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VOLUME 9 NUMBER 4

**Momentum Trading: The New Alchemy**

Bruce I. Jacobs

**Evolution of an Essential Asset Class—  
Absolute Return Strategies**

David Beeman, Kenneth Yip, Joshua Weinreich, Craig Russell,  
and Dean Barr

**Risk and Endowment Policy**

Dennis R. Hammond

**The Future of Value Investing**

Laurence B. Siegel and John G. Alexander

**The Instinctive Mind on Wall Street:  
Evolution and Investment Decision-Making**

Robert A. Olsen

**A Market Timing Myth**

John D. Stowe

**What's Next for the S&P 500?**

Anthony Brown

**U.S. Multinationals as Vehicles for  
International Diversification**

Stephen E. Christophe and Richard W. McEnally

**A Global Perspective of Analysts' Earnings Forecasts**

Ron Bird, Brett McElwee, and John McKinnon

**Closed-End Equity Funds:  
Bettying on Discounts and Premiums**

Nusret Cakici, Anthony Tessitore, and Nilufer Usmen

**The Truth About Diversification by the Numbers**

Ronald J. Surz and Mitchell Price

# The Future of Value Investing

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**V**alue investing, loosely defined as the practice of buying stocks that appear underpriced and holding them until the market realizes their true worth, has been a poor performer lately. From December 31, 1997 (a recent value high point), to February 29, 2000, the Russell 1000 Value index, which is representative of the value style, underperformed the Russell 1000 Growth index by 39.9%.<sup>1</sup>

While value and growth have always had wide swings relative to one another, this is one of the widest recorded, and one of the speediest. "Deep" value stocks, which represent the statistically most attractive company valuations, have had even worse performance.

Given this miserable track record, many investors are asking 1) whether "value" stocks still represent good value for one's investment dollar; 2) if so, under what conditions they can be expected to generate good performance; and 3) to what extent "classic" methods of value investing need to be adapted to the current, puzzling market environment.

One current argument in favor of value is that growth stock indexes currently sell at much higher multiples (for example, price/earnings ratios) than value stock indexes; if these multiples revert toward a more normal relationship, it is argued, market leadership will shift in favor of value. We summarize this analysis and add to it by demonstrating that comparative earnings growth rates, as well as multiples, help to forecast the value-growth cycle.

The current case for value investing cannot, however, be established by relying on mean reversion—or value would have started outperforming growth long ago. We must demonstrate that selected value companies represent *good value* in the sense of having a fundamental worth substantially higher than the current market price. We perform this analysis on individual stocks rather than at the style index level. This approach enables the sensibility of value investing at this time in history to come alive for investors contemplating the use of an active value manager with a limited number of positions.

We seek to demonstrate that:

- Discounted cash flow (DCF) is still a legitimate framework, and arguably the best one, for deciding what a company and its stock are worth.
- The DCF assumptions required for today's top-performing stocks to be good values are heroic, while
- By the same criterion, selected "value" stocks really are a good value.

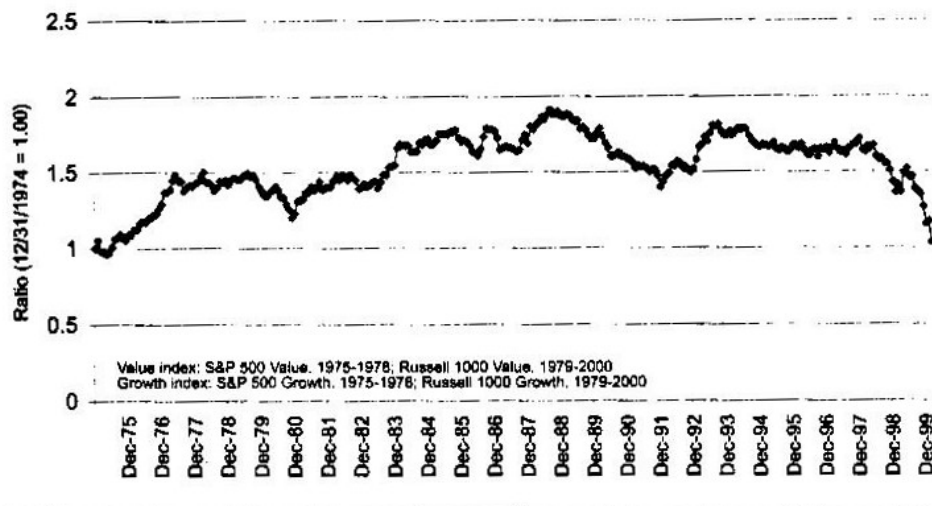
## SOME OBSERVATIONS ON CURRENT MARKET CONDITIONS

### Is Value Junk?

The disfavor into which value stocks have fallen reflects a change in perception. We can remember, not so long ago in the

## EXHIBIT 1

### Ratio of Value Index to Growth Index—December 1975–February 2000



1980s, when value stocks were widely regarded as good companies that were unloved by the market and that were merely waiting for a takeover or other catalyst that would cause the market to realize their true, much higher value. Growth stocks in this period were still tainted by the experience of the “Nifty-Fifty” in the 1970s—once-bitten, twice-shy, investors were leery of buying into growth stories that could quickly dematerialize due to economic downturn, foreign competition, or inflation.

Today, the perception is the opposite. Many value issues are considered to be “junk stocks,” representing sunset industries, low margins, bad balance sheets, and poor management. Growth, at this time, is associated not only with rapidly growing earnings but also with low risk, high earnings “quality” or acyclicity, progressive management, and everything else good and beautiful.

This set of perceptions creates some opportunity for value investors, since it has knocked down the prices of good companies along with the bad. There may really be some junk in the value sector; many deep-value managers have been torpedoed by earnings disappointments and other bad news, driving their returns well below that of the benchmark. In this market, naive value screening doesn't seem to work, and portfolio choices must be subjected to careful fundamental analysis.

#### Funds Flow-Related Pressure on Value Stocks

The current extreme downtrend in value stocks has a purely technical component. Funds flows into the stock

market as a whole have slowed from the 1997-1998 pace, so that the rise in technology and other growth stocks cannot be powered by new money alone. Investors have to sell something to get the money to make purchases.

Since many investors sell their poorest performers, they have tended to dump value stocks (especially “deep” value stocks) and mutual funds holding these stocks, accelerating these stocks' decline and sending them into something like a free fall. This trend has been exacerbated by the tax-motivated desire to realize losses to offset big gains in growth issues.

