Are value stocks a good inflation hedge?

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- In theory, 'cheap' value stocks have a shorter duration than quality and growth stocks.
- Therefore, it is often assumed that the value factor should outperform when interest rates (discount rates) increase.
- In fact, we only find a very weak positive correlation between value's performance and changes in nominal rates and a negative correlation between value and inflation.
- In assessing value's attractiveness, real interest rates seem to be more critical than nominal rates. Still, the overall relationship between discount factors and value's relative return is very weak and unstable.

November 30, 2021

The lockdowns and restrictions almost all countries worldwide implemented to fight Covid19 have resulted in unprecedented base effects and massive supply chain disruptions. This has fueled a surge in inflation that has turned out to be more persistent than initially thought. As a result, after a decade of suppressed interest rates and well-controlled inflation, markets are entering unchartered waters.

1 Navigating the post lockdown mess

The 2020 slump in asset markets and economic activity was extraordinary in many ways. Most importantly, the speed of the crash was unprecedented, bringing volatility indicators to levels never seen before. However, the swift reaction of Central Banks and Governments around the globe also triggered an equally unprecedented recovery of both markets and economies. Even

extraordinary crisis can also trigger innovations has come true again, with millions of employees working successfully from home and others discovering new, more attractive job opportunities in industries that have benefited from the circumstances.

Nevertheless, there is a downside to this success story. Monetary and fiscal stimulus may be able to secure a restaurant owner's survival for a couple of months, but it can't magically create restaurant workers. Many employees may be able to deliver some services from their kitchen tables, but security concerns and regulatory restrictions still make the physical location of professionals a matter of concern. In other words, strong
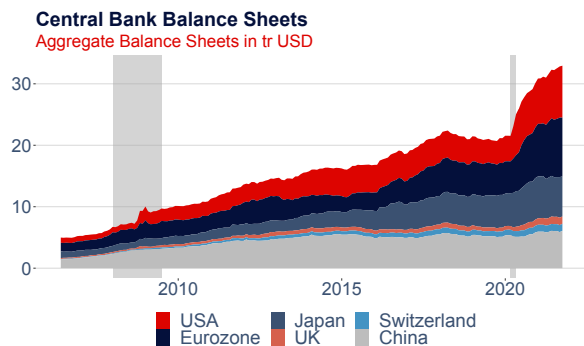

Figure 2: *Producer Prices y/y*

Figure 1: *Major Central Banks Aggregate Balance Sheet*

setting aside the massive liquidity injection and fiscal stimulus, the global economy has shown to be more resilient than initially thought. The old wisdom that
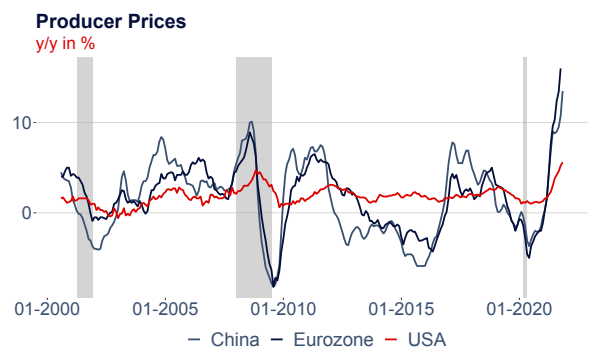
demand for goods and services is now confronted with a world full of friction. When the global economy recovered in 2020 and oil prices reached the pre-crisis level, we already expected a strong surge in inflation due to y/y base effects. Still, like many market participants, we didn't expect the currently observable magnitude, breadth, and persistence of price increases.

