

Volume 5 No 3

Winter 2018

[pa.ijournals.com](http://pa.ijournals.com)



**Practical  
Applications**  
*Institutional Investor Journals*

Contrarian  
Factor Timing  
Is Deceptively  
Difficult

Clifford Asness, Swati Chandra, Antti Ilmanen, *and* Ronen Israel



# Contrarian Factor Timing Is Deceptively Difficult

**Authors:** Clifford Asness, Swati Chandra, Antti Ilmanen, and Ronen Israel

**Source:** *The Journal of Portfolio Management*, Special Issue 2017, Vol. 43, No. 5.

**Report Written By:** Kathryn Saklatvala

**Keywords:** Crowding, Equities, Factor Investing, Market Timing, Momentum, Value

## Overview

In **Contrarian Factor Timing Is Deceptively Difficult**, published in a 2017 special issue of *The Journal of Portfolio Management*, **Cliff Asness, Swati Chandra, Antti Ilmanen, and Ronen Israel** of **AQR Capital Management** address two of the most heated questions for today's factor investors: how expensive are the most popular factors now and should we seek time exposure to them?

Their analysis covers the value, momentum, and defensive factors, also known as style premia, and reveals that while some of these factors are cheaper or richer compared to their historical norms, none of them are at extremes. They also do not find any robust evidence that value-based factor timing can deliver meaningful outperformance.

## Practical Applications

- The growing popularity of factor investing has not led to a steady richening of factors that some might expect. **The value and momentum factors do not appear expensive today in comparison with historical averages.** While the low-beta factor is somewhat rich compared to history, it is not overly so. Further, a diversified basket of factors is not overvalued either.<sup>1</sup>
- **Timing exposure to factors based on their valuations does not meaningfully improve either returns or risk-adjusted returns.** Although initial correlations between valuations and subsequent returns seem “mildly promising,” testing these naïve correlations through a simulation of hypothetical contrarian trading strategies tends to give disappointing results.
- **Value timing may have more success with single-factor portfolios than with multi-factor portfolios that include value.** As valuation-based timing is highly correlated to the regular value factor, value timing adds a value exposure that provides helpful diversification to single-factor portfolios, but it is of little benefit to a portfolio that already contains a value factor. The diversified multi-factor portfolio presents a higher bar to beat.<sup>2</sup>

## Practical Applications Report

Two central questions for today's factor investors are: how expensive are the most popular factors now and should we seek to time exposure to them?



**Clifford Asness**

[cliff.asness@aqr.com](mailto:cliff.asness@aqr.com)

Cliff is a founder, managing principal, and chief investment officer at **AQR Capital Management**. He has authored articles for many publications, including *The Journal of Portfolio Management*, *Financial Analysts Journal*, and *The Journal of Finance*. He has received five Bernstein Fabozzi/Jacobs Levy Awards from *The Journal of Portfolio Management*, in 2002, 2004, 2005, 2014, and 2015. *Financial Analysts Journal* has twice awarded him the **Graham and Dodd Award** for the year's best paper. In 2006, **CFA Institute** presented Cliff with the **James R. Vertin Award**.

Prior to cofounding AQR Capital Management, Cliff was a managing director and director of quantitative research for the Asset Management Division of Goldman, Sachs & Co. He is on the editorial board of *The Journal of Portfolio Management*, the governing board of the **Courant Institute of Mathematical Finance at NYU**, the board of directors of the **Q-Group**, and the board of the **International Rescue Committee**.

Cliff received a BS in economics from the Wharton School and a BS in engineering from the Moore School of Electrical Engineering at the University of Pennsylvania, graduating *summa cum*



*laude* in both. He received an MBA with high honors and a PhD in finance from the University of Chicago, where he was Eugene Fama's student and teaching assistant for two years. Cliff notes that he still feels guilty when trying to beat the market.

## Key Definitions

### Factor investing

An investment strategy in which securities are systematically chosen based on attributes (factors) that are associated with higher returns. Such factors might include low valuations (price-to-book ratio, price-to-earnings etc.), small size (market-capitalization), low risk (volatility and beta), positive momentum (price and earnings trends), and other fundamentals (profitability, dividends). Smart beta is one form of factor investing, mostly employing long-only portfolios.

