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## KEY FINDINGS

- The standard academic value factor has been weak for decades already, but we show that the value premium can be resurrected with a more sophisticated approach.
- Our key enhancements are using more powerful value metrics, applying some basic risk management, and making more efficient use of opportunities in liquid stocks.
- The enhanced value strategy also suffers in recent years, but this is largely explained by an extreme widening of valuation multiples similar to the late 1990s.

## ABSTRACT

The prolonged poor performance of the value factor has led to doubts about whether the value premium still exists. Some have noted that the observed returns still fall within statistical confidence intervals, but such arguments do not restore full confidence in the value premium. This article adds to the literature by showing that the academic value factor, HML, has not only suffered setbacks in recent years but has, in fact, been weak for decades already. However, the authors show that the value premium can be resurrected using insights that are well documented in the literature or common knowledge among practitioners. In particular, they include more powerful value metrics, apply some basic risk management, and make more effective use of the breadth of the liquid universe of stocks. Their enhanced value strategy also suffers in recent years, but this is largely explained by an extreme widening of valuation multiples similar to the late 1990s. The authors conclude that a solid value premium is still clearly present in the cross-section of stock returns.

## TOPICS

***Analysis of individual factors/risk premia, developed markets, emerging markets, factor-based models****

Value investing is a classic concept. The 18th century mutual fund Concordia Res Parvae Crescunt stated that its aim was to "invest in solid securities and those that based on a decline in their price would merit speculation and could be purchased below their intrinsic values."[1] Graham and Dodd (1934) are commonly credited with laying the intellectual foundation for modern-day value investing. Formal evidence for the existence of a value premium was provided by Basu (1977), Stattman (1980), Rosenberg, Reid, and Lanstein (1985), Jaffe, Keim, and Westerfield (1989), and Lakonishok, Shleifer, and Vishny (1994) using ratios such as earnings to

*All articles are now categorized by topics and subtopics. **View at PM-Research.com**.

[1] See the white paper "A Brief History of Robeco and the Mutual Fund Industry" by Jan Sytze Mosselaar, available at https://www.robeco.com.

price (E/P), book value to market value (B/M), and cash flow to price (C/P) to classify stocks as either value or growth. Broad acceptance of the value effect followed after Fama and French (1992) thoroughly established the presence of a value premium in the US stock market and introduced the three-factor model (Fama and French 1993). The three-factor model augments the capital asset pricing model with a size factor, SMB, and a value factor, HML. The HML factor is a hypothetical long–short portfolio, which combines long positions in stocks with high B/M ratios with short positions in stocks with low B/M ratios. The three-factor model and its subsequent extensions have a central place in the asset pricing literature.

The first serious doubts about the value premium arose during the tech bubble in the late 1990s. For a while, it seemed that valuations did not matter anymore, as expensive growth stocks massively outperformed cheap value stocks. However, the strong performance of growth stocks turned out to be driven by unsustainable multiple expansion, and the burst of this bubble in the early 2000s resulted in a strong comeback of the value factor (cf. Asness et al. 2000). A fresh challenge was posed by Houge and Loughran (2006), who found no evidence of a value premium for equity indexes, mutual funds, and large-cap stocks. The failure of popular value indexes to outperform their growth counterparts was also observed by Hsu (2014). Nevertheless, the value effect remained widely accepted, not only among academics but also among practitioners. Consequently, the value factor remains a key pillar of asset pricing models, many mutual funds are still dedicated to following a value investment style, and quantitative investors continue to make extensive use of value factors in their alpha forecasting models.

Fresh doubts about the value factor have arisen in recent years, as the value premium has failed to materialize since the global financial crisis. With value stocks severely lagging growth stocks in the late 2010s and early 2020s, the factor is even being questioned existentially once again. Arnott et al. (2020), Fama and French (2020), and Israel, Laursen, and Richardson (2020) specifically attempted to refute the concern that the value premium might have disappeared permanently. Arnott et al. (2020) and Fama and French (2020) emphasized that, although the recent performance of the value factor is indeed disappointing, it still falls within the range of outcomes that can be expected based on regular statistical variation. In other words, the performance of value may have been bad, but investors should realize that capturing a premium in the long term can involve these kinds of drawdowns in the short term. To illustrate, there have also been periods of a decade, or longer, over which the equity premium failed to materialize. Israel, Laursen, and Richardson (2020) dismissed other arguments for why value might have stopped working, such as increased share repurchase activity, the growing importance of intangibles, the low-interest-rate environment related to central bank interventions, or simply because everyone knows about the strategy. Although these studies make valid points, they do not restore full confidence in the strength and robustness of the value effect.[2]

This article contributes to the existential debate about the value premium in two ways. First, we show that the academic value factor, HML, has not just suffered setbacks in recent years but has actually been struggling for decades. Based on the post-publication evidence, the concern that the HML value premium may have disappeared is not unreasonable. In fact, if today's data had been available when Fama and French conducted their classic studies, it is conceivable that they would have deemed the evidence in support of the existence of a value premium to be insufficiently convincing. We also show that the CMA investment factor of Fama and French

[2] A key argument made by Fama and French (2020) is that the hypothesis that the out-of-sample value premium is the same as the in-sample value premium cannot be rejected. Following the same logic, however, one could argue that the hypothesis that the in-sample premium is actually the same as the out-of-sample premium cannot be rejected either.

(2015), which can be seen as an academic alternative to the classic HML factor, offers little improvement and has also been quite weak over the last three decades.

Our main finding is that existential concerns about the value premium evaporate when considering a value investment strategy that is a bit more sophisticated than the generic HML approach. Although this enhanced value strategy also suffers in recent years, it has a solid long-term track record with a premium that is highly significant, both from an economical perspective and from a statistical perspective. Our resurrected value factor uses ideas that are well documented in the literature or common knowledge among practitioners. Most importantly, we use a composite of value metrics, apply some basic risk management, and make more effective use of the breadth of the liquid universe of stocks. We conclude that, with a little bit of effort, a healthy value premium can still be discerned in the cross section of stock returns. Thus, investors should not jump to the conclusion that the value premium has disappeared based merely on the weak performance of generic value strategies.

Arnott et al. (2020) emphasized that the poor performance of generic value strategies in recent years stems from an extreme widening of valuation multiples. For our enhanced value strategy, we also observe that, toward the end of our sample, the spread in valuation multiples between growth stocks and value stocks reaches a level that was last seen at the height of the tech bubble in the late 1990s. This helps to understand why our enhanced value strategy is also not able to make it through the most recent years unscathed. However, it also implies that the true magnitude of the value premium may be underestimated with our sample period and that the forward-looking expected return on value versus growth stocks is currently higher than average.

We note that, similar to the classic HML factor, our enhanced value factor remains a theoretical construct. In particular, we ignore various limits to arbitrage that investors face in reality, such as transaction costs, shorting costs, taxes, and long-only constraints. The scope of our article is limited to establishing that a highly significant value premium is still present in the cross section of stock returns, which is the first-order necessary condition for value investing. We fully acknowledge that more challenges need to be overcome to actually capture that premium in reality, as is the case for factor premiums in general.

The outline of this article is as follows. We first review the performance of the classic HML value factor. Next, we conduct a similar analysis for the CMA investment factor, which can be seen as an academic alternative to HML. We then describe our more sophisticated value strategy. This is followed by an overview of the empirical performance of this alternative value factor. Finally, we conclude.