2 Implications for systematic equity investing

The reactions to Covid19 worldwide profoundly impacted the path of stocks and bonds throughout 2020 and 2021. However, beyond this, there were also unprecedented shifts below the surface. One prominent example is the performance of the value factor that represents companies whose market capitalization is relatively low compared to their earnings, cash flow, and book value. Stocks can be 'cheap' for various rea-
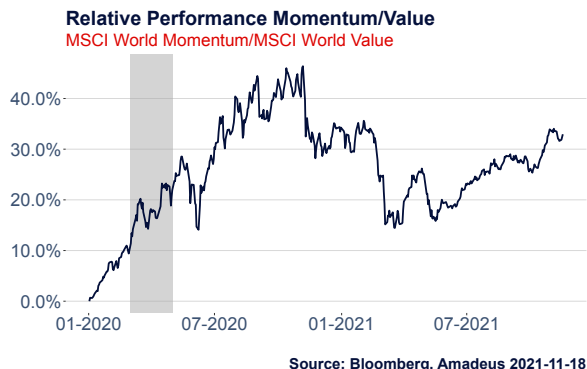
Relative Performance Momentum/Value
MSCI World Momentum/MSCI World Value

Source: Bloomberg, Amadeus 2021-11-18
Figure 3: *Momentum and Value Factor*

sons, but firms that fall into the value bucket are capital intensive, cyclical, or grow slowly. So it is not surprising that these businesses got crushed during the pandemic when work-from-home corporations like Zoom became the shooting stars of the market. This was followed by an unprecedented Momentum Crash in November 2020 when value stocks rebounded on the back of a persistently strong economy while the enthusiasm about many high-flying firms faded. Style rotations like this are typical for disruptive times and have been observed previously, most notably after the 2008 Great Financial Crisis. However, confronted with higher in-
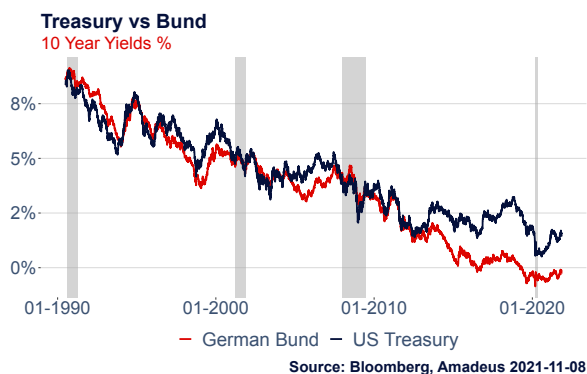
Treasury vs Bund
10 Year Yields %

— German Bund — US Treasury
Source: Bloomberg, Amadeus 2021-11-08
Figure 4: *Treasury vs Bund Yields*

flation rates and rising interest rates, especially in the U.S., investors have raised the question of whether this year could mark the beginning of a more sustainable value rally. The case is supported by the argument that 'cheap' value stocks have a shorter duration than more 'expensive' growth and quality stocks. It is an intuitive argument that has its root in the Discounted
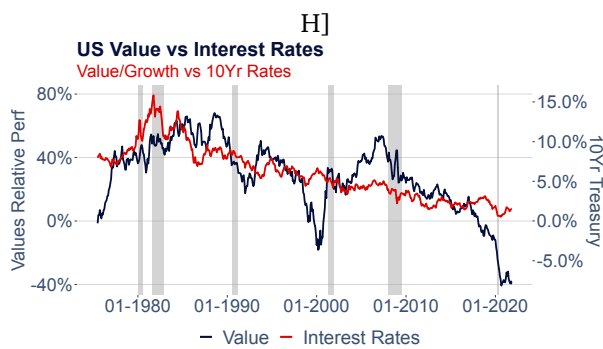
US Value vs Interest Rates
Value/Growth vs 10Yr Rates

— Value — Interest Rates
Source: Bloomberg, Amadeus 2021-11-18
Figure 5: *Value vs Rates*

Cashflow model. The present value of growth firms depends more on cash flows generated in the distant future and should thus be more sensitive to changes in the discount rate. At the same time, the cashflows of highly-priced quality firms are generally discounted at a lower rate, resulting in a higher relative weight of discounted distant cash flows. Table 1 illustrates this for a simple example, comparing the rate sensitivity quality stock (lower risk premium) with a more risky value stock. This implies that all other factors being

	Quality Stock		Value Stock	
Scenario	1	2	1	2
Cashflow	10	10	10	10
Risk Free	3%	1%	3%	1%
Risk Premium	4%	4%	6%	6%
PV	142.9	200.0	111.1	142.9
Delta PV	-	40.0%	-	28.6%

Table 1: *Interest Rate Sensitivity of DCF Models*

equal in a rising rates environment, value stocks should outperform growth and quality stocks.

