December 2009

Northfield News

A Newsletter for the Friends and Clients of Northfield Information Services

When Immovable Objects Meet Irresistible Forces: Risks in Real Estate, CMBS, Infrastructure and Public Pensions

By Dan diBartolomeo

The financial crisis of the past year has had many causes and has been manifested in a variety of ways. While the effect in residential property prices has been widely recognized, the immense effects on commercial real estate are now just beginning to become more visible. For example, during November 2009, the Wall Street Journal reported that the real estate investments of CalPERS, the largest pension fund in the US, had a return of **negative 48% in the most recent fiscal year**. This is a stunning result given that many financial market participants assume that the volatility of real estate returns are less than 5% per year. Of particular note was $500 million that CalPERS invested in two large apartment complexes in New York City, Peter Cooper Village and Stuyvesant Town. The 11,000 unit developments were purchased just a couple years ago for $5.4 billion. Since then, projected rent increases were never realized and mortgage interest payments have been paid out of operating reserve. The venture is reportedly nearly out of cash, and estimates of salvage value are in the $2 billion range, a decline of more than 60% before considering the effects of leverage. Both equity holders and mortgage lenders stand to take multibillion dollar losses.

At the same moment, Dubai World, the primary investment entity of the emirate of Dubai has announced a "standstill" on repayment of $59 billion of outstanding debt that was used to finance various activities, the preponderance of which were property development ventures. Significant concern exists that a default on the part of Dubai could reduce investor willingness to participate in development projects throughout emerging countries. Again, the risk exposure of both Dubai and its lenders does not appear to have been well controlled.

Large asset owners such as pension funds and insurance companies have always invested in illiquid assets such as directly owned property to a substantial degree. It has been widely argued that since large pension funds can predict their needs for outgoing benefit cash flows quite accurately, their need for liquidity is low, and they can earn additional returns by intentionally investing in illiquid assets such as property, private equity and the financing of public infrastructure projects, such as airports, power plants and toll roads. Some large investors such as Australian defined contribution pension plans known as "superannuation" funds often have a third or more of their total assets in such funds.

There are four obvious aspects of property and infrastructure investment that make managing risk much more difficult than for traditionally traded financial assets such as stocks and bonds. The first is that being illiquid and very rarely traded changes in asset value from day to day or even year to year are not observable. One cannot look on the financial

(Immovable Objects, continued on page 7)

Special Points of Interest:

- Main Article: When Immovable Objects Meet Irresistible Forces
- US Short-Term Model now updated
- sEEniac released to users
- Monthly risk model data now available sooner

Inside This Issue:

Recent and Upcoming Events

CARISMA Annual Conference: The Interface of Behavioural Finance and Quantitative Finance

Brunel University • West London • February 2-3, 2010

Northfield President Dan diBartolomeo is a Visiting Professor at the Center for the Analysis of Risk and Optimization Modeling Applications (CARISMA) at Brunel University in West London. The mission of the center is to be a center of excellence recognized for its research and scholarship in the analysis of risk, optimization modeling, and the combined paradigm of risk and return quantification.

The fifth annual CARISMA Conference on "**The Interface of Behavioural Finance and Quantitative Finance**" will be held in London, on February 2-3, 2010. Dan will be involved in both the pre-conference workshop as well as the main conference. Visit http://www.optirisk-systems.com/events/carisma2010.asp for more information.

Asia Seminars Wrap-up

Hong Kong, Singapore, Sydney and Tokyo • November 2009

Northfield hosted our annual Asia Seminar Series with four highly successful events in Hong Kong, Singapore, Sydney and Tokyo. The seminars showcased our research on key topics in investment and risk management to our growing family of Australian and Far Eastern clients and prospects and broadened awareness of the range and depth of Northfield products, services, and research.

The presentations were given by Northfield's Dan diBartolomeo, Nick Wade and James Williams. Topics included: "Linkages Between Credit Risk and Equity Risk," "Incorporation of Quantified News into Portfolio Risk Assessments," "Size Matters – Conditional Correlation and Asymmetry in Volatile Markets," "Market Mayhem, Part I: The Mortgage Securities Collapse," "Market Mayhem, Part II; The Madoff Fraud," and "The Second Half of Markowitz."

Complete seminar proceedings will be posted at http://www.northinfo.com/papersearch.cfm.

