

“Change is the only constant” — Heraclitus

Successfully adapting to change is the hallmark of any lasting company. NorthCoast, founded in 1988, counts itself among a handful of investment advisors that have been in business for over twenty-five years. We have productively navigated the endless revolution and evolution that is the global financial markets. Consider just recent memory – the exponential growth of the Federal Reserve balance sheet and now the beginning of the taper, the largest municipal bond default in history (Detroit), the rise of high frequency trading, the first ever downgrade of US sovereign debt by S&P, the imminent surpassing of the US by China in economy size, the early members of the baby boom generation retiring, and the IPO of Twitter - the list is endless and these issues only take us back three years to 2011!

*Investor’s Business Daily*<sup>®</sup>, celebrating its 30<sup>th</sup> anniversary this past April, has also passed the test of time. As a leader in the investment industry, IBD finds itself on the Mount Rushmore of financial publications after arming investors with invaluable stock data and analysis for over three decades. Its primary stock selection methodology, CAN SLIM<sup>®</sup>, has also aged well. Since 1988, numerous books and countless studies have supported the system’s validity. It, too, has effectively adjusted to market conditions. Consider the increase in participation – the number of dollars traded every day in S&P 500 companies has grown by roughly 100 times since 1984 – for every \$10 million traded then, \$1 billion is traded today.

Researching, analyzing, and then adapting to change is an endless effort and one that separates high caliber investment companies from the rest. We have made great strides in these efforts and believe this is a good time to stop and share our results with the most important people to our company – our clients. Thus, the purpose of this whitepaper is to provide insight into our stock selection process, to document some of our enhancements, and to inform our clients as to why we have made them. We will demonstrate why our stock selection process has deliberately evolved and how conventional CAN SLIM<sup>®</sup> earnings and price momentum calculations can be substantially enhanced into a more robust and contemporary portfolio management method. Finally, we will discuss one element of risk management that is fundamental to the CAN SLIM<sup>®</sup> system and ripe for improvement given today’s market – investing with sell stops.

*“Researching, analyzing, and then adapting to change is an endless effort and one that separates high caliber investment companies from the rest.”*

The competition to identify a winning position is intense. Assessing each stock’s potential requires consideration from many angles in order to capture its complexity. We have successfully adapted over the years with a long-standing track record to serve as testament. Now is the time to share our findings and arm our clients with the information they need to better understand the research and data that guides their portfolios.

## The CAN SLIM<sup>®</sup> System

CAN SLIM<sup>®</sup> is a stock management system created by William O’Neil who derived it after researching the top-performing stocks throughout history and identifying the 7 (C-A-N-S-L-I-M) characteristics that each stock shared prior to significant price gains. He founded the daily newspaper, *Investor’s Business Daily*<sup>®</sup> (“IBD”), in 1984 to share his findings and then documented them in his seminal book, How to Make Money in Stocks (McGraw-Hill, 1988). Each of these attributes is listed below along with its founding guidelines. This paper will focus on comparing the guidelines introduced over 30 years ago with the enhancements that we have made over the course of our decade long, exclusive relationship with IBD.

Factors	Founding Guidelines	Enhanced by NorthCoast
<b>C</b> Current Earnings Growth	Up 20% or more	Sustainable, reasonable, and industry-adjusted
<b>A</b> Annual Earnings Growth	Increasing 25% or more	Sustainable, reasonable, and industry-adjusted
<b>N</b> New Product or Service	Product/service/management change provides catalyst	Analyst estimates of forward earnings impact and relative strength
<b>S</b> Supply/Demand of Shares	Shares outstanding should be large and trading volume should be big as the stock price increases	Short interest indicators and share buybacks
<b>L</b> Leading Industry	Buy the leading stock in a leading industry	Historical price, profitability and management trends
<b>I</b> Institutional Sponsorship	Institutional ownership by mutual funds in recent quarters should be increasing	Sell side analyst recommendations and estimates
<b>M</b> Market Direction	The market should be in a confirmed uptrend since three out of four stocks follow the market’s overall trend	Market technicals complemented with valuation, sentiment, and macroeconomic indicators

In this document we explore each of these attributes and measure its efficacy using quintile analysis. Ranking stocks along this metric (buying the 20% best ranked, then the next 20%, then the next 20%, etc.) removes noise and helps focus in on the signal: does this characteristic help pick better stocks? Then we build portfolios and compare risk/return ratios to validate that each factor stands on its own merit. Finally, we combine these individual factors into a composite score to demonstrate the overall effectiveness of our current stock selection model.

## Current and Annual Earnings Growth

CAN SLIM<sup>®</sup> considers earnings growth as central to the investment thesis: +20% quarter-over-quarter and +25% year-over-year is the starting point. Without clearing this hurdle, a stock is no longer worth consideration. However, there are many issues with this simple black and white filter that are obvious to any market practitioner. Consider a low growth economic environment like 2009 when few stocks could meet the quarter-over-quarter threshold? Should an investor sit in cash and not invest during a +25% S&P year just because no stocks qualify? IBD corrects this issue by issuing an EPS Rank on every stock. It ranks its stock universe from 1-to-99 every day on a relative basis – the highest EPS growers earn a 99 while the lowest earn a 1. While relative earnings growth solves the low growth macro environment issue, the ranking still has some holes.

What about a company that is growing its earnings through accounting manipulation? A well-known technique is to stretch the payables and lower the accounts receivables: pay your providers late and collect your bills early. This creates a one-off boost to the earnings that is unlikely to happen next year. Another way to grow the earnings is to go on an acquisition spree: borrow debt from the bank, buy competitors at a premium price and display earnings growth. That is pure financial engineering, not hard work creating enduring value. Or what about a drug stock that is losing its blockbuster patent next year? Is the 25% growth this year sustainable? Is it still desirable when a company is growing at 25% while in an industry growing at 30%?

*“Is the 25% growth this year sustainable? Is it still desirable when a company is growing at 25% while in an industry growing at 30%?”*

As a result, we look at different yardsticks when determining if a company has attractive earnings: EBIDTA, cash flows, as well as past profitability and future profitability

estimates. We also compare those numbers to a company’s peers and analyze how these numbers have evolved in the past and how stable or steady they were. We then incorporate our assessment of growth, past growth, and predicted growth. We believe this approach to be more comprehensive and sound intellectually.

### Breaking Down the Data #1: Important information about reported performance in the whitepaper

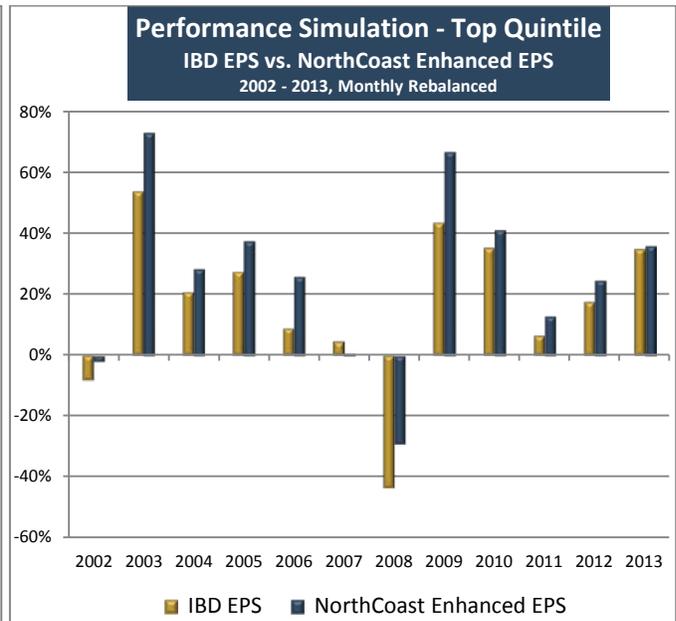
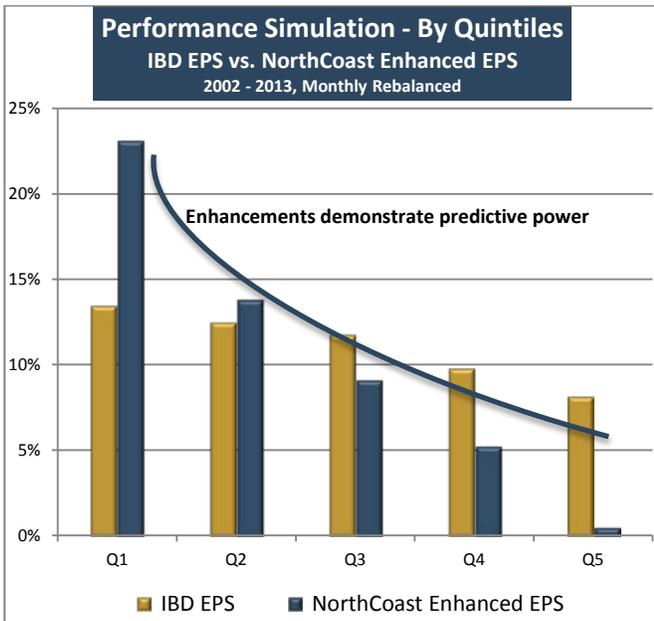
#### Quintile Performance:

Before we dive into the data, there are a few points to explain with these results and for the results going forward.

