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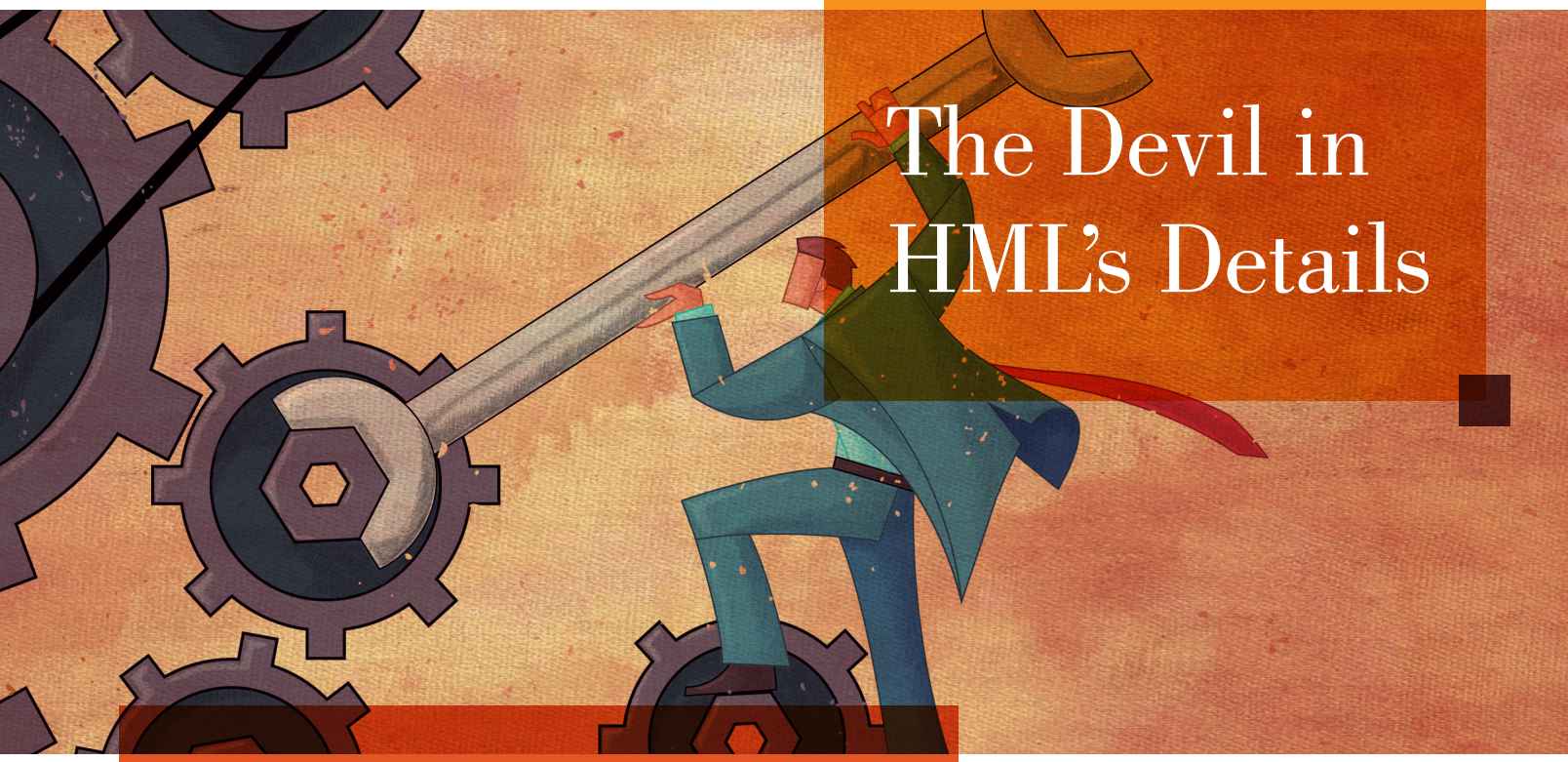

The Devil in HML's Details

CLIFFORD ASNESS AND ANDREA FRAZZINI

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Practical Applications of

The Devil in HML's Details

Overview

This article has a catchy title. Its findings are equally catchy for quantitative portfolio managers who want to pick up an extra 300 to 400 basis points of annual performance on their high-minus-low (HML) investment strategies. Do I have your attention yet?