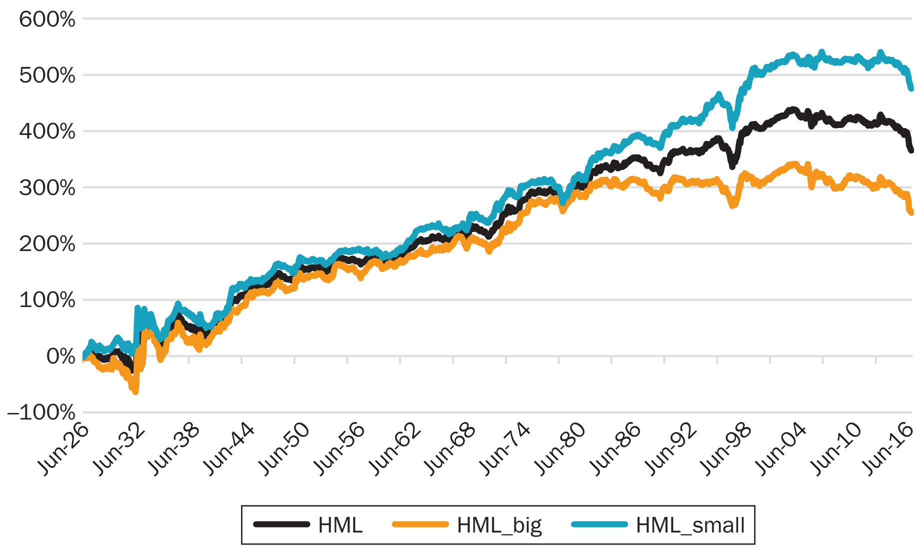
## GENERIC VALUE STRATEGIES

### The HML Value Premium

We begin with reviewing the performance of the classic HML value factor of Fama and French (1993). The building blocks for HML are the 2 × 3 capitalization-weighted portfolios resulting from independently sorting on size and the B/M ratio, using the NYSE median market capitalization as the breakpoint for size (big versus small) and the NYSE 30th and 70th percentiles as the breakpoints for B/M (high, middle, and low). The HML portfolio is defined as an equally weighted average of the big-cap HML B/M portfolio and the small-cap HML B/M portfolio. Data for HML and the underlying 2 × 3 portfolios is publicly available in the online data library of Prof. Kenneth French, not just for the United States but also for similarly constructed international

### EXHIBIT 1

**Cumulative Return of HML Value Factor in the United States**




versions.[3] We examine the performance of HML in the United States, developed ex-United States, and emerging markets from the earliest available start dates (July 1926, July 1990, and July 1989, respectively) to June 2020.

Exhibit 1 depicts the performance of the HML factor in the US stock market. It also shows the performance of the separate big-cap and small-cap components of HML. We observe that the big-cap component of HML has been more or less flat on balance since the early 1980s, so for almost 40 years now. The weak performance of HML in the big-cap space is in line with previous findings of, for example, Blitz (2016) and Israel, Laursen, and Richardson (2020). The small-cap component of HML has done better, trending upward until the mid-2000s. Since then, however, it has also leveled off. By definition, the combined HML factor has been exactly in between. The poor performance of HML among big-caps is concerning because this segment of the market comprises approximately 90% of the total stock market capitalization. In other words, the performance of HML has been critically dependent on the efficacy of B/M in the small-cap space, which consists of the smallest and least liquid stocks in the market. Although these outcomes may still fall within the range that can be expected due to regular statistical variation in returns (Arnott et al. 2020; Fama and French 2020), the concern that the HML value premium is seriously impaired, or may even have disappeared altogether, does not seem unreasonable.

Exhibit 2 depicts the performance of HML in the developed ex-US stock markets. Although the picture here looks a bit better than in the United States, it is still concerning. In the big-cap space, all the performance is in the 2000–2006 period; the factor is basically flat or even negative during the remainder of the 30-year sample period. Performance in the small-cap space is again better but also pretty much flat over the first and last of the three decades in the sample. Exhibit 3 shows that, in emerging markets, the HML factor has also been struggling in the big-cap space, being more or less flat for almost the last 20 years, but is kept afloat by its exceptionally strong performance in the small-cap space.

Exhibit 4 shows the annualized mean return and the *t*-statistic for the test whether the performance is statistically different from zero over the 30-year period from

[3] http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.

**EXHIBIT 2**

**Cumulative Return of HML Value Factor in Developed ex-US**

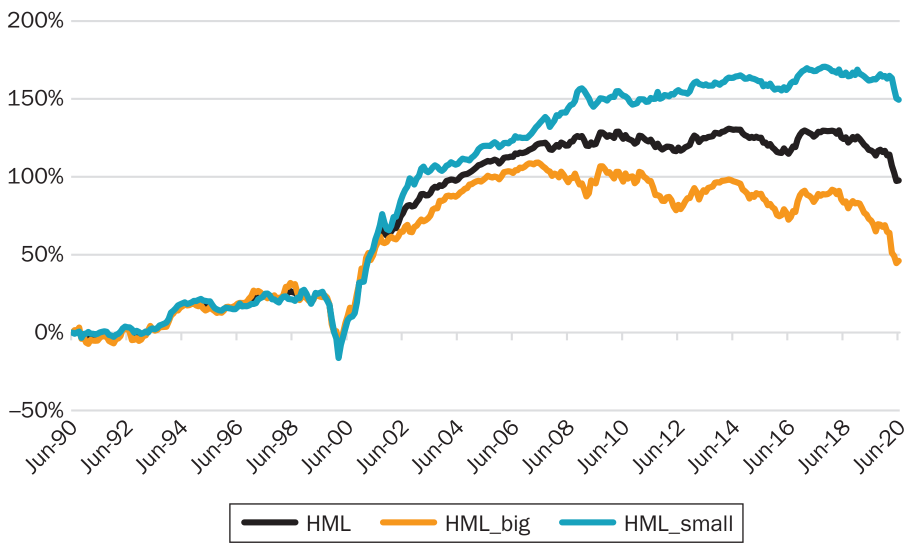
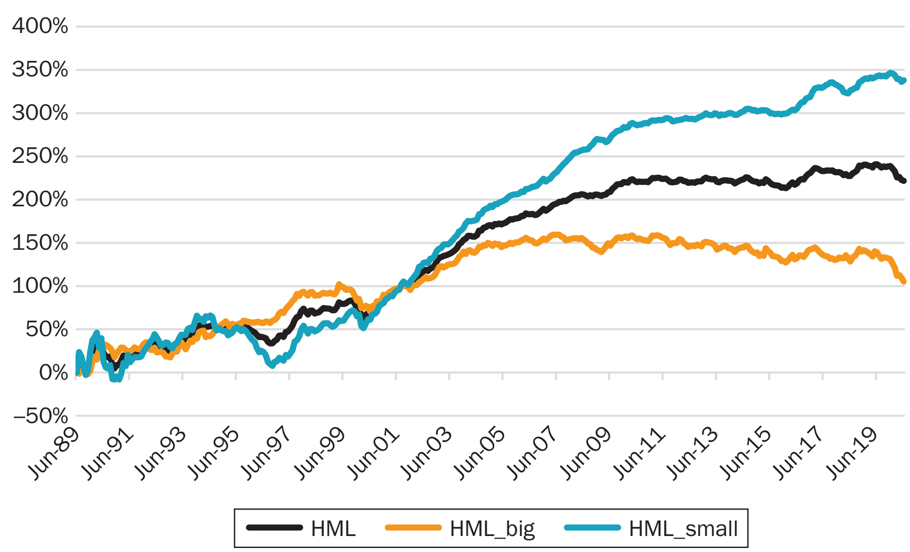