### Price-to-book ratio (P/B)

Value measures typically compare an asset's price to some fundamental. For example, the price-to-book ratio compares a stock's share price to its book value. If a stock has a low P/B, it is considered cheap. It is calculated by dividing the current closing price of the stock by the latest book value per share.

### Value spread

The value spread is the ratio of a measure of value on the long side of a factor portfolio to a measure of value on the short side of that factor portfolio. Just as standard value metrics such as B/P (P/B) quantify the cheapness (expensiveness) of an asset, the value spread quantifies the cheapness (expensiveness) of a factor. When the ratio increases it implies that the factor has grown cheaper and vice versa.

**Contrarian Factor Timing Is Deceptively Difficult**, the new article from Cliff Asness, Antti Ilmanen, Swati Chandra, and Ronen Israel of AQR provides a rigorous and robust analysis of these questions and produces some interesting results. "We actually started this research on value spreads two years before the debate openly began," recalls Ilmanen, referring to the article's theoretical core. "This article has been a long time coming," he adds.

“We were quite surprised when we initially saw the findings: we actually would have expected these factors to be more expensive now.”

—Antti Ilmanen

## VALUING FACTORS

The article reveals that the HML (high-minus-low) and UMD (up-minus-down) factors in the US large-cap equity universe, representing the value and momentum styles, are not noticeably more expensive today than their historical averages, dating back to 1968. While the BAB (betting-against-beta) factor, representing the defensive style, has been more expensive through the 2007–16 period compared to its longer-term historical mean, this has remained well under two standard deviations and is hence nowhere near some valuation extremes observed in 2000.<sup>3</sup>

"We were quite surprised when we initially saw the findings," says Ilmanen. "We actually would have expected these factors to be more expensive now. It's surprisingly benign," he adds.

At the heart of the analysis lies a central concept: that the relative cheapness or expensiveness of a factor can be estimated by the value spread, defined as the difference between the valuation of the assets showing the greatest exposure to that factor, and the valuation of assets showing the least exposure to that factor.

Even after that premise is accepted, there are multiple ways of creating value spreads, which can lead to great variation in readings on factor valuations. The analyst has to decide which of the many available measures of value (P/B, P/E, etc.) to apply and how to quantify the relative valuation, for example. Using percentiles instead of z-scores may depict a more extreme picture of valuations today. Further, factors that look expensive on one specification, such as book-to-price ratio, can look very mundane when using another specification such as sales-to-price ratio.

## A SEDUCTIVE IDEA

The second question is: can investors improve risk-adjusted returns by timing exposure to factors? "It is definitely a seductive idea," says Ilmanen. Indeed, the initial correlations between value spreads and subsequent factor returns do appear "mildly promising," with a modestly positive relationship for the value factor and weaker correlations for the momentum and low-beta factors.



“There is a big difference between seeing a link between starting valuations and returns and finding that a trading strategy based on this will be similarly successful.”

—Antti Ilmanen

“If you want value, it is better simply to add a strategic allocation to the value factor.”

—Swati Chandra

However, once the authors examined a simulation of hypothetical contrarian trading strategies based on these value spreads, they found that the initial promise evaporated.<sup>4</sup> For multi-style portfolios that already include an allocation to value, the data does not show any compelling improvement to returns or Sharpe ratios. “There is a big difference between seeing a link between starting valuations and returns and finding that a trading strategy based on this will be similarly successful,” says Ilmanen.

The authors argue that successfully timing exposures to factors is even more difficult than timing exposure to asset classes—itsself a challenging and often-fruitless endeavor. “One reason why value timing is even harder for factors than for markets is because factor portfolios have higher turnover,” says Chandra. “You’re trying to predict the future using constituents in today’s portfolio but three months’ later the portfolio can be very different,” she explains.

### SINGLE- FACTOR VERSUS MULTI- FACTOR

Value- timing appears to be more successful when applied to single factors than when applied to multi-factor portfolios that include value. In other words, adjusting exposures to a single factor based on its valuation is more likely to improve returns versus the simple single-factor exposure, compared to applying value-based factor rotation to a diversified multi-factor portfolio that includes value.

For the authors, this finding certainly doesn’t imply that investors should start value-timing their single factor exposures. “That’s because the multi-factor portfolio is a higher bar to beat,” says Ilmanen. “You already have the diversification between the three factors, which gives a much higher Sharpe ratio,” he notes.

