



Are Quants All Fishing in the Same Small Pond with the Same Tackle Box?

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Quants are all the same

Recent anecdotal consensus suggests quant is a “crowded trade”

- **Are quants all fishing in the same small pond?**
Are all quant alpha models and returns highly correlated?
- **If so, does this stem from using the same tackle box?**
Similar alpha models, risk models, or portfolio construction methods?
- **Focus on empirical evidence**
Examine correlation of excess returns, pattern of returns, portfolio holdings and portfolio level factor exposures
- **Results**
NOT a “crowded trade”



Data – Quant Managers

- Focus on “pure” quants
 - Long-only, low tracking error, quantitative managers
- eVestment Alliance database
- Criteria:
 - Quantitative product
 - Not derivatives based
 - Product AUM >\$500 million
 - Five year tracking error < 5%
 - Core manager against S&P 500
 - Average style exposure ranging from 60%growth/40% value to 40% growth/60% value
- Portfolios considered diversified core portfolios



Data – Fundamental Managers

- Fundamental managers in same space
 - Potential competitors
- eVestment Alliance database
- Criteria:
 - Fundamental product
 - Not derivatives based
 - Product AUM >\$500 million
 - Five year tracking error < 5%
 - Preferred benchmark = S&P 500
 - Average style exposure ranging from 60%growth/40% value to 40% growth/60% value
- Portfolios considered diversified core portfolios



Data: Manager Information

	Quant Managers	Fundamental Managers
Count	19	14
Average Stock Holdings	211	87
Average Tracking Error	2.19%	3.17%

Sample includes some of the biggest high-profile firms as well as boutique shops.

These are managers pursuing a similar mandate: are they too correlated? Is there a crowded trade? Have excess returns been arbitrated away?



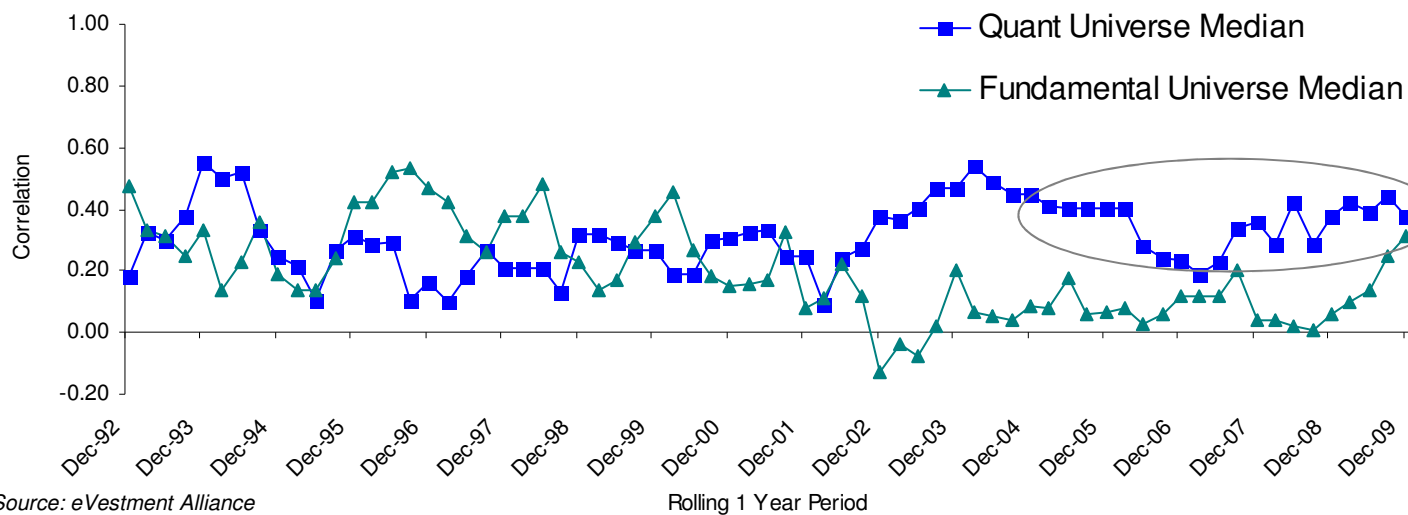
Results: Returns-Based Analysis

Median Pairwise Monthly Excess Return Correlations

	1992-1994	1995-1997	1998-2000	2001-2003	2004-2006	2007-2009
Quant Median	0.35	0.25	0.31	0.30	0.35	0.34
Fundamental Median	0.32	0.40	0.28	0.12	0.13	0.13

Source: eVestment Alliance

Median Pairwise Rolling One-Year Correlations



Source: eVestment Alliance

No discernable trend in increased return correlations among quant managers.



