Is (Systematic) Value Investing Dead?

Cliff Asness

Managing and Co-Founding Principal

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We've Been Doing Value Investing for a Really Long Time

And we have data for way longer

THE JOURNAL OF FINANCE • VOL. XLVII, NO. 2 • JUNE 1992

The Cross-Section of Expected Stock Returns

EUGENE F. FAMA and KENNETH R. FRENCH*

ABSTRACT

Two easily measured variables, size and book-to-market equity, combine to capture the cross-sectional variation in average stock returns associated with market β, size, leverage, book-to-market equity, and earnings-price ratios. Moreover, when the tests allow for variation in β that is unrelated to size, the relation between market β and average return is flat, even when β is the only explanatory variable.

THE ASSET-PRICING MODEL OF Sharpe (1964), Lintner (1965), and Black (
has long shaped the way academics and practitioners think about
returns and risk. The central prediction of the model is that the
portfolio of invested wealth is mean-variance efficient in the
Markowitz (1959). The efficiency of the market portfolio implies
expected returns on securities are a positive linear function of the
βs (the slope in the regression of a security's return on the marke
and (b) market βs suffice to describe the cross-section of expecte
There are several empirical contradictions of the Sharpe-
(SLB) model. The most prominent is the size effect of Banz (1
that market equity, ME (a stock's price times shares outsta
the explanation of the cross-section of average returns prov
βs. Average returns on small (low ME) stocks are too hi
estimates, and average return documented by Bhandari (1
Another contradiction of the SLB model is the positive
leverage and average return documented by Stattman (1980) and Rosenberg, Reid, and Lanste
that leverage is associated with risk and expected retu
model, leverage risk should be captured by market β.
ever, that leverage helps explain the cross-section of av
tests that include size (ME) as well as β.
Stattman (1980) and Rosenberg, Reid, and Lanste
age returns on U.S. stocks are positively related to
value of common equity, BE, to its market value
Lakonishok (1991) find that book-to-market equity
role in explaining the cross-section of average re

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THE UNIVERSITY OF CHICAGO

VARIABLES THAT EXPLAIN STOCK RETURNS:
SIMULATED AND EMPIRICAL EVIDENCE

A DISSERTATION SUBMITTED TO THE
FACULTY OF THE GRADUATE SCHOOL OF BUSINESS
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

BY
CLIFFORD SCOTT ASNESS

CHICAGO, ILLINOI
MARCH 1994

FINANCIER/FALL 1994

Work Begins on New Asset Allocation Tools for Portfolio Managers

Quants Open Shop at GSAM

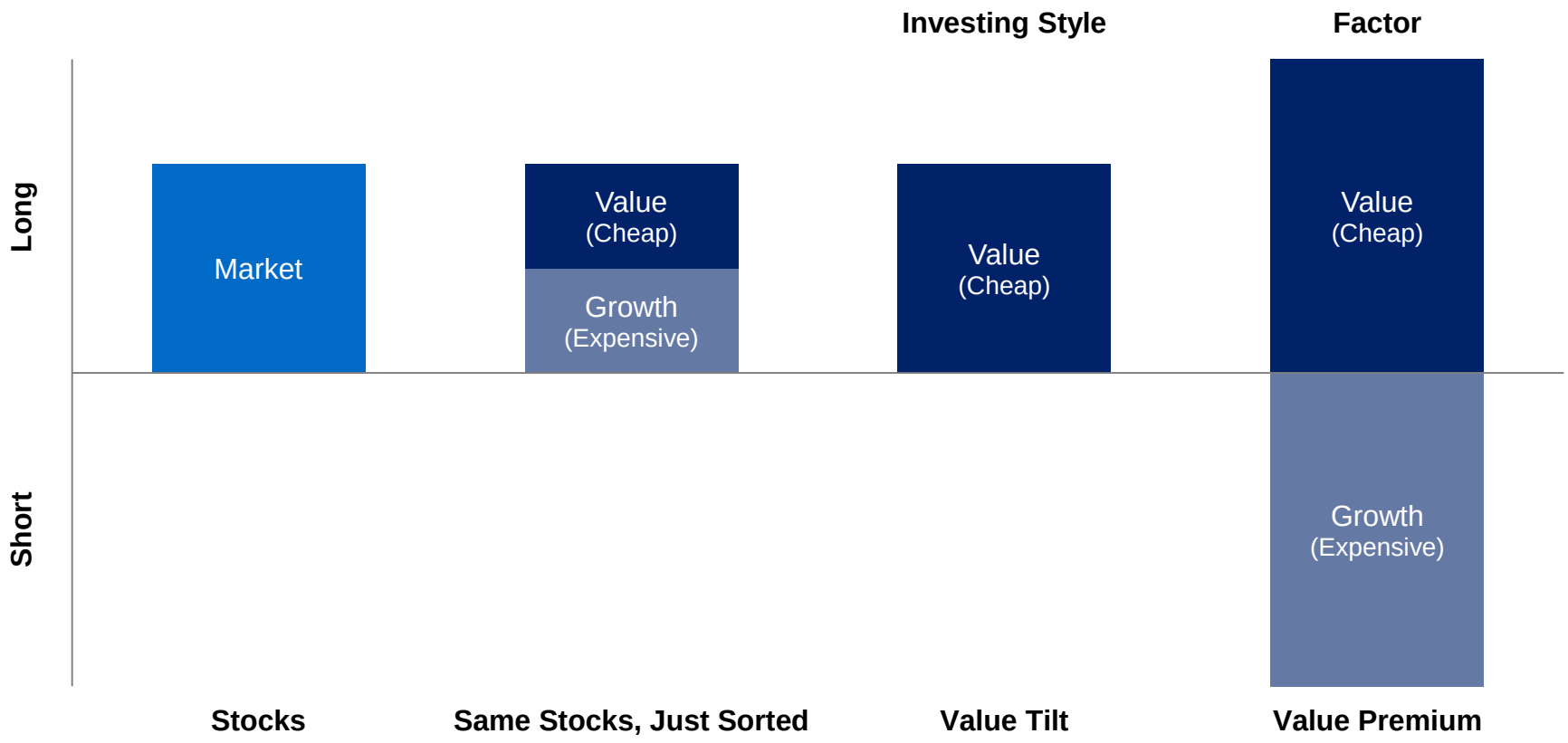
Model Builders at Work

Dollars for Scholars

Source: AQR. For illustrative purposes only.

