

Equity Styles and Factors During Periods of High Inflation

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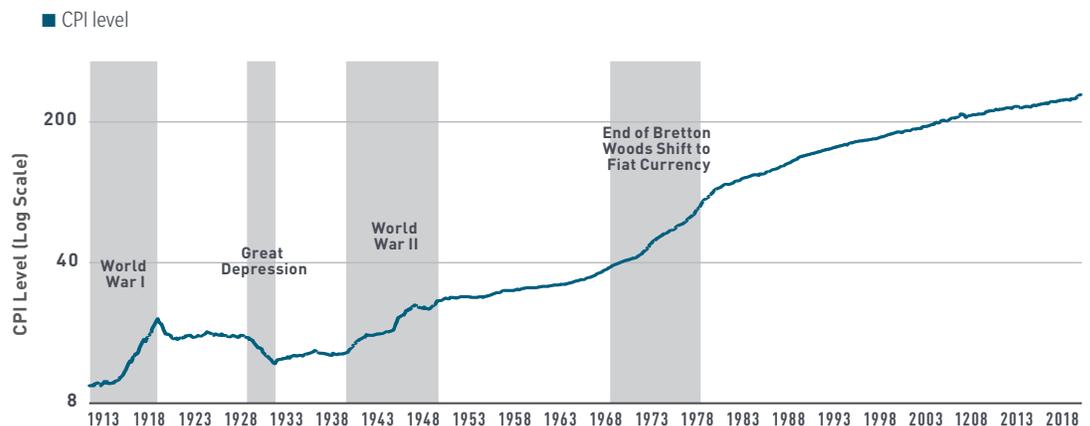
After remaining at low levels for many years, inflation has begun to rise significantly in the United States. US CPI has risen by more than 7%, the largest year-over-year increase since 1990. Inflation now appears less transient than many economists expected, and investors are wondering what assets may protect their portfolios if high and rising inflation persists. Historic episodes of inflation have been accompanied by falling multiples and margins and rising interest rates and hence challenged returns for both stocks and bonds. However, we believe there are tilts that investors can make in their portfolios to help cushion inflation’s adverse effects.

In this paper we discuss how equity styles or factors have performed over different inflation environments. To obtain a long history and to use data that practitioners are familiar with, we utilize Ken French’s factors: size, value, profitability, investment and momentum. In 1992 Dr. French along with Eugene Fama created the model that identified the three primary factors that predict market returns. In 2014 they updated their research to include 5 factors. Their formulas have been the foundation upon which today’s thinking on asset allocation, portfolio construction and performance analysis has been built. While the equity market risk premium is an important component of French’s model, our analysis does not focus on it significantly, except to acknowledge that historically, real returns of equities have been doubly challenged during periods of high inflation, typically due to increased business risk and higher discounting rates.

Inflation regimes included in our analysis

While inflation hasn’t been this high for a long time, there have been multiple episodes of high inflation throughout history that we can learn from. Typically, episodes of rising inflation were associated with major wars. High inflation has also accompanied the end of the Bretton Woods currency regime during the 1970s. Exhibit 1 below illustrates these significant historical episodes of rising inflation as well as the deflationary period of the 1930s.

Exhibit 1: The four major historical shifts in inflation



Source: Datastream. Consumer Price Index monthly data from 1/15/1913 to 8/15/21. July 1983 = 100. Shaded areas represent a significant rise or fall in CPI level.

While sudden, unexpected spikes in inflation may be alarming, the real pain felt by investors comes from prolonged periods of high inflation. In an effort to understand these impacts on different equity factors, we looked at three of the periods we identify in Exhibit 1: World War II and the decade of the 1940s, the end of Bretton Woods system in the 1970s and as a counterexample, the deflationary 1930s, which saw a dramatic drop in prices and output as a result of the Great Depression. Exhibit 2 shows how each of the factors performed during these periods. It should be noted that in our analysis the data on small caps, value, and momentum starts in the 1920s and the data on profitability and investment starts in the 1960s.

