March 2010

Northfield News

A Newsletter for the Friends and Clients of Northfield Information Services

Using News as a State Variable in Assessment of Financial Market Risk *By Dan diBartolomeo*

Introduction

News is information that describes how the state of the world is somehow different than the state of the world usually is. With this simple concept as a foundation, it is possible to dramatically improve the assessment of financial market risk for both financial intermediaries and asset owners. Like most things, the level of risk in financial markets *can be thought of as being like it usually is*, *except when it is not*. Through the incorporation of news into our formal models, we can rapidly recognize, understand and respond to periods of heightened risk, as have been experienced in the financial global crisis of the past two years.

Whenever we speak about assessment of financial market risk, we must begin by identifying some key elements. What metrics of risk are we interested in describing? We will use symmetric measures such as the expected standard deviation of asset returns, or some measure of potential loss such as conditional "Value at Risk" (CVAR). Will our risk measures consider risk in the context of absolute gain or loss, or rather consider investment return and risk relative to some benchmark index? Should our metric for risk depend solely on the fractional composition of our investment portfolio, implicitly assuming unlimited liquidity in the trading of assets, or should the metric explicitly incorporate the potential for illiquid market conditions?

Perhaps the most vexing question, and the one to which news has the most conceptual relevance is time horizon. Clearly, we can't do anything about what has occurred in the past, so our interest in the past is limited to forming a baseline expectation for future risk. Over what future time period is our forecast expected to address? It is the common convention of the investment industry to put statistical measures of risk such as standard deviation in return in annual units. We talk about the volatility of stock being "40%" when we mean the expected standard deviation of annual returns is 40%. Portfolio measures such as tracking error are similarly expressed in annual units. This allows thinking about risk to be expressed in a form parallel to annual returns such as interest rates, and to be evaluated in standard investor utility frameworks such as Levy and Markowitz (1979). However, it is unclear in each specific instance whether we are actually talking about forecasting risk between today and one year from today, or are forecasting risks over some shorter (e.g. the next month) or longer time horizon and then presenting the resulting figures in *annualized units* so as to allow for convenient comparison. On the other hand, "potential for loss" measures such as Value at Risk are normally expressed over much shorter time horizons, usually ranging from one to ten trading days.

Risk assessment models for asset management (as distinct from trading operations) have traditionally focused on estimating portfolio risk from security covariance over time horizons of a year or more. This is clearly suitable for long term investors such as pension

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Special Points of Interest:

Inside This Issue:

Recent and Upcoming Events

Northfield Asia Global REIT Model Seminars

Beijing, Hong Kong, Melbourne, Shanghai, Singapore and Sydney • April 2010

Northfield Asia will be holding several joint marketing seminars with FTSE to discuss the newly released Northfield Global FTSE EPRA/NAREIT REIT Risk Model. Northfield's Nick Wade will be presenting on risk modeling for REITs at the seminars. The dates are as follows:

Beijing– April 15th	**Hong Kong-April 19th**	**Sydney-April 27th**
Shanghai-April 16th	**Singapore-April 23rd**	**Melbourne-April 28th**

Contact Nick Wade or James Williams in Tokyo for more information or if you are interested in attending. Nick and James can be reached at **nick@northinfo.com**, **james@nortininfo.com**, +81-3-5403 4655.

2010 Newport Annual Summer Seminar

Tennis Hall of Fame • Newport, Rhode Island • June 4, 2010

Tennis Hall of Fame

Northfield's Annual Summer Seminar will be held at the International Tennis Hall of Fame in Newport, Rhode Island on June 4, 2010. The purpose of the seminar is to present recent research and technical advances to our clients and friends. Our meeting date has been selected to coincide with the US Professional Championships of Court Tennis. Following the day's presentations, there will be a Court Tennis demonstration by Northfield President Dan diBartolomeo, and then a Court Tennis match. Court Tennis, or "real tennis" is the medieval sport that is the progenitor of all modern racquet sports.

There is no charge for participation in any aspect of this event. The full seminar agenda and registration information will be posted on to **www.northinfo.com/events.cfm** as it becomes available.

