

Growth Vs. Value Investing: And the Winner Is...

by Roger G. Ibbotson, Ph.D., and Mark W. Riepe, CFA

Does growth beat value, or does value beat growth? The debate has raged for years among equity investors.¹ To shed some light on this vexing question, we explore the following issues.

- What are the various growth and value indexes currently in use and how do they differ?

- Are value stocks superior long-term performers, and if so, why?

- If one is a growth investor, how much foresight about future earnings growth is needed to beat the market?

- To what extent can we forecast future differences in the performance of growth and value stocks?

- In the context of an asset allocation policy, what percent of equities should be invested in growth stocks and what percent should be invested in value stocks?

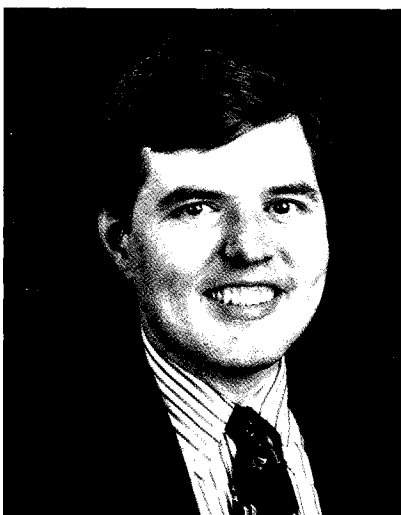
Growth and Value Universes

No universally accepted definition of growth and value stocks exists. Analysts do, however, agree on broad characteristics of stocks in these two camps, even if they disagree on the details. In general, growth managers

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invest in companies experiencing rapid growth in earnings, sales or return on equity. These stocks are usually associated with high price/earnings ratios (P/E) and high market price/book value ratios (P/B).² Value-oriented managers look for unpopular stocks (such as stocks in industries considered mature and with modest growth prospects), turn-around opportunities (such as stocks of companies experiencing problems but that are expected to recover, including bankruptcy restructurings), or more generally, stocks whose assets (broadly defined) are undervalued by the market. These stocks are usually associated with low P/E, low P/B or low price/cash flow ratios. High dividend yields also are used to identify value stocks.³

Given these loose definitions, it is not surprising that the various growth and value indexes currently in use differ in their construction and their performance over time.

Wilshire

The Wilshire style indexes are constructed using the largest 2,500 stocks. The Wilshire Top 750 uses the largest 750 stocks to represent large company stock performance. The Wilshire Next 1750 Index is used to represent small-company performance and is comprised of stocks 751 to 2,500. The large- and small- company style index-

es are based on these universes and use proprietary models designed to incorporate only "pure" growth or value stocks in the indexes. This leads to fewer stocks in the style indexes than are included in the universe indexes. Table 1 displays the number of stocks included in each of the Wilshire style indexes as of June 30, 1995. Table 2 displays their returns. An interesting characteristic that results from this construction methodology is that both value and growth style indexes can outperform the universe index.⁴

Frank Russell

The Russell 1000 Index™ represents the large-cap segment of the Russell 3000 Index™; this index comprises 1,000 large U.S. companies as determined by market capitalization, the smallest of which has about \$250 million in market capitalization. The Russell 2000 Index™ represents the smallest 2,000 companies within the 3,000-company universe.

Both the 1000 and the 2000 indexes are divided into growth and value pieces. The growth indexes contain companies with greater-than-average growth orientation and tend to exhibit higher P/B and P/E ratios, lower dividend yields, and higher forecast earnings growth than the value index universe.

The companies in the Russell 1000 and Russell 2000 indexes are ranked by their adjusted book-to-price ratio (adjusted for FAS 106 write-offs), and since 1994 by their I/B/E/S forecast long-term growth mean. Russell 1000 growth and value indexes are separated using the probability methodology started June 1995. Before this, the index employed an all-or-nothing approach; that is, stocks were classified as either 100-percent value or 100-percent growth. Russell 2000 styles employ the probability methodology throughout its entire back history.

