

When Average is Just Not Good Enough: Actively Managing Factor Exposures

By

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What is Quant Investing?

- An empirical, research-based science focusing on the detection of systematic, analytic, and stable patterns in asset returns and related data, that improves investment performance by enhancing one's understanding of the dynamics of investment performance.
- Has this changed?

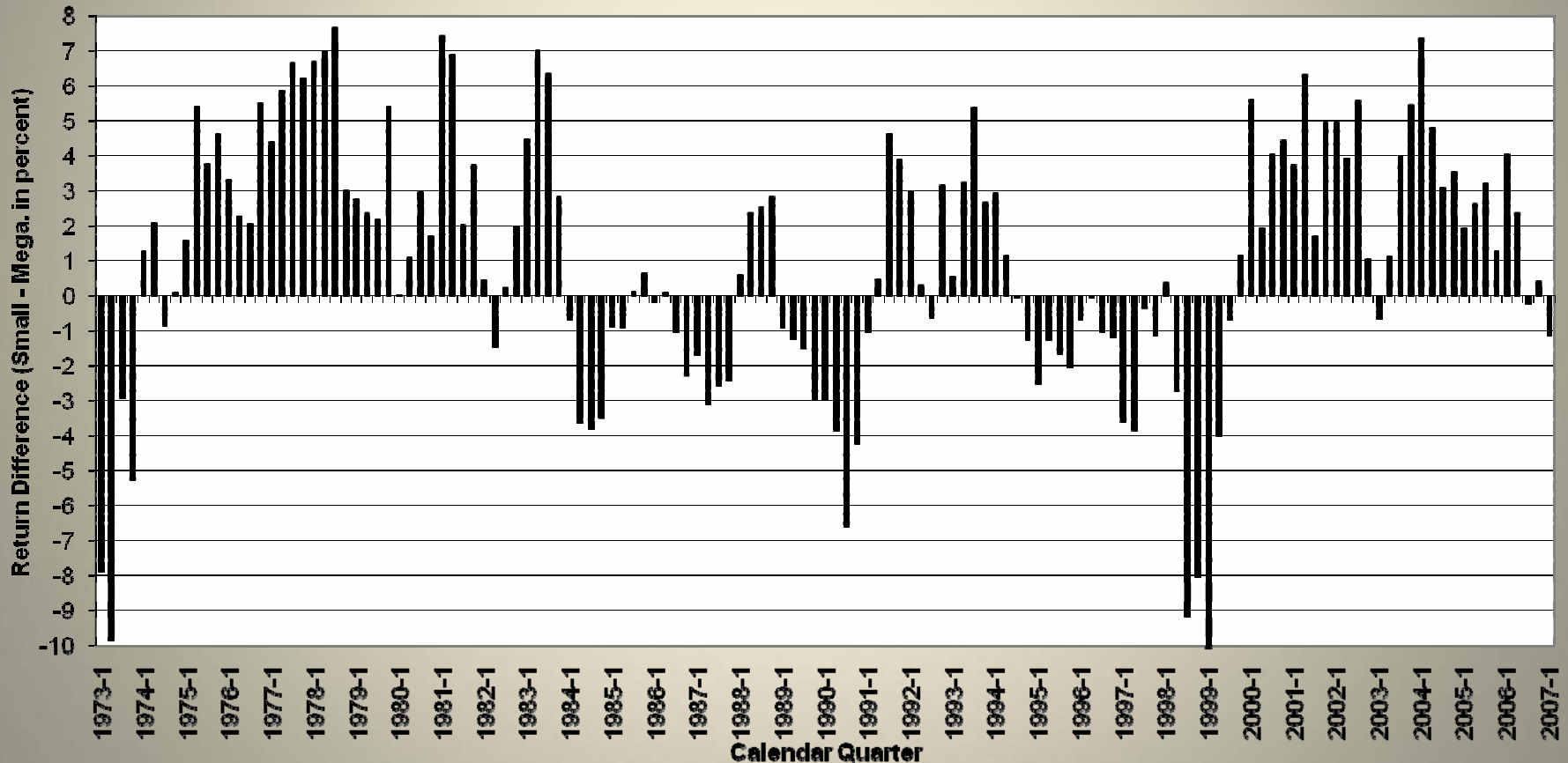
When Average Was Great

- 1960s: Lorie, Fisher, CRSP
 - Stock market returns vs. T-Bill returns
- Early 1970s: Fama-MacBeth and CAPM risk
- Late 1970s: “Stock Market Anomalies”
 - P/E Effects (Basu)
 - Size Effects (Banz, Reinganum)
- 1980s and beyond
 - Momentum, Earnings Quality

But Variability Always Lurked

- Subperiod Results can dramatically differ from long-run averages
- Most recent painful example: stock market declines from October 2007 thru March 2009
- Earlier example: Large-cap stocks outperformed Small-cap stocks in late 1980s

The Difference Between Small-Cap Stocks versus Mega-Cap Stocks Quarterly Returns (4 Quarter Moving Average) from 1973 Q1 Thru 2007 Q1



The Holy Grail: Predicting Variability

- Perfection Elusive (random walk tradition)
- But success can be obtained in part, for example:
 - Aggregate Stock Market Returns (as in Eleswarapu and Reinganum, 2004)
 - Size Premia (Reinganum, 1992, 2003)

Experimental Design is Critical

- What do you want to predict?
 - Returns?
 - Excess returns (differences from averages)?
 - Spreads (differences in extremes)?
 - Information Coefficients (ICs)?
- What group of securities?
 - All stocks?
 - Large-Cap stocks, Small-Cap stocks?
 - Specific Sectors?