2010 Northfield Annual Research Conference

The Broadmoor • Colorado Springs, Colorado • August 30th-September 1st, 2010

We are pleased to announce our 23rd annual research conference at the Broadmoor, in Colorado Springs, Colorado. The conference will officially begin on Monday, August 30th and end on Wednesday, September 1st.

As is customary at Northfield events, a complete recreational and social calendar will accompany the working sessions. The Broadmoor is a five star resort located on 3,000 lush acres under the shadow of Cheyenne Mountain. and offers an award-winning spa, swimming pools, outdoor hot tubs, championship golf and tennis courts.

The full conference agenda and registration information will be posted on to **www.northinfo.com/events.cfm** as it becomes available.

Northfield Asia Near Horizon Risk Model Product Seminar

Tokyo • March 15, 2010

Northfield Asia held a lunch time product seminar on March 15th at Tokyo Shoken Kaikan with about 20 participants from the various financial institutions. Yasuhiko Nakase presented in-depth discussion on Northfield's Adaptive Near-Horizon Risk Models, which caught fresh interest in this new series of risk models.

Northfield Asia/ClariFi Quant Forum

Tokyo • March 18, 2010

Northfield Asia and our strategic partner ClariFi held a joint quant forum in Tokyo on March 18th. Northfield's Nick Wade presented on "Incorporating Alpha Uncertainly into Portfolio Optimization" at the event. While Yasuhiko Nakase provided consecutive Japanese interpretation. Contact Nick Wade in Tokyo for seminar proceedings, **nick@northinfo.com**.

Restructuring of Northfield Pricing

As clients have been previously notified by email and telephone calls, the pricing structure for many Northfield analytical services will be revised effective April 1st, 2010. This restructuring reflects two important aspects of the services that Northfield provides. First, a number of new and important features have been added to our services. Secondly, a number of data services and analytical tools that have been optional at extra cost in the past will be bundled into our basic fees. In general, this will mean that the base fee for minimum systems will rise, but the cost of more sophisticated installations with what are now optional features will decline. We believe this pricing structure represents a better value for most clients, and will dramatically simplify administration and billing for all concerned.

In recent months, a large number of new services have been added to most Northfield subscriptions. Most importantly is the availability of our "adaptive near horizon" risk models. We believe these models are a major advance in risk assessment methods. Users can now specify either the adaptive models or our regular models as part of their basic services. The **adaptive models are an addition to the regular models and are available** for a small additional charge. For more information on the adaptive models, please see **http://www.northinfo.com/documents/346.pdf**.

In addition, we have added a separate liquidity and transaction cost model for all global equities as part of our basic monthly update. Liquidity has obviously been a big concern for investors in recent years, and we want to encourage clients to take this important market dynamic into account. Details on the new transaction cost model can be found at **http://www.northinfo.com/documents/347.pdf**.

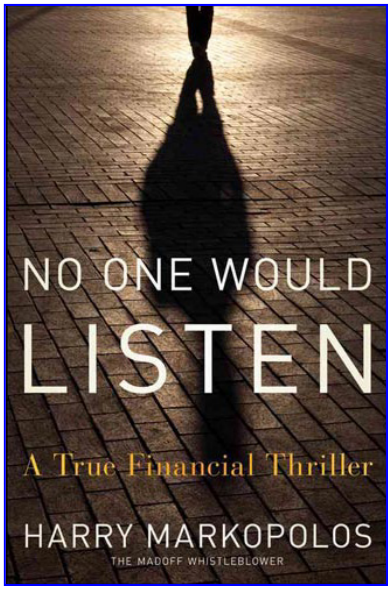
Finally, our analytical tools have been dramatically improved with five new features meant to deal with various aspects of estimation in optimization. These new features were described in a recent newsletter article, **http://www.northinfo.com/documents/329.pdf**.

We are also bundling three previously optional services into our future basic service. Use of data histories for risk models, as well as the tax optimization and multiple-account processing functions will now be included in the basic service level. For more information on the tax optimization and multi-account features, please consult **http://www.northinfo.com/documents/177.pdf**.