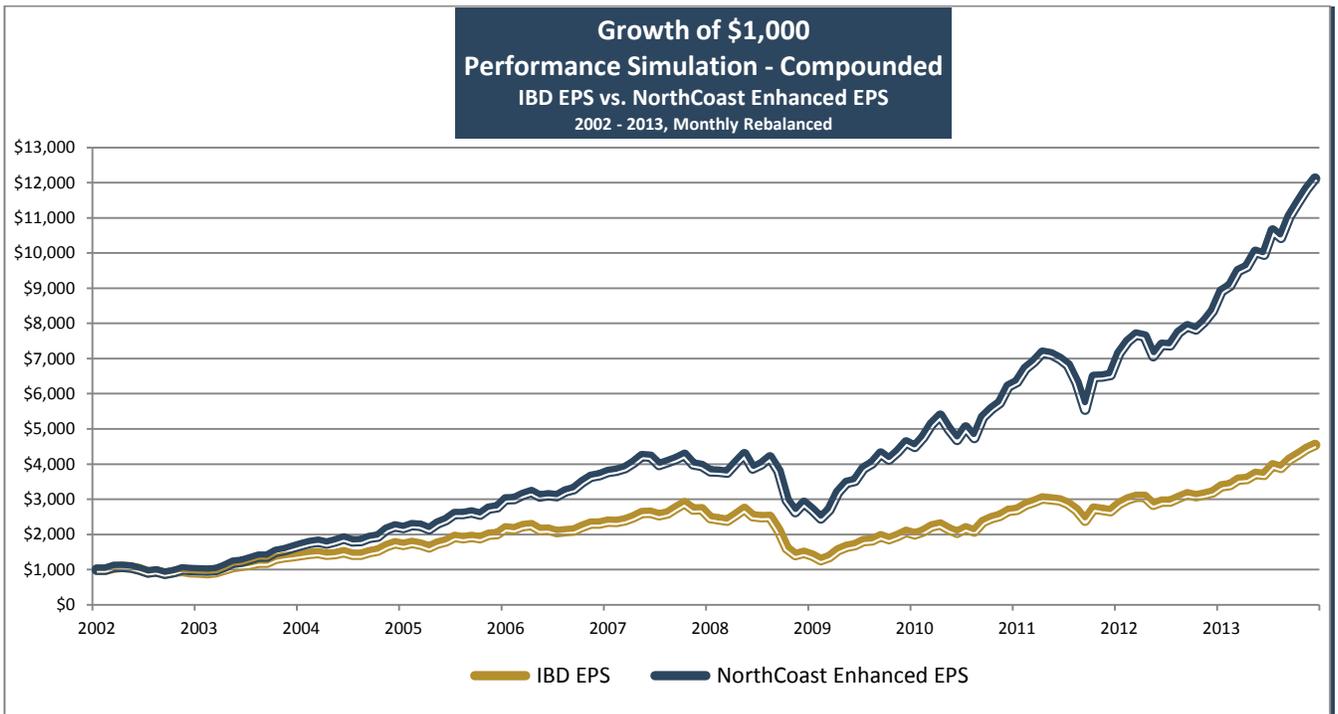
First, when researching factors, we evaluate them at great length and depth. Quintile analysis and portfolio growth is telling but only the tip of the iceberg. We examine hit rates, long/short spreads (going long top decile/going short the lowest decile), information coefficients, signal decay, risk biases, sector skewing, turnover, and expected drawdowns among other things. These included summary tables do not reflect the time and energy that such work entails.

Second, we care most about the performance of stocks in the 1st quintile because that impacts the pond from which we fish. Additionally we care about the slope of the other quintiles. Is the factor consistent? Is higher better than lower? You will see that IBD EPS rank is predictive but lacks punch – hard to get much more from a stock ranked in the top 20% than a stock ranked between 40-60%.

Finally, it is also important to see if a factor works year over year. Averages can mask big years which is why annual tables can help. Here you can see that our Earnings factor adjusted for sustainability and industry consistently outperforms.



The charts above show that utilizing NorthCoast's enhanced metrics have a meaningful impact on total and yearly quintile returns. The relative performance of the factor across all quintiles and consistent outperformance within the top quintile demonstrate the validity and power of the enhancements.



	IBD EPS	NorthCoast Enhanced EPS
First Quintile Average Annual Return	13.4%	23.1%
Simulated Cumulative Performance (starting with \$1,000)	\$4,545	\$12,117

Measuring earnings and profitability has the great advantage of relying on hard numbers, but true growth companies create and invest in new products or services that can dramatically change their future as well as the industry in which they compete. Here we are evaluating dimensions that are not reflected in traditional accounting metrics (earnings, sales, cash flow, etc) but nonetheless affect the company in a material way beyond the immediate years ahead. Therefore we are analyzing the impact of intangibles: new leadership, a break-through technology, brand, or other unique situations that can drive a stock price.

Because this is a highly subjective attribute, many CAN SLIM® investors will instead allow the market to tell them which company has the winning formula by measuring relative strength. If a company's stock price is appreciating at a pace higher than the market, it is said to have relative strength and one is then relying on the collective genius of the market that this company has the right new product, selected the right CEO, or is going to win market share in the future. Relative strength belongs to a group of stock attributes broadly referred to as technical indicators. No attention is paid to company earnings, sales or profits – only to stock price and momentum.

*"How many times to do we see traders crush growth stocks for a 15-30% decline when the company misses earnings estimates by a penny?"*

Like EPS rank, IBD also publishes a relative strength ranking called RS. Each stock is ranked based on its price action relative to the market over the short and long term: 99 is best and 1 is worst. Relative strength is a performing factor. Many studies have been published supporting the old axiom, "don't fight the tape." But it does come at a cost, and that cost is called volatility. How many times do we see traders crush growth stocks for a 15-30% decline when the company misses earnings estimates by a penny? The answer is over and over again because there is a herd mentality on Wall Street and a large contingent of investors that will simply jump on and off the train very quickly based on relative strength.

Our research includes analysts' forecasts, recommendations, and a more comprehensive evaluation of price strength when looking at new products or services. This evaluation can be based on more than 20 data points and may result, for example, in a \$50 price estimate on a stock after examining the release of a new product – meanwhile the stock is climbing to \$55, \$56, \$57 solely on momentum. That is good to know. It often means that there is little juice left in the tank. Sure this estimate can be wrong on one company, but across a large sample of stocks, adjusting price momentum based on forecasts is a good way to avoid being the last buyer right before the correction.

