

Inflation revisited: white paper

- The fundamentals of inflation
- Relationship to economic cycle, and post-COVID
- Inflation protection strategies: the evidence

Abstract

This paper focuses the macro-economic factor of Inflation and is strategically designed to relate simple economic concepts to the present realities we live in today. Throughout this paper the insight remains the same, to always to provide the reader with basic idea of how our economic cycle is designed. Further building on these basics the paper investigates the link between economic growth, cost factors policies and inflation; describes what inflation risks are and what they mean to investors. The role of a government directly and indirectly. An up-to-date brief of the monetary policies in the United Kingdom and the United States.

There is a brief discussion on the 'post-covid era' and what it means for our investors. Finally, a detailed summary on anti-inflation tools spread through various asset classes to hedge against changes that may affect our portfolio.

A recap on Inflation

The term inflation, coined by economists, is used to signify the increase in price, alternatively it also means the subsequent fall in purchasing power in units of money. To put it in simple terms, £1, had a higher purchasing power in the past compared to its value today. (White, 2019)

In contrast, deflation is the decrease in prices of goods, i.e an increase in the purchasing power in units of money.

Cause of Inflation

The mathematical equation between Money Supply (M) and the Genral Price Level (P) can be expressed with the 'equation of exchange'.

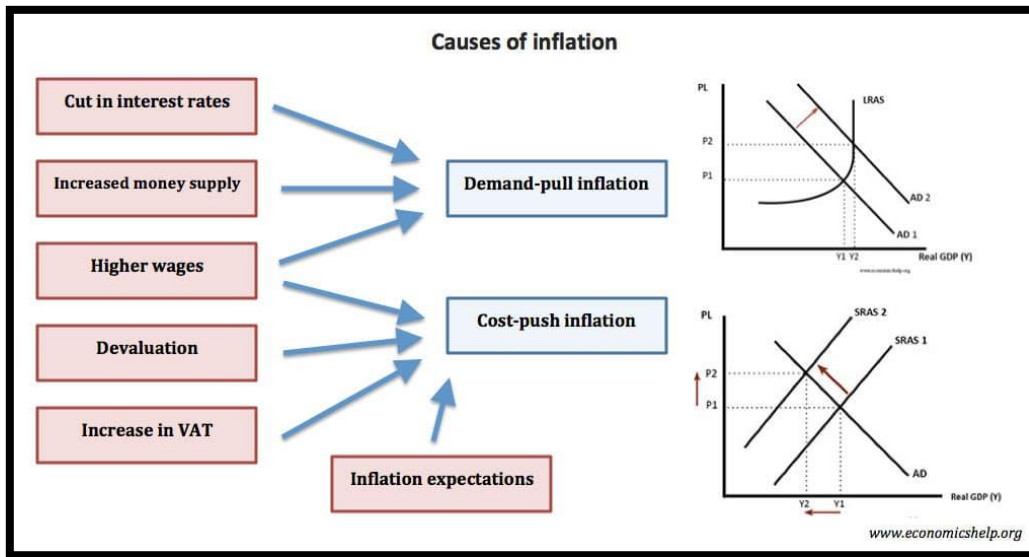
$$MV = Py$$

Where 'V' is the income velocity of money and 'y' is the real income of an economy (GDP). Money supply is altered when the Central Bank decides to inject money or implements a new monetary policy. A higher tax rate on imports and raw material or an increase in demand of wages might start a series of chain reactions which will then lead to an increase in the general price level and so onn. (White, 2019)

Thus, any changes in these defined factors, simply put, can create an environment for inflation.