Practical Applications

- **The calculation.** HML portfolios—or those that are long value stocks/short growth stocks—are constructed using the book-to-price ratio (B/P), the academic-favored flip of the price-to-book ratio (P/B).
- **The rub.** Traditionally, value strategy construction relies on lagged data for both book value and share price. The data lag is anywhere between 6 and 18 months.
- **The tweak.** Use current stock price data to construct valuation ratios. Beyond improving the ability to identify cheap stocks, it unveils the level of correlation between value and momentum strategies—thereby enhancing the construction of HML portfolios, which in essence blend the two.
- **The caveat.** The tweak doesn't improve the performance of a stand-alone value strategy. Its efficacy lies in portfolios combining value and momentum strategies.

Practical Applications Report

The beauty of the research findings in ***The Devil in HML's Details*** lies in their simplicity. Managers don't have to renounce the common calculation methodology for constructing these long value/short growth stock portfolios. They simply need to tweak it.

That's the advice of the article's co-author, **Cliff Asness**, Founding and Managing Principal at **AQR Capital Management**. The article appeared in the Summer 2013 issue of ***The Journal of Portfolio Management*** and was co-written by **Andrea Frazzini**, a Vice President at **AQR**.

THE CALCULATION

HML is an academic construct introduced by **Eugene Fama** and **Kenneth French** in the 1980s to study how cheap stocks perform compared with expensive stocks over

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Key Definitions

High-minus-low (HML)

A quantitative investment strategy that aims to exploit the performance differential between value (cheap) and growth (expensive) stocks, by using B/P as the measure.

Price-to-Book (P/B)

A ratio used to compare a stock's share price to its book value. If a stock has a low P/B, it may be considered cheap. You may be paying very little for the fundamentals. It is calculated by dividing the current closing price of the stock by the latest fiscal year's book value per share.

Book-to-Price (B/P)

A ratio used to compare a stock's book value to its market price. It is the academic-favored flip of P/B. A stock may be considered cheap if its book value is high versus its share price. It is calculated by dividing the latest fiscal year's book value per share by the current closing price of the stock.

Value investing

An investment strategy that buys or overweights stocks with low prices relative to their fundamentals and underweights or shorts stocks with higher prices relative to their fundamentals.

Momentum investing

An investment strategy that buys or overweights stocks with high recent returns and underweights or shorts stocks with low recent returns.

> “Imagine a world where momentum mattered also.”
>
> —Cliff Asness

time. Just think of it as the spread between cheap stocks and expensive stocks and their relative returns.

Being an academic construct to begin with, the now-common methodology for calculating a stock’s relative value when constructing an HML portfolio is B/P. This is simply the academic flip to the practitioner-favored P/B.

THE RUB

The Fama–French method updates value once a year, on June 30, using book and price as of the prior December 31. It holds those values (and portfolio holdings) constant for 12 months before it rebalances again on June 30. The result: Both the book and price data used to form B/P and value portfolios are always 6 to 18 months old.

“You kind of have to do that with book. That’s when they give you the data,” Asness explains in the accompanying video. “Practitioners maybe can use quarterly data, but you can never be super up-to-date on book.”

The explanation for the lag in pricing data is conservatism, he adds. “Common sense might tell you, ‘I want to get a real price-to-book. I want to use price on the same day as book.’ ” The result is a real ratio of the P/B at a real point in time, he concedes.

“There was nothing wrong with it (HML methodology) when Ken (French) and Gene (Fama) first came up with this in the ’80s. It was phenomenal, and it really advanced our knowledge,” Asness is quick to assert.