**EXHIBIT 3**

**Cumulative Return of HML Value Factor in Emerging Markets**




July 1990 to June 2020. For developed ex-US and emerging markets, this is nearly the entire sample, whereas for the United States, it corresponds closely with the period after the publication of the Fama and French (1992) study (i.e., the out-of-sample evidence). For the United States, the HML value premium has amounted to less than 1% per annum over this period, with a very low insignificant *t*-statistic of 0.46. The big-cap HML component even displays a negative average return. The small-cap HML value premium still appears decent, at over 3% per annum, but the associated *t*-statistic of 1.45 falls well short of the conventional thresholds for statistical significance. For developed ex-US and emerging markets, the point estimates for the value premium in the big-cap space are positive, but both are statistically indistinguishable from zero. The only significant HML performance is found in the developed ex-US

## EXHIBIT 4

### Performance of HML Factor in Last 30 Years

| Market | HML | HML Big | HML Small |
|---|---|---|---|
| **US** | | | |
| Return (ann.) | 0.91 | –1.40 | 3.21 |
| *t*-statistic | (0.46) | (–0.66) | (1.45) |
| **Developed ex-US** | | | |
| Return (ann.) | 3.25** | 1.53 | 4.98*** |
| *t*-statistic | (2.35) | (0.89) | (3.32) |
| **Emerging Markets** | | | |
| Return (ann.) | 6.63*** | 2.42 | 10.83*** |
| *t*-statistic | (4.35) | (1.35) | (5.46) |

**NOTES:** Sample period is July 1990 to June 2020. ** and *** denote significance at the 5% and 1% confidence level.

and emerging markets small-cap space, with annualized premiums of about 5% and 11%, respectively. Combining the big-cap and small-cap legs results in statistically significant HML value premiums of more than 3% in developed ex-US and more than 6% in emerging markets, but with the caveat that this is critically driven by the small-cap legs, which are based on the smallest and least liquid stocks that comprise just 10% of the total market capitalization.

Altogether, it seems fair to conclude that, if Fama and French had had the current data at their disposal when they conducted their work in the early 1990s, they might well have deemed the evidence in support of the value premium to be insufficiently convincing.

### The Academic Alternative for HML

Fama and French (2015) augmented their classic three-factor with two new factors, profitability and investment. In the resulting five-factor model, the HML value factor turns out to be redundant—it is fully subsumed by the other factors. This result is driven by the investment factor, CMA, which is defined as low minus high growth in total assets. The intuition is that value stocks are characterized by low growth, whereas growth stocks, as the name suggests, tend to have higher growth. In fact, a more expensive valuation can only be justified if a firm can deliver higher future earnings growth, and the past growth in total assets can be seen as a proxy for this. The close relation between the HML and CMA factors becomes immediately clear from the strong correlation between their returns, which amounts to 0.68 for the United States over the longest available period (July 1963 to June 2020).[4]

Fama and French (2015) concluded that HML could be dropped from the model, resulting in a more parsimonious four-factor model. Nevertheless, they choose to leave HML in, arguably for legacy reasons. Hou, Xue, and Zhang (2015) proposed an alternative asset pricing model with an investment factor closely related to CMA but without a traditional value factor, as they also found such factors to be redundant. Thus, Fama and French (2015) and Hou, Xue, and Zhang (2015), today's leading architects of academic asset pricing models, are essentially in agreement that the classic value factor is obsolete and that investment factors are a superior alternative.[5] We therefore proceed by examining whether the CMA investment factor offers a significant improvement upon the HML value factor—that is, whether CMA is basically HML 2.0.

Exhibits 5, 6, and 7 show the cumulative performance of the CMA factor in the United States, developed ex-US, and emerging markets over the longest available history. Again, we also break down to the separate big-cap and small-cap components of the factor. For all regions, we observe that, apart from a strong run in the

[4] The correlation between HML and CMA is also high in other markets, at 0.59 for developed ex-US (July 1990 to June 2020) and 0.31 for emerging markets (July 1992 to June 2020).

[5] Pre-1963 evidence suggests that this conclusion may be premature, though, because the value factor is not explained by the new factors during that period; see Linnainmaa and Roberts (2018) and Wahal (2019). Furthermore, Blitz, Baltussen, and van Vliet (2020) broke factors down into their long legs and short legs and found that HML is only subsumed by CMA on the short side, not on the long side. Furthermore, Asness et al. (2015) showed that a revised value factor that is updated monthly is not redundant when controlling for momentum, owing to the strong negative correlation between these two factors. This finding is also in line with the finding of Barillas and Shanken (2018), Barillas et al. (2020), and Hanauer (2020) that the winning models in a horse race of common factor models include both these factors.

**EXHIBIT 5**

**Cumulative Return of CMA Investment Factor in the United States**

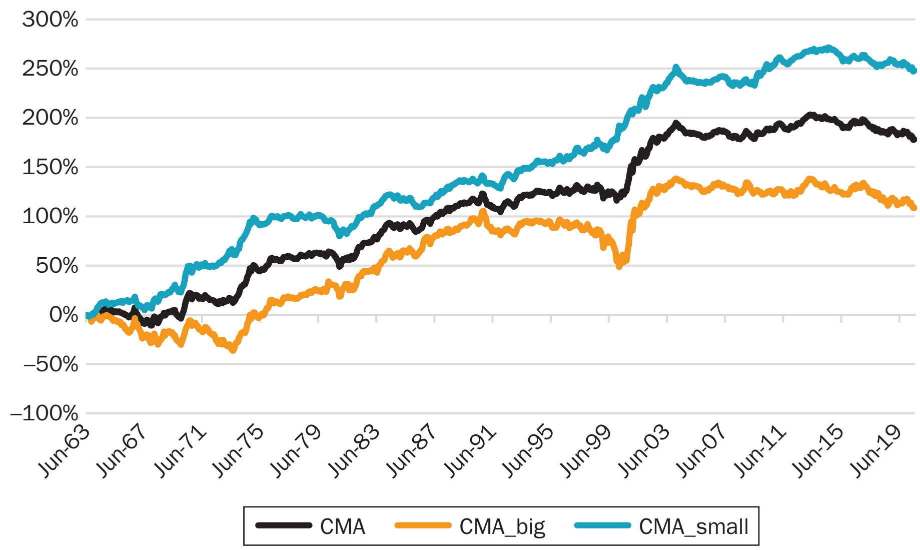
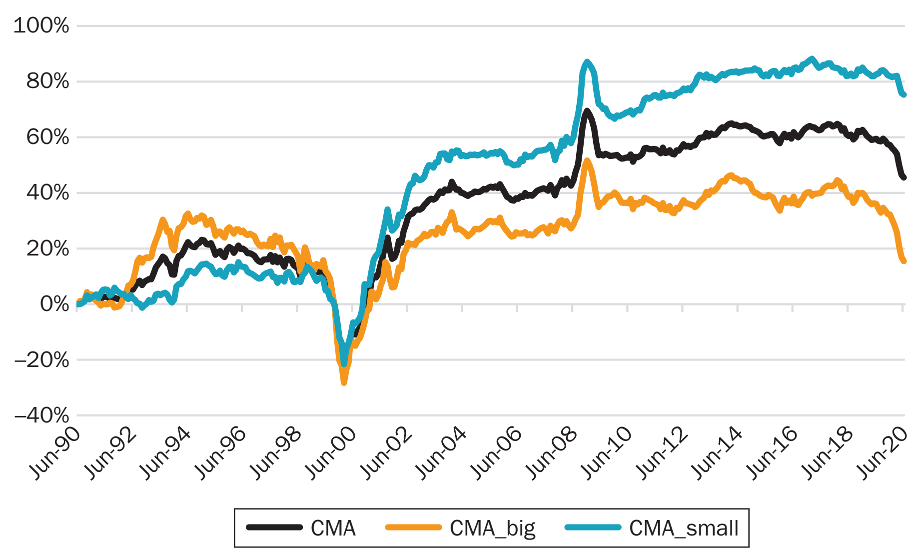