Experimental Design (cont'd)

- What is the relevant time horizon?
 - Intraday?
 - Daily?
 - Monthly?
 - Quarterly?
 - Annually?
 - Longer-run horizons?

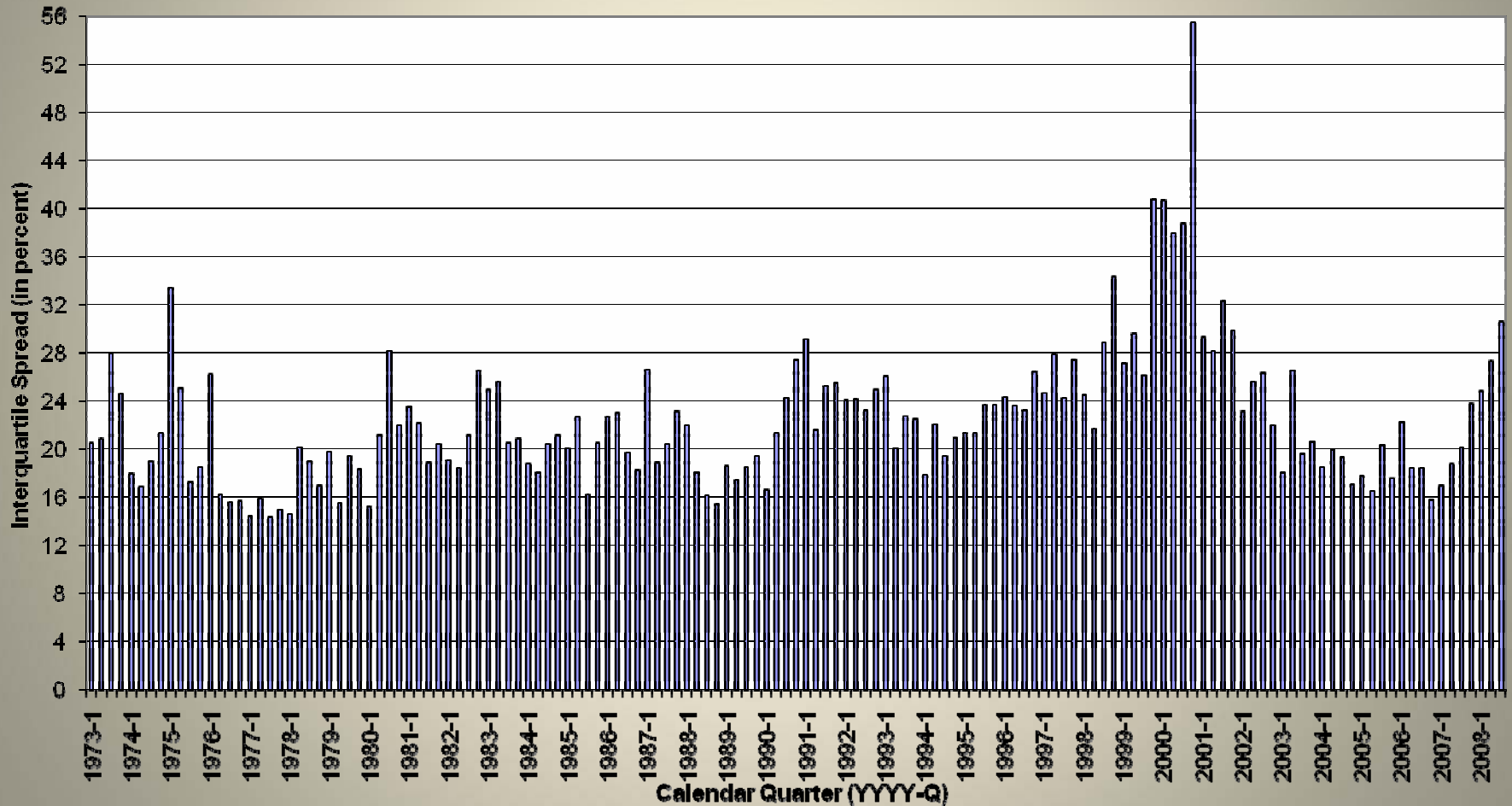
Success Possible at Factor Level

- Beta
- Size
- Valuation
- Momentum
- Quality
- Plus more ...

Some Conditioning Influences

- Autocorrelations (both negative and positive)
- Aggregate Dividend Yields
- Aggregate Book-to-Market
- Term Structure Premium
- Default Risk Premium
- Dispersion
- Volatility

Dispersion Among Small-Cap Stock Quarterly Returns from 1973 Q1 thru 2008 Q3



Can Predictions Work Out-of-Sample?

“At this point in the investment cycle, we believe that investors who load up on high-risk assets in an attempt to earn outsized returns are likely to be disappointed.”

Marc R. Reinganum

September 2007

On Wall Street, p. 85

Predictions Work in Practice (11/20/2008 thru 4/30/2009)

- Large-Cap Space

- S&P 500: +17.47%

- MSIGX: +28.92%

- **Outperform: +11.45%**

- Small-Cap Space

- R2000: +27.65%

- OPMSX +45.26%

- **Outperform: +17.61%**

More Than Just Predictions Needed for Performance

- Modeling Efforts
- Portfolio Construction Methods
- Implementation and Trading

Conclusions

- The economic environment is not static, neither should the weights of factors be
- Models built on dynamic factor weighting using economic conditions yield statistically and economically significant improvements
- Rational, intelligent quant research works