Value Investing in a Nutshell

There are bells and whistles when we do it, but this is the general idea



Source: AQR. For illustrative purposes only and not representative of any portfolio that AQR currently manages.

Long-Term "Good" Strategies Aren't Immune from Bad Times

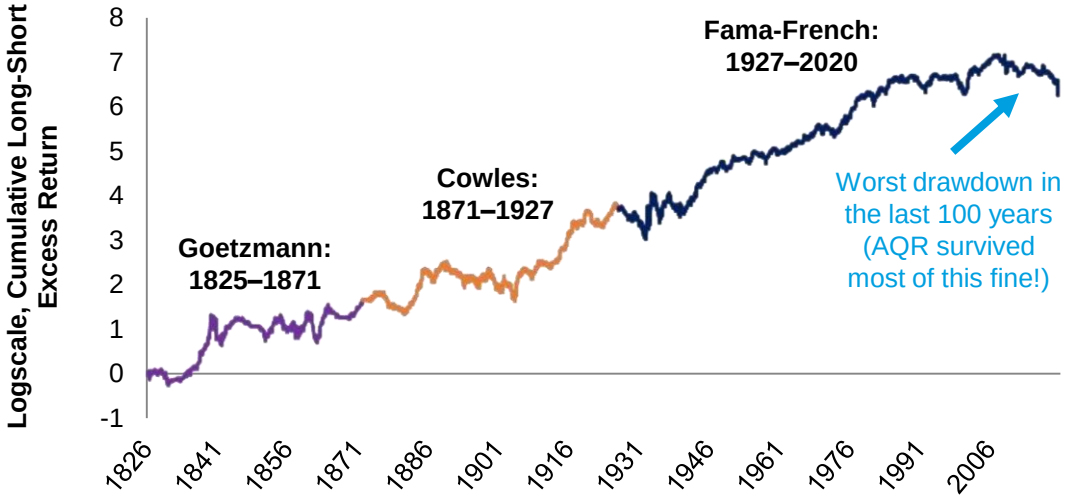
Systematic value—measured in many ways—has struggled for a long time

Value has seen a lot:

- Railroads
- The Civil War
- The light bulb
- Airplanes
- The 1920s (with its own tech bubble!)
- The Great Depression
- The 1950s (e.g., rural electrification)
- The Internet Age
- Eight seasons of Full House
- Fuller House

Value Premium in US Stocks

January 1825 – March 31, 2020



*Source of chart: Two Century Investments (https://www.twocenturies.com/blog/2020/5/11/value-investing-even-deeper-history). Time period based on availability of data. For illustrative purposes only and not representative of any portfolio that AQR currently manages. All hypothetical returns are gross of fees and transaction costs. No representation is being made that any investment will achieve performance similar to that shown. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix. Please see the Appendix for the universe and methodology used to construct the HML Devil backtest. Please read important disclosures in the Appendix.

Clearing Up Some of the Confusion for Why Value Works

Focusing here on just the behavioral perspective

It does not depend on getting big events or trends right

It does not depend on having perfect accounting information

It does not require a lack of technological change over time

It does not require a lack of super-large firms with monopoly power

It simply needs investors to net overreact to whatever the situation

Source: AQR

So, Is Value Dead?
Is this time truly different?

Is there something about the current environment that makes value no longer viable as a strategy?

One common concern is that some traditional measures are no longer valid

Or even worse, all traditional measures are broken because we live in a monopolistic, winner-take-all economic environment

Perhaps the flows into index funds are driving all this and will do so forever?

Perhaps the rise of systematic strategies chasing the same value premia has caused them to be arbitraged away?

Perhaps low interest rates justify value's destruction?*

These aren't usually tested, but they <u>are testable</u>

*See Maloney and Moskowitz (2020).

The Value Spread

How expensive is expensive versus cheap?

By definition, expensive stocks are more expensive than cheap stocks

But there are times when the difference between expensive and cheap gets crazy (technical term)

Such times can be very painful to get to, but may be particularly attractive for value going forward

1. **Take a universe of Stocks**
2. **Sort them by valuation**
3. **Calculate the ratio of valuations**

$$\frac{Valuation\ of\ \textbf{Expensive Stocks}}{Valuation\ of\ \textbf{Cheap Stocks}} = \text{“Value Spread”}$$

Source: AQR. For illustrative purposes only and not representative of any portfolio that AQR currently manages.