**EXHIBIT 6**

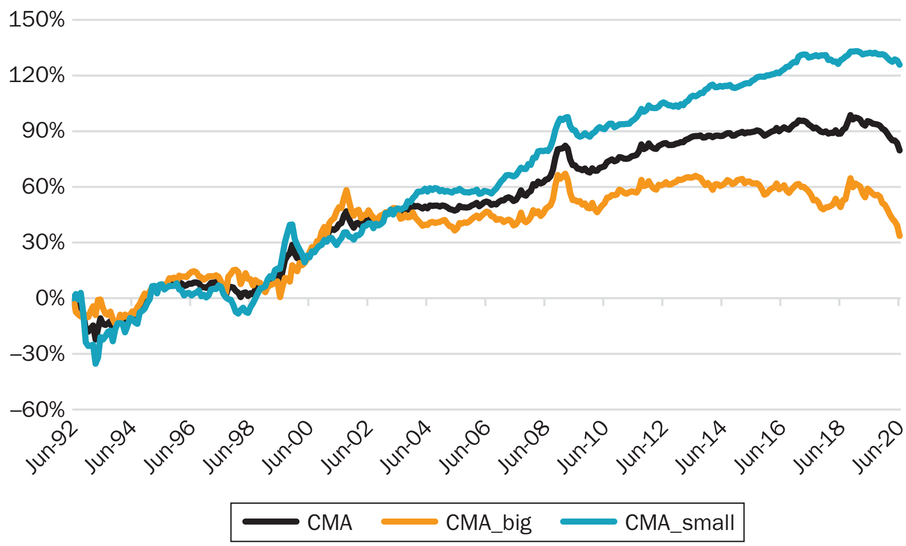
**Cumulative Return of CMA Investment Factor in Developed ex-US**




early 2000s, the CMA factor has been more or less flat in the big-cap space over the last three decades. This is confirmed by the last 30-year performance statistics reported in Exhibit 8, with annualized returns amounting to just 0.5% for both the United States and developed ex-US and 1.2% for emerging markets, all with very low insignificant *t*-statistics. As for HML, the CMA factor is consistently stronger in the small-cap space. However, for the United States and developed ex-US, the statistical significance among small-caps is not sufficient to compensate for the lack of significance among big-caps, and the combined factor still falls short of the conventional thresholds for statistical significance. Altogether, the CMA factor has not been much better than the HML factor over the last 30 years. This is all the more remarkable because the factor stems from the Fama and French (2015) study that uses data up

## EXHIBIT 7

### Cumulative Return of CMA Investment Factor in Emerging Markets




## EXHIBIT 8

### Performance of CMA Factor in Last 30 Years

| Market | CMA | CMA Big | CMA Small |
|---|---|---|---|
| **US** | | | |
| Return (ann.) | 2.16* | 0.54 | 3.78*** |
| *t*-statistic | (1.65) | (0.30) | (3.00) |
| **Developed ex-US** | | | |
| Return (ann.) | 1.52 | 0.51 | 2.51** |
| *t*-statistic | (1.36) | (0.38) | (2.22) |
| **Emerging Markets** | | | |
| Return (ann.) | 2.84** | 1.20 | 4.49*** |
| *t*-statistic | (2.30) | (0.75) | (2.94) |

**NOTES:** Sample period is July 1990 to June 2020 (except for emerging markets, July 1992 to June 2020). *, **, and *** denote significance at the 10%, 5%, and 1% confidence level.

to December 2013; that is, our sample is still mostly the in-sample period for this new factor.

## AN ENHANCED VALUE FACTOR

In the remainder of this article, we show that the value premium can be resurrected with a number of fairly easy alterations. The HML portfolio reflects a straightforward, plain-vanilla value investment strategy. Our enhanced value strategy is designed to improve upon this generic approach by adopting some sophistications that have been well established in the academic literature or are commonly used by practitioners. In this section, we first describe our enhanced value factor and then examine its performance.

### Defining Enhanced Value

Our first key adjustment is to use more fundamentals than just book value to classify a stock as either value or growth. In other words, we broaden the set of value metrics, consistent with the early evidence that value can be measured in multiple ways. Fama and French (1996) argued that there is no need to look beyond the book-to-market ratio because their HML factor fully subsumes the performance of portfolios based on alternative value metrics, such as E/P or dividend yield. Later studies, however, have challenged the notion that B/M suffices for measuring value. Moreover, the relevance of book values may have declined over time—book values are more informative for traditional, asset-heavy, old-economy firms, with factories and machines, than for new-economy, service-oriented firms, such as Facebook and Alphabet (Google), with predominantly intangible assets. For our resurrected value factor, we augment the book-to-market ratio with three alternative value signals, which have in common that instead of relying on balance sheet information, like B/M, they are more based on earnings and cash-flows. The use of alternative value metrics is also advocated by Kessler, Scherer, and Harries (2020), who found that many such alternatives outperform the classic B/M approach to value investing.

Our first alternative metric is the EBITDA/EV ratio (earnings before interest, taxes, depreciation, and amortization to enterprise value). It is also known as the enterprise multiple. Loughran and Wellman (2011) showed that EBITDA/EV has strong performance in the US market, which is not explained by traditional factors such as HML, and Walkshäusl and Lobe (2015) extended these results to international markets. Gray and Vogel (2012) also identified EBITDA/EV as one of the most powerful value metrics. The EBITDA/EV ratio can be seen as an enhanced version of the classic E/P ratio, which is not affected by nonoperating gains or losses, is less susceptible to accounting leeway with depreciation and amortization, and is independent of the capital structure of the firm. Such enterprise multiples have also been popular among practitioners, as described by Suozzo et al. (2001). Our second additional metric is the cash flow-to-price ratio (CF/P). By using information from the cash-flow statement of firms, this factor complements the B/M and EBITDA/EV metrics, which are based on the balance sheet and income statement, respectively. Our third and final additional metric is net payout yield (NPY), which was first documented by Boudoukh et al. (2007) for the US market and later corroborated by Walkshäusl (2016) for international markets. NPY is essentially dividend yield, plus share buybacks, minus share issuance. Share buybacks and issuance are related to the asset growth that is used for the investment factors of Fama and French (2015) and Hou, Xue, and Zhang (2015) discussed in the previous section. Share buybacks and issuance also reflect the firm's management view on share valuation, as described by Jenter (2005) and Bali, Demirtas, and Hovakimian (2010). Following Park (2019), Lev and Srivastava (2020), Arnott et al. (2020), and Amenc, Goltz, and Luyten (2020), we also make a small adjustment to the B/M ratio itself by capitalizing research and development (R&D) expenses. Moreover, we compute all value metrics using the most recent price, following Asness and Frazzini (2013). We create a composite value score by first normalizing each individual metric cross-sectionally using standard robust $z$-scores, capped at +3 and –3, and then averaging these scores. Because two of our four value metrics, EBITDA/EV and CF/P, are not meaningfully defined for financials, we remove the stocks from this sector in our empirical tests.

