

The Risk of Risk Management:

A Roundtable Discussion with the Brandes Institute Advisory Board

Edited by Bruce Grantier and William Raver

This is an article in the Brandes Institute series, “What is Risk?” The following is a transcript of a roundtable discussion of the Brandes Institute Advisory Board. The Advisory Board is comprised of investment professionals working around the globe in various capacities. This article represents their perspectives on risk management tools. Opinions expressed are those of the members of the Brandes Institute Advisory Board and do not necessarily reflect the views of Brandes Investment Partners, L.P.

Introduction

In the wake of a tumultuous investment period, investors continue to sharpen their focus on risk management. Earlier this year, Value at Risk (VaR) was targeted by the financial press for its failure to predict and/or mitigate the effects of the recent crisis. During several meetings in 2009, the Brandes Institute’s Advisory Board examined how best to measure and manage risk. These conversations revolved around addressing the following questions:

1. Do you rely on or use VaR?
2. What other tools have you used for risk control?
3. Has the recent crisis prompted you to evaluate or adopt any alternative approaches to traditional risk management tools? If so, what are they?

In this article, we share excerpts of our conversations that highlight the advantages, inherent limitations, fiduciary implications, and implementation challenges involved with VaR and other tools intended to measure and manage risk.

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Roundtable Discussion

There have been a lot of negative things said recently about VaR and other quantitative risk management tools. What are people forgetting? What are the positive elements of VaR? How have you used VaR in the past and how do you plan to use it going forward?

Philip Readⁱ – We use VaR to measure the probability of the funding level getting better or worse (excess of assets over liabilities, or surplus). The measure gives the one in 20 risk of the excess (or shortfall) of benefit plan liabilities over the assets expected over a 1-year period. We use it as a broad guide to overall risk in the portfolio, and with scepticism, since VaR assumes market returns are normally distributed. The reality is that the normal distribution doesn't always apply; it is the size of the left (or downside) tails of distributions that are of concern. VaR provides comfort 80% of the time, but it falls down when it is really needed. Moving ahead, what else can one do in place of VaR? We use scenario testing; run an analysis that allows us to examine expected surplus under specific scenarios. For example, if assets fall by 10% and interest rates go down by a certain amount, what is the projected surplus result? Scenario testing gives you more useful information.

Barry Gillmanⁱⁱ – One of the things I've always been concerned with is the normal distribution and how initial assumptions seem to weigh heavily on the results you get. People seem to see this as a shortcoming of VaR. Bruce Grantier and I met with a major Canadian sponsor using VaR, who has been using it for 20 years based on empirical or historical returns. They looked at what their assets have actually done as opposed to making assumptions on how things should behave. There are no normal assumptions. It just shows up in the data.

Bruce Grantierⁱⁱⁱ – I know that particular sponsor's historical database of investment securities is expensive to develop and maintain, but that approach, in my opinion, is worth it. Many banks also use historical data in calculating VaR. This is the so-called "stochastic" approach to VaR, based on empirical data, as opposed to the "parametric" approach, based on distributions and described entirely by their parameters: mean, variance, etc.^{iv} The stochastic approach allows one to select volatile or turbulent regimes – like "fat tail" periods. This is a much more realistic way to use VaR, although, unfortunately, practically speaking, the average institution probably cannot afford to do so. Even then, the stochastic approach still would not represent extreme events like 2007/2008.

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Philip Read – I recall a discussion with a finance director in the U.S. Trustees were considering using VaR as part of the way they determined his compensation. If we put \$100 million into the pension fund, does VaR go down? No, the assets would be bigger, and, assuming the same return distribution, VaR is also bigger. This negates any interest by the sponsor in raising the funding level, solely based on risk management considerations.

Peter Branner^v – I've seen VaR working terribly in fund of funds due to lack of liquidity - mainly, because when you need to react you are unable to. I've seen it work reasonably well in CTAs where it has greater liquidity and you don't have a beta. Last year when we had the crisis, I know people had a lot of difficulty using VaR when they couldn't control their beta.

William Raver^{vi} – I work with other investors who use it primarily to manage fixed income portfolios, and it has been a particularly misleading indicator of potential losses there. VaR put out numbers that implied a maximum loss, and it introduced a level of complacency that is totally unfounded.