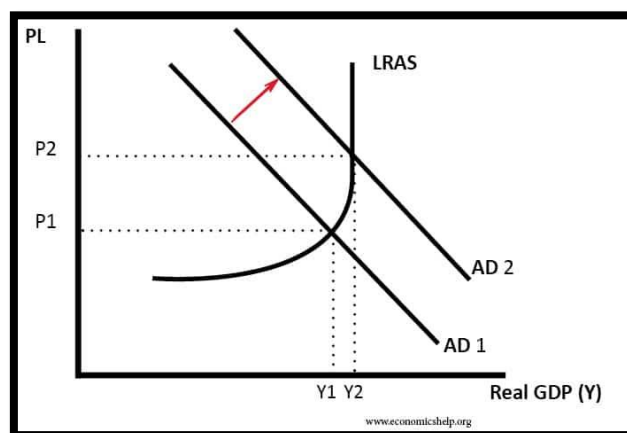
In a nutshell, in macroeconomics, reasons that higher inflation is majorly caused by:

- A demand pull inflation
- A cost push inflation
- Built-In Inflation/ Inflation Expectations



Source: Economicshelp.org

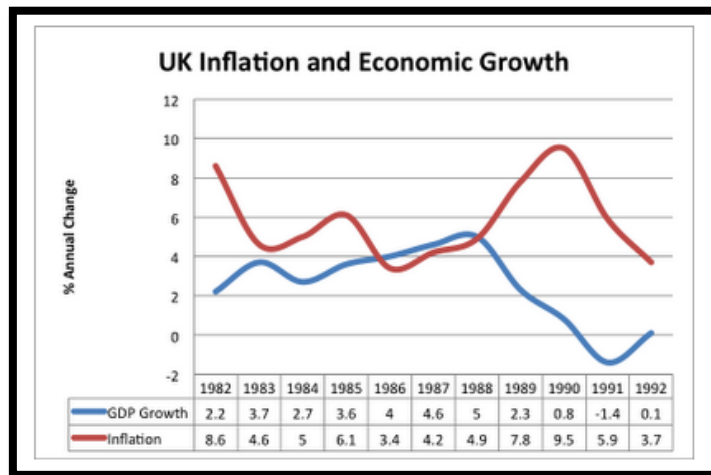
A demand pull inflation generally denotes a strong economic growth. There is a shift in aggregate demand, caused by high economic growth, this forces the firms, who are unable to keep up with the supply to increase the prices.



Source: Economicshelp.org

Demand Pull, Graphical representation

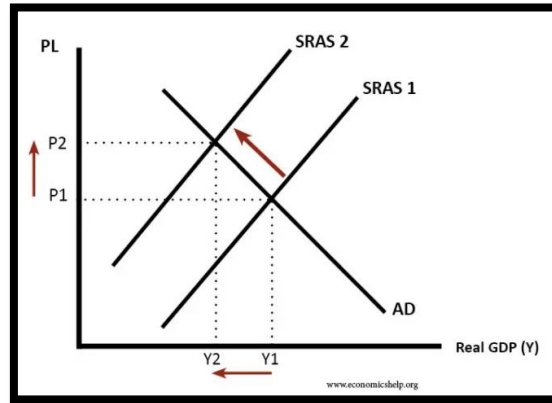
In the UK, the long-run trend rate of economic growth is observed around around 2.5%. However, the late 1980s / early 90s when inflation almost crossed 8% as a result of high growth. The government **cut taxes and interest rates**, which led to an increase in a number of economical factors such as borrowing power, consumer confidence; this in turn increased **consumer spending**, **lowered saving**. (Pettinger,2019)



Source: Economicshelp.org

UK Demand Pull Inflation (1980-1990)

However the brief period of 2008 and 2010-2011, The United Kingdom saw rising prices but accompanied by low economic growth. This was mainly due to rising taxes, price of oil, price of commodities (Pettinger, 2017) This is referred to as the **Cost- push inflation**. An increase in the cost of firms , leads to a highly priced good for the consumer. This can be due to factors such as, a rise in employee wages, an increase in the prices of imported goods and high taxes. Unlike Demand Pull inflation, Cost Push Inflation is considered to be the *wrong type of inflation*. It is often associated with failing standards of living. (White, 2019)