Our second key adjustment comes down to improved risk management. The standard HML factor takes on large persistent industry bets, which arise because certain industries are structurally cheaper than others. For instance, HML is systematically long typical value industries such as utilities and systematically short typical growth industries such as technology. However, Asness, Porter, and Stevens (2000) and Doeswijk and van Vliet (2011) already observed that value strategies are much more effective at selecting stocks within industries than at allocating across industries, implying that higher risk-adjusted returns can be obtained by neutralizing industry bets. These findings are confirmed in more recent studies such as those by Bender, Mohamed, and Sun (2019), Kessler, Scherer, and Harries (2020), and Israel, Laursen, and Richardson (2020). For the United States, we apply industry neutrality by independently ranking stocks within each Global Industry Classification Standard level 1 industry (11 sectors). For global ex-US, we apply region and industry neutrality, using the same sectors and defining the regions as North America, Europe, and Pacific. For emerging markets, we use country neutrality because countries are the primary risk factor in these markets.

Our third key adjustment is to make more efficient use of the breadth that the universe of liquid stocks has to offer. The HML factor gives a disproportionately high weight of 50% to small-cap stocks, which only comprise 10% of the total market capitalization. However, it also uses capitalization weighting to prevent the vast number of extremely small stocks (micro-caps) from dominating the results. The universe for our enhanced value factor at each point in time consists of all stocks in the standard (large/mid-cap) MSCI index at that moment, which is roughly comparable to the big-cap universe of Fama–French.[6] The typical number of stocks is in the 400–600 range for the United States, 800–1,200 for developed ex-US, and 600–800 for emerging markets. Thus, we raise the bar for ourselves by concentrating on the universe in which the HML factor struggles and not including the small-cap segment in which HML has been more successful. To make full use of the breadth that our universe of liquid stocks has to offer, however, we consider equally weighted top-minus-bottom quintile portfolios. The drawback of capitalization weighting is that a small number of ultra-large stocks heavily dominate the results (e.g., for the global index, the 50 largest stocks make up about a third of the total index weight and the 100 largest stocks about half). This can severely punish a factor that may not be so effective (or perhaps is unlucky) for this small number of mega-cap stocks while being quite powerful among the many other stocks in the universe. By limiting our universe to liquid large/mid-cap stocks, our equally weighted portfolios reflect investable strategies and avoid the pitfall of allowing illiquid micro-cap stocks to dominate the results.

In sum, we use a broader set of value metrics, apply some basic risk management, and make more efficient use of the breadth offered by the liquid part of the market. The data for our value metrics are point-in-time and sourced from the Compustat and Worldscope databases through Refinitiv (formerly known as Thomson Reuters). Our sample period starts in January 1986 for the United States and developed ex-US and January 1996 for emerging markets, the earliest start dates that we have at our disposal, and ends in June 2020. Portfolios are rebalanced monthly, and all returns are total returns in US dollars.

## The Resurrected Value Premium

Exhibit 9 reports the outperformance of the quintile portfolios for our enhanced value strategy against the equally weighted universe for the various regions. We find monotonously decreasing return patterns going from the portfolios with the cheapest (Q1) to the portfolios with the most expensive (Q5) stocks. The resulting top-minus-bottom quintile value factor exhibits full-sample value premiums of over 5% for the United States and more than 8% for developed ex-US and emerging markets, with *t*-statistics that are all highly significant. For each region, the top and bottom portfolios contribute jointly to the value premium and are both highly significant, implying that the value premium is not critically dependent on the short side, where limits to arbitrage tend to be most prevalent.

Exhibit 10 shows the cumulative top-minus-bottom quintile performance of our value factor in each region over time. The long-term trend of the performance is clearly upward for all three regions. Similar to the classic HML factor, we observe that in every region there is a pronounced drawdown in the final years of the sample. However, the enhanced value strategy is much better able to absorb this drawdown given its much stronger long-term track record. Whereas existential concerns are understandable for HML, they do not appear justified for the enhanced value strategy. In other words, if we move beyond the generic academic definition of value, a solid value premium is still clearly present in the cross section of stock returns. Based on these results, we conclude that our various enhancements to the standard value factor are effective at resurrecting the value premium.

[6] The standard MSCI indexes target covering approximately 85% of the free float-adjusted market capitalization in each country, whereas Fama and French (2012) defined "big" as the biggest stocks that account for 90% of the aggregated market capitalization per region. Before 2001, we do not have access to MSCI index constituents' data, so as a proxy, we use the FTSE World Developed index for the United States and developed ex-US; for emerging markets, we use the biggest 800 constituents of the S&P Emerging BMI at the semi-annual index rebalance.

## EXHIBIT 9

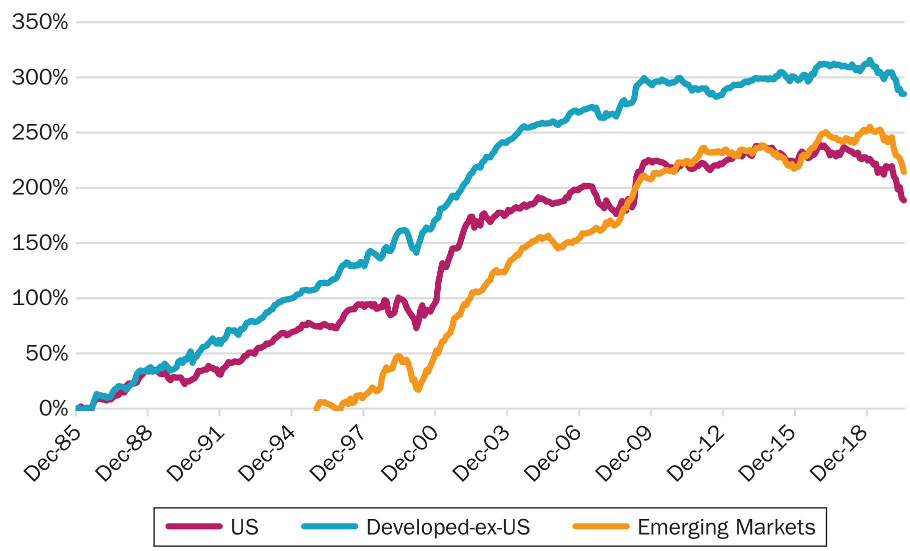
### Outperformance of Quintile Portfolios for Enhanced Value Definition

| Market | Q1 | Q2 | Q3 | Q4 | Q5 | Q1–Q5 |
|---|---|---|---|---|---|---|
| **US** | | | | | | |
| Mean (ann.) | 3.06*** | 1.28** | –0.62 | –1.31** | –2.41** | 5.47*** |
| *t*-statistic | (2.84) | (2.19) | (–1.17) | (–2.24) | (–2.36) | (2.93) |
| **Developed ex-US** | | | | | | |
| Mean (ann.) | 4.97*** | 1.47*** | –1.06*** | –2.04*** | –3.29*** | 8.26*** |
| *t*-statistic | (5.79) | (3.65) | (–2.81) | (–4.73) | (–4.59) | (5.74) |
| **Emerging Markets** | | | | | | |
| Mean (ann.) | 4.83*** | 0.76 | –0.47 | –1.14* | –3.92*** | 8.75*** |
| *t*-statistic | (4.73) | (1.10) | (–0.79) | (–1.82) | (–3.47) | (4.48) |

**NOTES:** Sample period is January 1986 to June 2020 for the United States and developed ex-US and January 1996 to June 2020 for Emerging Markets. Outperformance is calculated against the equally weighted universe. *, **, and *** denote significance at the 10%, 5%, and 1% confidence level.