As noted above, this restructuring will represent a savings to some clients and a modest cost increase to others. For clients who access Northfield through partners, such as Factset and S&P ClariFi, it should be noted that the pricing changes will be comparable to, or smaller than those for clients access Northfield's standalone applications.

For clients facing a cost increase that are up for contract renewals after April 1, 2010, we will allow those clients to renew their contracts early before April 1, 2010 under the old pricing schedule **for the next annual renewal period**. Clients should consult their Northfield representative for details on their specific situation.

Harry Markopolos Book Now Available



Every investment professional should be familiar with the infamous Madoff investment fraud. A key figure in that unfortunate episode is Harry Markopolos, the individual who repeatedly tried to bring the Madoff fraud to the attention of US regulators at the Securities and Exchange Commission. Harry's recently released book, *No One Would Listen*, is a detailed chronicle of his ten-year quest to shut down the Madoff operation and bring protection to their investors. Hopefully all readers will share our view that Harry should be considered a hero in our industry.

For most readers, the book will read like an entertaining novel or the screenplay of a movie. For investment professionals, it should also evoke a certain degree of revulsion at the constant repetition of acts of negligence and incompetence by many within the investment community and by regulators. In the book, Harry makes some very kind remarks about our efforts to be of assistance to him in this matter as early as 1999, and the degree of confidence he put in our views. Northfield clients who attended our 2009 client conference in Venice have already heard about our involvement, and more details can be found at **http://www.northinfo.com/documents/339.pdf**.

Technical Support Tip: Estimation Error Adjustment-Covariance Blend

By Mike Knezevich

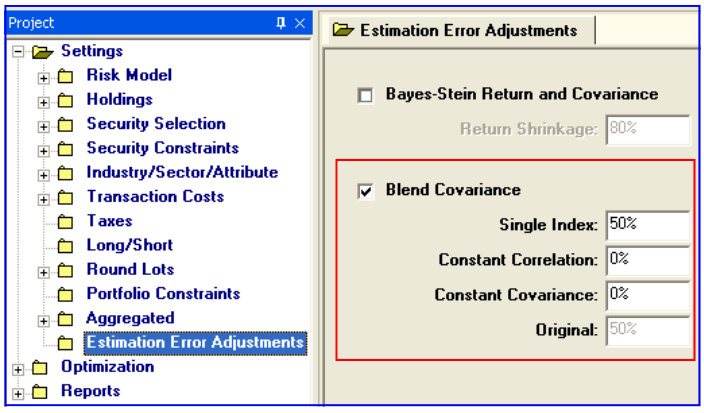
This newsletter article focuses on the Blend Covariance Matrix function under the Estimation Error Adjustments node. This functionality mitigates the influence of statistical outliers and errors by blending the existing covariance matrix with up to 3 more structured covariance matrices based on the original. These structured matrices are calculated using a cap weighted market portfolio combining all assets in the portfolio, benchmark and buy list (excluding cash). These risk matrices which reduce to a single factor in the risk model are blended according to the user's preference and consist of:

1) Single Index: Stocks are correlated only through the market portfolio. Each stock's total variance is unchanged.

2) Constant Correlation: Stocks share the same pairwise correlation, which is, the average correlation within the market portfolio. Each stock's total variance is unchanged.

3) Constant Covariance: Variance and correlation for all assets is the same based on the market portfolio. Stock's variance is changed

The functionality is demonstrated via an example. For simplification only the single index adjustment is discussed in a 50/50 weighting with the original. The following figure illustrates the settings for our example.



Market Portfolio:

Our market portfolio is the cap weighted portfolio of the entire universe of available assets. We use the same 4 assets from the previous articles as illustrated in **Table 1** with each asset's beta and residual standard deviation from the US fundamental model risk (original model):

ID	Name	Weight	BETA	Resid_ StD
BBBY	Bed Bath & Beyond	15.35%	0.89	42.85
LOW	Lowe's Companies	58.64%	0.96	47.49
WEC	Wisconsin Energy	9.66%	0.25	18.46
XEL	Xcel Energy	16.35%	0.26	20.33

Table 1

Risk Model Table

The following steps transform the RiskModelTable to include the single index factor which takes the familiar form:

$$r_s = \beta_s r_m + \varepsilon_s$$

Note: For descriptions of the other factors please see (Shah 2009).

