September 2006

Northfield News

A Newsletter for the Friends and Clients of Northfield Information Services

The How and Why (Not?) of What If Part II

By Dan diBartolomeo

In our last newsletter, we presented an extensive article on how Northfield clients can use our models to do scenario based risk analyses of their portfolios. In describing such procedures we made no comment on whether or not carrying out such scenario based analyses is likely to be useful and informative for investors. In this article, we examine the investment implications arising from scenario analysis and find that for the vast majority of investors the results arising from scenario analysis are likely to be *meaningless or even counterproductive.*

We find that controlling the potential for extreme events is critical for financial intermediaries such as banks that are conducting trading operations on borrowed capital. On the other hand, the impact of short-lived extreme events is of greatly diminished importance to typical institutional investors, and that investment policies designed to contain the risk of extreme negative events are likely to have negative relative expected values. Paying too much attention to rare big losses is likely to lead investors to overly conservative policies that are very costly in the long run.

Scenario analysis is included in risk management procedures to explore the "what if" of an extreme event in financial markets. While traditional portfolio theory assumes that returns for equity securities and markets are normally distributed, there is a vast amount of empirical evidence that the frequency of large magnitude events *seems much greater than is predicted by the normal distribution with observed sample variance parameters.*

There are three broad schools of thought on the nature of security return distributions. The first is that returns have stable distributions of infinite variance, also called stable Pareto distributions. The second point of view is that returns have specific, identifiable distributions that have significant kurtosis (fat tails) relative to the normal distribution (e.g. a gamma distribution). The final perspective is that distributions of returns are normal at each instant of time, but look fat tailed due to time series fluctuations in the volatility (and hence variance).

In a famous paper, Mandelbrot (1963) argues that extreme events are far too frequent in financial data series for the normal distribution to hold. He argues for a stable Paretian model, which has the uncomfortable property of infinite variance. Later in a second paper, Mandelbrot (1969) provides a compromise, allowing for "locally Gaussian processes." In between, Fama (1965) provides empirical tests of Mandelbrot's idea on daily US stock returns. He finds fat tails, but also volatility clustering. Later Lau, Lau and Wingender (1990) reject the stable distribution hypothesis stating that 95% of observed stock return series do not fit this model. For detailed discussion of the mathematics of

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Special Points of Interest:

Inside This Issue:

Recent and Upcoming Events

2006 Northfield Annual Research Conference

The Greenbrier • White Sulphur Springs, WV • October 23-25, 2006

We are pleased to announce our 19th annual research conference at the Greenbrier, in White Sulphur Springs, West Virginia. The Greebrier is a return to one of Northfield's most memorable venues of 10 years ago. Set in the beautiful Allegheny Mountains, the Greenbrier represents 228 years of history with its classic architecture, exquisite interior design, carefully sculpted landscape, and impeccable service.

The conference will start on Sunday evening, October 22, with the "Unofficial" welcome cocktail party and dinner. As is customary at Northfield events, a complete recreational and social calendar will accompany the working sessions. Monday morning will be reserved for recreational pursuits. This years attendees have a choice of golf, biking, fly fishing, alpine tower climbing and sporting clay shooting. The Greenbrier also offers many other recreational activities including three championship golf courses, indoor and outdoor tennis, a spa, bowling, croquet and swimming. Monday evening will feature an elegant "black tie" evening and Tuesday evening will feature a family themed reception and diner with fun activities, Cocktails and Hors D'oeuvres.

Northfield is holding a block of rooms for the nights of Sunday, October 22nd through Tuesday, October 24th. The conference room rate is discounted at $249, for a standard room, and is payable directly to the hotel. Deluxe rooms and suites are available at an additional cost. Please note that the Greenbrier does not have room availability prior to October 22nd.

We are accepting online registrations only. To complete your online registration, hotel requirements, and to view the detailed conference agenda, visit **http://www.northinfo.com/events.cfm.** Contact Kathy Prasad if you have any difficulties registering, **kathy@northinfo.com**, 617.208.2020.

The Greenbrier

Agenda

The agenda will consist of twelve 1-hour long presentations.

