



## The “Necessary Evil” in Chinese Commodity Markets

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*The paper investigates the impact of enormous capital inflows into commodity futures markets in China. Mimicking the positions of both passive long and systematic long-short speculators, the study finds increased speculation does not give rise to higher volatilities and co-movements, nor distorts the market’s association with economic fundamentals. Moreover, long-short speculators who trade on commodity fundamental information contribute positively to price discovery by reducing the broad market volatility and cross-correlation with stocks. Overall, intensified speculation did not have an adverse impact on the broad Chinese commodity futures market.*

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### Introduction

From a “market darling” to an “unwanted child,” the global commodity futures market has seen dramatic swings since the beginning of the 21st century. Enormous capital inflows pushed prices to all-time-highs in 2008, followed by a steep sell-off during the global financial crisis. In 2014, commodity price benchmarks collapsed as investment banks exited from commodity businesses. While the investment world readied for the return of commodities in 2019, the COVID-19 pandemic sent commodity prices into the ground (see the BCOM and SPGSCIP indices in Figure 1 on the next page).

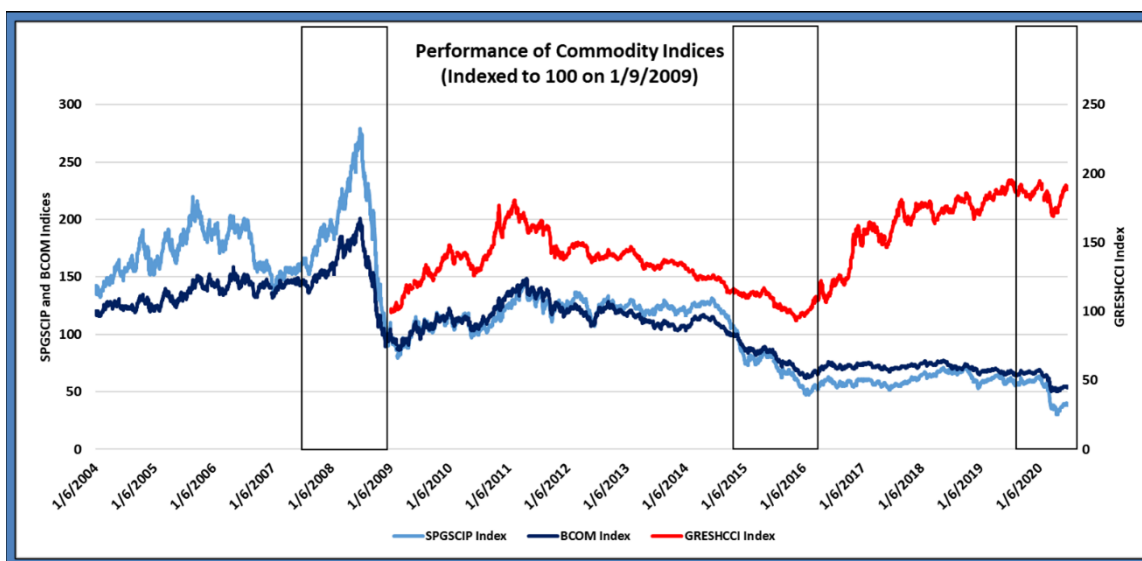
The dramatic rise and fall of commodity prices over the past decades stirred up intense academic debate around the impact of futures speculation on commodity prices and the economic function of commodity markets. The mainstream media went as far as calling commodity speculators “evil” (*The Economist*, 2010), claimed that speculation “kills people” (*Forbes*, 2011) and has made the “markets impossible to trade” (*Reuters*, 2018).

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Figure 1



Source of Data: The Bloomberg.

Note: The SPGSCIP Index is the S&P GSCI Excess Return Index; the BCOM is the Bloomberg Commodity Excess Return Index; and the GRESHCCI Index is the Caixin Gresham China Commodity Long-Only Index.

While the West ponders the fate of commodity futures as an asset class, a new commodities market has quietly emerged from a seemingly unsusceptible place in the East (see GRESHCCI in Figure 1). Fueled by the enormous growth in trading volume and the colossal demand for physicals, Chinese commodity futures have become increasingly influential. Unlike developed markets, China’s commodity futures market is: i) dominated by retail investors; ii) heavily influenced by the state; and iii) highly speculative (Fan and Zhang, 2020). This paper investigates the impact of a “speculative mania” (Sanderson, 2016; Gu, 2016) in Chinese commodity futures since 2004. The findings shed light on the impact of speculation on: (1) the broad commodity market volatility; (2) commodity price co-movements; (3) correlations with traditional assets; and (4) linkages with the macroeconomy in China.

### Why the Paper’s Research Questions are Important

The research questions are important for two main reasons. First, the dramatic uptake in Chinese commodity futures trading raised concerns about the impact of speculative capital flow on the functioning of commodity markets in China. To provide some context, the aggregate trading volume in China is more than 200 times larger than open interest compared to just over 20 times in North America.<sup>1</sup> However, the complexity of Chinese commodity markets is poorly understood in the literature. This study incorporates the unique liquidity patterns on futures curves (as outlined in Fan and Zhang (2020)), and separately analyzes the roles of passive long-only and systematic long-short speculators in a broad sample of commodities across all sectors. Furthermore, in light of the recent effort on easing market access, this study aids in the development of the regulatory framework that will accommodate future investors outside of China.