In the probability methodology, companies are assigned a probability of being a growth or value stock. Roughly 70 percent of companies are classified as either all growth or all value. The remainder are assigned a

<i>Index</i>	<i>Number of Stocks</i>	<i>Universe Index</i>
Large Company Growth	186	Wilshire Top 750
Large Company Value	145	Wilshire Top 750
Small Company Growth	266	Wilshire Next 1750
Small Company Value	197	Wilshire Next 1750

Source: Wilshire Asset Management, Santa Monica, California.

<i>Index</i>	<i>Compound Annual Return (%)</i>	<i>Annualized Standard Deviation (%)</i>
Wilshire Top 750	16.3	17.0
Wilshire Large-Cap Growth	16.9	19.3
Wilshire Large-Cap Value	17.5	15.2
Russell 1000	16.5	17.1
Russell 1000 Growth	15.9	19.1
Russell 1000 Value	16.9	16.0
S&P 500	16.6	17.0
S&P/BARRA Growth	16.0	18.4
S&P/BARRA Value	16.9	16.2

Note: Time period selected represents common data availability.

probability of both value and growth. These companies are held in both indexes with a weight corresponding to their probability. While the sum of the securities in the growth and value indexes will not equal the aggregates, the sum of available market capitalizations will always equal the available market capitalization of the aggregate indexes.

S&P/BARRA

The S&P/BARRA growth and value indexes are market-cap weighted indexes. The stocks in each index are determined by ranking all of the stocks in the S&P 500 Index according to P/B ratios. The growth index contains stocks with higher P/B ratios, and the value index contains stocks with lower price-to-book ratios. This approach results in every stock being

placed in either the growth or the value index. The exact dividing point between a "high" and "low" P/B varies since the index constructors pick a dividing point that will result in the total market-cap of each index being equal. The advantage of this approach is that the indexes can be aggregated to give the same return as the S&P 500 Index.

Indexes are rebalanced semi-annually on January 1 and July 1 based on P/B ratios and market-caps as of December 1 and June 1. As of June 1995, there were 183 stocks in the growth index and 317 in the value index. This disparity indicates that the companies in the growth index tended to have larger market-caps.

Barclays Global Investors

Barclays divides the entire U.S. equity

TABLE 3
Small-Cap Style Index Annualized Performance, January 1979 to February 1997

<i>Index</i>	<i>Compound Annual Return (%)</i>	<i>Annualized Standard Deviation (%)</i>
Wilshire Next 1750	16.5	20.7
Wilshire Small-Cap Growth	15.6	25.4
Wilshire Small-Cap Value	20.3	15.3
Russell 2000	15.4	21.9
Russell 2000 Growth	13.1	25.1
Russell 2000 Value	17.9	19.6
Barclays Global Investors Small-Cap	16.0	20.5
Barclays Global Investors Small-Cap Growth	13.2	23.5
Barclays Global Investors Small-Cap Value	18.4	18.4

Note: Time period selected represents common data availability.

universe into style index modules. The modules are constructed in such a way that each stock in the U.S. equity market falls in one exclusive style index.

The U.S. Equity Market Index is made up of all the stocks in the S&P 500 Index plus exchange-traded and over-the-counter U.S. common stocks. The index currently includes about 5,500 stocks covering the entire range of market capitalization from \$82 billion to less than \$1 million.

The Intermediate Capitalization Index is made up of the 1,000 largest market capitalized securities in the U.S. Equity Market Index, less any stocks in the S&P 500 that fall within the top 1,000. The index is composed of 528 securities as of March 1996. Currently, the market capitalization of the stocks ranges from \$25 billion to \$571 million.

The Small Capitalization Index is made up of stocks that have market capitalizations lower than those in the Intermediate Capitalization Index, but above the bottom 15 percent of the Extended Market Index.⁵ The index is an aggregate of the Small Value Index and the Small Growth Index and had 1,160 securities as of March 1996. Currently, the market capitalizations of the stocks range from \$571 million to \$187 million.

The securities in the Small Capitalization Index are sorted between

growth and value based on their price/book ratios, such that the market capitalization of small value and small growth are approximately equal. As of March 1996, the Small Growth Index had 558 securities and the Small Value Index had 602 securities.