Asia Product Seminar Wrap-up

Tokyo • December 10, 2009

The 2nd Northfield Product Seminar was held at Tokyo Shoken Kaikan, Tokyo Japan on December 10th with approx. thirty attendees from asset managers, security brokers, pension consultants etc. It was set as a joint event with FTSE with two guest speakers from EPRA - Philip W. Charls, CEO, and Fraser Hughes, Research Director. Topics covered were Global Real Estate Market by EPRA speakers, Northfield Global REIT Risk Model and Everything Everywhere (EE) Model. Reflecting the high level of interest in the REITs and its risk management, the Q&A session was exceptionally active with serious questions.

Northfield European Seminar Wrap-up

Institute of Directors Business Centre • London • November 6, 2009

The Northfield 2009 European Investment Seminar was held in London at the Institute of Directors Business Centre on November 6, 2009. The purpose of the seminar was to highlight recent advances in analytical techniques for the investment industry to our growing number of European clients and prospects.

The presenters included Dan diBartolomeo, Daniel Mostovoy, and Anish Shah of Northfield. Federico De Vita, PhD, of Acacia Research, also gave a presentation. The topics included; "Incorporation of Quantified News into Portfolio Risk Assessments ," "Linkages Between Credit Risk and Equity Risk ," "Beyond linear factor models – a theoretical and practical insight ," "Mitigating Estimation Error in Optimization ," and "The Mortgage Securities Collapse."

The seminar concluded with a well deserved post seminar reception. There was no cost to attend, however, donations to the Prince's Trust were strongly encouraged. The Prince's trust is a very worthwhile organization that makes a huge positive difference to the lives of many thousands of young people. Visit http://www.princes-trust.org.uk to learn more.

The seminar proceedings have been posted to http://www.northinfo.com/papersearch.cfm.

Newly Enhanced "sEENIAC" Released to Clients

By Emilian Belev

Northfield's sEENIAC is the new secure and robust way to ensure coverage for equity and bond security ID exceptions, structured products, and derivatives.

Two successful years after the release of our innovative EENIAC service, we are glad to offer its enhanced edition -sEENIAC. The new service offers clear advantages over its predecessor as it incorporates the best practices of custom security processing suggested by client feedback, partner interaction, and our own experience.

For the audience that is new to the EENIAC concept, EENIAC stands for Everything Everywhere Northfield Access Console. The "Everything Everywhere" part is borrowed from the name of the NIS risk model which deals with every possible investable asset class globally. Access Console refers to the channel provided by Northfield to request, upload, and retrieve the risk parameter output of securities not in our generic risk model data set. These additional, or "exception," items can be anything like mortgage pools, collateralized instruments, equity, commodity, and interest rate derivatives, funds with undisclosed holdings, etc. While each of these items requires a vastly diverse set of input parameters and analytical treatment, EENIAC provides the infrastructure for clients to compile and process such data in bulk. This is a vital factor in facilitating the enterprise risk management process.

While the original EENIAC operation is based on a combination of a proprietary request mechanism and FTP transport, the new system operates entirely through a standard HTTPS channel. This mode of communication defines the main advantages of sEENIAC.

The first and most important advantage of the new system is the elimination of the proprietary request mechanism. For users it means that they would not have to cope with internal network policies and place requests for opening of proprietary ports with their IT departments, but can simply install and operate the sEENIAC client application as long as they have https connection to the internet (which most corporate networks allow). In limited cases, the only small IT department involvement would be configuring firewall/ proxy server to trust/map our server – eeniac.northinfo.com.

After extensive testing, the new mode of communication proved to be more reliable and more robust in diverse ISP client environments. This basically means a greatly reduced future potential to see server connection errors.

The next big advantage is security. sEENIAC offers 128 bit SSL encryption of data in transit. That basically means that whatever data you upload and retrieve from us will not be subject to interception by third parties positioned outside user's and Northfield's company networks. This security feature is embedded in the client application and would not need any further configuration after software is installed at the user site.

An added advantage of the new client installation is flexibility. While the old version was operable only from a fixed path, or a change would require expert involvement, the new version operates from any user chosen installation directory. Installation is as simple as unzipping the contents of the distributed sEENIAC client package to that folder.

