Dear Fellow Members:

At our forecast luncheon on Jan. 25, we recognized forecast winners in several categories:

• Debbie Stipkovich, CFA, KeyBank—S&P 500
• Donald Saxton, CFA, Sisters of Charity Health System—NASDAQ Index and Interest Rates
• Stephen Baumgarten, CFA, Morgan Stanley Smith Barney—Nymex Oil
• Bo Gao, CFA, KeyBank—Gold

Note that Donald Saxton and Bo Gao are both repeat winners (and truly great forecasters)!

Our leadership team for the CFA Society of Cleveland changes every year, and a new team will come on board on July 1, 2012. If you are interested in serving your professional society for a year or two, let’s talk. Please e-mail CFA@cleveland.cfasc.org with a brief comment about yourself and your areas of interest.

Best regards,

Chenchu Bathala, Ph.D., CFA
President, CFA Society of Cleveland

Five Lucky Charterholders Will Be Honored – You Could Be One of Them!

Who says there’s no free lunch? You could receive that and much more if you volunteer to judge equity research presentations by five competing college teams on Saturday, March 3, from 10:00 a.m. to 2:00 p.m. No experience is necessary – you and four fellow judges will be given an easy-to-use grading template and other tools to make the grading process as fun as possible. Not only will you get to work with high-caliber Charterholders such as yourself, but you will also meet bright college students and interesting finance professors, and serve the greater good by helping future investment professionals learn the ropes. Plus, you’ll get more respect than you get on weekdays, and take home lots of free stuff and insights. Don’t miss out – contact Greg Halter at ghalter@greatlakesreview.com to volunteer!
Upcoming Programming Highlights

Aerospace and Defense Panel  
Feb. 15, 2012

With the Debt Supercommittee’s failure to reach an agreement on budget cuts, the spending cuts imposed by the recent debt-ceiling deal could have a major impact on the Defense and Aerospace industries. Some are estimating the U.S. Department of Defense budget could be cut by more than $1 trillion. A reduced national defense budget could have significant ramifications for the industry and related research, especially in Ohio, which boasts two aerospace-related federal research laboratories, numerous aerospace-related companies with operations, and several universities with Ph.D. and research programs in aerospace-related fields. Here to provide clarity and guidance on the outlook for the industry is a panel of experts, each of whom has a unique and compelling perspective to share:

Moderator: Michael Ciarmoli, Senior Analyst - Aerospace and Defense, Keybanc Capital Markets  
Panelist: Jeff Rolf, VP Commercial Airframe Programs, Parker Hannifin Corporation  
Panelist: Ray Lugo, Executive Director, NASA Glenn Research Center  
Panelist: Michael Heil, President & CEO, Ohio Aerospace Institute

The panelists will provide their opinions and thoughts on many of the questions posed recently by the press and others covering the industry, including:

- How will the defense-related budget cuts affect smaller suppliers?
- How will large defense contractors respond?
- Will export-control reforms be put in place to make it easier for firms to compete overseas?
- Will the industry preserve a skilled workforce among cuts?
- Audience questions

For more details, please see the event flyer on page 3.

Gas Natural Inc. (AMEX: EGAS) COO, Kevin Degenstein, and CFO, Thomas J. Smith, will present their company’s financial position and outlook to CFA Society of Cleveland Members on Feb. 22. Gas Natural Inc. engages in the distribution and sale of natural gas to residential, commercial and industrial customers in Montana, Wyoming, North Carolina and Maine. The company distributes approximately 30 billion cubic feet of natural gas to approximately 63,500 customers through regulated utilities operating in Montana, Wyoming, Maine, North Carolina, Ohio and Pennsylvania. It also markets approximately 1.3 billion cubic feet of natural gas to commercial and industrial customers in Montana and Wyoming, and manages midstream supply and production assets for transportation customers and utilities. In addition, the company owns a 48% working interest in 160 natural gas producing wells and gas gathering assets. Furthermore, it owns the Shoshone interstate and the Glacier gathering natural gas pipelines located in Montana and Wyoming. The company was formerly known as Energy, Inc. and changed its name to Gas Natural Inc. in July 2010. Gas Natural Inc. was founded in 1909 and is headquartered in Great Falls, Montana.
IMPACT OF GOVERNMENT SPENDING CUTS ON THE AEROSPACE AND DEFENSE INDUSTRIES

