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Why Behavioral Finance Is Important at Hillcrest Asset Management: Q&A with Brian Bruce and Doug Stark

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Brian Bruce and Doug Stark founded Hillcrest in October 2007 to combine their expertise in behavioral finance and equity portfolio management. Both Brian and Doug are recognized experts in the use of behavioral finance and its application to investment management.

Why does Hillcrest emphasize the importance of behavioral finance in stock selection and portfolio management?

Unlike many other managers, Hillcrest utilizes behavioral finance methods in each step of our process. It forms the foundation of our investment philosophy; and guides us as we analyze each company's valuation, growth, sentiment and fundamentals.

Our research has demonstrated that stocks follow the same behavioral cycle of greed and fear that the broad stock market follows. Unlike textbook theories, stocks rarely trade at fair value. Instead, they trade below fair value generally in reaction to poor economics in the firm; and trade above fair value, when good things are happening while experiencing a growth phase. Hillcrest is vigilant in its use of this cycle and buys when a stock is attractively valued, with good growth prospects. It is how we implement this philosophy using behavioral insights that differentiates our approach.

We take advantage of behavioral biases in constructing our proprietary valuation analysis. Most investors look only at an absolute valuation using ratios like P/E, P/EV or discounted earnings over price. The problem with these simpler methods, for example, is that small cap valuations are non-linear due to a higher percentage of small cap companies going out of business. We construct non-linear valuation metrics that consider more subtle effects. In our fundamental analysis, we look for market over and under reaction to news and information flows from the company. We are able to differentiate between under/overreaction and develop a proper response to new information.

Next we consider growth prospects. Our growth analysis takes into account two behavioral effects: expert overconfidence and the base rate effect. As you know, analysts are the apparent experts who are paid to provide recommendations on companies. Our methods adjust for the inevitable overconfidence which occurs among analysts. Analysts fall victim to the base rate bias.

The base rate of analyst accuracy can be seen in an update of a classic study that looked at analyst's quarterly forecasts and compared them to the actual earnings reported from 1973

1973 through 2010. Estimates were made by analysts in the previous 3 months and analysts could revise their forecasts up to 2 weeks before the end of the quarter. In all, 216,576 consensus forecasts were used. The results were startling. Analysts' estimates were sharply and consistently off the mark, even though they were made less than 3 months before the end of the quarter for which actual earnings were reported. The average error was a whopping 40% annually. With this knowledge, our estimates of future growth rely on a variety of factors and not simply analyst forecasts.

A key to Hillcrest's successful process is the use of behavioral sentiment. We were pioneers in creating one of the first global behavioral models of analysts utilizing earnings estimate data. The basis for our sentiment work is discussed in the book *Analysts, Lies, and Statistics*, which Brian co-authored with former Harvard Business School professor, Mark Bradshaw. Our sentiment analysis finds turning points in a stock's behavioral cycle and signals us to buy and sell at the optimal time.

In our portfolio construction we avoid the behavioral effect called "framing" in our portfolio construction. Framing is when you form a judgment based on how you view the data or how it is presented. We do not view risk as historical covariances or correlations. We do not expect that the correlation between a stock and the benchmark during the past three years, will be the same during the next three years. This leads us to control risk by looking at other factors. We look at deviations of sectors, industries and stocks relative to the benchmark. We all look at portfolio characteristics and BARRA/Northfield style factors to make sure that we do not take variations from the benchmark unless we have a forecast or alpha.

Critics of behavioral finance point out that, though interesting, it is difficult to apply these theories to actual money management. How to do you respond? How do you apply these behavioral finance theories to actual money management at Hillcrest?

Our approach is based on our research and our proprietary modeling that creates an investment process which properly judges fundamentals and sentiment for each stock. We analyze the market specifically looking for those instances, or factors, where human judgement – behavior – plays a large component. An example is our research on analyst's estimate revisions, where the expectation is that the changes in estimates should be quickly incorporated into stock prices. Our research has determined that estimate revisions are still adding value for months after the estimate was made. The best explanation for this discrepancy is that analysts make numerous behavioral mistakes including "Anchoring and adjustment" and "Representativeness", thus allowing us to use the data to show solid performance over many years.

Can you offer an example of a behavioral effect that your methods capture?

We have done extensive research and found that growth in the future is best predicted by combining historical growth and expected growth. We use annual earnings information looking two years back and two years forward (using analyst's estimates). This provides us with an estimate of the annual growth rate of the company. We modify the factor (a process we call adapting), by an analysis of how consistent the growth rates have been, as we would prefer companies with steady growth. We do this by giving a bonus to the companies with consistent yearly growth over the four year time period, and a penalty to companies with highly variable growth rates. Essentially we are answering two questions: what is the effect and how would others value it?