Although sEENIAC is clearly a more advanced tool than its predecessor, we have kept it's invocation protocol practically unchanged. In short, it happens, as before, by executing – from the command line, or your custom automation script – a Northfield batch scripts that guides the connection and request process, and retrieves output. Arguments to this script remain unchanged. Our aim with this was to allow for minimal rework of existing user custom scripts at most user sites.

Given the value added offered by the new embodiment of EENIAC, we plan to make it the only operating version in the future. To allow existing users to migrate to the new version we will transition the service over a few months during which both original EENIAC and sEENIAC will accept requests. Concrete schedule of the transition as well as the actual sEENIAC client application will be distributed shortly to all current users. If you are not a current user, but would be interested to learn more or get a trial of the EENIAC service or the EE risk model please contact our sales department.

If you have any coverage or technical questions regarding the new utility, please do not hesitate to contact Technical Support in Boston: **support@northinfo.com** or call 617.208.2080. European clients can contact: **support-europe@northinfo.com** or call +44-(0)-20-7801-6260. In Asia, call +81(0)3 5403 4655 or +61(0)2 9238 4284 or **support-asia@northinfo.com.**

Short-Term US Equity Model Updated

By Anish Shah

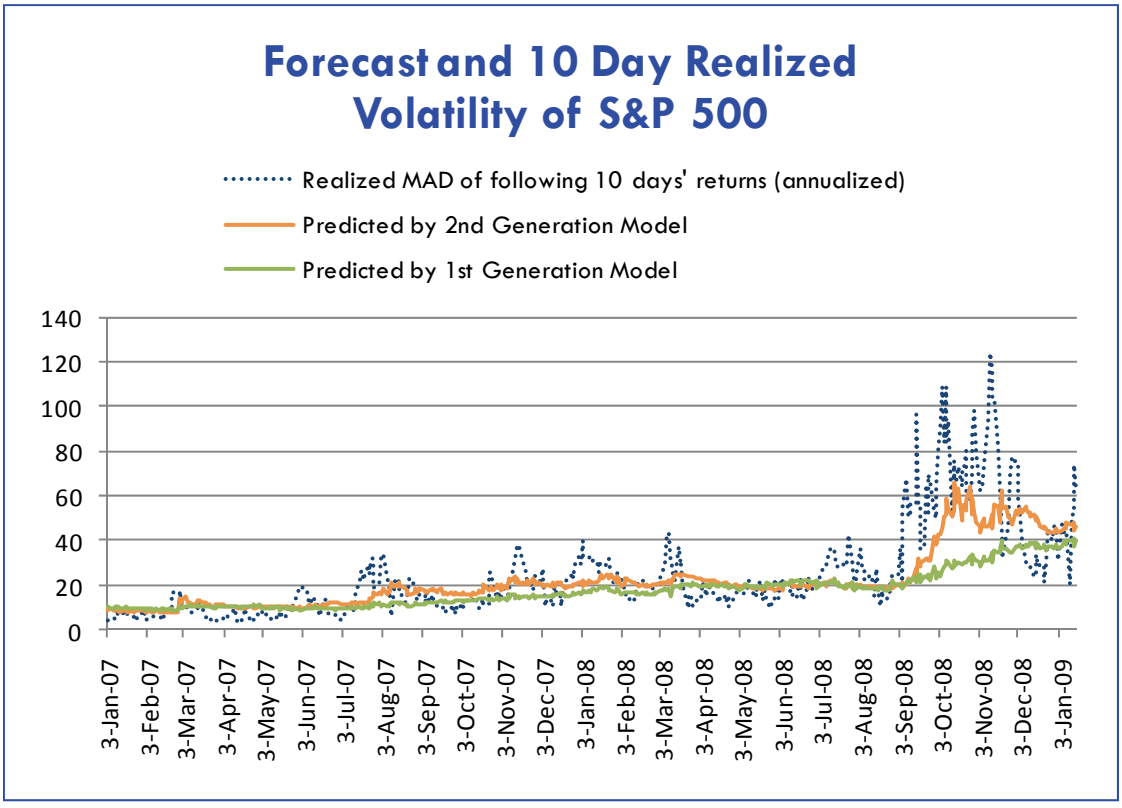
Northfield will soon be delivering the 2nd generation of our Short-Term US Equity Model. In out of sample tests, the model performs uniformly better than its predecessor: it more accurately captures changes in a portfolio's volatility over time, and it more accurately discriminates between high and low volatility portfolios at any point in time.