Information Horizon, Portfolio Turnover, and Optimal Alpha Models
Edward Qian, PhD CFA, PanAgora Asset Management

Frontier Markets Investing: Will a Quantitative Process Work?
Charles H Wang, Acadian Asset Management, Inc.

Attribution to Active Signals
Leigh Sneddon, PhD CFA, Westpeak Global Advisors

The Visual Communication of Quantitative Finance
Pasha Roberts, Lineplot Productions LLC

Long-Short Portfolio Behavior with Barriers Part 1: Mechanism
Kenneth Winston, Morgan Stanley

Markowitz was Wrong!!
Jason MacQueen, Alpha Strategies & R-Squared Ltd.

Holistic Asset Allocation for Private Individuals
Vladmir ("Val") de Vassal, CFA, The Glenmede Trust Company, N.A.

A Geospatial Approach to Modeling Shopping Center Locational Efficiency in the San Francisco Bay Area
Rick Gold, Grosvenor Americas, Inc.

Best Practices: A Practitioner's Perspective
Jeff Brown, Highstreet Asset Management

Looking for the Optimal Value Tilt
Edouard Senechal, CFA, UBS Global Asset Management

Sector-Level Attribution Effects with Compounded Notional Portfolios
Mark R. David, GDFA, Essex River Analytics

Estimation of a Global Market Impact Model
Dan diBartolomeo and Howard Hoffman, Northfield Information Services

Northfield Asia Seminar Series – Research on Investment Management and Risk

Sydney • Hong Kong • Tokyo • November 23, 27, and 29, 2006

Northfield will be hosting three one day seminars in Tokyo, Sydney, and Hong Kong in the month of November. The purpose of the seminars is to showcase our research on various topics in investment and risk management to our growing list of Australian and Far East clients and prospects. The Sydney Seminar will take place on the 23rd, Hong Kong on the 27th, and Tokyo on the 29th

Further details will be posted to **http://northinfo.com/events.cfm** as the venues and agenda become finalized.

Newport Summer Seminar Wrap-up

Tennis Hall of Fame • Newport, RI • June 9, 2006

Northfield's annual summer seminar took place at the International Tennis Hall of Fame, in Newport, RI on June 9th. The seminar presented recent research and technical advances to an audience of Northfield clients and friends.

The agenda consisted of 5 presentations including: "Time Series Variation in Risk Levels and What To Do About It," "Parameter Estimation Error in Portfolio Optimization," "Using Lifecycle Funds in a Suitable and Optimal Portfolio," "Incorporating Higher Moments Into Financial Data Analysis," and "Addressing Total Uncertainty in Optimization through an Augmented Objective Function."

As is customary, the seminar coincided with the USA Professional Championship of Court Tennis. Following the presentations, attendees viewed a court tennis demonstration by Northfield President Dan diBartolomeo, and then a Semi-Final Match between world champion Rob Fahey and Steve Virgona, both of Australia. Fahey won the match and went on to win the championship. Court Tennis, or "real tennis" is the medieval sport that is the progenitor of all modern racquet sports. To learn more, visit the US Court Tennis Association site at **http://www.uscourttennis.com**.

After tennis on Friday evening, everyone enjoyed a relaxing oceanfront dinner party at Johnnie's Atlantic Beach Club and Pavilion in nearby Middletown RI. Complete proceedings have been posted to our website at **http://www.northinfo.com/papersearch.cfm.** Northfield does not charge attendance for this event, however, we do take donations on behalf of Boston's Pine Street Inn, and the Charles River Public Internet Center. This years participants donated close to $5,000 to the Pine Street Inn. Donations to the center were sent directly to the Charles River Public Internet Center.

Dr. George Makaronidis Joins Northfield

The London team is expanding reflecting the growth in the European business. We are very happy to welcome Dr. George Makaronidis to the Northfield client services team. George graduated from the Aristotle University of Thessaloniki, Greece, with a BSc in Physics. He followed this with an MSc with Distinction in Physics of Materials at the same University. George then accepted a European Scholarship to pursue a PhD. course in Materials Science at Cambridge University, and graduated with a Doctorate Degree with specialization in Electron Microscopy. In what he used to call his spare time, George is a senior league basketball referee. George can be reached in our London Office, +44-(0)20-7801-6240, **george@Northinfo-Europe.com**.