Exhibit 2: Factor performance — High inflation tends to favor value investing

	Inflation	Small vs. Big	Value	Momentum	Profitability	Investment
1930s	-2.0%	8.9%	0.4%	-6.0%		
1940s	5.4%	4.4%	9.6%	6.2%		
1970s	7.4%	2.9%	7.7%	9.4%	-0.7%	6.2%
Inflation avg over the 3 decades	6.4%	3.6%	8.6%	7.8%	-0.7%	6.2%
Inflation avg 7/1926 to 6/2021	2.9%	1.9%	3.3%	6.3%	2.8%	2.9%

Source: Calculated from factor returns available at Kenneth R. French's data library. Copyright 2022 Kenneth R. French. All Rights Reserved. Factor returns do not represent actual portfolio returns and ignore transaction costs. Past results are not indicative of future results. Inflation represents the change in US CPI during the period.

The results are as follows:

Small vs. Big: The results are mixed. Small caps outperformed large caps in the inflationary environments of the 1940s and 1970s. However, small caps enjoyed their strongest outperformance versus large caps during the 1930s, which were deflationary, so it is not completely clear whether there is any relationship between the small-cap premium and inflation.

Value: Cheap stocks outperformed expensive stocks in both the 1940s and the 1970s. The value premium experienced relatively weak performance during the 1930s deflationary period, further supporting the thesis that value may outperform during inflationary periods.

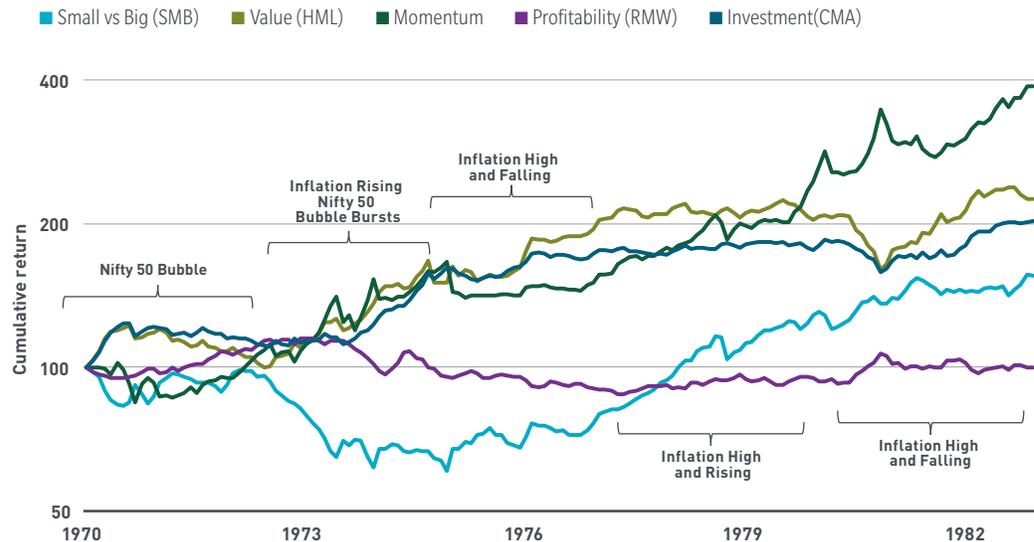
Momentum: Momentum as a factor (buying strong performers and selling weak performers) did very well during the 1940s and the 1970s and terribly during the 1930s. Momentum often enjoys strong returns but periodically suffers the severe crashes that tend to accompany deflationary episodes. In addition, inflation episodes tend to be prolonged, which may benefit momentum strategies as investors jump while the trend persists.

Profitability: This factor is often used as a proxy for quality. Data are not available from the 1930s and the 1940s and results were fairly flat for the 1970s. Part of the flattish performance of the 1970s could have been driven by the Nifty 50 bubble in high-quality stocks which may have served as a headwind to profitability in the 1970s.

Investment: The investment factor measures the outperformance in companies that have slower growth in assets and is about 70% correlated with value. Data are not available until the 1960s, but during the inflationary period of the 1970s, investment does well, similar to value.