3 Empirical evidence

We have looked into some long time series to study the empirical relationship between the relative performance of the value factor, interest rates, and inflation. In this context, we measure value performance as the relative performance of the MSCI Value Index against the MSCI Growth Index. By means of index construction, membership in these two indices is mutually exclusive.

Unlike other measures of factor performance, such as the Fama-French factor database, these two indices are investable through ETFs. They thus provide a realistic picture of realizable performance. As usual, the exciting long-term data is only available for the U.S., and of course, we are especially interested in the last inflationary period in the 80s. Figure 5 provides a first visual inspection of the relative performance

of the value factor and interest rates in the United States. Indeed, both time series seem to follow the same long-term downwards path since rates peaked in the 80s, giving the impression of some degree of correlation. However, Figure 6 also shows how noisy
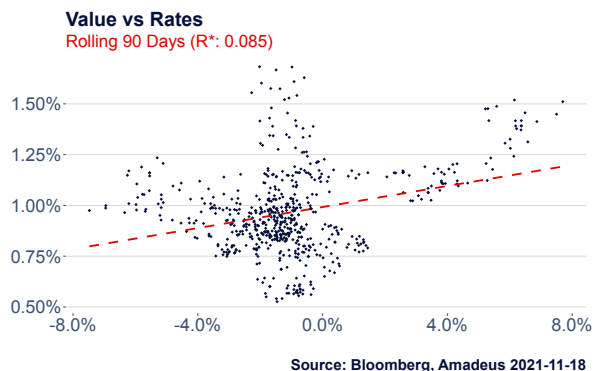

Value vs Rates
Rolling 90 Days (R*: 0.085)

Source: Bloomberg, Amadeus 2021-11-18

Figure 6: *Value (y) vs Rates (x) Rolling 90 Day Changes*

US Value vs Inflation
Value/Growth vs CPI y/y

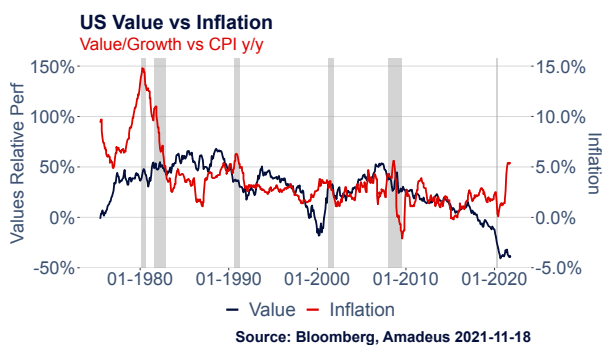Source: Bloomberg, Amadeus 2021-11-18

Figure 7: *Value vs Inflation*

and unstable this relationship is. Furthermore, it is driven mainly by one particular period during the 80s (the points in the upper right part of the scatter plot) The correlation with CPI inflation also looks pretty unstable. However, in this case, the coefficient is negative, implying that higher CPI inflation comes with lower performance of the value factor. Setting
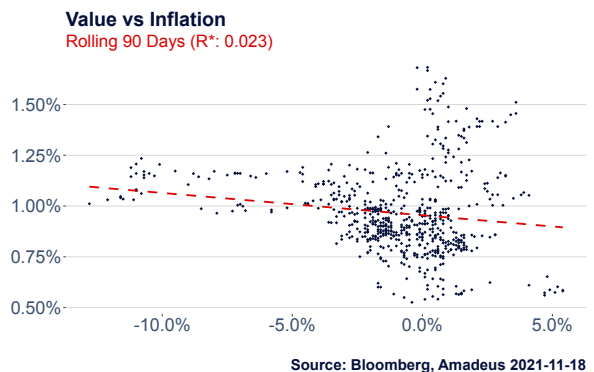