## EXHIBIT 10

### Cumulative Return of Enhanced Value Factor




A possible concern is that our adjustments might implicitly come down to tilting the value factor toward other factors that are known to be rewarded with a premium, such as profitability. This critique on alternative value factors is voiced by, for instance, Amenc, Goltz, and Luyten (2020). To address this concern, we regress the time series of returns of our value factor on the standard Fama–French factors, with and without HML included.[7] The results are reported in Exhibit 11. We find that our enhanced value factor loads heavily on the standard HML value factor, implying that our strategy is still first and foremost a value strategy and that our various enhancements have not inadvertently turned it into something completely different. The next most pronounced

[7] In addition to the previously discussed HML value and CMA investment factors, this means we include the market excess return, the SMB size factor, the RMW profitability factor, and the WML momentum factor. In unreported tests, we also use self-constructed factors, as well as the HML factor based on the most recent price, and find our conclusions unchanged.

## EXHIBIT 11

### Alpha of Enhanced Value Factor, Controlling for Standard Fama–French Factors

| Market | Alpha (ann.) | Beta Mkt-RF | Beta SMB | Beta HML | Beta RMW | Beta CMA | Beta WML |
|---|---|---|---|---|---|---|---|
| **Panel A: Results Including HML** | | | | | | | |
| **US** | | | | | | | |
| Estimate | 5.26*** | 0.06** | 0.17*** | 0.37*** | 0.25*** | 0.18** | –0.35*** |
| *t*-statistic | (4.10) | (2.36) | (4.41) | (7.56) | (4.91) | (2.46) | (–14.57) |
| **Developed ex-US** | | | | | | | |
| Estimate | 7.60*** | –0.04** | 0.13*** | 0.71*** | 0.12 | –0.16** | –0.27*** |
| *t*-statistic | (6.81) | (–2.12) | (3.02) | (13.99) | (1.61) | (–2.42) | (–9.61) |
| **Emerging Markets** | | | | | | | |
| Estimate | 6.90*** | –0.05** | 0.02 | 0.59*** | 0.25** | 0.38*** | –0.41*** |
| *t*-statistic | (4.17) | (–2.10) | (0.25) | (8.78) | (2.32) | (4.43) | (–8.90) |
| **Panel B: Results Excluding HML** | | | | | | | |
| **US** | | | | | | | |
| Estimate | 4.31*** | 0.09*** | 0.19*** | | 0.37*** | 0.52*** | –0.41*** |
| *t*-statistic | (3.16) | (3.17) | (4.68) | | (7.23) | (9.03) | (–16.74) |
| **Developed ex-US** | | | | | | | |
| Estimate | 10.34*** | –0.04 | 0.22*** | | 0.01 | 0.33*** | –0.36*** |
| *t*-statistic | (7.57) | (–1.42) | (4.06) | | (0.10) | (4.94) | (–10.87) |
| **Emerging Markets** | | | | | | | |
| Estimate | 11.76*** | –0.04 | –0.04 | | –0.18* | 0.60*** | –0.46*** |
| *t*-statistic | (6.70) | (–1.49) | (–0.60) | | (–1.65) | (6.61) | (–8.73) |

**NOTES:** Sample period is January 1986 to June 2020 for United States, July 1990 to June 2020 for developed ex-US, and January 1996 to June 2020 for emerging markets. ** and *** denote significance at the 5% and 1% confidence level.

exposure of the enhanced value factor is a large negative loading on the WML momentum factor, which is in line with the previous findings of, for example, Asness et al. (2015) and Hanauer (2020) for value factors based on the most recent price. The exposures to the other Fama–French factors are also significant in several instances, but these are less consistent across the three regions. After adjusting for all these exposures, we obtain highly significant alphas that are roughly in the 5%–8% range (i.e., close to the raw return levels). Thus, the performance of our enhanced value strategy cannot be attributed to implicit exposures to the standard control factors.

Because the HML value factor is subsumed by the other factors in the Fama–French model and our enhanced value factor is supposed to resurrect the value premium, we repeat the regressions without the HML factor. We find that the large primary loading on HML shifts to the CMA investment factor instead, which is not surprising because, as discussed before, CMA is highly correlated with HML and also the factor that subsumes it. For the United States, the alpha drops slightly, to about 4%, but remains highly significant, whereas for developed ex-US and emerging markets the alpha increases to over 10%, also with highly significant *t*-statistics. Thus, unlike HML, our enhanced value factor is not subsumed by the nonvalue factors and so does indeed resurrect the value premium.

One might argue that it is actually not fair to compare our enhanced value factor, which is based on the liquid big-cap universe of stocks, with the standard Fama–French factors, which give 50% weight to the illiquid small-cap universe, where factor per-

## EXHIBIT 12

### Alpha of Enhanced Value Factor, Controlling for Big-Cap Legs of Fama–French Factors

| Market | Alpha (ann.) | Beta Mkt-RF | Beta SMB | Beta HML_B | Beta RMW_B | Beta CMA_B | Beta WML_B |
|---|---|---|---|---|---|---|---|
| **Panel A: Results Including HML** | | | | | | | |
| **US** | | | | | | | |
| Estimate | 5.55*** | 0.05* | 0.11*** | 0.40*** | 0.26*** | 0.12** | –0.29*** |
| *t*-statistic | (4.16) | (1.72) | (2.69) | (9.25) | (5.07) | (2.27) | (–12.39) |
| **Developed ex-US** | | | | | | | |
| Estimate | 8.24*** | –0.09*** | 0.11** | 0.54*** | 0.09 | 0.00 | –0.22*** |
| *t*-statistic | (7.72) | (–4.37) | (2.49) | (13.72) | (1.58) | (0.05) | (–8.76) |
| **Emerging Markets** | | | | | | | |
| Estimate | 10.37*** | –0.10*** | –0.11* | 0.51*** | 0.06 | 0.12* | –0.28*** |
| *t*-statistic | (6.49) | (–3.77) | (–1.66) | (8.55) | (0.74) | (1.92) | (–6.88) |
| **Panel B: Results Excluding HML** | | | | | | | |
| **US** | | | | | | | |
| Estimate | 5.09*** | 0.08** | 0.14*** | | 0.13** | 0.39*** | –0.35*** |
| *t*-statistic | (3.48) | (3.17) | (3.35) | | (2.47) | (8.40) | (–14.44) |
| **Developed ex-US** | | | | | | | |
| Estimate | 10.00*** | –0.08*** | 0.19*** | | –0.17*** | 0.16*** | –0.27*** |
| *t*-statistic | (7.63) | (–2.89) | (3.47) | | (–2.62) | (2.93) | (–9.10) |
| **Emerging Markets** | | | | | | | |
| Estimate | 12.33*** | –0.06** | –0.09 | | –0.24*** | 0.30*** | –0.33*** |
| *t*-statistic | (6.97) | (–2.01) | (–1.13) | | (–3.21) | (4.67) | (–7.27) |