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• How will large defense contractors respond?
• Will export-control reforms be put in place to make it easier for firms to compete overseas?
• Will the industry preserve a skilled workforce among cuts?
• Audience questions

Cost to Attend

CFA Cleveland Members - Complimentary
Guest of CFA Cleveland Member - $25
CFA Candidates - $25
Students - $10
Non-CFA Cleveland Members / Non-Candidates / Non-Students - $40

FOR MORE INFORMATION OR TO REGISTER, VISIT: HTTP://DEFENSEPANEL.EVENTBRITE.COM
**Upcoming Programming Highlights**

Lyster Watson’s Marc Freed, Mark Hurrell, and Ben McMillan will visit the CFA Society of Cleveland on Feb. 29 to present *Investible Benchmarks & Hedge Fund Liquidity*. Their presentation will be based on their opinion that “a lack of commonly accepted benchmarks for hedge fund performance has permitted hedge fund managers to attribute to skill those returns that may actually accrue from market risk factors and illiquidity. Recent innovations in hedge fund replication permit us to estimate the extent of this misattribution. Using an option-based model, we find evidence that hedge fund returns in excess of a benchmark may not even compensate investors for liquidity options they grant to managers when they accept restrictions on their right to redeem their investments. Coupled with the competition from hedge fund replication vehicles, this analysis may motivate hedge fund investors to demand relaxed redemption terms from hedge fund managers.”

Join us on March 7 as one of the most charismatic CEOs in the country offers a general company update targeted toward the investment community. Chris Connor, CEO & Chairman of The Sherwin-Williams Company, has served as chief executive of this multi-national company for more than 10 years. Perhaps more significantly, he is passionate about Cleveland and helping the community. He has offered his personal guarantee to maintain Cleveland as the headquarter city for The Sherwin-Williams Company. Mr. Connor is heavily involved in the community, serving on the Boards of Directors of the Greater Cleveland Partnership, The Playhouse Square Foundation, the Rock and Roll Hall of Fame, University Hospitals, and the United Way of Greater Cleveland.

The CFA Society is holding this event jointly with the Cleveland Area Alumni Chapter of Beta Gamma Sigma, a non-profit business honor society that provides professional development and educational opportunities to its 9,300 members in Northeast Ohio, who are accomplished professionals at virtually every major corporation in the region. We’d like to offer a special thanks to our event sponsor, PNC PREP (PNC Recognizing Emerging Professionals).

Computer Task Group’s (NASDAQ: CTGX) James Boldt, CEO, and Brendan Harrington, CFO, will visit the Society on March 14 to present their recent financial performance and outlook. Based out of Buffalo, NY, CTG develops innovative IT solutions to address the business needs and challenges of companies in several higher-growth industries, including healthcare, energy and technology services. As a leading provider of IT and business consulting solutions to the healthcare market, CTG offers hospitals, physician groups, and regional health information exchanges a full range of electronic medical record services. Additionally, CTG has developed unique, proprietary software solutions that support better and lower cost healthcare for the payer markets and the healthcare provider. CTG also provides managed services IT staffing for major technology companies and large corporations. Backed by nearly 45 years’ experience, proprietary methodologies and an ISO 9001-certified management system, CTG has a proven track record of delivering high-value, industry-specific solutions. CTG operates in North America and Western Europe.

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**Calendar of Events & Luncheon Meetings**

**Winter/Spring 2012**

**March 14**
Jim Boldt, CEO, and Brendan Harrington, CFO, CTG
NASDAQ: CTGX

**March 21**
Career Day
See page 6 for more details

**March 28**
Andy Hyer, Client Portfolio Manager
Dorsey Wright Money Management

**April 4**
David Oakes, CFO
Developers Diversified Realty Corp.

**April 10**
Happy Hour
More details forthcoming

To register for events, visit http://cfacleveland.eventbrite.com
Upcoming Programming Highlights

Investing In Your Career – Cleveland

On March 21, the CFA Society of Cleveland will host Investing In Your Career – Cleveland, a day of networking and career development education targeted to current and future investment and finance professionals in Northeast Ohio and surrounding areas, including CFA Charterholders, CFA Program Candidates, and business school students.

