed in 1 of 10 deciles. Within each decile, the authors found the median BV/MV at the beginning of the five-year horizon and also at the end. The procedure was repeated at the beginning of each year from 1951 to 1998.

The association between BV/MVs and future growth was weak. The stocks ranked in the top decile by growth in net income typically had a BV/MV of 0.88 at the beginning, which was higher than the average BV/MV for all stocks (0.69). So, investors are not anticipating these companies' future success. Typically, then, stocks fetching high prices relative to book value or earnings wind up falling short of investors' hopes. Nevertheless, Chan, Karceski, and Lakonishok found that *ex post* BV/MV tracked growth closely, showing that investors are quick to jump on the bandwagon and chase stocks with high past growth. After the period of high growth, the top decile of companies traded at a BV/MV of 0.56 (the lowest across the deciles). Conversely, investors punished the companies with the lowest realized growth. In Decile Portfolio 1, the median *ex post* BV/MV was 1.12 (the highest of the deciles).

If investors incorrectly focus on past growth as a basis for growth forecasts and for valuation, prices should subsequently adjust as actual growth materializes. Evidence on whether such corrections take place was provided by, among others, La Porta, Lakonishok, Shleifer, and Vishny (1997). They looked at returns around earnings announcements for value and glamour portfolios based on sorts by BV/MV. **Table 5** reports some of their findings. A benefit of working with announcement returns is that over short intervals, differences in risk are less likely to be an issue than they are over long intervals. Table 5 indicates that in the first year after portfolio formation, investors tended to be disappointed as news emerged about the earnings of glamour stocks. The cumulative event return was –0.5 percent for the glamour portfolio. Investors were pleasantly surprised around announcements of value stocks' earnings; the cumulative event return for these stocks was 3.5 percent in the first year. In the second and third years, the contrast between the market's response to the subsequent earnings performance of the two portfolios continued to be large and statistically significant.

This evidence supports the argument that expectational errors are at least part of the reason for the superior returns on value stocks. Specifically, investors have exaggerated hopes about growth stocks and end up being disappointed when future performance falls short of their expectations. By the same token, they are unduly pessimistic about value stocks and wind up being pleasantly surprised.

## The Evidence Updated

Our updates to the evidence on growth versus value investing took the form of incorporating data through 2001 (with a refined definition of value) and expanding the application of this value approach to developed markets outside the United States.

**Table 5. Returns around Earnings Announcement Dates in Postformation Years for Value and Glamour Portfolios Sorted by BV/MV, 1971–92**

| | Portfolio Return | | | | | |
|---|---|---|---|---|---|---|
| Postformation Year | 1 (glamour) | 2 | 9 | 10 (value) | Mean Difference (value – glamour) | *t*-Statistic for Difference |
| First | –0.472% | 0.772% | 3.200% | 3.532% | 4.004 pps | 5.65 |
| Second | –0.428 | 0.688 | 2.828 | 3.012 | 3.440 | 7.14 |
| Third | 0.312 | 0.796 | 2.492 | 3.136 | 2.824 | 5.12 |
| Fourth | 0.804 | 0.812 | 2.176 | 2.644 | 1.840 | 3.67 |
| Fifth | 0.424 | 1.024 | 1.368 | 2.432 | 2.008 | 4.49 |

*Notes*: The sample was all NYSE, Amex, and Nasdaq stocks with data on returns and accounting information for the sample period. Portfolios were formed in June each year by ranking stocks on BV/MV into 10 portfolios based on breakpoints from NYSE stocks. For every stock, buy-and-hold returns were measured over a window beginning one day before and ending one day after each earnings announcement for the 20 quarters following portfolio formation. Stock returns were summed over the four quarters in each postformation year; the equally weighted portfolio return is reported. The *t*-statistic for the mean difference between the returns on the value and glamour portfolios was based on the time series of postformation returns.

*Source*: Results are from La Porta et al.

**Evidence through 2001 on Refined Value Strategy.** The bulk of the academic evidence on the returns to value and glamour strategies has come from data ending in the mid-1990s. In this section, we update the evidence to 2001. In addition, we implement a strategy based on the findings that using more than BV/MV to define value and growth may improve results. This exercise is interesting for several reasons. First, it provides an out-of-sample check on the profitability of value strategies. If investors became aware of the benefits of value strategies from the published research and adjusted their portfolios, the rewards to value investing may have been arbitraged away since the research became widely known. (A similar response may have been responsible for the demise of the "small-firm effect" after the 1980s.) Moreover, the late 1990s witnessed a stunning boom in growth stocks and the "dot-com" mania. Investors' ardor for technology, media, and telecommunications issues reached feverish heights and propelled prices of such stocks to stellar levels. Indeed, growth stocks in general earned returns in this period that far outstripped those on value stocks. We address the importance of the post-1995 relative performance on the long-term performance of value and growth strategies.