Robert Maynard^{vii} – From the perspective of long-term, long-only multi-asset investors that hold some private equity, ever since VaR came about in the 1980s it has been a disaster. One of the problems with VaR is the whole is different than the sum of its parts. It requires a massive amount of data coming in and spits numbers out and doesn't work if there is a data entry error. It doesn't cover the entire portfolio and since it doesn't, it often gives a false reading. If you add anything, the numbers would change. Anytime it gives you a signal it is difficult to penetrate the underlying causes, and if you change the assets being used you have to change the entire correlation structure. Nobody ever did and they froze the darn thing. Bill Raver was right in saying that it gives you a number that doesn't tell you anything. It's not actionable. It gives you a number – a phony number. In terms of fat tails and high peaks, when people said you had to use this as your centerpiece it threw off everyone with long-term basic portfolios. If I was managing a hedge fund where I was trying to remain market neutral and I was levered one side or the other, I could see it being helpful. I think if you are going to use a linear tool it's best to regress everything against a common benchmark, then the parts are added up to the whole. With VaR the problems are not matched up to the whole. It gives you a false number, gives you a false sense of security and has people focus on the wrong things.

Bruce Grantier – While a value disciple, I too believe investment managers and fiduciaries are obliged to employ some form of risk measurement. In my pension investment career I have been an advocate of various risk management techniques – including SaR (Surplus at Risk) as an inexpensive mini-version of asset-liability studies. While SaR has the same problems as VaR, at least fiduciaries go through the process of considering the assumptions (the inputs) and the results (the outcomes). An alternative risk management tool is risk budgeting. This also is prone to the same errors as VaR and SaR, but it is still a worthwhile process to examine assumptions and outcomes. I might add that following tracking error of managers is one of the by-products of risk

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budgeting. I think our fiduciary committees, who also have a value bias, were quite forgiving of managers that underperformed at times. In other words, they used a risk management program but overlaid it with judgment and belief in their managers' long-term philosophies. I think VaR has a lot of shortcomings, and its reputation has been damaged, but as Joe Nocera wrote in the *New York Times*, "You can't blame math."^{viii} The failure belongs less to VaR as a model, rather to the practitioners who have excessively relied on it, while making unrealistic assumptions. Any value investor knows the securities at times go to extreme mispricing. As Emanuel Derman says, "The greatest sin in financial modeling is the age-old sin of idolatry."

Robert Maynard – I think that Sharpe ratios are marginally more helpful than VaR, but the real problem, where you really get in trouble is in risk budgeting with VaR. The problem is when you are under your budget you have to spend it. Even when it is the wrong thing to do you have to spend it. I agree that the committee requires risk systems and should insist on something. I agree with Philip that some scenario testing, coupled with Sharpe ratios, linear regression of all parts of the portfolio to a common set of indices may work better, but after you get past transparency there are few systems that give you a complete sense of risk. Risk is a family of concepts and something that can't be captured in one, two, or three numbers.

William Raver – I think that we have to distinguish between *strategic* risk management and *tactical* risk management. An investment committee should be accountable for strategic risk policy and should endorse specific parameters for investment staff to follow, such as a measurement time horizon and a policy asset class mix. The fiduciary committee should also provide resources to be deployed in pursuit of effective risk management. Then it becomes investment staff responsibility to pursue implementation of risk management on a tactical level, employing shorter time horizons and whatever tools are available. Some orient their efforts around ex-ante predictive data. Others, like myself, prefer to focus on ex-poste recent market and portfolio data, which detects trends and uncovers variances that require immediate attention. Staff are initially responsible for determining if a variance or trend is a good or bad risk movement. I think there is a big difference in roles between the fiduciary committee's strategic involvement in setting a risk framework and investment staff's day-to-day job of tactically managing risk through prevailing market conditions. Fiduciary committees cannot shun responsibility for (and should fully understand) major elements of a fund's risk control process.

Do you feel that we are currently experiencing a temporal bias against VaR? That is to say that negative sentiment toward quantitative risk models has been exacerbated by the current financial crisis and once the current crisis abates so will criticism of VaR?

Robert Maynard – One of the problems people are going to have, particularly if we continue down the daily/monthly/quarterly reports path, is there is nothing else. There is no math to quantify risk in a non-linear world, which is the better description of the world whenever one is dealing with a

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data stream that relies on monthly data or less. I think you'll see VaR and linear regression still being used because there is nothing else. There is a good argument to be made that once you go to the monthly or a less frequent time frame there is no math that can accurately predict. Aside from describing what happened in the past, there is no math that will give you a usable grasp on what to do contemporaneously, much less what to do in the future.