Results: Holdings-Based Analysis

Includes 15 managers from June 2007 to June 2009

Average Pairwise Correlation

Total Weight	0.64	←	Expected to be high because in low t.e. portfolios, weights heavily influenced by the benchmark.
Total Weight Rank	0.34	←	Stocks sorted based on portfolio weight. Similar to excess return correlation.
Active Weight	0.14		Active weight correlations are low. Stock rankings of different quantitative models are lowly correlated.
Active Weight Rank	0.16		

Source: Morningstar Direct and Chicago Equity Partners



Results: Factor Loadings

Includes 15 managers from June 2007 to June 2009

- GOAL: Look under the hood for model intentions
- Cast a wide net of factors searching for possible quant common factors
- Use portfolio holdings obtained quarterly from Morningstar Direct over the 2007-2009 time period
- Using standardized scores, find average portfolio exposure to a wide array of potential risk and alpha factors
- Present the results in active terms relative to the benchmark (S&P500)
- PRIOR: If there is a widely held factor, expect substantial positive or negative loading on that variable with relative low variation.



Results: Factor Loadings Summary

Includes 15 managers from June 2007 to June 2009

- **VERY FEW common factors!**
 - Very few factors have substantial positive or negative mean and even fewer where the mean dominated the standard deviation.

- Identify only 3 factors that would loosely be considered common factors
 - Price/Forward Earnings
 - CFROIC (cash flow return on invested capital)
 - Shareholder Yield (combination of div. yield, change in shares outstanding, change in debt and change in cash)

- **While many quants utilize some subset of these factors, those which are emphasized vary substantially!**

Results: Factor Loadings

Includes 15 managers from June 2007 to June 2009

Factors	Avg Net Exposure	Standard Deviation	Minimum Avg Net Exposure	Maximum Avg Net Exposure	Manager X Avg Net Exposure
Risk					
52-Week Beta	-0.01	0.02	-0.06	0.02	0.01
Stock Vol (90-day Std Dev)	0.00	0.07	-0.17	0.11	0.04
Stock Vol (PVO)	0.00	0.08	-0.15	0.19	-0.05
Crude Oil Beta	-0.01	0.07	-0.18	0.16	0.02
Interest Rate Term Spread Beta	0.01	0.06	-0.06	0.17	0.00
US Dollar Beta	0.02	0.08	-0.05	0.20	-0.01
Interest Rate Credit Spread Beta	0.04	0.07	-0.03	0.21	0.04
Liquidity - Trading Activity	0.01	0.07	-0.11	0.16	-0.09
Liquidity - Dollar Volume	-0.06	0.15	-0.34	0.26	-0.24
Size (Log of Market Cap)	-0.09	0.15	-0.36	0.26	-0.29
Margins & Turnover					
Net Margin	0.00	0.04	-0.05	0.1	-0.04
ROA	0.07	0.08	0.00	0.30	0.05
Asset Turnover	0.14	0.14	-0.08	0.46	0.46
Operating Margin	-0.05	0.04	-0.12	0.02	-0.12
ROE	0.08	0.06	-0.01	0.19	0.17
CFROIC	0.14	0.10	0.01	0.33	0.22
Capital Discipline - Cash Usage					
Dividend Yield	-0.02	0.05	-0.18	0.05	-0.02
Dividend Payout Ratio	-0.06	0.05	-0.17	0.03	-0.08
M&A Activity (acquisitions)	-0.07	0.06	-0.15	0.04	-0.15
Cash Change (Yield)	0.08	0.07	0.00	0.22	0.22
Debt Change	0.07	0.06	0.00	0.17	0.15
Capex to Trend	0.05	0.04	-0.02	0.14	0.08
Cash to Market Value	0.10	0.08	0.00	0.28	0.20
Capex to Sales	-0.08	0.05	-0.16	0.01	-0.16
Shareholder Yield	0.12	0.08	-0.03	0.28	0.24
Balance Sheet					
S&P Debt Rating	0.03	0.08	-0.13	0.15	0.08
Working Capital Accruals	0.07	0.07	0.00	0.22	0.18
Intangible Assets	0.07	0.07	-0.05	0.21	0.21
Debt Level (LTD to Assets)	0.11	0.10	0.01	0.33	0.16

