

QMS

CAPITAL MANAGEMENT LP

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Diversified Global Macro

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Pools are net of custody and other operating expenses paid by such Pools. Returns include interest earned and interest charges on margin posted at FCMs/FX prime brokers for certain accounts, and include interest earned on cash that Pools have not posted to FCMs/FX prime brokers.

Returns shown are compounded monthly. All performance numbers are unaudited. QMS's Diversified Global Macro strategy (the "Strategy") commenced live trading in mid-May 2010. Performance numbers show the performance of a blended composite of all of QMS's accounts (including client and proprietary accounts) that traded in the Strategy for the full reported month. Performance numbers from May 2011 forward were computed by QMS using account-level performance numbers provided by NAV Consulting, Inc. ('NAV'), an independent fund administration service provider that is not affiliated with QMS. Performance through February 2011 is pro-forma, based on actual trading, scaled to 15% ex-ante annual volatility, and intended for illustration purposes. March-April 2011 performance is hypothetical, combining pro forma trading results, scaled to 15% ex-ante annual volatility, from March 1 to March 17, and a paper traded portfolio from March 18 through April 30. May-August 2011 performance numbers are derived from a live track record on the dbSelect Managed futures platform. This performance may vary from dbSelect reports, due to the deduction of transaction costs on dbSelect reports and differences in month-end prices used by NAV and dbSelect. Currently, the Strategy trades commodity futures. Prior to May 2011, the Strategy did not trade commodity futures. Excepting March-April 2011, the returns shown are derived from actual trading. Returns do not represent the return of any individual client of QMS. Individual client returns may have differed from the returns presented.

This update contains hypothetical performance that is presented for illustrative purposes only and is not based on actual trading activities. The monthly performance numbers for March and April 2011 are hypothetical. Hypothetical performance assumes a constant notional account of \$100 million and that profits were not reinvested. Hypothetical performance was generated by assuming that all trades were executed at the opening price on the day following the generated trade signals. **Hypothetical performance results have many inherent limitations, some of which are described below. No representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points that can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program that cannot be fully accounted for in the preparation of hypothetical results and all of which can adversely affect actual trading results.**

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QMS Diversified Global Macro Strategy

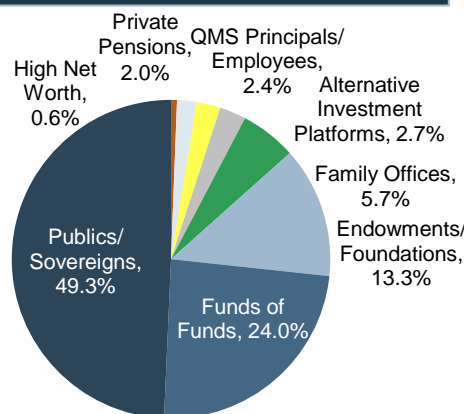
PERFORMANCE UPDATE

QMS DIVERSIFIED GLOBAL MACRO

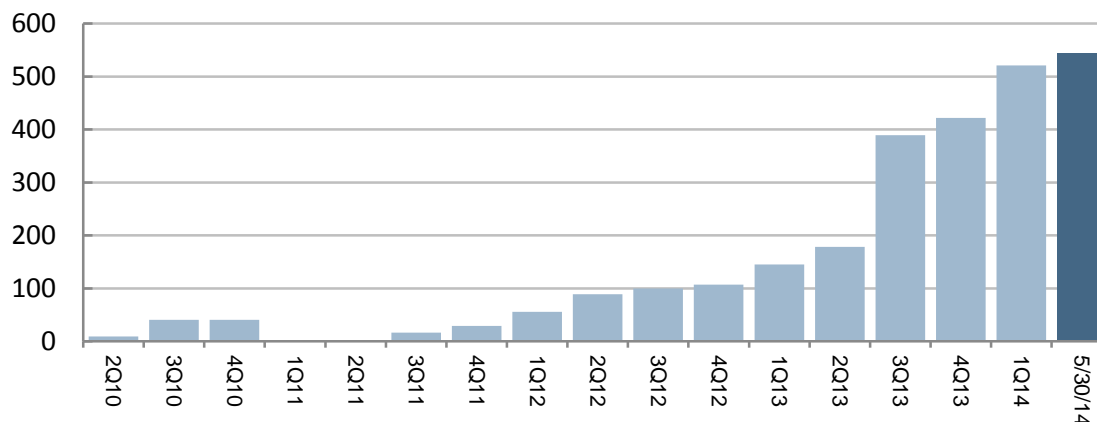
Composite Performance: percent return, compounded monthly

Net of 2/20 fees	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD
2014	-2.77	-0.24	-1.32	-1.16	2.40 ¹								-3.12 ¹
2013	6.24	0.70	2.06	3.29	-2.45	-0.49	-0.26	-0.27	2.07	0.88	8.13	1.36	22.90
2012	3.15	6.67	1.38	-1.51	-8.78	-0.20	5.43	3.09	-0.32	-1.48	3.00	0.98	11.05
2011	0.34	2.00	-4.00	3.32	0.84	0.45	4.00	-2.79	-1.87	2.22	0.21	-2.87	1.51 ²
2010						1.46	0.76	2.63	1.89	1.05	-2.70	0.52	5.66

Firm-Level Investor Breakdown³



Firm Trading Level: 545mm USD (Strategy: 512mm)³



Past performance is not necessarily indicative of future results. The investment strategies described in this presentation carry certain risks, including the risk of loss of some, all, or amounts in excess of, the principal invested. Shaded area indicates hypothetical performance. Please see pages 2 and 3 for other important disclosures.

¹Estimated.

²Includes two months (March and April 2011) of hypothetical performance.

³As of May 30, 2014. Trading level is the sum of the nominal account sizes for partially-funded accounts plus the actual account size for fully-funded accounts, and includes both client and proprietary capital. For partially-funded accounts, QMS does not have sufficient information regarding the funding of such accounts to determine the actual level of funds in the accounts. QMS's initial managed account traded with a VaR allocation on a proprietary trading desk of a large financial institution. Trading level shown through 4Q10 is scaled to the 15% annual volatility target utilized for the Diversified Global Macro strategy.

Premise: Markets, at various times, behave according to some combination of fundamental valuation and shorter-term trading dynamics

QMS Diversified Global Macro

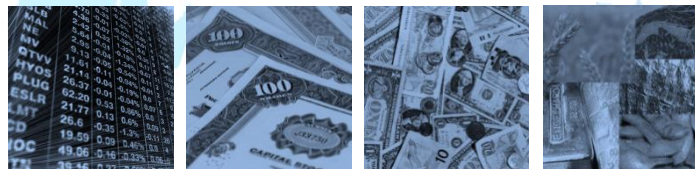
Fundamental economic
investment models
(systematic macro style)



Market-based
trading models
(CTA style)

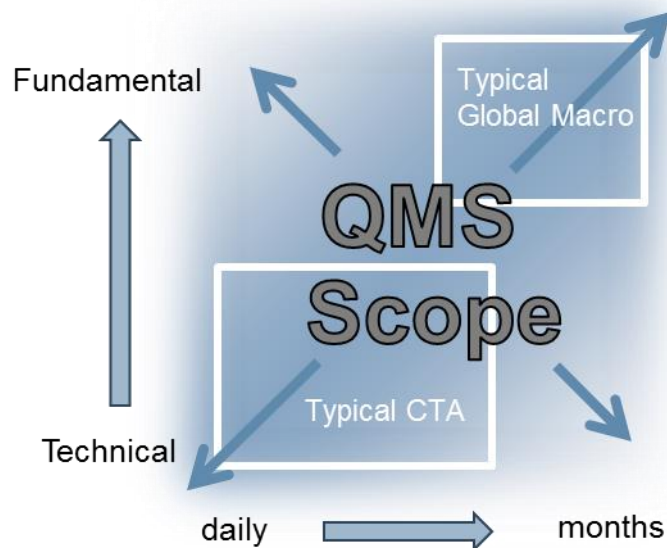
Systematic, long-short strategy, trading in liquid futures and forwards