**Table 6** presents returns on benchmark indexes from Frank Russell Company that capture the performance of various equity asset classes—large-, medium-, and small-cap stocks subdivided into growth and value categories. The later part of the 1990s was harsh on value stocks. From 1996 through 1999, the geometric mean annual return on the Russell 1000 Growth Index of large-cap growth stocks was 31.3 percent, compared with 19.5 percent for the Russell 1000 Value Index of large-cap value stocks. The performance was particularly striking for the largest stocks; the Top 200 Growth Index posted an average return of 33.3 percent for this period. At the opposite extreme, the Russell 2000 Value Index of small-cap value stocks earned only 10.2 percent. These trends prompted analysts and journalists to speculate on the emergence of a "new paradigm" in equity investing that would make the value-oriented investor an endangered species.

Chan, Karceski, and Lakonishok (2000) sorted out the competing explanations for the relative stock price performance of the various equity asset classes over the late 1990s. They did so by examining whether changes in the relative valuations of the equity classes and their returns were accompanied by changes in operating profitability. Under a rational pricing model, if one assumes no shift in relative risks (so discount rates are unaltered), the sizzling performance of growth stocks in the late 1990s can be explained by a sequence of unanticipated positive shocks to cash flows. Under the new paradigm perspective, these shocks have yet to be fully absorbed in equity values, so the returns to growth investing will persist for some time in the future.

**Table 7** excerpts some of the findings of Chan, Karceski, and Lakonishok (2000). Because the main contrast concerns the performance of the largest-cap stocks, we provide the results each year for only the largest 200 stocks classified as either growth or value on the basis of BV/MV. In this study, at the end of June each year, the largest 200 companies (by equity market value) were selected and ranked by BV/MV. Moving from the lowest ranked to the highest ranked, stocks were classified as large-cap growth until 50 percent of the ranked stocks' market capitalization was reached; the remainder were classified as large-cap value. After leaving a window of 18 months, the authors formed value-weighted portfolios from the stocks in each category. At the beginning of a calendar year, each portfolio's ratio of price to operating income before depreciation (P/I) was measured.[6] Growth in operating income before depreciation was also measured for the stocks in a portfolio relative to the same companies' operating income before depreciation from the prior year.[7]

Panel A of Table 7 highlights the rapid ascent in P/I for large-cap growth stocks. At the beginning of 1999, the P/I multiple for this style class stood at 17.60, an unprecedented level relative to its 1970–98 average value of 7.42. Large-cap value stocks were also fetching a relatively high multiple in 1999, but the break from the multiple's historical average was much less eye-catching. The overall widening of the P/I multiple for growth stocks relative to the P/I multiple for value stocks was exacerbated in the remainder of 1999 and the first quarter of 2000.

To justify the record-shattering level of the multiple for large-cap growth stocks within a rational pricing framework, a dramatic rise had to have occurred in these companies' operating performance. But Panel B of Table 7 shows that growth in operating income before depreciation reflected no dramatic differences between large-cap growth and value stocks for 1996–1998. (Conversely, small- and mid-cap value stocks fell out of favor with investors, even though their recent operating performance had not been poor.) Hence, Chan, Karceski, and Lakonishok (2000) argued that the rich pricing of these stocks did not reflect their fundamentals but, rather, reflected investors' rosy expectations of future growth and of the companies' ability to