Daniel Mostovoy Rejoins Northfield

We are pleased to announce that Daniel Mostovoy has rejoined Northfield after being away for several years. Starting in September, Daniel will take on a new role as a research staff member in Northfield's London office. This is the first time that Northfield has based a research staff member outside of North America. The newly created position is part of Northfield's ongoing commitment to our growing base of European clients.

While on hiatus from Northfield, Daniel held the position of Research Director for the European firm COR. Daniel can be reached at **daniel@northinfo.com.**

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stable distributions, see Rachev (2000, 2003).

General stable distributions have four parameters. These are called the "location" that acts as the measure of central tendency, the "scale" (replaces standard deviation), skew and "tail fatness" (like kurtosis). Some types of stable distributions have infinite variances (i.e. anything can happen at any time), and except for certain special cases (e.g. normal), there are no analytical expressions for the likelihood functions. This means that a lot of mathematically complex estimates are required to describe the probability that any particular event in the distribution will occur. Estimation of the parameters is very fragile. Many, many different combinations of the four parameters can fit data equally well. An important property of stable distributions is that they do have time scaling properties, so it should be possible to describe the distribution of annual returns using daily data and vice versa.

Some researchers have found evidence for specific fat-tailed distributions. Gulko (1999) argues that an efficient market corresponds to a state where the informational entropy of the system is maximized. To analyze the nature of returns, he finds the risk-neutral probabilities that maximize entropy, which turn out to correspond to a Gamma distribution for stock returns and a Beta distribution for bonds. The Gamma has fat tails but only two parameters and finite moments. It also has a finite lower bound which fits nicely with the lower bound on returns (i.e. -100%). To complete the analysis, Gulko derives an option pricing model of which Black-Scholes is a special case.

The more popular alternative to stable fat-tailed distributions is that returns are normally distributed at each moment in time, but with time varying volatility, giving the illusion of fat tails when a long period is examined. A seminal but unpublished paper on this subject was Rosenberg (1974?). It finds that most kurtosis in financial time series can be explained by *predictable* time series variation in the volatility of a normal distribution. In this paper, Rosenberg builds a detailed model of time-varying volatility in which long run kurtosis arises from two sources: (a) the kurtosis of a population is an accumulation of the kurtosis across each sample sub-period and (b) time varying volatility and serial correlation can induce the appearance of kurtosis when the distribution at any one moment in time is normal. An empirical test on 100 years of monthly US stock index returns shows an R-squared of .86 meaning that nearly all the fat tail properties of the data could be explained. In addition, this model is particularly important as it predicts that we should see more kurtosis for high frequency data, which is empirically observed in almost all studies of financial time series.

A few years later, Engle (1982) and Bollerslev (1986) respectively introduced the ARCH/GARCH models family of models. There is a huge literature in this area with more than 250 papers in referred journals by 2003. Conditional heteroscedasticity models are standard operating procedure in most financial market applications with high frequency (i.e. daily or more frequent) data. They assume that volatility occurs in time clusters, hence changes in volatility are predictable. Andersen, Bollerslev, Diebold and Labys (2000) found that the instantaneous distribution of exchange rate returns is Gaussian. Similarly, Andersen, Bollerslev, Diebold and Ebens (2001) find that the distribution of stock return variance is right skewed for arithmetic returns, normal for log return, and that stock returns must be Gaussian because the distribution of the return/volatility ratio is unit normal

The most recent empirical research on this issue is Lebaron, Samanta and Cecchetti (2006). They conduct exhaustive Monte-Carlo bootstrap tests of various fat tailed distributions to daily Dow Jones Index data using robust estimators. From this they propose a novel adjustment for time scaling volatilities to account for kurtosis, in order to use daily data to forecast monthly volatility. They find strong support for time varying volatility, but very weak evidence of actual kurtosis, concluding "no compelling evidence that 4th moments exist." They also conclude that: if variance is unstable, then it is difficult to estimate and that high frequency data is less useful in portfolio formation than generally believed. They recommend use of robust estimators of volatility as compared to traditional measures such as standard deviation of returns.