Source: Morningstar Direct, Compustat, I/B/E/S, Chicago Equity Partners

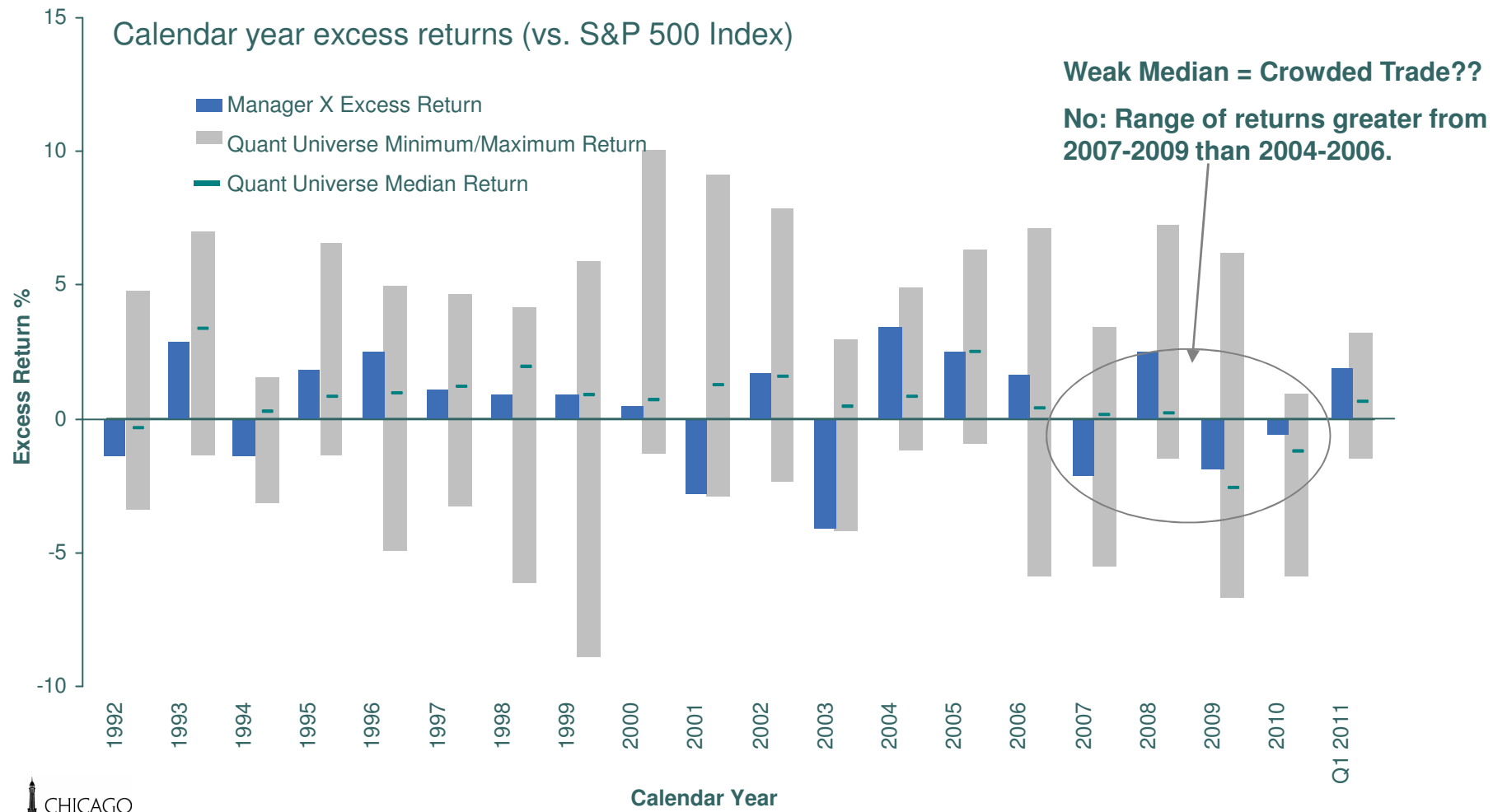
Results: Factor Loadings

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Factors	Avg Net Exposure	Standard Deviation	Minimum Avg Net Exposure	Maximum Avg Net Exposure	Manager X Avg Net Exposure
Price Momentum/Earnings Revisions					
Relative Strength	0.07	0.09	-0.04	0.24	0.24
RSP (RS - volatility adjusted)	0.04	0.10	-0.13	0.26	0.26
3-Month Price Momentum	-0.02	0.04	-0.10	0.05	0.05
6-Month Price Momentum	0.01	0.06	-0.08	0.13	0.13
9-Month Price Momentum	0.04	0.07	-0.04	0.18	0.18
1-Month Price Reversal	-0.01	0.02	-0.08	0.02	0.00
Upward Revisions	0.10	0.10	-0.05	0.33	0.33
Downward Revisions	-0.06	0.07	-0.24	0.03	-0.24
SUE	0.05	0.05	-0.06	0.17	0.17
Estimate Momentum	0.07	0.05	0.02	0.18	0.18
Value					
P/CF	0.03	0.08	-0.04	0.3	0.01
P/S	0.05	0.05	0.00	0.16	0.10
P/B	0.04	0.03	0	0.12	0.05
P/Trailing Earnings	0.06	0.04	0.01	0.14	0.11
P/Forward Earnings	0.12	0.07	0.02	0.23	0.17
Forecasted Growth					
Forecast Earnings Dispersion	-0.02	0.04	-0.11	0.07	-0.03
EPS Long-term Growth Rate	-0.03	0.07	-0.14	0.10	0.00
EPS FY1 to FY0	0.06	0.07	-0.04	0.23	0.12
Sales FY1 to FY0	0.01	0.08	-0.10	0.22	-0.02
Sales FY2 to FY1	-0.05	0.07	-0.16	0.06	-0.10
EPS FY2 to FY1	-0.09	0.06	-0.17	0.02	-0.07
Historical Growth					
Operating EPS (5-yr Growth)	0.03	0.04	-0.05	0.12	0.06
Sales (5-yr Growth)	-0.02	0.05	-0.13	0.06	-0.03
OIBDP (3-yr Growth)	0.02	0.05	-0.09	0.12	0.03
GAAP Gap	0.02	0.08	-0.09	0.25	0.09