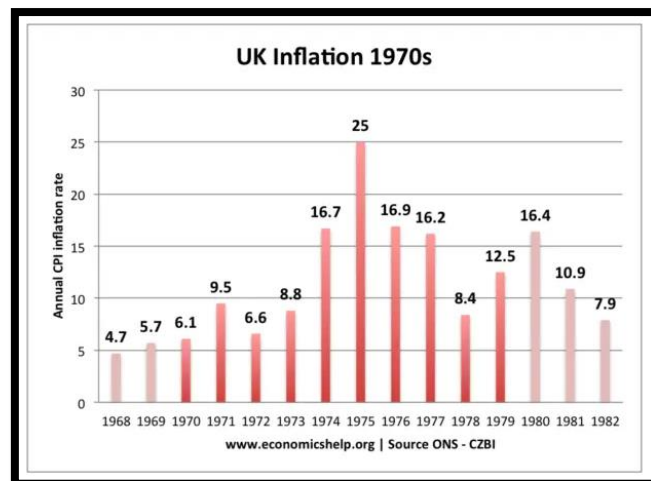


Source: Economicshelp.org

Cost push inflation, Graphical Representation

Built-In Inflation is often caused by expectations of the people in the economy. Often a combination of the other two. A higher demand in wages leads to increase in the cost of the firms. These wages parallelly act as a source of disposable income within the economy, ultimately increasing consumption. This was observed in the UK during 1970 when trade unions had power and were significantly the cause of this inflation by demanding a rise in nominal wages. (Pettinger, 2019)

The measure of market-derived expectations around inflation is the “BEIR” Break Even Inflation Rate measuring the implied yield differential between a nominal government bond and an inflation-linked government bond of the same maturity. (Elston Research, 2021)



Source: Economicshelp.org

The rationale behind Measuring Inflation

Rocheteau, (2004) states that inflation reduces welfare. (*Friedman Rule*), Inflation, amongst other indicators, provides the degree of development of an economy. It plays a key role in basing a monetary policy, business decisions and individual spending and investment planning. (Patel and Villar, 2013)

The most common tools in measuring inflation as cost of living indices (Wynne,2008) used by most economies including UK are Consumer Price Index, (2003) and Retail Price Index (1947). These indices are used to determine an average price change in monthly intervals over diversified goods and services.

Gross Domestic Product Deflator, is another alternative measure of inflation used more in the United States of America. (White, 2021)

The Office Of National Statistics, United Kingdom has tried to diversify the ways it measures inflation. While CPI is based on the Harmonized index of Consumer Prices (HICP) , in 2016 in order to overcome the shortcomings of CPI, the (CIPH) Consumer Price index including occupier's Housing costs was made the official measure.(ONS,2021)

Similarly, According to the Office of National Statistics, Retail Index Price did not meet the standard to be regarded as a national statistic. In 2019 The National Statistic Authority strongly suggested that publication of the same be terminated in the future and in the interim CPIH should be addressed as a solution method. (*Thus producing advanced RPII, which uses geometric mean*)

The Bureau of Labor Statistics (BLS), United States, conversely produces the Consumer Price Index (CPI). It is the most widely watched and used **measure** of the **U.S. inflation** rate. It is also used to determine the real gross domestic product (GDP).

Types of Inflation based on rate of change

- Creeping Inflation: A slow increase over time (1-4%)
- Walking Inflation: Also referred as moderate inflation, When the inflation rate is under 10%. An inflation rate above 4% is a cause of concern for the Central Banks.
- Running Inflation: A significant rise in inflation between 10% to 20% a year with a possibility of increasing unexpectedly higher. This can cost majorly to the economy.
- Hyperinflation: An extreme form of inflation, where the price changes might become a daily occurrence. Majorly Associated with Government printing money to pay off debt. Eg. Weimar, Germany, 1920's and Zimbabwe, 2008)
- Deflation: the decrease leading to negative (inflation below zero) is termed as deflation. Increases the purchasing power of the unit of money.

