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Forecasting precious metal price movements using trader positions

Takvor H. Mutafoglu [a], Ekin Tokat [b,*], Hakki A. Tokat [c]

[a] Department of Economics, School of Business, Social Sciences, & Public Service Bergen Community College, 400 Paramus Road, Paramus, NJ 07652-1595, USA
[b] Department of Business Administration, TOBB University of Economics and Technology, Sogutozu Cad. No: 43, Sogutozu, Ankara 06560, Turkey
[c] Department of International Entrepreneurship, TOBB University of Economics and Technology, Sogutozu Cad. No: 43, Sogutozu, Ankara 06560, Turkey

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ABSTRACT

In the early 2000s, the precious metal markets entered into a new phase where a steady rise of prices had been observed until the October 2008 crash. Given the size and importance of precious metal market, as well as the hedging capacity of precious metals due to their low correlation with equity markets (Draper et al., 2006), the question we want to arise is whether trader positions predict the direction of gold, platinum, and silver spot price movements. The forecasting content of the Commodity Futures Trading Commission's Commitment of Traders report for platinum, silver and gold prices using trader positions is investigated in a VAR framework. Granger causality tests are conducted to determine whether a relation between trader positions and market prices exists. An examination of the extreme trader positions on price movements is also conducted. The results indicate that market return is a significant parameter in explaining trader's positions for all trader types in each of the precious metal markets under consideration after the beginning of 2000s where we detect a structural break for each of the market under study. Commercial traders are found to be negative feedback traders, that is, they sell when the prices increase in the market. On the other hand, in line with the previous literature, a positive correlation between returns and positions held by non-commercial and non-reporting traders is found. However, trader's net positions do not lead market returns in general. There is some evidence on the forecasting ability of extreme trader positions on market returns.

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1. Introduction

In the U.S., commodity futures and option markets are regulated by the Commodity Futures Trading Commission (CFTC) created by the Congress in 1974. One of the responsibilities of the Commission is to ensure that outstanding positions are communicated to the public. To that end, the CFTC collects data on the composition of open interest for all futures contracts and releases a subset of this data to the public through its Commitment of Traders (COT) report. This report decomposes open interest into reportable and non-reportable positions where the reporting level is determined by the CFTC. The reportable positions are further categorized as commercial (large hedgers) and non-commercial (large speculators) positions. While commercial traders participate in futures markets in order to hedge their business operations, non-commercial traders use futures markets in order to speculate on the direction of prices. Non-reportable positions, on the other hand, are too small to classify into commercial and non-commercial traders and therefore they are known as small traders.

The data in the COT report has been used extensively to investigate a variety of issues such as forecasting ability of traders (e.g., Hartzmark, 1991; Leuthold et al., 1994; Wang, 2001; Sanders et al., 2004; Wang, 2004; Sanders et al., 2009; Buchananan et al., 2001), profitability of trading strategies (e.g., Kearns and Manners, 2004), risk premia (e.g., Chatrath et al., 1997), hedging pressure effect (e.g., Bessembinder, 1992; De Roon et al., 2000), and futures market volatility (e.g., Andrangi and Chatrath, 1998; Chang et al., 2000; Wang, 2002). The analysis, in this paper, focuses on the forecasting ability of traders and evaluates the position of traders in precious metals futures markets in terms of how they relate to market prices. While there are studies exploring the relationship between trader position and price movements in energy as well as in agricultural futures markets, an examination of the position of traders in precious metals, namely, gold, platinum, and silver seems not to have been conducted yet. The main interest in the gold market lies in its characteristic as a channel for hedging against inflation; therefore, most of the research has focused on the determinants of gold market (Ghosh et al.2004; Heidorn and Demidova-Menzel, 2008). Batten et al. (2010), on the other hand, analyze the effect of macroeconomic variables on the volatility of precious metal markets. They find no evidence of a joint effect of macroeconomic factors on the volatility process of four precious metal prices and

* Corresponding author. Tel.: +90 312 292 4118; fax: +90 312 292 4104.
E-mail address: etokat@etu.edu.tr (E. Tokat).

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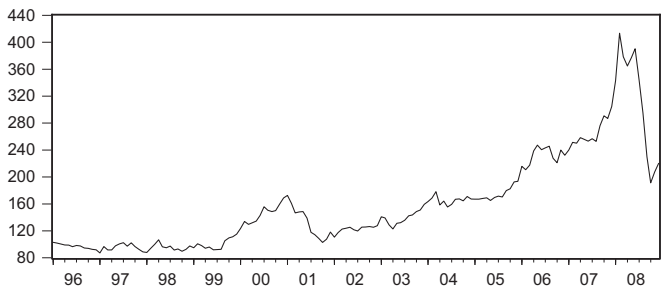

Fig. 1. Bloomberg precious metals spot price commodity index.
Note: The figure shows the Bloomberg Precious Metals Spot Price Commodity Index over the period of January 1996 to December 2008.

conclude that precious metals cannot be represented as a single index.

