Value Factor Performance in 2018

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Executive Summary

Nearly all investors claim to pursue "value" strategies. There is compelling evidence that such strategies are attractive in the long term. However, value investing, especially as a stock selection strategy, has performed unusually poorly in the last 12 months.

The recent underperformance of value stock selection strategies can be seen across developed markets and in nearly all sectors. Globally, value strategies applied to stock selection have earned returns roughly 3.7 standard deviations below their historical means. In the context of normally distributed returns, such observations should be exceedingly rare.

While the poor performance of value strategies has been painful for value investors, it has created unusually attractive opportunities going forward. The valuation spreads between cheap and expensive stocks in the US are now in the top 5 percent of spreads since 2003. When these spreads revert to their historical norm, as they tend to do, value investors may earn large returns going forward.

Importantly, the value stock selection strategies we investigate are market neutral. They should have low correlations with equity or bond markets. This is borne out by historical correlations. As a result, the potential attractiveness of market-neutral value strategies is not contingent upon return expectations for stock or bond markets.

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1. Introduction

Nearly all investors claim to pursue "value" strategies. There is compelling evidence that such strategies are attractive in the long term. However, value investing, especially as a stock selection strategy, has performed unusually poorly in 2018.

The recent underperformance of value stock selection strategies can be seen across developed markets and in nearly all sectors. Globally, value strategies applied to stock selection have earned returns more than 3.5 standard deviations below their historical means.[1]

While the poor performance of value strategies has been painful for value investors, it has created unusually attractive opportunities going forward. The valuation spreads between cheap and expensive stocks in the US are now 1.7 standard deviations above their historical norms. This puts the current spreads in the top 5% of US value spreads observed since 2003. When these spreads revert to their historical norm, as they tend to do, value investors who implement their strategies in a market-neutral fashion are likely to earn large returns.

A well-known, striking precursor for wide value spreads and subsequent high value returns is the period around the turn of the millennium. During the late 1990s, value stocks and strategies performed poorly and value spreads widened. During the early 2000s, value strategies strongly recovered even as stock markets overall experienced extended declines. While there may be similarities with the current environment, we intentionally exclude this period from our analysis because it may be historically extreme.

The stock selection value strategies we analyze are one of several alternative risk premia strategies we have investigated and implemented. Within value, we consider a broad range of value characteristics derived from firms' balance sheets, income statements, and cash flow statements. These factors are related to a well-established literature on systematic investment strategies, also known as "factors" or "anomalies". Possibly the most prominent paper in this literature is Fama and French (1992), who include the book-to-price ratio ("high minus low" or "HML") as a value factor in their analysis of US stock returns. Like the Fama and French (1992) value portfolios, our strategies are long-short, market-neutral portfolios. Nonetheless, there are other important differences in implementation, which we discuss next.

[1] If the returns to value follow a standard normal distribution, returns at or below the -3.5 standard deviation level should occur in only 0.02 percent of outcomes.

2. Value Factors in Stock Selection

Value investors select stocks on the basis of value judgements, which are often rooted in the firms' income statement, cash flow statement, or balance sheet. We simulate such value strategies systematically by computing valuation ratios for stocks and then ranking stocks relative to their industry peers. Such comparisons intentionally ignore inter-industry differences in valuation ratios. We analyze value performance in the United States, Europe, Japan, UK, Canada, and Australia, but we only compare stocks to their local peers, never across regions. Such comparisons intentionally ignore inter-region differences in valuation ratios.

For this paper, we focus on earnings yields (the inverse of P/E ratios), cash-flow yields, dividend yields, sales-to-price ratios, and book-to-price ratios. These measures are widely used in analyzing company valuations. For each of these valuation ratios, at the time of calculation, we use the latest reported financial statements for the trailing 4 quarters and the prevailing market value of equity.

By design, the value strategy portfolios we analyze are market neutral. We rank stocks within regions and industries based on valuation ratios and then build portfolios that are long stocks with the most attractive ratios and short stocks with the least attractive ratios. This is appealing because it isolates the performance of the value strategy from other influences like market, country, or industry contributions.