Value Investing

Tables 2 and 3 are frequently cited as evidence of the long-term superiority of value investing because they show that regardless of capitalization, every value index provided higher returns with less volatility than their growth counterparts.

These results are not new. S. Francis Nicholson conducted the first empirical study showing that low P/E stocks provide higher subsequent total returns than the average stock.⁶ While several later studies confirmed this finding, the studies suffered from various limitations, the most serious of which was a failure to adjust for risk.⁷ If low P/E stocks are superior performers, it may well be because those stocks are simply riskier to hold. Sanjoy Basu explicitly accounted for market risk and found that from 1957 to 1971, an inverse relationship existed between P/E and subsequent excess returns.⁸ Similar results have been reported for low P/B stocks. In fact, Eugene Fama and Kenneth French have found that P/E tells us nothing

about past returns when price/book and capitalization are taken into account.⁹

What's going on? Are value stocks that much of a bargain? There are at least four possible answers to this question.

1. *No, value stocks are not a bargain; their superior past performance merely reflects their greater level of risk.* This answer is what we might expect from efficient market disciplines (that is, if the equity market is efficient, or even close to efficient, we would not expect that such a simple rule would produce such impressive results). It may well be that value stocks do better simply because they are riskier in ways not picked up by standard risk metrics like standard deviation and beta. For example, one criticism of these results is that since firms in the same industry tend to have similar P/Es, a low P/E portfolio will be dominated by a few industries.¹⁰ The returns on such a portfolio would primarily reflect differences in industry performance and any excess returns would be obtained at the cost of reduced portfolio diversification. However, John Peavy and D.A. Goodman controlled for risk, industry effect, and size, and still found that lower P/E stocks tended to outperform higher P/E stocks.¹¹
2. *No, value stocks are not a bargain; their superior past performance is simply a statistical fluke.* If one flips a coin and two times in a row the coin comes up "heads," one still probably expects that the next flip has an equal chance of being "heads" or "tails." Applying this logic to the growth versus value debate, it may well be that value has beaten growth, but this is merely an accident of history and we would not expect it to continue. We do not think that the value effect is a fluke. Many of the studies from Basu and onward were designed to test for the strength of the value effect (a strong and persistent effect would

less likely be the result of pure chance) and concluded that it was, in fact, statistically significant.

3. *No, on an after-tax basis, value stocks are no bargain.* The issue here is that because value stocks typically have a higher dividend component (which is taxed yearly), they are less tax-efficient than growth stocks whose capital gains can be deferred. Of course, growth managers may well turn over their portfolios more quickly, which works to the advantage of value. This is an area where little, if any, serious empirical work has been done and should be explored further before any definitive statement can be made.

4. *Yes, value stocks are persistently underpriced.* This answer is meaningless unless one provides some plausible reason as to why value stocks are underpriced. If a plausible reason is not forthcoming, it is more likely that the effect is an accident of history. Three popular hypotheses are offered below.

(a) *Over-reaction.* Investors often are accused of placing too much emphasis on the recent past. As a result, they are too quick to embrace those firms that have recently reported higher-than-expected earnings and too quick to shun those stocks that have had recent troubles. This tendency results in investors extrapolating these extraordinary (both positive and negative) earnings too far into the future and not taking into account the regression-to-the-mean tendency of earnings.¹²

(b) *The beautiful and the damned.* Perennial losers may be lovable when it comes to sports, but not in the investment arena. The high earnings expectations and wide following among the press and investing public of growth stocks make them appealing to the typical investor. Conversely, value stocks,

TABLE 4
Returns to Companies with Fastest Earnings Growth, 1974 to 1990

Portfolio	Total Return (%)	Highest P/E (%)	Moderately High P/E (%)	Moderate P/E (%)	Moderately Low P/E (%)	Lowest P/E (%)
Equal-weighted	29.2	22.2	25.6	28.6	31.7	32.7
Market-cap-weighted	21.1	18.1	20.0	23.2	24.2	26.2
S&P 500 Index	13.3	n/a	n/a	n/a	n/a	n/a