Analysis of the fat tailed nature of returns has been conducted on many markets. Japanese stock returns have been studied by Aggarwal, Rao and Hiraki (1989), and Watanabe (2000). Navatte, Christophe and Villa (2000) dealt with the French stock market. Another line of research followed in Corrado and Su (1996, 1997a, 1997b) and Brown and Robinson (2002) evidences that skew and kurtosis must exist in security return distributions if observed option prices accurately reflect investor beliefs about future returns.

Numerous other papers have ended up on one side or the other in the debate over the nature of security return distributions. Lee and Wu (1985), Tucker (1992), Ghose and Kroner (1995), Mittnik, Paolella and Rachev (2000) and Rockinger and Jondeau (2002) all review different empirical evidence without forming a clear consensus.

The issue of time scaling is an important one in this debate.

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Almost all empirical work shows that fat tails are more prevalent with high frequency (i.e. daily rather than monthly) return observations. This is predicted by Rosenberg's model. The lack of fat tails in low frequency data is problem for proponents of stable distributions, as it was noted earlier that the tail properties of stable distributions should time scale. However, it can be argued that for low frequency data (i.e. quarterly or annual) we just don't have enough observations when we use lower frequency data for apparent kurtosis to be statistically significant. Others have argued that the observed differences in higher moments could be a mathematical artifact of the way returns are being calculated (simple or logarithmic). Lau and Wingender (1989) call this the "intervaling effect."

So far we've talked largely about fat tails as if they were symmetric offering both negative and positive outcomes. Many of the same arguments apply to skew (one fat tail). Many researchers have found the consistent prevalence of negative skew in financial return time series. Harvey and Siddique (1999) find that skew can be predicted using an autoregressive scheme similar to GARCH.

We might need to ask ourselves what's the problem with daily returns anyway? This discussion will also provide the groundwork for understanding why fat tails are important to some investors but not others. We haven't yet discussed much in terms of economic arguments about why fat tails exist, and at least appear to be more prevalent with higher frequency data.

Financial markets are driven by the arrival of information in the form of "news" (truly unanticipated) and the form of "announcements" that are anticipated with respect to time but not with respect to content. The time intervals it takes markets to absorb and adjust to new information ranges from minutes to days. Generally these periods are much smaller than a month, but up to and often larger than a day. That's why US markets were closed for a week at September 11th and it is routine for stock exchanges to temporarily halt trading in the shares of firms that have made major news announcements. Several papers have examined the relative market response to "news" and "announcements" such as Ederington and Lee (1996). Kwag Shrieves and Wansley (2000), and Abraham and Taylor (1993). They find that response to announcement data is rapid as market participants have had time to plan their actions in advance, conditional on the information revealed in the announcement. On the other hand, the response to unanticipated information is much slower. Jones, Lamont and Lumsdaine (1998) show a remarkable result for the US bond markets where total returns for long bonds and Treasury bills are not meaningfully different if announcement days are removed from the data set.

Brown, Harlow and Tinic (1988) provide a framework for asymmetrical response to "good" and "bad" news. They assert that investors price assets as the present value of expected future cash flows using a discount rate that reflects both the risk of the investment, and the extent to which the investor is confident of their understanding of the investment. The arrival of good news increases projected cash flows, while bad news decreases expectations of future profits. However, all new information is a "surprise," decreasing investor confidence and increasing discount rates. This implies that upward price movements will be muted, while downward price movements are accentuated, a process which we observe as skew in the distribution of returns.

Why is it so important for us to understand the nature of the distribution of returns? Is it not sufficient to say that fat tails exist and they simply have to decide what to do about the potential for extreme outcomes? For the trading operations of financial intermediaries it is that simple. Trading desks make money by supplying liquidity to the markets to allow orderly trading, or by taking advantage of short-lived pricing inefficiencies that can be captured if transaction costs are low enough. Risk management for a trading desk (or highly leveraged hedge fund) is largely an exercise in avoiding bankruptcy. It is much like boxing against a professional fighter, you just need to avoid getting knocked down so hard you can't get up again.