Our value portfolios use long and short weights that vary smoothly with the valuation ratio relative to industry peers in a region. The most attractive stocks receive the largest positive weight, the least attractive stocks receive the largest negative weights, and intermediate stocks receive intermediate weights.[2]

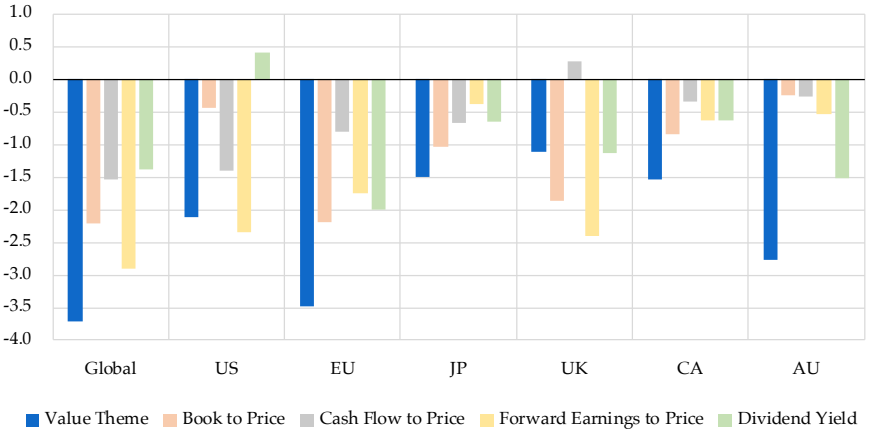
Finally, our value strategy portfolios also remove the influence of other potentially confounding stock characteristics, including firm size, liquidity, return volatility, price momentum, earnings quality, and analyst sentiment. We remove all of these effects by estimating value returns via Fama and MacBeth (1973) cross-sectional return regressions.

3. Recent Performance

Value factors have attractive long-term performance but their recent returns have been unusually poor. This poor performance is widespread. It was

[2] A common alternative for constructing long-short value portfolios is to equally weight stocks in the extreme quantiles, for example quintiles or deciles. Such quantile spread portfolios quickly become unwieldy in multiple dimensions.

Figure 1: 2018 Value Returns by Country



The figures shows value returns for 2018 in different countries.

All returns are from January to August 2018. The returns are expressed in z-scores relative to a return history from 2003. The z-scores attempt to reduce the potential effects of data snooping by reducing the long-run average return by 33%. The adjusted historical returns are scaled so that they have a mean of zero and standard deviation of one. A z-score of zero represents an average return. Negative values are below the long-run average. Returns below -2 or above 2 are exceptional.

Simulated returns reflect estimated implementation costs.

Past performance is not indicative of future results. Performance reflects the reinvestment of income.

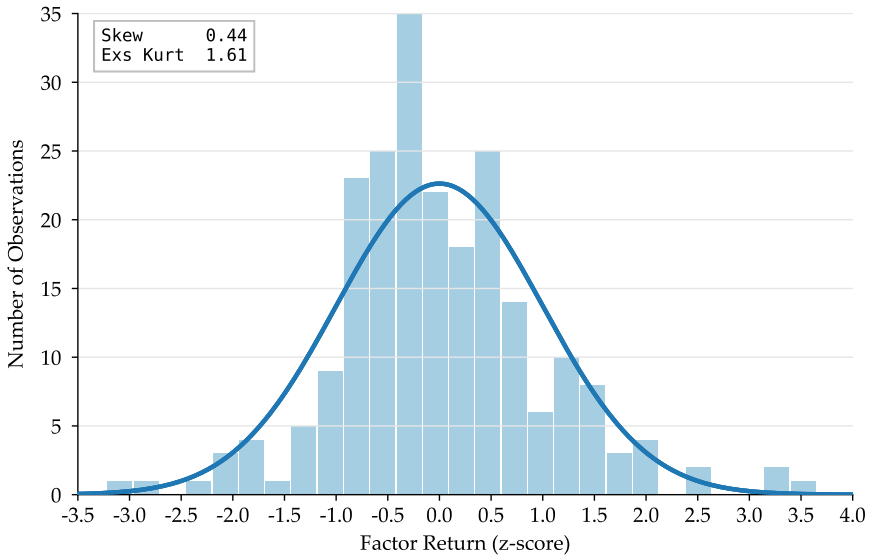
realized across many different value measures, sectors of the economy, and countries.