Whenever a technical factor is powerful enough to cause a substantial price move in a category of securities, it creates an opportunity for bettors against the trend—as long as they have the patience and the capital to withstand further procyclical movement.

#### Value Managers versus Value Benchmarks

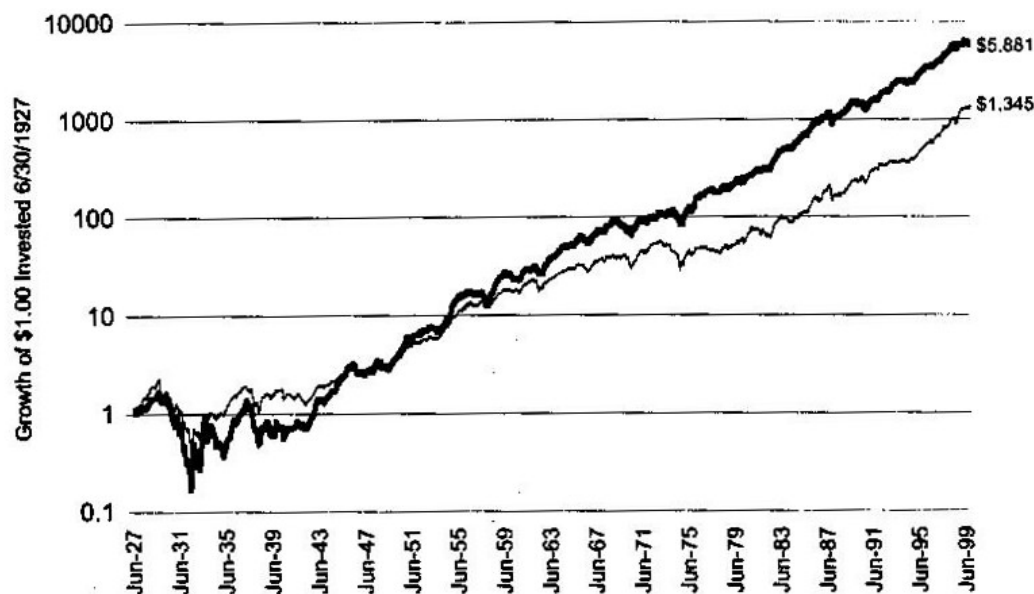
Another reason that value managers have been underperforming their own style benchmarks is that some of the benchmarks are extraordinarily broad, including something like three-quarters of the stocks in the market. (As of April 10, 2000, for example, the S&P value index comprised 388 stocks and the S&P growth index only 112, because the indexes are constructed to have the same total market capitalization, and growth stocks have much larger capitalizations on average.)

A “value” benchmark with such extreme breadth must necessarily include many core, non-value issues with some growth characteristics. These core stocks have been performing well, causing “deep value” managers who stick to their style to appear to underperform. (The core issues also tend to have larger market capitalizations because of their better performance, so they dominate the benchmarks.) Few managers, or their clients, have the stomach to consistently underperform their benchmarks in a down market for value, by staying true to the style, in the hope of outperforming when the cycle turns.

It is an open question whether a value manager should stay faithful to the tenets of the style or broaden

## EXHIBIT 2

### Fama-French Growth and Value Indexes 1927-1999



focus to track the benchmark better, but clients should be aware of the situation so they can decide which type of manager they want to hire.

### RESTATING THE TRADITIONAL CASE FOR VALUE INVESTING

The traditional case for value investing rests on two points: 1) value has beaten growth in the very long run, and 2) value stocks are timely now that many growth stocks are overpriced. We revisit these basic ideas, and introduce a new study showing that earnings growth rates as well as valuation indicators can be used to predict the relative returns of value and growth stocks.

#### The Long-Run Premium of Value Over Growth

The traditional evidence cited for the value effect is the outperformance of value indexes since the starting point of widely available style index data in 1975, shown in Exhibit 1. This argument has become steadily less compelling as the growth run of the last few years has caused this cumulative outperformance to shrink just about to the vanishing point.

Fama and French, have backdated their work on the three-factor model (beta, size, and book-to-price), constructing style indexes back to 1927, and find that value

very decisively outperformed growth when measured over that long period, which includes numerous episodes of inflation and deflation, boom and bust, and technological change and stability.<sup>2</sup>

Exhibit 2 shows that a dollar invested in the Fama-French value index on June 30, 1927, grew to \$5,881 by the end of October 1999, while the growth index grew to only \$1,345 over the same period—a compound annual return premium of 2.3% for value over growth.

Timing would still have been important—value performed miserably in the Great Depression and has disappointed again recently, so that

all of the net gain takes place between 1949 and 1980—but, this study bolsters the contention, now widely doubted by investors, that value provides superior (or at least competitive) returns in the very long run.<sup>3</sup>

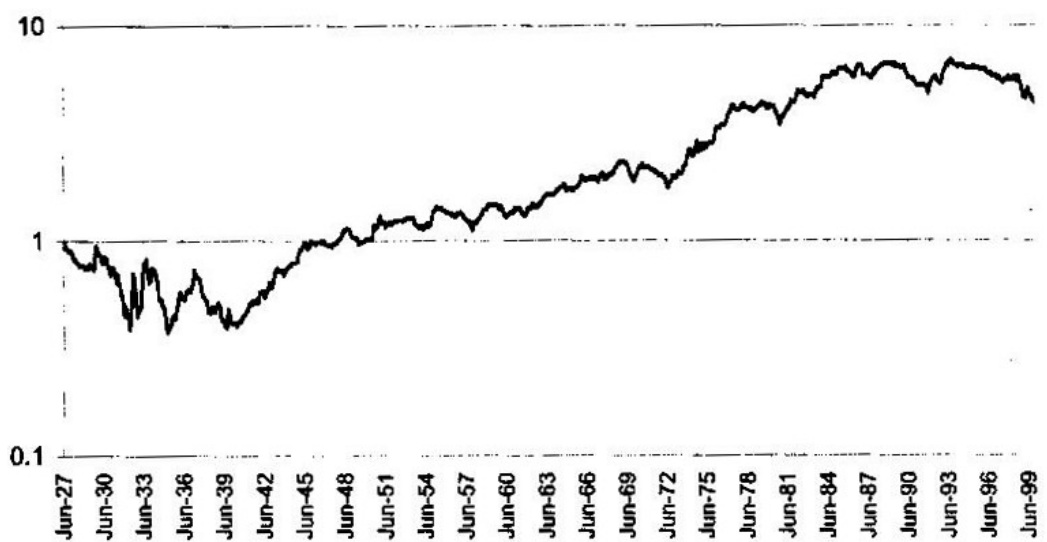
Exhibit 3 shows the *ratio* of the two Fama-French indexes, making it easy to see the long waves of performance as we did for a more recent time period in Exhibit 1. Note that the current growth run, while dramatic, is hardly unprecedented; growth also beat value by a huge margin in the 1927-1939 period, and by smaller but still significant margins at other times prior to the conventional 1975 start date of value/growth studies.