### Breaking Down the Data #2: Important information about reported performance in the whitepaper

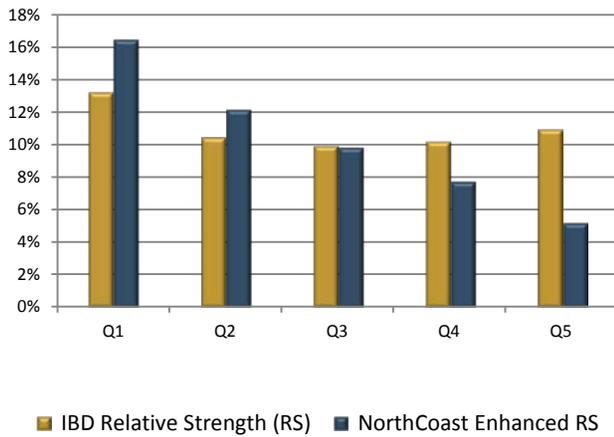
#### Stock Universe:

When breaking down the quintile, yearly, and compounded performance, NorthCoast researched and analyzed a particular universe of stocks for its testing and simulation. The universe consists of 2,300 stocks that meet the following criteria:

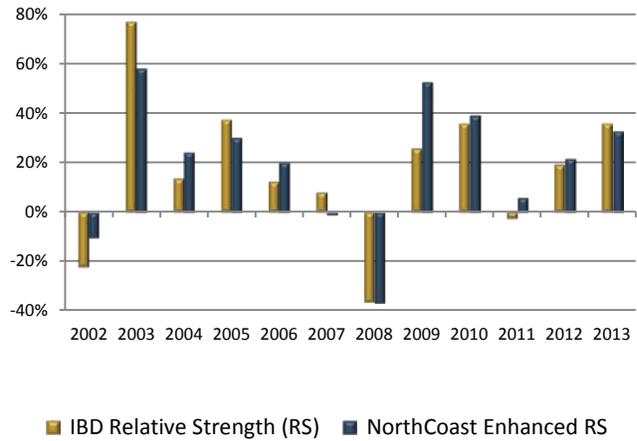
Price (\$ value) > \$8/share  
Average 10-Day Trading Volume > 1,000,000 shares

These broad criteria allowed us to include as much of the stock market as possible but also considered natural restrictions in trading stocks with abnormally low prices and illiquid trading volume.

**Performance Simulation - By Quintiles**  
 IBD RS vs. NorthCoast Enhanced RS  
 2002 - 2013, Monthly Rebalanced

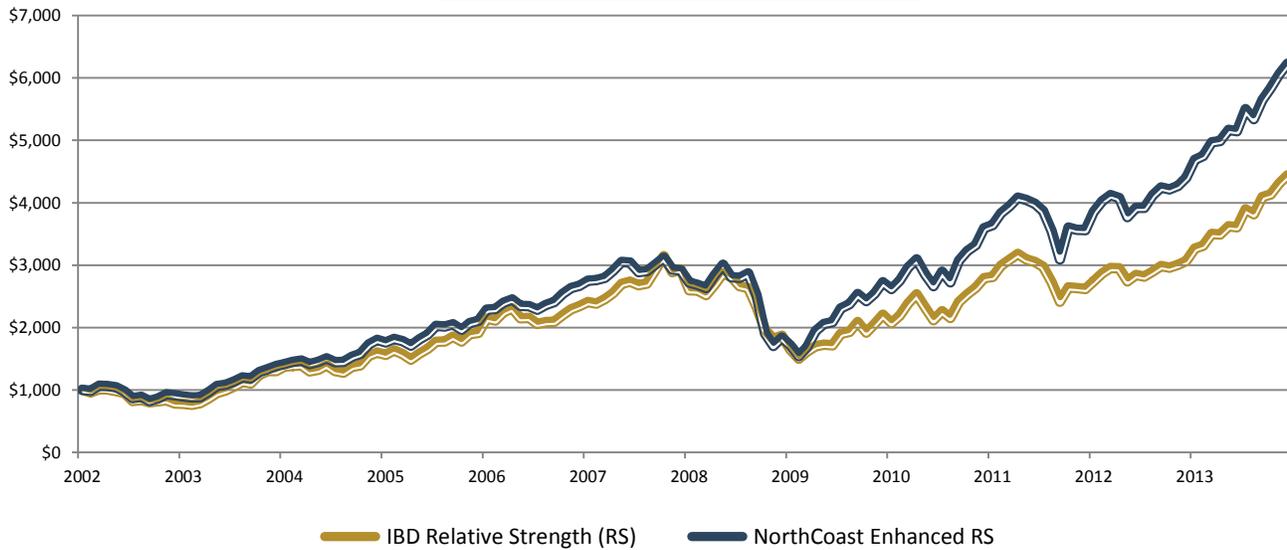


**Performance Simulation - Top Quintile**  
 IBD RS vs. NorthCoast Enhanced RS  
 2002 - 2013, Monthly Rebalanced



The charts above show that utilizing NorthCoast’s enhanced metrics have an impact on total and yearly quintile returns, though not as robust as our EPS factor. However, the relative performance of this factor across all quintiles shows additional strength and consistency versus the conventional RS metric.

**Growth of \$1,000**  
 Simulated Performance - Compounded  
 IBD RS vs. NorthCoast Enhanced RS  
 2002 - 2013, Monthly Rebalanced



	IBD RS	NorthCoast Enhanced RS
<b>First Quintile Average Annual Return</b>	13.2%	16.5%
<b>Simulated Cumulative Performance (starting with \$1,000)</b>	\$4,439	\$6,231

## Supply and Demand of shares

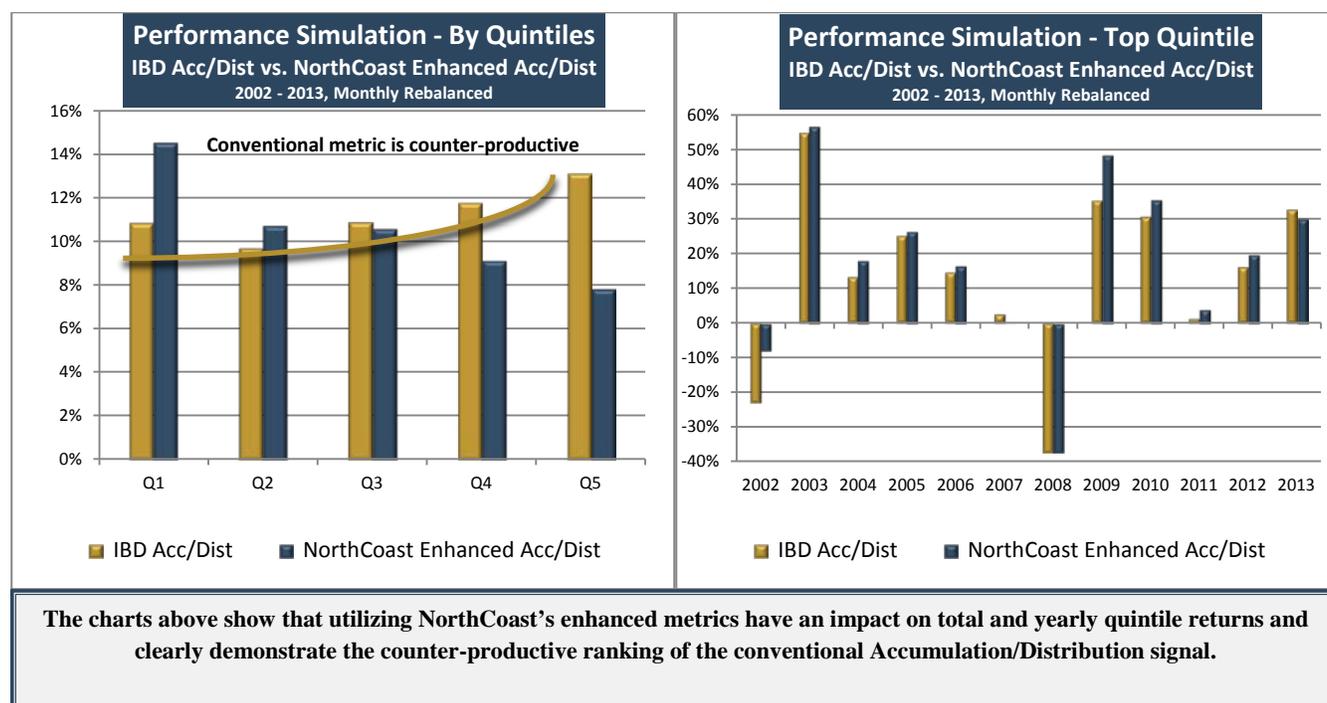
Supply and Demand forces can impact a stock price in the short term and create deviations that can be used to optimize the entry point in a stock exhibiting good characteristics. Conventional CAN SLIM® would simply be looking at volume gains as a way of determining a stock's attractiveness. When a stock has positive relative strength, the theory (given that this is an auction market) is that the most attractive assets garner the most attention or trading volume. Before purchase, one wants to see good upward price strength combined with more trading activity.