Figure 1 summarizes the returns to several value measures in z-score terms in six regional markets and for a global, overall average. A z-score of 0 represents the mean return for the value strategy in a given region over the sample period from January 2003 to August 2018. The global z-score of -3.7 means that value returns for 2018 (through the end of August) have been 3.7 standard deviations below the historical mean. In the context of normally distributed returns, such observations should be exceedingly rare.[3]

As the figure shows, the negative performance is not isolated to particular regions or individual valuation ratios. Nearly all valuation ratios are associated with poor performance in nearly all regions. Generally, the different regions and value styles offer diversification. The unusual alignment of

[3]Many of the valuation ratios we use in forming our value strategies have been discussed in the academic literature. While we have made no direct attempt to select the value strategies with the best past performance, it seems likely that value strategies with exceptionally high past performance have attracted more attention. This phenomenon has been called "data snooping". In an attempt to address concerns that collective data snooping may have inflated past returns, we apply a "haircut" to the z-scores in Figure 1. We reduce the mean excess returns by 33 percent prior to computing z-scores.

Figure 2: Historical Distribution of Value Returns



The figure shows the histogram of monthly global value returns in z-scored units. For comparison, the figure also shows a normal distribution with the same mean and standard deviation.

Returns are monthly from January 2003 to August 2018. The value returns are for a global average of value factors.

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negative performance during 2018 across many different value strategies gives rise to exceptionally negative global, overall value returns.

The value portfolios associated with our value strategies are market neutral and can be levered to a broad range of risk levels. A strategy levered to 15 percent annual risk has risk levels similar to equity markets. At that risk level, a simulated global value strategy has delivered an historical average annual return just under 34 percent. For 2018, through August, the same portfolio has returned -23 percent.[4, 5]

Unusual observations like this may raise concerns about infrequent but extreme negative value returns. Such concerns appear unfounded. Figure 2 shows a histogram of monthly global value returns that shows an approximately symmetric return distribution. In fact, daily, monthly, and quarterly value returns have slightly positive skewness. Also, based on the skewness and kurtosis of the quarterly simulated value returns, Jarque and Bera (1980)

[4]The portfolio simulations deduct estimated implementation costs.

[5]Past performance is not indicative of future results. Performance results reflect the reinvestment of income. The return estimates presented here are based on ARP Investments' internal systems, have not been reconciled with an administrator and do not reflect the official books and records of any account.

statistical tests cannot reject the hypothesis that the value returns follow a Gaussian/Normal distribution at the 99% confidence level.

Equity style index returns offer corroborating evidence that value strategies have performed unusually poorly in 2018. For example, a portfolio that goes long the Russell 1000 Value index and short the Russell 1000 Growth index is a very simple market-neutral value strategy. Such a strategy would have lost nearly 13 percent from January 1, 2018 to August 31, 2018.[6] Value strategies, like ours, that hedge out additional risk often are part of diversified portfolios that run more leverage than the 100% long and 100% short exposures of such a simple portfolio.

4. Value Spreads and Returns

As a direct result of the poor performance of value factors, "cheap" stocks have become even cheaper and "expensive" stocks have become even more "expensive". We can measure this increase in valuation differences using value spreads. For example, we can compute earnings yields for all stocks and compute the difference in earnings yields for cheap and expensive stocks. We can compute similar spreads for other value metrics like cash-flow yields and book-to-price ratios.

