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The Risk-Adjusted Growth Model: *A Tool for Reducing Risk in Growth Investing*

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Summary

- Growth investing is often associated with above-average risk exposure.
- Stock selection on the basis of growth consistency, rather than magnitude, reduces risk and is a more durable source of returns.
- The Risk-Adjusted Growth Model is a method of analyzing stocks on the basis of growth consistency.
- **Systematic application of this model, augmented by rigorous fundamental analysis and disciplined portfolio construction, improves the probability of achieving excess returns.**

Background

The rewards of a successful growth stock investment can be impressive: compound earnings at 25% for a few years and if the stock follows this growth, an investor can earn 100% or more on the investment. However, risks are dangerous and more difficult to understand and quantify. Price declines often occur faster than gains, meaning years of gains can be erased in a few trading sessions.

Consistent growth companies are preferred over rapid growth – they can increase the probability of attractive returns at low risk.

Curiously, many growth investors do not make risk-reduction a priority. According to databases of active managers, over 65% of growth managers have a standard deviation of returns exceeding their benchmarks or betas greater than one over the past five years.[1] Instead of targeting risk, many managers focus on maximizing return by purchasing stocks offering the fastest absolute growth. Given that rapid growth in the past suggests growth in the future is tougher, strategies built on this principle inherently involve significant risk.[2]

This leads to an important question: if managers are placing too much value on absolute levels of growth, are they systematically undervaluing any growth characteristics? Our research suggests "yes." We have observed inefficiencies in the market's valuation of growth consistency. Growth consistency is the tendency of growth rates to show low variation, or volatility, over time. It is one of the characteristics often used to define a "high quality" company and there is an established body of knowledge about investing in "high quality" companies.[3]

We believe the characteristics that allow companies to deliver consistent growth are more sustainable than those influencing the absolute level of growth. Consistent growth does not regress to the economy's growth rate and does

not suffer from the "difficult comparison" problem like rapid growth. Consistent growth in the past is therefore more often predictive of consistent results in the future. In other words, the probability of identifying companies with the desired future characteristics is higher using a consistent growth strategy than a high growth strategy.

To help evaluate companies for growth consistency, we have developed a quantitative measurement that discounts for volatility. The end result, the Risk Adjusted Growth Model (RAG), uses the following formula:

$$RAG\ Score = \frac{Excess\ Growth}{Average\ Error\ of\ Growth}$$

Where:

- *Excess Growth* = company's compound annual growth rate of financial results over a time period minus the benchmark's growth rate; and,

- *Average Error of Growth* = $\dfrac{\sum_{i=1}^{n} \frac{actual\ financial\ result - financial\ result\ implied\ by\ regression\ line}{actual\ finanical\ result}}{number\ of\ time\ periods}$

In simple terms, the RAG Score discounts excess growth by the volatility of the return stream.

The financial results examined are revenue, earnings per share and free cash flow. Time periods (*n*) observed are trailing five and ten years, as well as five years of trailing data combined with three years of forecasted results. These time periods are sufficient to capture a complete business cycle as well as a component of estimated future results. RAG Scores can utilize any popular benchmark for which data is available, such as the S&P 500 and the Russell 3000, amongst others.

The model is similar to the practice of using Information Ratios[4] to evaluate investment managers and the same numerical interpretation applies: the larger the positive result, the more attractive the result. Negative results mean the company has a growth rate less than benchmark. To score highly, companies must consistently deliver growth in excess of the benchmark and must deliver these results with low volatility. Typically, we consider RAG Scores ≥1.0 as attractive candidates, as this level identifies the top quartile of the most consistent growth companies from most stock universes. This means for every percentage point of excess growth, the company only had a percentage point or less of variation in its growth rates.

Results

This methodology allows us to efficiently screen large stock universes to identify those with a history of attractive rates of stable growth for further analysis. For example, here is the simple (un-weighted) average RAG Score data (*n* = trailing 5 years) on earnings per share (EPS) of all the companies in the S&P 500 on December 31, 2014:

Excess Growth Rate	3.7%
Average Error of Growth	101.4%
RAG Score	0.05

There were 124 (25%) constituents with RAG Scores greater than or equal to 1.0.

Note how volatile the average company's EPS is with an average error of over 100%, a number that suggests how difficult it is to accurately predict future results for most companies. Encouragingly, the model narrowed the universe
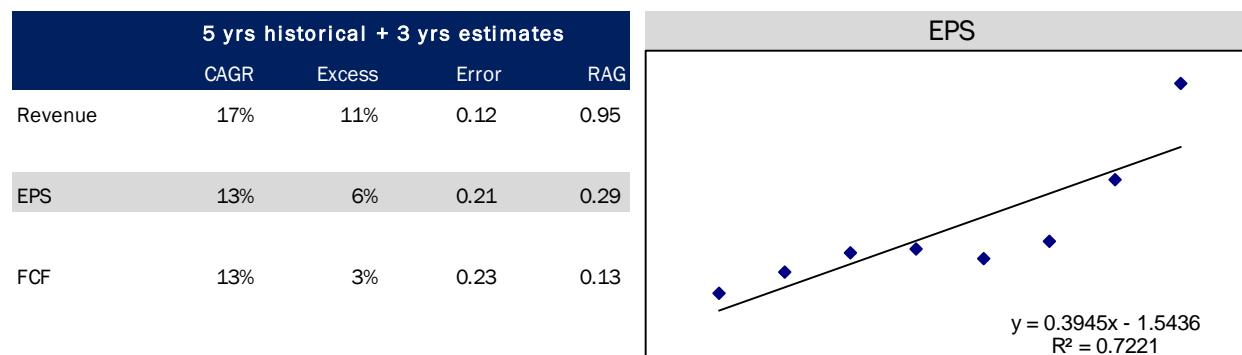
from 500 companies by 75% to a more manageable 124 with RAG Scores ≥ 1.0. This select group of stocks is a good place to start more detailed fundamental analysis.

