

## Will value survive its long winter?

- Value and other premiums carry the risk of being negative for as long as a decade
- Allocating to value, even when it is not providing a premium, reduces long-term portfolio risk
- Investors need to be aware of their behavior gap, keep strong hands and stick to their guns

Value is a well-known equity style, in which investors overweight undervalued stocks and underweight overvalued equities. Backtests confirm that the style has posted excellent relative returns since the 1920s, but its performance has been very disappointing since the 2010s, particularly in the US.

An allocation to value is typically an important building block in both fundamental and quantitative portfolios, so its poor recent performance has hit the relative returns of many active strategies. What's more, even well-known value investors like Warren Buffett have suffered disappointing performance in recent years.<sup>1</sup> Value posted excellent returns over the first decade of the century, but it is now facing its deepest drawdown in history, and its very existence is even coming under scrutiny. This raises an important question: will value make a comeback and bring benefits to investors once again? Below we outline our opinions on this matter.

### Back to basics: the equity premium

The current debate about the continued existence of the value premium bears close resemblance to historical discussions about the equity premium itself, which has been declared dead several times over the years. For example, in 1979, BusinessWeek magazine referred to 'the death of equities' as stocks had not earned a premium for over ten years.

Let's take a look at the historical equity premium. Overall, the past 90 years have been a very good time for US equities. The US equity premium (as measured by the simple return of US equities over that of the one-month T-bill) was 7.4% per year, with volatility of 18.4% per year – a return / risk ratio of 0.40. In Figure 1 we can see that rolling ten-year annualized US equity returns were attractive on average over the period, but that they varied significantly over time – roughly between -6% and +17%. So even over a decade in an overall period in which equities do very well, the realized equity premium can be negative.

The negative return from equities in the 1970s was explained by high

inflation at the time: companies were not able to grow their net real earnings because of rising costs. This narrative is a useful explanation for disappointing past performance, but is of little use in predicting future returns. And after the 1979 BusinessWeek article, one of the strongest-ever bull markets in equities took off, showing that the talk about the demise of the equity premium had been highly premature.

The bull market ended with the burst of the tech bubble in 2000, and by 2009 some investors were once again questioning if the equity premium was dead after another decade of poor returns. But we all know how the 2010s worked out for the stock markets.

The important takeaway from all this is that investors wishing to maximize their chance of successfully harvesting the equity premium need to adopt a long-term horizon and keep a strong hand: if they had got nervous and sold when things were looking at their worst, they could have missed out on huge subsequent returns.

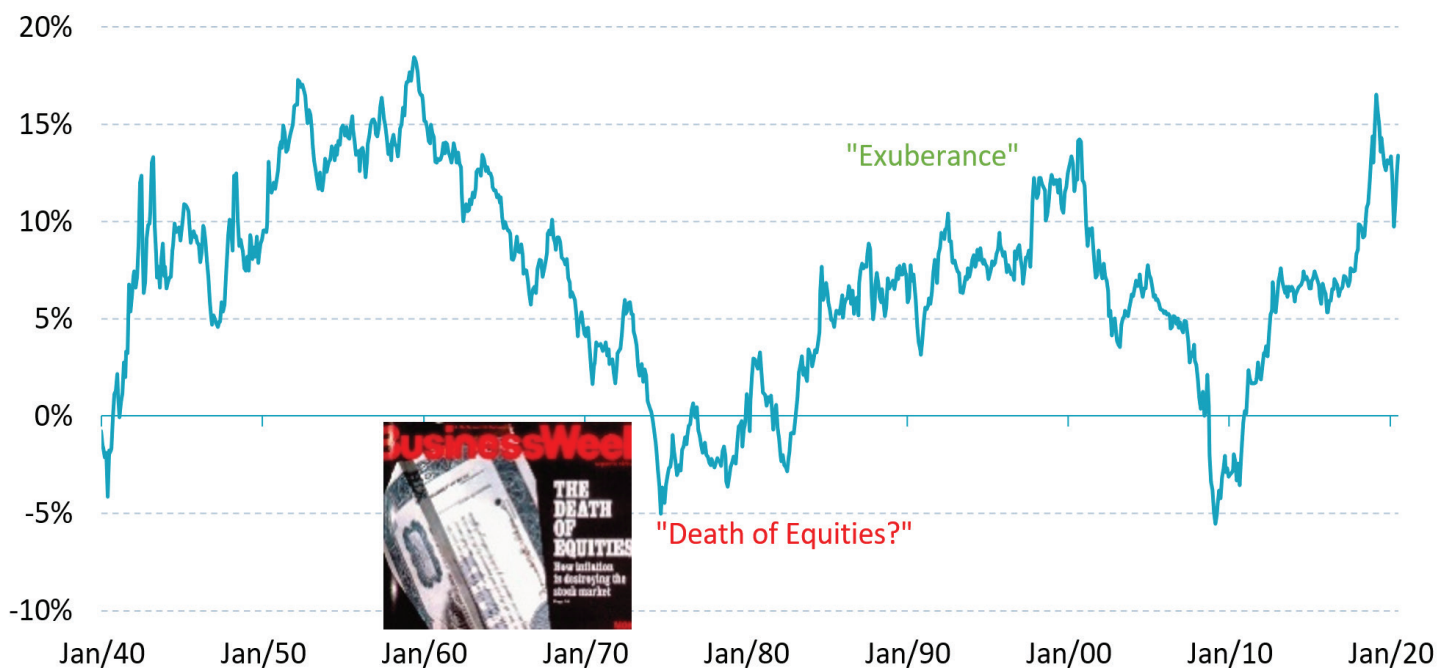
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<sup>1</sup> FT, 16 June 2020: Light on tech and heavy on banks – has Warren Buffett lost his touch?