The fundamental structure of the model remains the same – 20 blind factors built from 230 days of daily returns. As before, the model captures forward-looking market beliefs by being adapted to recent option implied volatility levels. However, subtle differences from the 1st generation model greatly increase predictive power:

1. *The blind factors are inferred from the full universe of securities*, weighted by the square root of cap. Previously, they were inferred from just the S&P 500 constituents.
2. *For both the purposes of determining factors and fitting exposures, the weight of observations decays over time.* Emphasizing recent observations separates currently manifesting market phenomena and individual stock behavior from the expired transient.
3. *Exposures are inferred via Bayesian regression.* A stock's forecasted exposure to a factor balances – based on goodness of fit, number of observations, and variation of sensitivity within the industry – the stock's historical exposure and the industry average. Forecasts are more accurate and less influenced by extremes, a boon for optimization.
4. *Two indices, VIX and RVXK, are added to the option implied volatility information.* Combining portfolio and individual stock volatility information reveals changing correlation.
5. *Option information affects pervasive changes in the levels of stock-specific risk for even securities lacking option information*. Previously, only factor and stock-by-stock specific risk for optionable securities were affected. This combined with (4) above enables the 2nd generation model to instantaneously capture changes in correlation, e.g. Oct 2008, when equities became not only volatile, but extremely correlated.

The benefits are apparent in the forecast volatility of the S&P 500 **(see chart below)**.

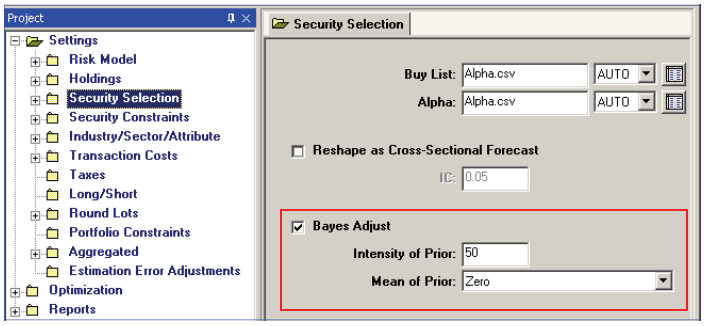
The improvements to the model are the result of extensive testing. Other revisions were considered but did not prove as successful in tests. We believe clients will notice that the 2nd generation model rapidly assimilates market behavior, its forecasts are accurate, and portfolios optimized with it are well hedged.



Technical Support Tip: Bayes Adjust

By Mike Knezevich (with special thanks to Anish Shah)

The May 2009 newsletter discusses recently added functionality, while the August 2009 article focused on Reshaping Alphas as a Cross Sectional Forecast. This article covers the Bayes Adjust functionality in the Security Selection node.



To illustrate this functionality we revisit manager V as she continues constructing her value portfolio. For consistency and simplicity we:

1) Focus on the four assets from the previous article using the Reshaped Alpha Forecast provided, manager V has forecast for 3 of the 4 assets.
2) The analysis date is the same as the previous article May 31, 2009.
3) Use a cash benchmark.

Manager V has less confidence in forecast of XEL than for WEC and BBBY due to the higher standard error (exaggerated for demonstration).

ID	Name	Industry	BETA	CAP	Alpha %	Error
WEC	Wisconsin Energy	Electric Utilities	0.25	0.72	2.98	1
XEL	Xcel Energy	Electric Utilities	0.26	1.09	7.40	100
BBBY	Bed Bath & Beyond	Retail Hard Goods	0.89	1.04	-0.20	1
LOW	Lowe's Companies	Retail Hard Goods	0.96	1.98	N/A	N/A

Theoretically:

Bayes-Adjust is a standard Bayesian approach, as in Black-Litterman, but applied benchmark-relative. It assumes a prior on benchmark returns, $r \sim N(E,S/k)$. Forecasts are noisy forecasts of the future, $Q = r + \varepsilon$ where $\varepsilon \sim N(0,O)$. Bayes-adjusted alphas are those most likely given the prior belief and the forecasts.

Where:

r= The Bayes Adjust forecasted alpha
E= Priors in equilibrium
S= Benchmark relative covariance matrix calculated from risk models, but is not available via the optimizer.
k= Intensity of Prior
O= Matrix of the error terms
Q= Forecasted alpha provided by user

An analogy demonstrates the Bayes Adjust approach (Shah, 19).