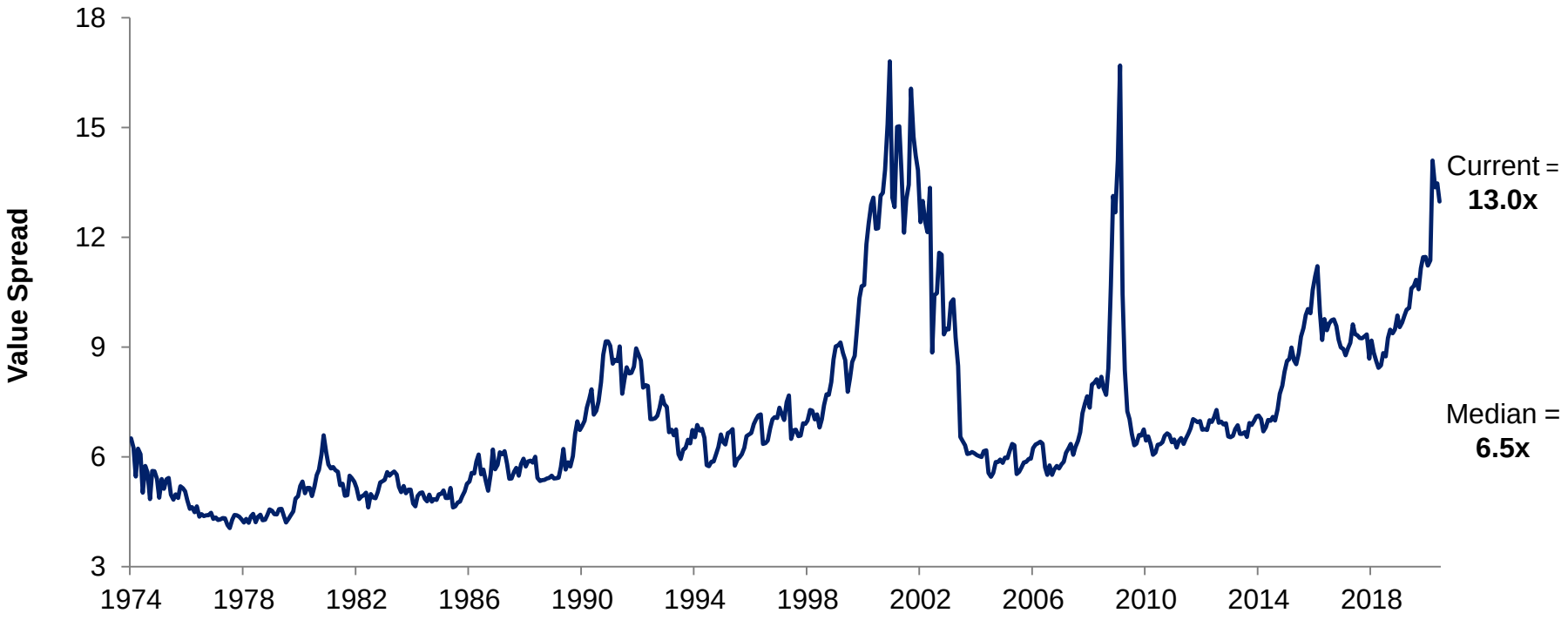
Value Spreads: How Expensive Is Expensive Versus Cheap?

Starting with a simple version of value

Using standard academic construction of value (see Asness, Friedman, Krail, and Liew (2000)), June 30, 2020 is at the 96th percentile compared to pre-2020 highs

Price-to-Book Spread, U.S. Academic Style Portfolio

January 31, 1974 – June 30, 2020



Source: AQR, CRSP, XPressFeed, IBES. This chart uses a price-to-book measure of value for both the portfolio and spread that uses the most up-to-date accounting data (rather than lagged accounting data found in standard academic value measures) and standard academic portfolio construction. Please see Appendix for more detail on data and assumptions. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

The Academic Approach Can Be Improved

Let's do this analysis in a way that's far more realistic

Getting closer to how systematic managers actually implement value strategies we find a similar pattern

Price-to-Book Spread, U.S. Large-Cap Composite Industry-Neutral* Value Portfolio

December 31, 1981 – June 30, 2020

*Removing the industry bet is not new stuff for us – the first draft of this paper was 1994.

Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

Other Versions of Value Tell a Similar Story

Excruciating to get to, but pretty good to be at

Various Value Spreads, U.S. Large-Cap Composite Industry-Neutral Value Portfolio

Comparing June 30, 2020 to pre-2020 highs*

Value Spread Measure	Current Percentile	(Current – Median) / (Max – Median)	Current STD Event
Price-to-Book	100%	74%	+3.6
Price-to-Sales	98%	74%	+2.4
Price-to-Earnings (trailing)	98%	81%	+2.6
Price-to-Earnings (forecast)	100%	98%	+3.1
Price-to-Free Cash Flow	100%	91%	+3.1
Composite	**100%**	**100%**	**+3.3**

*Pre-2020 history is December 31, 1981 – December 31, 2019.