**Figure 1 | Equity premium: ten-year rolling**



Source: Robeco and Kenneth French's website.

### Think in decades (or longer) – not in quarters

Investors need to think in decades, not in quarters. That's because stock market returns can swing wildly over short timeframes.

Let's consider some statistics for the US equity market between 1929-2020, which we show in Table 1. As we can see, despite an impressive average equity premium of 7.4% per year, there was still a significant probability (13%) that the realized equity premium over any decade was negative.

We can also see in the table the probability of negative returns over a ten-year period if we assume a more conservative forward-looking (i.e. expected) annual return of 4.0%; this is an assumption used by many investors. This expected equity premium translates into an expected return / risk ratio of about 0.22, while the probability of a negative equity return over a ten-year period increases to 24%.

In other words, even with attractive average annual returns (4.0% or 7.4%), there is still a sizable probability that you could lose money by investing in equities over a ten-year period.

Despite the uncertainty of equity returns, few present-day investors have

**Table 1 | US equity risk and return statistics, 1929-2020 and expected**

US equities	1929-2020	Expected
Return over cash (p.a.)	7.4%	4.0%
Volatility (p.a.)	18.5%	18.5%
Return/volatility	0.40	0.22
% probability of a ten-year loss	13%	24%

Source: Robeco and Kenneth French's website.

given up on the equity premium, and most believe that equities will still post positive returns.<sup>2</sup>