Exhibit 3 shows how these factors performed during the 1970s. It indicates that the outperformance of value, momentum, and investment accelerated as inflation rose meaningfully in the second half of the decade.

Exhibit 3: Performance of factors and styles in the 1970s



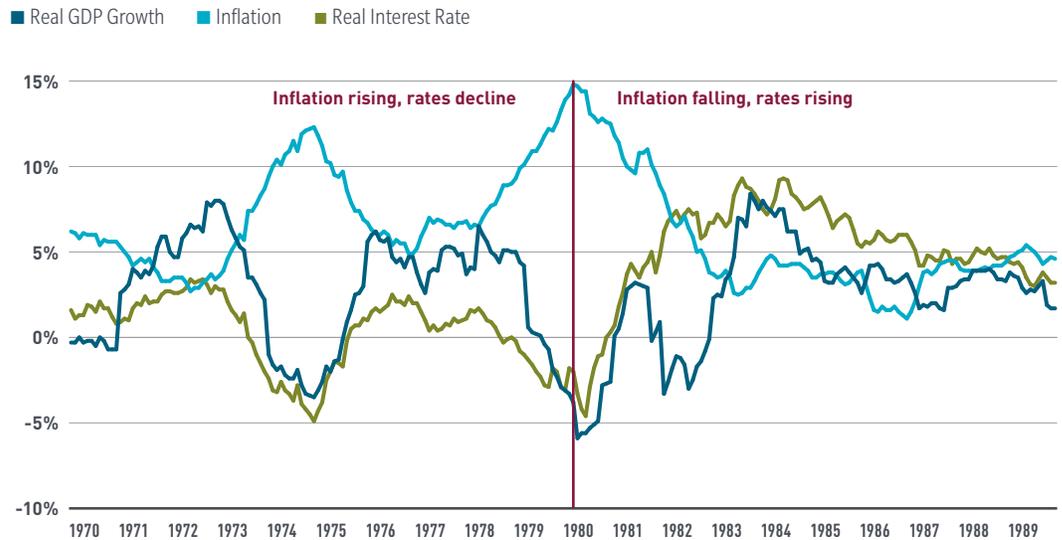
Source: Calculated from monthly factor returns based on factors available at Kenneth R. French's data library. Copyright 2022 Kenneth R. French. All Rights Reserved. Factor returns do not represent actual portfolio returns and ignore transaction costs. Past results are not indicative of future results. Cumulative returns of each factor based to 100 at the start of the analysis. Monthly data from 1/31/1970 to 12/31/1982. **SMB**=Small Minus Big and accounts for the difference in returns between small cap stocks and large cap stocks, **HML**=High Minus Low and accounts for the difference in returns between stocks of companies with high book-to-market ratios to those with low book-to-market ratios, **RMW**=Robust Minus Weak and accounts for the difference in returns between companies with robust and weak profitability, **CMA**=Conservative Minus Aggressive and accounts for the difference in returns of stocks of companies that invest conservatively and those that invest aggressively.

Overall, these findings suggest that value and momentum seem to be the factors with the strongest performance during periods of inflation. Most quantitative equity managers typically have significant exposure to both value and momentum factors, and the relationship between these two factors and inflation has created a headwind for quantitative investors during the past decade of very low inflation. If the increased inflation that we have experienced recently continues, this headwind could become a tailwind for quantitative investors.

Will this pattern repeat itself?

Determining which factors will perform well is not as simple as asking whether inflation will be high or not. There are many other drivers at play, including starting real interest rates, growth and starting levels of valuation. For example, the argument is sometimes made that prior periods of inflation are not useful examples of our current environment, as the US Federal Reserve will not raise interest rates materially and real interest rates will stay low or fall. Historical observations do not line up with this argument as changes in interest rates tend to trail inflation. In the 1970s, interest rates did not rise as fast as inflation and real interest rates fell. Likewise, in the 1980s when inflation fell significantly, interest rates did not keep up and real interest rates moved higher. This can be seen in Exhibit 4, which shows inflation, real GDP growth and real yields over the 20 years ended December 1989.