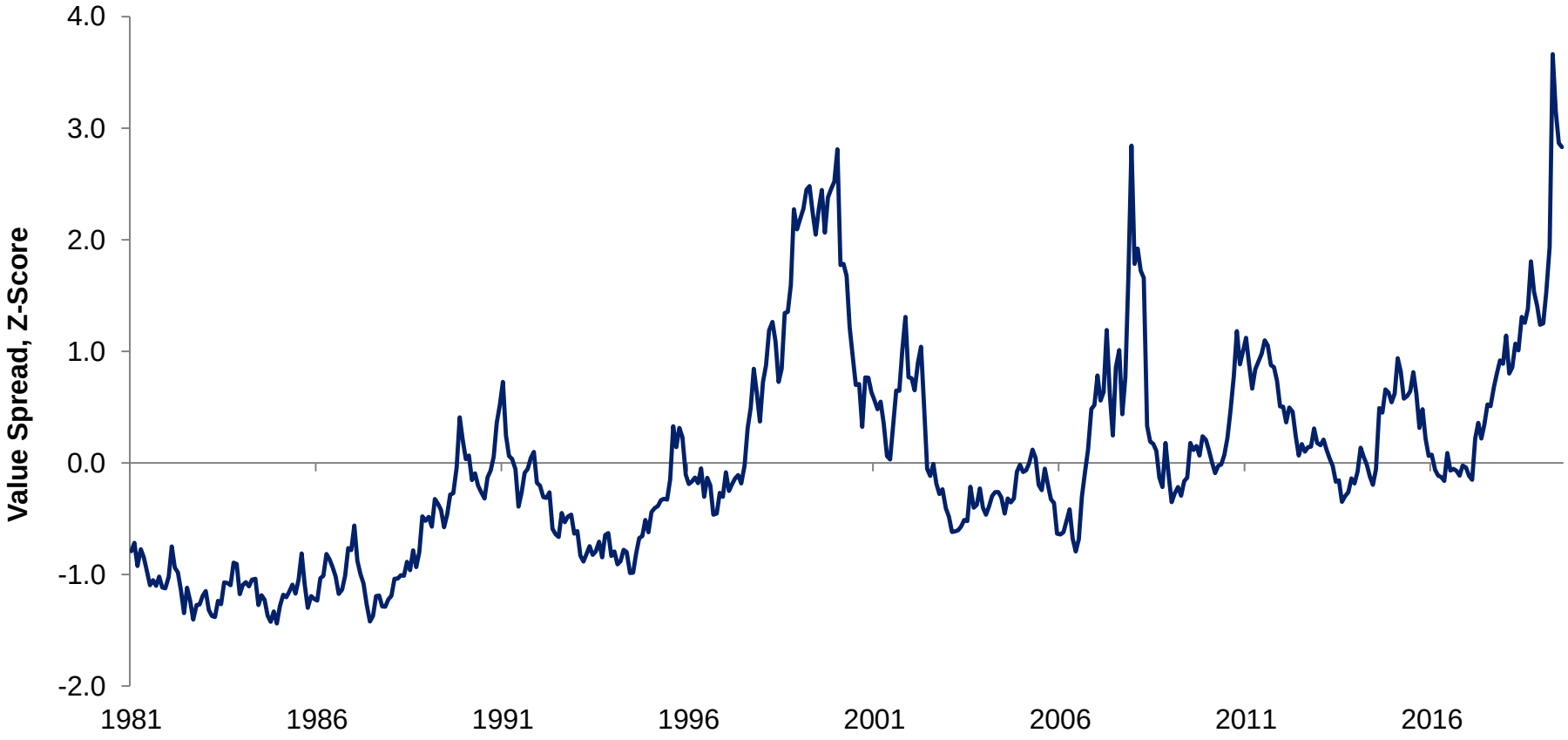
Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread using the noted spread measure. Price-to-sales uses sales-to-enterprise value (since sales comes before interest payments in the income statement), Price-to-Earnings (trailing) is one-year trailing PE ratio. Price-to-Earnings (forecast) is a blend of one- and two-year forecasts weighted to average a year out. The composite spread is an average of the z-scores of the five individual value measures. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

Putting It All Together

Looking at the full composite

Composite Value Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio

December 31, 1981 – June 30, 2020



Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread. The composite spread is an average of the z-scores of the five individual value measures. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

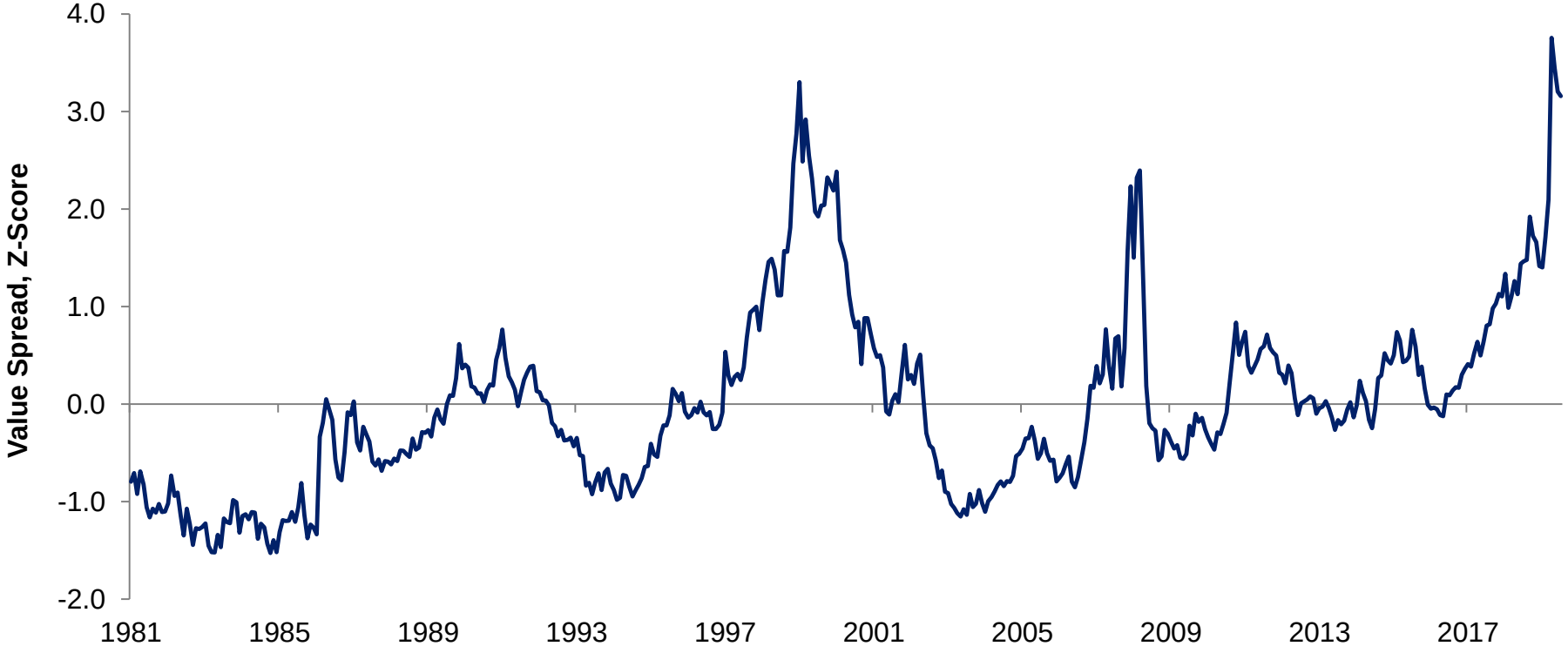
And, as an Aside, It's Not Just the U.S.