**Table 6. Annual Returns for Value and Growth Indexes, 1979–2002**

| | Russell 3000 | | Russell Top 200 | | Russell Mid-Cap | | Russell 1000 | | Russell 2000 | | S&P 500 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | Growth | Value | Growth | Value | Growth | Value | Growth | Value | Growth | Value | Index |
| 1979 | 26.20% | 21.85% | NA | NA | NA | NA | 23.91% | 20.55% | 50.83% | 35.38% | 18.44% |
| 1980 | 40.74 | 24.52 | NA | NA | NA | NA | 39.57 | 24.41 | 52.26 | 25.39 | 32.42 |
| 1981 | –11.09 | 2.49 | NA | NA | NA | NA | –11.31 | 1.26 | –9.24 | 14.85 | –4.91 |
| 1982 | 20.51 | 20.83 | NA | NA | NA | NA | 20.46 | 20.04 | 20.98 | 28.52 | 21.41 |
| 1983 | 16.29 | 29.24 | NA | NA | NA | NA | 15.98 | 28.29 | 20.13 | 38.64 | 22.51 |
| 1984 | –2.75 | 9.28 | NA | NA | NA | NA | –0.95 | 10.10 | –15.83 | 2.27 | 6.27 |
| 1985 | 32.69 | 31.48 | NA | NA | NA | NA | 32.85 | 31.51 | 30.97 | 31.01 | 32.16 |
| 1986 | 14.25 | 18.78 | 13.99% | 21.44% | 17.55% | 17.87% | 15.36 | 19.98 | 3.58 | 7.41 | 18.47 |
| 1987 | 3.92 | –0.13 | 6.45 | 2.20 | 2.76 | –2.19 | 5.31 | 0.50 | –10.48 | –7.11 | 5.23 |
| 1988 | 12.00 | 23.63 | 10.88 | 22.02 | 12.92 | 24.61 | 11.27 | 23.16 | 20.37 | 29.47 | 16.81 |
| 1989 | 34.68 | 24.22 | 37.68 | 26.66 | 31.48 | 22.70 | 35.92 | 25.19 | 20.17 | 12.43 | 31.49 |
| 1990 | –1.31 | –8.85 | 1.37 | –3.67 | –5.13 | –16.09 | –0.26 | –8.08 | –17.41 | –21.77 | –3.17 |
| 1991 | 41.66 | 25.41 | 39.41 | 18.16 | 47.03 | 37.92 | 41.16 | 24.61 | 51.19 | 41.70 | 30.55 |
| 1992 | 5.22 | 14.90 | 3.89 | 9.07 | 8.71 | 21.68 | 5.00 | 13.81 | 7.77 | 29.14 | 7.67 |
| 1993 | 3.69 | 18.65 | –0.07 | 19.76 | 11.19 | 15.62 | 2.90 | 18.12 | 13.36 | 23.84 | 9.99 |
| 1994 | 2.20 | –1.95 | 4.85 | –1.90 | –2.17 | –2.13 | 2.66 | –1.99 | –2.43 | –1.55 | 1.31 |
| 1995 | 36.57 | 37.03 | 38.65 | 40.03 | 33.98 | 34.93 | 37.19 | 38.35 | 31.04 | 25.75 | 37.43 |
| 1996 | 21.88 | 21.60 | 25.57 | 22.31 | 17.48 | 20.26 | 23.12 | 21.63 | 11.26 | 21.37 | 23.07 |
| 1997 | 28.74 | 34.83 | 33.73 | 35.47 | 22.54 | 34.37 | 30.49 | 35.18 | 12.95 | 31.78 | 33.36 |
| 1998 | 35.02 | 13.50 | 45.09 | 21.24 | 17.86 | 5.08 | 38.71 | 15.62 | 1.23 | –6.45 | 28.58 |
| 1999 | 33.82 | 6.64 | 29.68 | 10.94 | 51.29 | –0.11 | 33.16 | 7.35 | 43.10 | –1.49 | 21.04 |
| 2000 | –22.42 | 8.02 | –24.51 | 2.31 | –11.75 | 19.19 | –22.43 | 7.02 | –22.44 | 22.82 | –9.11 |
| 2001 | –19.63 | –4.33 | –20.50 | –8.80 | –20.16 | 2.33 | –20.42 | –5.59 | –9.24 | 14.02 | –11.88 |
| 2002 | –28.04 | –15.18 | –27.98 | –18.02 | –27.41 | –9.65 | –27.89 | –15.52 | –30.26 | –11.43 | –22.10 |
| Geometric mean 1996–99 | 29.76 | 18.69 | 33.32 | 22.18 | 26.58 | 14.12 | 31.25 | 19.52 | 16.16 | 10.18 | 26.42 |
| Geometric mean 1979–02 | 11.57 | 13.99 | | | | | 11.84 | 13.93 | 8.94 | 14.74 | 13.25 |
| Standard deviation 1979–02 | 20.71 | 14.05 | | | | | 20.84 | 14.16 | 23.83 | 17.40 | 16.42 |
| Geometric mean 1986–02 | 9.73 | 11.78 | 10.42 | 11.82 | 10.19 | 12.21 | 10.18 | 11.90 | 5.12 | 10.92 | 11.50 |
| Standard deviation 1986–02 | 21.83 | 15.04 | 23.15 | 15.79 | 21.77 | 16.10 | 22.27 | 15.27 | 22.13 | 18.01 | 17.59 |
| Percentage of years value exceeded glamour | | 54 | | 53 | | 65 | | 50 | | 67 | |

NA = not available.

*Note:* Returns for the Russell Top 200 and Russell Mid-Cap Growth and Value Indexes begin in 1986.

sustain growth.[8] These expectations are at odds with the increasing competitiveness of world markets and the extreme difficulty of maintaining market position in the rapidly changing modern environment.

