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## CQA Spring 2011 Conference Notes

Last week, several of our team's members attended the Chicago Quantitative Alliance (CQA) Spring Seminar in Las Vegas. The following represent our collective notes from the conference.

1. **"Is The Quant Franchise Irreparably Damaged?"**  
Panelists: Sebastian Ceria, Axioma; Geoff Gerber, Twin Capital Management; Joseph Mezrich, Nomura Securities; Victor Zhang, Wilshire Associates  
Moderator: Dan Cardell
2. **"Active Management in Mostly Efficient Markets"**  
Bob Jones
3. **"Power Hungry: The Myth of 'Green Energy' and the Real Fuels of the Future"**  
Robert Bryce, Author/Journalist
4. **"A Model of Casino Gambling"**  
Nick Barberis, Yale University
5. **"Risk-Based Asset Allocation: A New Answer to an Old Question?"**  
Wai Lee, Neuberger Berman
6. **"Yield Curve Predictors of Foreign Exchange Returns"**  
Joseph Chen, University of California, Davis
7. **"Competing (and Winning) on Analytics in Professional Sports"**  
Benjamin Alamar, Menlo College
8. **"Alpha and Performance Measurement: The Effects of Investor Heterogeneity"**  
Wayne Ferson, University of Southern California
9. **"Alpha is Dead, Long Live Alpha: A Return to Real Wealth Creation in Financial Markets"** by Kevin Pleiter, IBM Corporation
10. **"Fundamental Law of Active Management: Time Series Dynamics and Cross-Sectional Properties"** by Zhuangxin Ding, Analytic Investors
11. **"Taxable Investing with Style and Extension"**  
Andrew Berkin, First Quadrant

**I. “Is The Quant Franchise Irreparably Damaged?”**

**Panel: Sebastian Ceria, Axioma; Geoff Gerber, Twin Capital Management;  
Joseph Mezrich, Nomura Securities; Victor Zhang, Wilshire Associates**  
**Moderator: Dan Cardell**

**Was 2007 the Peak of Quant Assets?**

*Matthew Rothman, Barclays Capital (from audience):* Quantitatively managed assets grew substantially from \$450B in 2003 to a peak of \$1.1T in July 2007. Total AUM as at December 2010 were approximately \$375B.

GG: There have been several difficult periods for quants over the last 30 years including the failure of portfolio insurance in 1987, the internet bubble of the late 1990s, the junk rally of 2003, the market drop-off in 2008, and subsequent rally in 2009.

VZ: Seen an increased application of systematic processes across many different strategies (asset allocation, passive strategies e.t.c) over the last 2-3 decades.

JM: Using the “quant” label as an assets gathering tool has peaked; managers need to redefine how they market their products and organizations. Quant is a process not an asset: rebrand.

SC: Quants need to adapt in a rapidly changing environment. Where are all the market leading vendors?

**What Kind of Returns Should Quant Managers Expect Going Forward**

GG: Dispersion of stock returns is important in stock picking. If dispersion is low, then quants can expect a tough time going forward.

VZ: Managers need to be able to effectively communicate the drivers of (under/out)performance to investors.

JM: Future performance is dependent on the environment. Factor momentum is a core determinant of performance.

SC: Quants need to innovate to be successful going forward.

**Are all Quants the Same?**

VZ: Firms need to do a better job of educating institutional investors/pension plan administrators about what makes their firm unique. It appears as if most firms are alike because they all market their firms/products in a similar fashion. There is an urgent need for firms to create their own individual stories.

JM: There is indeed a higher correlation of alphas among quants compared to non-quants.

SC: Managers need to have a disciplined approach to risk management. Most managers promised clients this disciplined approach but failed to implement them in-house.

**Impact of New Technology (e.g Social Media)**

GG: Managers need to weigh the benefits against the increased level of noise such an adoption might introduce in their processes.

SC: Managers need to evolve and use take advantage of new technologies/data in terms of factor combination, factor timing etc.

**Explosion of Alternative Benchmarks and Their Impact on Fees**

GG: Fees have most likely peaked as investors move to cheap beta products such as ETFs.

