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Stocks, bonds, T-bills and inflation hedging: From great moderation to great recession

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ABSTRACT

Inflation hedging is an important issue for long-term investors, even during prolonged periods of relatively low inflation. This study analyzes the inflation-hedging properties of US stocks, bonds, and T-bills at the subindex level during the years 1983–2012. Our analysis provides only partial confirmation of the hypothesis that, during the post-1980 period, the returns of cyclical stocks exhibit a more positive long-run relation with inflation than the returns of non-cyclical stocks. Stocks in both cyclical and non-cyclical industries have virtually no hedging ability until the fall of Lehman Brothers in September 2008. From that moment on, equity subindices particularly in the cyclical industries start to develop statistically significant but economically modest hedging ability, even in the short run. In contrast to T-bills, long positions in bonds turn out poor inflation hedges during the entire sample period, regardless of maturity, issuer, risk rating and investment horizon. Only short positions in long-term bond indices including Treasury bonds (with maturities of 10 years and longer) may have some long-run inflation hedging capacity.

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1. Introduction

"*Investors often see inflation risk primarily as a rapid inflationary spike to 4% or higher, rather than a long-term challenge that can hurt portfolios. However, the more common scenario is a low inflationary environment accompanied by a bear market – an environment that often results in negative real returns*." This statement is taken from a recent report on inflation hedging published by J.P. Morgan AssetManagement (2012, p. 4). Indeed inflation hedging may only seem relevant in periods of high inflation. Yet even in the absence of high inflation rates, it is important for long-term investors to immunize their real portfolio returns against the long-run effects of an increase in the price level. Although the short-run effects of a relatively modest annual inflation rate of say 2% look small and negligible, the long-run erosive effects of this level of inflation on real portfolio returns may turn out substantial (especially in the presence of low nominal returns). For example, in terms of in today's prices the value of $100 dollar drops to $76 dollars in 30 years. Consequently, even during prolonged periods of low inflation long-term investors prefer to invest in assets that provide protection against an increase in the general price level. This holds particularly true for pension funds, whose liabilities usually rise with the price level.

A vast literature investigates the inflation-hedging potential of various asset classes, including stocks, bonds, T-bills, commodities, and real estate (e.g. Bekaert & Wang, 2010; Bruno & Chincarini, 2010; Engsted & Tanggaard, 2002; Gorton & Rouwenhorst, 2006; Hoevenaars, Molenaar, Schotman, & Steenkamp, 2008; Worthington & Pahlavani, 2007). To our best knowledge, only one study analyzes the inflation-hedging capacity of stocks at the industry level. Boudoukh, Richardson, and Whitelaw (1994) point out that to the extent that (expected) inflation is correlated with the economy's aggregate output, the correlation between asset returns and inflation should vary between cyclical and non-cyclical industries. In line with this theory, Boudoukh et al. (1994) find a more positive long-run relation between stock returns and expected inflation for stocks in non-cyclical industries.

Boudoukh et al. (1994) analyze the inflation-hedging properties of various assets during the 1953–1990 period. These years contain the oil crises of the 1970s and generally feature a relatively high macroeconomic volatility and a dominance of countercyclical supply shocks. Many other inflation-hedging studies consider similar periods of high macroeconomic volatility, whereas the inflation-hedging properties of assets during the post-1980 period have been studied in less detail. The post-1980 period is generally characterized by relatively low macroeconomic volatility and procyclical demand shocks.[2] Moreover, during the post-1980 period monetary policy has explicitly focused on maintaining the average inflation rate around a level of about 2% ('inflation-targeting'). Although US inflation rates tend to be lower during the post-1980 period than during the preceding era, inflation hedging is also important with a relatively modest inflation rate as explained above. Furthermore, whereas the post-1980 period is not representative for all possible inflationary regimes, this period is representative for the current inflationary era. Hence, the post-1980 period is the relevant sample period if one is interested in the current inflation-hedging properties of stocks, bonds and T-bills.

The study by Brière and Signori (2012) is of particular relevance in the context of inflation hedging during different economic regimes. The authors compare the hedging properties of various asset classes during the 1973–1990 and 1991–2009 periods. The former period is dominated by countercyclical supply shocks, whereas the latter period is characterized by procyclical demand shocks. Several studies have shown that the difference in economic conditions between the two periods partly explains the change of correlation sign between stock and bond returns (see e.g. Campbell, 2009). Brière and Signori (2012) additionally show that stocks and bonds have better hedging ability during the former period.

By considering aggregate indices only, Brière and Signori (2012) do not investigate stocks' inflation-hedging properties across cyclical and non-cyclical industries. Yet according to Boudoukh et al. (1994), we would expect different hedging properties for cyclical and non-cyclical stocks. During the post-1980 period low inflation rates tend go hand in hand with low stock returns (and vice versa) in

[2] During a period of procyclical demand shocks, positive inflation shocks tend to occur during improving macroeconomic conditions. By contrast, with countercyclical supply shocks, positive inflation shocks tend to occur during declining macroeconomic circumstances.