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SUMMARY

Seeking to focus on quantitative analytics while utilizing my deep industry, process, and technical experience to increase productivity for myself and my team. Senior quantitative financial analyst, technical architect, and project delivery leader with broad-based consulting and line management expertise. Over fifteen years experience in design, construction, and integration of technically innovative systems in multiple industries including insurance, mortgage, health care, automotive, manufacturing, investment banking, brokerage, and alternative investments.

APPLICABLE SKILLS

Quantitative Modeling: I have developed and productionized quantitative models for valuation, performance and risk analysis, portfolio construction, and trading for asset managers, investment banks, and exchanges. I have demonstrated skills across equities, derivatives, fixed income, structured products, and hedge funds. I am skilled at understanding, replicating, and using published quantitative models and also at developing and refining new models. I regularly write and speak on quantitative topics in major journals and conferences, and have been contracted by the largest financial press (Springer-Verlag) to write a book on performance and risk analysis.

Dynamic Hedging: We developed quantitative models to calculate the correct hedging instrument for portions of the portfolio based on the correlations of the combined portfolio to several highly liquid derivatives. This capability gives a portfolio manager both the ability to "buy insurance" when there is a good return stream to protect, and to react to sudden changes in the markets without having to unwind a large number of positions that you might still be confident of over a longer time frame.

Quantitative Investment Screening: Returns for most asset classes, investment styles, and funds are not normally distributed, so statistical methods that rely on or assume a normal distribution are very fragile for analyzing these assets. I have created and published **R** statistical analytics functionality that match the latest econometric research in analyzing hedge funds and other asset classes for risk, autocorrelation (identifying problems of illiquid or manually marked books), persistence of returns, style analysis and style drift, factor modeling, and other areas. I have also developed the standard trend following and mean reversion quantitative models for use in high frequency, daily, or longer cycle trading. Code that I have written is in use at some of the largest hedge funds and banks in the world.

Heuristic Screening: Investments in a portfolio of alternatives involve both heuristic and quantitative components. We assisted one of our large institutional clients in standardizing the heuristic process for screening managers, helping to set guidelines for what traits in a manager should be considered beyond direct performance analysis.

Portfolio Construction: Choosing the size of an investment is a complementary process to choosing the instrument to invest in. I have developed multiple-asset class optimizers, hedge fund style selection optimizers for a fund of funds or institutional setting, as well as a utility function based optimizer for asset allocation (weighting) within a single or multi-style portfolio of hedge funds. I have evaluated or used multiple different optimizer methodologies to make sure that the correct optimization method is used for portfolio construction based on the nature of the specific portfolio.

Portfolio Management and Trade Processing: I have managed portfolios in all major asset classes. We developed and licensed to our clients a middle and back office portfolio management and trade processing system that handled 300,000-500,000 trades per month across more than 12 prime/clearing brokers and 50+ prime broker accounts. The system handled trade reconciliation, trading P&L, multi-currency, and multiple instrument/asset classes. I have also developed reference data systems and analytics engines for major asset managers and investment banks.

Process Discovery, Analysis, Automation: Productivity growth often hinges upon the ability of an organization to discover, analyze, refine, and automate business processes that were once ad-hoc and manual. I have deep experience in process discovery and analysis from my years as a management consultant, and have applied these skills for the last six years in the hedge fund industry, at major asset managers, and investment banks.

Technology Expert: I have extensive technical implementation expertise across most modern computational technologies. Once processes have been identified as candidates for automation, an implementation path must be chosen that is both efficient and economical. I can manage and add value to the entire technology project life cycle.

METHODS and TECHNOLOGIES

Analytical Methods: non-normal distribution analysis, Risk-adjusted return analysis, VaR (*see Risk below*), correlation analysis, performance/risk ratios (e.g. Sharpe, Sortino, and variants), normality tests, cointegration, multiple pricing models (see Pricing), multiple regression methods (*see Regression*), multiple optimization methods (*see Optimization*)

Risk: drawdown analysis, semivariance, downside deviation, parametric mean-VaR, simulated scenario mean-VaR, Monte Carlo VaR, Basel II VaR/capital metrics, Cornish-Fisher VaR, multivariate four moment VaR, Expected Shortfall (CVaR), Incremental, Component, and Marginal VaR, shock/slide scenario analysis, default models (loans/bonds)

Pricing: factor analysis, PCA, technical indicators (ranges, momentum, volatility, volume), Monte Carlo simulations, Bayesian, Robust, ARIMA, GARCH, term structure(bonds), discounted cash flow (bonds), 2-4 moment CAPM

Optimization: Markowitz (mean variance), brute force, grid search, linear programming, resampling, heuristic rules, quadratic, cubic, simulated annealing, threshold accepting, and utility based optimizer methodologies

Modeling: technical indicators, arbitrage, mean-reversion, regression models, long-cycle models, industry/style portfolios

Analytical Tools: R/S/S-PLUS, Rmetrics, SPSS, SAS, Mathematica, Maple, MatLab, MathCAD, Octave, Quantian, Bloomberg, Pertrac, RiskMetrics, Intex, CreditMetrics