On the other hand, traditional long institutional investors such as insurance companies and pension funds are in entirely different circumstances. They supply their own capital to governments and business enterprises in the expectation of receiving long-term returns that are commensurate with the risks taken. In addition, their large size precludes most short-term trading strategies as market impact increases the friction of transaction costs. Although there are often liabilities, such liabilities are not subject to immediate call. If a pension fund or insurer incurs an investment loss, this does not accelerate the payouts of their liabilities to the current day. Institutional investors have another advantage over trading operations. For such investors to have rational investment policies, we need to understand how the existence of the potential for large events may already be reflected in the returns expected for various portfolio assets, and how this relationship ought be considered in investment portfolio formation.

If investors price skew and/or kurtosis, there are implications for asset pricing and hence return expectations. Harvey (1989) finds relationships between asset prices and time varying covariance among assets, suggesting that in-

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vestors are sensitive to this aspect of return distributions. Kraus and Litzenberger (1976) and Harvey and Siddique (2000) find that investors are averse to negative skew. In diBartolomeo (2003) it is argued that the value/growth relationship in equity returns can be modeled as option payoffs, implying skew in distribution. If the value/growth relationship has skew and investors price skew, then an efficient market will show a value premium, a result that has been often found in empirical asset pricing studies. Dittmar (2002) finds that non-linear asset pricing models for stocks work if a kurtosis preference is included

Barro (2005) seeks to answer an important issue in asset pricing. Many authors have observed that the return difference between equity markets and bond markets are too large to be considered sensible given the observed risks, offering an apparent "free lunch" to equity investors. Barro finds that the large equity risk premium observed in most markets is justified under a "rare disaster" scenario. He finds that corporate profits are a nearly constant proportion of a nation's gross domestic product, so extreme declines in equity markets are the result of pervasive declines in economic activity. The only way to avoid the risk of these big declines is to avoid the equity market, and hence give up the large return premium associated with equities.

Finally, let us give some consideration to the practical issues of portfolio formation with respect to the issues of extreme outcomes. Unlike traders who are providing liquidity to the market (responding to client orders), institutional investors have explicit control over the degree of diversification in their portfolios. Satchell (2004) describes the mathematics of the diversification of skew and kurtosis. He shows that higher moments diversify away even more quickly than normal volatility, as an inevitable consequence of the Central Limit Theorem. He further illustrates that plausible utility functions will favor positive skew and dislike kurtosis.

Wilcox (2000) shows that the importance of higher moments is an increasing function of investor gearing. He illustrates that usual mean-variance utility function is a truncated Taylor series approximation of the log wealth utility. By expanding the Taylor series to include more terms, the higher moments of skew and kurtosis are addressed. He argues that the risk management for investors without gearing can be satisfactorily handled by assuming a mean variance utility function with time varying risk aversion that is a function of leverage.

A number of other portfolio formation schemes have been developed. Lai (1991) derives portfolio selection based on skew, while Davis (1995) derives optimal portfolios under the Gamma distribution assumptions. Chamberlin, Cheung and Kwan (1990) derive portfolio optimality for multi-factor models under stable paretian assumptions.

Two papers explore the issue of whether skew and kurtosis are even worth worrying about for diversified investors. Hlawitscka and Stern (1995) show that the simulated performance of mean variance portfolios is nearly indistinguishable from the utility maximizing portfolio. Cremers, Kritzman and Paige (2003) use extensive simulations to measure the loss of utility associated with ignoring higher moments in portfolio construction. They also find that the loss of utility is negligible except for the special cases of concentrated portfolios or "kinked" utility functions (i.e. when there is risk of non-survival). The separate issues of risk management for leveraged investors are addressed in Kritzman and Rich (1998).

An extensive literature has developed that makes clear the risk management needs of trading operations and long term institutional investors are very different with respect to the potential for extreme outcomes in return distributions. Trading operations have three characteristics that make controlling the potential for extreme bad outcomes crucial: high frequency trading (fat tails show up), possible position concentration (fat tails don't diversify away) and leverage (non-survival through bankruptcy is a real threat). As such, giving serious consideration to the questions of "what if" through scenario analysis is entirely justified.