### What about the value premium?

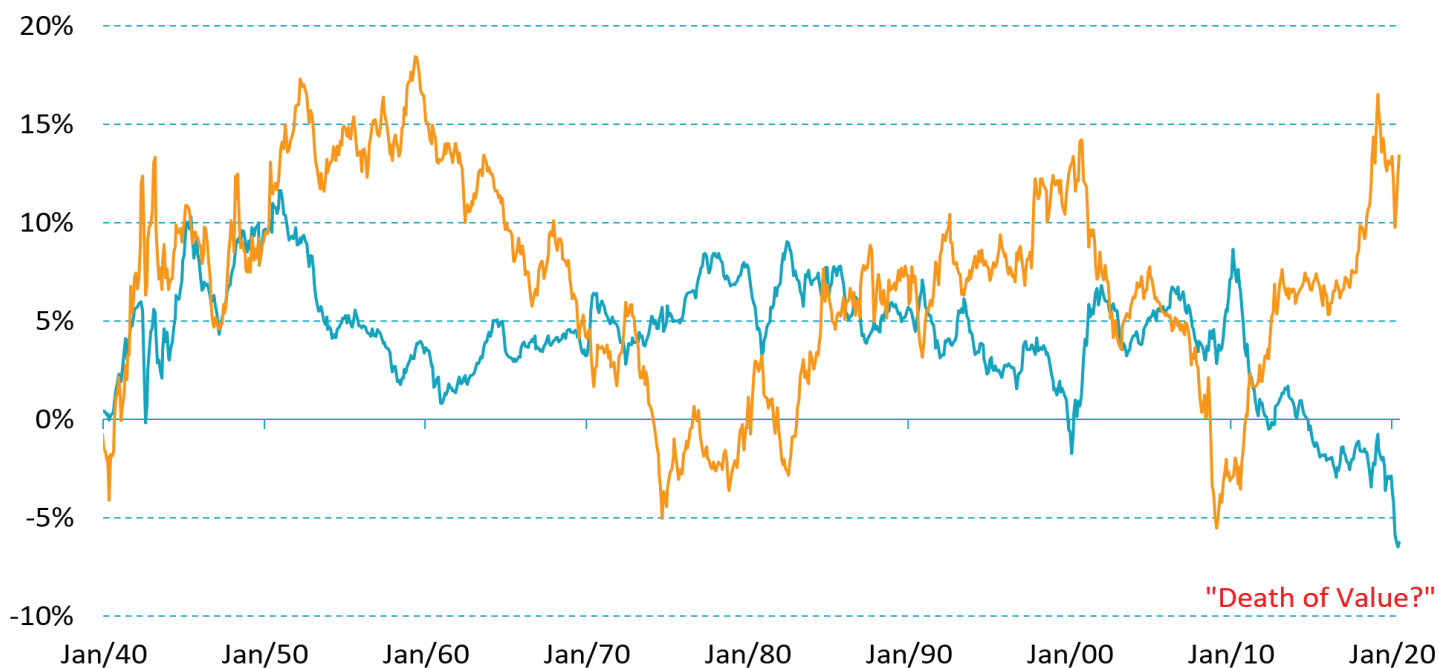
Can we apply any of the above to the value style? This approach to investing has many proponents (including famous investors such as Warren Buffett), has academic backing from several Nobel laureates, and has been adopted for generations – although it was challenged during the late 1990s and is being again in the early 2020s.

Figure 2 shows the rolling ten-year value premium in US stocks, as measured by the Fama-French HML long-short factor, which sorts stocks according to their book-to-market ratio (i.e. the book value of a stock relative to its market value), buying the stocks with the highest ratios (value stocks) and shorting those with the lowest ratios (growth stocks).<sup>3</sup>

<sup>2</sup> This might be due to the strong performance of the equity markets over the past decade. The existence of a positive equity premium will probably come into doubt again after another disappointing decade.

<sup>3</sup> We use the value-weighted HML (high book-to-market minus low book-to-market) portfolio using Kenneth French's definition of value, as academics commonly define value based on a firm's book value relative to its market value. Other measures of value exist, such as sales, earnings, dividends, cash flows or shareholder yield. What they all have in common is that they relate the fundamentals of a company to its price. A low price corresponds to a high yield, all else being equal. Using metrics other than raw book-to-market value would have given somewhat better results for the value style over the past decade. For example, cashflow / price produced a ten-year return of -5.1%, earnings / price -3.3% and dividend / price -2.5%. Besides using a combination of value metrics, investors often apply sector neutrality, which also gives better results than simple using book value. Furthermore, for international markets and emerging markets the past 10-year value premium, using book/price, was -2.9% and -0.1% respectively. These points are further elaborated in a forthcoming Robeco 'resurrecting the value premium'. In this study we used the following definition of value: 1) US market, 2) no sector neutrality, and 3) book value.

**Figure 2 | Rolling ten-year US value premium**



Source: Robeco and Kenneth French’s website. The orange line represent the US equity premium depicted in figure 1, the turquoise line the US long/short value premium (HML).

The average annual premium for US value stocks over 1929–2020 was 4.0%, with volatility of 12.3%. Only in 8% of cases was the ten-year value premium negative. Remember that the equivalent figure for the equity premium was 13%.

During Q2 2020, however, the ten-year value premium hit an all-time low of -6.5% (May 2020), a figure that is lower than the worst decade for the equity premium. Although its weak relative returns have occurred during a strong equity bull market, which has made the pain for long-only value investors more bearable, investors have started to wonder if the value premium will persist in the future. Speculation about ‘the death of value investing’ is becoming more and more common. There are some clear parallels with the ‘death of equities’ that was declared in 1979.