Other Technologies: application servers, databases, middleware, security, cryptography, workflow, CRM, ERP, multiple programming languages, multiple operating systems. *Details available upon request.*

Methodologies: Object Oriented, Patterns, Extreme/Rapid Prototyping, Functional Decomposition, RUP/UML, Use Case, SEI Software Capability and Maturity Model (CMM), Test Driven Development, JAD, Six Sigma

PROFESSIONAL EXPERIENCE

Canadian Imperial Bank of Commerce (CIBC) Oct 2008-Jan 2009

Senior Risk and Quantitative Analyst (*ED-level term contract*)

- Analyzed and created models for risk and valuation of a \$15B structured products portfolio (CDO,ABS,CLO).
- Led team and negotiations in due diligence and purchase of a \$4.5B CLO manager.
- Provided guidance on transitioning from a run-off book to active pursuit of distressed opportunities.

Diamond Management and Technology Consultants, Chicago, IL 2007-2008

Knowledge Leader – Finance

- Lead strategy and technology projects for global Financial Services clients.
- Conducted research in new risk and portfolio construction methodologies.
- Provided leadership in quantitative methods and technologies for capital markets and alternative investment.

Explorer Fund Advisors, Chicago, IL 2003-2006

Explorer Technology Services, Chicago, IL

Chief Technology Officer, Lead Analyst

- Developed quantitative investment models, portfolio construction algorithms, and portfolio optimization.
- Calculated risk and valuation metrics: Automated specific hedge selection for a portfolio or instrument.
- Managed the technology and strategy consulting business and resources for Explorer's institutional clients.

CryptoRights Foundation, San Francisco, CA 2002-2003

Lead developer – Highfire

- Lead design and development of a secure cryptographic platform for use by human rights workers.
- CryptoRights is a NGO dedicated to the protection of human rights workers and the information they collect.

eLoyalty, Lake Forest, IL 1994-2002

Vice President – Technology (*started as a Programmer/Analyst/Sr. Consultant*)

- Designed and developed large, technically complex systems using a wide range of technologies.
- Project Lead and Subject Matter Expert for teams of up to 50 resources with budgets of \$2-20 million/yr.

PD&C, Inc., Madison, WI 1989-1994

Owner

- Grew the company from 1-15 employees. Successfully sold the company to my largest client.
- Designed and developed several applications in the virtual reality and scientific simulation fields.

RECENT and PRE-PRESS PUBLICATIONS

Portfolio Attribution, Construction, and Management. Brian Peterson and Peter Carl. Under contract with Springer-Verlag. In production, expected publication 2010.

Applied Investment Performance and Risk Analysis. Brian Peterson and Peter Carl. Under contract with Springer-Verlag. In production, expected publication 2009.

Portfolio Optimization with Risk Budgets. Brian Peterson with Kris Boudt and Peter Carl. *Journal of Portfolio Management*. in review, to appear 2009.

Analysis of Multivariate Moments and Co-moments for Financial Time Series. Brian Peterson, Peter Carl, and Kris Boudt. *Journal of Statistical Software*. in review, to appear 2009.

Performance Analysis in R. invited seminar presentation, R/Finance conference. Chicago. April 2009.

Quantitative analysis of large portfolios using modern computational techniques. Invited speaker, MFA Conference. March 2009.

Estimation and Decomposition of Downside Risk for Portfolios with Non-normal Returns. Kris Boudt and Brian Peterson and Christophe Croux. *Journal of Risk*. Winter 2008 11(2) p. 79-103.
available online at: http://www.thejournalofrisk.com/public/showPage.html?page=jor_v11n2a4

Component VaR for a non-normal world. Brian Peterson and Kris Boudt. *RISK Magazine*. November 2008 78-81.
also reprinted in *AsiaRISK*. available online at: <http://www.risk.net/public/showPage.html?page=823941>

Hedge Fund Portfolio Selection with Modified Expected Shortfall. Kris Boudt and Brian Peterson and Peter Carl. *Computational Finance*. May 2008.
available online at: <http://library.witpress.com/pages/PaperInfo.asp?PaperID=18906>

Portfolio Risk Decomposition using Modified VaR and Expected Shortfall. Brian Peterson. MFA Conference. March 2008.

Ask the Experts: Cornish-Fisher VaR 101. Brian Peterson. *Institutional Investor Advisor*. Nov 2007.
available online at <http://www.bfinance.co.uk/inst/article.do?serieId=1&docid=N12560>

Exploratory Data Analysis in Finance using PerformanceAnalytics. Brian Peterson and Peter Carl. presented at the UseR! International R User and Developer conference, Ames, Iowa, August 2007.

Keynote: *Portfolio Selection, Risk Analysis, and Optimization*. Brian Peterson. presented at the R/RMetrics International User Conference in Meielisalp, Switzerland, July 2007.

PerformanceAnalytics: An R package for Performance and Risk Analysis in Finance. Brian Peterson and Peter Carl. 2004-2009. <http://cran.r-project.org/src/contrib/Descriptions/PerformanceAnalytics.html>