The event will feature sessions on the CFA Program, resume writing and interviewing tips, pointers on how to successfully network, a panel of HR representatives and hiring managers to answer the tough questions from attendees, a keynote speaker on the current labor market, and a final session allowing participants a chance to meet and network with representatives of local firms and recruiters over hors d’oeuvres and cocktails.

Registration for students will begin at 11:30 a.m., followed by a CFA Program presentation at 12:00 p.m., which students are encouraged to attend. Non-student participants should register prior to 1:00 p.m. The keynote speaker will take the stage at approximately 5:30 p.m.

Students will be provided with boxed lunches over the noon hour. Light appetizers and soft drinks will be available throughout the day, and cocktails and heavy hors d’oeuvres will be served during the keynote speaker and networking session.

For more details, please see the event agenda on page 6.

Don’t miss any CFA Society of Cleveland events!
Follow us on Twitter, LinkedIn, and Facebook:

www.twitter.com/cfacleveland
www.linkedin.com/company/cfa-society-of-cleveland
http://www.facebook.com/#!/group.php?gid=60376813622
Event Agenda

11:30 a.m. Registration opens (remains open all day)
12:00 p.m. CFA Program Presentation
   CFA Society of Cleveland Past President William Prebel will provide an overview of the CFA Program and will be joined by a panel of CFA Charterholders to candidly answer questions about the CFA Charter, CFA Program, or CFA Society of Cleveland.

1:00 p.m. Marketing and Selling Yourself – Creating a Winning Resume
   Susan Barens, multi-credentialed resume writer and owner of Career Matrix Group Ltd., will share key insights into writing a successful resume.

2:15 p.m. Networking and Making Connections for Career Success
   Renee DeLuca Dolan, the owner of Contempo Communications and publisher of Cleveland Business Connects (CBC), will offer strategies and tips for developing a professional network that makes a difference.

3:30 p.m. Job Search Strategy Uncensored (panel discussion)
   It is your turn to ask the tough questions. Moderated by Nitra Rucker, SPHR, MA Program Manager for KeyBank, four seasoned hiring managers and human resources personnel will discuss their interviewing experiences and insights as well as answer your questions about the recruiting process.

4:45 p.m. Keynote Speaker: Thomas Waltermire, CEO, Team Northeast Ohio
   Mr. Waltermire utilizes his skills and experience as a business leader to help the region’s employers grow here and to recruit medium to large companies in Northeast Ohio. Before joining Team NEO, Mr. Waltermire was Chairman and Chief Executive Officer of PolyOne Corporation headquartered near Cleveland, Ohio.

5:45 p.m. Cocktail and Networking Reception

Participating companies include:

Presented by CFA Society of Cleveland
(with special thanks to CFA Institute)

21 March 2012
on the grounds of Cleveland State University

INVESTING IN YOUR CAREER

Register today at http://careerdaycleveland.eventbrite.com
Member Spotlight: Past President Accepts a New Position

Warren Coleman, CFA, President of the CFA Society of Cleveland in 2009-2010, recently joined Fifth Third’s private bank as a wealth advisor. Warren’s business career began in the 1980s, when he ran West End Lumber, a family-owned distribution business. In 2001, he decided to go back to school for an MBA at Case Western Reserve University, and it was there he discovered the CFA program and the CFA Society of Cleveland.

Because the CFA program demands an unusual level of both self-discipline and intellectual achievement, Warren discovered there is a strong bond among Charterholders that makes our society very collegial. From the beginning, Warren was an active member of the CFA Society, and worked his way up to president in only a few years. During his terms as Program Chair and then President, the CFA Society initiated a popular series of purely social events for members to network professionally and get to know one another personally.

After completing his MBA, Warren worked in various investment-related roles serving a high-net-worth clientele. In his new position in private banking for Fifth Third, Warren will continue to work with the same client demographic, but will be able to offer a wide range of solutions delivered by a team of experts.

- Submitted by Ronald Petrie, CFA

Members on the Move

Andrew Schuler, CFA, is now Regional Investment Director, Senior Vice President at PNC Financial Services Group. He’s been with PNC, formerly National City Bank, since 2001.