- Global equity indices
- Global sovereign rates/bonds
- Currencies
- Commodities

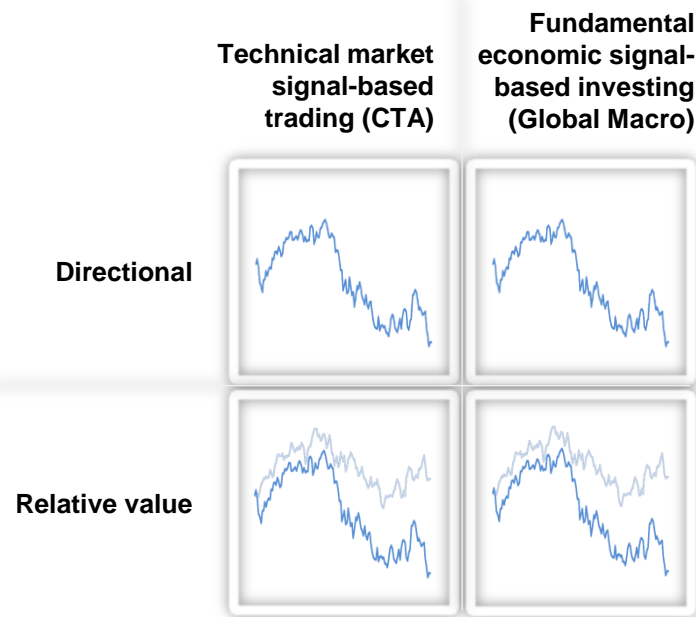


Strategy seeks to profit from a broad scope of trading models, across multiple dimensions

Employ models driven by both
fundamental and technical signals --
each over a wide turnover frequency



Engage in both directional and relative value investing, across technical and fundamental styles



QMS tradable universe is comprised of approximately 70 globally-diversified, highly-liquid forward and futures contracts

- > Long or short trading in each contract
- > Contracts selected to ensure high portfolio liquidity
- > Each contract monitored in real-time for potential trading signals
- > Tick-by-tick data stored in QMS databases for trading, research, and risk management

COMMODITY	FUTURES CONTRACTS
Energy	6
Metals	4
Ags	11



REGION	EQUITY INDEX FUTURES	RATE/ BOND FUTURES	FX
European Union	6	4	1
United States	4	6	-
Japan	2	2	1
United Kingdom	1	2	1
Canada	1	2	1
Australia	1	3	1
Switzerland		2	1
Sweden	1	-	1
Norway		-	1
Hong Kong	1	-	-
Singapore	1	-	-
New Zealand		-	1

DIVERSIFICATION BENEFITS OF CTA / GLOBAL MACRO

Why combine systematic CTA (trading) with systematic macro (investing)?

- > Belief that market prices respond to either fundamental value or to trading dynamics (or some combination).
- > Two distinct investing styles, trading the same asset universe
- > CTA and Global Macro strategies offer low correlation with other asset classes – but also with each other
- > Correlation among traditional asset classes increases during periods of market stress (e.g , 2008)
- > Historically, even a simple 50/50 combination of Global Macro and CTA strategies has offered an attractive return profile



QMS's strategy spans both CTA and Global Macro, but is dynamic in its allocation

Annual returns for traditional and alternative asset classes

	US Equity ¹	Int'l Equity ²	US Bonds ³	Comdty ⁴	US REITS ⁵	Long-Short Equity ⁶	Fixed-Income Arb ⁷	Global Macro ⁸	CTA ⁹	Global Macro + CTA ¹⁰
1994	1.3%	7.8%	-2.8%	11.7%	0.8%	-8.1%	0.3%	-5.7%	12.0%	3.1%
1995	37.6%	11.2%	18.5%	8.9%	18.3%	23.0%	12.5%	30.7%	-7.1%	11.8%
1996	23.0%	6.1%	3.6%	17.0%	35.8%	17.1%	15.9%	25.6%	12.0%	18.8%
1997	33.4%	1.8%	9.6%	-8.2%	18.9%	21.5%	9.3%	37.1%	3.1%	20.1%
1998	28.6%	20.0%	8.7%	-30.5%	-18.8%	17.2%	-8.2%	-3.6%	20.6%	8.5%
1999	21.0%	27.0%	-0.8%	18.6%	-6.5%	47.2%	12.1%	5.8%	-4.7%	0.6%
2000	-9.1%	-14.2%	11.6%	24.2%	25.9%	2.1%	6.3%	11.7%	4.2%	8.0%
2001	-11.9%	-21.4%	8.5%	-22.3%	15.5%	-3.7%	8.0%	18.4%	1.9%	10.1%
2002	-22.1%	-15.9%	10.1%	23.9%	5.2%	-1.6%	5.8%	14.7%	18.3%	16.5%
2003	28.7%	38.6%	4.2%	22.7%	38.5%	17.3%	8.0%	18.0%	14.1%	16.1%
2004	10.9%	20.3%	4.5%	7.6%	30.4%	11.6%	6.9%	8.5%	6.0%	7.2%
2005	4.9%	13.5%	2.6%	17.5%	8.3%	9.7%	0.6%	9.2%	-0.1%	4.6%
2006	15.8%	26.3%	4.3%	-2.7%	34.4%	14.4%	8.7%	13.5%	8.1%	10.8%
2007	5.5%	11.2%	7.2%	11.1%	-17.8%	13.7%	3.8%	17.4%	6.0%	11.7%
2008	-37.0%	-43.4%	7.0%	-36.6%	-37.3%	-19.8%	-28.8%	-4.6%	18.3%	6.9%
2009	26.5%	31.8%	5.1%	18.7%	27.4%	19.5%	27.4%	11.6%	-6.6%	2.5%
2010	15.1%	7.8%	6.3%	16.7%	27.6%	9.3%	12.5%	13.5%	12.2%	12.8%
2011	2.1%	-12.1%	7.9%	-13.4%	7.3%	-7.3%	4.7%	6.4%	-4.2%	1.1%
2012	16.0%	17.3%	4.2%	-1.1%	20.1%	8.2%	11.0%	4.6%	-2.9%	0.8%
2013	32.4%	22.8%	-2.0%	-9.6%	3.2%	17.7%	3.8%	4.3%	-2.6%	0.9%
Average	11.1%	7.8%	5.9%	3.7%	11.9%	10.4%	6.0%	11.8%	5.4%	8.6%
Std. Deviation	19.7%	20.3%	4.9%	18.5%	20.3%	14.4%	10.8%	11.0%	8.8%	6.2%
Correl to S&P 500	100.0%	81.1%	-7.6%	18.2%	41.7%	78.5%	56.8%	38.0%	-37.6%	7.3%