- Disinflation: An eventual decline in the rate of inflation while still as positive.

Inflation Risk

Inflation rate incorrectly anticipated can cause financial trades to be upset. This incorrect anticipation is referred to as Inflation Risk. Federal government is U.S. economy's biggest debtor, it gains from unanticipated inflation and vice-versa. As a result, the federal government is biased toward higher inflation. The corporate income tax system in many countries is not fully indexed, and this makes it harder to keep pace with inflation and value of shares. The real returns from holding bonds and loans of long maturities are especially sensitive to inflation variability. (White,2019)To mitigate this, the government targets inflation. Following New Zealand and Canada, in 1992, The United Kingdom (Bank of England) began targeting inflation in order to anchor expectations.(Elston CPD) A little inflation is always considered a sign of economic growth which was seen in between 1997 and 2004, in the United Kingdom where the RPI rate of target was 2.5% denoting stability.(White,2021)

Post Covid Inflation Risks

Over the past year, concerns about inflation have reappeared. The Panel of experts are split on whether inflation will be above target in upcoming decade. While majority of panellists are monitoring the effects of Brexit, rising public debts, and global factors along with the pandemic.A smaller minority worry that the UK growth rate will be too low for the Bank of England to stimulate inflation (Ilzetzki, 2020)

Aftermath of the pandemic saw new voices emerge expressing concern about inflation. According to Ilzetzki (2020), monetary forces may be more inflationary at present. Since the beginning of the Covid-19 pandemic, the money base increased by 50%This indicates that,instead of maintained bank reserves, quantitative easing policies have resulted in an increase in bank deposits. The disruption of global supply chains, according to Ilzetzki (2020), is also a potential inflationary threat. Top UK investors are concerned that fiscal rather than monetary considerations are increasingly driving UK monetary policy (Stubbington and Giles 2021). This could indicate an increased risk of inflation.

Inflation expectations for 2021 have increased, with household inflation expectations at 3.8 percent, according to surveys. Inflation-protected gilts imply that inflation will continue to exceed its target well into the next decade. The UK instantaneous implied inflation forward curve predicts 3.5 percent inflation over the next ten years. (Ilzetzki, 2021)

Similarly, in the United States,measured inflation rose slightly, owing to three temporary factors: base effects, supply chain disruptions, and pent-up demand mainly for services. (Bernstein and Tedeschi, 2021) It was also observed since the start of the COVID-19 crisis, that CPI inflation has been steadily declining in the United States, as predicted by its historical Phillips curve relationship

(Ball et al., 2021). If the current fiscal stimulus reduces unemployment to 1.5-3.5 percent, as some forecast, underlying inflation could reach 2.5-3 percent by 2023.

However, the opposing view suggests a deflation in the future of both UK and USA.

In the United Kingdom, a longer-term demographic cycle, according to Goodhart and Pradhan, has supported deflationary (and low interest rate) pressures. Ellington and Milas (2019), too, demonstrate that, historically, money growth only leads to inflation when inflation in the UK is already above 3 percent.

In The United States of America, (Gruenwald and Dimitrijevic, 2021) of the S&P 500 suggest that the fears of inflation are exaggerated, and orderly reflation, centred on a return to sustainable growth, is a positive development for macro and credit outcomes. The recent rise in US Treasury yields, that have expanded over into corporate bond yields, indicate a greater belief in a long-term economic recovery, which includes a return to normal market functioning and risk pricing.