Conversely, long term institutional investors have long investment holding periods, hold diverse portfolios and do not have liabilities that are immediately callable. As such, the importance of higher moments to their typical investment activities is negligible. In addition, the asset pricing literature suggests that potential for extreme outcomes for returns is being appropriately offset by the relative average returns of different types of assets. *Long term investors that do not have immediately callable liabilities will not be well served by adopting conservative strategies designed to avoid such extreme outcomes. A pension fund can easily invest all its money it short term government bonds to avoid an extreme outcome (the reverse strategy of an individual buying a lottery ticket), but at the expense of a dramatic decline in expected returns.* The lack of such economic returns will either doom the pension fund to failure in meeting its long term obligations or vastly increase the pension expense of the sponsoring entity. Such increased expenses require higher taxes by a government, or higher prices for the goods and services provided by a business entity reducing competitiveness and economic viability in the long run.

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Technical Support Tip: Ensuring Identifier Consistency

By Mike Knezhevich

	A	B
1	00846U10	100
2	01381710	100
3	03783310	100
4	03073E10	100
5	03802010	100
6	02313910	100
7	01310410	100
8	00282410	100
9	G0070K10	100
10	00819010	100

Northfield's Optimizer platform allows the flexibility of three different identifier types; cusips, sedols and tickers. During the portfolio construction and joining of the model, users must ensure identifier consistency for an accurate analysis.

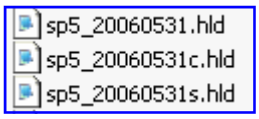
The example portfolio file above contains 10 equally weighted assets from the S&P 500 using cusips as the asset identifiers.

For risk models that have more than one data file choice, Northfield provides a simple portfolio file naming convention to differentiate which identifier the file contains. The type is indicated at the end of the file name by a "C" for cusip, "S" for sedols or nothing for a ticker.

Since cusips are used in this portfolio and to be consistent with the naming convention the file is named Portfolioc.hld (applying the same naming convention for sedols would be Portfolios.hld and for tickers the portfolio file name is Portfolio.hld).

Selecting the Correct Benchmark

While most users load custom benchmarks, Northfield provides three different versions of the S&P 500 dependent on which identifier type is used and distinguished by the file name. The three holding files for the May 2006 S&P 500 are:

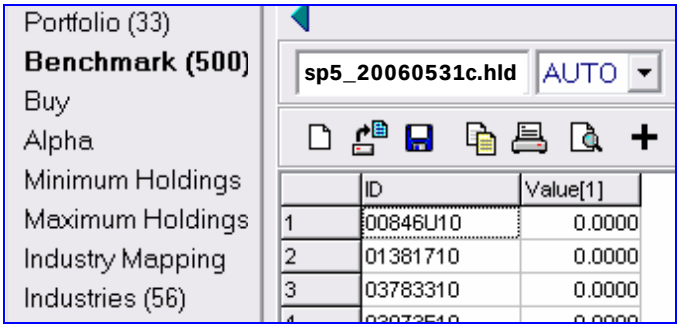


The first file contains tickers, the second cusips and the third sedols.

Since the portfolio constructed above uses cusips the identifier consistent benchmark (sp5_20060531c.hld) is chosen in the Input File | User tab.

1. Click "Benchmark" on the left hand side of the Input File | User tab.

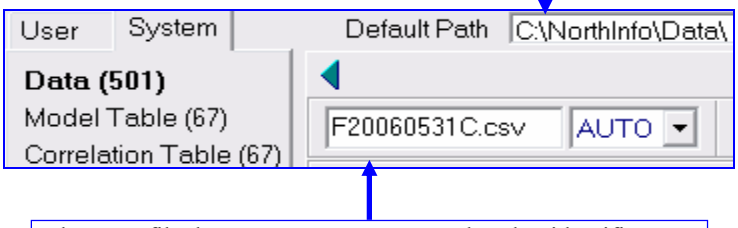
2. Browse to the location of the benchmark and select the appropriate benchmark.



Model Identifier Consistency:

Once a model is specified and the default path for data is selected, the Model and Correlation Tables selection is updated to reflect these choices.

1. Click in the box after "Default Path."
2. Browse to the Data directory (default is Northinfo\Data\).



The Data file, however, must correspond to the identifier type.