THE TWEAK

The tweak is simple: Use current pricing data. This is a small modification that has an outsized impact in the context of a five-factor model that includes momentum, the research shows.

The article outlines two options for the tweak. The most positive outcome results from dividing book value per share by current price, and updating monthly. This methodology yields an additional 305 and 378 basis points of alpha every year, according to the research findings.

THE CAVEAT

Ironically, using more-timely pricing data works worse than traditional HML when applied to a stand-alone value strategy. “Traditional HML is a value strategy that’s not as contrarian as it should be, which sidesteps the problem of a contrarian strategy betting against momentum,” Asness states.

“It’s fair to say our method works better because of more-timely data, but ONLY when using both value and momentum,” Asness explains. “It’s about understanding and weighing two very separate negatively correlated things—value and momentum—better, not just updating faster.”

MOMENTUM MATTERS

"Imagine a world where momentum mattered also," Asness challenges. It is in this context that using timely pricing data is important, he stresses.

"If you ignore information and price it works better because momentum is also a pretty good strategy," he quips. "So, I think the real contribution (of the research) is return, but it's not just from the use of timely data, it's from understanding and exploiting how these very different strategies are correlated."

> "The intuition you might have, and I certainly have, is that if a stock falls 50%, it probably got cheaper. It's true!"
>
> —Cliff Asness

THE NEGATIVE SIDE TO NEGATIVE CORRELATION

The problem with the standard HML strategy is that it radically reduces the negative correlation between true value and true momentum, Asness maintains.

"We can't observe fundamentals. We don't get to see what happens to the book and to earnings in a day. If the true book value also fell 50% today, it really didn't get cheaper. In fact, it's the same."

But the research found that when a stock moves 50% in either direction, the book does not move in concert.

"The intuition you might have, and I certainly have, is that if a stock falls 50%, it probably got cheaper. It's true!" Asness says. The traditional Fama–French method doesn't account for that, he notes.

MORE THAN JUST STOCK PICKING

AQR has found similar results for using more-timely pricing data for currencies and fixed income. The firm is currently researching the impact on country allocation decisions. "In each case you'll find a very similar effect: Using a more up-to-date price will not necessarily improve the value strategy but will almost always improve the combination of the value and momentum strategy, because you get that wonderful negative correlation."

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Clifford S. Asness

cliff.asness@aqr.com

Cliff is the Managing and Founding Principal at **AQR Capital Management**. Prior to co-founding AQR, Cliff was at Goldman, Sachs & Co., where he was a Managing Director and Director of Quantitative Research for the Asset Management Division.

He has multiple publications in ***The Journal of Portfolio Management*** (JPM) and the ***Financial Analysts Journal*** (FAJ). He received the best paper award from JPM in 2001 and 2003. From FAJ, he received the Graham and Dodd Award for best paper in 2003 and 2011, a Graham and Dodd Excellence Award in 2000, the award for the best perspectives piece in 2004 and the Graham & Dodd Readers' Choice Award in 2005. CFA Institute has awarded Cliff the James R. Vertin Award. He is on the editorial board of JPM, 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.

Andrea Frazzini

andrea.frazzini@aqr.com

Andrea is a Vice President at **AQR Capital Management.** He develops quantitative models for AQR's Global Stock Selection team, focusing on the firm's long/short and long-only equity, defensive equity and momentum strategies.

He has published in top academic journals and won several awards for his research, including the Smith Breeden Prize and Outstanding Paper Award from the Swiss Finance Institute. Prior to AQR, Andrea was an associate professor of finance at the University of Chicago's Graduate School of Business and a Research Associate at the National Bureau of Economic Research.

Andrea also served as a consultant for DKR Capital Partners and J.P. Morgan Securities. He earned a BS in economics from the University of Rome III, an MS in economics from the London School of Economics and a PhD in economics from Yale University.