1.) Begin by determining the single index factor variance.

a.) The variance of the single index factor is the variance of the market portfolio:

Factor	Variance Contr
Factor Variance	447.5029
Stock Specific Variance	833.1873
Single Index Factor Variance -Var (M)	1280.6901
Standard Deviation of Single Index Factor	35.7867

Table 2

b.) Recreate the model variance table by weighting 50% of the original factor variances and 50% of the single index factor's variance as illustrated below:

Name	Orig _Var	Transformation	Blend _Var
Beta	500.808	x 50% =	250.404
Earnings/Price	5.1398	x 50% =	2.5699
Book/Price	20.6965	x 50% =	10.3483
Dividend Yield	6.9741	x 50% =	3.4871
Trading Activity	8.457	x 50% =	4.2285
Relative Strength	56.3272	x 50% =	28.1636
Log of Market Cap	7.9395	x 50% =	3.9697
Earnings Variability	4.0625	x 50% =	2.0312
EPS Growth Rate	7.0999	x 50% =	3.55
Revenue/Price	9.0285	x 50% =	4.5143
Debt/Equity	7.5065	x 50% =	3.7532
Price Volatility	15.8397	x 50% =	7.9199
Retail Hard Goods	243.078	x 50% =	121.539
Electric Utilities	123.287	x 50% =	61.6435
Est Err - Single Index Var (M)	1280.69	x 50% =	640.3451

Table 3

Tech Support, Continued on page 5

Tech Support, Continued from page 4

2.) Asset exposures to the single index factor are the asset level betas relative to the market portfolio (SI Exposure). These exposures are derived from Northfield risk models using the beta formula: covariance of the asset with the market portfolio (Cov (s,M)) divided by variance of the market portfolio (Var (M)).

SI Exposure = Cov (s,M)/ Var (M)

Note: Covariance between the asset and market portfolio (Cov (s,M)) is calculated using the risk model files and includes two components:

- Factor covariance (Factor Cov)
- Residual covariance (Residual Cov)

Cov (s,M) = Factor Cov + Residual Cov

For further details on matrix calculation for these covariance terms please see Open Optimizer Report Descriptions With Mathematical Formulae

ID	Factor Cov	+	Residual Cov	=	Cov (s,M)	/	Var (M)	=	SI_ Exposure
BBBY	535.6316	+	281.7769	=	817.4085	/	1280.688	=	0.6383
LOW	571.4083	+	1322.5892	=	1893.9975	/	1280.688	=	1.4789
WEC	107.2046	+	32.9025	=	140.1071	/	1280.688	=	0.1094
XEL	121.4394	+	67.5963	=	189.0356	/	1280.688	=	0.1476

Table 4

3.) Residual risk is calculated from the different risk models and blended according to user's weightings.

a.) Determine the single index model residual variance (Resid_Var_SI) using the original model residual variance (Resid_Var), the assets' market beta squared (SI Exposure^2) and single index factor variance (Var (M)).

Resid_Var_SI = Resid_Var – SI Exposure^2 * Var (M)

ID	Resid_ Var	-	SI Exposure^2	*	Var (M)	=	Resid_ Var_SI
BBBY	1836.1225	-	0.4074	*	1280.6879	=	2012.0362
LOW	2255.3001	-	2.1871	*	1280.6879	=	211.6551
WEC	340.7716	-	0.0120	*	1280.6879	=	572.3953
XEL	413.3089	-	0.0218	*	1280.6879	=	666.5464

Table 5

b.) Combine the securities' original model residual variance (Resid_Var) with the single index model residual variance (Resid_Var_SI) proportionately to the 50-50 blend. This is the estimation error adjusted residual variance (Resid_Var_EE).