Fama and French's finding is particularly notable because it constitutes an almost independent experiment confirming that a value strategy worked in periods, such as the 1950s and 1960s, in which it had not been previously tested. This is very encouraging for today's value investors.

While studies of value that depend on more recent data (1975 to the present) emphasize the need for declining interest rates or economic recovery for value to perform well, Fama and French show that value stocks added much of their historically superior performance during the best years of the postwar expansion. Much of that period was characterized by rapid economic growth, the emergence of new industries and decline of old ones, low unemployment, and low inflation. Some of these condi-

## EXHIBIT 3

Ratio of Fama-French Value-to-Growth Index—6/30/1927 = 1.00



tions are echoed in today's economy, although monetary policy was easier over much of that period than it is today.

### Risk of Value versus Growth Stocks

Value stocks (with lower earnings growth rates, weaker balance sheets, and less liquidity) would appear on their face to be riskier than growth stocks, but this does not show up in the recent data (1975 and forward). From January 1975 through September 1999 the Russell 1000 Value index has an annualized standard deviation of 14.1% compared to 16.9% for the Russell 1000 Growth index.

Yet according to the Fama-French data over 1927-1999, value was much riskier than growth; the value index had a standard deviation of 25.9% compared to only 18.9% for the growth index. All this extra risk took place in the late 1920s and, more pointedly, in the Great Depression of the 1930s; over this time span, the value index fell by 90.2% from high to low, while the growth index fell by only 81.5%.

The long-term data, then, suggest that the higher return on the value index is the *delivery of a risk premium*. Investors who look only at the data starting in 1975 would be hard pressed to find the risk, but it is obvious in the longer-term data. The risk is that in a major depression, the lower quality of value companies (reflected in their higher leverage and other characteristics) makes

their stock prices much more vulnerable.

### Mean Reversion and the Timeliness of Value Investing

If the growth-value cycle is mean-reverting, one can make useful forecasts whether or not one expects a long-run premium for value in the future. Mean reversion of the growth-value cycle can be measured in a number of ways, but is probably best understood in terms of the relative price/earnings, or P/E, ratios, of value and growth indexes.

The bars in Exhibit 4 show the P/E range of the middle three-fourths of the stocks in the BARRA high-capitalization universe sorted by P/E. That is, one-eighth of the stocks had a P/E higher than that represented by the top of the bar, and one-eighth had a P/E lower than that represented by the bottom of the bar.

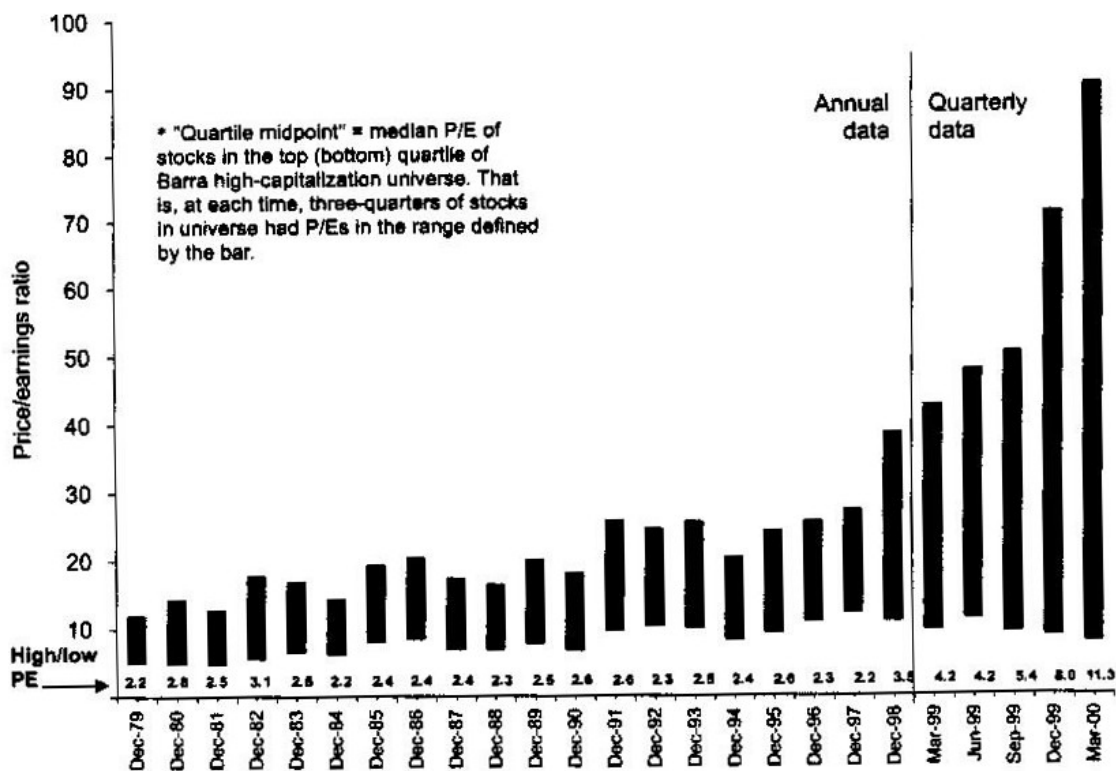
For example, the exhibit shows that, as of December 1979, three-quarters of the stocks in the BARRA high-cap universe had P/E ratios between 5.3 and 11.7, with the remainder of the stocks outside that range. The ratio of the two P/E ratios, 11.7/5.3, or 2.2, is shown underneath the bar for December 1979. This "ratio of ratios" is a measure, over time, of the valuation disparity between growth and value styles.<sup>4</sup>

Remarkably, although the general level of P/E ratios rose over 1979-1997 as the bull market unfolded, the ratio-of-ratios was stable and powerfully mean-reverting.<sup>5</sup> That is, rises in the ratio-of-ratios tended to be followed by declines, and vice versa, so that fluctuations tend to cancel over time and cause the ratio-of-ratios to vary around its long-term mean of about 2.5. As recently as December 1997, the ratio-of-ratios was at an 18-year low of 2.2.