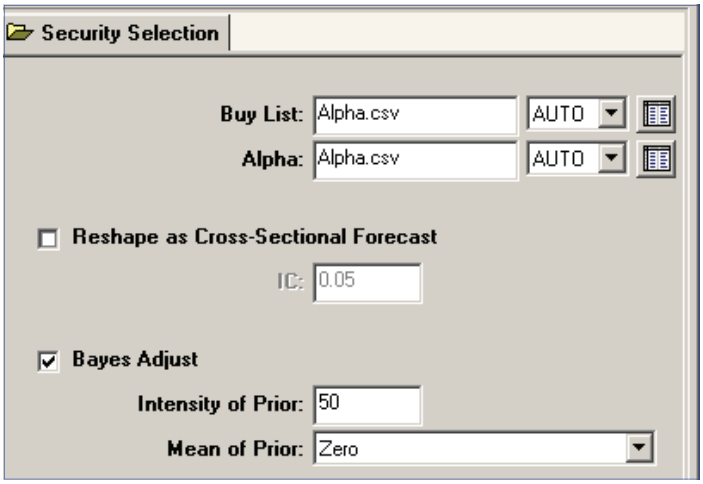
Imagine tracking a collection of sailboats crossing the Atlantic. An unbiased way of inferring the boats' locations is to receive an unreliable report – "Boat X is at position Y". The source sometimes overshoots and sometimes undershoots; we take the report at face value and estimate boat X is at position Y.

There is prior knowledge of the boats' courses. Given this course we can infer where the boats should be [center of prior]. However currents and wind affect all boats projected course [covariance of prior].

A Bayesian approach combines the unreliable eyewitness report (user input) with the best guess based on the projected course (prior) to determine the possible location.

Implementation:

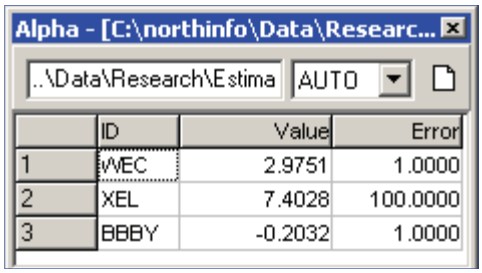
Additional information is required for Bayes Adjust.



(Tech Support Tip, continued on page 6)

(Tech Support Tip, Continued from page 5)

1) The standard error of the alpha forecast must be included in the third column of the alpha input file.



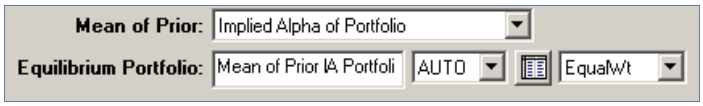
	ID	Value	Error
1	WEC	2.9751	1.0000
2	XEL	7.4028	100.0000
3	BBBY	-0.2032	1.0000

2) The Intensity of Prior provides a level of importance to the equilibrium returns. The default value is 50 but can range from 0 to 100. Higher values give greater weight to the prior.

3) The Mean of Prior implies equilibrium returns. There are two different means that can be set:

   a. Zero: returns in equilibrium are zero which is the default and most common.

   b. Implied Alpha Of Portfolio: implies alphas based on the weighting of the assets within a user supplied equilibrium portfolio. This is illustrated **below.**



Computational Exercise:

If the reader is inclined to replicate Optimizer calculations with the inputs below they do so at their own risk (matrix algebra is required). Done correctly calculated alphas are approximately (some rounding error) equal to the Optimizer's output.

The equation used in the Bayes Adjust calculation is:

$$r = [k*S^{-1} + P^T*O^{-1}*P]^{-1} * [k*S^{-1}*E + P^T * O^{-1} *Q]$$

Where:

K=50

$$S=\begin{Bmatrix} 0.054353327 & 0.02568625 & 0.003308326 & 0.004653387 \\ 0.02568625 & 0.069640571 & 0.007856696 & 0.010228174 \\ 0.003308326 & 0.007856696 & 0.309677781 & 0.078182335 \\ 0.004653387 & 0.010228174 & 0.078182335 & 0.305701727 \end{Bmatrix}$$

$$P=\begin{Bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{Bmatrix}$$

*Matrix representing the 3 independent bets

$$O=\begin{Bmatrix} 0.0001 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 0.0001 \end{Bmatrix}$$

$$E=\begin{Bmatrix} 0 \\ 0 \\ 0 \\ 0 \end{Bmatrix} \qquad Q=\begin{Bmatrix} 0.02975 \\ 0.07403 \\ -0.002 \end{Bmatrix}$$

Results:

The table below compares calculated alphas, Alpha(%)_CALC, to the optimizer output, Alpha(%)-Optimizer.