Before we turn to the question of why value has underperformed, let’s consider an important rule of thumb from history: the “Lindy effect”, which was popularized by Benoit Mandelbrot and Nassim Nicholas Taleb and states that the life expectancy of a product (or strategy) is proportional to its age. In other words, if an idea has been around for 50 years, it is more likely to persist than an idea that is only five years old. We believe this principle also applies to the world of investments. When we apply the Lindy effect to factor investing, the oldest factor out there is the equity market itself: stock markets have existed for centuries, and the concept of a positive equity premium is unlikely to disappear after a bad decade. The next oldest equity style is value, with value investing having been practised by many investors

since the 1920s. As value has been around for a long time, the Lindy effect suggests it will continue to be.

**The multiple expansion of value**

Besides looking at the realized value premium, it’s also useful to look at the valuation of the value premium, or the ‘value’ of value. Table 2 shows the value of value, defined as the ratio between the book-to-market ratios of US value and growth portfolios, over time. For example, in January 2010, ‘value’ stocks offered 5.1x more value than ‘growth’ stocks. In January 2020 this figure had increased to 7.0x. As of June 2020, this multiple had hit a remarkable 10.6x, indicating that value stocks are offering extreme value. In other words, growth is very expensive in historical terms, while value is cheap.

What should we make of this changing valuation of value, or ‘multiple expansion’? Regression analysis reveals that multiple expansion explains a substantial part of the variation in value’s ten-year returns, with expansion of multiples (that is when value becomes more cheap) coinciding with negative past returns for value, but more positive returns for value in the future.<sup>4</sup> In other words, value returns coming from multiple expansion tend to mean-revert.

<sup>4</sup> Regression outcome:  
HML past 10 years = -0.0098x + 0.0904 R<sup>2</sup> = 16%  
HML next 10 years = 0.0063x + 0.0103 R<sup>2</sup> = 15%  
where x is the multiple between the book-to-market ratio of value versus growth at time t.

**Table 2 | Value spread**

Decade	1930	1940	1950	1960	1970	1980	1990	2000	2010	2020	June 2020
Value of Value	4.1	8.4	4.2	5.1	5.3	3.5	3.7	8.3	5.1	7.0	10.6

Source: Robeco and Kenneth French’s website. We define the value of value as the latest book-to-market multiple of the Fama-French US big value portfolio relative to the US big growth portfolio.

Table 3 shows the implied relationship of the regression analysis between the value of value and realized value (HML) returns over the previous ten years as well as future value returns over the subsequent ten years. We focus on four scenarios: when value is expensive (the value of value is 3x that of growth), value is normally priced (5x), value is cheap (7x), and value is extremely cheap (10x).

**Table 3 | The effects of multiple expansion on the value premium**

Value premium (HML)	Value expensive (3x)	Value normal (5x)	Value cheap (7x)	Value X cheap (10x)
Return over the past ten years (p.a.)	6.1%	4.1%	2.2%	-0.8%
Return over the next ten years (p.a.)	2.9%	4.2%	5.4%	7.3%

Source: Robeco and Kenneth French's website.

Value generally becomes more cheap (with multiples expanding) when past returns for value stocks have been low and growth returns have been high. Over the subsequent ten years, value returns tend to be significantly higher than the previous ten years. Within this framework, the current 10x multiple implies annual returns for value over the coming ten years of 7.3%. Moreover, value's multiple expansion from 5.1x in 2010 to 10.6x in June 2020 detracted a very sizable -540bp per year from value's return over the period.<sup>5</sup> Such a multiple expansion on average implies 310bp of additional (over its long-term average return) return per year for value over the next ten years.<sup>6</sup>

### The economic drivers of the value premium

Besides looking at statistics, we can also look at the reasons why the value premium actually exists.

Many financial academics point to a behavioral explanation.<sup>7</sup> Investors tend to overreact to earnings developments over the past 3–5 years. People extrapolate historical growth too much and underappreciate the prospects of value companies. Consequently, prices deviate from fundamentals but eventually revert back to them, causing the value premium.

The question is if the next decade will again be characterized by investors underappreciating value and over-extrapolating growth, leading to weak (strong) performance from companies with low (high) valuations. If history is any guide, the odds are in favour of value. The overreaction and underreaction patterns that form the foundation of the value premium are programmed into our brains. Just consider all the historical boom-bust cycles we've seen in the past, such as the Tulip mania in the 17th century and the internet bubble of the 1990s. In fact, some market participants believe growth stocks could currently be in a bubble, as might be suggested by how cheap value is in historical terms and how expensive growth is.