Cleveland to Compete in Global Challenge

The CFA Society of Cleveland is participating in the CFA Institute’s Research Challenge (“CFAIRC”) with student teams from five area colleges and universities (Ashland, CSU, John Carroll, Findlay and Walsh) competing. The teams analyze a company acting as a sell-side analyst and create an initiating coverage report. This year, the subject company is RPM International, Inc. (RPM).

Each team will submit a report of up to 10 pages, excluding charts/graphs which can be placed in an appendix, which will represent 50% of the team score. The CFAIRC provides a report evaluation form to mitigate grading inconsistencies.

A month later, students will make a 10 minute presentation to a panel of judges with an additional 10 minutes allowed for Q&A, which will represent the other 50% of the team grade. The team with the highest combined score will go on to compete at the Regional Challenge on April 10 at the Grand Hyatt New York in New York City. If one of “our” school’s wins at the Regional event, they will advance to the Global Final, which will be held in New York on April 11, competing against the winners from the Asia/Pacific and European Regionals.

We need volunteers for both grading the written reports and especially for judging of the oral presentations.

Teams submit their reports by Feb. 10, 2012, allowing graders two weeks to read and score reports. We would like to have four to six graders of the written reports.

Teams will make their presentations on Saturday, March 3, 2012, starting at 10:00 a.m. and ending no later than 2:00 p.m. We need volunteers for judging, and would like to have five. As per the rules, judges must be investment professionals with experience in writing and reviewing research reports; however, they do not need to be Charterholders.

Please let me know if you are willing to help with this great program!

Regards,

Greg Halter
ghalter@greatlakesreview.com
216-767-1340

7
Investment Advisor  
PNC Wealth Management

PNC is a Fortune 500(r) financial services company. We’re strong and one of the largest banks in the U.S. But that doesn’t mean we speak in banking lingo or hide behind spreadsheets. In fact, it’s our down-to-earth approach with customers that’s put us on the map -- in 15 states and the District of Columbia, plus offices nationwide.

As an Investment Advisor and member of PNC’s Wealth Management organization, you will be part of one of the nation’s largest wealth management firms. You will be joining a team of seasoned investment professionals managing our investment advisory services, utilizing sophisticated market strategies and top quality research. You will also be working with highly experienced private bankers and talented, credentialed trust and wealth planning professionals.

In a typical day, you will consult with clients to develop an investment policy statement defining the investment strategy for the relationship. With your technical investment expertise, you will construct and execute a broad based investment portfolio which includes multiple asset classes based on the investment policy statement and PNC’s investment strategy, monitor and implement recommended portfolio changes, and conduct periodic investment meetings with clients. You will also communicate investment performance relative to benchmarks and reconcile the results with the stated objectives. Using your communication skills and salesmanship, you will proactively introduce investment solutions and new ideas, acquire additional assets from existing clients, obtain referrals from satisfied clients and support the sales team in securing new relationships.

The successful candidate will have the following qualifications:

• Bachelor’s degree required.
• CFA, CFP or other professional certification preferred.
• Generally 7+ years of experience in discretionary portfolio management, preferably working with high net worth clients.
• Demonstrated technical investment expertise.
• Leadership and relationship management skills.
• Presentation skills.
• Profiling skills.
• Must have solid understanding of financial markets.
• Must be able to effectively communicate at all levels, internally and externally.

• Must be able to listen and interpret, to gather objective information, to negotiate, respond or inspire at all levels of interaction.

Interested individuals, please submit your resume by visiting our web site at www.pnc.jobs and do an advanced search for req# 118582. PNC is an Equal Employment Opportunity/Affirmative Action Employer -- M/F/D/V/SO.

Small Cap Equity Analyst  
The Ancora Group

This position supports Portfolio Managers though analysis and recommendations focused on small capitalization companies.

Primary Responsibilities:
I. Gather and analyze company financial statements, as well as research, industry, regulatory and economic information, financial periodicals and newspapers in order to assess investment potential.
II. Using spreadsheets and statistical software packages, analyze financial data, locate trends, and develop forecasts; use this data to measure the financial risks associated with making a particular investment decision.
III. Interpret data concerning price, yield, stability and future trends of investments.
IV. Summarize data describing current and long term trends in investment risks and economic influences that would be pertinent to investments.
V. Provide recommendations on investment timing and buy-and-sell orders to Portfolio Managers for advising clients.