VZ: Investors are reviewing their alpha expectations and fees are under scrutiny. This process may lead to the adoption of more beta based products by investors.

JM: Game changers as these alternative sources of betas are becoming more widely available at relatively cheap prices. There is a structural change happening.

SC: Managers should see the growth of these products as positives and not negatives, because the quant process is benchmark agnostic. The more challenging it gets, the better quants should do because they have an edge in process.

## II. "Active Management is Mostly Efficient Markets"

**Presenter: Bob Jones**

This presentation and accompanying paper was based on what appears to be a very thorough review of literature on how to pick outperforming active fund managers.

### Does active management add value?

The average active manager does not add value after fees and expenses. Many studies echo this finding for both mutual funds and institutional separate accounts. This is not surprising as active management is a zero sum game, so for every outperforming there is a corresponding underperformer and the presence of fees and expenses drive down the average to below zero. Capital gains taxes have an additional negative impact on the performance of the average active manager.

$$\begin{aligned} \text{Mkt Return} &= \text{Sum(All Active Managers)} \\ \text{Manager Active Return} &= \text{Market Return} - \text{Fees} \end{aligned}$$

So on average there is no alpha and after tax return is even worse. Fama-French Four Factor Model alpha is between -40 to -60 bps and the equal weighted alphas are negative. Value weighted alpha is slightly positive.

However, successful active managers exploit the fact that markets are mostly (but not completely) efficient and active management is essential to efficient capital markets, which in turn leads to greater wealth for everyone

### Identifying outperforming managers ex-ante

If you can identify outperforming managers, this will have a meaningful impact on risk adjusted return because the returns of outperforming active managers are relatively uncorrelated with other systematic sources of risk.

Superior managers (SAM) add value through (a) better information analysis and (b) supplying liquidity to the market. The following characteristics have been shown to be significant in identifying outperforming managers: persistence, macro, and characteristics of fund manager, fund management company, and fund holdings.

#### Persistence

- There is some modest persistence in returns of active managers, i.e. past performance is a factor in trying to determine future returns. Performing careful attribution analysis on past returns can increase the odds of finding outperforming managers by 50% compared to just comparing raw fund returns. Style and sector adjusted historical returns are both better indicators of future returns. Adjusting for skewness (non-normality) also enhances the indicative nature of past performance.
- Sophisticated performance attribution is needed to distinguish luck from skill.

#### Macro

- Outperforming managers take advantage of underperforming managers by having better information and providing liquidity. However, the role of an individual manager changes over time from that of an under- to an outperformer and vice versa. Some managers' skills may be better suited to a certain situation, e.g. economic decline, internet bubble, etc.
- Macro-economic regimes have been shown to be useful in identifying ex-ante manager outperformance. Useful macro indicators include short interest rates, dividend yield, default spread, term structure, VIX. Studies have showed that macro indicators can be used to select managers that outperform by 600-1200bps p.a. (style adjusted) but with turnover of 200-300% [p.a.] Similar results have been found for European managers.

#### Manager Characteristics

- Experienced managers of large funds outperform; not so for small funds (thesis: small funds have experienced but not very good managers who can't be replaced easily).
- Managers who have attended better colleges as measure by school average SAT and GMAT score perform better (performance not correlated with whether manager has a PhD).
- Having a CFA or MBA does not improve returns but CFAs have lower tracking error.

- Managers with skin in the game (invested in their own fund) outperform .
- Managers with better social connections have better performance (theses: may know management teams of investee firms better, and/or SAT effect in disguise).
- Newly hired managers do not outperform fired ones, so when a star manager leaves one fund and goes to another, the implication is to discount both funds, i.e. individual manager performance is dependent on their environment.

#### **Management Company Characteristics**

- Larger companies with more research resources (economies of scale) outperform by 100-150bps p.a. above median.
- Firms with more independent directors outperform .
- Flatter organizational structure leads to better performance (more ownership of product).

#### **Fund Characteristics**

- Lower fees outperform. Less cash drag equates to better performance, i.e. for purposes other than market timing, large cash balances are a drag in rising markets .
- Industry/sector specialists outperform as do funds with style drift. The rationale here is that managers with expertise in a certain area generally do better but artificial and strict style constraints may hamper the application of specialist knowledge.
- Medium size AUM is best (thesis: funds that are too big have liquidity issues, whereas too small funds have insufficient economies of scale).
- For hedge funds, high water marks, high incentive fees and longer lock-ups are outperforming features.