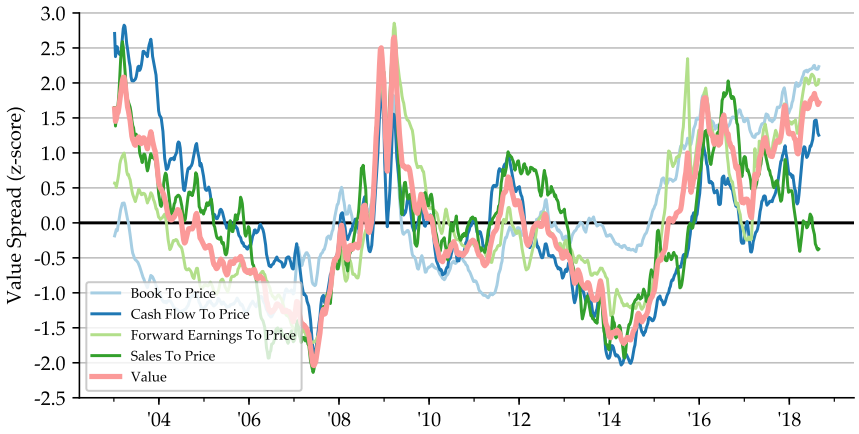
In order to focus on stock selection effects, we once again remove geographical and sector differences from our measures. In each industrial sector and geographic region, we assign positive weights to stocks with attractive earnings yields and negative weights to stocks with unattractive earnings yields. The weights are larger for more attractive stocks. The positive weights sum to 1. The negative weights sum to -1. On a given date, the thus-weighted sum of earnings yields is the average spread in earnings yields between attractive and unattractive firms on that date. We form a regional average of such spreads by taking a weighted average across all industrial sectors in the region.[7]

Figure 3 graphs US valuation spreads over time. The figure displays each of the spreads in z-score units with a long-term mean of zero and a time-series standard deviation of 1. The figure shows that the valuation spreads generally move together but are slightly different from each other. This is one reason we prefer to track several valuation metrics and diversify our value portfolios across these measure.

[6]The Russell 1000 Value index returned 3.71 percent and the Russell 1000 Growth index returned 16.44 percent, according to FTSE Russell at `https://www.ftserussell.com/index-series/index-tools/russell-index-performance-calculator`.

[7]The weights are proportional to the square root of the number of stocks in each sector. This is an approximation to the capital the strategy deploys in each sector and is commonly referred to as the available breadth in the sector.

Figure 3: Value Spreads



The figure shows US valuation spreads over time. Valuation spreads are the weighted average difference between the valuation ratios of stocks with attractive ratios and stocks with less attractive ratios.

In each US industrial sector and geographic region, we assign positive weights to stocks with attractive valuations and negative weights to stocks with unattractive valuations. The weights are larger for more attractive stocks. The positive weights sum to 1. The negative weights sum to -1. For earnings yields, the weighted sum of earnings yields is the average spread in earnings yields between attractive and unattractive firms on that date. We form a regional average of such spreads by taking a weighted average across all industrial sectors.

Each of the four panels uses a different valuation ratio. The top left uses analyst earnings forecasts from IBES divided by current euqity market prices. The top right uses reported cash flows divided by market prices. The bottom left uses reported book values divided by market prices. The bottom right uses reported sales divided by market prices

Value spreads are monthly data from January 2003 to August 2018. The data cover US large-cap and mid-cap stocks.

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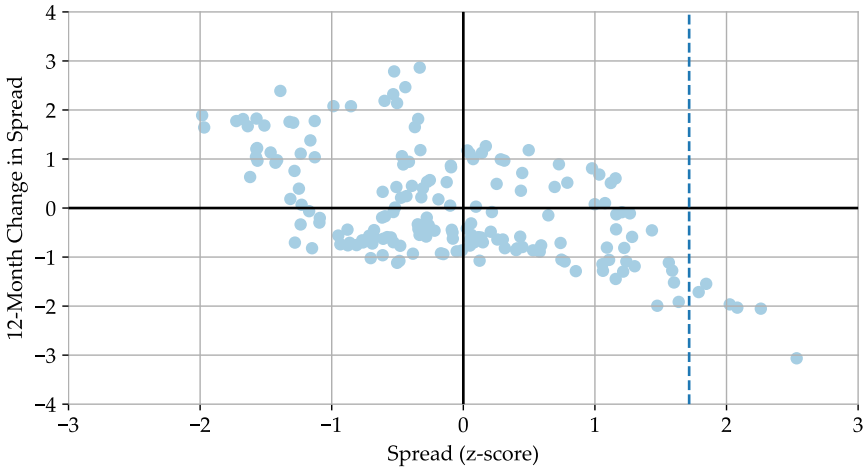
At the end of August, 2018, the weighted average "Value" composite of the 4 component spreads in Figure 3 was at 1.7 standard deviations above its long-run mean.[8] That spread is in the top 5 percent of observed US value spreads since 2003.

