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Can security analyst forecasts predict gold returns?

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ABSTRACT

This paper examines whether security analyst earnings forecasts for firms primarily operating in the gold market can be utilised to predict returns on the price of gold. We first demonstrate that analysts are at least in part basing their earnings forecasts for gold firms on the return expectations of the gold commodity market. We show this by providing evidence that analyst coverage impounds not only market-wide and industry information, but also gold price information for these firms — as measured via its impact on stock return synchronicity. We then examine if the difference between forecast and observed earnings for these firms has predictive value for changes in the price of gold whilst controlling for a number of macroeconomic factors. We find that this difference does hold predictive power, but also has some limitations. However, there is potential for it to be used as an additional variable within gold forecasting frameworks.

1. Introduction

This paper examines whether security analyst forecasts for firms whose business operations are primarily related to the gold market are partly based on information pertaining to the expectations of gold prices in the future. If so, can analyst earnings per share (EPS) forecasts be utilised to predict returns in gold prices? To investigate this we sample companies that are specifically tied to the processing and production of gold through their eight-digit categorisation within the Global Industry Classification Standard (GICS) code. We investigate if analyst coverage for these stocks leads to the incorporation of not only stock market- and industry-wide information through increased stock return synchronicity (Piotroski & Roulstone, 2004), but also if they impound information on gold prices as well. If they do, it suggests that analysts are at least in part basing their forecasts for gold firms on how the commodity market for gold is expected to develop. This leads us to then test if changes in gold returns are predictable as a function of the difference between analyst earnings forecasts and observed firm earnings.

Our research is motivated by the literature showing that security analysts impound information into stock prices via their earnings forecasts and buy–hold–sell recommendations (Chan & Hameed, 2006; Jegadeesh, Kim, Krische, & Lee, 2004; Womack, 1996). The conventional view in finance is that such information can be attributed to a combination of systematic economic factors (i.e. market-wide influences), industry-level effects and firm-specific events (Roll, 1988). However, from a theoretical standpoint, it is unclear whether analysts predominantly contribute firm-specific, industry-level or market-wide information to security prices (Chan & Hameed, 2006). Earnings forecasts necessitate the use of firm-specific information by analysts. At the same time, firm-specific information can be difficult and costly to collect for analysts, particularly relative to institutional investors and insiders (Piotroski & Roulstone, 2004). Security analysts are therefore also likely to incorporate macroeconomic information in their earnings forecasts and stock recommendations. Disentangling the types of information impounded into stock prices by analysts is therefore an empirical question, potentially varying across industries and countries.

To date, studies have examined this topic in various settings. Piotroski and Roulstone (2004) examine the extent to which the trade and trade-generating activities of corporate insiders, institutional investors and financial analysts impact on the amounts of firm-specific, industry-level and market-wide information impounded into security prices in the U.S. They find that stock returns are more synchronous with market and industry returns when analyst forecasting activities are higher. Chan and Hameed (2006) similarly find that increased analyst coverage is positively associated with stock return synchronicity in emerging markets. The results of these papers suggest that security analysts impound industry- and market-level information into stock prices. However, whether this finding is generalisable to firms in the gold sector has so far not been explored by the literature. Importantly, if there is a tendency for analysts to incorporate industry level information into EPS forecasts for individual gold firms, and considering that the success of these firms is inherently tied to the performance of the gold market, then we expect analysts to be basing at least part of their forecasts on their expectations of how gold prices will move into the future. This motivates our first hypothesis. We postulate that security analysts

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covering gold firms are impounding not only industry and general stock market information, but also commodity market information (i.e. contemporaneous returns on gold) into stock prices for gold firms.

Theoretically, if analysts impound commodity market information into the stock prices of gold firms, then we would expect earnings forecasts to at least in part reflect analyst expectations with respect to future gold prices. This in turn means that the difference between consensus forecast and current earnings might be indicative of future movements in the gold price. This type of forecasting approach has not previously been considered in the gold literature. Much of the prior literature is focused on the time series modelling of gold returns and volatility.[1] For example, Tully and Lucey (2007) apply an asymmetric power GARCH model to gold prices between 1983 and 2003, finding that gold price volatility is predominantly endogenous with the main external influence being a negative association with the U.S. dollar. Also, Shafiee and Topal (2010) forecast the gold price up to December 2018, demonstrating that it is non-stationary and tying it with oil prices whilst failing to link it with changes in inflation.

Although time series analysis is useful in terms of its ability to explain the data generating properties of gold prices, several studies find that, with respect to earnings forecasts, security analysts are superior (in terms of their predictive accuracy) to time series models (Banker & Chen, 2006; Brown, Hagerman, Griffin, & Zmijewski, 1987; O'Brien, 1988). This can be attributed to a better utilisation of information (Brown et al., 1987) as well as the use of larger information sets by analysts (Banker & Chen, 2006). These findings are particularly encouraging when we consider that commodity trading advisors are further capable of capturing any excess returns which they generate for clients through investment advice fees (Bhardwaj, Gorton, & Rouwenhorst, 2014). This motivates our second hypothesis. We hypothesise that if gold analysts are impounding gold price information into the stock prices of gold firms, then the consensus difference between earnings forecasts and current earnings should have predictive power for future gold prices. Given recent research that has also questioned the accuracy of institutional gold forecasters (Fritsche, Pierdzioch, Rülke, & Stadtmann, 2013), the ability to utilise security analyst forecasts may provide a useful alternative for prediction.