How long will Hillcrest be able to exploit such opportunities?

Behavioral Finance takes advantage of decision errors and behavioral biases of investors. Interestingly, these errors are often repeated. A great example of this is the value effect. Value works over long periods of time because it doesn't work over every time period. Despite the evidence first produced in 1962, and repeated in thousands of studies up to today, investors still fall victim to the base rate bias. Investors often ignore the base rate (the long term returns to value stocks) when making investment decisions. The problem is that behavioral errors are built into our genes. We have millions of years of evolution as hunter/gatherers where many of these behavioral biases were actually advantageous. However, we have had only a few generations as investors watching computer screens to overcome millions of years of evolution.

How do you incorporate behavioral finance methods into your risk management processes at Hillcrest?

Others managers fall victim to the framing effect, where you frame your outlook based on how information is presented. The classic example is using historical data to determine risk in portfolio. You frame expectations of future risk based on the past. The problem is when the future is not like the past and, unfortunately, this occurs more often than not.

Hillcrest does not use past data to determine future risks. Instead, we realize that risk is relative to the benchmark and make sure that any bet relative to the benchmark is intended. We look at the weights of sectors, industries and stocks along with characteristics and BARRA/Northfield style factors to insure that bets relative to the benchmark are where we produce alpha.

Are the small cap stocks you hold participating in the globalization of equity markets now?

Some are and some are not. We look for good companies with the best valuations. Sometimes those good companies are global and sometimes they are not. We own stocks like Atlas Worldwide (AAWW) that ships globally and is growing due to the globalization of the economy, however we also own companies like Sirona Dental and Sonic Automotive that derive revenues solely from the U.S.

How important is fundamental research in your selection of stocks?

It is critical, and as such, all members of the investment team are involved in the research process. We break our research into two areas: Quantitative and Fundamental.

The Quantitative research focuses on areas where our expertise in behavioral finance finds opportunities to discover profitable companies across the entire universe of potential investments. The Fundamental research is ongoing and focuses on companies already in the portfolio, and those companies that are attractive in the quantitative process. The Fundamental research focuses on specific companies looking for data items that cannot be accurately measured by the quantitative process and a determination of the true growth possibilities of the firm.

The members of Hillcrest's investment team that have been doing quantitative research for over 20 years, and have found that many of the basic ratios and factors have been arbitraged past the point of being profitable. We thus focus most of our energy on finding new ways to look at investment ideas. We call these adaptive factors. The adaptive factors start with basic value, growth or sentiment factors and then "adapt" them to more accurately reflect a behavioral change or market principal. The adaptive changes are usually combining multiple factors to create one adaptive factor, or using only the portions of the data (usually the tails of a distribution) that have predictive powers. But in the end, our model allows us to determine if the company is a good investment and is appropriate for further analysis.

Once we identify a list of promising companies, fundamental analysis helps us pick the best ones. Our fundamental research is very specific to individual companies and sectors. Each company that we review, because it is in our portfolio or ranked highly in our quantitative process, requires a unique set of data inputs. For example; a fast growing oil exploration company will require an analysis of drilling rigs, success ratio of exploration and analysis of future production, In contrast, a health care company will require a very different set of data items. The data sources are usually found from Factset, company reports, analysts' reports, internet search, financial papers, academic research, company presentations, and earnings call transcripts. We do not visit companies as we have found this to cause many behavioral problems associated with representativeness and anchoring and adjustment.

After the fact, we also do a comprehensive attribution analysis to determine the areas where we produce our value added. We have been doing attribution from inception and have found that over long time periods, about half the value comes from the quantitative process identifying the best investments, and about half from our analysis of fundamentals.

Is there an example where you found behavioral finance useful as a guide to stock selection?