Current value spreads in other developed markets are less extreme than US value spreads but they are well above their historical norms. In Europe and Japan, spreads for value composites at the end of August were just outside the top 25 percent of value spreads since 2003.

Figure 3 clearly shows unusually large spreads in many US valuation ratios. If the spread is larger today than previously, a natural interpretation is that – relative to expensive stocks – cheap stocks are cheaper than usual.

[8]We assign a weight of one third to earnings and cash flow yields and a weight of one sixth to sales to price and book to market, respectively.

Figure 4: Mean Reversion in Value Spreads



The figure graphs US values spreads on the horizontal axis and changes in US value spreads over the subsequent 12 months on the vertical axis. The association between large spreads and subsequent declines in the spreads indicates that spreads have a tendency to revert to "normal" values,

The spreads are averages of multiple valuation spreads, like those shown in Figure 3. Spreads and spread changes are monthly data from January 2003 to August 2018. The spreads are based on US large-cap and mid-cap stocks.

The vertical dashed line marks the spread level at the end of August 2018.

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4.1. Mean reversion in spreads

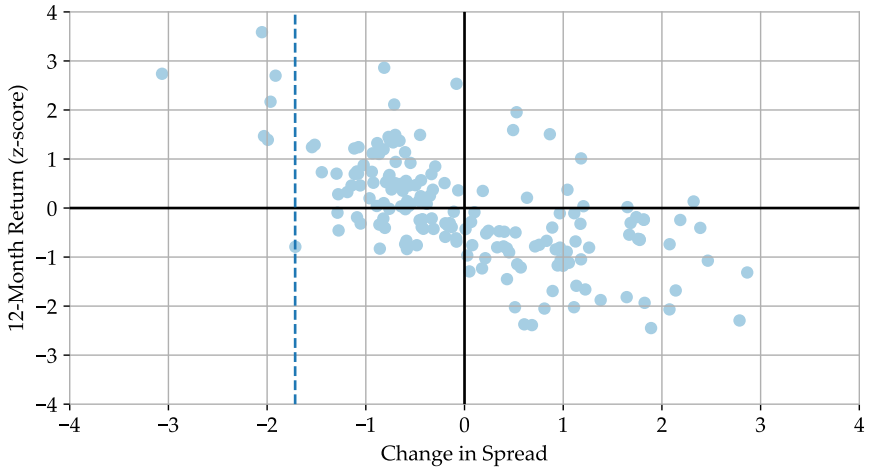
Interestingly, unusually wide value spreads are often followed by a compression of the spreads back to more normal levels. We illustrate this in Figure 4. The figure displays US value spreads on a given date on the horizontal axis and the change in US spreads over the following 12 months on the vertical axis. For large spreads, on the right, subsequent spread changes are generally negative. That means that wide spreads tend to compress back toward more normal spread levels.[9] The figure indicates the current spread level with a dashed vertical line. We cannot place a marker for August 2018 on the graph since we don't yet know the value return over the next 12 months.

4.2. Performance during spread tightening

Naturally, as value spreads compress, the valuations of cheap stocks rise towards those of previously more expensive stocks. As this happens, value strategies generally earn positive returns. Figure 5 shows 12-month changes

[9]This mean reversion is also apparent for individual value styles shown in the time-series spread plots in Figure 3, which appear to fluctuate around and revert to "normal" levels. The figures correctly suggest that a full cycle may take longer than the 12 months we focus on for our analysis.

Figure 5: Value Returns and Changes in Value Spreads



The figures graphs the annual change in US value spreads on the horizontal axis and the contemporaneous returns to US value portfolios on the verical axis.