Returns in the years subsequent to the period analyzed by Chan, Karceski, and Lakonishok (2000) have tended to bear out their argument. Table 6 indicates that the Russell Top 200 growth index, for example, fell by 24.51 percent in 2000 and by 20.50 percent in 2001. The Russell 2000 Value Index, in contrast, rose by 22.82 percent and 14.02 percent in those years. As also shown in Table 6, when the record is updated, the historical results are still favorable for value investing. From the inception of the broad Russell indexes in 1979 to the end of 2002, value outperformed growth. The margin of performance was wider for the small companies: Returns for the Russell 2000 Value and Growth Indexes were 14.74 percent and 8.94 percent, respectively. In the case of the larger companies in the Russell 1000, however, the advantage to value stocks was not especially striking. The geometric mean return for 1979 to 2002 was 13.93 percent for the value stocks in the Russell 1000, compared with 11.84 percent for the Russell 1000

**Table 7. Price-to-Income Multiples (at Beginning of Year) and Profitability Growth (during Year) for Large-Cap Growth and Value Portfolios**

| Year | Large-Cap Growth | Large-Cap Value |
|---|---|---|
| *A. Price-to-income ratio* | | |
| 1996 | 8.42 | 4.57 |
| 1997 | 10.60 | 4.89 |
| 1998 | 12.67 | 6.06 |
| 1999 | 17.60 | 7.27 |
| 1970–98 | 7.42 | 3.51 |
| 1970–79 | 8.82 | 3.31 |
| 1980–89 | 5.26 | 2.83 |
| 1990–98 | 8.27 | 4.47 |
| 1994–98 | 9.01 | 4.88 |
| 1996–98 | 10.56 | 5.17 |
| *B. Portfolio income growth rate* | | |
| 1996 | 5.5% | 11.1% |
| 1997 | 13.9 | 14.2 |
| 1998 | 9.7 | 3.9 |
| 1970–98 | 10.6 | 7.1 |
| 1970–79 | 14.0 | 10.5 |
| 1980–89 | 8.4 | 5.1 |
| 1990–98 | 9.3 | 5.5 |
| 1994–98 | 11.6 | 10.9 |
| 1996–98 | 9.6 | 9.6 |

*Note*: The sample included all NYSE, Amex, and Nasdaq domestic companies.

*Source*: Results are from Chan, Karceski, and Lakonishok (2000).

growth stocks. Nonetheless, the value indexes have lower standard deviations than the growth benchmarks, so they should be appealing on this account as well as because of returns.

One caveat about the Russell benchmarks used in Table 6 bears mention. The indexes do not represent extreme bets on growth or value compared with, say, the extreme decile portfolios in sorts by BV/MV. Moreover, the underlying stocks are value weighted in the index and rely on just two indicators of value–growth orientation, namely, BV/MV and analysts' long-term growth forecasts. No reason exists, however, not to use more comprehensive measures of value orientation to diversify across signals of expected return. The results from such an exercise are reported in **Table 8**.

In the study reported in Table 8, portfolios were formed every calendar year-end by sorting stocks on a composite indicator and placing them in 1 of 10 deciles. The composite indicator pooled information from several valuation measures in an effort to improve identification of stocks that were undervalued relative to their fundamentals. In particular, using robust regression methods, we estimated cross-sectional models that predicted future yearly returns from beginning-year values of the BV/MV, CF/P, E/P, and the sales-to-price ratio (S/P). In these predictive models, we assumed a delay of four months from a company's fiscal year-end to the date when its financial information became publicly known. The estimated slope coefficients determined the weights to be applied to each fundamental variable to arrive at the overall indicator.

In Panel A of Table 8, the investable universe is large-cap stocks, namely, stocks ranked in the top six deciles of market cap based on NYSE breakpoints. In Panel B, small-cap stocks (in the sixth through ninth deciles of market cap based on NYSE breakpoints) make up the universe. Buy-and-hold returns over the first year following portfolio formation are reported for the bottom two deciles (the glamour portfolios) and for the top two deciles (the value portfolios).

From 1979 (when returns on the Russell 1000 Value Index become available) through 2001, the geometric mean return on the "deep value" portfolio (Decile 10) for large-cap stocks exceeded the return on the Russell 1000 Value Index over the same period by 5 pps (see Panel A2). So, the use of multiple measures in the composite indicator boosted the performance of the value strategy. Similarly, when applied to the small-cap universe for the same period (Panel B2), the strategy yielded a better return, on average, for the deep value portfolio (22.8 percent) than for the Russell 2000 Value benchmark (16.0 percent).