Monetary Policies; Traditional and Non-Traditional Policies throughout the years

In recent years we have seen that in order to keep economic growth and prices stable, central banks today predominantly utilise inflation targeting. If inflation rises, contractionary monetary policies such as raising interest rates or limiting the money supply are used to combat it. The 1998 Bank of England Act states that, in relation to monetary policy, the Bank of England's objectives shall be "to maintain price stability, and subject to that, to support the economic policy of Her Majesty's Government, including its objectives for growth and employment." (United Kingdom, Institutional Framework, 2021)

The need for a nominal framework that would provide an anchor for the price level and credibility for the government's commitment to low inflation has dominated monetary policy in the UK for the past 20 years. Several frameworks were tried, abandoned, or at the very least significantly altered. In the 1970s, monetary aggregate targets were established, first for wide money and then for narrow money. The focus shifted to the exchange rate, first with an ad hoc objective, and subsequently with ERM membership, which has an explicit exchange rate target articulated in terms of the narrow band. Finally, as a result of numerous ERM crises, nations have now implemented an explicit inflation target, following the earlier lead of New Zealand and Canada. (KING, 1994)

The Bank of England employs two key monetary policy tools. Interest rates are set and banks are charged for borrowing money. This is known as *Bank Rate*. Second, they can use digital money to acquire corporate and government bonds, which is known as asset purchase or *quantitative easing (QE)*.

While setting a Bank Rate can be categorized into a traditional policy, quantitative easing is part of a popular unconventional monetary policy. We will discuss about them in detail, in this section.

In the early 1980s, quantitative monetary targets were the mainstay of monetary policy. However, by the end of the decade, most central banks had abandoned this strategy, believing it to be ineffective. This failure, according to Werner (2012), was caused in significant part by the perceived instability of velocity and the money demand function in many nations during the 1980s.

Since then, central banks have emphasised interest rate policies in their official statements, and central bank monitoring has shifted to focus on interest rate decisions and how central bank actions may affect interest rates, in line with the so-called "new monetary policy consensus" proposed by Woodford and others (2003) (Lyonnet and Werner, 2012)

According to Bank of International Settlements, 2019 in response to the financial crisis of 2008, the MPC initiated a large-scale purchase of financial assets, the majority of which were UK government bonds at the time. The Bank of England Asset Purchase Facility Fund Limited, a government-insured subsidiary of the Bank, carried out these asset purchases (BEAPFF).

Asset purchases of UK government bonds totalled GBP 435 billion as of the end of August 2019.

A GBP 10 billion corporate bond purchase scheme (CBPS) was introduced in August 2016, the most recent time the MPC modified its policy decision on asset purchasing size. The plan aimed to generate stimulus by cutting corporate bond yields, cutting the cost of borrowing for businesses. The same year Term Funding Scheme, TFS was created to counter the concern that Bank Rate reduction near the zero lower bound would have less impact than cuts made when rates were higher, if lenders elected not to pass on the rate cuts to families and companies to protect their margins. It was set up so that any change in the Bank Rate had a broadly neutral effect on overall margins. However, this did not necessarily do well and came to stop all operations in 2018. Lloyds, RBS, Nationwide, and Barclays were the biggest users of the plan. (Meertens, 2019)

In the US, price stability and maximum employment are the two objectives of the Federal Reserve. It can impact interest rates in the economy by conducting open market activities. As a result, in any positive inflationary environment, the Federal Reserve may adjust interest rates with perfect foresight to keep the real return on cash constant. Cash, in this sense, should be a powerful inflationary hedge. (Baker et al., 2021)

Inflation Hedging

After more than a decade of monetary policy stimulus and ever-expanding central bank balance sheets, inflation has yet to materialise. Inflation has quickly become a major investment subject in the next five years, or even in the future because there are three new forces at work. Globally, production costs are expected to climb. Central banks are modifying their policy framework fundamentally in order to raise inflation above their goal levels. Furthermore, the simultaneous monetary-fiscal policy shift that was required in response to the Covid 19 shock may place more political limits on central banks' ability to combat inflation. (Hildebrand, Boivin and Bartsch, 2020)

The best asset allocation varies dramatically between regimes.