Peter Branner – I would tend to agree with that, particularly because the regulators here in Europe require that banks calculate VaR. It is well embedded into our financial regulation. I hope that people will not rely on it solely because it is obviously nonsense. In the hedge fund area, especially funds with little beta, I hope that people learn not to rely on it completely.

Barry Gillman – There has been so much press in the U.S. that picks up many of Bob Maynard's thoughts. Those of you in Europe, are you seeing similar reports? Do you get a sense from comments in the industry or financial press that VaR is broadly accepted?

Peter Branner – I think there is a lot more drama in the U.S. VaR is used extensively in Europe, especially in the hedge fund industry. I don't think there is anything that will make it go away. I think VaR is here to stay in Europe. It's just one of many numbers people look at. It might be part of the picture, but it's not the solution. I think what you are talking about is predominantly a U.S. phenomenon.

Philip Read – As I understand it, the U.K. regulators are requiring banks to use VaR and to reserve for a disaster funding plan in the event of bad outcomes. They must manage their assets in such a way that they remain solvent, even if there was a 20% drop in asset values over a short period of time. The key issue is, what is expected over the long term and does one have protection against a short-term shock?

Niel Krige^{ix} – I would be interested in hearing from others on conditional VaR ("CoVar")^x. I haven't come across anything in the real world where CoVar is used. Is it too difficult to calculate? Does it require too much or too long a history of data? Is it feasible to use CoVar in VaR's place?

Robert Maynard – I understood that there isn't enough data. There is an interesting question out there, some interesting work being done by Professor Kurz out of Stanford that examines if there is any stable distribution out there. Is there infinite variance? If there are infinite variances, no matter what you do you are fooling yourself. I think there is still a question out there on that. The fractal statistics describe a number of potential underlying distributions, including ones that are infinite. If that's the case, covariance is another system that is doomed to break.

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Does the problem lie with VaR or its practitioners? Is it the math or our complacency with the assumptions that is to blame? Do risk models give a false sense of security?

Robert Maynard – Well my view on the latter part is yes. The interesting thing is you go back to the late 60's... a great quote from the head of Harvard business school, "The problem with Mandelbrot, like Winston Churchill before him, he offers us nothing but blood, sweat, toil, and tears." All the tools people have come up with become useless if the description of non-linear markets is true. There isn't anything to put in its place. They've tried to use everything out of chaos and complex market theory. If you have to do something, it is better to use the math that is available, knowing its shortcomings and limitations than to say, we don't know. It's usable under certain circumstances, but it is only usable under those certain circumstances. Is it worth the hassle and complication for their limited uses?

Nasim Taleb, author of Fooled by Randomness and The Black Swan, has come out hard against VaR, going as far as calling it "fraud." His criticism is that VaR is incapable of predicting "fat tails." Do you agree with Nasim Taleb? Do you feel risk management models inherently underestimate the probability of extreme events?

Robert Maynard – I agree with Taleb. I think his criticism is right. The problem is he doesn't tell you what to do about it. He doesn't offer any alternative. He doesn't suggest anything besides staying in a cave or in cash.

Bruce Grantier – I agree only somewhat with Taleb and I think that his comments about VaR being a fraud are unduly harsh. VaR is just a math model, it's the assumptions and how we use it that is the problem. I've seen examples where an individual's experience and judgment allowed them to see past the numbers. For example, a Goldman committee recommended reducing Goldman's subprime exposure early in the crisis. An analyst, who was on that committee, said they were able to do this because they took a step back from the VaR numbers and took a look at the fundamentals of the situation. Risk techniques generally failed to warn of the impending problems, but as stated earlier, I would not blame the math, and I would not abandon risk techniques for their inadequacies. I think the take-away is that risk analysis is not a substitute for fundamental analysis and sound judgment.

Does VaR have any place in a value investor's portfolio?

Barry Gillman – We've done a lot of presentations on risk. And a common theme is risk is not fill-in-the-blank, whatever the conventional theory is. Whether it is VaR or some other mechanism, our perspective is that the definition of risk is like the old definition of art – we know it when you see it, but you can't define it. From a value perspective I don't think VaR really serves a purpose. Yes for a specific reason, if you have the right data, you can fine tune the data, but on the whole these types of tools go against the essence of value investing.