#### **Fund Holdings**

- “Return gap” is defined as the return a fund actually realized vs. what it would have returned the past quarter if it had only held what it reported as its end of quarter holdings (smaller/positive “return gap” between holdings return and reported return is better).
- Similarly “risk shifting” is defined as the realized risk vs. what would have been the risk if the fund had only held what it reported as its end of quarter holdings (Risk shifting = worse performance)
- Larger return gap and amount of risk shifting is a significant ex-ante indicator of underperformance (thesis: signifies window dressing and/or sloppy trading)
- “Active share” is defined as the level of contrarian change in holdings (or weights) away from the mean (or the herd, i.e., “contrarian” = outperformance).
- Larger active share outperforms by 250bps p.a. The thesis is that a larger active share signifies better information (High active share = better). However, a higher tracking error does not indicate higher future returns, the implication being that funds with high active share hedge their high conviction positions to achieve in-line tracking error (higher tracking error <> better performance; high conviction <> better performance).

#### **Conclusions:**

1. Average manager does not out-perform; though individual managers may/may not.
2. Active managers are essential for market efficiency.
3. It is possible to identify superior managers, ex ante.
4. Investors should avoid active risk if not prepared; seek active risk otherwise.

### **III. “Power Hungry: The Myth of ‘Green Energy’ and the Real Fuels of the Future” Presenter: Robert Bryce, Author/Journalist**

- Energy source is defined by intensity and density.
- Oil dependency is here to stay (the world consumes 226 mbpd which is the equivalent of 27 times the output of Saudi Arabia).
- Natural gas is super abundant and cheap.
- Nuclear energy is clean, safe and has to be part of the energy discussion .

#### IV. “A Model of Casino Gambling” Presenter: Nick Barberis, Yale University

<http://www.nber.org/papers/w14947.pdf>

##### Reasons For Gambling:

- People derive a form utility from gambling, either directly (suspense/thrill from the act) or indirectly (social pleasure from the act).
- People over-estimate their ability to predict outcome of a bet (think the odds are more favorable than they really are).

##### The Model:

The model is anchored on cumulative prospect theory. Prospect theory posits that people evaluate risk based on gains and losses; people are loss averse (people are more sensitive to losses); people use transformed rather than objective probabilities, and low probabilities (tails of the distribution) are over-weighted. The model also assumes that the agent maximizes the cumulative prospect theory utility of his winnings or losses at the moment he leaves the casino.

The model predicts time inconsistency (the process of planning to do one thing, but carrying out a different action once you step in the casino.). Three agents were examined under this model:

- Naïve Agent: Agent who before entering the casino is unaware of his time inconsistency. His objective is to maximize the cumulative prospect theory value of his cumulative winnings or losses. The naïve agent only enters the casino if this value  $\geq 0$ .
- No-commitment Sophisticate: Agent who identifies the time inconsistency but does not know how to commit to his initial course of action once he is in the casino. His course of action can modeled using backward induction. This agent decides not to enter the casino because he realizes that he will exit as soon as he accumulates winnings, but continue to gamble when he is accumulating losses. This gives his overall casino experience a negatively skewed distribution.
- The Commitment-Aided Sophisticate: This agent can commit to his initial course of action (for example leaving ATM card at home and limiting the cash he takes along). His objective is similar to that of the naïve agent.

Naïve agents lose more money on average than commitment-aided sophisticate agents since the former tend to stay longer at casinos (most casino bets have negative outcomes).

#### V. “Risk-Based Asset Allocation”

Presenter: Wai Lee, Neuberger Berman

Review of different approaches to risk based investing including Minimum Variance, Risk Parity, Equal Weighted and Most Diversified. The benefits of these approaches are that they don't require the manager to forecast returns and have generally performed well compared to the market cap weighted alternative.