We estimate the stock return synchronicity of firm returns for a sample of gold-focused companies from Australia, Canada, the United Kingdom (U.K.) and United States (U.S.). These four countries represent the home of over 90% of all companies in the world with a specific GICS code of 15104030. This code classifies gold companies that are either directly involved in mining, processing or producing gold plus any finance houses that are focused on investing in gold. We find that security analyst coverage increases stock return synchronicity for these firms when stock return synchronicity is measured as a function of returns on the stock market and industry in addition to the returns in gold as well. Consistent with how Chan and Hameed (2006) interpret an increase in stock return synchronicity, we view this as indicating that security analysts are impounding gold market information into stock prices. Based on this finding we then proceed to generate several simple forecast models. These models test for the in-sample contribution of the difference between consensus gold industry earnings forecasts and current earnings to predictions of future gold returns (whilst accounting for a number of standard macroeconomic factors). We also perform a set of out-of-sample tests. The results indicate that using the difference between consensus earnings forecasts and current earnings within a forecasting model does improve model fit, although there are some limitations. We argue that this results from the fact that it is not easy to disentangle the firm-specific, industry and market information components of EPS forecasts from the component relating directly to the gold market. This raises a number of interesting questions for future research.

[1] An alternative approach can be found in Ismail, Yahya, and Shabri (2009) who model and forecast gold prices using a cross-sectional multiple linear regression method.

The remainder of this article is structured as follows. Section 2 describes the estimation method, data collection process and construction of variables. Section 3 provides the empirical analysis and discussion. Section 4 concludes.

2. Methodology

2.1. Estimating stock return synchronicity and the impact of analyst coverage

We use stock return synchronicity as our dependent variable to analyse the type of information analysts impound onto gold firm stock prices. We measure it by first estimating the following ordinary least squares regression:

$$R_{j,t} = \beta_0 + \beta_1 R_{g,t} + \beta_2 R_{i,t} + \beta_3 R_{m,t} + \beta_4 R_{g,t-1} + \beta_5 R_{i,t-1} + \beta_6 R_{m,t-1} + \varepsilon_{j,t} \quad (1)$$

where $R_{j,t}$ is the return of stock j at week t, $R_{g,t}$ is the contemporaneous gold return at week t, $R_{i,t}$ is the industry return at week t, $R_{m,t}$ is the market return at week t, $R_{g,t-1}$, $R_{i,t-1}$ and $R_{m,t-1}$ are one period lagged gold, industry and market returns, respectively, and $\varepsilon_{j,t}$ are random error terms. We estimate this regression for each firm-year where there is a minimum of 40 weekly observations. Following Piotroski and Roulstone (2004) we then define firm stock return synchronicity ($SYNCH_{j,t}$) as:

$$SYNCH_{j,t} = \log\left(\frac{R^2}{1-R^2}\right) \quad (2)$$

where R^2 is the coefficient of determination from the estimation of Eq. (1) for firm j in year t. $SYNCH_{j,t}$ is measured on an annual basis for each firm from the weekly return observations of the year.

The economic intuition supporting our SYNCH construct relies on the distinction between systematic risk factors and unsystematic risk. The purpose of SYNCH is to isolate the degree to which stock returns are explained by systematic risk factors from the idiosyncratic risk of individual firms. SYNCH therefore signals when the informational content of stock returns is predominantly systematic (i.e. related to the industry of the firm or broader market) or unsystematic (firm specific), with this being one of the more common applications found in previous research (Chan & Hameed, 2006; Piotroski & Roulstone, 2004).

Whilst individual stock returns can be either negatively or positively correlated with gold, industry and market returns in Eq. (1), the R^2 from the model only captures the ratio of stock return variation explained by these systematic risk factors relative to the total amount of variation in the returns of each stock. This is independent of the direction of the individual coefficients (betas). Stocks with higher R^2 values from Eq. (1) have a greater proportion of their return variation explained by systematic risk factors. Conversely, stocks with lower R^2 values from Eq. (1) have a greater proportion of idiosyncratic risk. Eq. (2) then derives stock return synchronicity from the R^2 outputs of Eq. (1), converting them to real numbers. The resulting SYNCH values are negative for stocks with R^2 less than 0.5 and positive for stocks with R^2 greater than 0.5. The sign for SYNCH therefore reflects the magnitude of the R^2 from Eq. (1), rather than the direction of the correlation between individual stock returns and the systematic risk factors.

Roll (1988) and Piotroski and Roulstone (2004) only include industry and market returns in their regressions of Eq. (1). We additionally utilise current and one period lagged gold returns as our sample of firms is from an industry classification that ensures that each company's business operations are directly related to the gold market. Theoretically, these firms should be sensitive to information contained in the gold price. We therefore expect that the stock return synchronicity of gold firms will increase with the inclusion of gold returns in Eq. (1) relative to including only industry and market returns.

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