Source: Table adapted from Roger G. Ibbotson and Mark W. Riepe, "Growth Investing: How Good Do You Have To Be?" *Journal of Investing*, September 1992, pp. 56-62.

which have relatively poor growth prospects or other unattractive characteristics and often receive unfavorable press, are psychologically undesirable to hold in a portfolio. If enough investors have these preferences, they will increase the demand for growth stocks and diminish the demand for value stocks. Over time, however, the superiority of the value stocks relative to the price paid for them becomes apparent. Their prices subsequently rise, providing capital appreciation at the same time that value stocks typically provide a higher dividend yield than growth stocks. Believing in the superiority of value stocks with respect to an entire universe of securities may not be enough to overcome the typical investor's concern with individual company prospects.¹³

(c) *Home run.* According to this hypothesis, few investors focus on the indexes in Tables 2 and 3. Instead, they focus their efforts on finding the few stocks which they believe will perform extremely well.¹⁴ Few stocks that fit into the value classification have the potential for the exorbitant capital appreciation that has been made

famous by success stories of the past, such as Microsoft or Intel. If investors preferred to invest in a broad basket of value stocks or a basket of growth stocks (such as investing in the growth and value indexes) and viewed their investment strategy in a comprehensive portfolio manner, the value stock universe would become more attractive. However, if investors are interested in individual stocks, many may find it difficult to disentangle themselves from the individual performance of the securities in their portfolio.¹⁵

Growth Investing

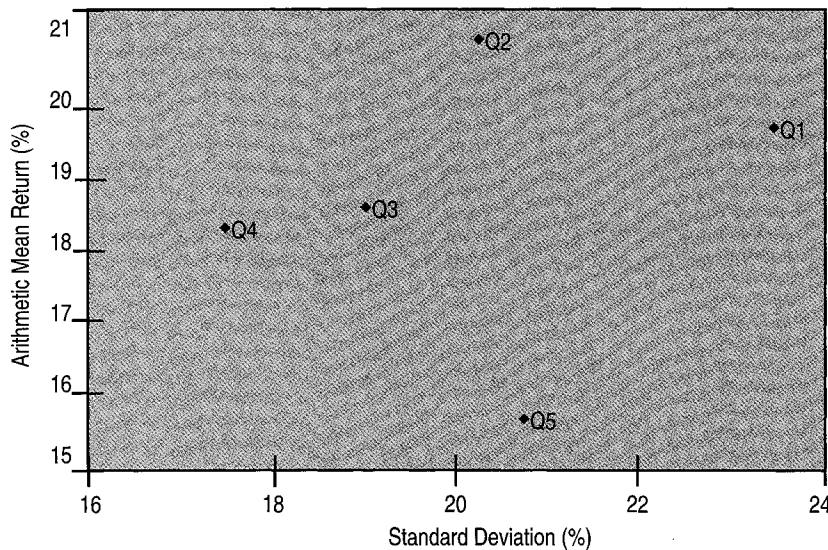
Despite Tables 2 and 3, growth investing remains a popular method of selecting equities. The potential success of growth investing is inexorably intertwined with the ability of the manager to forecast company earnings. We have also found, however, that it is possible to pay too much for expected growth, even if the forecast is an accurate one. In this section we provide answers to three questions:

■ How much of a return can be earned by accurately forecasting earnings growth?

■ How much of a return can be earned by investing solely on the basis of past growth?

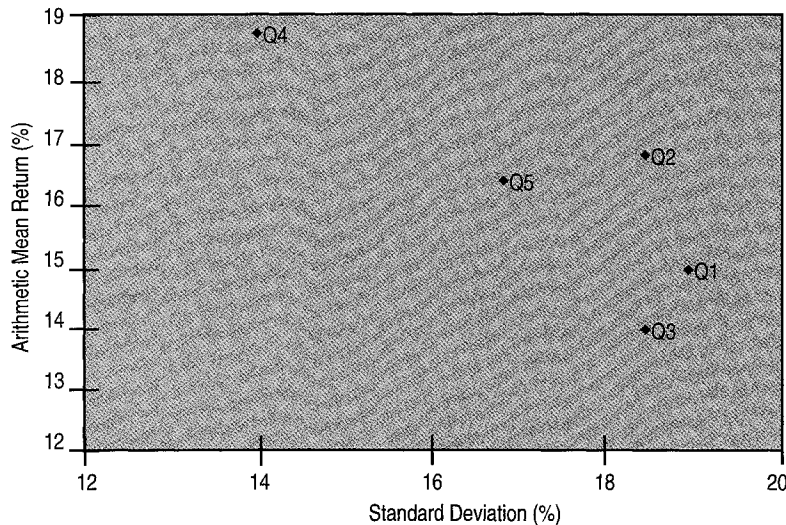
■ How much foresight is required to achieve above-market returns, or