“It’s also important to remember that value timing, which is what we’re talking about here, is highly correlated to the regular value factor. If the multi-factor portfolio already includes value, adding further value exposure though value timing may lead to lower risk-adjusted returns,” says Chandra.

### LOOKING FURTHER AFIELD

“The main part of the article shows quite a narrow perspective, largely using book-to-price and the main academic factors in U.S. stock selection,” says Ilmanen. “But we looked much wider in the online appendix. We explored markets outside of the U.S. and at other asset classes, measuring valuations using a range of asset-class-specific value metrics. If anything, those results are more relevant and reveal even weaker results to value-timing when using better-constructed and more diversified portfolios, as many practitioners are likely to do.”

Will “Contrarian Factor Timing” finally put the debate to bed? “We don’t want to close the door entirely to the idea of value timing,” says Ilmanen. “After all, we are big fans of value. There may be some areas in which it could be helpful, such as a tactical timing signal that uses both value and momentum, or perhaps when valuations reach extremes that we are just not seeing at the moment. So, we will stay open minded,” he concludes.

*To order reprints of this report, please contact David Rowe at [drowe@iijournals.com](mailto:drowe@iijournals.com) or 212-224-3045.*

AQR Capital Management is a global investment management firm, which may or may not apply similar investment techniques or methods of analysis as described herein. The views expressed here are those of the authors and not necessarily those of AQR.

## Swati Chandra

swati.chandra@aqr.com

Swati is a vice president and member of the Portfolio Solutions Group at **AQR**, where she writes white papers, conducts investment research, and engages clients on portfolio construction, risk allocation, and capturing alternative sources of returns. Prior to this, Swati was a researcher in AQR's global macro group, researching signals for AQR's asset allocation strategies.

Before joining AQR, she spent six years in the quantitative research and portfolio management team at ING Investment Management, focusing on stock selection strategies. Swati earned a BEng from Gujarat University in India and an MBA from the University of Chicago.



## Antti Ilmanen

antti.ilmanen@aqr.com

Antti is a principal at **AQR**. He manages the firm's Portfolio Solutions Group, which advises institutional investors and sovereign wealth funds, and develops the firm's broad investment ideas. Before AQR, Antti spent seven years as a senior portfolio manager at Brevan Howard, a macro hedge fund, and a decade in a variety of roles at Salomon Brothers/Citigroup. He began his career as a central bank portfolio manager in Finland.

Antti earned MSc degrees in economics and law from the University of Helsinki and a PhD in finance from the University of Chicago. Over the years, he has advised many institutional investors, including **Norway's Government Pension Fund Global** and the **Government of Singapore Investment Corporation**. Antti has published extensively in finance and investment journals and has received a **Graham and Dodd award** and **Bernstein Fabozzi/Jacobs Levy awards** for his articles. His book *Expected Returns* (Wiley, 2011) is a broad synthesis of the central issues in investing. Antti scored a rare double in winning the best-paper and runner-up award for articles published in 2012 in **The Journal of Portfolio Management** (co-authored articles "The Death of Diversification Has Been Greatly Exaggerated" and "The Norway Model").



## Ronen Israel

ronen.israel@aqr.com

Ronen is a principal at **AQR** and his primary focus is on portfolio management and research. He was instrumental in helping to build AQR's Global Stock Selection group and its initial algorithmic trading capabilities, and now runs the Global Alternative Premia group, which employs various investing styles across asset classes.

He has received an Outstanding Article award as part of the 17th Annual **Bernstein Fabozzi/Jacobs Levy Awards** from **The Journal of Portfolio Management** in 2015 and the Special Distinction Award as part of the **Harry M. Markowitz Prize** for the best paper published in the **Journal of Investment Management** in 2015. He is on the executive board of the **University of Pennsylvania's Jerome Fisher Program in Management and Technology** and is a member of the Advisory Board of **The Rodney L. White Center for Financial Research, The Wharton School, University of Pennsylvania**. Ronen is also an adjunct professor of finance at **New York University**, has been a guest speaker at Harvard, Columbia, the University of Pennsylvania, and the University of Chicago. Prior to AQR, Ronen was a senior analyst at Quantitative Financial Strategies Inc.