Value vs Inflation
Rolling 90 Days (R*: 0.023)

Source: Bloomberg, Amadeus 2021-11-18

Figure 8: *Value (y) vs Inflation (x) Rolling 90 Day Changes*

aside discussions about pricing power, commodities exposure and average levels of capital intensity and financial leverage across different styles, this inverse relationship makes sense intuitively. All else being equal, higher inflation rates result in lower real

interest rates. The case could be made that equities, being real assets, are eventually discounted with real rates as inflation feeds into revenue and profit growth, canceling its effect on valuations through nominal discount rates. Indeed, we find that relative returns of
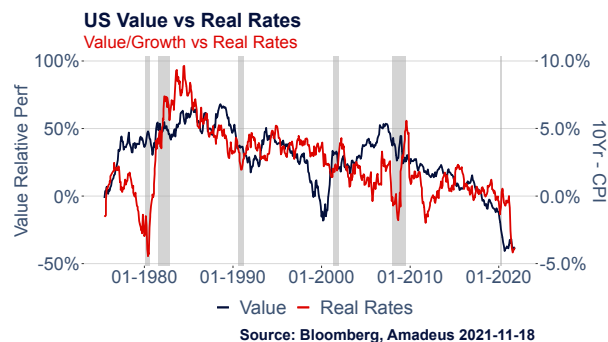

US Value vs Real Rates
Value/Growth vs Real Rates

Source: Bloomberg, Amadeus 2021-11-18

Figure 9: *Value vs Real Rates*

the MSCI US Value are most correlated with changes in real interest rates (10Yr Treasury less CPI y/y). However, as Figure 9 shows, this relationship is still very weak. Figure 11 further studies the variables, applying a Generalized Additive Model (GAM) on the fractional differences of interest rates, inflation, and industrial production as well as the NBER recession dummy.
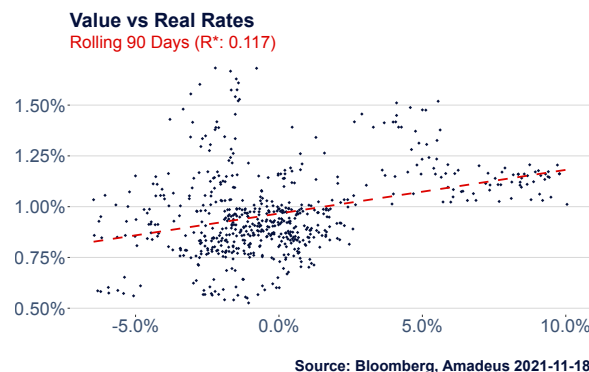

Value vs Real Rates
Rolling 90 Days (R*: 0.117)

Source: Bloomberg, Amadeus 2021-11-18

Figure 10: *Value (y) vs Real Rates (x) Rolling 90 Day Changes*

Fractional differences attempt to convert observations into stationary time series while preserving as much memory as possible. We choose the lowest possible lambda (0.4) that results in the data passing the Augmented Dickey-Fuller test. Again, the coefficient with interest rates (int) is positive, while the coefficient with inflation (infl) is negative.

The correlation with Industrial Production seems to be positive during times of economic contraction, while there seems to be no correlation during expansionary times. This mirrors the results obtained for the recession dummy. Ceteris paribus, the value factor tends to underperform during recessions while relative performance during economic expansions varies widely.