When the economy is highly volatile, an investor with a pure inflation aim should invest primarily in cash when her investment horizon is short, and gradually raise her allocation to IL bonds, stocks, commodities, and real estate as her investment horizon lengthens. In contrast, in a more stable economic environment, cash plays an essential role in hedging a portfolio against inflation in the short run, but in the longer run it should be replaced by nominal bonds, and to a lesser extent by commodities and equities. With a more aggressive real return target (from 1% to 4%), risky assets should be given a higher weighting (mainly equities and commodities).

These findings support the importance of alternative asset classes in protecting a portfolio from inflation, particularly for individuals with lengthy investment horizons. (Brière and Signori, 2011)

What are the Inflation Hedging Asset Classes?

The ability of a range of assets to hedge inflation was examined in an IMF working paper published in April 2009. Schroders, 2021 published a working paper that looked at each asset class from the standpoint of an investor and looked back in time to see when assets had good inflation hedging features.

In their paper, 'What are inflation Hedging Asset Classes', Schroder's multi asset team came to some noteworthy conclusions.

- Some asset classes, such as stocks, which many people feel are good at hedging inflation, actually have weak inflation hedging qualities yet deliver excellent long-term returns above inflation.
- Commodity and equity sub-sectors, particularly those related to energy and metals, have traditionally delivered substantial returns over inflation and have given effective inflation hedging characteristics.
- Because there is limited data on several attractive areas worth evaluating for their inflation hedging properties, such as leveraged loans, infrastructure, and forests, Schroders, analysed them from a theoretical standpoint.

Based on these studies, we can outline the basic structure of these asset classes. The ones that provide instant protection are shock absorbent, which can provide medium term protection and the ones that are built to last, provide long term inflation hedge. We will understand the results of each of these asset classes under the time frames they were found most effective.

Short Term

Cash

The US real rate is calculated by subtracting inflation from the return on three-month T-Bills. Because of the short maturity of these T-Bills, rates should be adjusted to account for future inflation projections. We would anticipate yields on 'pure' cash, such as one-day bills, to accurately hedge inflation, with an inflation beta of very close to one. However,

allocating portfolio cash to fulfil a long-term investment target of CPI plus 5% is unlikely to satisfy the investor's investment goal. (Attié and K. Roache, 2009)

Real Estate

Inflation-hedging properties were identified in both residential and commercial real estate in a number of early studies. Between 1953 and 1971, Fama and Schwert (1977) found that residential property provided a comprehensive hedge against both expected and unforeseen inflation. (Attié and K. Roache, 2009) Real estate, however, is a heterogeneous asset class and its inflation-hedging properties are determined by the nature of an investor's exposure.

Commodities

The research shows that commodities can provide good short-term inflation protection. Between 1970 and 1999, Greer (2000) estimates that the correlation between the unlevered Chase Physical Commodity Index's 12-month return and annual U.S. inflation was 0.23. ¹³ The correlation was 0.59 when measured against changes in inflation. According to Erb and Harvey (2006), fluctuations in the rate of inflation in the United States explained around 43% of the variance in the returns of the Goldman Sachs commodity excess return index (GSCI) from 1969 to 2003, with higher inflation correlating to greater GSCI returns. They do emphasise, however, that the effects vary greatly amongst different commodities. Based on 12-month returns, Kat and Oomen (2007) propose that a handful of commodities provide an excellent hedge against unanticipated U.S. inflation. (Attié and K. Roache, 2009)

Medium- Term

Inflation Linked Bonds

In most cases, Inflation Linked Bonds are a decent hedging asset for an investor looking purely for inflation protection. According to Dudley (1996), the monetary policy environment has a significant impact on the hedging efficiency of inflation-linked bonds. During proactive monetary policy eras, inflation volatility is maintained low while real interest rate volatility is larger, resulting in significant correlations between inflation-linked and nominal bonds. Furthermore, Kothari and Shanken (2004) recreated an inflation-linked bond index dating back to the 1950s, implying that inflation-linked securities offer stronger diversification benefits than nominal bonds against equities but these come at the cost of return in the long run. An investor suffers on return for holding linkers as opposed to nominal bonds due to premium paid for inflation protection. (Baker et al., 2021)