The square root of Resid_Var_EE is the residual risk from the estimation error adjusted model (Resid_StD_EE) which differs from the original model standard deviation (Resid_StD) **(Table 6 Below)**

Risk Decomposition

With asset exposures, factor variance and adjusted residual risk the estimation error adjusted risk decomposition is calculated and compared to the original model decomposition:

	Original	Est Error Adj
Factor Variance	447.5029	864.0965
Stock Specific Variance	833.1873	488.1868
Total Variance	1280.6901	1352.2833
Standard Deviations	35.7867	36.7734

The blend covariance matrix is used to mitigate the impact of just one risk model by combing the original matrix with more structured versions of itself. This article demonstrated how one of the structured versions, single index, impacts the calculations of the risk model input files as well as the resulting risk decomposition. Note that in this example the factor variance has increased while the stock specific variance has decreased with a net impact of an overall increase in the risk level.

The files used in this and the previous two articles are available in the C:\NorthInfo\nisopt2008\samples2008 \Estimation Error directory via regular downloads.

References:

Shah, Anish R., CFA "Mitigating Estimation Error in Optimization" Northfield Information Services London Seminar, Nov 6, 2009.
http://www.northinfo.com/ documents/354.pdf

Ledoit, O. & Wolf, M. "Honey, I Shrunk the Sample Covariance Matrix", Journal of Portfolio Management, Summer 2004.

ID	50%_Resid_ Var	+	50%_Resid_ Var_SI	=	Resid_ Var_EE	Resid_ StD_EE	Resid_ StD
BBBY	918.06125	+	1006.0181	=	1924.0794	43.8643	42.85
LOW	1127.65005	+	105.8276	=	1233.4776	35.1209	47.49
WEC	170.3858	+	286.1977	=	456.5835	21.3678	18.46
XEL	206.65445	+	333.2732	=	539.9277	23.2363	20.33

Table 6

(Using News, continued from page 1)

funds. However, investment performance of asset managers is often evaluated over shorter horizons so they are interested in shorter term risk assessment. Hedge funds and other portfolios with high portfolio turnover are even stronger in this preference. In addition, the *recent proliferation of high frequency trading and algorithmic execution methods has created demand for very short horizon risk assessment in which the analytical evaluation of news can play an important role.*

To the extent that financial institutions have focused on short horizon risk forecasts, the methodology has been fairly consistent in the past. The usual approach is to rely almost entirely on historical risk observations as a proxy for explicit forecasts. Typical procedures increase the frequency of observations (daily or shorter). Usually a shorter sample period or exponentially weighting is used to increase the influence of recent observations. Many factors typically considered relevant to a particular type of investment may have to be ignored. For example, it is often problematic to use financial statement data in high frequency models of equities, since the financial statements themselves are updated only periodically, often as infrequently as once per year. In such models, innovations in the risk level are generally dealt with via GARCH process, as innovated by Engle (1982) and Bollerslev (1986).

There are serious problems with this approach at the individual security level. It is well established that there is a high degree of apparent kurtosis in high frequency returns of most investment assets. For a review see diBartolomeo (2007). The existence of higher moments in financial time series data can render common statistical procedures such as ordinary least squares regressions unreliable, as described in Sfridis (2005). Also well established are patterns of short term return behavior such as the negative serial correlation studied in Rosenberg, Reid and Lanstein (1985), and positive serial correlation due to illiquidity as described in Lo, Getmansky and Makarov (2003). Finally, asynchronous trading across global time zones makes estimation of correlation very difficult.

The Role of News

To understand risk in financial markets, we must understand the mechanism by which news influences security returns. Variations in security returns are the algebraic manifestation of price changes over time. Price changes arise due to an imbalance between the numbers of willing buyers and the number of willing sellers at the current price. The willingness of the buyers and sellers of a particular financial asset to transact is a function of two processes, which we call "have to" trades and "want to" trades.

Financial market participants often trade financial assets because the "have to" do so. The classic example of this is forced liquidation of a position by a hedge fund or other leveraged investor who gets a margin call. Another example is a mutual fund manager who experiences large redemptions by investors and must provide cash within a few trading days. On the other hand, most financial literature in asset pricing has focused on "want to" trades, those transactions motivated by investor expectations of abnormal risk-adjusted returns in the future. Almost all "want to" trades are responses to flows of information to financial market participants and the resultant investor willingness to pay liquidity providers to accommodate their desired transactions.