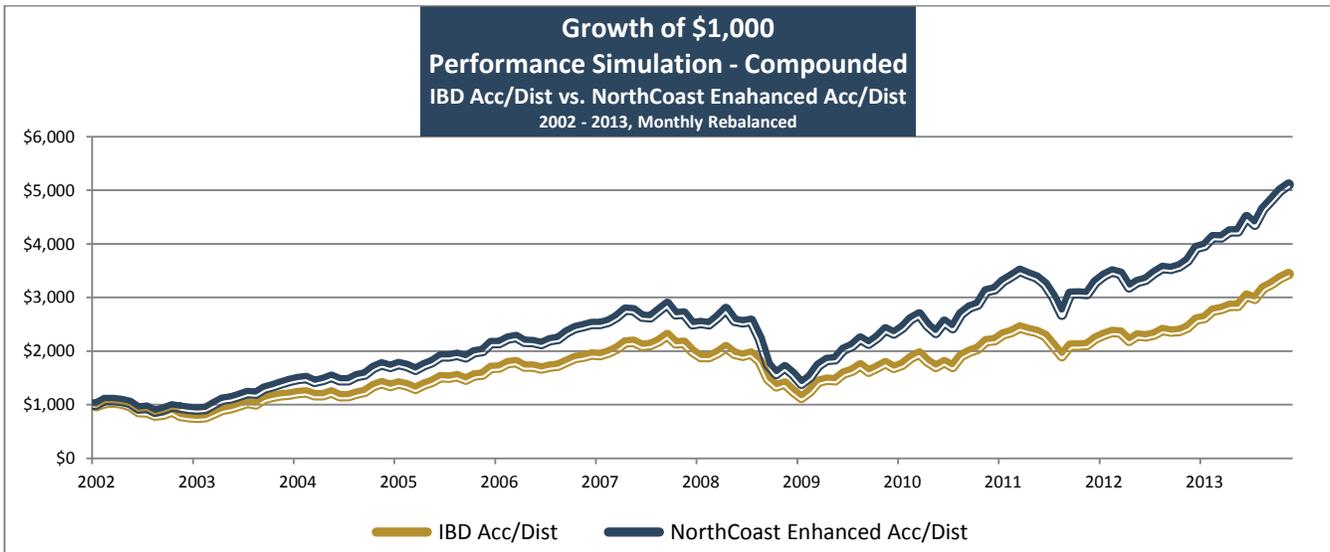
This does, however, also present some contemporary questions. How does one consider the impact of ETFs on an individual stock's volume? What about institutions that may be shorting a stock which still contributes to its volume that day?

Our methodology looks past simple volume moves and incorporates additional information that could explain why an action is justified. Volume is helpful but can be enhanced with complementary data. IBD has captured its volume data in a factor called Accumulation/Distribution which grants stocks a letter grade from A to E based on its volume patterns.

*"How does one consider the impact of ETFs on an individual stock's volume? What about institutions that may be shorting a stock which still contributes to its volume that day?"*

In this test, we complement IBD's Accumulation/Distribution ranking with factors such as ETF flows, short interest of institutional investors, and others that have historically proven to move stocks in a positive direction.





	IBD Acc/Dist	NorthCoast Enhanced Acc/Dist
<b>First Quintile Average Annual Return</b>	10.8%	14.6%
<b>Simulated Cumulative Performance (starting with \$1,000)</b>	\$3,440	\$5,107

## Leading Industry

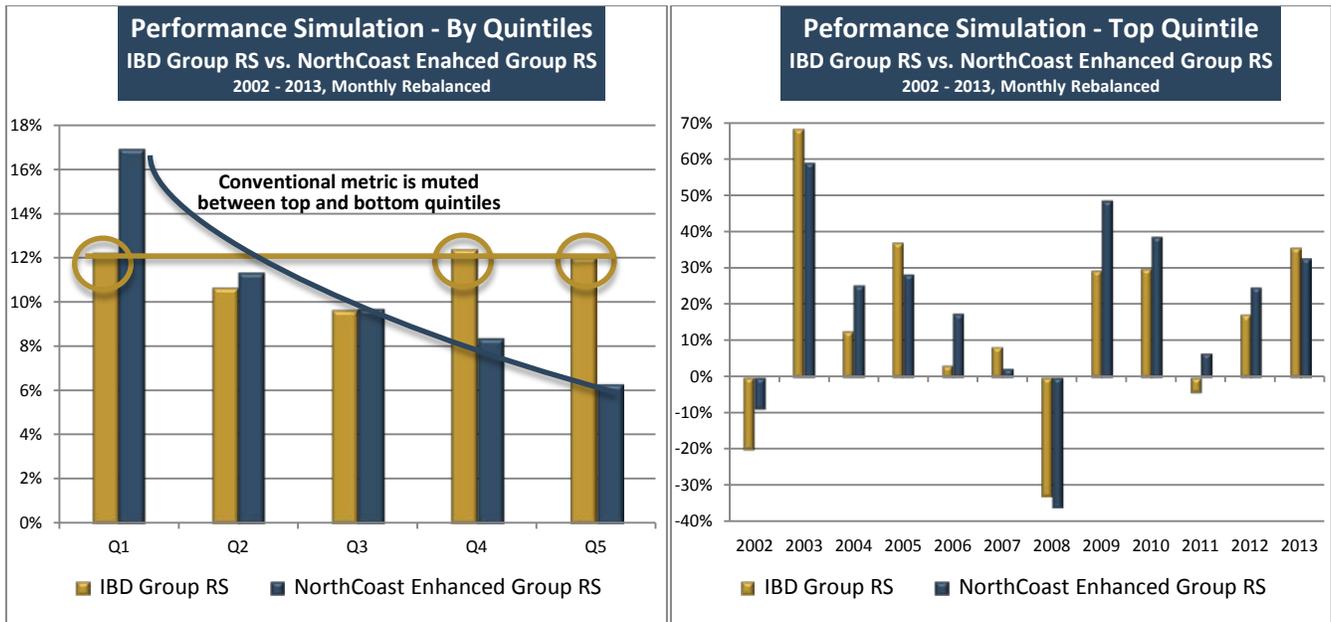
Technical indicators are intuitive, well documented, and provide a great visual appeal. However, identifying the sector level indicators that consistently work proves to be a difficult task. Sector or industry price momentum certainly falls into this category. Core CAN SLIM® investors typically invest in stocks from an industry group that is demonstrating good relative price strength. This typically begins with a filter that only buys stocks with a Group RS ranking of A or B. Group RS ranks industries from A to E based on their group’s price action with the higher grade equaling better price movement.

What if that price movement is only beta related, though? A cyclical industry will typically have a beta of 1.2 so if a group of steel stocks is +20% in a +16% market, does that really matter? On the flip side should we never buy staple stocks like Coke because they are in an industry group that typically does not keep pace in a market move? Not considering an industry’s beta is dangerous when investing in growth stocks. Many charts that look good quickly fall apart when adjusting an industry for its natural price movements or beta.

