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The impact of monetary policy on gold price dynamics

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ABSTRACT

Ever since the collapse of the Bretton-Woods system, gold has retained its function as an important monetary commodity (Baur and Lucey, 2010), and continues to provide important inflation forecasting information to monetary policy setters (Tkacz, 2007). However, Capie et al. (2005) highlight the instability of gold price dynamics through time, attributing it to unpredictable political attitudes and events. In this paper, we investigate gold price dynamics under different inflation regimes and stock market conditions using UK and US index-linked Treasury bond data. We show that gold lost its role as an inflation hedge after May 1997 in the UK, and after 2003 did not act as an inflation hedge in the US, supporting the argument that gold is an inflation hedge only in periods of high inflation and inflation expectations. Further, we show that gold retained its safe haven status throughout the sample period in both countries, but it did not act as a stock market hedge in the UK except during the 2008–9 global financial crisis. Finally, we conduct an event-study analysis of the impact of QE announcements from four leading central banks on the gold price in US dollars. While the QE announcements of the US Federal Reserve and the European Central Bank exerted a strong and weak influence on gold, respectively, the Bank of England and the Bank of Japan's QE announcements had no discernible impact on the gold price.

1. Introduction

The global financial crisis of 2007–8 presented many investors with a strong motivation to search for ‘safe haven’ assets. Since the beginning of 2016, the gold price has risen by more than 30%, placing it as one of the best performing assets for investors during that period. Conventional wisdom suggests that the gold price and the general price level move together, and as a result for millennia and across cultures gold represented an effective store of value. Even in the post-Bretton-Woods system era, gold remains an effective investment tool in many countries in the form of coin, bullion, certificates or warrants (Worthington and Pahlavani, 2007). Perusal of the academic literature on gold indicates that of the key economic drivers of the demand for gold, the rate of inflation is the most heavily researched. Fisher (1930) establishes the fundamental positive relationship between expected asset returns and expected inflation. There is an extensive empirical literature on the relationship between gold prices and inflation, commencing with Jastram (1978), and later extended by Jastram and Leyland (2009), who examines the long run relationship between the price of gold and inflation in England over the period 1560–2007 and in the US over the period 1808–2007. They find that gold maintained its purchasing power over long periods of time, for example, over 50-year intervals, but was a poor hedge against major inflation because the purchasing power of gold mirrored that of the general price level under the Gold Standard where the nominal price of

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gold was held constant. More recent studies confirm that gold can serve as a profitable investment opportunity under extreme market conditions (see [Baur and McDermott, 2010](#); [Narayan et al., 2013](#); [Narayan et al., 2015](#)).