NOTES: Sample period is January 1986 to June 2020 for United States, July 1990 to June 2020 for developed ex-US, and January 1996 to June 2020 for emerging markets. *, **, and *** denote significance at the 10%, 5%, and 1% confidence level.

formance is generally much stronger. We therefore repeat the regressions replacing the HML, RMW, CMA, and WML factors with their big-cap versions. The results are reported in Exhibit 12 and turn out to be very similar to the results with the standard factors reported in Exhibit 11. The alphas are in the 5%–12% range, depending on the region and the regression specification, and are all highly significant. The explanation for this similar outcome is that increases in alpha (from lower premiums on factors to which the enhanced value strategy is positively exposed) are largely offset by decreases (from a lower premium on the momentum factor to which the strategy is negatively exposed). Regardless, the analysis does show that our findings are robust to using the big-cap versions of the Fama–French factors.

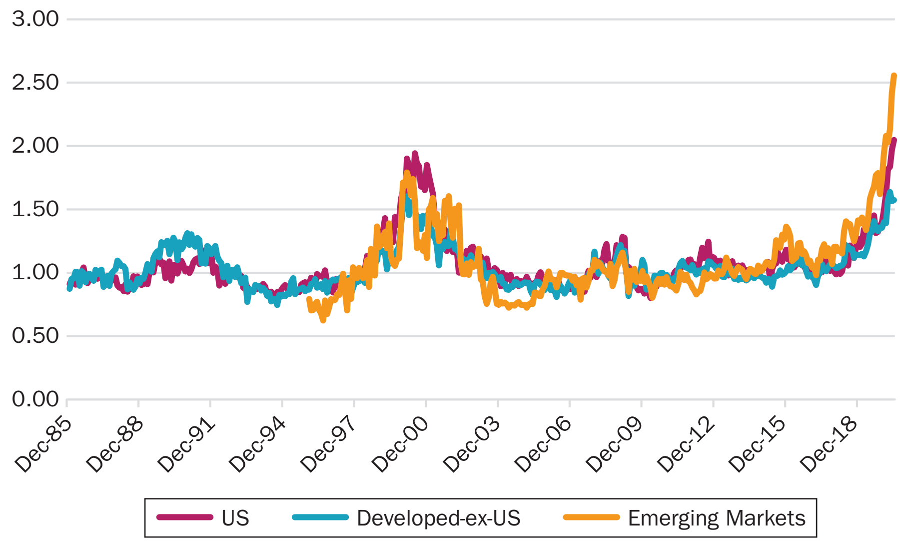
In sum, the results for our alternative value factor show that, with a little effort, a healthy value premium can still be discerned in the cross section of stock returns, and this value premium cannot be explained by implicit exposures to the standard Fama–French factors.

### Understanding the Recent Underperformance of the Enhanced Value Strategy

In the previous subsection, we observed that although the enhanced value strategy has a solid long-term track record, it also underperforms in recent years. Over the entire sample period, there is only one example of similar underperformance, namely during the tech bubble in the late 1990s. Asness et al. (2000) showed that the strong performance of growth stocks during this period turned out to be driven by unsustain-

**EXHIBIT 13**

**Composite Valuation Spread for Enhanced Value Strategy**




able multiple expansion (i.e., a widening of valuation spreads). Exhibit 13 plots the valuation of the enhanced value strategy, defined as the ratio of the valuation of the cheapest value quintile to the most expensive value quintile, over time.[8] In the final years of the sample, we observe a substantial multiple widening that appears very similar to the late 1990s episode. The pattern is very similar across the different markets.

This recent multiple widening has several implications. First, diverging valuation multiples between value and growth stocks are inconsistent with the concern that the value premium may have been arbitraged away because it is so well known, and substantial money has been invested in value strategies. If this were the case, it should be reflected in a narrowing instead of a widening of the valuation spread over time. Thus, arbitrage activity is unlikely to explain the recent underperformance of value strategies. Second, it suggests that conditional value returns are currently high, as also argued by Arnott et al. (2020). The widening of the valuation spread in the late 1990s was followed by mean reversion in the early 2000s, which resulted in a massive outperformance of value stocks over growth stocks. More formally, Asness et al. (2000) and Cohen, Polk, and Vuolteenaho (2003) established a significant positive relation between valuation spreads and the future value premium. Third, the net spread widening that occurred over our sample period means that realized returns over this period might underestimate the true magnitude of the value premium. This is illustrated in Exhibit 14, in which we regress the raw 12-month rolling returns of the enhanced value factor on contemporaneous changes in the valuation spread. Not surprisingly for such an explanatory regression, the $R^2$ values are high, and the betas are highly significant.[9] Most interesting are the alphas, which can be

[8] We measure the valuation of the enhanced value strategy with the three multiples B/M (R&D adjusted), EBITDA/EV, and CF/P. For each multiple and month, we compute the median for both the cheapest and most expensive quintile and compute the spread as the ratio between the two. For the composite valuation spread, we first standardize each of the three time series by dividing with its median. Next, we average the three standardized spreads. We omit NPY in the computation of the value spread because the most expensive quintile often shows a negative value (i.e., the net issuance is higher than the dividend yield), which would make the ratio uninterpretable.

[9] The change in the valuation spread does not completely explain the variation of our enhanced value strategy because factor premiums are also driven by a migration and profitability component (cf. Fama and French 2007 and Arnott et al. 2020).

### EXHIBIT 14

**Value Premium Adjusted for Changes in the Valuation Spread**

| Market | Return adj. (ann.) | Beta Δ Spread | Adj. $R^2$ |
|---|---|---|---|
| **US** | | | |
| Estimate | 7.93*** | –0.70*** | 56% |
| *t*-statistic | (4.16) | (–5.59) | |
| **Developed ex-US** | | | |
| Estimate | 9.66*** | –0.47*** | 36% |
| *t*-statistic | (5.69) | (–4.42) | |
| **Emerging Markets** | | | |
| Estimate | 12.67*** | –0.48*** | 35% |
| *t*-statistic | (4.05) | (–4.29) | |

**NOTES:** Sample period is January 1986 to June 2020 for United States, July 1990 to June 2020 for developed ex-US, and January 1996 to June 2020 for emerging markets. The *t*-statistics are adjusted for the use of 12-month overlapping returns. *** denotes significance at the 1% confidence level.

interpreted as the value premium adjusted for changes in the valuation spread. Compared to the raw value premium, reported in Exhibit 9, the spread-adjusted value premium is much larger and has a much higher *t*-statistic in every region. For the United States, for instance, the value premium jumps from 5.47% ($t$ = 2.93) to 7.93% ($t$ = 4.16) with the spread adjustment. Exhibits 15, 16, and 17 depict the raw and spread-adjusted 12-month rolling value returns over time. We observe that the drawdown in the final years of the sample is fully explained by the spread widening for the United States and, to large extent, for developed ex-US and emerging markets.