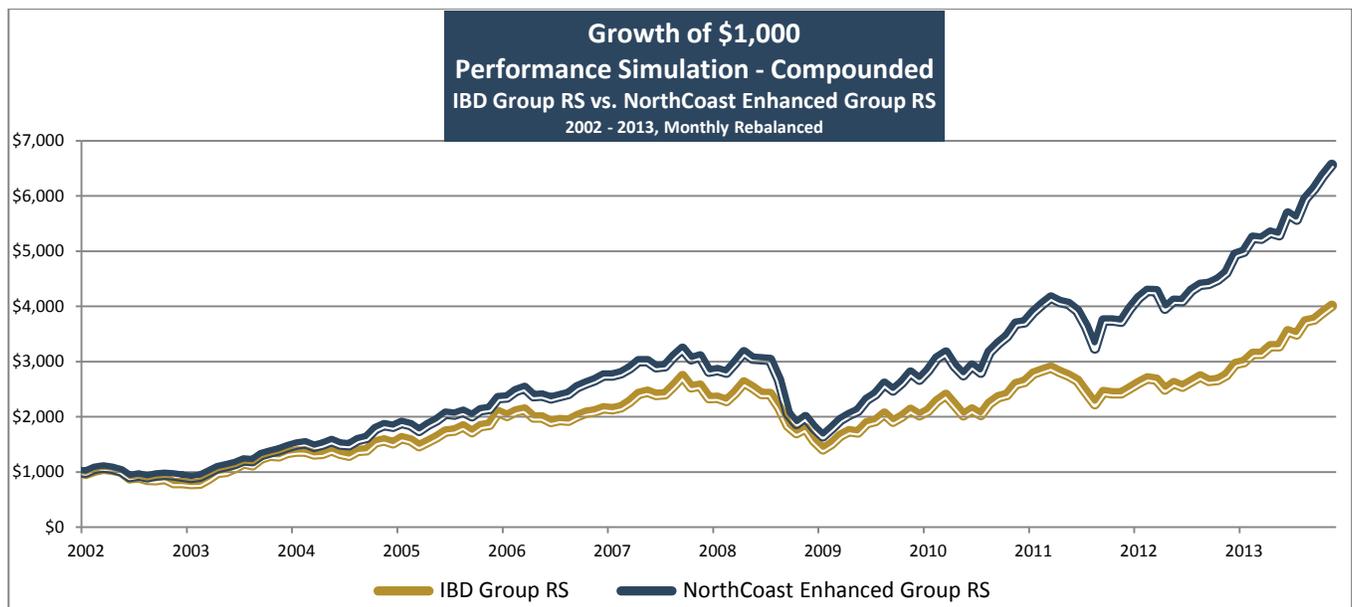
*“Can individuals beat the institutions to the punch when trap doors open like the -15% small cap correction we had in April this year?”*

Further, what impacts do sector ETFs and mutual funds have? Analyzing these impacts is another challenge given the increased velocity of trading that has occurred from the hedge fund community over the last several years. Can individuals beat institutions to the punch when trap doors open like the -15% small cap correction we had in April this year?

In this study, we compare Group RS from IBD with our own enhancements which consider historical price and profitability of a sector in addition to adjusting for beta before determining if the trend is ripe for investment.



The charts above show that utilizing NorthCoast’s enhanced metrics have a positive impact on total and yearly quintile returns. Group RS provides a muted benefit – stocks coming from the top quintile perform similarly to those from the bottom. The relative performance demonstrates the validity and power of the enhancements.



	IBD Group RS	NorthCoast Enhanced Group RS
<b>First Quintile Average Annual Return</b>	12.3%	17.0%
<b>Simulated Cumulative Performance (starting with \$1,000)</b>	\$4,011	\$6,564

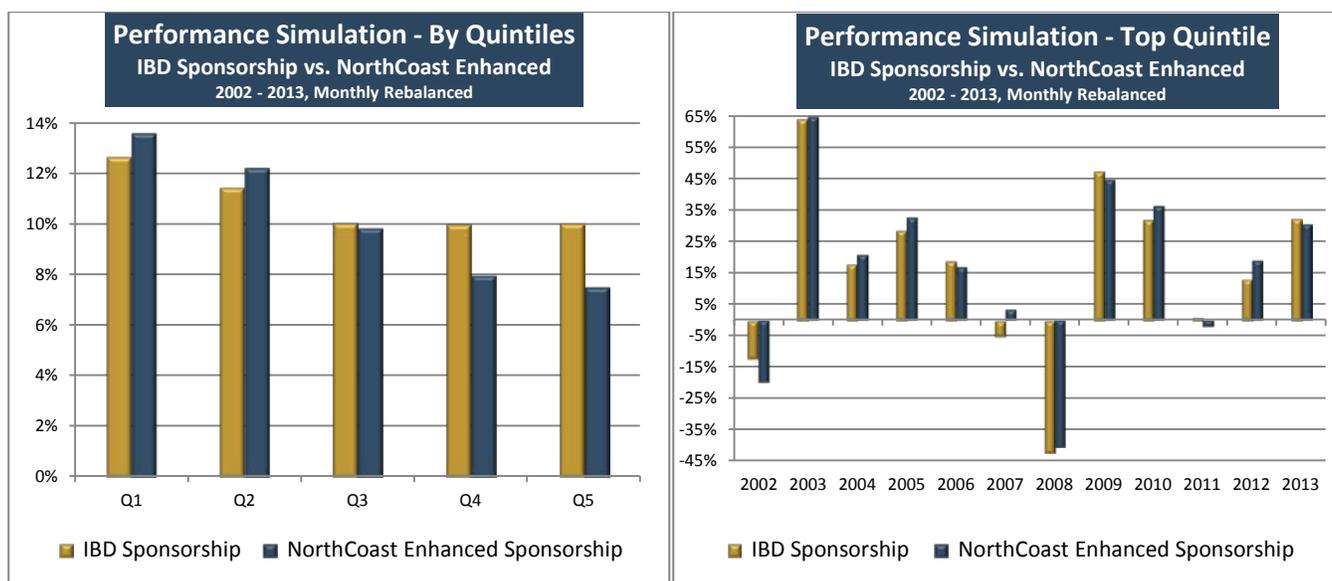
## Institutional Sponsorship

Another important aspect of stock picking to consider is the attention factor: if a tree falls in the forest and nobody heard it, did it really fall? In the past, looking at institutional holdings would help quantify this concept and consider this tailwind when picking stocks. However, since then the passive mutual fund has become a dominant fixture and made this data much less informative. Further, the adoption of ETF investing by institutions has quickened the pace – do we really need to wait for weeks after the close of the quarter until 13F disclosures are made to consider action? Another proxy for this concept of identifying whether a stock has institutional appeal and support is to look at how many analysts have revised their estimates on a company’s earnings upward or downward: the Analyst Revision strategy.

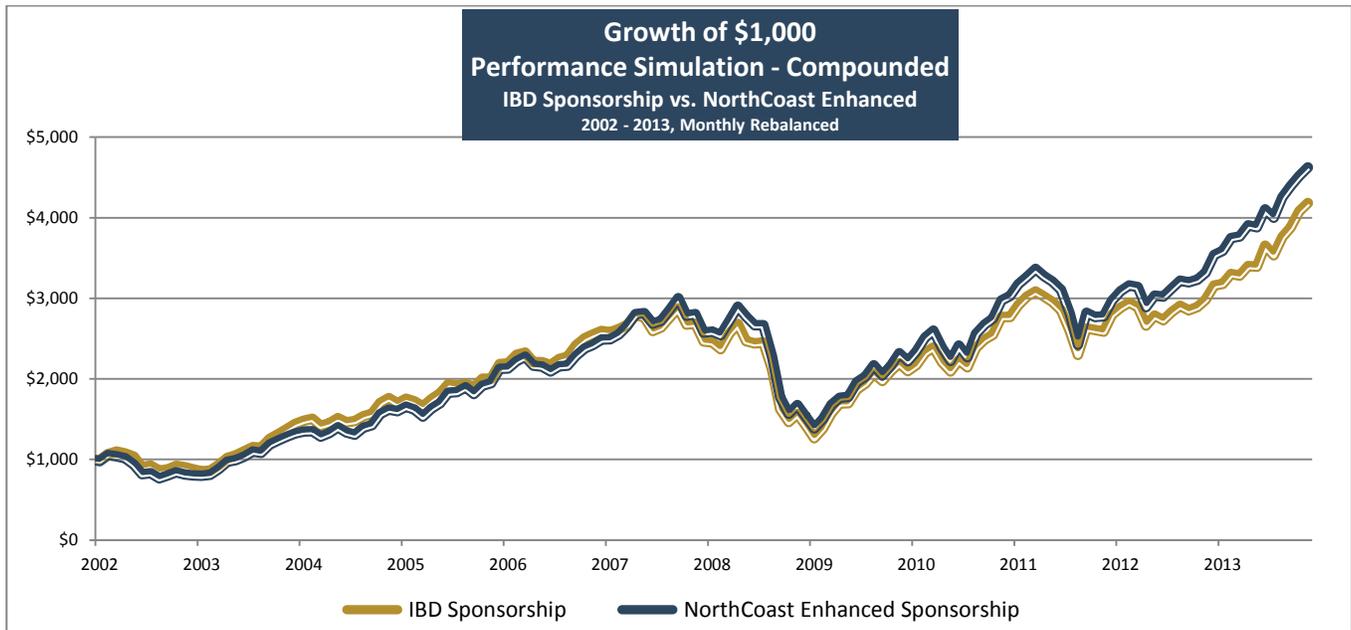
Sell side analysts have a solid incentive to obtain and relay the best information, but also have biases for which the information needs to be adjusted. They also provide real time information regarding the professional pools of money – insiders, hedge funds, and endowments – that may be increasing or decreasing interest in a stock. Decrypting this information provides a complement to the older, conventional methods of measuring institutional support and has proven quite profitable in the recent past.