ID	Reshaped Alpha %	Alpha (%) _CALC	Alpha (%) Optimizer
WEC	2.9751%	2.7244%	2.7414%
XEL	7.4028%	1.2871%	1.2076%
BBBY	-0.2032%	-0.1973%	-0.1956%
LOW		0.1426%	0.1693%

Conclusion:

Bayes Adjust combines Manager V's insights of the 4 assets with the risk models implied equilibrium returns.

XEL's alpha is squeezed from 7.40% to 1.28%, due to a large error term and high correlation with WEC in the industry, beta and capitalization factors.

A forecast is calculated for LOW, which is highly correlated to BBBY in the industry, beta and capitalization factors.

If you have an further questions, please contact Technical Support in Boston: **support@northinfo.com** or call 617.208.2080. European clients can contact: **support-europe@northinfo.com** or call +44-(0)-20-7801-6260. In Asia, call +81(0)3 5403 4655 or +61(0)2 9238 4284 or **support-asia@northinfo.com.**

Reference and additional information:

- August 2009 Northfield Newsletter: http://www.northinfo.com/documents/343.pdf
- May 2009 Northfield Newsletter: http://www.northinfo.com/documents/329.pdf
- Black, Fischer and Robert Litterman, "Global Portfolio Optimization", Financial Analyst Journals, September-October 1992.
- Shah, Anish "Mitigating Estimation Error in Optimization" (http://www.northinfo.com/documents/354.pdf).

(Immovable Objects, continued from page 1)
page of the newspaper for a quote on the value of the local shopping mall or airport. Valuations are limited to periodic appraisals that are optimistically biased and seasonally dependent, substantially reducing expected volatility and expected correlation to other asset classes.

One very troubling aspect of financial markets is that *some financial service firms present illiquid assets as investments guaranteed to be low in risk, on the explicit basis that the price movements are not observable.* In essence, investors are encouraged to take a "head in the sand" attitude to the risks of investments such as tracts of timber, assuming that since we can't readily observe changes in value, we may as well assume that no such changes in value are taking place. Recent changes in FASB 157 loosen the requirements on some financial institutions with regard to valuations, but simply assuming no value changes are taking place seems to be the height of folly for investors.

The second aspect of these investments that complicates the risk management task is leverage. To the extent that most real estate and infrastructure investments are perceived as having relatively predictable future cash flows, leverage is often employed through various debt structures such as mortgages on property. In many countries, the use of such debt financing also represents a tax benefit to investors, although institutional investors in most countries are tax exempt and therefore do not enjoy this advantage. While in a conceptual sense, leverage in a real estate investment is no different than leverage employed to boost expected returns on a hedge fund, there are important distinctions. In most hedge funds, the assets held for investment are marked to market on a regular basis (admittedly with less than perfect accuracy) so the potential for a margin call requiring the debt be reduced is a day to day fact of life. Equity investors in direct property and infrastructure projects typically assume that the probability of foreclosure is so slight as to be insignificant, which often turns out to be a poor assumption.

The third aspect of these investments that clouds the risk management picture is the lack of divisibility. If an asset owner owns shares of stock in a traded company, it can choose to sell any portion of that position without having to make a decision to sell it all. If the position is large enough, limitations on market liquidity may require that the selling process be stretched over a significant time period, but it can still be done without protracted negotiations with buyers. On the other hand, one cannot sell one floor of an office tower or half a power plant.

The fourth aspect of these investments that make risk management difficult is the frequent reliance on regional, rather than national economic conditions for financial success. Large investors are very accustomed to investing in companies that sell goods and services to a geographically dispersed, often global customer base. On the other hand, the financial viability of an office building, shopping complex or port facility will often be dominated by local conditions about which far less objective data is available. While every major investment bank around the world can provide economic forecasts for major countries at the national level, few are able to provide meaningful information about the conditions in, and likely futures of specific cities or regions.