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William Raver – I think the classic thing with the value managers is how they got trapped in financial services. I don't think VaR would have helped with that. People weren't looking at these never-before-seen scenarios. It comes back to Bruce's point of marrying the two concepts – risk management and fundamental analysis. I don't see how value managers would have discovered something in VaR that would have allowed them to avoid the single biggest value destruction in their recent returns.

Robert Maynard – Plus, I think there is a problem with the relative timeline. As I understand it they use a relatively short time frame. There is a fundamental incongruity here.

Barry Gillman – I would offer that VaR is a volatility-based measure and value investors theoretically take advantage of volatility, therefore VaR would give you the opposite signals. For example, if VaR for financials is going up, that may be an opportunity for value investors.

William Raver – There is good volatility and bad volatility and I don't think VaR can safely predict which one it's going to be. This goes back the issue of active risk and how you manage portfolios. I still believe that risk management needs to be separated into its strategic and tactical elements. I wouldn't limit VaR's use in the tactical range, but I wouldn't try to push it up into the strategic range.

During the past 18 months, what risk management tool that you use worked best to identify the potential losses that you eventually incurred? What risk management tool that you use worked least well as a warning device? How could your investment staff have been better prepared for the crisis?

Philip Read – The biggest challenge was the fact that every asset class appeared to be correlated in the short term, as liquidity dried up. No current model we use appears to have predicted this – but of course the outcome on correlations makes sense after the event. So, what does that imply for diversification? Our view is that it is still right to diversify the return seeking and liability-matching assets, but to be aware that they can be highly correlated in a crisis. As for predicting the extent of the downturn, or the response of governments around the globe, I would be delighted to learn if anybody has the tools to do that in advance.

Niel Krige – Being a defined contribution fund we have never felt the need to use VaR as a risk measure. Instead, we use a risk budgeting approach, focusing on tracking error and information ratios. We understand perceptively that this approach also has limitations. Furthermore, we have always regarded diversification by asset class and by country (bearing in mind that we operate in an emerging market with significant currency risks) as an important risk management tool.

Peter Branner – Common sense by portfolio managers combined with scenario analysis worked best. VaR, tracking error, and similar relative tools did not give any warnings. As far as being

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better prepared, I'm not sure – everybody expected cash to be free forever it seems. We all knew it was unsustainable but the magnitude of effect was a shock to most.

During the past 18 months, did your board alter any strategic policy metrics or instructions to the investment staff? Were they fully engaged in monitoring the fund losses? Did they suspend re-balancing? Raise cash? Defer desired or necessary changes to manager allocations?

Niel Krige – We did not suspend our rebalancing rules during the crisis. Instead, we imposed them quite rigidly. With hindsight this has worked very well for us.

Bruce Grantier – I'm involved in an advisory capacity for several organizations and I've advocated rebalancing asset mix back into equities, and looking for value in both equities and fixed income. An example in equities was great quality companies in March 2009 selling at half their price of six months prior. In fixed income there were extremely cheap conditions in both provincial and corporate spreads – levels that I don't think I have ever seen before in my career.

Philip Read – The main focus – for a large and cash-flow negative pension plan – was on ensuring that benefits and other outgoings could be met for several years in advance, without having to sell return-seeking assets at beaten up prices. We also paid attention to counterparty risk, and the risk of fraud, acting on a general common sense approach. As part of our fundamental long-term strategy, we would usually re-balance to the long-term strategic benchmark. However, this action was suspended during the downturn, and only re-instated once we felt that conditions had stabilized.

Peter Branner – We did not directly alter any strategic policy, but a strong risk focus and more risk formulas have been reinforced. In addition, we did not suspend rebalancing and raised cash only to meet redemptions. We also, to some degree, deferred changes to manager allocations.

During the past 18 months, what exceptional actions did your investment staff take? Change VaR inputs? Re-balance faster (or slower)? Revise manager investment guidelines? Engage in any derivative-based stop-loss actions? (e.g., buy puts, short futures, adopt straddle)

Peter Branner – We've put more focus on absolute risk levels. We haven't changed our VaR inputs. We've also taken down risk levels for most FI mandates with credit risk elements. As far as engaging derivative-based stop loss – yes, but that is part of our normal management.

Philip Read – The key actions were to manage cash and suspend re-balancing, as described above. We explored derivative strategies to protect the downside, but decided they were too expensive. We had to re-negotiate collateral arrangements when Lehman Brothers collapsed – that was accomplished very quickly. The key issues going forward is to decide where and when to put risk back into the portfolio.