##### Equal Weighted

Impractical due to high turnover and high trading costs associated with liquidity constraints. Approach does not necessarily lead to a diversified portfolio in that it does not distinguish between low and high volatility assets. From a reverse optimization perspective, equal weighted is optimal if all individual assets returns are identical

##### Minimum Variance

Minimum-Variance portfolios can be shown to have equal marginal contribution to risk of all positions but the total contribution to risk is equal to the position weight. Position limits are typically imposed to make this approach practical, hence it is not naturally diversified, e.g. in an unconstrained optimization 42% of the portfolio is in Consumer Staples.

Modern Portfolio Theory states that it is more efficient to lower risk by adding cash to the market portfolio. The outperformance of minimum variance stems mostly from the anomaly of low beta stocks outperforming.

**Most Diversified Portfolio (MDP)**

Portfolio constructed such that the ratio of the weighted average position volatility to portfolio volatility is maximized. From a reverse optimization perspective, MDP is optimal if correlations between all individual assets are 1. Similarly to Minimum-Variance, highly concentrated positions and sector weights are likely and position constraints need to be imposed for this approach to be practical.

**Risk Parity**

Portfolio constructed such that the total contribution to risk from each position is identical. Approach is optimal if Sharpe ratios of all individual assets are identical. The speaker preferred this approach because it is naturally better diversified and has a lower turnover. Compared to Minimum Variance, it is less prone to estimation error in the covariance matrix.

**VI. "Yield Curve Predictors of Foreign Exchange Returns"**

**Presenter: Joseph Chen, University of California, Davis**

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1542342](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1542342)

The authors of this paper find that changes in interest rate levels and term spreads provide incremental predictive power in foreign exchange returns, beyond that of the carry trade (differences in short term rates). Portfolios formed on the basis of these factors have higher sharpe ratios and are less negatively skewed than their carry trade equivalent. They also show that the two strategies are not highly correlated with carry trade strategies.

The returns generated by strategies based on the changes in interest rate levels and term spreads persist for up to 12 months and robust even after controlling for other currency risk factors including currency momentum.

**VII. "Competing (and Winning) on Analytics in Professional Sports"**

**Presenter: Benjamin Alamar, Menlo College**

**Why Sports Analytics?**

- Provides valuable information.
- Efficient time management.

**Areas Where Analytics Are Helpful**

- Assessing strengths and weaknesses of current team.
- Assessing strengths and weaknesses of opponents.
- Evaluating potential additions to current teams.

**Q&A**

- *Is analysis transferable from college to pro-sports?* There are techniques used (e.g data standardization) to make sure such analysis relevant at the pro-level.
- *How mainstream is this form of analysis?* A few teams use it, but it is not widely used yet.
- *Is it possible to use this type of analysis to compare players across eras?* Data history is not that rich.
- *How do you account for injuries in the NFL?* Players are required to have 50-60 plays before any form of stat can be generated for them.
- *Is it appropriate to use this type of analysis in team sports since it is difficult to isolate the impact of one player and there are several moving pieces?* BA acknowledged its more difficult but the goal of this type of analysis is to provide some level of useful information that can be used in decision making.
- *Where do the practitioners come from?* Academia and sports enthusiasts.
- *How do players feel about such tools?* Most players are not interested.

### VIII. “Alpha and Performance Measurement: The Effects of Investor Heterogeneity” Presenter: Wayne Ferson, University of Southern California

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1782821](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1782821)

The presentation centered on the Mr. Ferson’s 2010 paper which explores investors’ response to alpha. The presenter suggests that positive alpha does not automatically mean positive investor flows.

Alpha must be created on a client-specific basis in order to aid in their proper interpretation by investors. Moreover client-specific alphas vary from typical alpha. Bounds are established to distinguish traditional alpha from client-specific.

The research explores the relationship between fund flows and alpha on one hand, and superior information and alpha on the other. Using the stochastic discount factor (SDF) approach to define alpha, the authors present a framework for defining the right alpha for the client.

