

# What Should You Expect From an Investment Style?

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#### <u>Abstract</u>

Changing expectations for the rate of economic growth and inflation can have a dramatic impact on the relative performance of growth and value stocks. Investors obviously have definite opinions on the best style for each environment. The question is how well do these opinions match up to historical data? Some of the growth and value behavioral stereotypes are more properly applied to groups constructed on the basis of past return stability or variability. Analysis of returns during the 1985 to 2009 period indicates that sequential declines in corporate after tax profits are favorable for growth stocks and unfavorable for value. Over the same period, a surging equity market or an increase in the rate of consumer price inflation enhanced the excess return of variable stocks at the expense of more stable stocks.

#### <u>Methodology</u>

To identify the most favorable market environments for a number of different investment styles, the quarterly excess returns (relative to the S&P 500) of six different style indices are regressed against a number of different factors thought to influence excess return.<sup>1</sup> These factors include the raw return of the S&P 500, the rate of Real GDP growth, growth in corporate after tax profits, the unemployment rate, inflation, changes in bond yields and the steepness of the yield curve. Regressions involving S&P 500 Growth and Value indices<sup>2</sup> establish baseline behavioral profiles for growth and value stocks. We then compare these baseline results against regressions using indices that refine the growth and value categories by sub-dividing stocks on the basis of past return stability and variability. This allows us to distinguish behaviors that truly reflect growth or value behaviors from those that reflect a temporary bias toward stable or variable stocks within the category.

#### <u>Baseline</u>

Tables 1 through 6 list regression coefficients, t-statistics and significance levels for several variables thought to influence excess return. With regard to the 12-month increase in consumer price inflation, the magnitude of increase is measured two different ways. Sequential growth measures the change relative to the existing level of inflation. For example, an increase from 2% to 4% is sequential growth of 100% while an increase from 10% to 12% is sequential growth of only 20%. The sequential change in the inflation rate is an increase of 2% in both cases. The ratio of the 30 year treasury yield to the 2 year treasury yield and the ratio of the 2 year treasury yield to the 90 day treasury

<sup>2</sup> From January 1, 1985 thru December 18, 2005, the growth and value returns used were those of the S&P/BARRA indices. After December 18, 2005, the returns of the S&P /Citigroup indices were used. This is consistent with Standard & Poor's change from BARRA to Citigroup methodology to identify growth and value stocks after the close on December 18, 2005.

<sup>&</sup>lt;sup>1</sup> Please see the performance disclosure at the end of the document.

yield are used to measure the "steepness" of the yield curve, with high values of the ratio indicating a steep curve. Variables are generally constructed so as to be contemporaneous with the excess return being studied. However, there is some ambiguity with real GDP and corporate profit data as the best estimates are normally obtained two months after the close of the quarter of interest. For this reason, both contemporaneous and lagged values of these variables are considered. The raw data used to construct the variables was retrieved from the Bloomberg data service.

Comparing the regression results for the S&P 500 Growth reported in Table 1 and the regression results for the S&P 500 Value reported in Table 2 provides protypical favorable environments for growth and value stocks. As the highlighted lines in each table indicate, favorable conditions for growth stocks include:

- 1) high S&P 500 returns,
- 2) a sequential decline in corporate after tax profits during the prior quarter, and
- 3) sequential growth in the rate of consumer price inflation.

The most favorable conditions for value stocks are the inverse of those for growth, though the impact of sequential growth in the rate of inflation is not statistically significant:

- 1) low S&P 500 returns,
- 2) a sequential increase in corporate after tax profits during the prior quarter, and
- 3) a sequential reduction in the rate of consumer price inflation.

### Variable Growth and Stable Growth

Looking at the regression results for the variable and stable variants of growth constructed by OakBrook Investments, LLC, the Variable Growth Index (Table 3) provides the closest correspondence to the behavior of the growth prototype.<sup>3</sup> Variable Growth exhibits all three of the behavioral characteristics identified with the S&P 500 Growth Index. Variable Growth's positive response in up markets is particularly strong, with each 1% quarterly rise in the S&P 500 resulting in a 1.34% increase in the return of the Variable Growth Index. The gains of the S&P 500 Growth are much more modest, rising slightly more than 1.06% for each 1% increase in the S&P 500.

Stable Growth (Table 4) shares one tendency with the S&P 500 Growth – responding favorably to a sequential decline in corporate after tax profits during the prior quarter. However, the effect is much stronger for contemporaneous profit data than the lagged data that appears to influence the S&P 500 Growth Index and the Variable Growth Index. The focus on stable stocks leads to substantial differences in other areas as well. Not surprisingly, stable stocks exhibit a tendency to "lean against the wind" which reduces the excess return of the Stable Growth Index relative to the S&P 500 in high return environments. Increases in inflation also are a negative for the style.