In this paper we examine the usefulness of gold as a hedge against inflation, currency depreciation and stock market fluctuation in a UK setting over the period 1985–2015 and in a US setting over the period 2003–2015. Furthermore we investigate the impact of Quantitative Easing (QE) announcements made by the central banks of four major economies on gold prices. Our paper makes three important contributions. First, we test our hypotheses using market-implied inflation expectations data. Consistent with the recent literature, the data we employ includes the break-even inflation rate (BEIR), also referred to as inflation compensation, which is the sum of inflation expectations, the inflation risk premium and the liquidity premium. [Liu et al. \(2015\)](#) argue that the BEIR is increasingly used in central bank publications, market commentaries and empirical research as it provides the timeliest indicator of inflation expectations ([Joyce et al., 2010](#); [Abrahams et al., 2013](#); [Pflueger and Viceira, 2016](#)). BEIR may be estimated in real time every trading day without any lag, unlike conventional measures of inflation expectations extracted from economic surveys or forecasted using econometric models, which are available only on a monthly or bi-annual basis. Second, our empirical models take account of the structural shift in the level of UK inflation and inflation expectations. More specifically, on 6th May 1997, the UK Government handed to the Bank of England responsibility for the setting of interest rates to meet its stated inflation target. This marked the beginning of the Bank's operational independence and its full commitment to inflation targeting. We use this event as a cut-off point for the UK sample data as the level of inflation and inflation expectations are high in the subperiod before this event, and low in the subperiod thereafter. We argue that the changes in the level of inflation and inflation expectations impact upon the role of gold as an inflation hedge. More precisely, the fall in inflation and inflation expectations should stop the gold price reacting to inflation expectations. When inflation and inflation expectations are at a low level, investors may in this event view gold as an asset with limited potential in terms of capital gains. Once investors take into account the transaction costs associated with buying and selling gold, they may decide that trading in gold is not worthwhile, and will stop treating gold as an inflation hedge. We build on the work of [Laurent \(1994\)](#) who argues that the gold price only reacts to changes in 'deep-seated' inflation expectations. If investors no longer fear deep-seated inflation then gold should lose its property as an inflation hedge. Third, we conduct an event study examining the impact of QE-related news announcements on the price of gold. In response to the deterioration of financial markets during the period 2008–2009, the central banks of the major economies embarked upon the unconventional monetary policy of Quantitative Easing (QE). A former Chief Economist of the Bank of England, Spencer Dale, identified the central objective underlying QE as the injection of a substantial amount of money into the economy via the portfolio rebalancing channel ([Dale, 2010](#)). To the extent that investors do not view money as a perfect substitute for gilts, they will reduce the additional holding of money by switching into other sterling assets or foreign assets, thereby pushing up their prices. There is a large body of literature examining the effect of QE on asset prices ([D'Amico and King, 2010](#); [Gagnon et al., 2011](#); [Krishnamurthy and Vissing-Jorgenson, 2011](#); [Neely, 2011](#); [Joyce et al., 2011](#); [Ugai 2007](#); [Wright, 2012](#)). Despite differences in the methods and sample periods employed, the majority of existing studies agree that QE had a significant impact on Treasury yields, though evidence of its effect on other assets such as corporate bonds and equities is mixed. By means of an event study approach, [Gagnon et al. \(2011\)](#) find that the QE1 round of the US Federal Reserve had a significant and negative impact on the yield of higher-grade corporate bonds and mortgage backed securities (MBS). Using a VAR analysis, [Wright \(2012\)](#) shows that the monetary policy shock lowered higher-grade corporate bond yields and raised stock prices, with the effects wearing off after a few months. However, [Krishnamurthy and Vissing-Jorgensen \(2011\)](#) demonstrate that the impact of QE1 and QE2 had a smaller effect on lower-grade corporate bonds, and the impact of QE on MBS was only marked in QE1 where QE involved MBS purchases. Using both event studies and a VAR analysis, [Joyce et al. \(2011\)](#) find that the Bank of England's QE operation reduced corporate bond yields markedly, and its impact on equities was potentially large but highly uncertain as the announcement of QE may give investors information concerning the outlook of the economy and corporate earnings. If the outlook is worse than expected then it should lower their expectations for dividend payments, resulting in lower equity prices. To date, no paper has focused attention on the impact of QE on the gold price. As a store of value, gold provides an alternative to financial assets such as money and gilts. Even if a small proportion of gilts previously held by investors is replaced with gold as a result of QE, the increase in demand should push the gold price higher simply as a result of the portfolio rebalancing channel. Therefore, we argue that the announcement of the commencement or an expansion of QE should give rise to a positive impact on the gold price, and an indication of the end or the reduction of QE should produce a negative impact.

Our key results may be summarised as follows. First, gold provided an effective hedge against inflation over the subperiod of 1985–1997 in the UK when inflation and inflation expectations were high. But it proved not to provide an inflation hedge in the UK over the subperiod of 1997–2015 or in the US over the period of 2003–2015 when inflation and inflation expectations were low. Second, gold acted as a stock market hedge in the US over the period of 2003–2015, but did not provide such a hedge in the UK over either the same period or over the whole sample period of 1985–2015. However, gold acted as a stock market hedge during the global financial crisis in both countries, and provided a safe haven in all periods examined for both countries. Third, our results show that gold has provided an effective currency hedge for investors over both the whole study period and the sub-sample periods in the UK, and over the whole study period in the US. Finally, using an event-study analysis we find evidence of a significant impact of US Federal Reserve QE announcements on the gold price, while the influence of the European Central Bank QE announcements is much weaker. The gold price did not respond at all to QE news announcements from either the Bank of England or the Bank of Japan. The rest of our paper is organised as follows. In Section 2, we review the academic literature on gold as a hedging tool. In Section 3 we discuss the data employed in our study, followed by the econometric model which we discuss in Section 4. In Section 5, we present and discuss the empirical evidence arising from our models. Section 6 provides a summary and conclusion.

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