Long Term

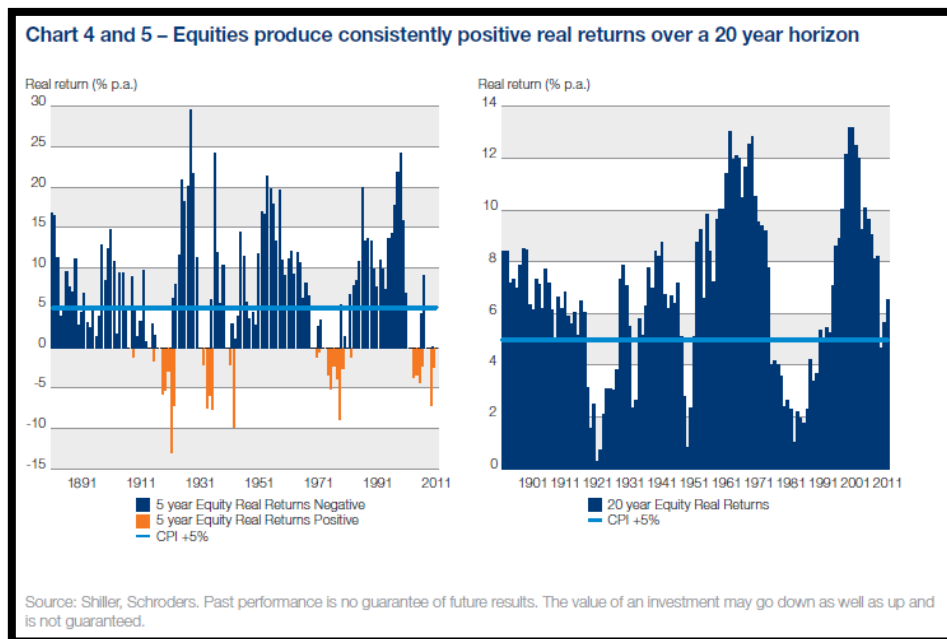
Long-term investors face a common challenge: how to keep their assets' purchasing power over time while achieving actual returns that meet their investing goals. Both aspects of the problem are frequently discussed together, but the first, namely which types of assets provide the most effective inflation hedge, is still a hot topic of controversy. (Baker et al., 2021)

Equities

According to conventional finance theory, because equities represent a claim on the dividend stream of real assets, they should provide an effective inflation hedge. In other words, the business sector will pass on inflation in the form of higher prices at the aggregate level and over time; Mishkin (1992) and Boudoukh and Richardson (1993). Several studies have found that stocks can be an effective inflation hedge, but only over very long-time horizons. Over lengthy time horizons, according to Ely and Robinson (1997), equities appear to preserve their worth compared to broader price indexes. (Attié and K. Roache, 2009)

Long-term exposure to equities makes sense as an investor because they have produced good actual returns (See summarised chart below). During structural inflation or deflationary worries, however, it is critical to tactically limit exposure to equities. Specific equities, whose financial strength is more closely related to resources, are a better CPI hedge than broad US equities.

This might allow investors to earn equity-like returns while also maintaining a commodity-like inflation hedge. The commodities and energy sectors of the equity markets are perhaps the most interesting in terms of inflation hedging.



Source: Schroders

According to a working paper at Schroders, dataset from 1891- 2011 and 1901- 2011 US equities for at least twenty years, in all instances, have accumulated positive real returns.

Summary

There is presently a high level of inflation uncertainty, which, combined with concerns about what could follow the pandemic and how well is an investor prepared in these environments. With policy changes, inflation risk being high, being fully aware and prepared can guide us to assets which could assist in moderating the effect of rising inflation.

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