Research in the field of experimental finance shows that speculative behavior can be directly linked to asset pricing bubbles. This research has led to some interesting insights into what actually causes such bubbles. One of their most important drivers turns out to be the extrapolative expectations of investors: they extrapolate past returns into the future<sup>8</sup>,

so that the better that past returns are, the higher the returns they expect going forward. This behavior is reflected in investor surveys, mutual fund flows and the trades of mutual fund and hedge fund managers.<sup>9</sup> For example, around the internet bubble at the end of the 1990s and beginning of the 2000s, many internet fund managers were influenced by the strong past returns of these stocks and traded aggressively based on their degree of extrapolation.<sup>10</sup> In other words, strong past returns (the kinds of which we have recently seen for growth stocks) led to bubbling future return expectations.<sup>11,12</sup>

### The role of value in multi-factor portfolios

Do other factors provide a positive premium? The long-short momentum premium in the US was 7.6% per year between 1929-2020. Interestingly, momentum has also had its share of challenges over the years and has been declared 'dead' in the past, such as in 2009. Meanwhile, low-volatility stocks have been shown to outperform high-volatility stocks over the long term. The (beta-corrected) volatility premium is 6.2% per year over the same long-term sample.

While value suffered in the 2010s, momentum and low-volatility performed well, so investors who had combined factor exposures in a multi-factor portfolio would have earned better returns than those achieved by a value-only portfolio. Diversifying across factors can result in better risk-adjusted returns than allocating to single-factor portfolios.

What kind of performance can we expect from multi-factor portfolios in the future? We performed some simulations to find out. The various equity styles have achieved return/risk ratios of between 0.34 and 0.62 in the past, but as historical returns are generally higher than expected returns, we trim our return expectations to produce expected return/risk ratios of 0.30 and adjust our historical simulations accordingly.<sup>13</sup> Table 4 shows the resultant expected annual returns and risks of the various factors and an equally-weighted multi-factor combination.<sup>14</sup>

**Table 4 | Expected risk/return characteristics of equity styles**

Long/short	Value	Momentum	Low-vol	Combined
Expected return	3.6%	4.9%	3.0%	3.9%
Volatility	12.2%	16.4%	10.0%	6.6%
Return/risk	0.30	0.30	0.30	0.58
% likelihood of a loss over ten years	10%	24%	27%	11%

Source: Robeco and Kenneth French's website. We use historical simulations of US value, momentum and low-volatility factor returns and infer returns based on the historical volatility and an assumed 0.30 return/risk ratio for each style.

<sup>6</sup> Obviously, these effects are estimated and involve substantial uncertainty.

<sup>7</sup> Some academics also point to risk. If value stocks are riskier, even if not measured in terms of market beta, they would require a higher return.

<sup>8</sup> Trader's Expectations in Asset Markets: Experimental Evidence, Haruvy, Lahav and Noussair, 2007.

<sup>9</sup> Expectations of Returns and Expected Returns, Greenwood and Shleifer, 2014.

<sup>10</sup> Extrapolation and Bubbles, Barberis, Greenwood, Jin and Shleifer, 2018.

<sup>11</sup> Janssen, Füllbrunn, & Weitzel (2019). Individual speculative behavior and overpricing in experimental asset markets.

<sup>12</sup> Bubbles for Fama, Greenwood, Shleifer and You, 2019.

<sup>13</sup> This discount relative to historical long-run returns reflects overestimation in the past due to data-mining and arbitrage, which both reduce the expected return. A return/risk ratio of 0.30 means a 10% portfolio risk should be compensated by a return of 3% per year, which seems to be reasonable compensation for taking risk.

<sup>14</sup> We use these equity style factors, for which in-depth historical data are publicly available. Data are from Kenneth French and Robeco.com/data.

The probability of a negative ten-year return is lowest for the value portfolio, at 10%. It is around 25% for the two other styles. Due to the benefits involved in factor diversification, the equally weighted combination of all three factor styles generates the highest return per unit of risk at 0.58. But the probability of a negative decade for the combination of these three factors is still a sizable 11%. In other words, even with an attractive expected premium, factors can fail for as long as a decade. Quant winters can be cold and long, even if expected returns are high.

## The diversification benefits of value

What does value add to a multi-factor portfolio? It brings valuable diversification benefits: it has a negative historical correlation with momentum (-42% based on the sample used in Table 4) and only a very weak positive historical correlation with low-volatility (+6%).