Since 2004, Northfield has addressed the needs for assessment and management of risk for property and infrastructure investing. At that time, a Northfield client in the Middle East commissioned a special study on the risk of their US real estate holdings which consisted of sixty large properties, including office buildings, apartment complexes, hotels and shopping malls. Not only did that investor want to have a better assessment of property risk, but also how that property risk related to the risks existent throughout their entire portfolio. For example, if the investor had a large exposure to the technology sector through their traded equity and private equity portfolios, a shopping mall in Palo Alto, California might be considered more risky than an identical property in another city where the technology sector plays a smaller role in the regional economy.

We began by considering various approaches to the problem. Estimating the risk of property investing as an asset class by observing index returns was problematic because of the volatility dampening effects of the appraisal process. A good economic explanation of these effects is presented in Getmansky, Lo and Makarov (2004) with respect to illiquid securities. One approach to resolving this problem has been used for residential real estate are the "repeated sale" where index returns are estimated from repeated sales of the same house. If enough houses in a given area are transacted per period of time, one can statistically infer returns on the index portfolio. Unfortunately, the number of transactions on large commercial properties or infrastructure projects is far too few for this approach to be viable.

Finally, there are some academic studies suggesting that real estate volatility can be observed by taking a portfolio of traded property companies (e.g. REITs in the US) and hedging out the influence of the general stock market on the sector returns. However, the very "local" nature of real estate returns limits the usefulness of this approach to portfolios of specific properties. As seen in the CalPERS example above, returns on a given real estate project can vary

(Immovable Objects, continued on page 8)

(Immovable Objects, continued from page 7)
as widely as on individual stocks, but normally without the broad diversification institutional investors enjoy in their stock portfolios. In the vocabulary of equity managers, real estate portfolios have large tracking errors.

In the end to carry out such risk assessments, Northfield developed an entirely new way of looking at the risk of illiquid investments. Rather than trying to observe variations in appraised values, we chose to construct "proxy" portfolios of marketable securities within the structure of our Everything, Everywhere risk model. We assume that the true, if unobservable, volatility of the illiquid asset is comparable to the proxy portfolio.

The financial instruments in these portfolios are selected and weighted such that the economic payoffs and economic risks of the portfolios mirror those of the illiquid asset. Cash flow streams arising from property leases are treated like corporate bonds that are extendable with a higher coupon (i.e. a rent increase), mortgage debt is handled as short positions in mortgage securities, while the long term inflation effects on property returns are modeled using inflation-linked bonds such as TIPS. Fluctuations in property rents arising from supply and demand are modeled as lagged functions of the relative participation of various economic sectors in the local economy, as compared to the national average. A city like New York or London that has a large concentration of financial services firms would be perceived as "over-weighted" in financial sector, while Houston might be perceived as over-weighted in energy compared to the rest of the US. For each region, a long/short portfolio of stock market exposures is used to characterize the economic makeup of the area.

A key benefit of this approach is that once a proxy portfolio has been created for a specific property, the full range of Northfield analytical information is available, such as the correlation with other assets, and the marginal contribution of the property asset to the overall enterprise risk level. As property assets are considered as not being divisible for trading, special reports are available that report incremental (whole position), rather than marginal contributions to risk. Details of the risk assessment methods are available from Northfield in a working paper that was presented to the Southern Finance Association Annual meeting in 2005, **http://www.northinfo.com./Documents/191.PDF**.

Since 2005, Northfield has evaluated a number of property portfolios in this fashion and has created "mini-models" of the local economies of many cities and regions. Feedback from real estate practitioners on the assessment of risk for specific properties has been positive. Obviously, these same methods can also be applied to serve the risk management interests of commercial mortgage lenders. Poor assessment of the dependence across real estate assets was a major contributor to the current global financial crisis, as the creditworthiness of securitized real estate debt was badly misjudged, as described at our 2009 London seminar, **http://www.northinfo.com/documents/340.pdf**.

We have put our regional economic models to another important purpose. Given the broad declines in asset values that has been experienced during the recent financial crisis, the pension funds of many local and state governments now have negative actuarial surpluses. Until asset values recover, the viability of these retirement systems depends on the promise of additional future inward funding from the concerned local government. In the US, these promises of future funding from a state or local government are essentially an unrecorded form of municipal bond. For example, if a county pension fund is 25% underfunded, the asset portfolio fund now consists of 75% of the recognized set of assets and implicitly 25% a municipal bond from that county. Having 25% of a fund's assets in a single municipal bond issue has dramatic impact on the diversification of the portfolio, and the effective asset allocation.