Skills/Characteristics:
I. Bachelor’s degree required in Finance, Accounting, or other business-related discipline.
II. Minimum 2 to 5 years of investment industry experience.
III. CFA designation or progress toward CFA preferred or other industry related certification.
IV. Proven track record of success in a financial services setting with increasing levels of responsibilities as well as a solid understanding of how to interpret financial information and how it applies in making investment decisions.

Continued on page 9
Continued from page 8

V. Attention to detail, ability to meet deadlines, and advanced problem-solving skills.
VI. Advanced Excel skills with the ability to create custom models and reports.
VII. Factset, Bloomberg, Advent knowledge a plus.

To apply for this position please send cover letter and resume to:

Denis Amato
The Ancora Group
2000 Auburn Drive, Suite 300
Beachwood, OH  44122

NO PHONE CALLS PLEASE

Financial Analyst
Barnes Wendling CPAs, Inc.

Job Description:

Barnes Wendling, a Regional accounting and consulting firm, seeks a highly motivated professional to enhance its business valuation and litigation support practice. We provide appraisals in a wide array of industries for a variety of purposes, including estate and gift taxes, litigation support, ESOPs, fair value, stock options, and shareholder agreements. We work closely with privately held companies, business owners and executives, and legal and accounting professionals.

Successful candidate must be resourceful, analytical and detail oriented. He/she will gain exposure to a wide variety of industries and business situations. Responsibilities include analysis of financial statements, general financial, economic and industry research, report writing, financial modeling, and public company research.

Desired Skills & Experience:

Undergraduate degree in accounting or finance required. Excellent computer (Excel, Word, and internet research), oral and writing skills are a must. Knowledge of business valuation techniques are a plus. One to three years of public accounting or business valuation experience preferred.

Barnes Wendling offers competitive salary, bonus program, paid parking, medical, dental, vision, LTD, STD, vacation, 401K, professional growth and development, leading edge technology, stimulating team environment and work/life balance.

Company Description:

Barnes Wendling CPAs has been serving Northern Ohio’s closely-held businesses since 1946. We provide the traditional services you expect – financial statements, individual and corporate tax return preparation, accounting services – however, our clients deserve more than just the ordinary.

Recognizing our clients’ goals to maximize net worth, we developed our Net Worth Planning Model. It addresses all of the components of a business owner’s net worth. To learn about the 5 components, go to www.bwbrise.com.

Please send resumes to careers@barneswendling.com.

Marketing Manager
Company Confidential

A long-established, Midwest-based investment management firm seeks a Marketing Manager to execute the new business and marketing plan. The primary goal of this position is to grow assets under management by adding institutional and private client relationships.

The ideal candidate for this position will have strong personal characteristics of initiative, creativity and enthusiasm, and will be of high integrity. The candidate must be able to demonstrate strength and skill in direct sales. An intimate knowledge of investments and the marketing of a RIA are essential, along with outstanding verbal and written communication skills.

We seek an individual with the desire and ability to work effectively within a highly collegial, financially sophisticated, entrepreneurially motivated, team-oriented environment.

Interested candidates may respond to mike@arcimc.com.
The Sortino Ratio: Is Downside Risk the Only Risk that Matters?

By Deborah Kidd, CFA

Defining risk by measuring only the “bad” volatility of a distribution is intuitively appealing. Behavioral finance tells us that large negative surprises do not produce the same sorts of emotions as large positive surprises. Harry Markowitz recognized this distinction back in 1959 when he proposed a measure of downside variability he called semivariance. At the time, the calculation was too complex without the aid of computers, so Markowitz focused his work on mean variance instead. Standard deviation, the square root of variance, has been the predominant measure of risk ever since. Despite its widespread popularity, standard deviation is subject to two limitations: the assumption of a symmetrical return distribution, which penalizes upside deviations and downside deviations equally, and the use of the mean as a target return.