<sup>&</sup>lt;sup>3</sup> For additional information on variable and stable indices please see the article "Maybe Style Is Not Enough" in the July-September, 1999 issue of the <u>Journal of Index Issues in Investment</u> or the article "Will The Real Style Please Stand Up" in the April-June, 2000 issue of the same journal.

#### Stable Value and Variable Value

Turning to OakBrook's value indices, the results for Stable Value (Table 5) provide the closest correspondence to the behavior of S&P 500 Value. Stable Value responds favorably to a sequential increase in corporate after tax profits during the prior quarter (though the impact is not statistically significant and the reaction to a sequential increase in profits in real time is in the "wrong" direction). Stable Value also provides strong relative returns when overall market returns are weak, and benefits from a decline in consumer price inflation. These last two characteristics are shared with Stable Growth, so they may reflect the influence of return stability rather than a valuation tilt.

Focusing on OakBrook's Variable Value, the index matches S&P 500 Value on only one of the three "value" tendencies. Variable Value benefits from a sequential increase in corporate profits, though the effect is considerably stronger for contemporaneous changes than for changes lagged one quarter. Variable Value differs dramatically from S&P 500 Value in that Variable Value's relative performance benefits from a strong equity market. This behavior may reflect the influence of return variability, as the Variable Growth Index also exhibits a positive response to a strong equity market. Like Variable Growth, Variable Value responds favorably to an increase in inflation, though the impact is not statistically significant.

#### <u>Epilogue</u>

The preceding review of regression results for OakBrook's four basic style indices suggest the following revisions to the baseline conditions favorable to growth and value. First, growth and value stocks are distinguished chiefly by their reaction to sequential declines in corporate after tax profits. Profit declines during the prior quarter are favorable for growth stocks and unfavorable for value. Second, two of the three tendencies initially ascribed to growth and value stocks are distinguished by their reaction to stable and variable stocks. Variable and stable stocks are distinguished by their reaction to rising equity prices and sequential growth in the rate of consumer price inflation. Variable stocks exhibit strong relative returns in strong equity markets or when the 12-month rate of consumer price inflation increases. Stable stocks exhibit strong relative returns in weak equity markets and when the rate of inflation declines.

## S&P 500 Growth

	Explanatory Variable	Coefficient	T-stat	Significance Level
*	S&P 500 Return, Contemporaneous	0.0568	1.94	94.52%
	Real GDP growth, sequential	17.7559	0.44	33.65%
	Real GDP growth, year over year	-9.0947	-0.62	46.11%
	Real GDP growth, seq, lagged 1 quarter	-44.5504	-1.09	72.13%
	Real GDP growth, yoy, lagged 1 quarter	-19.2964	-1.22	77.56%
	Corporate after-tax profits growth, sequential	-1.7444	-0.52	39.64%
	Corporate after-tax profits growth, year over year	-1.7883	-1.21	77.23%
*	Corporate after-tax profits growth, seq, lagged 1qtr	-8.8246	-2.73	99.25%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	-2.4257	-1.63	89.34%
	Growth in unemployment rate, sequential	3.8412	0.80	57.44%
	Growth in unemployment rate, year over year	1.7722	1.19	76.26%
	12 month increase in CPI	-9.4956	-0.48	36.58%
*	12 month increase in CPI, sequential growth	0.8619	2.09	96.07%
	12 month increase in CPI, sequential change	12.8073	0.43	32.86%
	Growth in nominal 30 year yield, sequential	1.4312	0.49	37.73%
	Growth in nominal 30 year yield, year over year	0.8268	0.44	34.25%
	Growth in nominal 2 year yield, sequential	1.1696	0.86	60.67%
	Growth in nominal 2 year yield, year over year	-0.2051	-0.30	23.56%
	Growth in real 30 year yield, sequential	-0.1606	-0.78	56.50%
	Growth in real 30 year yield, year over year	0.0914	1.35	82.03%
	Growth in real 2 year yield, sequential	0.2155	1.01	68.44%
	Growth in real 2 year yield, year over year	0.0370	0.24	19.21%
	30 year yield / 2 year yield	0.0381	0.11	8.76%
	30 year yield / 2 year yield, sequential growth	-0.4171	-0.26	20.82%
	30 year yield / 2 year yield, year over year growth	0.4647	0.71	51.87%
	2 year yield / 90 day yield	0.1308	0.57	42.77%
	2 year yield / 90 day yield, sequential growth	0.2571	0.41	31.42%
	2 year yield / 90 day yield, year over year growth	0.2350	1.01	68.66%