*Traditional alphas used in much of the existing literature can be interpreted as signals to buy or sell in special circumstances. This occurs in our model when the traditional factors completely capture the covariance of a fund’s return with the client’s marginal utility.*

*We find that funds for which investors are more likely to disagree with traditional alphas display a muted flow response to performance measured by traditional alphas. This is a separate effect from uncertainty about the true value of the traditional alpha.*

### IX. “Alpha is Dead, Long Live Alpha” Presenter: Kevin Pleiter, IBM

Kevin did this study in his role as a business process consultant at IBM and he has a background with State Street in strategy formulation. The study was conducted by surveying a large number of individual members of CFA conference audience as to their views on their financial service providers and the financial services industry in general and by interviewing senior financial services executives, business line managers and regulators. The study focuses on buy side financial services.

Buyside: 2684 participants  
Face to face meeting: 150 participants  
Online: 2534 participants  
36 America, 35% EMEA and 30% asia

#### **Traditional revenue bases are under threat**

Despite (or maybe because of) contributing to 4% of global GDP per capital, financial services revenue bases are under threat. During 1995-2000, the S&P 500 was up by about 150% whereas financial services revenues were up by 800%. Low cost alternatives, e.g. ETFs and indexed funds are becoming more attractive to consumers and this is echoing up from retail investors through to institutional managers. Regulation is another key driver as government will have major impact on regulation focusing on insuring firms are acting in client interests, capital liquidity, and transparency.

#### **The industry must align its interests with clients’ interest**

In the CFA audience poll, 87% of respondents expressed no loyalty to their financial services providers and 70% believe that providers are not acting in clients’ best interest. Clients want lower cost, more transparency, higher frequency of reporting and better research/rationale for why their chosen investments will meet their objective. Building client loyalty should be a focus. Target date funds are becoming more common and are available in 401k’s of large corporations such as IBM and GE. Generally, there is a trend towards outcome based investing, i.e. for the client to receive a plan that meets certain objectives with respect to the eventual outcome, e.g. meeting liabilities or living through retirement. This is in contrast with product based investing

#### **Smarter, more efficient financial services organizations required**

Providers must become more client centric and more efficient through economies of scale. Data collection, validation and reporting should be outsourced. Integrated multi-asset class products will see more demand and silos between asset classes should be broken down. This can also be a key driver of cost efficiency, i.e. for technology platforms to become more integrated. There is 5% ROE to be had from efficiency gains of implementing flat technology infrastructure, improving

business processes and workforce management. These gains can be used to offset the current and impending cost pressures.

**X. “Fundamental Law of Active Mgmt: Time Series Dynamics & Cross-Sectional Properties” Presenter: Zhuanxin Ding, Analytic Investors**

[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1625834](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1625834)

The author tried to combine the research by Grinold, Qian and Hua, Ye and to arrive at a better model for the relationship between IR and IC.

The theoretically derived IR from Grinhold's and Kahn's fundamental law ( $IC * \sqrt{N}$ ) can over-estimate the IR a portfolio manager can achieve. This is also usually the case for Clarke et al's version:  $TC * IC * \sqrt{N}$ .

ZD derived a more general form of the fundamental law, under weak assumptions, and shows that GK's Clarke et. al. and Ye (2008) formulations are all special cases of this more general form.

**XI. “Taxable Investing with Style and Extension”  
Presenter: Andrew Berkin, First Quadrant**

Tax management is practical in the investment process because

- It is usually ignored in most empirical work
- Most investors pay taxes.
- Taxes have substantial impact on returns.
- It impacts the decisions on asset selection, asset allocation and asset location.

Mutual fund should avoid realizing gains, delay gains from short term horizon and prefer long term capital gain. Techniques used to improve tax efficiency include (a) loss harvesting whenever possible. (b) Dividend tilt strategies (c) Adding short extension (130/30 for instance) (d) style exposure management.

A tax efficient portfolio should have the ability to short and also have a higher transfer coefficient. Additional after tax benefit include loss harvesting in any environment and tax code arbitrage.

Three types of tax portfolios:

1. Tax aware: Lower pretax
2. Extended tax insensitive: Long term vs. short term gain tax planning
3. Extended Tax-aware: Realize losses leads to best after tax returns.

Positive volatility tilts increase loss harvesting; investors should avoid high dividend stocks in general. Taxes are the only variable known with certainty in advance, so portfolios should be managed to minimize the tax impact and maximize after tax returns.

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