FIGURE 1
Performance of Equally Weighted Portfolios Formed on the Basis of Past Earning Growth, 1975 to 1990



Note: Q1 represents the portfolio containing stocks with the highest past earnings growth. Q5 represents the portfolio containing stocks with lowest past growth.

FIGURE 2
Performance of Market-Cap Weighted Portfolios Formed on the Basis of past Earnings Growth, 1975 to 1990



Note: Q1 represents the portfolio containing stocks with the highest past earnings growth. Q5 represents the portfolio containing stocks with lowest past growth.

Source: Roger G. Ibbotson and Mark W. Riepe, "Growth Investing: How Good Do You Have to Be?" *Journal of Investing*, September 1992, pp. 56-62.

how right do you have to be?

How much of a return can be earned by accurately forecasting earnings growth? To assess the upside to growth investing, we assumed that we knew exactly which companies would have the fastest earnings growth and created two portfolios (one equal-weighted and one market-cap weighted) of those companies. These portfolios were held for one year and then reallocated into a new set of stocks that we knew would have the fastest earnings growth. As seen in Table 4, from 1974 to 1990, the equal-weighted portfolio had a compound annual total return of 29.2 percent. The market-cap weighted portfolio had a return of 21.1 percent. Both portfolios compared favorably to the S&P 500 Index, which returned 13.3 percent over the same period.

Despite the spectacular returns to accurate earnings forecasts, growth investors with good forecasting skills should not ignore value indicators such as P/E (the price paid for those earnings matters). As seen in Table 4, if we took the stocks that we knew were going to be fast growers and divided them into five sub-portfolios based on their P/E ratios, the fast growers purchased at low P/E ratios did much better than those purchased at high multiples.

The implication of these findings conform to basic investment common sense: by employing perfect earnings foresight, a portfolio's return can be significantly enhanced. This return can be further enhanced by buying low P/E stocks within this portfolio of stocks that have high known growth rates. Stated differently, Table 4 can be regarded as evidence in favor of what is now known as GARP (growth at a reasonable price) investing.

How much of a return can be earned by investing solely on the basis of past growth? Knowledge of past growth is important because it assists in predicting future growth, which we have shown is of great value in achieving high returns. Absent information about past growth, the investor would be clearly worse off. Unfortunately, those past growth rates

are known to all market participants. Figure 1 shows a scatter plot for equally weighted portfolios of stocks sorted into quintiles based on their past growth. Figure 2 does the same for market-weighted portfolios. Both figures indicate that portfolios constructed of stocks that had high past earnings growth are not obviously superior to portfolios whose stocks exhibited slower past earnings growth. This suggests that the growth forecasts implicit in past growth are incorporated in the stock price and that knowledge of past growth does not generate forecasts that are good enough to beat the market on a risk-adjusted basis.

How right do you have to be?

Clearly, some forecasting skill is necessary, but how much foresight is required to beat the market? Table 5 is a growth/P/E matrix for the equal-weighted (top panel) and the market capitalization-weighted (bottom panel) portfolios. This table shows returns for quintiles of stocks sorted according to their P/E ratios *within* quintiles of stocks sorted by *perfectly foreseen* growth. All growth/P/E combinations that beat the S&P 500 are shaded. We draw three conclusions from Table 5:

1. Investors who always picked top growth quintile stocks beat the market regardless of the P/E paid for those stocks.
2. Investors who always picked stocks in the bottom growth quintile did not beat the market, regardless of what P/E they paid for those stocks.
3. The ability to beat the market when selecting stocks that land in the other growth quintiles is dependent on the ability to also obtain those stocks at low P/Es. The lower the growth quintile, the greater the necessity to pay a low P/E.