1 S&P500

2 MSCI EAFE Index

3 Citi Broad Investment Grade Bond Index

4 DJ UBS Commodity Index

5 FTSE NAREIT US All REIT Index

6 Credit Suisse Long-Short Equity Hedge Fund Index

7 Credit Suisse Fixed-Income Arbitrage Hedge Fund Index

8 Credit Suisse Global Macro Hedge Fund Index

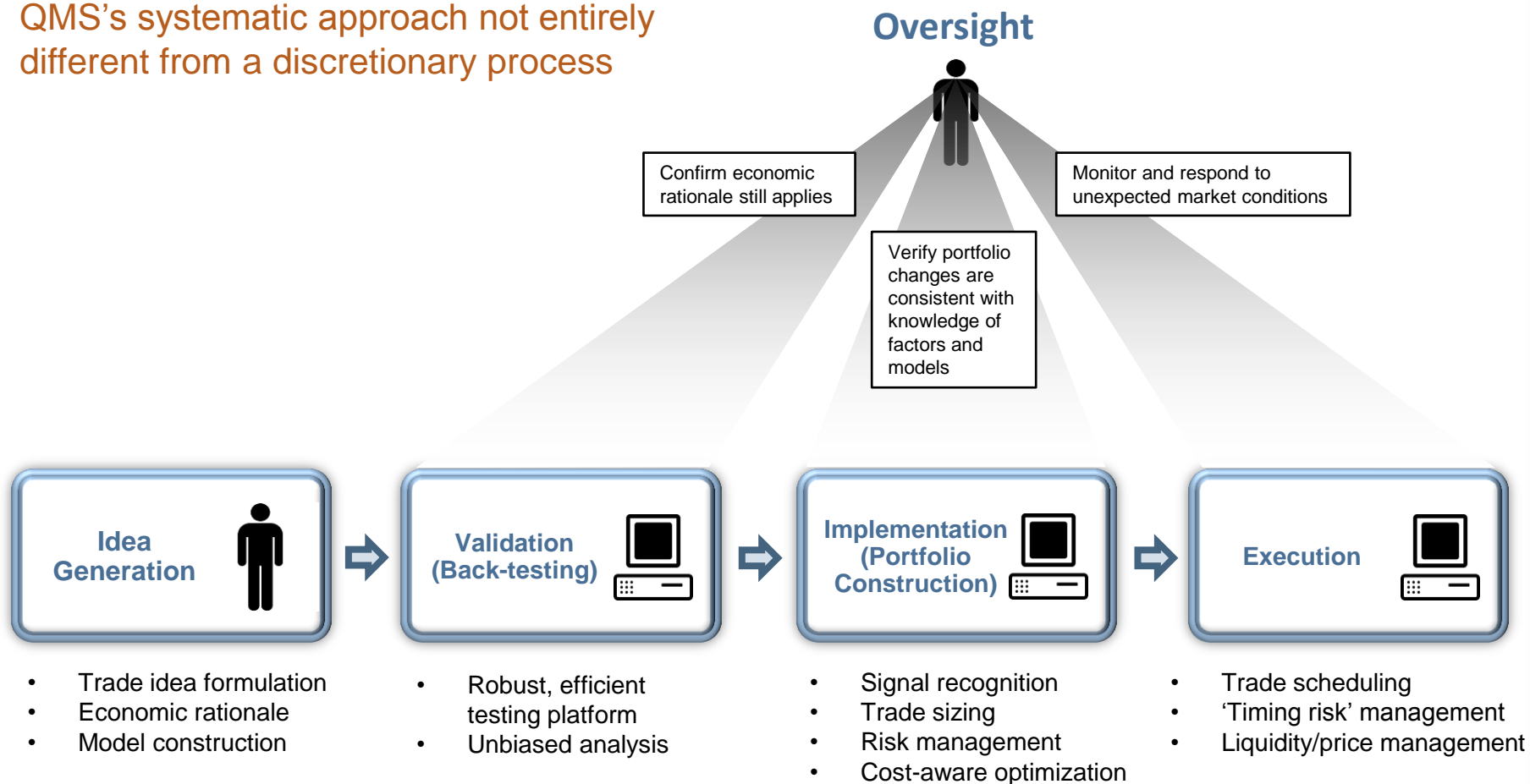
9 Credit Suisse Managed Futures Hedge Fund Index

10 Arithmetic average of 8 and 9 above

ROLES FOR MAN VS. MACHINE

Systematic, NOT Black Box:

QMS's systematic approach not entirely different from a discretionary process



Portfolio Construction and Implementation

Hierarchical, top-down, risk-budgeting allocation framework

PORTFOLIO

- Portfolio-level risk target of 15% annualized
- Allocated top-down to asset classes, investing styles, factors, and models

STYLE

- Intentional allocation to fundamental-based investing models and market-based trading models in each asset class

ASSET CLASSES

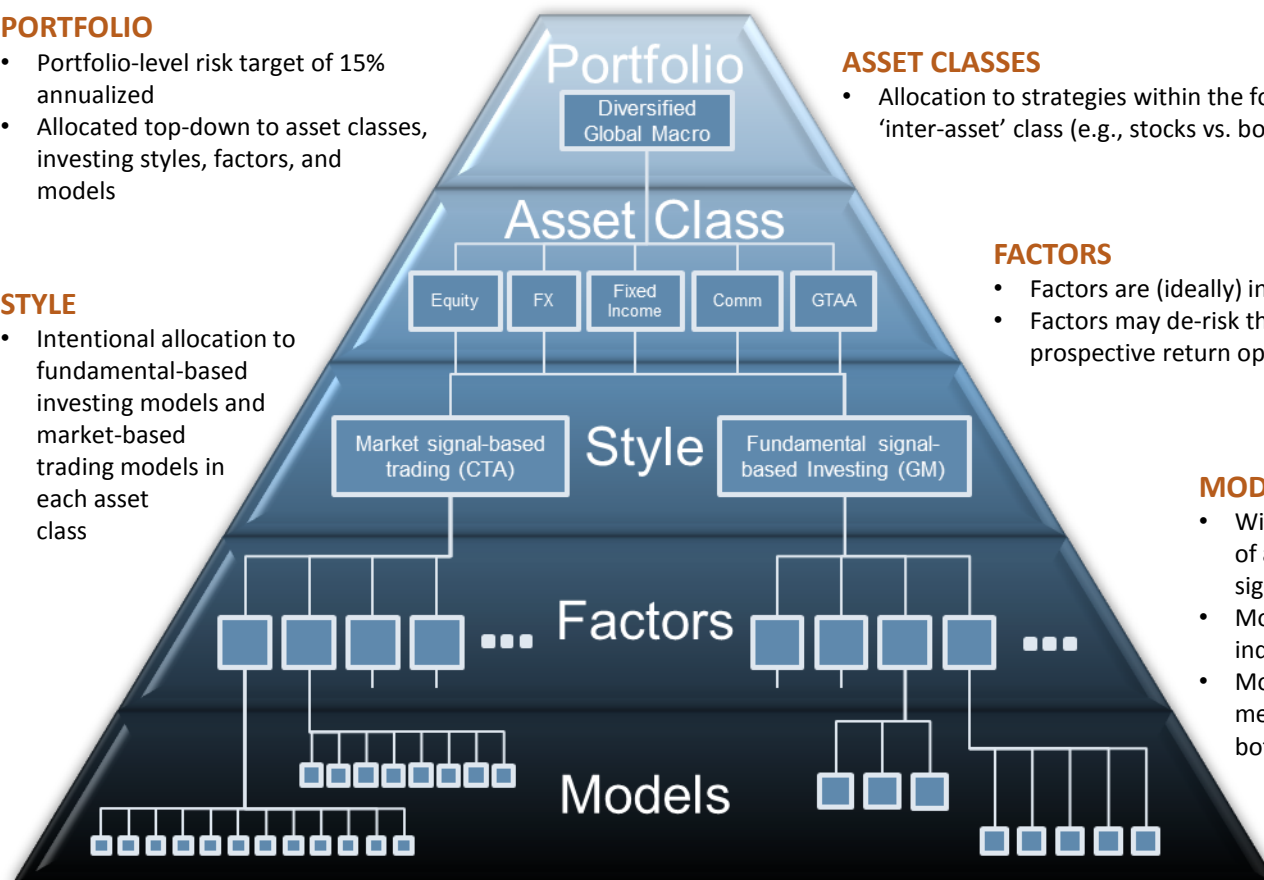
- Allocation to strategies within the four macro asset classes and to a GTAA 'inter-asset' class (e.g., stocks vs. bonds within country)

FACTORS

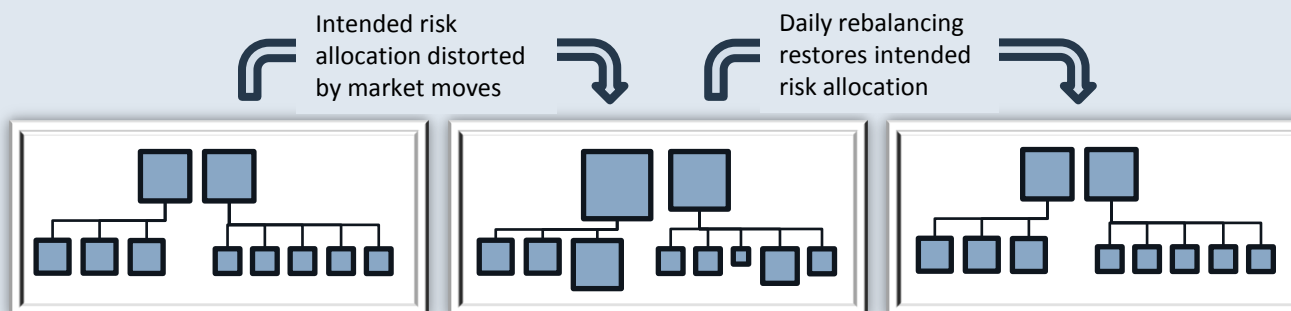
- Factors are (ideally) independent sources of return
- Factors may de-risk themselves (in favor of other factors) when prospective return opportunity set appears lower