Given the size and importance of the gold market, as well as the hedging capacity of precious metals due to their low correlation with equity market (Hillier et al., 2006) it is important to address the question of whether trader positions predict the direction of gold, platinum, and silver spot price movements. Fig. 1 shows the continuous upward trend in precious metal markets since the early 2000s up until the October 2008 crash. This picture makes it worth to examine such an admired and highly speculative market segment for the investors. Although the relationship between trader positions and market prices are studied for various markets, ours is an attempt to see whether traders in precious metal markets behave differently than traders in other markets and therefore drive the precious metal prices or not.

The organization of the paper is as follows. In the next section, we present several studies which make use of the COT data in their analysis. A detailed examination of the Commitment of Traders report and the data is provided in Section 3. The methodology and the empirical results are presented in Section 4. Finally, Section 5 provides a summary of the research and conclusions.

2. Literature review

The information in the COT data has been used extensively to examine a number of issues as indicated in the introduction. Leuthold (1983) studies the livestock futures markets and generates indexes of speculative activity, using monthly data from the COT report, to determine if the level of speculation in these markets is adequate and if speculative activity influences price behavior. The author finds that there is ample speculation in all three markets, namely, live cattle, live hogs, and feeder cattle. Furthermore, the empirical results indicate that increased speculative activity is associated with price stability. Hartzmark (1991) employs end-of-day commitments of large traders data from the CFTC reports to test whether the futures traders have the forecasting ability to consistently earn positive profits. The analyses cover nine different markets; oats traded on Chicago Board of Trade (CBT), wheat traded on CBT, Minneapolis Grain Exchange (MGE), and Kansas City Board of Trade (KBT), pork bellies, feeder cattle, and live cattle traded on the Chicago Mercantile Exchange (CME), U.S. T-bonds traded on the CBT, and 90-day T-bills traded on the International Monetary Market (IMM). While the examination of individual markets shows that the forecast coefficients are randomly distributed, when all the markets are combined, the forecast ability appears to be nonrandom due to dependence among traders. A similar analysis is conducted for the frozen pork bellies futures markets by Leuthold et al. (1994) employing the same type of data, that is, end-of-day positions by traders, as Hartzmark (1991). However, unlike Hartzmark (1991), Leuthold (1994) finds that select traders can profitably forecast prices. In similar vein, Wang (2001) examines whether trader-position-based sentiment index, built from weekly COT positioning data, help forecast future prices in six major agricultural markets. The author shows that while the relation between speculator sentiment and futures return is positive, the relation between hedger sentiment and futures return is negative. Additionally, Wang (2004) studies the relation between currency futures returns and net position of speculators and hedgers in currency futures markets by means of constructing a sentiment index for each trader type. The empirical results indicate that while speculator sentiment is positively related to futures returns, hedger sentiment is negatively correlated to currency futures returns. On the other hand, in an attempt to predict the direction of natural gas spot price movements using weekly trader positions from the COT report, Buchanan et al. (2001) finds that the position of speculators provide valuable information for predicting the direction and magnitude of price changes.

Sanders et al. (2004) examine the information contained in the COT report for energy futures markets, specifically, crude oil, gasoline, heating oil, and natural gas futures. The authors evaluate whether the position of traders relate to futures prices and subsequent price movements by means of Granger causality test. The results pertaining to the lead–lag relationship show that neither speculator nor hedger positions are useful in predicting returns. In fact, it is shown that it is the returns that lead positions of traders. In particular, while large commercial traders reduce their net long positions in response to price increases, large non-commercial traders increase their positions. Furthermore, Sanders et al. (2009) investigate the lead–lag dynamics between trader's positions and returns in 10 agricultural futures markets. Using a sentiment index, similar to that of Wang (2001), for each market and trader classification, the authors, in general, conclude that trader's positions, especially non-commercial and non-reporting, do not lead returns. However, they find some weak evidence of commercial positions to lead returns only in a few specific markets.

3. The Commitment of Traders report and position indicators

3.1. The Commitment of Traders report

The CFTC gathers daily detailed information on the positions of traders in both futures and futures-and-options combined. The COT report, which is released every Friday at 3:30 pm ES T, offers a subset of this detailed data to the public by providing a breakdown of each Tuesday's open interest for markets in which 20 or more traders hold positions equal to or above the reporting levels established by the CFTC. In futures and/or option markets, open interest is defined as the total number of contracts entered into but not yet offset by a transaction, delivery, or exercise. The COT report, in particular, includes the open interest of non-commercial, commercial, and non-reporting traders. Furthermore, the open interest, for each type of trader, is divided into long and short positions. Additionally, spreading, which measures the extent of non-commercial traders holding equal long and short futures positions, is also provided by the report. Sanders et al. (2004) provides the following relation to explain how the market's total open interest is disaggregated:

$$\underbrace{\overbrace{[NCL+NCS+2(NCSP)]}^{\text{Noncommercial}}+\overbrace{[CL+CS]}^{\text{Commercial}}}_{\text{Reporting}}+\underbrace{[NRL+NRS]}_{\text{Nonreporting}}=2(TOI) \quad (1)$$

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