The explosion in the ratio-of-ratios after December 1997, to an unprecedented 11.3 as of March 2000, suggests that the P/E premium of growth over value is too high and ought to decline. We would caution that the same prediction could have been made in March 1999 when the ratio-of-ratios reached a then-unprecedented 4.2, and it would have been early, or wrong.

## EXHIBIT 4

### Spread Between High and Low P/E Quartile Midpoints\*



Source: Martingale Asset Management.

**A Two-Factor Style Timing Model.** In an enhancement to our simple P/E analysis, Asness et al. [2000] study *two* factors: 1) the ratio of the P/E of growth stocks to the P/E of value stocks, or "value spread," and 2) the difference in expected earnings growth rates of these indexes, or "growth spread."

Exhibit 5 shows that the value and growth spreads have historically tended to move together, because growth companies are worth more than other companies when their earnings growth rates, again relative to other companies, are especially fast. Starting about January 1998, however, the value and growth spreads began to move in opposite directions, with the result that the value spread was at an all-time high in April 2000, while the growth spread was near its all-time low. That is, investors in growth stocks today are being asked to pay record valuations for earnings growth that is actually *below average* when compared to the earnings growth rates of value stocks.

Using the behavior of the growth and value spreads, Asness et al. constructed a model of the one-year expected relative return of value versus growth. The authors note that the greater the value spread and the smaller the growth

spread, the higher the forecast return for value versus growth going forward. They observe that:

At the time of this writing (end of October 1999), the model forecasts a 52% return spread (3.6 standard deviations above the historical average) between value and growth over the coming year. Clearly this is near historic highs for value versus growth [2000, p. 58].

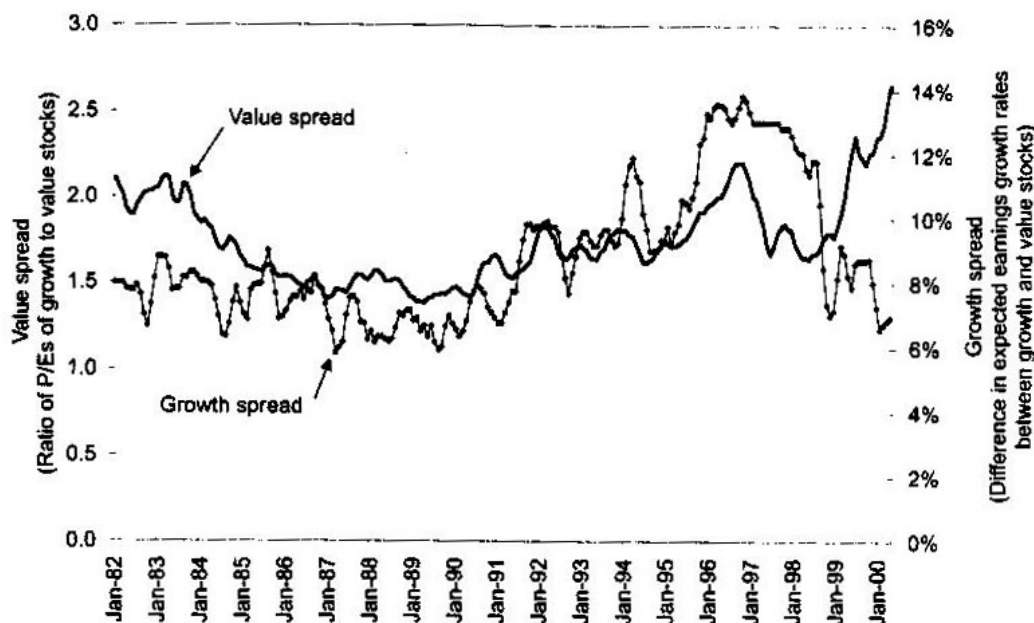
That forecast is very nearly as great a one-year return differential between value and growth as has been experienced over the entire length of the Fama-French study.<sup>6</sup>

**Fundamental Reasons for Mean Reversion.** Statistical evidence of the relative mispricing of growth versus value is, however, not enough for one to invest with confidence. One must identify *fundamental* logical reasons why mean reversion will occur. One of the most persuasive reasons is described by Grantham and Gray:<sup>7</sup>

All advantages erode with time. While the U.S. has been able to attract overseas capital due to higher

## EXHIBIT 5

### Value and Growth Spreads—January 1982–April 2000



Source: AQR Capital Management.

profitability and better economic management, these abnormally high investments will in turn bid exceptional returns down. That's how the process is meant to work.

In a world driven by a plentiful supply of brains and ambition, and most of it dedicated to copying good ideas and avoiding bad ones, reversion to the mean is universal. It seems like a bad bet that after centuries of data and experience this would change. But occasionally things do take their time getting back to average [1999, pp. 50-51].

Thus, the high margins being earned in the largest and best-run U.S. companies, and the concomitant high multiples for these companies, look permanent (and may indeed "take their time getting back to average") but are temporary. The margins are a tempting, although not easy, target for competition by foreign companies, smaller companies, and entrepreneurs. This competition will tend to drive down the margins, earnings growth rates, and relative stock prices of today's market leaders (which, one should remember, are different names from the market leaders of only a decade ago) and help the returns of value-oriented companies.<sup>8</sup>

## THE FUNDAMENTAL CASE FOR VALUE

### The Logic of Discounted Cash Flow Analysis

The traditional (statistical) case for value investing is a valuable backdrop for a discussion of that investment style, but we find fundamental analysis more compelling. We use a discounted cash flow (DCF) model to demonstrate that, under quite reasonable and arguably conservative assumptions, a number of prominent value names are *underpriced* in an absolute sense, even in today's expensive market. That is, these stocks are worth more than the market price and represent good "value" in the plain-English sense of the word.

An article written for investment professionals should not have to explain why using a DCF model is valid—it should go without saying. With many of today's market leaders priced with no known relation to their DCF value, and with many sponsors and portfolio managers consequently being richly rewarded for disregarding DCF, however, a few remarks are in order.