*“Do we really need to wait for weeks after the close of the quarter until 13F disclosures are made to consider action?”*

Therefore, for this test we take our enhanced institutional score and compare it to the IBD Institutional Sponsorship rank. The Institutional Sponsorship rating evaluates the mutual funds that own a stock and assigns a higher rating to stocks heavily owned by the top-performing funds. It also factors in whether top-rated mutual funds are buying or selling a stock. The IBD rank is graded on a scale of A to E with A being a strong ranking and E a weak one.



**The charts above show that utilizing NorthCoast’s enhanced metrics have a beneficial impact on total and yearly quintile returns. Even though there are years conventional metrics outperform, the long-term record of the enhanced metric validates its effectiveness across multiple market cycles.**



	IBD Sponsorship	NorthCoast Enhanced Sponsorship
<b>First Quintile Average Annual Return</b>	12.7%	13.6%
<b>Simulated Cumulative Performance</b> (starting with \$1,000)	\$4,181	\$4,625

## Market Direction

The most important factor in the CAN SLIM<sup>®</sup> system is the final letter – market direction. Since 75% of all stocks will follow the market’s general direction, it is critical to first determine your optimal market exposure before exercising any stock selection routine. In June of 2012 we published a whitepaper called “Cash Scaling” which is publically available on our website. In it we detail our methodology for navigating market direction and equity exposure. Because this stock selection paper specifically covers the analysis of individual stocks, we will not discuss the “M” element of the system. To read the NorthCoast Cash Scaling Whitepaper, visit <http://www.northcoastam.com/whitepaper-cash-scaling.pdf>.

## CAN SLIM<sup>®</sup> – putting it all together

Now the fun starts. How do these independent factors work together? Is the sum of the parts greater than any individual score? We will now take these factors and combine them into one composite score which will evaluate a stock from multiple perspectives. To cut to the chase, our research demonstrates that stock selection using this multi-factor approach is very powerful. It is best to demand that a stock be balanced – attractive earnings, sustainable relative strength, quality management, and broad institutional support.

There are two main reasons why they complement each other: the first is that each factor targets a different aspect of a firm and a complete picture of each company is necessary before investing -

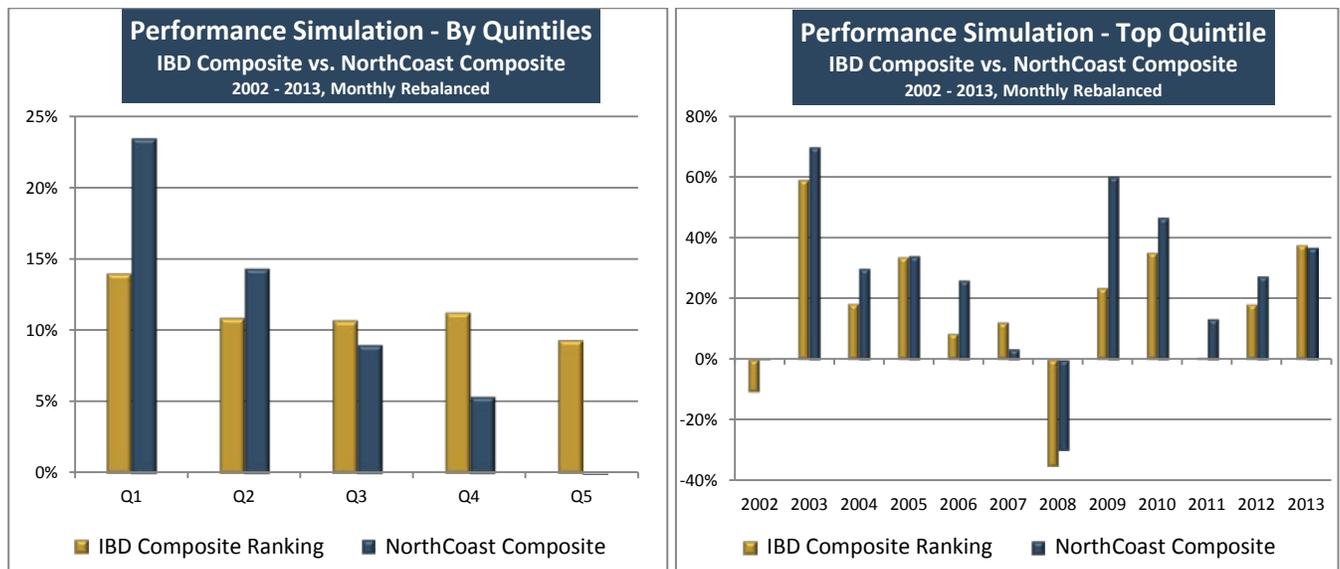
weighing as many pros and cons before making an investment decision. The second is that these investment techniques work at different time horizons. When used in combination they try to identify a stock at a good entry point to manage the short-term downside with solid mid-term attributes to drive appreciation, and finally, good long-term characteristics to continue supporting the stock while waiting for an exit point.

*"Across every money management metric, our enhanced scoring process has delivered solid gains."*

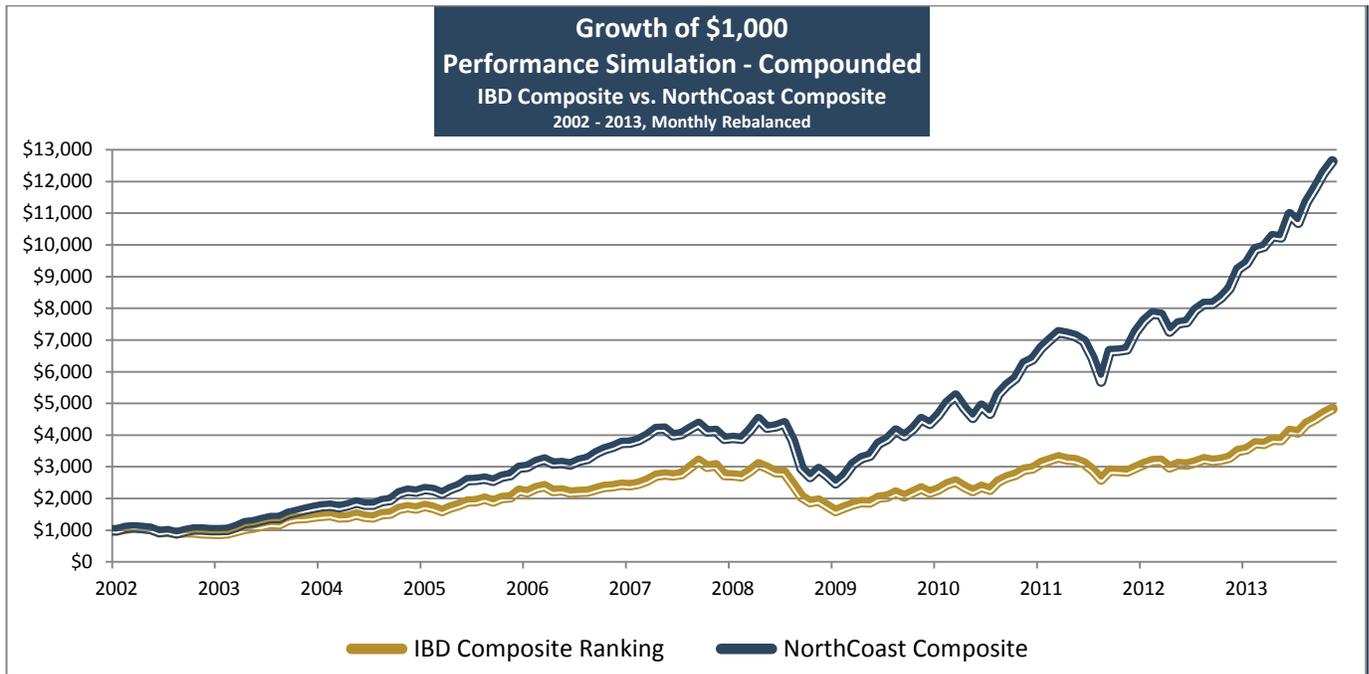
A commonly used verification method is the creation of a correlation matrix, which ranks (-100% to +100%) how closely the concepts are related. Ideally, we want the concepts to have negative or zero correlation between each other. As you can see below, the highest cross correlation is between I and N (61%), while the lowest is between C/A and L (-21%), and the average cross-correlation is 29%, which shows little correlation.