As computational ability and the use of computers evolved over the past few decades, so too did the development of downside risk measures. Semideviation and downside deviation are two risk measures that quantify the downside portion of the return distribution. The calculation for semideviation is similar to that of standard deviation but uses returns below the mean. The difference between the mean and each observation below the mean is squared, and the sum of the squared differences is divided by the total number of returns. This operation gives the semivariance, of which semideviation is the square root. An investment with normally distributed returns will have the same level of riskiness under both standard deviation and semideviation because the upside and downside volatility will be equivalent.

Downside deviation addresses not only the first limitation of standard deviation but also the second—using the mean of a distribution as the target return. Downside deviation measures risk in a manner similar to semideviation except that it substitutes an investor-defined target return for the mean return. Called the minimum accepted return (MAR), the target rate may be an absolute return, an index return, the risk-free rate, or zero (as in zero tolerance for principal loss). A frequently used performance metric designed to measure downside deviation and the risk of failing to achieve an investor’s MAR, the Sortino ratio, is the focus of this article.

THE SORTINO RATIO

The Sortino ratio is a variation of the Sharpe ratio, the most universal measure of return to risk. The Sortino ratio was created in recognition of the realizations that large positive performance deviations should not be penalized in the same way as large negative performance deviations and that failing to earn the mean return is not how most investors define risk. Named after Dr. Frank Sortino of the Pension Research Institute, the ratio measures excess return to the risk of not meeting an investor’s MAR. The formula for the Sortino ratio is simple; it is calculated in the same way as the Sharpe ratio except that the MAR replaces the risk-free rate in the numerator and downside deviation replaces standard deviation in the denominator.

The calculation for the Sortino ratio is as follows:

\[ S = \frac{\text{Mean portfolio return} - \text{MAR}}{\text{Downside deviation}}. \]

Because the Sharpe ratio defines risk as standard deviation, it falls prey to the same shortcomings as standard deviation. The Sortino ratio appears to resolve several of the issues inherent in the Sharpe ratio: It incorporates a relevant return target, in both the numerator and the denominator; it quantifies downside volatility without penalizing upside volatility; and because of its focus on downside risk, it is more applicable to distributions that are negatively skewed than measures based on standard deviation. Yet downside deviation has its own set of limitations. Furthermore, several variations of the downside deviation calculation exist, and which one an investor uses matters a great deal. Amelia Hopkins, Senior Vice President at Granville Capital, uses the Sortino ratio when evaluating hedge funds. She explains, “While the statistic, downside deviation, is easy to understand it is also easy to miscalculate.”

DOWNSIDE DEVIATION—SOME CAVEATS

Although volatility statistics measure past returns, investors calculate them to help forecast future returns. What an investor really wants to know is, what is the asset’s expected volatility? The variations in the calculation for downside deviation can have a considerable impact on the answer to this question. Despite its similarity to standard deviation, Sortino and Forsey (1996) caution that the proper calculation of downside deviation is more complex and that the widespread method of simply using the historical returns that fall below the MAR can significantly underestimate downside risk. “Calculation error,” they say, “is due primarily to measuring only what did happen (discrete), instead of what could have happened (continuous)” (p. 37).

There are several problems with the discrete method. Investors know that historical returns do not predict future returns.

Continued on page 11
Additionally, performance measurement results are highly dependent on the time period under consideration; excluding upside deviations further limits the data sample. Moreover, if the majority of the returns are positive, downside deviation can be significantly understated. Sortino and Forsey (1996) illustrate the shortcomings of the discrete method with an example based on the performance of the Japanese equity market during the 1980s. They compare this method with two methods based on a continuous distribution.

From 1980 through 1989, the Japanese equity market had 10 years of only positive annual returns, although it had 36 months of negative returns. In 1990, the year following the sample period, the market plunged 39 percent. Such an extreme loss would not have been predicted by the small sample of negative monthly returns, the largest of which was –12 percent. In fact, the monthly downside deviation of the sample period was 2.74 percent calculated under the discrete method, using an assumed monthly MAR of 0.08 percent and 45 return observations. The monthly downside deviation rises to 3.20 percent when calculated according to a method that involves fitting a continuous probability curve over the distribution of returns and using integral calculus for the computation.