The only thing investors really want is cash, since consumer goods, debts, and taxes must be paid for in cash. Investment in financial assets such as stocks, bonds, and real estate is just a stratagem to increase the amount of cash that will eventually be available to the investor. The DCF approach to asset valuation originated as a means of fig-

## EXHIBIT 6

### Weighted-Average Calculation of Company Growth Rates for Free Cash Flow Discount Model

Forecast time period	Weight of company-specific IBES estimate of 3- to 5-year growth rate	Weight of economywide growth rate (assumed to be 5% nominal)
Years 1-3	90%	10%
Years 4-10	50%	50%
Years 11-20	20%	80%
Years 21+	0%	100%

uring out the present value of the actual cash—dividends, in the case of a stock—that is expected to be generated by an investment. One then compares this present value to the market price, and if value is appreciably greater than price, the investment is a “buy.”

As investors realized that dividends are taxed twice, and that companies are sometimes better than investors at deploying spare cash, dividends became less highly prized, and the dividend discount version of the DCF model became less relevant.<sup>9</sup> Under current conditions it tends to yield low estimates of a stock's value.

As analysts searched for an alternative valuation approach that focuses on cash, many settled on *free cash flow*—the cash that a company could afford to pay out as dividends, after providing for capital expenditures both to maintain existing assets and to create new assets or business lines for future growth.

Not all analysts, of course, rely on DCF models as their primary tool. Comparison of market value to a measure of cost (say, book value or replacement cost) is also widely used. Such a method, however, presumes that a DCF analysis is being conducted by other people, and seeks to piggyback on it. This is because the corporate assets representing the book value or replacement cost measure are themselves worth only the discounted present value of the cash they are expected to generate.

### Methodology

The model used to identify strong value “buys”—as well as “sells” chosen from among companies prized for their growth rates—is the free cash flow to the firm ( $FCF_F$ ) version of the DCF. We first discuss the inputs to the model, and then we present the results.

**Definition of Free Cash Flow to the Firm.** An extension of the free cash flow concept introduced earlier, free cash flow to the firm ( $FCF_F$  is the amount of cash a com-

pany can afford to pay out to all claimants (stock plus debtholders) while meeting capital expenditure requirements. We define it for our purpose as:

$$FCF_F = EBIT(1 - \text{Tax Rate}) + \text{Depreciation and Amortization} - \text{Capital Expenditures} - \Delta \text{Working Capital}$$

where EBIT = earnings before interest and taxes.

Note that  $FCF_F$  is calculated before the deduction of interest expense, and must therefore be discounted at the company's weighted-average cost of capital (WACC) to arrive at a valuation for the whole enterprise (stock plus debt). The market value of the debt is then subtracted to arrive at the estimate of stock value.

**Growth Rates.** We begin our analysis by estimating a current or baseline  $FCF_F$ , which we take to be the average of 1) the most recent 12 months'  $FCF_F$ , and 2) the trailing 12 months'  $FCF_F$  as of one quarter earlier. We then grow this amount according to a four-stage model. Growth rates are based on IBES long-term earnings growth rate estimates (three- to five-year), and “decay” toward the economywide growth rate (or average for all companies) over time. Details of the decay function are shown in Exhibit 6.<sup>10</sup>

Note that we assume all companies have the same growth rate in the twenty-first year and beyond—by then, many growth stocks will have become value stocks, and value stocks growing more slowly than the average company will have accelerated to the average.<sup>11</sup>

**Discount Rates.** The forecast  $FCF_F$  is then discounted to arrive at a present value. We use the capital asset pricing model (beta model) for the equity part of the company's capital structure, and a market cost of debt for the debt part.<sup>12</sup> Our CAPM assumes a 6% riskless rate and a 5% equity risk premium. We then weight the equity and debt costs by their market value weights in the company's total capital structure to arrive at the weighted-average cost of capital (WACC). This company-specific WACC is the discount rate for the first 20 years'  $FCF_F$ .

Beyond 20 years (that is, for the perpetual-growth portion of the model), we assume that all companies have the same discount rate (which amounts to assuming they all have the same beta and capital structure). This discount rate is assumed to be 11%, again consisting of a 6% riskless rate and a 5% equity risk premium.

The 5% equity risk premium is the *required*, not the *expected*, return on the stock market index in excess of the riskless rate. (Required returns equal expected returns



## EXHIBIT 7A

### Free Cash Flow Analysis of Selected Value and Growth Companies

Company	Current FCF <sup>a</sup>	Beta	Leverage in % <sup>b</sup>	Growth Rates (%)				Weighted Average Cost of Capital <sup>c</sup>	Fair Value of Enterprise (stock + debt) (\$ billions)
				Years 1-3	Years 4-10	Years 11-20	Years 21+		
Crown Cork & Seal	\$302	1.0	66	9.1	7.3	5.9	5.0	11	\$ 6,613
Dillards	\$301	1.0	55	9.5	7.5	6.0	5.0	11	\$ 6,798
Mylan	\$103	0.8	0	20.8	13.8	8.5	5.0	10	\$ 5,116
Sherwin-Williams	\$429	0.8	34	11.3	8.5	6.4	5.0	9	\$ 5,200
Whirlpool	\$271	1.0	49	9.5	7.5	6.0	5.0	10	\$ 6,469
Ciena	\$124	1.5	0	27.5	17.5	10.0	5.0	14	\$ 7,855
Intuit	\$178	1.3	2	18.5	12.5	8.0	5.0	13	\$ 6,502
KLA-Tencor	\$ 69	1.6	5	23.0	15.0	9.0	5.0	14	\$ 3,237
Medtronic	\$668	1.1	0	16.7	11.5	7.6	5.0	11	\$24,005
Qualcomm	\$293	1.4	21	36.5	22.5	12.0	5.0	12	\$36,674

<sup>a</sup>Economywide WACC = 11.