Successful growth investing depends on the ability of the investor to make forecasts of earnings growth that contain knowledge about the future *beyond* that which is generally known. Investors who make perfect forecasts of growth will beat the market by a huge margin; but the more

TABLE 5
Growth Investing with Perfect Forecasting, 1974 to 1990

Panel A: Equal-Weighted Portfolio

Growth Quintile	Highest P/E (%)	Moderately High P/E (%)	Moderate P/E (%)	Moderately Low P/E (%)	Lowest P/E (%)
Q1	22.2	25.6	28.6	31.7	32.7
Q2	11.2	17.5	22.4	25.8	28.8
Q3	6.7	13.1	16.7	19.0	23.6
Q4	-0.9	5.5	10.6	13.5	17.0
Q5	-5.6	-4.2	-1.2	-2.1	2.6

Panel B: Market Cap-Weighted Portfolio

Growth Quintile	Highest P/E (%)	Moderately High P/E (%)	Moderate P/E (%)	Moderately Low P/E (%)	Lowest P/E (%)
Q1	18.1	20.0	23.2	24.2	26.2
Q2	11.3	17.0	19.4	20.6	24.8
Q3	6.3	12.5	14.0	18.0	20.1
Q4	1.4	5.8	11.8	13.4	17.3
Q5	-1.7	-1.1	3.5	4.8	9.5

Notes: Returns in excess of the S&P 500 are in the gray box. Q1 represents those companies with the highest growth rates. Q5 represents those companies with the lowest growth rates.

Source: Table adapted from Roger G. Ibbotson and Mark W. Riepe, "Growth Investing: How Good Do You Have To Be?" *Journal of Investing*, September 1992, pp. 56-62.

TABLE 6
Growth and Value Cycles, 1989 to 1996

Period	Index	Compound Annual Return (%)	Annualized Standard Deviation (%)
1989-1991	S&P/BARRA Growth	23.7	21.2
	S&P/BARRA Value	12.9	16.8
1992-1993	S&P/BARRA Growth	3.4	8.7
	S&P/BARRA Value	14.5	7.7
1994-1996	S&P/BARRA Growth	20.9	11.9
	S&P/BARRA Value	18.4	12.0

reliable, real-life (imperfect) earnings forecasters also have an opportunity to outperform the market. In the case where forecasting is imperfect, it is important to get a good price.

Is there persistence in style differences? While value stocks have generally beaten growth stocks, there is still a role for growth investors as long as they can forecast earnings

TABLE 7
Serial Correlations for Differences Between Growth and Value Indexes

Growth-Value Series	Time Period	Serial Correlation
Wilshire Large-Cap	January 1978–February 1997	0.11
Russell 1000	January 1979–February 1997	0.11
S&P/BARRA	January 1975–February 1997	0.06
Wilshire Small-Cap	January 1978–February 1997	0.16
Russell 2000	January 1979–February 1997	0.17
Barclays Global Investors Small-Cap	January 1975–February 1997	0.16

more accurately than the market as a whole. Another slant on this issue is whether there is any money to be made by style rotation (that is, sometimes investing primarily in growth stocks and sometimes investing primarily in value stocks).

Table 6 demonstrates that there have existed periods where growth beats value and value beats growth. However, if the difference in returns of growth and value indexes relative to the broader indexes change randomly over time, it is unlikely that investors can consistently and accurately anticipate which style will be in favor over a given period of time. If, however, the differences in returns to growth and value stocks do not change randomly, the question is whether investors can find other variables that accurately predict these nonrandom changes.

As to the question of randomness, Table 7 reports serial correlations for differences in returns for all of the growth/value pairs discussed in Tables 2 and 3. If the difference in the returns of say, the Wilshire Large-Cap growth and value indexes were completely random from month to month, the serial correlation would be 0. Over the January 1978 to February 1997 period, though, the value was 0.11, implying a slight persistence in return differential (strong growth periods have tended to be followed by strong growth periods). This result gives hope to style rotators as they attempt to ascertain what underlying economic factors are driving this result.