Ronen earned a BS in economics from the Wharton School at the University of Pennsylvania, a BAS in biomedical science from the University of Pennsylvania's School of Engineering and Applied Science, and an MA in mathematics, specializing in mathematical finance, from Columbia University.

HYPOTHETICAL PERFORMANCE RESULTS HAVE MANY INHERENT LIMITATIONS, SOME OF WHICH, BUT NOT ALL, ARE DESCRIBED HEREIN. NO REPRESENTATION IS BEING MADE THAT ANY FUND OR ACCOUNT WILL OR IS LIKELY TO ACHIEVE PROFITS OR LOSSES SIMILAR TO THOSE SHOWN HEREIN. IN FACT, THERE ARE FREQUENTLY SHARP DIFFERENCES BETWEEN HYPOTHETICAL PERFORMANCE RESULTS AND THE ACTUAL RESULTS SUBSEQUENTLY REALIZED 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 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 WHICH CANNOT BE FULLY ACCOUNTED FOR IN THE PREPARATION OF HYPOTHETICAL PERFORMANCE RESULTS, ALL OF WHICH CAN ADVERSELY AFFECT ACTUAL TRADING RESULTS. The hypothetical performance results contained herein represent the application of the quantitative models as currently in effect on the date first written above and there can be no assurance that the models will remain the same in the future or that an application of the current models in the future will produce similar results because the relevant market and economic conditions that prevailed during the hypothetical performance period will not necessarily recur. Discounting factors may be applied to reduce suspected anomalies. This backtest's return, for this period, may vary depending on the date it is run. Hypothetical performance results are presented for illustrative purposes only. In addition, our transaction cost assumptions utilized in backtests, where noted, are based on AQR Capital Management, LLC's, ("AQR")'s historical realized transaction costs and market data. Certain of the assumptions have been made for modeling purposes and are unlikely to be realized. No representation or warranty is made as to the reasonableness of the assumptions made or that all assumptions used in achieving the returns have been stated or fully considered. Changes in the assumptions may have a material impact on the hypothetical returns presented. Actual advisory fees for products offering this strategy may vary.

<sup>1,2</sup> The global stock selection universe comprises approximately 2,000 stocks across Europe, Japan, and the U.S. These style premia are captured in numerous asset classes: stock selection, industry allocation, country allocation in equity, fixed income and currency markets, and commodities, by combining several indicators in each asset class and forming hypothetical long-short style portfolios that are rebalanced monthly while seeking to ensure the portfolio is market-neutral. The universes are as described:: Developed Markets: Australia, Canada, Eurozone, Hong Kong, Japan, Sweden, Switzerland, U.K., U.S. Within Europe: Italy, France, Germany, Netherlands, Spain. Emerging Markets: Brazil, China, India, Israel, Malaysia, Mexico, Poland, Singapore, South Africa, South Korea, Taiwan, Thailand, Turkey. Bond Futures: Developed Markets: Australia, Canada, Germany, Japan, U.K., U.S. Emerging Markets: Czech Republic, Hong Kong, Hungary, Mexico, Poland, Singapore, South Africa, South Korea Yield Curve: Australia Germany, United States. Currencies: Developed Markets: Australia, Canada, Euro, Japan, New Zealand, Norway, Sweden, Switzerland, U.K., U.S. Emerging Markets: Brazil, Hungary, India, Israel, Mexico, Poland, Singapore, South Africa, South Korea, Taiwan, Turkey. Commodity Selection: Silver, copper, gold, crude, Brent oil, natural gas, corn, soybeans.

<sup>3</sup> Each factor is capitalization-weighted long the 1/3 best stocks and short the 1/3 worst stocks, and rebalanced annually every January. HML refers to book-to-price on the lines of the annual HML-Devil factor as described in Asness and Frazzini (2013). UMD refers to 12-month price momentum excluding the most recent month. The BAB factor is a leveraged beta-neutral factor that is capitalization-weighted long the top 1/3 lowest-beta and short the 1/3 highest-beta stocks.

<sup>4</sup> The simulation varies the weight on each style between 50% and 150% of its strategic weight (100% for single-style portfolios, equal-weighted for multi-style portfolios) based on its out-of-sample value spread. Factors are never shorted and z-scores are capped at +/- 2 standard deviations to prevent over-sized bets.