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Summary

In this article, we shared excerpts regarding the advantages and limitations of various risk management techniques, including VaR. Below is a brief summary of the views expressed by the Brandes Institute Advisory Board:

1. ***Do you rely on or use VaR?*** Views ranged from a broad use of the measure, taking into account its limitations, to "... it has been a disaster." Members discussed over-reliance on VaR as perhaps its chief downfall.
2. ***What other tools have you used for risk control?*** Members noted many examples of risk management tools including scenario testing, using empirical distributions to include turbulent regimes, tracking error, risk measures such as the Sharpe ratio, risk reduction through asset mix and portfolio diversification, rebalancing, and risk reduction through derivative-based stop losses.
3. ***Has the recent crisis prompted you to evaluate or adopt any alternative approaches to traditional risk management tools?*** If so, what are they? The recent financial crisis has pointed out (perhaps again) the risk of over-reliance on models of risk management. While Board members agreed that there is clearly a fiduciary obligation to monitor and manage risk, many expressed the need to use risk management models cautiously.

ⁱPhilip Read, FIA, FPMI – Chairman of the Trustee Board, appointed by the UK Government, to the British Coal Staff Superannuation Scheme, with assets of £9 billion. Mr. Read retired in February 2009 from Metal Box Pension Trustees Limited where, along with his fellow trustees, he was responsible for reviewing the investment management structure of the assets of The Metal Box Pension Scheme, which currently amount to £1.5 billion.

ⁱⁱBarry Gillman, CFA – Director of Brandes Investment Partners Portfolio Strategies Group, which includes the Brandes Fixed Income Group, the Brandes Institute, and the firm's product development program. Prior to joining Brandes, Mr. Gillman led a global investment consulting firm, and held senior positions with investment institutions in the United States and the United Kingdom.

ⁱⁱⁱBruce Grantier, CFA, CAIA – Retired from Scotiabank, where he was Managing Director, Pension Assets, responsible for investment policy, asset allocation, manager selection, and alternative assets for Scotiabank pension funds. Mr. Grantier serves on the Queen's University Investment Committee, the Toronto Archdiocese Investment Committee, the Board of Governors, Catholic Missions in Canada, and is a director of the Provenance Life Insurance Company.

^{iv}This process is described in Philippe Jorion's *Value at Risk: The New Benchmark for Controlling Market Risk*.

^vPeter Branner – Global Head of SEB Investment Management, responsible for the continued development of SEB mutual funds and building the bank's alternative investments. Previously, Mr. Branner was Chief Investment Officer of Fortis Investments' Multi Management division based in the United Kingdom. He also served as CIO and Managing Director of IKANO Fund Management (IFM) S.A. for nine years and was one of the driving forces setting up the company and establishing IKANO Funds.

^{vi}William Raver – Previously Chief Executive Officer and CIO of the National Railroad Retirement Investment Trust (NRRIT), where he managed +\$30 billion of defined benefit assets on behalf of U.S. railway system employees, Mr. Raver is currently a consultant to or board member of a number of institutional investment organizations. Earlier in his career, Mr. Raver served as a Managing Director and Chief Operating Officer of Verizon Investment Management as well as Corporate Treasurer and senior officer of Young & Rubicam Inc. and Cadbury Schweppes, Inc.

^{vii}Robert Maynard – Chief Investment Officer, Public Employee Retirement System of Idaho. Previously Mr. Maynard served as deputy executive director of the Alaska Permanent Fund Corporation, and as assistant attorney general for the state of Alaska. In addition, Mr. Maynard serves on the board of directors for a number of investment-related organizations, including the Pacific Pension Institute and the Boise State University Foundation.

^{viii}Nocera, Joe, January 2, 2009, "Risk Management: What Led to the Financial Meltdown" *New York Times Magazine*.

^{ix}Niel Krige, FIA, AMP, MComm – Professor of Portfolio Management and International Finance, University of Stellenbosch Business School. In addition to his academic work, Mr. Krige is chairman of the board of directors of the South Africa-based, Advantage Asset Managers and chairman of the board of trustees of the Denel Retirement Fund. Prior to his current academic appointment, Mr. Krige was the deputy chair of Momentum Life, where he continues to serve on the board.

^xWhile VaR represents the size of a loss at a defined level of probability, "Conditional VaR" represents the size of the probability-weighted loss under the entire tail to the left of the VaR point.

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