MODELS

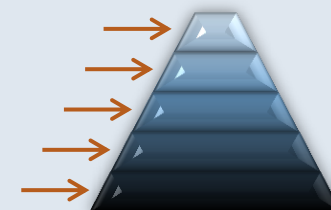
- Within factors, models represent distinct ways of accessing factor alpha source (different signals, time horizons, approaches, etc.)
- Models generate 'factor portfolios' rather than individual 'trades'
- Models indicate positions and conviction (a measure of opportunity set, used for dynamic, bottom-up, tactical risk distribution)



Automated risk rebalancing

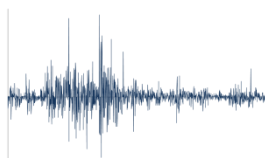
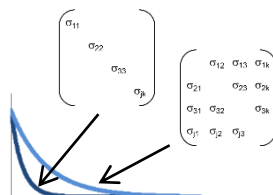


Applied at each level of portfolio construction hierarchy



Multi-speed risk model

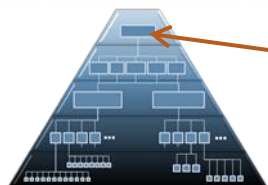
- > Primary Risk/Allocation Model
 - Faster Volatilities than Correlations, consistent with empirical observations of time-stability
- > High-Frequency Risk Model
 - Faster indication of increasing volatility
- > Low-Frequency Risk Models
 - Captures historical risk from assets with currently depressed volatility (e.g., U.S. short term rates)



Chief Risk Officer

- > High-level portfolio oversight
 - Sensibility of systematic framework (i.e., do broad concepts still apply to current environment?)
 - Subjective verification of intended portfolio traits
- > Non-market risk
 - Counterparty risk (e.g., FX forwards)
 - FCM Risk
 - Margin Risk

COST-AWARE OPTIMIZATION



Ideal Target Portfolio (ITP)

The portfolio that maximally expresses views of all trading models working in concert

However, in the presence of costs/constraints, the cost of acquiring ITP depends on starting point... and ITP changes each day as markets move!

Is it worthwhile to pay trading costs to achieve ITP?



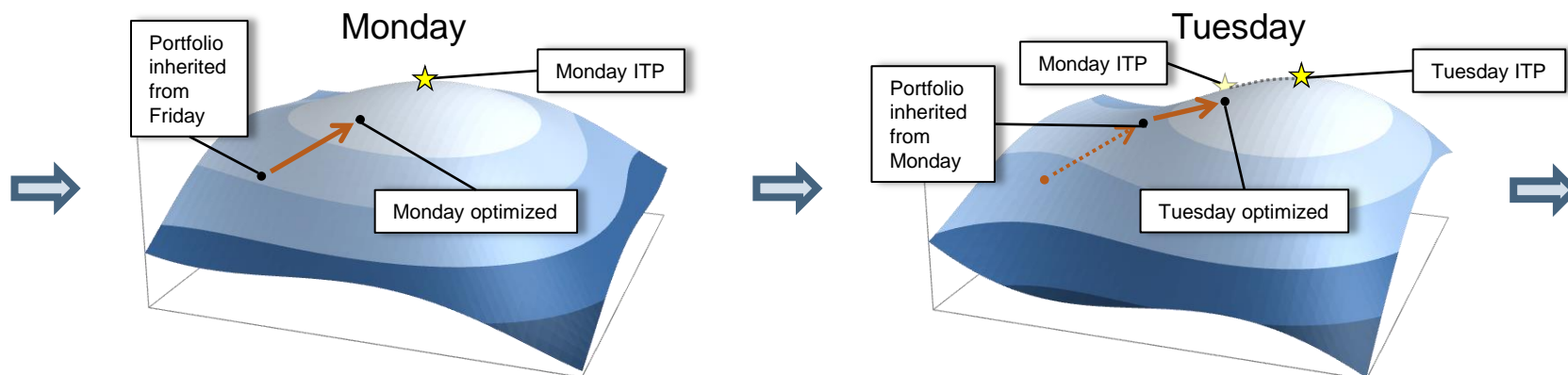
Reverse optimization (Black-Litterman technique) generates estimate of “cost” of not holding ITP

$$\begin{bmatrix} \sigma_{11} & \sigma_{12} & \sigma_{13} & \sigma_{1k} \\ \sigma_{21} & \sigma_{22} & \sigma_{23} & \sigma_{2k} \\ \sigma_{31} & \sigma_{32} & \sigma_{33} & \sigma_{3k} \\ \sigma_{j1} & \sigma_{j2} & \sigma_{j3} & \sigma_{jk} \end{bmatrix} \times \begin{bmatrix} w_1 \\ w_2 \\ w_3 \\ w_j \end{bmatrix} = \begin{bmatrix} r_1 \\ r_2 \\ r_3 \\ r_j \end{bmatrix}$$

Covariance Matrix Portfolio Weights Implied Asset Returns

Translate position difference between portfolio and ITP to dollar cost of foregone alpha

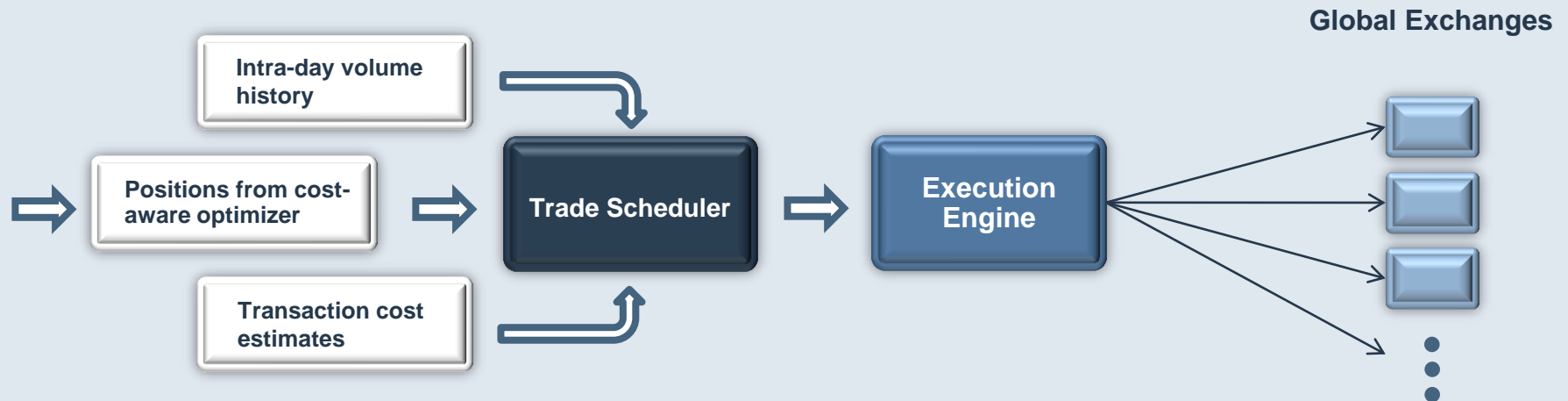
Daily rebalancing results in an optimized portfolio that tracks ITP at minimum cost (trading cost + foregone alpha)