The pattern persists when expanding to a global universe

Note, some of the stories for value's demise, like a "winner-take-all economy," seem more applicable to the U.S. than ex-U.S.

Composite Value Spread, Global Composite Industry-Neutral Value Portfolio

December 31, 1981 – June 30, 2020



Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a global composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread. The composite spread is an average of the z-scores of the five individual value measures. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

Going Back to the U.S., Testing the Monopoly Story

Is the winner-take-all environment behind this?

Some people claim companies like the “MAGFANTs” mean traditional ways of value don’t apply anymore

We can test this directly by excluding certain companies from our analysis

1a. Take a universe of Stocks

1b. *Exclude certain ones*

2. Sort remaining by valuation

3. Calculate the ratio of valuations

$$\frac{\textit{Valuation of } \textbf{\textit{Expensive Stocks}}}{\textit{Valuation of } \textbf{\textit{Cheap Stocks}}}$$

Source: AQR. For illustrative purposes only and not representative of any portfolio that AQR currently manages.

Testing the Monopoly Story

Taking out certain stocks doesn't matter a drop

Now, only looking at the composite measure, but doing "winner-take-all" removals

Excluding all the potential bad boys changes absolutely nothing

Value Spreads, U.S. Large-Cap Composite Industry-Neutral Value Portfolio

Comparing June 30, 2020 to pre-2020 highs*

What's Removed	Current Percentile	(Current – Median) / (Max – Median)	Current STD Event
Nothing Removed	100%	100%	+3.3
Remove Tech / Media / Telecom Industries	100%	92%	+3.3
Remove 5% Mega-Caps	100%	97%	+3.3
Remove 10% Most Expensive Stocks	99%	75%	+2.8

Notes: For "Remove TMT", we remove five industries consistently through time. They are GICS code 4510 (Software & Services), 4520 (Technology Hardware & Equipment), 4530 (Semiconductors & Semiconductor Equipment), 5010 (Telecommunication Services), and 5020 (Media & Entertainment). Today these would remove Apple, Facebook, Google, Microsoft, and Netflix from our representative list of potential "monopoly" growth stocks. We've also tried only tossing out tech and the results are extremely similar. "Remove Megacaps" removes the 5% largest stocks within each industry at all times (today these include Amazon, Apple, Google, Microsoft, or Tesla). If instead of removing the 5% biggest mega-caps we removed the 10% of the companies with the largest sales you get even cheaper readings today versus history. "Remove Most Expensive Stocks" systematically removes the 10% most expensive stocks within each industry from the universe. Today this would remove three of our seven MAGFANT stocks (it removes Apple, Netflix, and Tesla; but not Facebook, Google, Amazon or Microsoft).

* Pre-2020 history is December 31, 1981 – December 31, 2019.

Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a global composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread. The composite spread is an average of the z-scores of the five individual value measures. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

Maybe Cheap Stocks Deserve to Be Really Cheap?

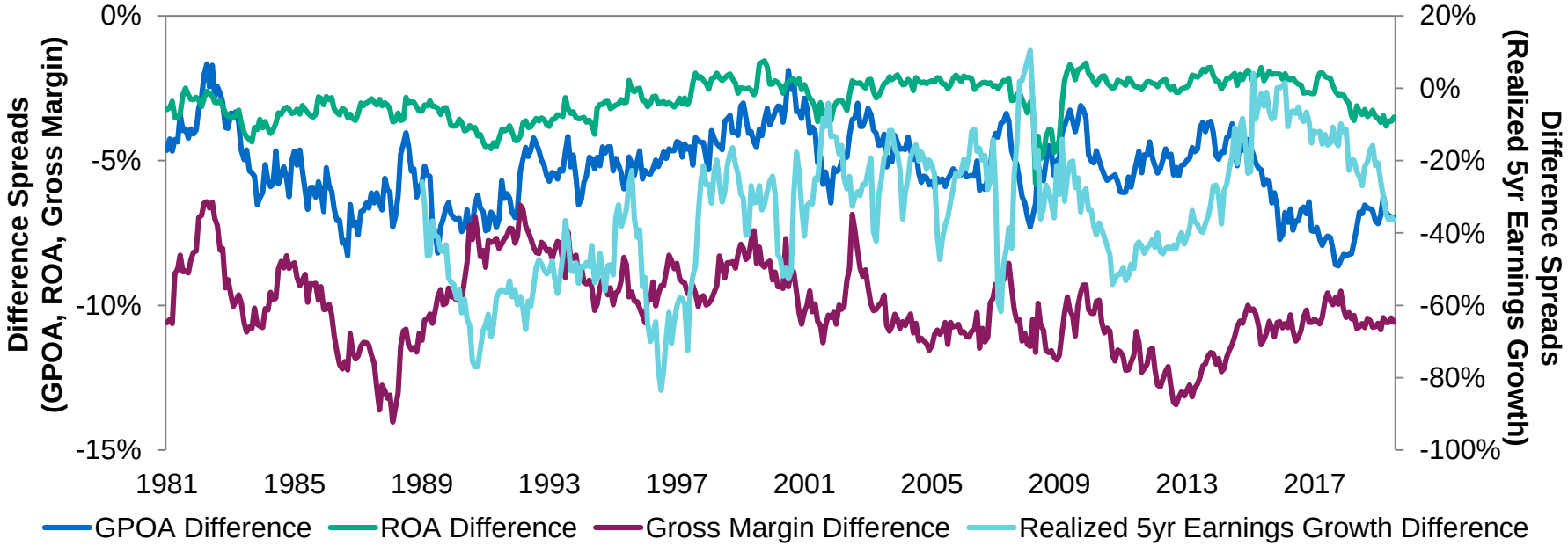
Fundamentals don't suggest anything abnormal