The coefficients are statistically significant at the 99.9% (int), 99.9% (infl), 95% (ip), and 95% (recession)
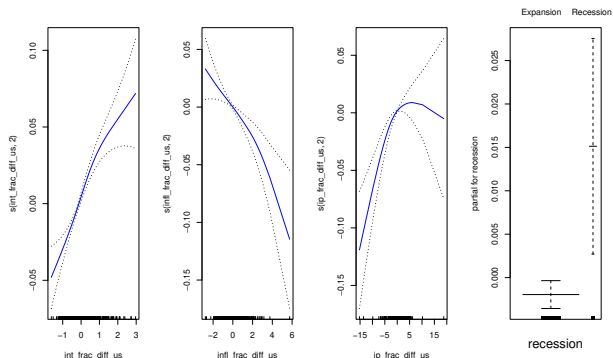
Figure 11: *Generalized additive model one rates (int), inflation (infl), Industrial Production Growth (ip) and NBER recession dummy*

Figure 13: *K-Means Clusters (black dots), Interst Rates and Relative Performance of Value*

confidence level indicating that rates and inflation tend to predict with returns of the value factor better than economic activity.

4   Cluster based adjustments

We previously mentioned that the positive correlation between value and rates was driven mostly by a particular period during the 80s. Figure 13 explores this further. 6.
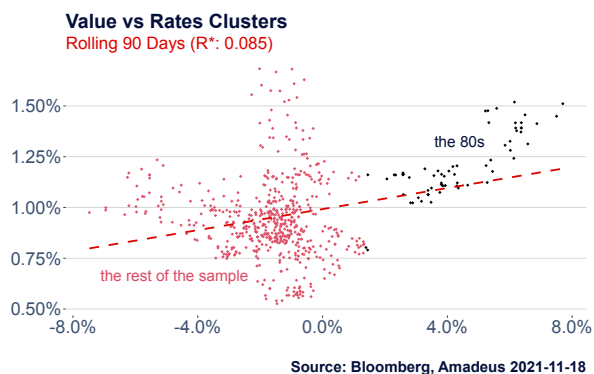

Figure 12: *K-Means Clusters on changes in Rates (x) and Relative Performance of Value (y)*

We used the K-Means algorithm to find clusters in the data displayed in Figure 3. Figure 12 shows the not very surprising result of this exercise. Figure 13 continues this exercise by plotting the classifications over time. It is noteworthy that almost all blue points (Cluster 1) stem from observations during the 80s when interest rates started dropping from their all-time high and the relative performance of value started to follow the same path.

During this time, there was a strong positive correlation between these two variables. However, once we remove this particular period from the sample, the coefficient between value and rates turns negative.
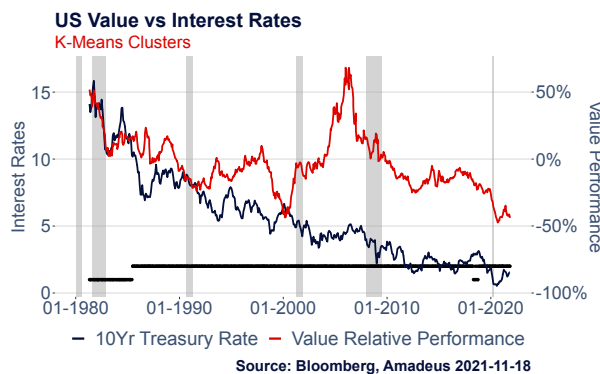
5   Conclusion

Many market participants have attributed the long-term underperformance of the value factor to falling (real) interest rates. Indeed, we find some evidence for a positive correlation between real interest rates and relative performance of the value factor in the long term. However, the relationship between these variables and the style factor's performance is very weak and unstable. Moreover, the relationship between nominal rates and value is even more fragile, indicating that the interplay of rates and inflation is more important than absolute levels.

In 2020 and early 2021, value stocks rebounded from the lows they hit during the worst time of the pandemic. However, whether they will continue to outperform in a rising inflation rising rates environment is highly uncertain. Attributing the underperformance of value to financial repression is a popular narrative. Thus, from a DCF point of view, it makes sense to assume a correlation between the relative performance of value stocks and changes in real interest rates (discount factor). However, there are likely other, more essential forces at work.