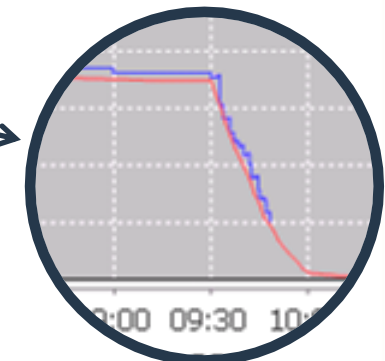
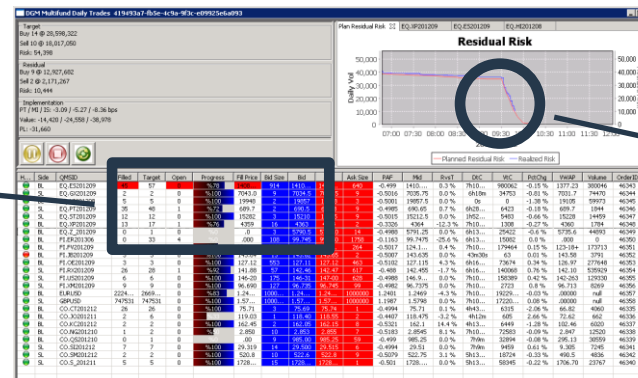
TRADE EXECUTION

Proprietary trade scheduler and execution platform

- Implements portfolio from cost-aware optimization
- Optimizes trade-off between timing risk and trading cost

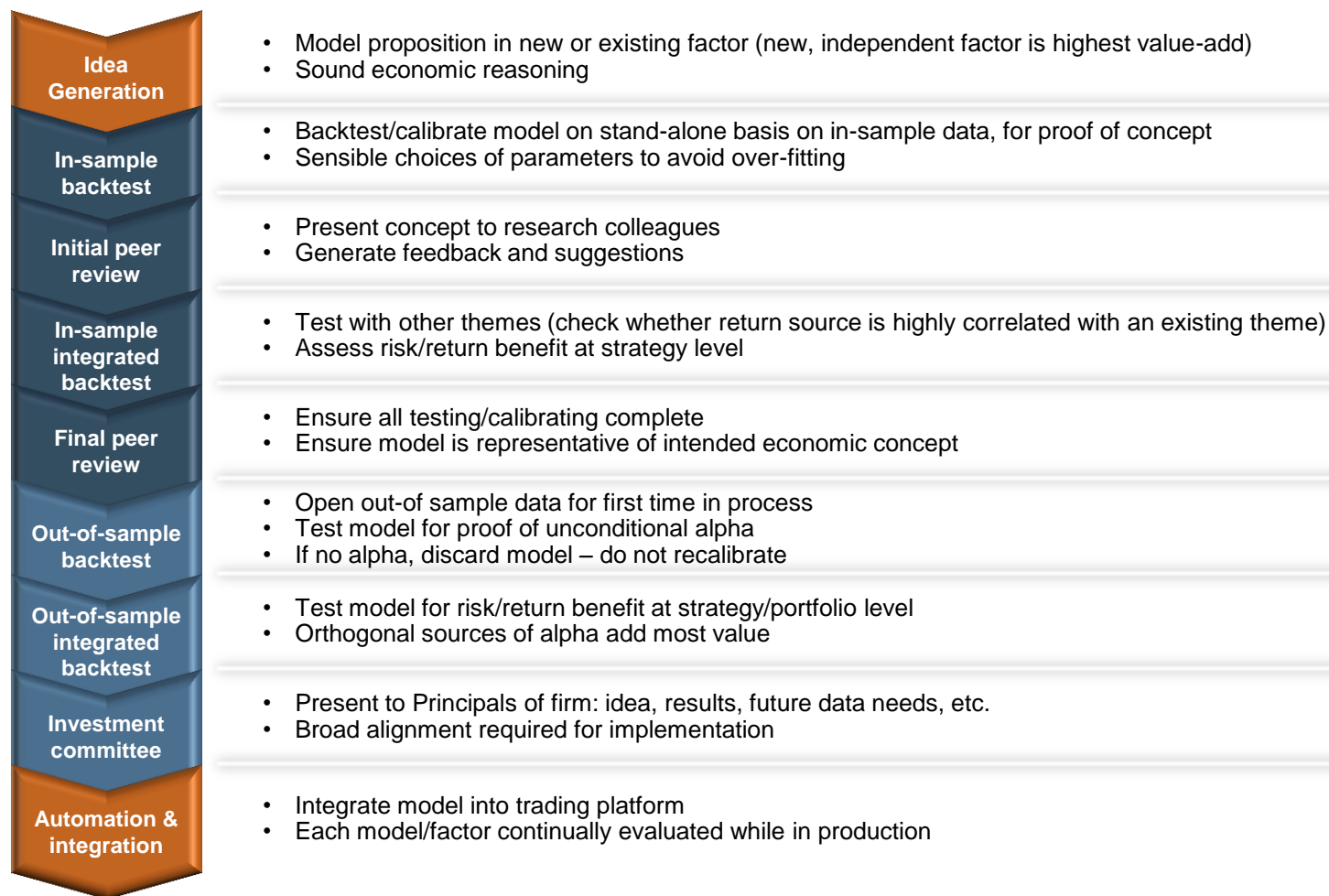


Filled	Target	Open	Progress	Fill Price	Bid Size	Bid	A
45	57	0	%78	1408...	914	1410...	141
2	2	0	%100	7043.0	9	7034.5	703
5	5	0	%100	19948	2	19857	19
35	48	1	%72	689.7	2	690.5	69
12	12	0	%100	15282	3	15210	15
13	17	1	%76	4359	16	4363	43
0	1	0	%0	.0	3	5790.5	579
0	33	4	%0	.000	108	99.745	99
5	8	1	%62	124...	1463	124.04	124



Research Process

MODEL IMPLEMENTATION PROCESS



MINIMIZING NEGATIVE EFFECTS OF DATA MINING

- > Endemic to back-testing in financial modeling
- > A primary cause of underperformance
- > When many models are tested on historical data, some will show “statistical significance” purely by chance – potentially resulting in an unprofitable trading system in real time
- > Sound economic/fundamental reasoning for each tested idea
- > Strict separation of fitting and testing sample periods – true walk-forward testing
- > Intelligent choice of fitting and testing sample periods
- > Viability across a wide scope of markets/assets



SAMPLE INVESTMENT FACTORS

Market-based Trading Factors (CTA Style)

Trend Following

Money flow and behavioral biases can provide lengthy trends under certain circumstances. *Implemented both directionally and cross-sectionally.*

Reversals

Asset prices often show reversal effects over certain time horizons, at times related to liquidity provision. *Implemented both directionally and cross-sectionally.*

Statistical Relationships

Class of models seeking to exploit various statistical relationships among assets.

Fundamental-based Investing Factors (Macro Style)

Fundamental Valuation

Strategies seeking to profit from temporary dislocation between market prices and fundamental value.

Yield

Risk premia and liquidity premia can be earned within or across instruments in certain environments. Identifying correct environments is critical.

Cross-Market Flows

Strategies seeking to profit from predictable capital flows across global macro markets.

Business Cycles

Strategies seeking to take advantage of predictable macro flows and asset price responses to various stages of business cycles.

Monetary policy

Strategies seeking to predict central bank policy and exploit the resulting macro flows and asset prices responses.