The spreads are averages of multiple valuation spreads, like those shown in Figure 3. The returns are for the corresponding average portfolios. Spread changes and returns are measured each month from January 2003 to August 2018. The spreads and returns are based on US large-cap and mid-cap stocks.

The dashed vertical line indicates the change in spread if the August 2018 spread level reverts back to normal (zero) over the course of 12 months.

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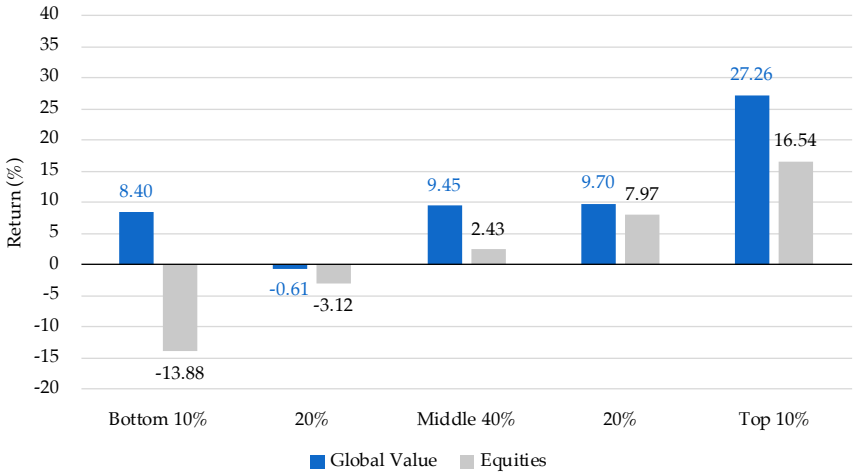
in value spreads and the contemporaneous returns to value factors. In the figure, value returns are generally higher during periods of tightening value spreads, on the left.

Moreover, for larger spread compression, on the far left, value returns tend to be especially large. If the current US value spreads were to revert back to normal levels with a z-score of 0 over the next 12 months, the change in spreads would be -1.7. The figure indicates this change with a dashed vertical line. The historical experience suggest that US value returns associated with such a change might be $+1$ or $+2$ standard deviations above their historical norm. That corresponds to a return of 26 percent or 43 percent for a US value portfolio levered to 15 percent risk.

Notably, however, there have also been periods where strong compression in value spreads has been accompanied by negative value returns. These episodes can occur when changes in fundamentals rather than changes in prices drive the compression in valuation spreads.

The above illustrates three facts: current valuation spreads are unusually wide, wide spreads tend to compress, and compression in valuation spreads is associated with high returns for value strategies. We infer that the current

Figure 6: Value Returns in Different Equity Market Environments



The figure shows monthly average returns for a simulated global value portfolio and the equity market in different equity market environments.

The figure groups calendar months according to the returns of the MSCI World equity market index from January 2003 to August 2018. The value returns are for the matching calendar months.

The left-most group contains the 10% of months with the worst equity returns. The second group contains the next 20% of months by equity returns. The middle group contains the middle 40% of months by equity returns. The right-most group contains the 10% of months with the highest equity returns.

The value returns are for a long-short portfolio of large-cap and mid-cap stocks in the US, Canada, continental Europe, the UK, Japan, and Australia. The portfolio is long attractive stocks based on a broad range of value characteristics and short unattractive stocks based on the same value characteristics. The portfolio is levered to 15% annual volatility. The value returns are net of estimated implementation costs.

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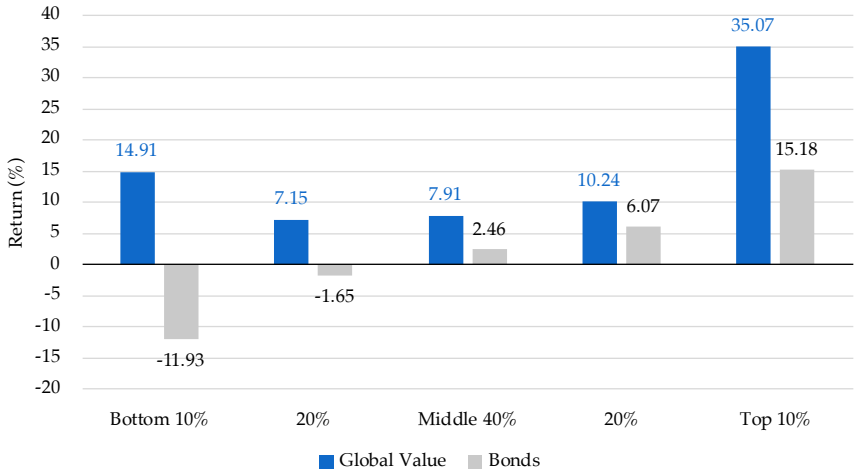
wide value spreads indicate an attractive environment for value strategies going forward.