## EXHIBIT 7B

### Free Cash Flow Analysis of Selected Value and Growth Companies

Company	Fair Enterprise Value as Multiple of Current FCF <sup>a</sup>	Fair Value of Equity (\$ billions)	Fair Value of Equity per Share	3/20/00 Price per Share	Price as % of Fair Value	Actual P/E	P/E Based on Fair Value of Stock
Crown Cork & Seal	21.9	\$ 3,215	\$26.38	\$ 16.31	62%	6.6	10.7
Dillards	22.6	\$ 3,244	\$30.92	\$ 16.13	52%	6.2	11.8
Mylan	49.6	\$ 5,116	\$39.60	\$ 28.25	71%	16.5	23.1
Sherwin-Williams	12.1	\$ 4,576	\$27.50	\$ 21.75	79%	9.7	12.3
Whirlpool	23.9	\$ 5,697	\$76.54	\$ 57.06	75%	8.1	10.8
Ciena	63.2	\$ 7,855	\$56.84	\$142.63	251%	234.9	93.6
Intuit	36.5	\$ 6,464	\$34.12	\$ 54.50	160%	90.1	56.4
KLA-Tencor	46.9	\$ 3,237	\$35.99	\$ 80.00	222%	51.0	19.8
Medtronic	35.9	\$23,987	\$20.47	\$ 52.69	257%	55.4	24.9
Qualcomm	125.0	\$36,013	\$55.72	\$136.25	245%	119.8	49.0

<sup>a</sup>\$ millions, stated as annual rate. FCF<sub>t</sub> = free cash flow to the firm (stock plus debt).

<sup>b</sup>Market value of debt/market value of debt plus equity.

only if the market is fairly priced.) Since stocks are expensive, and the equity risk premium currently offered by broad market indexes is currently less than 5%, our model tends to regard stocks as overpriced, and produces a lot more "sells" than "buys." Under such conditions, the undervaluation of the stocks we regard as strong "buys" is even more compelling than it would be if we had rigged the model to make the overall market fairly valued.

### Results of the Study

Exhibit 7 shows DCF estimates of the fundamental value of five selected value stocks and five selected growth stocks, calculated according to this model. The fundamental value (in the column labeled "fair value of equity

value per share") is compared to the market price, and various model inputs are also shown for each stock.

The value stocks in the exhibit are selected for their favorable pricing and other characteristics and should not be considered representative of the whole value category, but they give an idea of how value investing works—each stock is selling for a fraction of its fundamental or fair value, calculated using the conservative assumptions we have just outlined. These fundamental values may be treated as price targets, and if realized the investor would probably sell the stock. (On average over the five stocks, the price targets are just under one and one-half times the current market price.) If the earnings estimates used in our model prove to be realistic, each of these stocks represents excellent value.

The growth stocks in the exhibit are selected on the basis of unfavorable pricing and other characteristics, and, as with value stocks, these names should not be considered representative of the whole style.<sup>13</sup> They are just examples. The extent of overpricing in these popular names is remarkable, however. On average the stocks are selling for more than twice their fundamental value.

It is possible to back into the growth rates that would be required for these growth stocks to be worth their current market price. Exhibit 8 displays the results of this analysis, using the same "decay" structure for growth rates as in Exhibit 7. That is, we assume that all companies' growth rates would fade toward the economywide average of 5%, and we vary the starting point, with intermediate growth rates also varying according to Exhibit 6.

Note that the required growth rates are astonishingly high for some companies, in the extreme case resulting in an 86-fold explosion in free cash flow over the next two decades (Qualcomm). While growth at rates such as those shown in Exhibit 8 is not literally impossible—it has occurred in a few companies historically—betting on a

## EXHIBIT 8

### Analysis of Growth Rates Required to Justify Current Market Price of Selected Growth Stocks

	Required Growth Rates (%)				Current FCF <sub>F</sub> *	Required FCF <sub>F</sub>			Year 20 FCF <sub>F</sub> as Multiple of Current FCF <sub>F</sub>
	Years	Years	Years	Years		Year 4	Year 10	Year 20	
	1-3	4-10	11-20	21+					
Ciena	41.4	25.2	13.1	5.0	\$124	\$ 440.7	\$1,700.9	\$ 5,824.2	46.84
Intuit	25.6	16.4	9.6	5.0	\$178	\$ 410.7	\$1,023.0	\$ 2,551.7	14.32
KLA-Tencor	35.1	21.7	11.7	5.0	\$ 69	\$ 206.9	\$ 672.5	\$ 2,030.0	29.42
Medtronic	31.1	19.5	10.8	5.0	\$668	\$1,799.3	\$5,242.7	\$14,626.1	21.90
Qualcomm	50.1	30.1	15.0	5.0	\$293	\$1,290.8	\$6,250.6	\$25,349.6	86.43

\*\$ millions, stated as annual rate. FCF<sub>F</sub> = free cash flow to firm (stock plus debt).

whole portfolio of stocks priced for such growth seems to us the height of folly.

The results in Exhibits 7 and 8 are powerful because we have used the same model for every company (growth or value). We have made no company-specific judgments, and have used only publicly available data.

While the estimates of fundamental value are subject to wide confidence bounds (due to the inherent difficulty of making long-term forecasts), especially for growth stocks with low current cash flows, the examples illustrate a remarkably wide gulf between the valuations of growth and value securities.

#### STYLE TIMING: WHEN CAN VALUE BE EXPECTED TO OUTPERFORM?

While the traditional case for value investing notes that value has historically been superior on average over time and suggests that it might be in the future, no one seriously suggests it is superior all the time. We have demonstrated that value investing is currently timely in a statistical sense, and fundamental analysis confirms this observation.

But to have any confidence in value investing, considering the battering it has just been through, one should also seek to figure out under what economic circumstances value performs well, so that one can adjust one's allocations to value versus growth managers.

Classic value investing as taught by Benjamin Graham [1973], among others, was concerned with finding *great* companies at low prices. The kind of company identified as a value stock by Graham was "large, prominent, and conservatively financed," having, among other criteria, debt less than 110% of current net assets; a very long history of

paying dividends (say, 20 or more years); positive earnings for 10 years running (the company's earnings, thus, could be cyclical but not negative); and current assets at least twice current liabilities. Finally, a company that passed these screens had to have a low P/E ratio, which presumably was the result of "overshooting" by investors who were pessimistic about a company for the wrong reasons.

Over much of investment history, such companies could be found, and Warren Buffett was among the investors who made great fortunes following this discipline. Today, however, with broad market indexes selling near all-time record high valuations, most high-quality companies are priced as growth stocks. Going forward, "deep" value stocks—and many other stocks in value indexes—are likely to have some strong negatives, including one or more of the characteristics following:

- High financial leverage.
- Cyclicity of earnings.
- High operating leverage.
- Inefficient management.
- Sunset industries.

Now, what economic environments would tend to help stocks with these characteristics?

#### High Financial Leverage

Declining interest rates tend to help highly leveraged stocks more than low-leverage stocks because the more highly indebted companies can refinance their substantial debt burdens at lower rates. Growth companies typically do not have these burdens and do not get this direct benefit of lower interest rates.

