Asymmetric volatility response to news sentiment in gold futures

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ARTICLE INFO

ABSTRACT

This paper seeks to consider the relationship between the sentiment of newswire messages and the volatility of returns in the gold futures market. In particular, answers are sought to two key questions: firstly, how is the volatility of returns in the gold futures market influenced by the sentiment of non-scheduled news events? Secondly, is this news–volatility relationship affected by the state of the business cycle? The empirical evidence points to the sentiment of newswire messages having a significant asymmetrical impact on volatility such that negative news has a significantly greater impact on volatility than does positive news. There is evidence to suggest that participants in the gold futures market initially over-react to newswire messages and this is subsequently reversed. The recessionary environment of Q4 2007–Q2 2009, serves to greatly increase the volatility response to newswire messages.

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Gold is a way of going long on fear, and it has been a pretty good way of going long on fear from time to time. But you really have to hope people become more afraid in a year or two years than they are now.
Warren Buffett (2012)

1. Introduction

Historically, investors have utilized gold as a store of value and a means of exchange, and for much of the 20th century the gold-standard exchange rate placed it at the very centre of the global financial system. Today's media[1] often cites the safe haven status of gold during periods of financial market turmoil as the key rationale for purchasing gold. Baur and Lucey (2010) find that gold is a hedge against stocks on average and a safe haven in extreme market conditions, although this property is such lived. Baur and McDermott (2010) provide further evidence in support of gold's safe haven status for developed market during the recent global financial crisis (GFC). Increased stock market volatility in the period following the crisis has induced demand for gold as an investment from both retail and institutional investors; this has been further

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[1] For example: http://www.forbes.com/sites/kitconews/2013/08/27/focus-gold-rises-on-safe-haven-buys-over-syria-technical-charts-fed-qe-debate/ and http://www.reuters.com/article/2012/11/16/markets-precious-idUSL5E8MGBEA20121116.

enabled by an increase in the range of products such as exchange traded funds and demand for gold for investment purposes now constitutes approximately 35% of total annual demand for the precious metal.[2]

The value of gold has divided opinion amongst academics and the investing community. Whilst some experts[3] note that gold is essentially overvalued, primarily since it does not provide any income, others (McCown and Zimmerman, 2006; Draper et al., 2006) highlight the empirical support for the diversification benefits of gold and Capie et al. (2005) note that gold protects against exchange-rate risk for investors with U.S. dollar holdings. Erb and Harvey (2013) add to the debate by considering many of the arguments for holding gold within a portfolio; they report that gold is only a good inflation hedge for holding-periods much longer than relevant for most investors, it is an unreliable currency hedge, and "should not be counted as a safe haven in times of extreme stress". However, there is support for the current historically high gold price should demand trends from emerging markets follow those in developed markets, owing to the relatively fixed supply of gold. Frequent media reports on the large holdings of gold assets by a range of investors, most notably hedge funds, and the spectacular gains and losses witnessed in those funds,[4] suggest that it is of some importance to understand how such markets respond to news events.

Much of the extant literature in the field of the news impact on asset prices has focused on specific and easily identifiable news events, such as macroeconomic announcements and earnings results, where the event is scheduled in advance and the news effect is readily quantifiable. Fleming and Remolona (1997) argue that sharp price movements, and the accompanying increase in volatility, are attributable to changes in expectations shared by investors. Ederington and Lee (1993) suggest that volatility may remain high for some period after a scheduled macroeconomic announcement since full information only arrives gradually; Frino and Hill (2001) and Smales (2013) also find an increase in volatility in the period prior to data releases. Lee (1992), Lee et al. (1993), and Krinsky and Lee (1996) observe higher trading activity and higher volatility following earnings announcements. Kim and Verrecchia (1994) and Gerlach (2005) propose that such results stem from imperfect, and asymmetric, information.

More recently, the literature has utilized more comprehensive datasets to examine the relationship of non-scheduled news on asset returns, and the volatility of such returns. Brooks et al. (2003) find that only new and unpredictable information moves prices, while Antweiler and Frank (2004) find that messages posted on Internet news boards help to predict market volatility. Kalev et al. (2004) note a positive and significant impact of the arrival rate of selected non-scheduled news variables on the conditional variance of stock returns, even after controlling for the potential effects of trading volume. Such results are consistent with the mixture of distributions hypothesis (MDH) which forms the basis of an explanation for the relationship between the rate of information arrival and measures of market activity, such as asset volatility and trading volume; an important implication been that observed patterns of asset volatility are reflective of similar patterns in information flow.

Tetlock (2007) initiated the first concerted effort to quantify the tone and sentiment of news–message text – information that is essentially qualitative in nature – in order to examine the relationship between news and asset prices. Tetlock (2007) assigns a sentiment score to Wall Street Journal articles using the General Inquirer database and, consistent with theoretical models of noise and liquidity traders, finds that negative stories predict low market returns. In a similar framework, Tetlock et al. (2008) argue that the linguistic content of news messages captures hard-to-quantify aspects of fundamentals that are quickly impounded into asset prices.

Modern technology has enabled the development of news analytics software packages, such as Thomson Reuters News Analytics[5] (TRNA), which utilize advanced algorithms to assign sentiment indicators to non-scheduled news releases in real-time and allow a more comprehensive quantitative examination of the effect of news on asset prices. Using news sentiment measures derived from such software, Groß-Klußmann and Hautsch (2011) note that high-frequency movements in returns and return volatility can be explained by the mostly non-scheduled news arrivals during a day. Leinweber and Sisk (2011), Smales (2013), and Riordan et al. (2013) find that negative news is more informative and the reaction to negative news is more vigorous and thus negative sentiment signals are more exploitable. Most recently, the results of Ho et al. (2013) confirm the significant impact of firm-specific news sentiment on intraday volatility persistence, even after controlling for the potential effects of macro news and again report the greater impact on return volatility of negative news. Until recently the data provided by news sentiment software vendors has focused on firm-specific news and so the impact of non-scheduled news on asset returns, and volatility, has largely been ignored outside of the stock market context.

A section of the existing literature has focused on how the news effect on financial market returns and volatility varies over time. Kandel and Stambaugh (1990), McQueen and Roley (1993) and Veronesi (1999) suggest that the difference in the response to news is dependent on the business cycle, while Roley and Sellon (1995) find that the relationship between news and long-term interest rates is likely to vary over the business cycle as market participants alter their views on the persistence of policy actions. Jensen et al. (1996) also note that business-conditions have an influence on expected asset returns as a result of the associated monetary environment. Hamilton and Lin (1996) note that recession is the primary factor that drives fluctuations in the volatility of stock returns. Dzielinski (2011) identifies a news premium and suggests that this

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[2] Source: World Gold Council – Gold Demand Trends.

[3] For instance, Warren Buffett in his Feb 2012 annual shareholder letter notes that "gold has two significant shortcomings, being neither much use nor procreative". http://www.berkshirehathaway.com/letters/2011ltr.pdf.

[4] For example: http://www.bloomberg.com/news/2013-07-08/paulson-s-pfr-gold-fund-fell-23-in-june-65-this-year.html.

[5] Formerly titled Thomson Reuters News Scope Sentiment Engine (RNSE).