Using our regional economic models, we can understand the underlying economic drivers of tax revenues for a given city or state. We have modeled each of the fifty US states in the fashion and separately modeled a similar number of the largest cities. Through this structure, we can observe how the economic fortunes of a given area are likely to be correlated with various sectors of financial markets, and select investment assets that jointly diversify the asset portfolio with the local revenue stream.

Recently, we have extended this methodology for property risk assessment to a broad range of infrastructure projects such as airports, power plants and toll roads. For example, one might think of the risk of a modern airport being something similar to a shopping mall, where part of the property is rented out to conventional merchants, but a large part of the facility is rented out to a specialty firm called an airline. So our airport becomes a combination of fixed cash flow leases, plus exposures to inflation, plus some exposure to the regional and national economy. The predominant exposure is to a portfolio of the airlines that service that particular airport. In turn, the exposures of the airlines to things like interest rates and energy costs are accounted for through the Everything, Everywhere model.

While we have developed protocols for the risk assessment of various kinds of properties and infrastructure projects for both equity and debt investors, the basic framework remains in common with our initial method. Our goal is to

(Immovable Objects, Continued on page 9)

(Immovable Objects, Continued from page 8)

construct portfolios of marketable securities that have economic exposure comparable to the investment being analyzed, so that "across the board" assessment and management of risk becomes a viable undertaking. An important side benefit to this approach is to create a level playing field so that investments in property or infrastructure can be considered fairly in the context of overall asset allocation for the institutional asset owner.

Northfield Models Now Available Sooner

Starting with the December 2009 update, all Northfield risk model data (excluding the Everything Everywhere model) will be posted to our website up to two days sooner than before on the second or third business day of the month. There will be a second website posting on the fourth or fifth business day of the month that will include the EE model and the latest ART data.

Going forward, this new delivery schedule will allow most Northfield clients to get their data sooner each month. EE clients will continue to receive their data on the same schedule as before.

Northfield Speaking Engagements

Northfield President Dan diBartolomeo spoke at Tokyo University on Nov 27th. The topic was "Joint estimation of Equity and Liquidity Risk."

On November 30th, Dan presented "Parameterization of Algorithmic Trading" at the NIDA/CARISMA Finance Conference, in Bangkok Thailand. Dan also gave the same presentation at the IIM/CARISMA Finance Conference, in Kolkata India, on December 3rd.

Dan presented "Incorporating News into Equity Risk Forecasts" at the Society of Quantitative Analysts, in New York on December 11th.

Dan will be speaking at the CARISMA Annual Conference in London on February 2. The topic is to be announced. Visit **http://www.optirisk-systems.com/events/carisma2010.asp** for more information.

On February 24th, Dan will be at the CFA GIPS Europe Conference, in London where he will be presenting "Risk and Attribution in the post Madoff Era."

Northfield's Anish Shah spoke at a the Boston Security Analyst's Society Quantitative Investing Seminar in Boston on November 11th. The topic was "'Mitigating Estimation Error in Optimization."

If you have any suggestions of what you would like to see covered in upcoming issues, please e-mail your ideas to staff@northinfo.com

Boston Office
77 North Washington Street, 9th Floor
Boston, MA 02114
Phone: 617.451.2222
Fax: 617.451.2122
Sales: 617.208.2050
Tech Support: 617.208.2080

London Office
Shakespeare House
168 Lavender Hill
London, SW11 5TG
Phone: +44-(0)-20-7801-6260
Fax: +44-(0)-20-7801-6261

Tokyo Office
Shiroyama Trust Tower
4-3-1 Toranomon
Minato-ku
Tokyo 105-6016
Phone: +81 (0)3 5403 4655
Fax: +81 (0)3 5403 4646

Northfield INFORMATION SERVICES, INC.
Northfield News is a publication of Northfield Information Services, Inc., 77 North Washington Street, 9th Fl., Boston, MA 02114. If you have any questions or comments regarding the content of this newsletter, please call us, or e-mail us at staff@northinfo.com, or visit our home page at http://www.northinfo.com