The downside risk becomes even more evident when a procedure called bootstrapping is applied to the monthly returns. The bootstrap method produced a continuous return distribution, indicating a remote possibility for the Japanese equity market to plunge 42.7 percent in one year, despite the market’s previous 10 years of annual gains. By randomly selecting and combining historical monthly returns, the bootstrap procedure can generate thousands of simulated annual returns. A drawback of this method is that it assumes the observed returns are the only returns possible. If there are no negative historical returns, bootstrapping does not create them.

Sortino and Forsey also noted other mistakes involving discrete data, which Hopkins sees often. She describes a fairly common mistake as dividing the sum of squared deviations (from MAR) by the number of observations below the MAR—rather than the total number of observations. “Another problem is calculating downside deviation on different time intervals (monthly versus annually),” she says. She provides an example in which an investor’s goal is to earn 5 percent annually and the downside deviation is being calculated for equities:

Using the monthly returns of the S&P 500 Index for 10 years (2001-2010) and a monthly MAR of 0.4167% (5 percent annually) gives a downside deviation of 3.71%. Annualizing the number by multiplying by the square root of 12 (which is another problem) gives 12.84%. If, however, 10 discrete periods of annual returns are used then there are only four observations below 5%, which produces a dramatically different number. I have read that you cannot annualize downside deviation in the same manner as standard deviation. . . . but analytical packages I’ve seen do it anyway.

A final caveat: Because it is incorrect to use only historical returns in the downside deviation calculation, it is also incorrect to annualize the number based on these returns. Annualizing discrete data will overstate risk. For the most precise measurement, Sortino and Forsey (1996) recommend fitting a continuous curve to a bootstrapped distribution and using integral calculus to make the calculation. The continuous methods for calculating downside deviation incorporate a forward-looking element into the measure, as opposed to providing an estimate of risk based on a limited set of historical returns.

USING THE SORTINO RATIO

Like the Sharpe ratio, the Sortino ratio is intended to be used in a relative context to compare a portfolio or fund with another fund, a benchmark index, or a manager universe. And like the Sharpe ratio, a higher ratio indicates better risk-adjusted performance. To compare funds, the Sortino ratio of each fund must use the same MAR. In addition, because there are variations in the downside deviation calculation, investors should understand how a Sortino ratio is calculated when using it for evaluation purposes. Comparing the Sharpe ratio and the Sortino ratio for a fund can give an indication of what portion of a fund’s volatility is related to outperformance versus underperformance.

Because the Sortino ratio uses an investor-defined target return for the benchmark, the ratio is not as widely reported as other ex post risk-adjusted performance measures. A variation of the Sortino ratio used to facilitate the comparison of various funds incorporates the risk-free rate in the numerator and semideviation in the denominator. If the MAR is equivalent to the risk-free rate and the investment’s returns are normally distributed,
the Sortino ratio will assign the same ranking to a portfolio as the Sharpe ratio. Sortino and Price (1994) noted that using the risk-free rate detracts from the ratio’s usefulness as a goal-oriented performance measure; they suggest using the average annual return for a market index instead to allow for broad comparisons.

Although downside deviation is better able to capture the risk–reward trade-off of a non-normal distribution than standard deviation, caution must be taken when applying the Sortino ratio to strategies with known asymmetric return distributions, such as hedge funds. Lo (2002) discovered grossly exaggerated Sharpe ratios among hedge funds resulting from serial correlation in the monthly returns. He noted that for hedge funds investing in illiquid and restricted securities, serial correlation—the correlation of a variable with itself over successive time intervals—can arise from the use of stale prices because of a lack of pricing information from publically traded markets. By smoothing returns and reducing variability, serial correlation can be a problem for any measure based on return variability, including downside deviation. Rogers and Van Dyke (2006) caution that investors should also be wary of strategies that exhibit exceptionally positive asymmetric return characteristics; such performance may indicate pricing issues or may be the result of a single performance event, signifying either a one-off opportunity or luck rather than skill.

Is downside risk the only risk that matters? Investors generally do care more about losses than gains. Yet downside risk is difficult to quantify, and upside deviations can provide valuable information about future performance. The Sortino ratio is a useful tool in assessing the riskiness of an investment, but it is not a complete measure of risk. Outperformance should not be ignored because these gains were generated by risk taking; the same strategy might produce corresponding losses at some point in the future. Said differently by Sortino, “Just because nothing bad happened doesn’t mean you didn’t take any risk.”

NOTES