## CONCLUSIONS

The value premium is a thoroughly established concept in the asset pricing literature, but, following a period of disappointing performance of value stocks, it is now being existentially questioned. Several studies have argued that the recent return realization of value stocks still falls within the statistically expected range of possible outcomes, but such arguments do not restore full confidence in the value premium.

This article adds to the existing literature by showing that the academic value factor, HML, has not only suffered setbacks in recent years but has in fact been struggling for decades. Performance in the big-cap space, which covers 90% of the total market capitalization, is particularly weak. Thus, concerns that the value premium may have disappeared, or is at least seriously impaired, do not appear unreasonable. The CMA investment factor, which is effectively the academic substitute for the HML value factor, has not fared much better.

Our main result is that the value premium can be resurrected by considering a value investment strategy that is a bit more sophisticated than the generic HML approach. Although this enhanced value strategy also suffers in recent years, it has a solid long-term track record that does not warrant existential concerns. Our resurrected value factor uses insights that are well documented in the literature or common knowledge among practitioners. Most importantly, we use a composite of value metrics, apply some basic risk management techniques, and make more effective use of the breadth of the liquid universe of stocks. We conclude that, with a little effort, a healthy value premium can still be discerned in the cross section of stock returns. Thus, investors should not jump to the conclusion that the value premium is gone based merely on the weak performance of the generic HML factor. The underperformance of the enhanced value factor in the final years of the sample can be largely attributed to an extreme widening of valuation multiples last seen at the height of the tech bubble in the late 1990s. In light of this multiple widening, we also note that the true magnitude of the value premium may be underestimated over our sample period and that the forward-looking expected return on value versus growth is currently higher than average.

**EXHIBIT 15**

**Spread-Adjusted versus Raw 12-Month Rolling Value Returns in the United States**

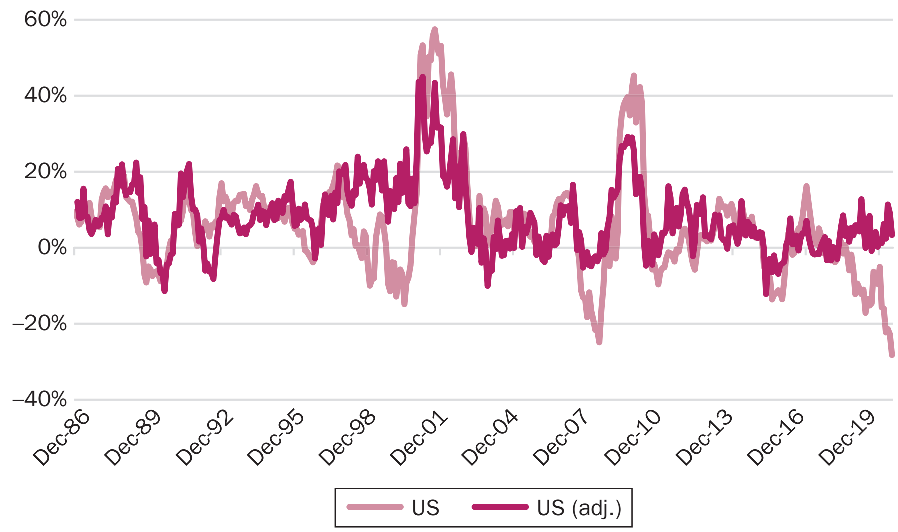
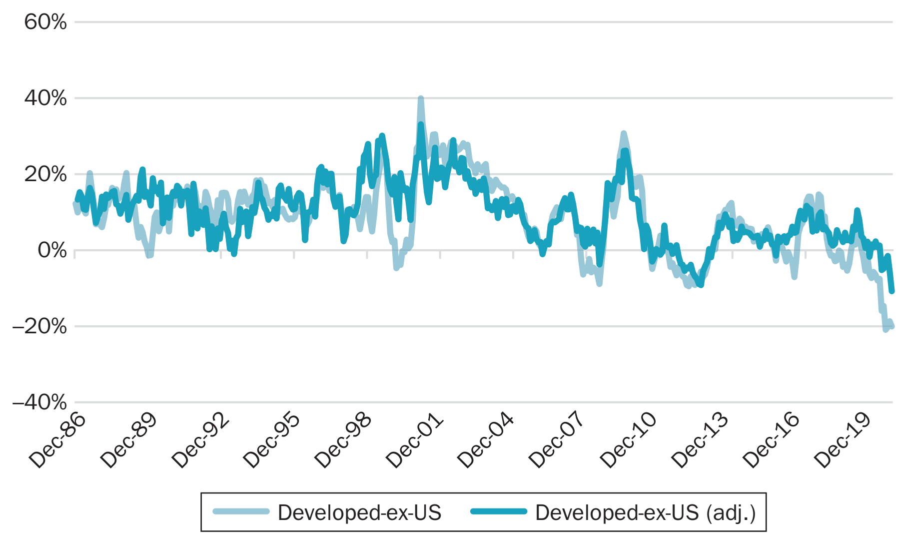



**EXHIBIT 16**

**Spread-Adjusted versus Raw 12-Month Rolling Value Returns in Developed ex-US**




Similar to the classic HML factor, our enhanced value factor remains a theoretical construct that ignores various practical limits to arbitrage that investors face in reality, such as transaction costs, shorting costs, taxes, and long-only constraints. The scope of our article is limited to establishing that the first-order condition for value investing still holds: namely, that a highly significant value premium is present in the cross section of stock returns.

## ACKNOWLEDGMENT

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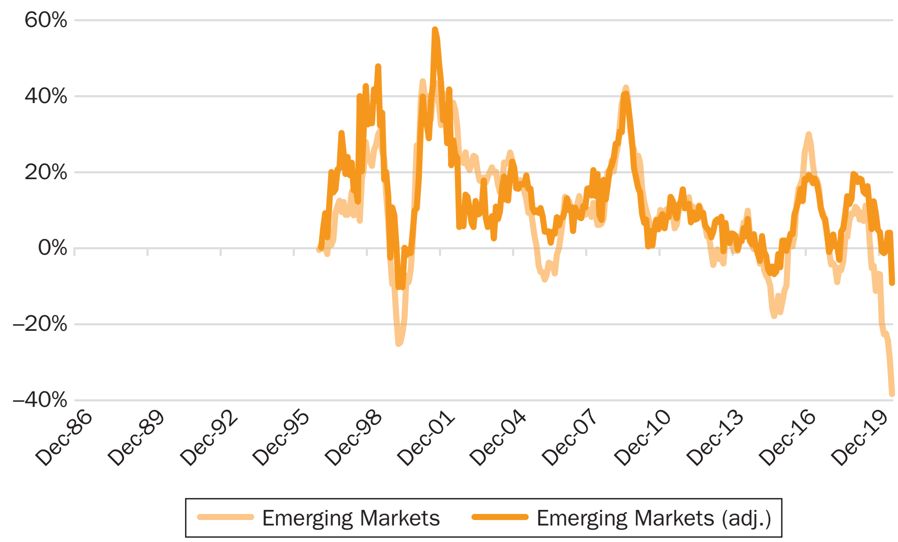
**EXHIBIT 17**

**Spread-Adjusted versus Raw 12-month Rolling Value Returns in Emerging Markets**

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