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. Price adjustments generally take a much smaller amount of time than a month, but up to and often longer than a day to become apparent. That's why US markets were closed for a week at September 11th. During periods of adjustment, liquidity is low and the potential for imbalances between buyers and sellers is maximized, often leading to large magnitude price movements.

For information arriving as announcements, liquidity is generally maintained as market participants have had the opportunity to plan their actions in advance, conditional on the content of the announcement. It is as though investors are living in what grammar experts would call the "subjective mood." This anticipatory behavior generally leads to a reduction of trading volume and volatility as investors wait for the content of the announcement before taking action, but there is no need to stop and think at the moment of the announcement. Such anticipatory behavior can reduce the effectiveness of GARCH models as volatility will trend downward during the quiet before the storm.

There is an extensive literature illustrating the links between the arrival of information to financial markets and the subsequent asset pricing effects. 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). Jones, Lamont and Lumsdaine (1998) show a remarkable result for the US bond market in which total returns for long maturity bonds and Treasury bills are not significantly different if announcement days are removed from the data set.

Brown, Harlow and Tinic (1988) provide a framework for

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asymmetrical response to "good" and "bad" news. They assume investors value financial assets as the discounted present value of future cash flows, and that the value of the discount rate is dependent on how confident they are that the investor fully understands the nature of the investment. Good news increases projected cash flows, while bad news decreases expectations of future cash flow. Crucially, all new information is a "surprise," *decreasing investor confidence in their level of understanding and increasing discount rates*. As such, upward price movements are muted, while downward movements are accentuated. Numerous empirical papers have shown negative correlation between volatility and asset prices. In short, there is strong support for the old adage *"No news is good news."*

A State Variable Approach to Risk Assessment

Our approach to short horizon risk forecasting is different. We prefer to continue to use the existing risk models that are estimated from low frequency return observations. Rather than depending on recent high frequency data observations, we choose to ask ourselves a simple question: *"How are conditions different now than they were on average during the sample period used for estimation?"* This question is almost exactly congruent to our opening definition of news.

In this method, new information that is not part of the risk model is used to adjust various component parameters of the risk forecast to short-term conditions. This approach has multiple benefits. We sidestep almost all of the statistical complexities that arise with use of high frequency data. We get to keep the *existing factor structure of any model* so risk reporting remains familiar and intuitive. Since our long term and short term forecasts are based on the same factor structure, we can also quickly estimate new forecasts for any length time horizon that falls between the two horizons.

Our first application of this approach was to incorporate option implied volatility as a conditioning variable. Consider the hypothetical situation of a high-profile CEO of a major global corporation being killed in an automobile accident. To create a new forecast of the covariance of that company's stock with some other company or stock index would require waiting through a considerable series of periods until a sufficient sample of data had been obtained under the new conditions. However, the moment that option traders received news that the CEO had been killed, they instinctively would adjust their expectations of future volatility for this firm, and option prices would almost immediately reflect the new beliefs. In this model, we assume that the ratio of observed for a stock and the option implied volatility should be roughly constant over time, and that variations in this ratio are useful indications of changes in risk expectations for the near future. Coincident shifts in the ratio across numerous securities are reflected by changes in the factor covariance structure. Methodological and mathematical details are presented in diBartolomeo and Warrick (2005).

This paper also shows that implied volatility method was of particular usefulness in the wake of the September 11th tragedy. After that terrible event, US stock markets were closed for a week. Any analysis of risk that relied on historical observations had no more information when trading reopened on September 17th than when trade was halted. Using the implied volatilities from opening option prices on the 17th produced very intuitive changes in risk expectations. A portfolio of airline stocks was forecast to have nearly doubled in risk, while a portfolio of food production stocks was unchanged. The model also highlighted extremely abnormal behavior in options on Southwest Airlines *in the week precedent to September 11th*.