## S&P 500 Value

	Explanatory Variable	Coefficient	T-stat	Significance Level
k	S&P 500 Return, Contemporaneous	-0.1003	-2.45	98.40%
	Real GDP growth, sequential	1.8216	0.03	2.51%
	Real GDP growth, year over year	21.6327	1.04	69.90%
	Real GDP growth, seq, lagged 1 quarter	47.3373	0.82	58.32%
	Real GDP growth, yoy, lagged 1 quarter	33.9642	1.53	86.99%
	Corporate after-tax profits growth, sequential	1.1668	0.25	19.37%
	Corporate after-tax profits growth, year over year	1.9684	0.94	65.09%
*	Corporate after-tax profits growth, seq, lagged 1qtr	9.7418	2.10	96.14%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	2.6193	1.24	78.03%
	Growth in unemployment rate, sequential	-5.4153	-0.80	57.24%
	Growth in unemployment rate, year over year	-2.2934	-1.09	71.96%
	12 month increase in CPI	5.4340	0.19	15.24%
	12 month increase in CPI, sequential growth	-0.7114	-1.20	76.71%
	12 month increase in CPI, sequential change	12.3742	0.29	22.78%
	Growth in nominal 30 year yield, sequential	-1.0222	-0.25	19.59%
	Growth in nominal 30 year yield, year over year	2.0069	0.76	55.32%
	Growth in nominal 2 year yield, sequential	-1.2473	-0.64	47.94%
	Growth in nominal 2 year yield, year over year	0.6871	0.71	52.23%
	Growth in real 30 year yield, sequential	0.1691	0.58	43.83%
	Growth in real 30 year yield, year over year	-0.0979	-1.02	68.88%
	Growth in real 2 year yield, sequential	-0.2492	-0.82	58.71%
	Growth in real 2 year yield, year over year	-0.0129	-0.06	4.75%
	30 year yield / 2 year yield	-0.1654	-0.34	26.42%
	30 year yield / 2 year yield, sequential growth	0.4363	0.20	15.46%
	30 year yield / 2 year yield, year over year growth	-0.6656	-0.72	52.38%
	2 year yield / 90 day yield	-0.1771	-0.54	41.10%
	2 year yield / 90 day yield, sequential growth	-0.3478	-0.39	30.10%
	2 year yield / 90 day yield, year over year growth	-0.2484	-0.76	54.79%

## Variable Growth

	Explanatory Variable	Coefficient	T-stat	Significance Level
*	S&P 500 Return, Contemporaneous	0.3389	5.27	100.00%
	Real GDP growth, sequential	191.8612	1.96	94.70%
	Real GDP growth, year over year	18.9685	0.52	39.86%
	Real GDP growth, seq, lagged 1 quarter	-36.3299	-0.36	28.05%
	Real GDP growth, yoy, lagged 1 quarter	-10.5648	-0.27	21.30%
	Corporate after-tax profits growth, sequential	5.5113	0.67	49.66%
	Corporate after-tax profits growth, year over year	-0.1395	-0.04	3.05%
*	Corporate after-tax profits growth, seq, lagged 1qtr	-15.3785	-1.90	94.00%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	-1.3417	-0.36	28.23%
	Growth in unemployment rate, sequential	-3.7618	-0.32	24.92%
	Growth in unemployment rate, year over year	-0.0807	-0.02	1.74%
	12 month increase in CPI	-52.3126	-1.08	71.59%
*	12 month increase in CPI, sequential growth	2.4281	2.42	98.25%
	12 month increase in CPI, sequential change	95.4753	1.30	80.45%
	Growth in nominal 30 year yield, sequential	13.8838	1.99	95.05%
	Growth in nominal 30 year yield, year over year	5.6200	1.24	78.23%
	Growth in nominal 2 year yield, sequential	9.4905	2.95	99.60%
	Growth in nominal 2 year yield, year over year	1.2455	0.75	54.25%
	Growth in real 30 year yield, sequential	-0.0934	-0.19	14.67%
	Growth in real 30 year yield, year over year	0.1879	1.13	73.82%
	Growth in real 2 year yield, sequential	0.7913	1.52	86.83%
	Growth in real 2 year yield, year over year	0.0436	0.12	9.29%
	30 year yield / 2 year yield	0.3649	0.43	33.27%
	30 year yield / 2 year yield, sequential growth	-10.6446	-2.87	99.49%
	30 year yield / 2 year yield, year over year growth	-1.1968	-0.74	54.04%
	2 year yield / 90 day yield	-0.0988	-0.17	13.80%
	2 year yield / 90 day yield, sequential growth	-0.5909	-0.38	29.54%
	2 year yield / 90 day yield, year over year growth	-0.1149	-0.20	15.89%