The historical value premium was 4.0% and we assumed 3.6% in the previous section (Return/Risk = 0.30). We also perform simulations using more prudent value premiums, ranging from 0 to 3%. Table 5 below shows the expected levels of return and risk of multi-factor portfolios (using the same simulations as in table 4) taking into account value premiums of different magnitudes.

**Table 5 | Impact of the level of the value premium on the risk-return profile of multi-factor portfolios**

	Value	Value	Value	Value	Excluding
Expected return	3.0%	2.0%	1.0%	0.0%	
Return / risk	0.55	0.50	0.45	0.40	0.40
% likelihood of a loss over ten years	12%	13%	15%	16%	23%

**Source:** Robeco and Kenneth French's website. We use historical simulations of US value, momentum and low-volatility factor returns and infer returns based on the historical volatility and an assumed 0.30 return/risk ratio for each style.

If we assume a value premium of 3.0%, value is attractive to include in a multi-factor strategy. The return / risk ratio of such a strategy is 0.55, well above the 0.40 when value is excluded. The likelihood of a loss over ten years is also much lower (12% versus 23%). The return / risk ratio steadily decreases as the value premium falls. The 'Excluding Value' column shows the characteristics of a multi-factor portfolio without an allocation to value – in other words, a portfolio of 50% momentum and 50% low-volatility, while the other columns show an equal-weighted portfolio with all three factors. Even if there is no positive value premium, including value does not harm the portfolio's long-term risk-return ratio thanks to value's diversification properties. In fact, only when value's expected premium becomes negative (not reported in the table) does it make sense to exclude it from a portfolio.

Investors therefore need to ask themselves an important question: do they expect a negative value premium? Historical evidence and the economic insights into why value stocks yield additional returns (investors extrapolating past returns too much) suggest the answer to this question should be a resounding 'no'.

## Beware your behavior gap

Unfortunately, the average returns of a strategy typically do not equal the returns earned by investors in that strategy. The difference between these investment and investor returns is sometimes referred to as the 'behavior

gap', and is due to the timing of investors' investments, which are included in investor returns, but not in buy-and-hold investment returns.

In a 2016 research paper, Jason Hsu, Brett Myers and Ryan Whitby analyzed the behaviour gap using US mutual fund data between January 1991-June 2013. They found that the average mutual fund investor lagged a buy-and-hold investment strategy by a remarkable 190 basis points. This finding was persistent across different styles, varying from 130 basis points for investors in value funds to 320 basis points for investors in growth funds. In other words, investors who aim to harvest the value factor time their cash-flows such that they heavily underperform simple long-run buy-and-hold returns.

What's more, these results were all gross of fees and transaction costs. So, in practice, the gap between investor returns and fund performance is actually even larger. It is an established fact that the average mutual fund investor underperforms the index after costs, but the significant performance drag caused by poor timing is less well known.

These empirical studies show that adverse market timing is not just an anecdotal observation, but a widespread phenomenon, with serious consequences for investors. In the case of factor investing strategies, poor timing skills, or 'weak hands', can completely cancel out the benefits of being exposed to well-rewarded premiums. Patient long-term investors with persistent style exposures – in other words those with 'strong hands' – are more likely to harvest factor premiums successfully.

## Will value survive?

In answering this question, we consider a number of factors.

First, investment winters can be fierce, with negative returns for sustained periods – sometimes even longer than a decade. For example, the equity premium has been negative for more than ten years in the past. The same holds true for the returns of investment factors like value. This is unfortunately well beyond the investment horizon of an average investor.

Second, value's past returns are not a good guide to its likely returns in the future. If anything, the reverse is true. A substantial part of value's return in the 2010s can be attributed to multiple expansion, which has been shown to mean-revert. In fact, current multiples imply that the value premium will probably be substantially higher than its long-term average.

Third, combining different factors is a good way of reducing a portfolio's volatility and the probability of prolonged periods of underperformance. Even if value carries no premium at all, it still helps to reduce the risk of a multi-factor strategy.

Fourth, investors are often lured into styles based on their past performance. However, they need strong hands in periods of poor performance to bridge the gap between investment return and investor return. Factors carry premiums, but they inevitably involve periods of pain too. No pain, no gain – or premium. Investors need to be careful not to enter or exit at the worst possible moment – for example, by selling equities in 1979. Value rallies tend to be sharp and difficult to predict, so make sure you stay in the game and live through what is undeniably a 'value winter'.

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