Quantitative investing has a significant requirement for high-speed, high-capacity computing

- > **Production and backtesting computing needs**
 - Many potential models
 - 15+ years of tick-by-tick data of 100+ financial instruments
 - 15+ years of simulated optimization/rebalancing
 - Capturing/processing of real time signals and prices
- > **Many investment managers have been slow to adopt latest technology**
 - Unfamiliarity with latest information technology
 - Difficult transition from existing infrastructure
 - Burdensome sunk costs from legacy systems

QMS is dedicated to state-of-the-art IT infrastructure

- > **Recently built infrastructure, with latest technology**
 - No inefficient legacy systems
 - Expertise in latest data management and programming techniques
 - Efficient use of parallel computing technology
- > **Adoption of cloud computing leverages in-house technology**
 - Provides secure backup and reliable data redundancy
 - Boosts capacity for parallel computing tasks
 - Flexible variable-cost model facilitates continual upgrades

QMS utilizes both onsite and cloud computing platforms

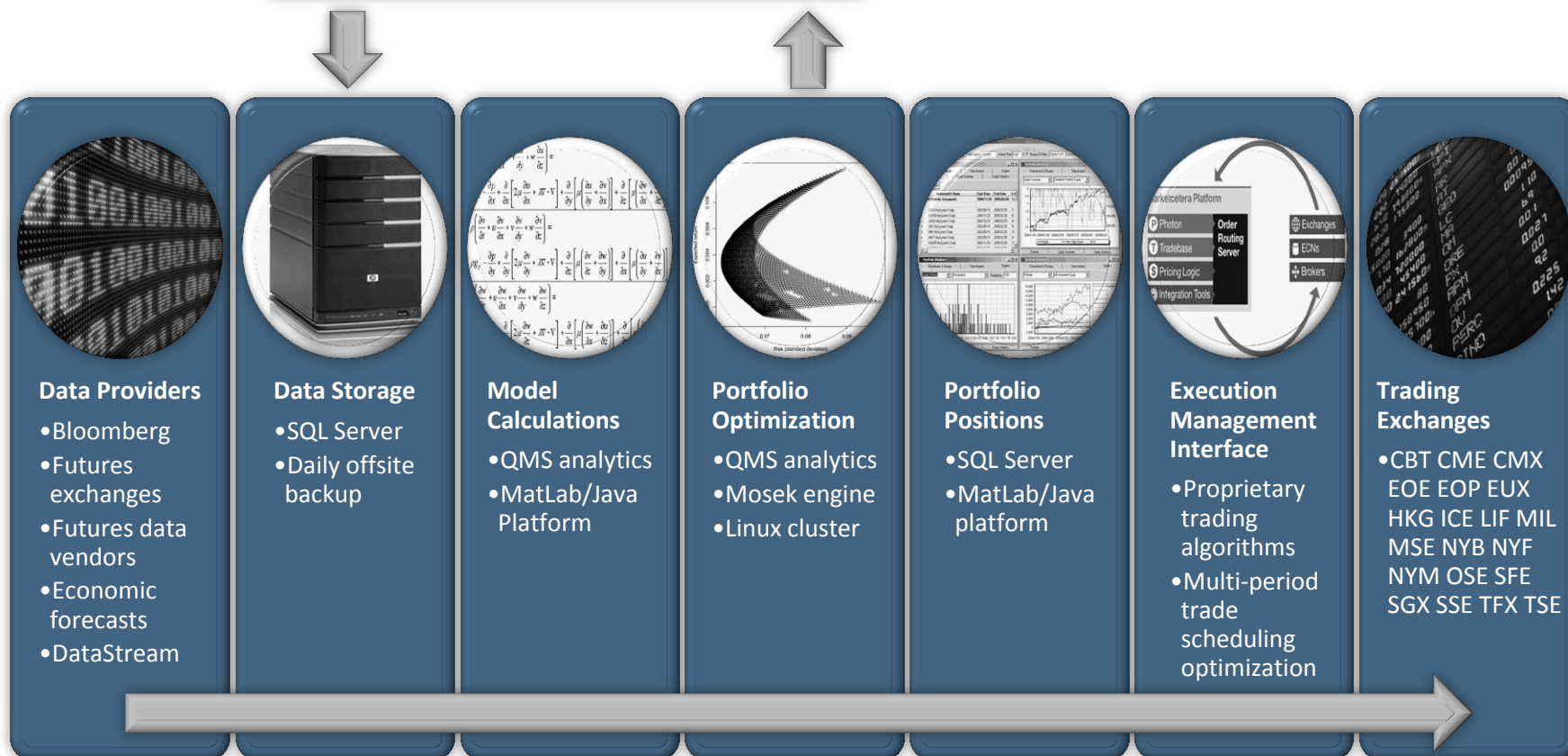
Onsite cluster
(50+ Linux nodes)



Cloud servers

- Up to many thousands of CPUs in parallel
- Extremely fast speeds for parallel tasks
- Highly scalable
- Extremely reliable/secure
- Flexible capacity for dynamic workload
- Variable cost price structure
- Data redundancy for disaster recovery

Model Backtest Loop



Firm Overview

FIRM BACKGROUND

- > QMS was founded with the vision of building a world-class laboratory for financial research
- > QMS maintains a commitment to blending academic research and practitioner experience to offer valuable investment ideas and best practices
- > QMS combines highly quantitative modeling skills, real-world experience, and financial/economic judgment
- > Research Triangle (Raleigh-Durham-Chapel Hill) location ideal for attracting/retaining top research talent and fostering innovation



Multidimensional diversification

- > Investment paradigms
- > Time horizons
- > Asset classes
- > Alpha factors
- > Trading models

Diversity of skill sets

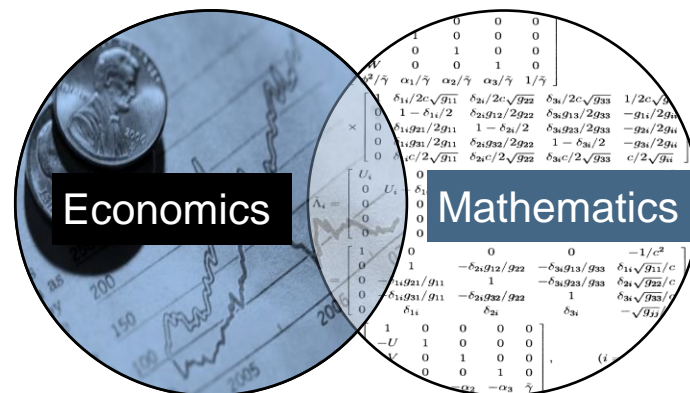
- > Rigorous academic training
- > Experienced market practitioners
- > Broad spectrum of past expertise

Quantitative, but transparent

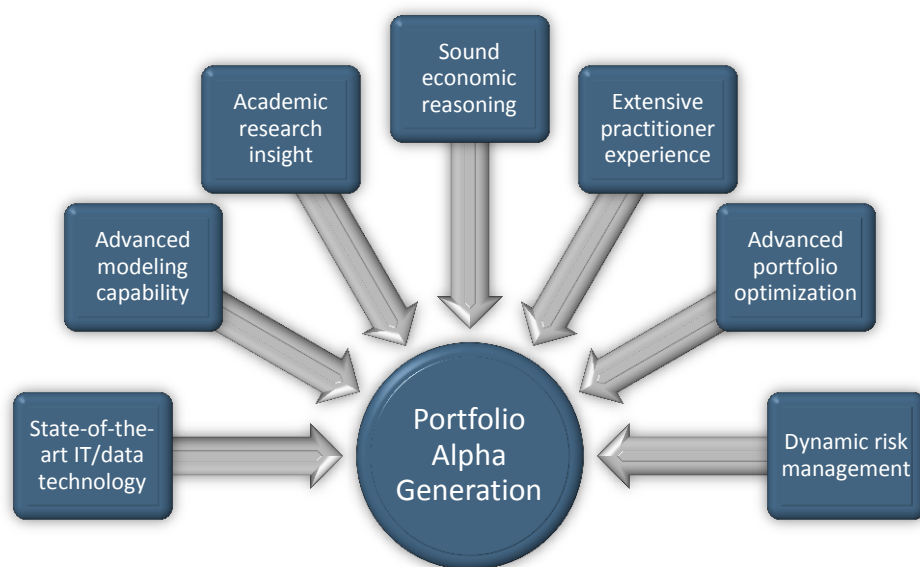
- > Sound economic concepts expressed through quantitative algorithms
- > Thorough understanding of each model and its limitations guides the implementation

Advanced portfolio construction and risk management

- > Sophisticated cost-aware portfolio optimization
- > Rigorous, embedded risk management
- > Dynamic rebalancing