The last column of each panel in Table 8 shows the spreads between returns averaged for the top two deciles and returns averaged for the bottom two deciles for the year or group of years. Note from Part 2 of Panel A that for the full 1969–2001 period, the return differential averaged 10.4 pps in favor of value investing for the large-cap universe. The Part 1 data show that the value–growth spread was positive in 23 of 33 years, or 70 percent of the time.

Echoing the results in Table 3, Panel B2 of Table 8 indicates that the gap between value and growth (last column), with a return spread of 18.8 pps for the 1979–2001 period, was even more pronounced for small-cap stocks. And according to the last column of Panel A1, value investing earned a positive return spread over growth 76 percent of the time (in 25 out of 33 years).

For the most recent years, we found that the large-cap value portfolio fell behind the growth portfolio in 1998 and 1999 but that the average spread in favor of value for the entire decade of the

**Table 8. Yearly and Geometric Mean Returns to Value and Growth Strategies with Refined Definitions, 1969–2001**

**A. Large-cap stocks**

| | Portfolio | | | | | | |
|---|---|---|---|---|---|---|---|
| Year | 1 (glamour) | 2 | 9 | 10 (value) | Russell 1000 Value Return | S&P 500 Return | (Deciles 9, 10) – (Deciles 1, 2) |
| *1. By year* | | | | | | | |
| 1969 | –1.5% | –8.3% | –21.0% | –21.6% | NA | –8.5% | –16.4 pps |
| 1970 | –16.6 | –15.7 | 9.5 | 2.2 | NA | 4.0 | 22.0 |
| 1971 | 37.2 | 28.4 | 14.8 | 12.0 | NA | 14.3 | –19.4 |
| 1972 | 23.8 | 11.6 | 11.3 | 10.8 | NA | 19.0 | –6.7 |
| 1973 | –32.2 | –26.2 | –10.2 | –21.2 | NA | –14.7 | 13.5 |
| 1974 | –42.1 | –38.6 | –18.6 | –14.3 | NA | –26.5 | 23.9 |
| 1975 | 19.3 | 38.5 | 62.9 | 61.2 | NA | 37.2 | 33.1 |
| 1976 | 6.9 | 21.0 | 50.1 | 54.7 | NA | 23.8 | 38.5 |
| 1977 | –2.4 | –4.7 | 6.2 | 7.2 | NA | –7.2 | 10.2 |
| 1978 | 11.6 | 7.9 | 12.7 | 16.8 | NA | 6.6 | 5.0 |
| 1979 | 41.7 | 28.9 | 34.2 | 30.7 | 20.6% | 18.4 | –2.8 |
| 1980 | 68.3 | 48.3 | 16.8 | 22.9 | 24.4 | 32.4 | –38.5 |
| 1981 | –16.3 | –8.0 | 10.0 | 14.1 | 1.3 | –4.9 | 24.2 |
| 1982 | 9.2 | 14.7 | 24.8 | 29.8 | 20.0 | 21.4 | 21.7 |
| 1983 | 16.3 | 16.7 | 31.5 | 39.0 | 28.3 | 22.5 | 18.7 |
| 1984 | –22.5 | –5.1 | 11.9 | 15.5 | 10.1 | 6.3 | 27.4 |
| 1985 | 22.8 | 35.9 | 35.5 | 38.3 | 31.5 | 32.2 | 7.6 |
| 1986 | 12.6 | 8.6 | 21.9 | 21.6 | 20.0 | 18.5 | 11.2 |
| 1987 | –5.4 | 5.4 | 1.2 | –3.1 | 0.5 | 5.2 | –1.0 |
| 1988 | 6.9 | 9.4 | 33.2 | 32.7 | 23.2 | 16.8 | 24.8 |
| 1989 | 32.6 | 27.3 | 19.1 | 19.5 | 25.2 | 31.5 | –10.7 |
| 1990 | –5.7 | –8.7 | –15.6 | –21.8 | –8.1 | –3.2 | –11.5 |
| 1991 | 62.0 | 34.4 | 47.5 | 55.9 | 24.6 | 30.6 | 3.5 |
| 1992 | –8.0 | 3.2 | 24.0 | 26.1 | 13.8 | 7.7 | 27.5 |
| 1993 | 16.6 | 12.9 | 12.6 | 20.3 | 18.1 | 10.0 | 1.7 |
| 1994 | –13.6 | –0.1 | –0.7 | 3.1 | –2.0 | 1.3 | 8.0 |
| 1995 | 29.8 | 21.7 | 40.5 | 39.0 | 38.4 | 37.4 | 14.0 |
| 1996 | 12.0 | 14.5 | 22.4 | 21.5 | 21.6 | 23.1 | 8.7 |
| 1997 | 0.3 | 19.8 | 33.1 | 34.4 | 35.2 | 33.4 | 23.7 |
| 1998 | 19.7 | 12.8 | 6.2 | –2.0 | 15.6 | 28.6 | –14.1 |
| 1999 | 62.3 | 24.7 | 7.5 | 12.3 | 7.4 | 21.0 | –33.6 |
| 2000 | –34.9 | –18.6 | 14.4 | 21.6 | 7.0 | –9.1 | 44.7 |
| 2001 | –40.0 | –26.1 | 16.8 | 26.2 | –5.6 | –11.9 | 54.5 |
| *2. By group of years* | | | | | | | |
| 1969–2001 | 4.5% | 6.7% | 15.6% | 16.4% | NA | 11.4% | 10.4 pps |
| 1979–2001 | 7.9 | 10.4 | 18.6 | 20.4 | 15.4% | 15.1 | 10.4 |
| 1990–2001 | 3.8 | 6.0 | 16.1 | 18.0 | 12.9 | 12.9 | 12.2 |