1. On the Input Table | System tab choose "Data."
2. Click the file box to browse the alternative files (there will be a file for each model and for identifier type available).
3. Choose the file corresponding to the fundamental model using cusips is selected.

For further inquiries, contact Technical Support in Boston: **support@northinfo.com** or call 617.208.2080 between the hours of 8am and 6:30pm EST Monday through Friday.

European clients can contact our London Office: **christine@northinfo-europe.com** or call +44-(0)-20-7801-6260.

Northfield Partner Update

ClariFI™

Northfield recently entered into a partnership with ClariFI™ to include Northfield's risk models and optimizer within ModelStation™. ClariFI™ delivers breakthrough analytical productivity to active portfolio managers with state-of-the-art technology and services. ClariFI's™ flagship product, ModelStation™, integrates factor backtesting, strategy simulation and portfolio construction features with cutting edge optimization techniques. ModelStation™ gives clients access to both Northfield functionality and data in conjunction with a more diverse selection of high level databases than currently possible in any other environment. ModelStation™ with the Northfield optimizer and risk models will be available to clients in October. Please contact Eric Soderberg, **esoderberg@clarifi.com** at ClariFI™ for more information.

QSG

We also have partnered with Quantitative Services Group (QSG). QSG helps institutional investors outperform by offering a complete suite of premier equity research services, custom stock selection models, and independent trading cost analytics. QSG is working with Northfield as a distributor of Northfield's optimizer and risk models to QSG's clients and Northfield is working as a promoter of QSG's products and services to Northfield clients. Please contact Melissa Allison, **mallison@qsg.com** at QSG for details.

FlexTrade

Northfield has an agreement with FlexTrade to provide the Northfield short term risk models within FlexTrade's new trade scheduling algorithms targeted for buy-side and sell-side portfolio traders. Founded in 1996, FlexTrade Systems is the global leader in broker-neutral algorithmic trading and execution management system for equities, foreign exchange and listed derivatives. Please contact Vijay Kedia **vijay.kedia@flextrade.com** at FlexTrade for more information.

Instinet

Northfield and Instinet, one of the largest agency broker dealers and a Northfield partner, are releasing a trade scheduling algorithm that will be available in early October. The co-branded offerings are targeted to mid to large buy side trading desks and will be available in two forms, Wizard for single security trades within Instinet's Portal, and RiskPlus for portfolio trades within Instinet's Newport trading platform. This unique approach utilizes the Northfield short term risk models, optimization engine and market impact models to provide more efficient executions and lower transaction costs. The offerings will be available first for US clients and then rolled out globally. Please contact Thorsten Schmidt **Thorsten.Schmidt@instinet.com** or 212-310-9515 at Instinet or Russ Hovanec **russ@northinfo.com** at Northfield for more information.

Northfield Staff Speaking Engagements

On September 12, Northfield President Dan diBartolomeo spoke at the UBS/Alpha Strategies Conference at Cambridge, UK. The topic was on the potential importance of kurtosis in return distributions.

On October 4, Dan will be presenting, "How I Became I Quant," at the International Association of Financial Engineers at MIT. On October 8, Dan will also be presenting "Portfolio Construction in Emerging Markets," at the Chinese Finance Association in Boston. Visit **http://www.china-finance.org/**

Lastly, on November 16, Dan will present "Multiperiod Optimization for Private Client Portfolios," at the CFA Institute Asset Allocation Conference in Chicago. Visit **http://www.cfainstitute.org**

On September 13, Northfield's Sandy Warrick presented "Credit Default Correlations," at the FRA Hedge Fund Credit Strategies Conference in New York.

Allocation Research Toolkit Video Available

Northfield has developed a new video presentation for our Allocation Research Toolkit ("ART") software. The video provides a general overview of ART and then is divided into four additional sections which includes the Analytical Hierarchy Process (AHP), Optimization, Cusum Analysis and a User Wealth Analysis example.

The presentation is available on DVD and is also viewable on our website at **http://www.northinfo.com/modelssoftware.cfm?TypeID=2&SoftID=10**. Call your Northfield sales representative for further information or if you would like to receive a DVD.

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