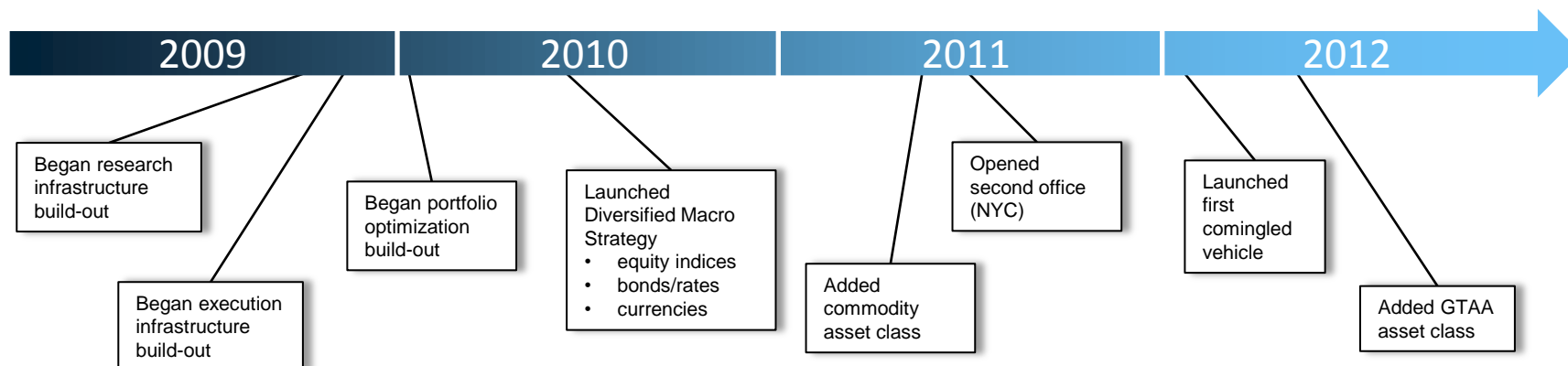


QMS blends a broad spectrum of expertise and advanced analytic tools to exploit return opportunities

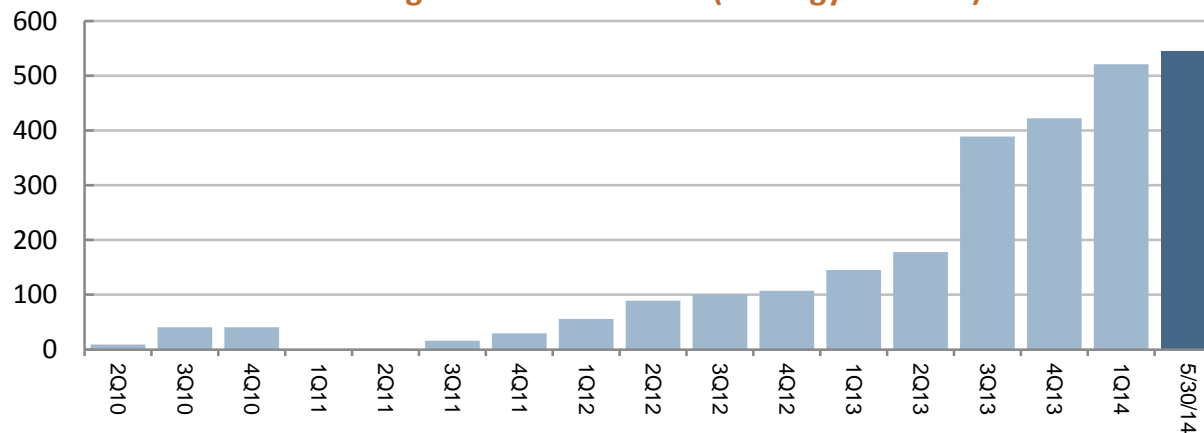


- > Ph.D. researchers
- > Over 40 articles published in leading academic/practitioner journals
- > Experienced investment personnel from top quantitative firms
- > Cooperative relationships with data providers
- > Access to unique data sets
- > Powerful parallel computing technology
- > Nimble data storage/retrieval capability

COMPANY TIMELINE



Firm Trading Level: 545mm USD (Strategy: 512mm)¹



¹As of May 30, 2014. Trading level is the sum of the nominal account sizes for partially-funded accounts plus the actual account size for fully-funded accounts, and includes both client and proprietary capital. For partially-funded accounts, QMS does not have sufficient information regarding the funding of such accounts to determine the actual level of funds in the accounts. QMS's initial managed account traded with a VaR allocation on a proprietary trading desk of a large financial institution. Trading level shown through 4Q10 is scaled to the 15% annual volatility target utilized for the Diversified Global Macro strategy.

ORGANIZATIONAL CHART

Management Team

Michael Brandt, Ph.D.
Managing Principal
Chief Investment Officer

Adil Nathani¹
Managing Principal
Chief Risk Officer, CFO

Peter Nolan, Ph.D., CFA¹
Managing Principal
Head of Business Development

Daryl Caldwell
Principal
• Portfolio Construction
• Research

Richard O'Brien
Principal
• Trade Execution
• Research

Bill Schwartz
General Counsel,
Chief Compliance Officer &
Chief Operating Officer

Ian Enverga
Director
• Marketing/Investor
Relations

Robert Darwin, Ph.D.
Vice President
• Research

Sukesh Pai
Vice President
• Information Technology
• Research

Graham Carroll
Analyst
• Operations

Sarah Thayer
Analyst
• Marketing/Investor
Relations

Radhika Shah²
Controller

Ana-Maria Tenekedjieva
Analyst
• Research

Cathy Johnston
Office Manager/Executive
Assistant

¹Also actively involved in research

²Part time

Biographies of Senior Professionals

Michael W. Brandt, Ph.D.

- > Michael Brandt is a Managing Principal at QMS Capital Management LP, where he heads the Investment Committee and is responsible for overseeing the research and investment process. Dr. Brandt is also the Kalman J. Cohen Professor of Finance at Duke University's Fuqua School of Business. His research on portfolio management, quantitative trading strategies, risk management, and financial econometrics has been published in leading financial and economic journals. Prior to QMS Capital, Dr. Brandt spent considerable time serving as a consultant to large financial institutions, implementing quantitative trading and risk management strategies. He served as an editor and on editorial boards of leading academic journals and is a Faculty Research Associate of the National Bureau of Economic Research. Prior to joining Duke University, he was a faculty member at the Wharton School of the University of Pennsylvania for six years, and previous to that he worked in research at J.P. Morgan Futures and J.P. Morgan Securities, where he assisted in the early development of the risk management systems subsequently used as the basis for Risk Metrics. Dr. Brandt holds a Ph.D. and MBA in Finance from the University of Chicago and an MSc in Economics from the London School of Economics.

Adil Nathani

- > Adil Nathani is a Managing Principal at QMS Capital Management LP, where he is responsible for risk management and financial reporting. Mr. Nathani is also a member of the Investment Committee. Most recently, he served as Citigroup's Chief Risk Officer for Global Structured Credit Risk and Chief Risk Officer of LATAM (where he was a member of the Executive Committee) during the recent financial crisis. He came to Citigroup as a Partner at Old Lane. Prior to 2006, he spent 12 years at CDC Investment Management/Capital Markets NA and its successor organizations, where he served as a Group Executive and board member and was responsible for various business lines within fixed-income trading. Prior to CDC, Mr. Nathani led a team conducting arbitrage strategies in fixed-income markets for Normandy Asset Management. He began his investment management career at Smith Breeden Associates and AMBAC. He earned an MBA from Duke University, which he attended as an Aga Khan Foundation scholar, and where he currently serves on the Board of Visitors as well as the advisory board of the Center for Financial Excellence. Mr. Nathani also serves on the board of Community Access Inc, a NY based, mental health, non-profit organization.