**Table 8. Yearly and Geometric Mean Returns to Value and Growth Strategies with Refined Definitions, 1969–2001** (continued)

**B. Small-cap stocks**

| | Portfolio | | | | Russell 2000 Value Return | Russell 2000 Return | (Deciles 9, 10) – (Deciles 1, 2) |
|---|---|---|---|---|---|---|---|
| | 1 (glamour) | 2 | 9 | 10 (value) | | | |
| *1. By year* | | | | | | | |
| 1969 | –30.2% | –13.8% | –20.5% | –25.0% | NA | NA | –0.7 pps |
| 1970 | –35.9 | –24.3 | –2.4 | 10.1 | NA | NA | 33.9 |
| 1971 | 29.0 | 18.9 | 14.1 | 15.9 | NA | NA | –8.9 |
| 1972 | 13.5 | –0.4 | 12.7 | 6.5 | NA | NA | 3.1 |
| 1973 | –35.1 | –40.1 | –30.0 | –25.8 | NA | NA | 9.7 |
| 1974 | –42.5 | –39.1 | –19.3 | –11.6 | NA | NA | 25.3 |
| 1975 | 46.4 | 50.6 | 69.8 | 62.1 | NA | NA | 17.4 |
| 1976 | 28.0 | 41.8 | 54.9 | 49.9 | NA | NA | 17.5 |
| 1977 | 9.0 | 13.6 | 17.0 | 18.4 | NA | NA | 6.4 |
| 1978 | 18.3 | 21.7 | 19.2 | 19.8 | NA | NA | –0.5 |
| 1979 | 56.1 | 59.8 | 28.0 | 32.6 | 35.4% | 43.1% | –27.7 |
| 1980 | 65.3 | 57.6 | 23.2 | 28.6 | 25.4 | 38.6 | –35.5 |
| 1981 | –38.5 | –16.8 | 20.0 | 25.7 | 14.9 | 2.0 | 50.5 |
| 1982 | 5.3 | 13.2 | 33.5 | 44.7 | 28.5 | 24.9 | 29.9 |
| 1983 | 3.4 | 16.2 | 41.3 | 52.3 | 38.6 | 29.1 | 37.0 |
| 1984 | –30.0 | –19.7 | 15.0 | 19.3 | 2.3 | –7.3 | 42.0 |
| 1985 | 23.2 | 29.6 | 41.0 | 41.0 | 31.0 | 31.1 | 14.6 |
| 1986 | –0.9 | 7.0 | 13.7 | 24.7 | 7.4 | 5.7 | 16.1 |
| 1987 | –18.7 | –10.3 | –6.1 | 4.0 | –7.1 | –8.8 | 13.5 |
| 1988 | –5.2 | 13.3 | 39.2 | 37.2 | 29.5 | 24.9 | 34.1 |
| 1989 | 26.3 | 19.3 | 17.5 | 12.8 | 12.4 | 16.2 | –7.7 |
| 1990 | –24.0 | –14.6 | –19.3 | –22.0 | –21.8 | –19.5 | –1.4 |
| 1991 | 51.0 | 38.8 | 48.4 | 46.0 | 41.7 | 46.1 | 2.3 |
| 1992 | –21.3 | –2.2 | 28.0 | 29.4 | 29.1 | 18.4 | 40.4 |
| 1993 | –5.9 | 10.0 | 18.5 | 18.3 | 23.8 | 18.9 | 16.3 |
| 1994 | –35.2 | –11.3 | 2.8 | 4.0 | –1.6 | –1.8 | 26.7 |
| 1995 | 27.8 | 35.4 | 32.9 | 32.0 | 25.8 | 28.4 | 0.9 |
| 1996 | –7.5 | 13.9 | 29.3 | 28.6 | 21.4 | 16.5 | 25.7 |
| 1997 | –11.7 | 3.6 | 40.1 | 39.3 | 31.8 | 22.4 | 43.7 |
| 1998 | –6.5 | 1.2 | –0.7 | –2.4 | –6.5 | –2.5 | 1.1 |
| 1999 | 52.8 | 26.2 | 14.3 | 6.4 | –1.5 | 21.3 | –29.1 |
| 2000 | –38.9 | –23.8 | 5.7 | 12.5 | 22.8 | –3.0 | 40.5 |
| 2001 | –7.8 | –13.5 | 40.9 | 41.3 | 14.0 | 2.5 | 51.7 |
| *2. By group of years* | | | | | | | |
| 1969–2001 | –2.8% | 4.8% | 16.6% | 18.3% | NA | NA | 16.5 pps |
| 1979–2001 | –1.8 | 7.8 | 20.8 | 22.8 | 16.0% | 13.8% | 18.8 |
| 1990–2001 | –6.2 | 3.6 | 18.4 | 17.7 | 13.4 | 11.0 | 19.4 |