Exhibit 4: Changes in interest rates lag the change in inflation



Source: US Federal Reserve Economic Data for GDP data. Robert Shiller for CPI and Interest Rate data available at his data library. Copyright 2022 Robert Shiller. All Rights Reserved.

To better understand how each of these different drivers impacted factor returns, we ran a regression analysis using inflation, real interest rates and real GDP growth to explain historical factor returns. The following table shows the direction of the relationship we found with each factor’s returns.

Exhibit 5: Value and momentum benefit from rising inflation, real rates, and GDP growth

	Small vs. Big	Value	Profitability	Investment	Momentum
Inflation	+	+	-	+	+
Real Interest Rates	-	+	+	+	+
Real GDP Growth	+	+	-	+	+

Source: MFS regression analysis utilizing data from Robert Shiller, Ken French, and Federal Reserve Economic Data. Data is rolling 5-year periods. 5-year inflation (annualized change in CPI over 5 years), 5-year real GDP growth (annualized change in real GDP over 5 years), and average 5-year interest rates (average 10-year rate over 5 years minus inflation). The table itself then shows the sign on the coefficient for each of those economic variables in the regression. Calculated from monthly factor returns based on factors available at Kenneth R. French’s data library. Copyright 2022 Kenneth R. French. All Rights Reserved. Factor returns do not represent actual portfolio returns and ignore transaction costs. Past results are not indicative of future results. Copyright 2022 Robert Shiller. All Rights Reserved.

When taking drivers other than inflation into account, we generally find the following:

- Small caps and value tend to do best with high economic growth in addition to higher inflation. These factors generally represent riskier companies, which may have less perceived risk during periods of strong growth.
- Profitability, on the other hand, represents higher-quality companies which have experienced larger outperformance in recessionary environments. These companies have more cushion to withstand low-growth periods and should see a smaller percentage of their earnings wiped out during these times.
- When real interest rates rise, companies whose expected cash flows are further off in the future tend to be hurt the most. Hence small caps and growth are weak performers. Conversely, value and profitability, the expected cash flows of which are likely to occur in the immediate future, typically do well when real interest rates rise.

Conclusion

Given these historical relationships, how should one think about investing in 2022? Over the past 12 months, we've seen inflation and interest rate moves that both point to a decelerating economic and earnings outlook. While there is a wide range of potential outcomes for the next year, we see two tail scenarios becoming more likely.

Stagflation: In this scenario, inflation remains high and the Fed follows through on its goal to control inflation and hikes rates aggressively over the next year. Tighter monetary policy would likely lead to higher bond yields, but historically tightening is also associated with slower economic growth and higher risk of recession. This may favor growth and profitability, as these companies would have a larger cushion to withstand an economic slowdown. Caution is warranted however, as valuations on these stocks are elevated and rising interest rates typically coincide with value outperformance. Higher inflation throughout the year may also be supportive of momentum, which has done well historically in periods of high inflation.

Disinflation: In this scenario, we see a midcycle reset where growth slows, but inflation also retreats. Fed rate hikes would be minimal or possibly not needed at all and the risk of recession would be lower than the stagflation scenario. Slower growth and less Fed tightening would likely lead to lower bond yields in general. With slower growth and lower interest rates, this scenario could be favorable for growth and profitability, though valuations on these stocks remain elevated. Reminiscent of a late cycle environment, we may also see relative value performance challenged.

With inflation at longtime highs and uncertainty over exactly how the Fed will respond, it is difficult to predict which scenario will play out. Both give off mixed signals as to which factors would perform best. Given this, a diversified approach to factor positioning may be warranted at this point. We believe that a portfolio invested in higher-quality value stocks along with quality compounders (companies with high profitability and returns on invested capital) that can be bought at a reasonable price would be a solid foundation of a resilient portfolio. Momentum strategies have fared well over the long run, particularly in periods of high inflation, and could offer additional diversification helpful in positioning in either scenario. Combining exposures to multiple factors may help dampen the impact of a drawdown and increase the potential for outperformance in a recovery. ▲

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