Growth Versus Value from an Asset Allocation Perspective

When it comes time to create an asset allocation policy, and if one prefers a growth/value split, then one must make a decision on the growth versus value question. Strict adherents to Tables 2 and 3 may take the extreme position that if equities are to be in a portfolio, they should be the types of equities that show up on value screens.

In our asset allocation work, we prefer to take a more balanced approach. The superior performance of value stocks over time seems to be too large and to have occurred over too many years to be a statistical aberration. However, we are mindful of data like Table 6 which demonstrates that there can be extended periods of superior performance for growth stocks. From an operational standpoint, it can also be difficult to even find pure value managers, particularly in the small stock arena.

Therefore, we produce asset allocations that have an allocation to both growth and value, although the superior historical performance of value leads us to tilt the equity allocation in that direction for all but the most aggressive investors. ■

Endnotes

1. Edgar Lawrence Smith (*Common Stocks as Long-Term Investments*, New York: Macmillan, 1925) provided the original intellectual underpinnings of growth invest-

ing. The first comprehensive statement in defense of value investing was from Benjamin Graham and David L. Dodd (*Security Analysis*, New York: McGraw-Hill, 1934).

2. Growth managers also look at qualitative factors. For example, Alden W. Stewart (“Growth Investing: A Classic, Proven Strategy,” *Bank Securities Journal* supplement, November-December 1996) cites such factors as high industry market share, exceptional management, and conservative accounting practices as being important. Since index constructors prefer to use quantitative criteria in determining index membership, factors such as P/E and P/B are used when creating growth and value indexes.
3. Recently, a hybrid of growth and value has been in vogue. These managers are often collectively referred to as GARP (growth at a reasonable price) or modified value managers.
4. We thank Rob Cummisford of Old Kent Bank for his insights in this area.
5. The Extended Market Index is made up of the U.S. Equity Market Index minus the S&P 500 index. The index is composed of 5,130 securities as of March 1996. The component stocks ranged in market capitalization from \$25 billion to less than \$1 million.
6. S. Francis Nicholson, “Price-earnings ratios,” *Financial Analysts Journal*, July-August 1960, pp. 43–45.
7. See, for example, William Breen, “Low Price-Earnings Ratios and Industry Relatives,” *Financial Analysts Journal*, July-August 1968.
8. Sanjoy Basu, “Investment performance of common stocks in relation to their price-earnings ratios: A test of the efficient market hypothesis,” *Journal of Finance*, June 1977, pp. 663–682.
9. Eugene F. Fama and Kenneth R. French, “The cross section of expected stock returns,” *Journal of*

- Finance*, June 1992.
10. In a detailed study of industry differences among a variety of growth and value indexes, Melissa R. Brown and Claudia E. Mott ("Understanding the Differences and Similarities in Equity Style Indices," in T. Daniel Coggin and Frank J. Fabozzi, eds., *The Handbook of Equity Style Management*, New Hope, PA: Frank J. Fabozzi Associates, 1995) found that the value indexes tend to contain relatively more energy, consumer cyclical, financial, and utility stocks. Growth indexes had more exposure to consumer staples, technology, consumer services, and health care.
 11. John Peavy and D.A. Goodman, "The significance of P/Es for portfolio returns," *The Journal of Portfolio Management*, Winter 1983, pp. 43-47.
 12. Robert Haugen (*The New Finance: The Case Against Efficient Markets*, Englewood Cliffs, NJ: Prentice Hall, 1995) has offered a comprehensive defense of the over-reaction hypothesis.
 13. We thank Scott Lummer at Ibbotson Associates for this insight.
 14. Value manager David Dremen ("Value Will Out," *Forbes*, June 17, 1996) makes this point more colorfully by writing that "[t]oo many investors are trying to find the next Home Depot. Too few are trying to find the next Chrysler."
 15. We thank Scott Lummer at Ibbotson Associates for this insight.

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