		C/A	N	S	L	I
		Earnings Growth	New Product	Supply and Demand	Leading Indicator	Institutional Attention
C/A	Earnings Growth		30%	-1%	-21%	-7%
N	New Product	30%		39%	38%	61%
S	Supply and Demand	-1%	39%		47%	46%
L	Leading Indicator	-21%	38%	47%		60%
I	Institutional Attention	-7%	61%	46%	60%	

IBD has also combined factors into a single Composite score for many years. Over 6,000 stocks, every day, are ranked from 1-to-99 based on their aggregate scoring. Its RS and EPS ranks heavily influence the score. On a weekly basis, it publishes the top 50 stocks that carry the top Composite ranking of 99. For this test, we will show our enhanced Composite score vs. IBD's Composite ranking.



**Combing the signals into a composite score results in consistent and superior performance in the top quintile of the universe. Yearly performance demonstrates significant outperformance year over year validating the composite score throughout multiple market cycles**



	IBD Composite	NorthCoast Enhanced Composite
<b>First Quintile Average Annual Return</b>	14.0%	23.5%
<b>Simulated Cumulative Performance</b> (starting with \$1,000)	\$4,825	\$12,637

Here, as with the other tests, we see performance and consistency. Better hit rates, lower drawdowns, lower turnover, and less volatility – all good things. Stocks evaluated using sustainable earnings growth, adjusted for their beta and industry, with shareholder-friendly management teams and positive analyst sentiment significantly outperform those evaluated based on simple earnings and price filters.

## CAN SLIM<sup>®</sup> in Practice

Using this rigorous method, we score our stocks every day and rank each factor along a normal distribution from -3 to +3 (less attractive/more attractive). Then we combine these ranks into one Composite score (final reward to risk ratio).

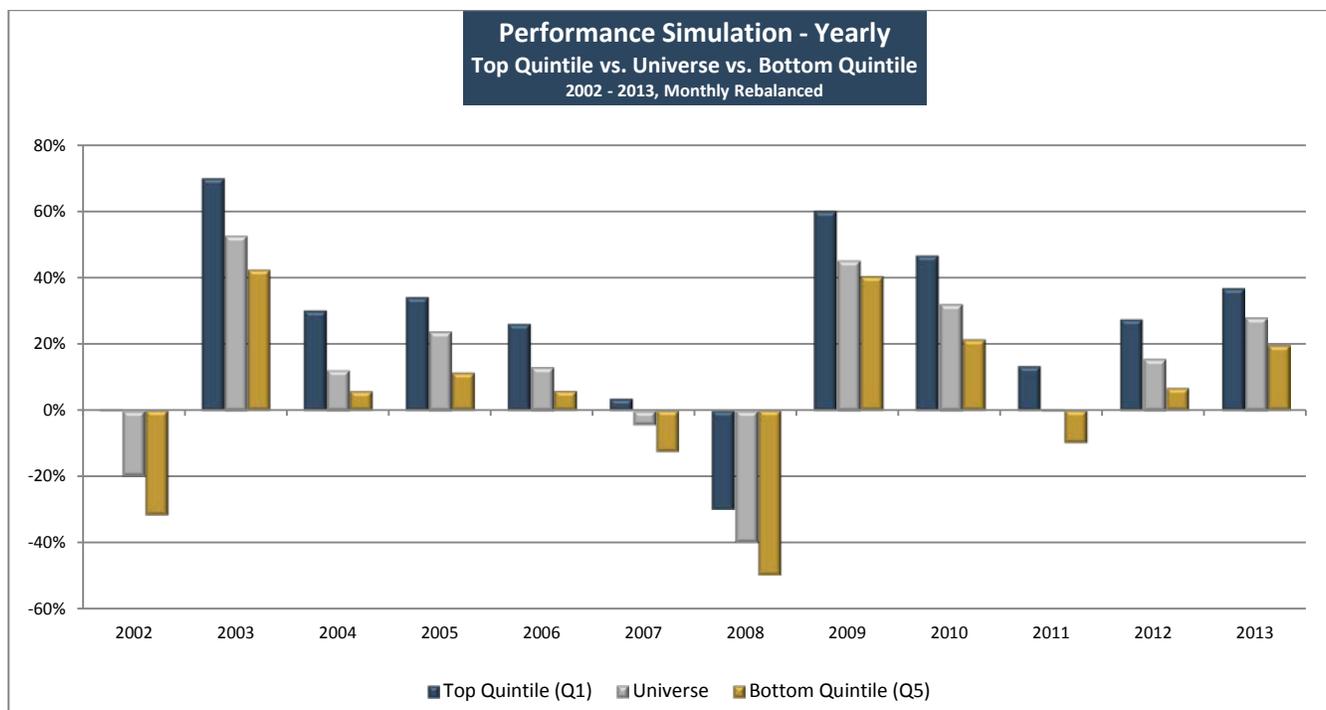
Let's look at an example here, which was a real trade in the portfolio. On May 30<sup>th</sup>, 2013, GME versus BBY: two specialty retail companies.

Going through our enhanced attributes, we can see that GME had more growth than BBY, better managed growth, was at a good entry point with positive sentiment from analyst/hedge funds/insiders and was in a leading peer group. These factors painted a different picture than the classic IBD criteria and, in this circumstance, paid off handsomely.

	Bed, Bath, & Beyond (BBBY)			GameStop (GME)		
	IBD Ranking	NorthCoast Enhanced Ranking		IBD Ranking	NorthCoast Enhanced Ranking	
EPS	89	-0.7		66	1.3	
RS	54	0.5		92	0.4	
Acc/Dist	C	0.0		E	2.3	
Group RS	50	-1.6		2	1.0	
Institutional	C	-1.6		C	-0.7	
Composite	<b>92</b>	<b>-1.6</b>		<b>72</b>	<b>+2.1</b>	
Summary Analysis	<ul style="list-style-type: none"> <li>Trading at a higher multiple than historically</li> <li>Earnings outlook is deteriorating</li> <li>Recent appreciation has been in line with the market</li> <li>Belongs to a weak peer group</li> <li>Hedge fund sentiment is negative</li> <li>Company's growth is not well managed</li> </ul>			<ul style="list-style-type: none"> <li>Generating similar profit to its peers</li> <li>Improving earnings outlook</li> <li>Sentiment is neutral from analysts</li> <li>Recent stock weakness provides great entry point</li> <li>Belongs to a strong peer group</li> <li>Hedge fund sentiment is positive</li> <li>Growth is well managed</li> <li>Management is buying back shares</li> </ul>		
Performance Since 05/30/2013	1 Month <b>2.7%</b>	3 Months <b>6.7%</b>	6 Months <b>12.9%</b>	1 Month <b>26.5%</b>	3 Months <b>51.9%</b>	6 Months <b>46.0%</b>

Individual securities are for illustrative purposes only and NCAM may not recommend this position at the time of publication.

This is just an example. We believe it is more important to look at the track record of this stock selection model over the past decade when considering a broader universe. We have measured the performance of the top 20% stocks versus the bottom 20% stocks as well as the rest of the universe. If the markets were efficient, the performance of the top quintile and bottom quintile in our rankings would be the same over time. But that is not the case: year after year the top 20% ranked stocks outperform the entire universe and the bottom 20% stocks with a very strong level of statistical significance.