During the week in which stock markets were closed, news about the attack and all other matters of public interest continued to flow. The obvious question was whether we could have adjusted our risk expectations based on analysis of the news itself. It would seem obvious that the greater the amount of news flowing to investors, the greater the potential for disagreement among investors as to their interpretation of the news content. Such disagreement would cause differences in valuations, leading to imbalances between buyers and sellers for particular financial assets, finally leading to price changes.

This line of inquiry was followed to a positive conclusion in Mitra, Mitra and diBartolomeo (2009). This paper largely follows the mathematical formulation of diBartolomeo and Warrick, but supplements option implied conditioning information with analytical measures of text news supplied by Ravenpack. The text metrics included both measure relating to the frequency and length of articles, and the apparent sentiment of the content. Empirical tests of both American and European stocks, stock portfolios and indices suggest that *short horizon risk forecasting is improved by inclusion of news metrics, above and beyond the value of option implied information.* Possible explanations are that since option traders cannot trade at zero cost, their trading in response to new information understates the value of the information. Another rationale is that option trading is confined to only a portion of each day, while news continues to flow while financial exchanges are closed.

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A Bayesian Framework for News Inclusion

The methods used in the two preceding papers were similar in one particularly important respect. Both papers assume that there are two states of the world, the regular state as defined by the parameters of an orthogonal factor model derived from historical observation, and the "now" state as adjusted to reflect the conditioning information derived from option implied volatility, news flows or both. An important improvement is to consider the potential states of the world in a probabilistic Bayesian fashion so as to derive the most efficient risk forecast for any given time horizon. Once we embark down this road, we must also address the mathematical implications of serial correlation when forecasting over differing horizons.

Both the issue of optimal use of conditioning information in risk models and the impact of serial correlation are addressed in Shah (2008, 2009). He states, "Forecasting long term behavior requires intentionally restraining news. A priori, one cannot know whether the effects of events being reported upon are transient (more likely) or shifts in regime (less likely), so a sane model integrates innovations more cautiously. For a long term investor, reacting to every passing bump is an exercise akin to driving cross country in a go-kart: the trading turnover would be battering. Being well informed, however, is certainly advantageous. Indeed, the levered investor's longevity hinges on skillfully navigating passing bumps and shocks."

Negative serial correlation makes time series return variances derived from monthly data a downward biased estimator of variances computed on a daily or higher frequency basis. Example data from Shah is presented in Figure 1. To adjust for this effect, Shah provides a method to adjust variance estimates from any observation frequency to any other observation frequency, assuming a first order autoregressive process.

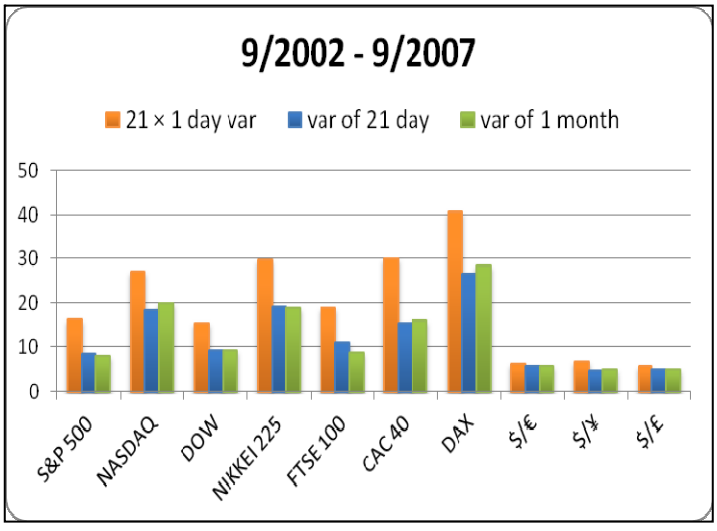

Figure 1

Shah also provides a rigorous Bayesian framework under which news or any other conditioning information can be incorporated into any existing model of risk. The method involves adding a vector of coefficients that scale the various parameters of the risk model up or down, relative to values derived from historical observations. The default value for each element of this vector is one, which is the equivalent of retaining the historical model.