Value is a great long-term strategy (IMHUO*), but usually means buying stocks that are in worse current shape

Today, differences in quality between cheap and expensive companies are within their normal range

Gross Profitability, Return-on-Assets, Gross Margin, and Realized 5yr Earnings Growth, U.S. Large-Cap Composite Industry-Neutral Value Portfolio

December 31, 1981 – June 30, 2020**



*In My Humble and of course Unbiased Opinion.

**5yr Earnings Growth starts December 31, 1989.

Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a composite of four underlying value measures: Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spreads are difference spreads. ROA is return on assets (net income/average assets between this period and previous period); GPOA is gross profits/assets; Gross Margin is gross profits/sales; 5yr Earnings Growth is realized 5-year EPS growth. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

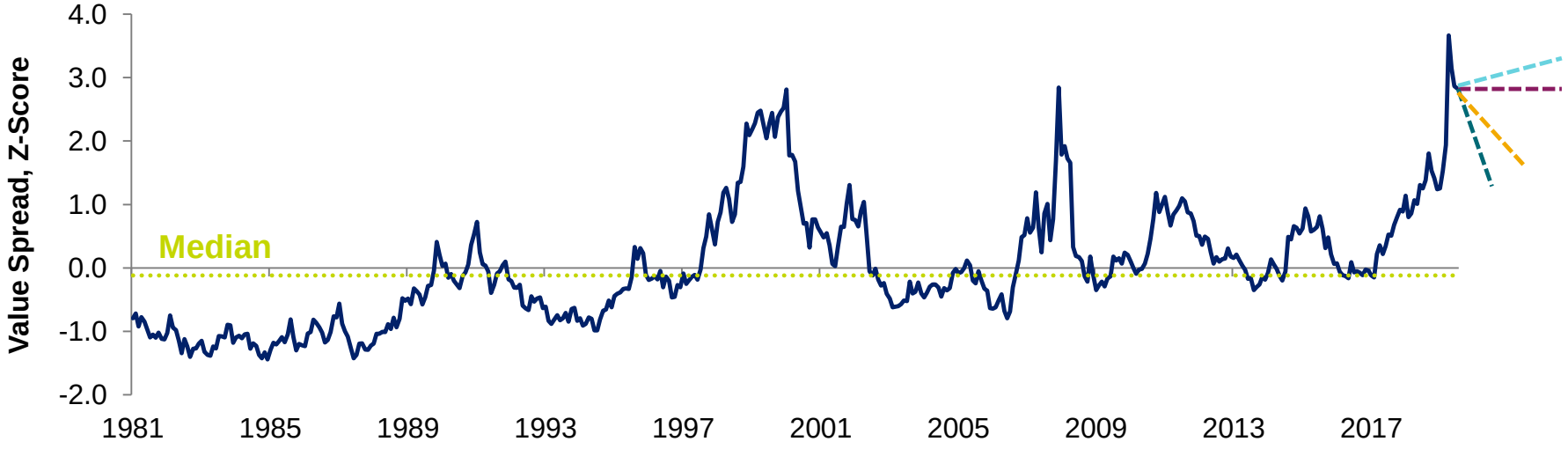
What Can We Expect Going Forward?

We strongly believe reversion is ahead, though it is hard to predict timing

Returns are not solely driven by value spreads, but all else equal, consider four potential paths