5. Value in Different Market Environments

There are at least two reasons why even investors who agree that value spreads are currently wide may be concerned that this does not represent an attractive opportunity. First, overall equity market valuations are not low and value returns may be negatively affected by declining stock markets. Second, value returns may be negatively affected by global interest rates, which may continue to rise after an extended period of record-low yields. We show that this is not the case.

The value portfolios that allow us to measure value returns and spreads are structurally market neutral. The portfolios are long and short equal dollar amounts with zero net exposure to the market, industrial sectors,

Figure 7: Value Returns in Different Bond Market Environments



The figure shows monthly average returns for a simulated global value portfolio and the bond market in different bond market environments.

The figure groups calendar months according to the returns of the Bloomberg/Barclays U.S. Long Treasury bond market index from January 2003 to August 2018. The value returns are for the matching calendar months.

The left-most group contains the 10% of months with the worst bond returns. The second group contains the next 20% of months by bond returns. The middle group contains the middle 40% of months by bond returns. The right-most group contains the 10% of months with the highest bond returns.

The value returns are for a long-short portfolio of large-cap and mid-cap stocks in the US, Canada, continental Europe, the UK, Japan, and Australia. The portfolio is long attractive stocks based on a broad range of value characteristics and short unattractive stocks based on the same value characteristics. The portfolio is levered to 15% annual volatility. The value returns are net of estimated implementation costs.

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and predicted market betas. There is reason to believe that such portfolios have low or no correlation with equity market returns. Figure 6 illustrates empirically that this has been borne out. The Figure shows the average equity market returns and average value factor returns in 5 different equity market environments. The bars on the far left correspond to the 10% of the worst equity market returns; the next group corresponds to equity markets in the next 20% of equity market returns; followed by the middle 40%, next 20%, and top 10% of equity market returns. Clearly, value factors have performed well on average even when equity markets have done poorly. From January 2003 to August 2018, the rank correlation between simulated, monthly, global, pure value returns and equity market returns measured with the MSCI World index has been 0.16.

Similarly, Figure 7 shows the performance of global value factors in a simulated stock selection strategy during different environments for bond

markets. Since the value portfolios only trade stocks, not bonds, there is no simple logic that the returns on value portfolios would have material association with bond market returns. Once again, the empirical evidence shows this to be true historically. From January 2003 to August 2018, the rank correlation between monthly simulated pure value returns and bond market returns measured with the Bloomberg/Barclays Long-Duration Bond index has been 0.25.

6. Summary

We demonstrate that "value" strategies in stock selection have performed unusually poorly in 2018, through August. As a direct result of this performance, "cheap" stocks have become even cheaper relative to "expensive" stocks. We show that such valuation spreads are now exceptionally wide, especially in the US. We furthermore show that wide spreads tend to shrink back towards more normal levels and that such spread compression tends to be associated with high value returns. We conclude that the current wide value spreads indicate an attractive environment for value investment strategies in stock selection.

7. References

Fama, Eugene F., and Kenneth R. French, 1992, The cross-section of expected stock returns, *Journal of Finance* 47, 427–465.

Fama, Eugene F., and James D. MacBeth, 1973, Risk, return, and equilibrium: Empirical tests, *Journal of Political Economy* 81, 607–636.

Jarque, Carlos M., and Anil K. Bera, 1980, Efficient tests for normality, homoscedasticity and serial independence of regression residuals, *Economics Letters* 6, 255–259.

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