### **Stable Growth**

	Explanatory Variable	Coefficient	T-stat	Significance Level
*	S&P 500 Return, Contemporaneous	-0.2033	-4.39	100.00%
	Real GDP growth, sequential	-183.2321	-2.74	99.27%
	Real GDP growth, year over year	-34.8088	-1.39	83.38%
	Real GDP growth, seq, lagged 1 quarter	-64.6889	-0.93	64.32%
	Real GDP growth, yoy, lagged 1 quarter	-22.3445	-0.83	58.95%
*	Corporate after-tax profits growth, sequential	-12.9721	-2.33	97.82%
*	Corporate after-tax profits growth, year over year	-4.8355	-1.95	94.56%
	Corporate after-tax profits growth, seq, lagged 1qtr	-6.7983	-1.20	76.56%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	-3.3077	-1.30	80.18%
	Growth in unemployment rate, sequential	16.1401	2.01	95.22%
	Growth in unemployment rate, year over year	3.4049	1.34	81.72%
	12 month increase in CPI	34.8553	1.03	69.52%
	12 month increase in CPI, sequential growth	-0.7904	-1.11	72.85%
*	12 month increase in CPI, sequential change	-102.6114	-2.04	95.59%
	Growth in nominal 30 year yield, sequential	-15.0127	-3.19	99.81%
	Growth in nominal 30 year yield, year over year	-7.0220	-2.27	97.46%
	Growth in nominal 2 year yield, sequential	-8.0948	-3.71	99.96%
	Growth in nominal 2 year yield, year over year	-1.9462	-1.70	90.69%
	Growth in real 30 year yield, sequential	-0.1398	-0.40	30.95%
	Growth in real 30 year yield, year over year	0.1217	1.05	70.41%
	Growth in real 2 year yield, sequential	-0.2901	-0.79	57.12%
	Growth in real 2 year yield, year over year	0.0289	0.11	8.84%
	30 year yield / 2 year yield	0.0870	0.15	11.71%
	30 year yield / 2 year yield, sequential growth	9.3556	3.72	99.97%
	30 year yield / 2 year yield, year over year growth	1.8215	1.64	89.63%
	2 year yield / 90 day yield	0.3138	0.80	57.34%
	2 year yield / 90 day yield, sequential growth	1.2170	1.13	73.99%
	2 year yield / 90 day yield, year over year growth	0.5325	1.35	82.04%

## **Stable Value**

	Explanatory Variable	Coefficient	T-stat	Significance Level
*	S&P 500 Return, Contemporaneous	-0.3539	-5.45	100.00%
	Real GDP growth, sequential	-177.7140	-1.78	92.12%
	Real GDP growth, year over year	-17.9260	-0.49	37.23%
	Real GDP growth, seq, lagged 1 quarter	38.9438	0.38	29.48%
	Real GDP growth, yoy, lagged 1 quarter	14.6841	0.37	28.79%
	Corporate after-tax profits growth, sequential	-8.5385	-1.03	69.24%
	Corporate after-tax profits growth, year over year	-1.1929	-0.32	25.19%
	Corporate after-tax profits growth, seq, lagged 1qtr	11.7331	1.42	83.97%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	2.3061	0.61	45.87%
	Growth in unemployment rate, sequential	6.4458	0.54	40.74%
	Growth in unemployment rate, year over year	1.6199	0.43	33.37%
	12 month increase in CPI	35.2877	0.71	52.15%
*	12 month increase in CPI, sequential growth	-2.3855	-2.33	97.81%
	12 month increase in CPI, sequential change	-93.5400	-1.25	78.71%
	Growth in nominal 30 year yield, sequential	-20.5760	-2.97	99.62%
	Growth in nominal 30 year yield, year over year	-6.4556	-1.40	83.63%
	Growth in nominal 2 year yield, sequential	-9.3223	-2.84	99.45%
	Growth in nominal 2 year yield, year over year	-0.5167	-0.30	23.77%
	Growth in real 30 year yield, sequential	0.2517	0.49	37.57%
	Growth in real 30 year yield, year over year	-0.1514	-0.89	62.51%
	Growth in real 2 year yield, sequential	-0.2622	-0.49	37.45%
	Growth in real 2 year yield, year over year	-0.2718	-0.72	52.58%
	30 year yield / 2 year yield	-0.0973	-0.11	8.96%
	30 year yield / 2 year yield, sequential growth	6.8320	1.76	91.91%
	30 year yield / 2 year yield, year over year growth	0.2851	0.17	13.72%
	2 year yield / 90 day yield	-0.0036	-0.01	0.49%
	2 year yield / 90 day yield, sequential growth	-0.2572	-0.16	12.88%
	2 year yield / 90 day yield, year over year growth	-0.0628	-0.11	8.57%