Some analysts have argued the contrary: that growth stocks should benefit more from declining interest rates because growth stocks have a longer duration.<sup>14</sup> Yet in most declining interest rate environments, except for the brief and bizarre 1998 episode when Treasury yields plummeted in a "flight to quality," the leverage effect has

trumped the duration effect and more-leveraged companies have outperformed.

### **Cyclicality of Earnings**

Earnings cyclicality is helped by recovery from an economic recession. Corporate earnings are a leveraged bet on GDP growth, and during recessions they fall by a high multiple of the GDP decline. In recoveries, earnings soar. This effect is much more pronounced for value than for growth stocks (in part because of the financial and operating leverage referred to above, but also because of cyclical changes in demand for the company's products). This is one reason many value stocks are also "cyclicals."

Recovery-related value rallies occurred in 1975-1976, 1983-1984, after the crash of 1987, and in 1992-1993. Later in the economic expansion, growth stocks outperform. Note that recovery from an industry-specific recession can be just as helpful to the value stocks in that industry as recovery from a general recession.

### **High Operating Leverage**

High leverage causes a company to be helped by increased demand for its products and services, making the company cyclical (as we just observed).<sup>15</sup> If fixed costs are insensitive to inflation, however, high operating leverage may cause a company to be helped by increased pricing power.

For most value companies, the inflation benefit from operating leverage is minor, but in a few businesses it is dominant. It costs roughly the same, for example, to grow an acre of wheat or mine an ounce of gold whether the price received is high or low. For such companies, which are typically value companies, inflation in the commodity they sell is a tremendous boost to earnings and the stock price.

### **Inefficient Management**

Inefficient companies will become takeover candidates. The new owners often force out the inefficient management and cut costs, to the delight of investors who then push the stock price up. Merely being a promising takeover candidate, however, does not cause the takeover to happen. It helps if the stock market is richly valued and capital costs are low, so that the acquirer can borrow or offer a strong "currency," in the form of its stock, to the acquiree. Alternatively, cash-rich companies can make takeover bids.

Because these are bull market and low-inflation con-

ditions, this effect works somewhat counter to the first three that we discussed. The takeover activity of the 1980s, with a strong bull market and rapidly declining inflation rates, helped realize the "value" in many value stocks and is the best example of this effect. Given today's high stock prices and cheap capital, one might be cautiously optimistic about a takeover-related value rally looking forward.

### **Sunset Industries**

Sunset industries also favor takeovers, but with breakup rather than managerial efficiency in the mind of the acquirer. A company that is in a sunset industry may have declining earnings or even persistent losses, but there are usually some assets that can be profitably sold by the acquirer. A breakup play often improves the stock price for severely beaten-down companies that have the most value. The conditions that promote takeovers of inefficiently managed companies are also favorable to takeovers of companies in sunset industries—of which there are many today.

### **Other Economic Variables**

Some of the stocks prominent in today's value indexes do not closely fit our profile. Coca-Cola, Compaq, and various pharmaceutical and financial stocks come to mind. We do not have a theory as to why these growing, financially healthy companies should be battered by the equity markets the way they have been. Perhaps they are simply victims of the overshooting we referred to earlier. We note, however, there is something new and different in every cycle, and it is possible to learn from historical patterns without expecting them to be repeated exactly.

## **RETOOLING VALUE MANAGEMENT FOR TODAY'S MARKETS**

It is possible that the tide will simply turn in favor of value as it is traditionally understood (as it may have already). The classic approach to value investing—buying stocks that are low-priced compared to earnings, cash flows, book value, or dividends—may need to be retooled a bit all the same.

### **Where's the Catalyst?**

Undervalued stocks do not become repriced to fair value by magic. There typically has to be a "catalyst" on the corporate as opposed to the investor side. (The investor-side

effect, that the stock rises because value-oriented investors buy it, is the statistical arbitrage that we earlier said should *not* be relied on.) Examples of corporate-side catalysts include:

- New management or a revamped corporate strategy.
- Takeover or the threat of one.
- Changes in consumer demand.
- Changes in technology.
- Changes in the legal or regulatory environment (say, a government program or new trade policy).

Fundamental, company-focused research is the only way to determine the presence or absence of such catalysts in a value “story.” The value process must include such research rather than relying on statistical indicators of underpricing.

### Industry Adjustment

Several researchers have noted that the value effect is more powerful, and that it works over a greater percentage of historical time, if one compares underpriced to overpriced companies in the *same industries*.<sup>16</sup> One possible reason is that value metrics, such as earnings and book value, are not closely comparable across industries because of differences in earnings growth rates and in the way depreciation, amortization, and other accounting variables are treated.

A portfolio that takes advantage of this insight could conceivably have market weights in the various industrial sectors, holding the companies within each sector that represent the best value. In practice, most value managers will continue to overemphasize certain industries associated with “value,” but not to the extent that would occur if one were to compare the valuations of all companies without regard to what industry they are in.

### Sunset Companies and Industries

We have mentioned that some (perhaps many) stocks appear to be, but are not, good values because the companies are likely to experience earnings declines, to lose money, or to go out of business. Such companies are often in industries called sunset industries, in which there is declining demand for the product (buggy whips are the iconic example), or where foreign companies are becoming the low-cost providers

(as in the steel industry), or where other some other unfavorable change in fundamentals is taking place. When looked at using only statistical tools, these companies appear cheap.

Fundamental analysis (including economic and competitive market analysis) is again the only discipline that will identify sunset companies and industries and enable the value investor to distinguish pearls from junk in a turbulent era when many industries may be experiencing their sunset years.

Value managers may also learn a lot by studying growth companies. The “creative destruction” (to use the economist Joseph Schumpeter’s phrase) caused by today’s rapid technological change affects every company, not just the Internet and telecommunications firms selling the technology. The value manager with a strong understanding of how creative destruction works, and how changes in technology affect the companies he or she is following, is likely to be better at separating true bargain companies from those merely appearing to be bargains.

### Funds Flows and Momentum

Because large moves in groups of stocks can occur for purely technical reasons, momentum and funds flow analysis should be incorporated into the value process—just as these tools are used by growth investors.

As we noted earlier, one technical effect observed in the first quarter of 2000 was the steepening of the rate of decline in some widely held deep-value stocks because of value fund redemptions unrelated to any news or change in fundamentals. The value fund redemptions are, in turn, due to poor performance of these funds in immediately prior periods. Other technical effects come from style index reconstitutions.