To evaluate this claim, we looked at the relative return and RAG Scores for all S&P 500 constituents. We found an important relationship between RAG Score and relative performance over the trailing five years:

S&P 500 Constituents as of Dec 31, 2014	
RAG Score	Probability of outperforming
negative	20%
>0<1	33%
≥1	54%

This single point in time result suggests that avoiding negative RAG Scores in favor of RAG Scores ≥ 1.0 improved the probability of selecting a stock that outperformed.

Armed with this select group of RAG Scores ≥ 1.0, more extensive RAG Scores can be evaluated over multiple time periods and across the targeted financial results. This analysis can highlight risks and opportunities that the single point RAG Score does not capture. The following table and graph illustrate these outputs for the "5 years historical plus 3 years forward" time period of a hypothetical company (this step adds a future component to actual historical data).

5 yrs historical + 3 yrs estimates				
	CAGR	Excess	Error	RAG
Revenue	17%	11%	0.12	0.95
EPS	13%	6%	0.21	0.29
FCF	13%	3%	0.23	0.13

EPS

$y = 0.3945x - 1.5436$
$R^2 = 0.7221$

This process tends to identify companies in inherently stable sectors such as Consumer Staples. However, in practice, we find that RAG Scores are often most valuable at identifying undiscovered, consistent growth companies in volatile sectors such as Energy, Materials and Information Technology. The rarity of a consistent growth business in a volatile sector justifies valuation premiums that are often not reflected by the market.

Risks

The major risk of the RAG model is similar to most models based on history: that the future is different than the past. We attempt to address this risk by using RAG scores as the starting point for in-depth fundamental analysis, and not as the sole selection criteria. The objective of our fundamental analysis is to identify the sources of growth and assess the likelihood of its sustainability.

Another risk is that the model targets companies which look and act similar to each other. For example, Consumer Staples companies tend to score well because their earnings streams vary little year to year. This risk requires disciplined portfolio management to ensure investments are diversified across different types of business models.

Often, high RAG scoring stocks show high correlation to each other, despite being in different sectors and businesses. This is common in periods of extreme bullishness or bearishness, as investors either ignore consistency (in bullish times) or desire it (in bearish times). This can result in periods of under- and over-performance due to market cycles and associated investor psychology.

Conclusion

The Risk Adjust Growth Model is an effective tool for understanding the nature of growth and quantifying associated risk. The model is built on factors likely to repeat in the future, which improves the predictive value of the approach and offers growth managers a differentiated strategy that incorporates the concept of risk. Most importantly, the RAG model is not widely utilized by the market, so it potentially identifies valuation inefficiencies that can be exploited. As suggested by the above RAG Scores of the S&P 500 constituent securities, the results can significantly improve the probability of success.

The Investment Committee for the growth strategies has employed this methodology for over a decade as part of its long-term investment strategy. Torray uses RAG Scores as both a screening tool and a basis for more in-depth research.

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[1] On December 31, 2014, 170 managers of the 262 (65%) in the Investment Metrics Large Growth universe reported a five year standard deviation greater than the benchmark (Russell 1000 Growth) and 172 (66%) reported a beta greater than 1.0 to the same benchmark (Source: FactSet).

[2] This concept is known in finance theory as the "Law of Large Numbers." This Law is based on the statistical concept that as the number of samples increase, the average of these samples tends to reach the mean of the entire population. Related to businesses and the economy, this means that as a company grows, its growth rate will decrease to that of the overall economy over time. The number of companies breaking this rule is extremely limited.

[3] For more on the low risk/high quality company investment strategy see the following sources:

Blitz, D., and van Vliet, P., 2007, The Volatility Effect: Lower Risk without Lower Return, *ERIM Report Series Research in Management*.
Hargis, K. and Marx, C., 2012, The Paradox of Low-Risk Stocks: Gaining More by Losing Less, *AllianceBernstein L.P.*
Hintz, D., 2010, *The Third Dimension of Style: Introducing the Russell Stability Indexes,* Russell Investments, Seattle.
Santicchia, M. and Murphy, P.G., 2005, *Standard and Poor's Quality Rankings: Portfolio Performance, Risk and Fundamental*

[4] Information Ratio = Excess Return of portfolio / Tracking Error.