Peter D. Nolan, Ph.D., CFA

- > Pete Nolan is a Managing Principal at QMS Capital Management LP, where he is responsible for business development, structuring, marketing, and oversight of investment strategies and strategic relationships. Mr. Nolan is also a member of the Investment Committee. He has extensive experience in non-linear modeling, alternative investment structuring, credit valuation, and risk management. Prior to joining QMS Capital, he was a Principal at Smith Breeden Associates and served in various capacities associated with alternative assets – including development of valuation and risk models, investment vehicle structuring, trading, and marketing. Previously, Dr. Nolan was a Senior Research Engineer for Exxon Mobil Corporation and earned an MBA from Duke University. He also holds an M.S. and Ph.D. in Chemical Engineering from The University of Texas at Austin, where he was a Dreyfus Foundation Fellow for his work in molecular physics.

Daryl N. Caldwell

- > Daryl Caldwell is a Principal at QMS Capital Management LP, where he is responsible for developing various portfolio optimization and quantitative trading strategies as well as managing portfolio risk. Mr. Caldwell is also a member of the Investment Committee. Prior to joining QMS Capital, he was a Portfolio Manager for the Canada Pension Plan Investment Board's (CPPIB) global market neutral equity strategy, working in both portfolio management and quantitative research. During his time at CPPIB, Mr. Caldwell was responsible for designing and implementing quantitative absolute return strategies, optimal signal construction methods, dynamic factor weighting research, capacity research, and various portfolio optimization techniques. Previously he worked in the market risk group at Bank of Montreal, where he analyzed interest rate, foreign exchange and equity risks for several of the bank's portfolios. Mr. Caldwell holds Masters degrees in Statistics and Mathematical Finance from the University of Toronto, where he also earned a degree in Electrical Engineering.

Richard W. O'Brien

- > Richard O'Brien is a Principal at QMS Capital Management LP, where he is responsible for implementing trading and risk management platforms and executing quantitative trading strategies. Mr. O'Brien is also a member of the Investment Committee. He has extensive experience managing quantitative portfolios as well as designing algorithmic trading systems. Prior to joining QMS Capital, he worked for AQR Capital in Greenwich, CT, where he was responsible for implementing quantitative trading strategies and trading global investment portfolios comprised of long-short equity, currencies, swaps, futures, and sovereign credit derivatives. Previously he managed relative value fixed income positions for Simplex Asset Management in Tokyo and Princeton, NJ. Mr. O'Brien holds dual degrees in Economics and Computer Science from Amherst College and has studied at the London School of Economics.

William E. Schwartz

- > Bill Schwartz is General Counsel, Chief Compliance Officer and Chief Operating Officer for QMS Capital Management LP, where he is responsible for providing legal advice on all aspects of the firm's business, administering the compliance program, and overseeing firm operations. Prior to joining QMS Capital, Mr. Schwartz was General Counsel and Chief Compliance Officer for Smith Breeden Associates. Previously, he was an Assistant General Counsel with Bank of America Corporation, providing legal support to Columbia Management Group, Bank of America's primary asset management division. Prior to Bank of America, he was an associate with the law firms of Dechert LLP and Seward & Kissel LLP. Mr. Schwartz holds a Juris Doctor, with honors, from the University of North Carolina at Chapel Hill. He also holds a Bachelor of Arts from Williams College.

Alessandro Beber, Ph.D.

- > Alessandro Beber is a Research Consultant for QMS Capital Management LP, where he is responsible for developing macro trading models. Dr. Beber is a Professor of Finance at Cass Business School in London and a research affiliate of the Center for Economic Policy Research. Prior to joining Cass, he held research or teaching positions at the Wharton School of the University of Pennsylvania, Columbia Business School, HEC Lausanne, London Business School, and Amsterdam Business School. Dr. Beber's expertise lies in financial econometrics, quantitative asset management, risk management, and derivatives. His current research is at the intersection of empirical asset pricing, liquidity, and macroeconomics and has been published in leading financial journals. Dr. Beber holds a Ph.D. in Economics and Management from St. Anna School of Advanced Studies in Italy.

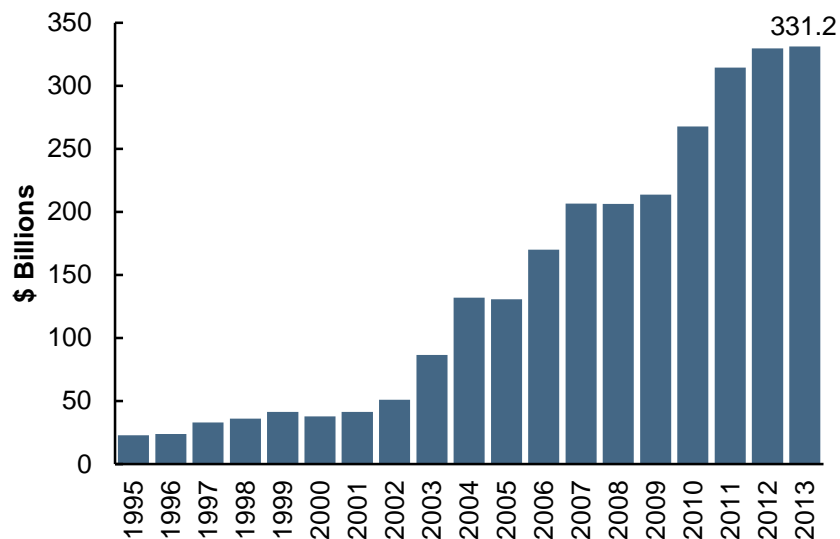
Appendix

Introduction to Managed Futures and Quantitative Investing

Managed futures strategies have attracted increased attention from investors

- > Offer returns uncorrelated with traditional and alternative asset classes
- > Trade in highly liquid markets
- > Exchange-based trading minimizes counterparty risk
- > Managed futures typically synonymous with CTAs (Commodity Trading Advisors)
- > Liquid Global Macro Strategies are similar to CTAs, but differ in important respects

Growth of assets in managed futures



source: BarclayHedge

Comparison of typical strategies

	CTA	Global Macro
Instruments	Global futures/forwards	Global futures/forwards
Markets	Currencies, commodities, fixed-income, equity indices	Currencies, commodities, fixed-income, equity indices
Underlying Philosophy	More technical	More fundamental
Model Themes	Self-reinforcing	Opportunistic
Conceptual Theme Diversity	Lower	Higher
Time Horizon	Short-medium term	Medium-long term
Trading Tactics	Trend following	Value investing
Trade Timing	Reactive	Anticipatory

Studies in various disciplines indicate statistical models outperform discretionary judgment

- > Medicine: Well-established dominance of actuarial over clinical diagnosis (Dawes et al. 1989)
- > Finance: Quant hedge funds have markedly outperformed non-quant hedge funds over multiple decades (Chincarini 2010)

Quantitative strategies hold many advantages

DISCRETIONARY TRADING	QUANT TRADING
Limited scope of markets	Very broad global market scope
Often single-themed strategies	Ability to simultaneously and consistently execute multiple strategies
Behavioral biases (excessive trading, selling winners, hindsight bias, confirmation bias)	No behavioral biases – can profit from behavioral biases of others
Poor at distinguishing valid and non-valid predictors (lack of feedback)	Excellent at manipulating large data sets to uncover relationships
Inconsistent in applying own trading rules	Ultimately consistent
Under-diversified or naïvely diversified	State of the art portfolio optimization/diversification techniques
Often arbitrary/unjustified return target estimates	Return targets inferable from performance estimates of individual models
Risk management often arbitrary/suboptimal	Risk management explicitly tied to portfolio optimization
Requires <u>many</u> years of performance to validate trading skill	Rigorous out-of-sample testing provides early feedback
Trading costs often ignored/dealt with improperly	Trading costs explicitly and optimally accounted for in portfolio construction

Where do humans hold an advantage?

- > Capacity to observe/adapt
- > Situations when false-signals have high impact outcomes
- > Causality vs. mere correlation
- > Thematic idea development
- > Economic understanding

Combining strengths of quantitative methods and human discretion is ideal – provided the right choice is made for each task



Discretion	Quant
<ul style="list-style-type: none"> • Creative development • Recognition of secular shifts and structural breaks • Sanity/reasoning checks 	<ul style="list-style-type: none"> • Portfolio Construction • Risk Rebalancing • Trade timing • Opportunity scanning

Contact Information

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