# Variable Value

	Explanatory Variable	Coefficient	T-stat	Significance Level
*	S&P 500 Return, Contemporaneous	0.1692	3.09	99.74%
	Real GDP growth, sequential	60.1760	0.77	55.66%
	Real GDP growth, year over year	4.1408	0.15	11.54%
	Real GDP growth, seq, lagged 1 quarter	-44.6561	-0.56	42.63%
	Real GDP growth, yoy, lagged 1 quarter	-2.2116	-0.07	5.74%
*	Corporate after-tax profits growth, sequential	17.9726	2.90	99.54%
	Corporate after-tax profits growth, year over year	4.2825	1.52	86.72%
	Corporate after-tax profits growth, seq, lagged 1qtr	4.0633	0.63	46.99%
	Corporate after-tax profits growth, yoy, lagged 1 quarter	2.5890	0.89	62.66%
	Growth in unemployment rate, sequential	-9.4986	-1.03	69.42%
	Growth in unemployment rate, year over year	-1.0584	-0.37	28.51%
	12 month increase in CPI	-18.8024	-0.49	37.53%
	12 month increase in CPI, sequential growth	0.5327	0.66	48.76%
	12 month increase in CPI, sequential change	49.6105	0.86	60.72%
	Growth in nominal 30 year yield, sequential	17.7173	3.35	99.88%
	Growth in nominal 30 year yield, year over year	2.4605	0.69	50.70%
	Growth in nominal 2 year yield, sequential	9.2488	3.76	99.97%
	Growth in nominal 2 year yield, year over year	0.6584	0.50	38.28%
	Growth in real 30 year yield, sequential	0.3823	0.97	66.60%
	Growth in real 30 year yield, year over year	-0.1745	-1.34	81.62%
	Growth in real 2 year yield, sequential	0.1002	0.24	19.10%
	Growth in real 2 year yield, year over year	-0.0232	-0.08	6.31%
	30 year yield / 2 year yield	0.2693	0.41	31.38%
	30 year yield / 2 year yield, sequential growth	-9.5710	-3.33	99.88%
	30 year yield / 2 year yield, year over year growth	-0.9961	-0.79	56.70%
	2 year yield / 90 day yield	-0.3964	-0.89	62.65%
	2 year yield / 90 day yield, sequential growth	-1.8727	-1.55	87.63%
	2 year yield / 90 day yield, year over year growth	-0.7896	-1.79	92.31%

### **Disclosure Statement**

Performance histories for OakBrook's indices have been calculated going back to January, 1985. The simulated results are based on total return calculations which include a reinvestment of accrued dividends and price changes. As with other indices, returns are gross of all fees and expenses, including management fees, broker's commissions and market impact costs. The indices were rebalanced bi-annually, at the end of each June and December, with explicit controls to limit index turnover. During each rebalancing, firms were placed in indices based on a computer model which evaluated four years of historical information. Programming of the computer model was completed in May of 1999, based on data through December of 1998.

As with any study conducted after the fact, results are subject to back testing bias that can inflate returns. The results presented do not represent the actual performance of any OakBrook client portfolio and were achieved by means of the retroactive application of a program that was designed with the benefit of hindsight. Results may not reflect the impact of material market or economic factors which occurred during the back test period. OakBrook Investments, LLC has not managed portfolios using the methodology shown and the results presented should not be considered a substitute for the investment performance of actual OakBrook accounts. Results should not be considered indicative of the skill of OakBrook's portfolio managers. The back test results shown are in no way indicative of the future performance of the OakBrook Style Indices or any accounts managed to track those indices and clients may experience a loss while investing in these indices. Total fees are expected to be less than 45 basis points per year. The indices shown are not managed portfolios.

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The S&P 500 Index is a capitalization-weighted index of 500 stocks representing all major industries. The index serves as a proxy for the overall stock market, especially mid to large-capitalization stocks, which are represented in the selected portfolios. Index results include re-investment of dividends and other earnings, and do not reflect sales charges. The index is not a managed portfolio.

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