NA = not available.

1990s was still substantial. As the last cells in Panels A2 and B2 in Table 8 show, from 1990 through 2001, the difference amounted to 12.2 pps for large-cap stocks and 19.4 pps for small-cap stocks.

**Composite Strategy in International Arena.** The strong and growing interest in international investing prompts the question whether a composite value strategy like that described in the preceding section (in which value and growth were defined by BV/MV, CF/P, E/P, and S/P) can also be successfully applied to non-U.S. markets. To use an investable universe that corresponds to one available to most U.S. institutional investors, we considered the largest-cap stocks in the MSCI EAFE (Europe/Australasia/Far East) Index of developed non-U.S. countries.[9] The strategy was based on the same composite fundamental indicator that we used for the U.S. market. To ensure that the results were not clouded by differences among countries' accounting conventions, we assigned each stock a rank by comparing it with other stocks from the same country. At the beginning of each calendar year, we sorted stocks in a country by their ranks and placed each in 1 of 10 equally weighted decile portfolios.[10] We calculated buy-and-hold returns in local currency terms for the portfolios for the year following portfolio formation. We then aggregated returns across countries based on the EAFE country weights. Our procedure conforms to the methodology used for the widely followed MSCI index returns.

The results for our strategy are reported in **Table 9**, together with returns for the MSCI EAFE Free Index. Over the 1989–2001 period, the portfolio ranked highest by the composite value indicator earned a geometric mean return of 12.3 percent, compared with a return of 4.5 percent for the EAFE Free Index. In parallel with the U.S. experience, value stocks were far outstripped by growth stocks in 1998 and 1999, but with the exception of those two years, the spread in average returns between the two highest-ranked value portfolios and the two lowest-ranked growth portfolios was positive. The spread between value and growth averaged 13.5 pps a year for the overall period. In short, value investing appears to be alive and well in U.S. and non-U.S. markets.

## Conclusion

A large body of empirical research indicates that value stocks, on average, earn higher returns than growth stocks. The reward to value investing is more pronounced for small-cap stocks, but it is also present in large-cap stocks. The value premium exists also in equity markets outside the United States.

The bulk of the empirical research documenting the superiority of value investing stops short of the late 1990s, which were not kind to value stocks. Growth stocks rocketed in value in those years, but careful examination suggests that the differences in performance between value and growth in the late 1990s were not grounded in fundamental patterns of profitability growth. The most plausible interpretation of the events of the late 1990s is that investor sentiment reached exaggerated levels of optimism about the prospects for technology, media, and telecommunications stocks. The resulting valuations are hard to reconcile with economic logic.

**Table 9. Yearly and Geometric Mean Returns to Value and Growth Strategies with Refined Definitions in EAFE Markets, 1989–2001**