Source: Morningstar Direct, Compustat, I/B/E/S, Chicago Equity Partners

Results: Patterns of Returns – Median vs. Dispersion Confusion



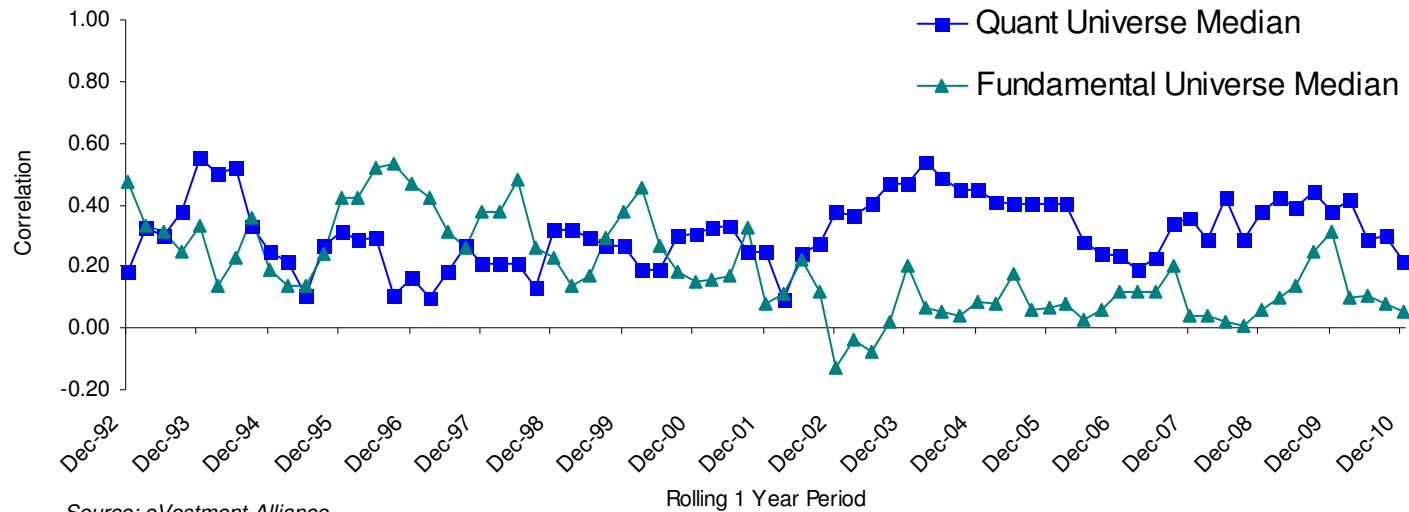
Results Update: Returns-Based Analysis

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Quant Median	0.35	0.25	0.31	0.30	0.35	0.34	0.21
Fundamental Median	0.32	0.40	0.28	0.12	0.13	0.13	0.06

Source: eVestment Alliance

Median Pairwise Rolling One-Year Correlations



Source: eVestment Alliance

Correlations decreased in 2010 for both quant and fundamental managers.



Recent Research

➤ Russell Investments

- “Quantitative Equity Management”, Feb 2011
 - Low correlations (manager set around 80)
 - **Quants “different from each other”**

➤ LSV Asset Management

- “Quantitative vs. Fundamental Institutional Money Managers: An Empirical Analysis”, Spring 2010
 - Evidence is inconsistent with the “crowding” argument (manager set around 150 for quants, 400 for fundamental)
 - **Bottom line: Not all quant managers are the same**



Summary

- Returns-based correlation: no recent trend
- Holdings-based perspective: low correlations between stock rankings of different models
- Factor loadings suggest very few common factors
- Wide dispersion of excess returns

Quants might all be fishing for the highly desired “alpha” fish, but they fish in different places, with different lures and with different techniques!