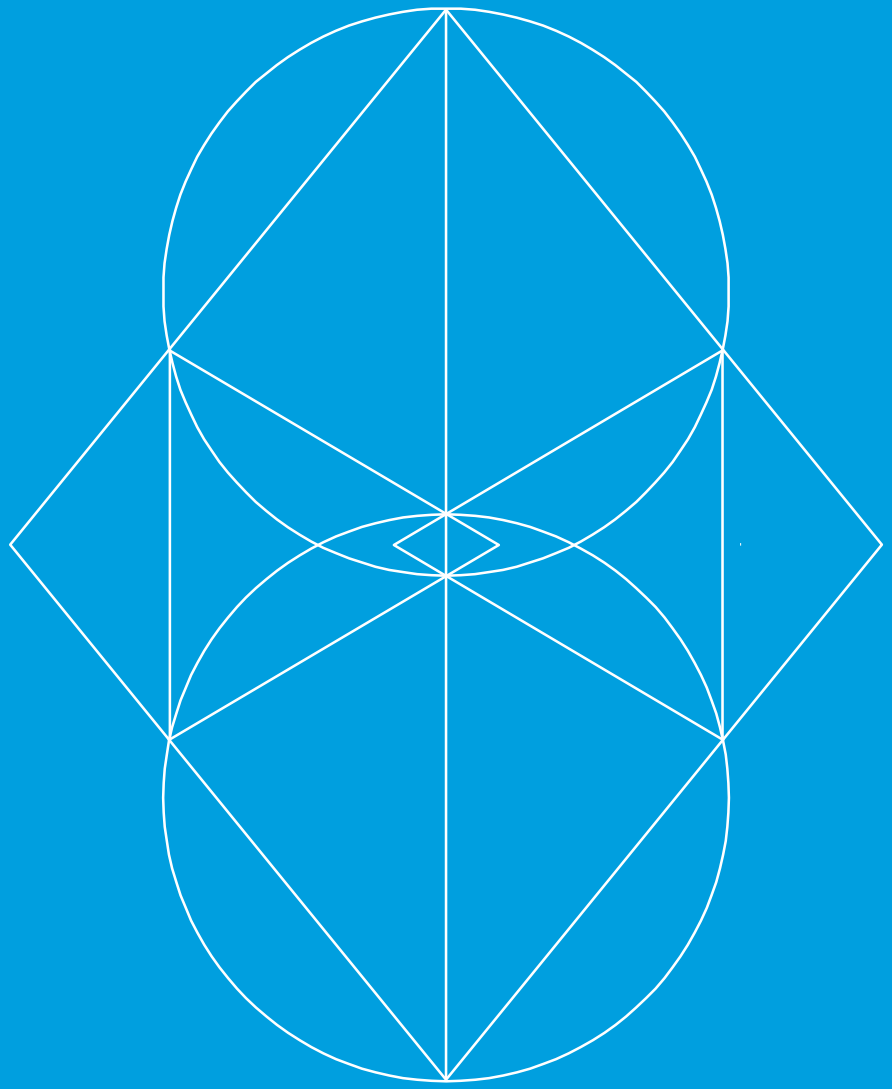
- **Quick reversion:** Value does well, but quick regime shift may be difficult for Momentum
- **Slower reversion:** Value does well and Momentum has time to adjust, potentially simultaneous gains
- **No reversion:** Possible sustained attractive environment for Value due to higher yields
- **Spreads widen:** Things get worse before they get better, but eventually spreads must revert

Composite Value Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio
December 31, 1981 – June 30, 2020



Source: AQR, CRSP, XPressFeed, IBES. The portfolio here is a global composite portfolio based on a composite of four underlying value measures Price-to-book, Price-to-sales, Price-to-Earnings (trailing) and Price-to-Earnings (forecast). The spread is a ratio spread. The composite spread is an average of the z-scores of the five individual value measures. Please see Appendix for more detail on data and construction. For illustrative purposes only and not representative of any portfolio that AQR currently manages. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix.

Appendix

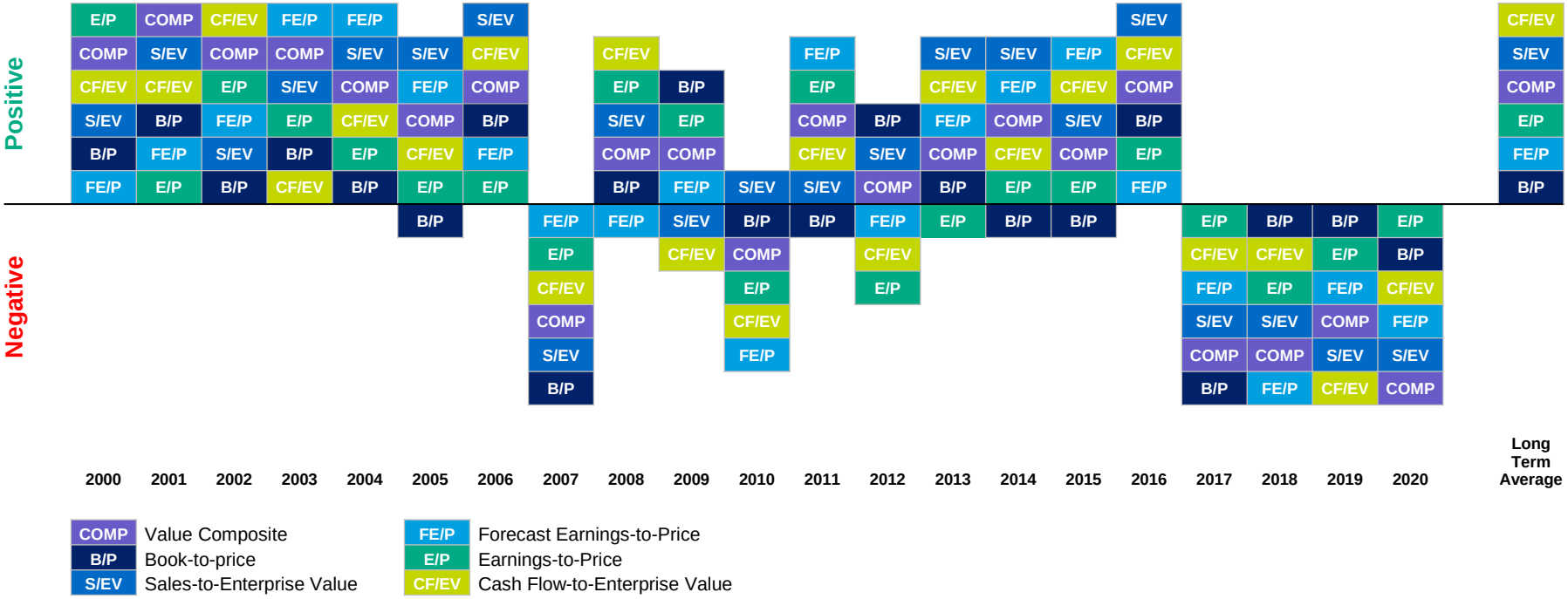


For the Price-to-Book Haters

Ironically, if you measure value with more noise you do better (less bad) when real value has its terrible period

Hypothetical U.S. Valuation Metrics, 2000-2020

Sorted by Hypothetical Gross Annual Performance



Source: AQR. For illustrative purposes only and not representative of an actual portfolio AQR currently manages. Hypothetical AQR U.S. Valuation Theme return data indicative of gross USD returns for a long-short, market neutral implementation of the theme from 1/1/2000 – 7/31/2020. "Long Term Average" reflects the average of this data from 1/1/1990 – 7/31/2020. Gross performance does not reflect the deduction of investment advisory fees. Hypothetical data has inherent limitations, some of which are disclosed in the Appendix. A full description of the Hypothetical AQR US Valuation Theme Backtest methodology is included in the Appendix.