A value manager who is aware of these kinds of effects may gain some performance advantages.

### Defining Value as a Nexus of Characteristics

Index constructors need rules or screens for choosing value stocks that are mechanical, easily communicated in advance, and efficient to implement. An index so constructed does not necessarily form the best basis for an active portfolio.

To develop additional insight for beating, not matching, indexes constructed according to simple rules, active value managers may want to:

- Use more than one accounting ratio to screen for value.
- Use different standards for different industries.
- Incorporate measures of company performance (such as the FCF<sub>F</sub> variable) that are more relevant to valuation than the metrics used to construct the indexes, and that are less “political” than earnings in the sense that companies can use them to influence the stock price.

## CONCLUSION

Buying securities that are cheap relative to some concept of fundamental value—value investing in the broad sense—*must* work, in some form, perhaps with the retooling we have described or perhaps with some other adaptation, over some time horizon shorter than infinity. If it did not work, both financial markets and the real economy would seize up as capital allocated to overpriced securities became progressively less productive.

In the long run—which, we admit, feels like an endless wait this time—the prices of financial assets must necessarily converge on their fundamental values. Some progress in this reconciliation is being made as of this writing, in April 2000, with a falling Nasdaq and a rising Dow Jones Industrial Average.

Some things *have* changed. The network computing and telecommunications revolution of the last few years will produce a reshaping of the real economy that no investor can ignore. Most people probably underestimate, not overestimate, the alterations in daily life and in the structure of the economy that will eventually be wrought by the Internet and other cheap, fast methods of information transfer.

What has *not* changed is the idea that the worth of an investment is the present value of the future benefits it can produce—loosely speaking, the DCF model. This is a law of economics and of human behavior and is not dependent on circumstances.

The great challenge now facing investors is to figure out to what extent the changes observed and forecast for the real economy are already reflected in market prices—and, more broadly, to distinguish evolving economic realities from unchanging “laws of nature” in a world that provides no clear guideposts to tell them apart.

Looking ahead, value is a good bet to beat growth over the intermediate term—a few years, perhaps—if only because the starting point is so atypical in terms of the relative pricing of growth and value. (While growth portfo-

lios will continue to have almost all the “home runs,” they will also include many stocks for which earnings disappointments or other setbacks result in sharply negative returns.) Over the longest time horizons (decades), however, our best guess is that the pendulum of performance will continue to swing between the major investment styles, and we recommend that investors hold portfolios that are balanced with respect to these approaches.

## ENDNOTES

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<sup>1</sup>That is, the ratio of the two cumulative indexes (Russell 1000 Value divided by Russell 1000 Growth) fell by 39.9%. In other words, a dollar invested in the growth index on 12/31/1997 grew to \$1.85 by 2/29/2000, while a dollar invested in the value index grew to only \$1.11 over the same period. \$1.11 is 39.9% less than \$1.85.

<sup>2</sup>Each year, all large-cap NYSE stocks (that is, stocks having capitalizations greater than the median NYSE capitalization) were sorted by book/price ratio to construct the style indexes, with value defined as the top 30% by book/price ratio, and growth defined as the bottom 30%. The middle 40%, or core, are not shown. Returns are capitalization-weighted. The Fama-French data are from *Stocks, Bonds, Bills, and Inflation 2000 Yearbook*, updating the research of Roger G. Ibbotson and Rex A. Sinquefeld. See website [http://web.mit.edu/kfrench/www/data\\_library.html](http://web.mit.edu/kfrench/www/data_library.html).

<sup>3</sup>Lakonishok, Shleifer, and Vishny [1994] provide some behavioral explanations as to why value ought to outperform growth on average over the long run. In particular, they say that investors tend to extrapolate past earnings growth rates too far into the future, overreact to good and bad news, and make other “cognitive errors” causing them to overestimate the value of growing, well-run companies and to underestimate the value of other companies. If these conditions hold, value stocks should outperform on average over time.

<sup>4</sup>Exhibit 4 was provided by William Jacques of Martingale Asset Management in a private communication. An earlier version of this graph appears in Jacques [1993, pp. 33-36]. The sorting of stocks into fractiles is performed by count (not capitalization), where P/E is defined as the price divided by the IBES estimate of the next 12 months’ reported earnings. Stocks are actually sorted on E/P (the reciprocal of P/E) so that com-

panies with negative or zero earnings would be included in the ranking. For March 2000, Martingale constructed the high-cap universe using the method that BARRA employed for the preceding dates.

<sup>5</sup>A more complete description of mean reversion, and of statistical tests for it, is in Poterba and Summers [1988].

<sup>6</sup>The return differential forecast by Asness et al. cannot be compared precisely with those in the Fama-French study because the definitions of growth and value differ.

<sup>7</sup>This article is highly recommended to the value skeptic.

<sup>8</sup>There is also strong evidence of mean reversion for earnings growth rates and for ROEs of companies that are well above or below average in these respects.

<sup>9</sup>Dividends are taxed once at the corporate level (because dividends are not deductible from income subject to corporate income tax), and once at the individual level (because dividends are included in income subject to personal income tax).

<sup>10</sup>For the first stage (years 1-3), we give only a 90% (rather than 100%) weight to the IBES three- to five-year estimate because these estimates are usually too optimistic; we also terminate the first stage after three, not five, years.

<sup>11</sup>There is some event risk in this model, since slow-growing value stocks occasionally become loss-making companies that go out of business.

<sup>12</sup>We use the before- rather than after-tax market cost of debt to avoid a "zero divide" problem with highly leveraged companies. The problem occurs when high tax rates and leverage ratios combine to produce a WACC that is near, or even below, the perpetual growth rate of the company.

<sup>13</sup>Only growth stocks with positive current  $FCF_t$  were analyzed. Many growth stocks have negative current  $FCF_t$ , but our method does not produce a useful result for these companies.

<sup>14</sup>Duration is the present value-weighted average time to receipt of cash flows from an investment. With lower dividends, cash flows, and earnings in the near future and higher flows in the far future, the duration of a growth stock is long; with higher dividends and so forth, a value stock has a shorter duration.

<sup>15</sup>Operating leverage equals fixed costs divided by the sum of fixed and variable costs.

<sup>16</sup>See, for example, Asness, Porter, and Stevens [1999].

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