| | Portfolio | | | | | |
|---|---|---|---|---|---|---|
| Year | 1 (glamour) | 2 | 9 | 10 (value) | EAFE Free Return | (Deciles 9, 10) – (Deciles 1, 2) |
| 1989 | 35.6% | 33.5% | 48.9% | 53.2% | 21.5% | 16.5 pps |
| 1990 | –35.4 | –33.6 | –24.8 | –23.6 | –29.9 | 10.3 |
| 1991 | –5.5 | 0.6 | 8.2 | 15.8 | 8.6 | 14.5 |
| 1992 | –18.4 | –15.5 | –4.6 | 2.0 | –6.3 | 15.7 |
| 1993 | 13.7 | 17.5 | 41.5 | 49.3 | 29.3 | 29.8 |
| 1994 | –4.8 | –1.7 | 0.3 | 3.2 | –2.1 | 5.0 |
| 1995 | 1.5 | 1.1 | 1.4 | 5.8 | 9.6 | 2.3 |
| 1996 | 0.9 | 10.2 | 10.3 | 12.4 | 11.4 | 5.8 |
| 1997 | –3.3 | –4.5 | 3.5 | 3.2 | 13.2 | 7.3 |
| 1998 | 12.9 | 8.9 | 6.3 | –5.9 | 12.4 | –4.8 |
| 1999 | 84.7 | 46.7 | 26.9 | 26.5 | 33.2 | –39.0 |
| 2000 | –27.8 | –21.3 | 8.1 | 15.8 | –7.3 | 36.5 |
| 2001 | –49.5 | –34.2 | 0.7 | 11.5 | –16.3 | 47.9 |
| Period mean | –4.5 | –2.0 | 8.2 | 12.3 | 4.5 | 13.5 |

 

The sharp rise and decline in recent years of technology and other growth-oriented stocks also call into question the argument that growth stocks are less risky investments than value stocks. The evidence from a variety of indicators, including beta and return volatility, suggests that value stocks are not riskier than growth stocks. Indeed, using the popular risk indicator that focuses on performance in down markets, we found that value stocks suffered less severely than growth stocks when the stock market or the overall economy did poorly. Under any but a metaphysical definition of risk, therefore, the superior performance of value stocks cannot be attributed to their risk exposure. A more convincing explanation for the value premium rests on characteristics of investor behavior and on the agency costs of delegated investment management. Several studies have provided evidence in support of extrapolative biases in investor behavior.

The argument that the value premium is an artifact of data snooping poses a tougher challenge. In this respect, however, two features of value investing distinguish it from other possible anomalies. Many apparent violations of the efficient market hypothesis, such as day-of-the-week patterns in stock returns, lack a convincing logical basis. In the absence of a plausible rationale, a legitimate concern exists that the anomalous pattern is merely a statistical fluke that has been uncovered through data mining. The value premium, however, can be tied to ingrained patterns of investor behavior or the incentives of professional investment managers. In particular, in the recent market (as in numerous past episodes in financial history), investors extrapolated from the past and became excessively excited about promising new technologies. They overbid the prices of apparent "growth" stocks while the prices of value stocks dropped far below their value based on fundamentals. Because these behavioral traits will probably continue to exist in the future, patient investing in value stocks is likely to remain a rewarding long-term investment strategy.

*Han Qu and Simon Zhang provided research assistance. We thank Clifford Asness and Jason Karceski for their comments. Given the unavoidable limits on time and space, this article is not meant to be an exhaustive review of existing research; we apologize in advance to authors of related works who have been overlooked in this discussion.*

## Notes

1. See also Davis (1994), who confirmed the book-to-market effect in a sample that was less susceptible to biases affecting early observations in the Compustat files, which were used in many studies.
2. Daniel and Titman (1997) investigated the argument that differences in co-movement patterns of value and glamour stocks accounted for their returns. They found that differences in factor loadings did not explain the return premiums on value stocks.
3. Two signals were used because, as noted previously, two signals lower the chance of misclassifying stocks into value and growth categories: A stock with high cash flow per dollar of share price plus low past growth in sales is likely to be a value stock with low expected future growth. In contrast, investors are prone to regard a stock with low cash flow relative to price and high past sales growth as having more favorable future growth prospects.
4. Because stock returns tend to lead the real economy, the performance of the value and glamour portfolios was measured in the quarter preceding growth in GNP.
5. See Kahneman and Riepe (1998) and Shleifer for examples and further elaboration of concepts in behavioral finance.
6. Because operating income before depreciation is less noisy than net income, it provides a robust picture of operating performance.
7. Chan, Karceski, and Lakonishok (2000) also provided results on several performance indicators and used different methodologies for calculating profitability growth.
8. The possibility exists that future growth in profitability will differ radically from past patterns and that its effects have not shown up yet in the historical record. This argument requires very bold assumptions, however, to rationalize the stellar valuations witnessed in 1999 and early 2000. See Asness (2000) and Chan, Karceski, and Lakonishok (2000, 2003) for further discussion.
9. The breakpoints for the size cutoff varied among countries, but in general, they were calibrated to correspond to our definition from Table 8 of large-cap stocks in the United States.
10. In the computation of the fundamental indicators, our assumptions as to the delay between a company's fiscal year-end and the public release of financial statement information varied among countries. For the United Kingdom, New Zealand, Canada, and Australia, we assumed a delay of four months; for Holland, the delay was six months, and for the other countries, the assumed delay was eight months. These assumptions were based on extensive data checks and discussions with money managers in non-U.S. markets.

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