While behavioral finance is engrained in everything we do, it is especially valuable in security selection as our understanding of the subject provides insight on how and where market irrationality has resulted in mispriced opportunities. A great example of how we leverage our expertise in behavioral finance can be seen in Sirona Dental, one of our former healthcare holdings. In 2009 as the economy started to emerge from the recession, investors priced this company for declining growth despite its best-in-class dental technology and demographic tailwinds. During this time many analysts and news outlets panned the dental industry with warnings that spending on nonessential dental work would remain soft and be a major headwind to industry participants like Sirona. In a Barron's article penned in June 2009 titled "The Dental Industry Gets a Toothache", a grim picture of the space was painted with one analyst interviewed saying "I just don't see a catalyst right now." However, Hillcrest's inclination for pragmatic and contrarian thinking resulting from an understating of behavior led the portfolio team to instead have an optimistic view of Sirona's investment merits. This was an example of a classic cognitive bias, the Recency bias, in which investors overweight the most recent data and extrapolate these conditions into the future. Our quantitative process often serves to highlight opportunities created by such behavioral errors that result in a stock's price falling to levels not indicative of the company's growth prospects and current fundamentals. Hillcrest's belief that the company had been attractively mispriced was further reinforced by the portfolio management's fundamental analysis that concluded that investors were ignoring a cutting-edge company being priced at depression spending levels despite a great long term outlook. Focusing on fundamentals in an emotional environment, we entered into a position in Sirona after the stock fell from $30 to $11 per share. Our view found quick validation and after years of strong performance, in 2014 at $80 per share the stock had finally begun to once again trade near historical valuation multiples. While some managers would have likely exited the position at this point, we once again benefitted from our behavioral insight as we understand how market sentiment can drive stock prices beyond fundamental valuations. This can be evidenced by an article published in 2014 by CNBC titled "Dental Stocks are Mint Right Now" that included optimistic commentary about consumers, the aging population needing dental work, and the value of high-tech dental equipment

– prospects underlying our thesis years before. A little over a year later we finally exited our investment in Sirona at $104, having ridden the full behavioral cycle.

To summarize, how does your use of behavioral finance create advantages over your competition?

Our use of behavioral finance in our strategy and methodology create numerous advantages over our competition. We use a sophisticated behavioral screen to find the companies with the best investment characteristics. Our analysis shows that the 10% of companies that pass this screen outperform their sector over time. Our fundamental analysts are then choosing from a superior group of companies relative to the benchmark. Our focus on behavioral finance allows us to avoid behavioral errors common in the industry such as commitment bias which shows itself as analysts falling in love with their choices, and loss aversion which is displayed by analysts refusing to sell losing positions. Our risk control is different than other companies in that we neutralize those factors that we cannot or do not predict but that may impact the portfolio, such as size or sector performance. Lastly, we do comprehensive attribution analysis of our stock choices and factors used to pick securities so we know from where our performance is derived. We test all factors before adding them to our process so we do not fall victim to "rules of thumb" that have no basis in fact.

Brian R. Bruce, CEO and Chief Investment Officer

Brian is the CEO and Chief Investment Officer of Hillcrest and oversees all business and investment activities at the firm. Before founding Hillcrest, Brian was Chief Investment Officer in charge of equity management and research at PanAgora Asset Management. Previously, Brian was President and Chief Investment Officer of InterCoast Capital and worked at State Street Global Advisors, the Northern Trust Company and Stein Roe & Farnham. Brian received his MBA from the University of Chicago, an MS in Computer Science from DePaul University and a BS in Business Administration from Illinois State University. He is a member of the Illinois State University College Business Hall of Fame and is a recipient of the University of Chicago's Graduate School of Business CEO Award. Brian has published numerous scholarly articles and books including *Analysts, Lies, and Statistics*, which he co-authored with former Harvard Business School professor Mark Bradshaw. He is also the Editor of the *Journal of Investing* and the *Journal of Behavioral Finance*.

Douglas E. Stark, Managing Director, Portfolio Management and Research

Doug is a partner at Hillcrest and focuses on the firm's research and portfolio management. Prior to Hillcrest, he was a Partner, Senior Vice President, and Director of Research at Martingale Asset Management. Prior to joining Martingale, Doug was a Senior Vice President and Portfolio Manager at InterCoast Capital Company, where he developed a stock selection strategy and created a risk management process for an active U.S. equity portfolio, an active international portfolio, and an emerging markets portfolio. Doug started his career at State Street Global Advisors in 1990, where he was a Vice President and managed international stock portfolios and active currency overlays. He received an MBA in finance and international business from Columbia University, where he graduated with honors, and a BS in Business from Arizona State University. He is a CFA charterholder.

About Hillcrest Asset Management

The Hillcrest Portfolio Team utilizes their combined behavioral finance expertise to create all client portfolios. Hillcrest remains guided by a fundamental belief that stocks deviate from their fair value due to behavioral biases and stocks follow the behavioral cycle of stock movements. We combine model-driven behavioral analysis with traditional fundamental research to build on the strengths of both approaches. Our goal is to add value equally through both behavioral models and fundamental stock research. Results reflect Hillcrest's expertise in successfully utilizing these concepts in the portfolio management process.

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