Summary

"Are we there yet?"

The discount for value stocks is wider than we've ever seen

- It's not because of book-to-price
- It's not a mega-cap thing
- It's not a TMT thing
- It's not an expensive stock thing (if anything, the cheap stock side might be the bigger story)
- It's not because cheap companies have fundamentals that are worse than usual
- And from my colleagues, it's not an interest rate thing*

Investors are simply paying way more than usual for stocks they love versus the ones they hate

Looking ahead

- Timing is really, really hard – in most states of the world we've called it an "investing sin." But we've never said never sin, we've said to sin a little at true extremes
- Fast or slow? Could systematic value come back very quickly over a few months, or slowly over a few years? We don't know (though we have a preference)
- Conviction: We think the medium-term odds are now, rather dramatically, on the side of value, with no other period in the 50+ year history matching today
- The pain at times, and the timing difficulty, is likely why it doesn't get arbitraged away
- This is when long-term investors stick with or add to value (like I did – too early of course!)

*See Maloney and Moskowitz (2020).

Source: AQR. For illustrative purposes only.

Disclosures

Construction of Portfolios and Spreads
Source: AQR, CRSP, XPressFeed, IBES.

Price-to-Book Spread, U.S. Academic Style Portfolio
This is a U.S. all-cap universe that combines the NYSE, AMEX and NASDAQ. This chart uses a price-to-book measure of value for both the portfolio and spread that uses the most recent month's price as well as up-to-date accounting data (rather than lagged accounting data found in standard academic value measures) and standard academic portfolio construction (non-industry-neutral). The long side of each portfolio includes the best (cheapest) 30%, while the short side includes the worse (richest) 30%. The long and short sides are market-cap weighted. The value spreads uses the book-to-price of these book-to-price portfolios.

Price-to-Book Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio
This is a U.S. large-cap-only universe from the union of the Russell 1000, MSCI U.S, S&P 500 and S&P 400. The portfolio combines four factors: book-to-price (BP), trailing-earnings-to-price (EP), forward-earnings-to-price (FEP) and sales-to-enterprise-value (SEV), at weights of a third, a sixth, a sixth and a third respectively (the idea being to assign equal weight to book value, earnings, and sales, and the earnings raw weights are lower as they're really two correlated versions of the same idea). Each of these four value measures is adjusted for cash and short-term investments, and each factor is built to be industry neutral and dollar-neutral by using within-industry value scores. The industry classification is based on MSCI GICS industry codes. Stocks are weighted proportionately to these value scores.

Composite Value Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio
This is the same portfolio as described in "Price-to-Book Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio" but with a composite measure for spread rather than just BP: This spread is computed using BP, SP, EP, FEP and CF/P. Take the z-scores of each series. Take the simple average across the five measures to form the composite value spread. The numbers on the y-axis of the graph are z-scores.

Various Value Spreads, U.S. Large-Cap Composite Industry-Neutral Value Portfolio
This is the same portfolio as described in "Price-to-Book Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio" but with various measures for spread rather than just BP: Price-to-sales uses sales-to-enterprise value (since sales comes before interest payments in the income statement), Price-to-Earnings (trailing) is one-year trailing PE ratio. Price-to-Earnings (forecast) is a blend of one- and two-year forecasts weighted to average a year out. The composite spread is an average of the z-scores of the five individual value measures. This spread is computed using BP, SP, EP, FEP and CF/P. Take the z-scores of each series. Take the simple average across the five measures to form the composite value spread. The numbers on the y-axis of the graph are z-scores.

Gross Profitability, Return-on-Assets, Gross Margin, and Realized 5yr Earnings Growth, U.S. Large-Cap Composite Industry-Neutral Value Portfolio
This is the same portfolio as described in "Price-to-Book Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio" but with the listed spread measures (rather than value). The spreads are difference spreads. ROA is return on assets (net income/average assets between this period and previous period); GPOA is gross profits/assets; Gross Margin is gross profits/sales; 5yr Earnings Growth is realized 5-year EPS growth.

Composite Value Spread, Global Composite Industry-Neutral Value Portfolio
This is the same portfolio as the "Composite Value Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio" except on a global universe. Weights are: US LC (0.3658), US SC (0.0545), EUR LC (0.2640), JP LC (0.1875), EMG LC (0.1283). Value spreads are computed for each region using the same methodology as the "Composite Value Spread, U.S. Large-Cap Composite Industry-Neutral Value Portfolio." Then for each value measure, compute the global average spread using the defined weights.

Hypothetical AQR U.S. Valuation Theme Backtest Description
The AQR U.S. Valuation Theme Backtest utilizes the full set of underlying factors that compose the Valuation theme within AQR's Global Stock Selection strategy to evaluate stocks and create a long-short, market-neutral and industry-neutral equity portfolio based exclusively on these signals. The Valuation Theme is designed to capture the tendency for relatively cheap assets to outperform relatively expensive ones. Backtest returns are gross of advisory fees and transaction costs. The backtest utilizes a monthly rebalancing schedule and targets 7% annual volatility. The investment universe includes a broad subset of liquid tradeable large and mid cap stocks within the U.S. The risk model used is the Barra U.S. Equity Risk Model (USE3L).

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