Optimal values for the elements of the scaling vector are obtained by a non-linear optimization process that fits forecasts from the risk model to observable analogs among the state variables. For example, we can currently observe the value of the VIX (see Figure 2), a financial contract traded on the expected volatility of the S&P 500 stock index. If the VIX is currently trading at 60, and the average value of the VIX was 20 during the period of the estimation of risk model we might believe that the element of the scaling vector that corresponds to volatility of the US stock market should have a value of somewhere between one and three (60/20).

To the extent that the risk model will have many interdependent parts, the selection of values for each element in the scaling vector is a jointly dependent process. For factor models, our choices must be such that the numerically equivalent full covariance matrix must be positive semi-definite, and asset specific risks are positive.

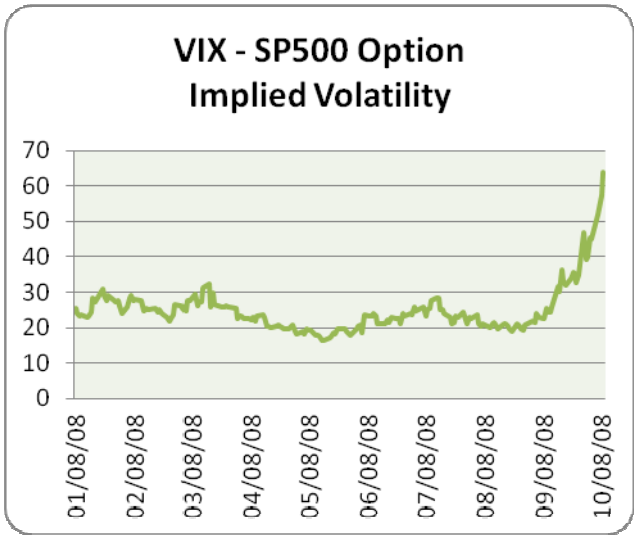

Figure 2

Conclusions

Recognizing and responding to changes in the level of risk of financial instruments and financial markets is an essential survival skill for investors in a competitive world: "to finish first, you first must finish." Measuring the volume and sentiment of information being delivered to financial

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market participants is an ideal way to promptly adjust our expectations of risks over short horizons. News is the very essence of answering the question, "How are things different now than they usually are?"

However, the incorporation of news and other state variables into our assessments of risk means that we must address some of the important statistical complexities of financial asset returns and utilize a framework which optimally uses the information we are able to obtain. Such methods have been put forward and are available to investors for use in their risk assessment procedures.

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Northfield Speaking Engagements

Northfield President Dan diBartolomeo spoke at the CFA Institute European GIPS Conference, in London on February 25th. The topic was Risk Monitoring and Attribution in the Post-Madoff Era."

On March 4th, Dan presented "Estimating Supply/Demand Curves for Equities" at the PRMIA Liquidity Conference in Boston.

Dan will be speaking at the Denver QWAFAFEW meeting on March 25th. The topic will be "Incorporation of News Flows into Risk Assessments."

On May 17th Dan will be presenting "An Integrated Model of Equity Risk, Credit Risk and Correlations" at the London Quant Group meeting.

Dan will be presenting at the April 26th Hartford Connecticut QWAFAFEW meeting. The topic will be "The Expected Lifetime of Companies, those Socially Responsible and Otherwise."

Steve Gaudette will be discussing the new risk disclosure requirements for GIPS 2010 standards at the Boston Security Analysts Society meeting on March 25th. Visit http://bsas.org/BSAS_Programs_Events/PEC01-01.asp?ID=198 for more information.

Northfield Asia's Nick Wade gave a presentation on risk management for superannuation funds at the FactSet seminar on March 10th in Melbourne, Australia.

Nick Wade will be presenting on the Madoff fraud at the SELECT Investment Forum in Sydney Australia in May.

FactSet Partner Update

The latest version of the Northfield Open Optimizer which includes all the new features released in the stand alone version is now available on the FactSet Platform. For a complete outline of the enhancements visit: http://www.northinfo.com/documents/329.pdf.

For a complete index of all former Northfield News articles, visit http://www.northinfo.com/documents/314.pdf

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