## Sell Stops

The final test for this paper is somewhat of an addendum to stock selection but an issue on which we still wanted to provide data and clarity. It examines the effectiveness of a trademark element for any CAN SLIM<sup>®</sup> investor – the sell stop. For years CAN SLIM<sup>®</sup> proponents have touted the benefits of a 7-8% sell stop as a risk control. Often they combine it with the merits of being fully invested in only 5-7 stocks.

Since 2005, we have vocally supported a more flexible strategy and the data on the subject has always been clear. Wider stops are indeed better. First, price volatility is different today than it was 30 years ago. The players and their objectives have also evolved. With the emergence of traders and hedge funds, we are no longer seeing 3-4% daily ranges but rather 8-12% moves across institutional quality growth names.

Second, consider diversification. Sell stops can be critical in highly concentrated portfolios where each individual stock has a greater impact and one stock can really hurt you. If you have \$100,000 equally invested in 5 stocks, you have \$20,000 positions in each stock when fully invested. If you took a 25% loss on one position, that equals a \$5,000 loss or 5.0% of your total portfolio. That same stock declining 25%, when part of a 30 stock portfolio, would only result in a 0.8% drop.

This kind of loss can happen even when using tight stops like -8%. Consider a growth stock like Twitter which has 7-8 % moves every week. A concentrated investor who sold TWTR at -8% when he was stopped out – then bought again when the stock rebounded – could see himself stopped out again the next week creating an -8%, -8%, or -16% combined, which adds up quickly. Holding through this volatility avoids these downside risks.

We are offering an institutional quality portfolio and as such, we are more concerned about outperforming investment alternatives over time than beating the market this quarter or this year. Concentration lends itself to fat tails and wide-spread outcomes. Good ones: few people will complain. Bad ones can change lives. Our CAN SLIM<sup>®</sup> portfolio is designed to deliver superior, full cycle (which means 4-5 years) performance and utilizing wider stops helps to achieve that objective. The results of the following table demonstrate this:

	Performance Simulation Sell Stop Percentages 2001 – 2013				
	8% Stops	10% Stops	15% Stops	20% Stops	30% Stops
Annualized Return	16.2%	16.3%	17.3%	18.4%	17.7%
Annual Standard Deviation	21.3%	21.5%	21.9%	22.6%	22.9%
Relative Daily Drawdown	-21.3%	-21.0%	-23.9%	-17.2%	-18.2%
Number of Trades	1797	1604	1339	1214	1064
Average Days Held	69	78	97	108	125
Turnover Rate	3.75	3.35	2.79	2.47	2.18
Information Ratio (IR)	1.26	1.31	1.42	1.56	1.51
Sharpe Ratio	0.76	0.76	0.79	0.82	0.78
Profit Factor	1.7	1.7	1.83	2.1	2.23

Wider stops lead to a higher annual rate of return with similar volatility, better drawdowns, higher Sharpe ratios, and of critical importance, *significantly less turnover*. Less turnover also means more money in your pocket as transactions costs and slippage add up over time. More flexible stops also prove worthy across key money-management metrics such as Information Ratio, which highlights the portfolio returns above the benchmark's performance to the volatility of those returns, a key factor in assessing the amount of risk taken to garner performance. This is why in the past our portfolios utilized sell stops ranging between 5%-16% with more volatile stocks around 20%, and why we'll continue to apply this important tactic moving forward.

Another arrow in our risk management quiver is *position sizing*. When dealing with a losing stock, we prefer to get stopped out of a position that represents 2% rather than 4% of the portfolio. So, similar to playing poker, managing the betting size can lead to better risk-adjusted returns over time. In the future, our portfolios will increasingly use this enhancement. Instead of always initiating a new stock at a 3.3% weighting, we will manage our opening weights between 1-4% after adjusting for volatility and expected return. This process falls into the larger topic of portfolio construction – how we assemble a portfolio of stocks that complements each other – which will be discussed in our next whitepaper. Much like the Colts drafted two offensive linemen and a wide receiver to complement the skills of Andrew Luck, portfolios of stocks can be constructed in the same manner – buying an industrial company into a technology heavy portfolio can be very additive.

## Conclusion

Researching, analyzing, and then adapting to change is an endless effort that separates high caliber investment companies from the rest. We have made great strides in testing and enhancing each aspect of the CAN SLIM<sup>®</sup> stock selection process. Across every money management metric (absolute return, Sharpe ratio, drawdown, volatility, and alpha), our enhanced scoring process has delivered solid gains. Consider the parallel of “speed” at the annual NFL Combine; what was once determined solely by a 40-yard dash is now measured by a 40-yard dash, with intervals clocked at 10, 20, and 40 yards, a 3-cone drill, and a 20-yard and 60-yard shuttle run. All gathered to more effectively measure the overall speed and agility of a player. The same level of scrutiny can be applied to stock selection.

We hope that this paper explained and provided some insight into the motives and data behind those improvements. We believe that our effort and ability will pay off in the future for our clients in the form of better risk-adjusted returns. It is our fundamental belief that a thoroughly researched, robust investment process that is implemented with discipline and consistency will outperform markets over time. And with our CAN SLIM<sup>®</sup> Investment Program, we believe that is exactly what we have.

## Disclosure Information

Past Performance is not indicative of future results.

Hypothetical performance results have many inherent limitations. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact there are frequently sharp differences between hypothetical performance results and actual results subsequently achieved by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of hypothetical performance results, all of which can adversely affect actual trading results.

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### **Testing Methodology Description**

Running a test starts with assuring clean data. Financial data can have spotty historical coverage, be burdened by outliers, restated, or time stamped before the data was actually available. We are familiar with those issues and appropriately lagged and adjusted our data to build the indicators.

### **Definitions**

**Earnings Per Share (EPS):** The portion of a company's profit allocated to each outstanding share of common stock. Earnings per share serves as an indicator of a company's profitability.

**Relative Strength (RS):** A momentum investing technique that compares the performance of a stock, exchange-traded fund or mutual fund to that of the overall market. Relative strength calculates which investments are the strongest performers, compared to the overall market, and recommends those investments for purchase. Relative strength is a "buy high, sell higher" strategy that assumes a stock whose price has been rising will continue its upward trajectory.

**Accumulation/Distribution (Acc/Dist):** An indicator that tracks the relationship between volume and price. It is often considered a leading indicator because it shows when a stock is being accumulated or distributed, foreshadowing major price moves.

**Beta:** A measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. You can think of beta as the tendency of a security's returns to respond to swings in the market. A beta of 1 indicates that the security's price will move with the market. A beta of less than 1 means that the security will be less volatile than the market. A beta of greater than 1 indicates that the security's price will be more volatile than the market. For example, if a stock's beta is 1.2, it's theoretically 20% more volatile than the market.

**Alpha:** A measure of performance on a risk-adjusted basis. Alpha takes the volatility (price risk) of a security and compares its risk-adjusted performance to a benchmark index. The excess return of the security relative to the return of the benchmark index is a security's alpha. A positive alpha of 1.0 means the fund has outperformed its benchmark index by 1%. Correspondingly, a similar negative alpha would indicate an underperformance of 1%.

**Sharpe Ratio:** A ratio developed by Nobel laureate William F. Sharpe to measure risk-adjusted performance. The Sharpe ratio is calculated by subtracting the risk-free rate - such as that of the 10-year U.S. Treasury bond - from the rate of return for a portfolio and dividing the result by the standard deviation of the portfolio returns.

**Information Ratio:** A ratio of portfolio returns above the returns of a benchmark (usually an index) to the volatility of those returns. The information ratio (IR) measures a portfolio manager's ability to generate excess returns relative to a benchmark, but also attempts to identify the consistency of the investor.

**Turnover:** The percentage rate at which a mutual fund or exchange-traded fund replaces its investment holdings on an annual basis. Turnover is meant to adjust for the inflows and outflows of cash and report on the level of trading activity in the fund.

Any and all "IBD" or "CAN SLIM®" definitions can be found at the Investor's Business Daily's website, [www.investors.com](http://www.investors.com)