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Second, the literature on commodity financialization is predominately based on developed markets. This debate continues to date, with some studies arguing speculation provides liquidity, decreases the risk premium, cost of hedging and market volatility in the long term (Kim, 2015; Brunetti *et al.*, 2016), while other studies criticize speculation for increasing volatility, correlations with traditional assets, and causing price bubbles (Tang and Xiong, 2012; Cheng *et al.*, 2015). Therefore, this paper offers fresh insights into the role of speculators from an emerging commodities market that is segmented from the U.S. due to barriers-to-entry.

## Data

Futures price, volume and open interest are sourced from Datastream International. The sample consists of 30 commodities traded on the Dalian (DCE), Shanghai (SHFE) and Zhengzhou (ZCE) exchanges, spanning from 2004 to 2017. Financial variables include CSI300, Shanghai, and Shenzhen composite stock indices, the Barclays China Aggregate Bond Index, and the 1-year and 10-year Chinese government bond yields. For Chinese macroeconomic variables, the study employs the GDP growth rate, Economic Climate Index (ECI), Consumer Price Index (CPI), Producer Price Index (PPI) and RMB Effective Exchange Rate Index



(REER). Financial and macroeconomic variables are obtained from China’s National Bureau of Statistics, Bank for International Settlements, Bloomberg and Wind.

## Methodology

Investors are assumed to hold the  $m$ th (where  $m = 1, 2, 3, 4$ ) nearest contracts until the last trading day before the front contract enters the delivery month. As highlighted by Fan and Zhang (2020), the study employs the third nearest contracts to analyze speculative activities, because front contracts only account for a small fraction of the total volume in China. Due to the absence of trader positions data (e.g., CFTC Commitments of Traders reports), the speculation ratio (i.e., volume/open interest) is utilized to measure the speculative intensity in the Chinese markets (See Garcia *et al.* (1986)).

To measure the speculative pressure of systematic long-short investors, the authors mimic the trading positions of various well-established styles including momentum (Miffre and Rallis, 2007), term structure (Gorton *et al.*, 2013), and hedging pressure (Basu and Miffre, 2013). Following Miffre and Brooks (2013), the study conducts Granger-causality tests to investigate whether increased speculation (both passive-long and long-short) has led to increases in market volatility, inter-commodity co-movements and cross-correlations.

## Key Results

The authors conclude that the increased presence of speculators in commodity futures markets in China did not give rise to volatility. While passive speculative positions in twenty of the most actively traded commodities do not elevate the volatility of the broad market or sectors, systematic long-short speculators who trade on roll-yields and hedging pressure exhibit a tendency to decrease the broad market and sector volatilities (Kim, 2015; Brunetti *et al.*, 2016). The volatility reductions are more pronounced among energies and metals.

Furthermore, the study finds that increased speculation did not cause individual commodity futures markets to become more correlated. Long-only and long-short speculators who follow trends do not exhibit any significant causal effects on market-wide or sector-specific co-movements. In fact, systematic speculators who trade on hedging pressure reduce the co-movements among grains. Janzen, Smith, and Carter (2017) posit financial speculation causes excessive commodity price co-movements, driving prices away from rational expectations (see also Le Pen and Sévi, (2018)). In this paper, the authors fail to find conclusive evidence indicating that passive long or systematic long-short speculators played a role in affecting commodity price co-movements in China.

Meanwhile, increased speculative pressure did not elevate the broad commodities market’s correlation with traditional assets in China. Tang and Xiong (2012) argue the large inflow of financial capital to the long side of commodity futures markets likely increases the risk-sharing function of the commodities market by integrating the previously segmented commodity markets with outside financial markets. The finding of this study suggests that the increased presence of speculators did not affect the risk-sharing function of commodity markets in China on an aggregate level. This can be explained in part by the absence of commodity investment vehicles readily available to investors. In fact, systematic long-short



speculators who were sophisticated enough to exploit mispriced commodity futures using fundamentals such as scarcity (i.e., roll-yield or basis) and hedging pressure signals tend to reduce cross-market correlations.

Finally, the authors point out that evidence indicating speculation distorts the broad commodities market’s link with the Chinese macroeconomy is weak. Consistent with U.S. findings (Gorton and Rouwenhorst, 2006), the broad commodity markets in China are related to domestic economic growth, inflation and the RMB. The study finds that long-only speculators exhibit the tendency to decrease the broad market’s correlations with GDP and ECI (Economic Climate Index). Furthermore, speculators who trade on commodity fundamentals tend to reduce the market’s correlation with the ECI, suggesting that speculative activities may have caused prices to deviate from economic fundamentals. On the other hand, trend-followers tend to intensify the commodities market’s correlation with the RMB exchange rate. However, these findings are weak statistically.

## Conclusion

In summary, this article examines the impact of the increased speculation on Chinese commodity futures markets. Changes in the speculative pressure of both passive long-only and systematic long-short traders are captured. The increased presence of speculators in China did not lead to higher market volatility, nor elevate commodity co-movements and cross-market correlations, or distort the market’s link with the macroeconomy. Long-short systematic speculators likely played a role in stabilizing the broad market volatility and reducing the cross-correlations with stocks. Thus, the authors conclude that speculators are a necessary “evil” in Chinese commodity futures.

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## Endnote

1 The data on the American markets are from the U.S. Futures Industry Association (FIA): <https://fia.org/articles/fia-releases-annual-trading-statistics-showing-record-etd-volume-2018>; and the data on the Chinese markets are obtained from the China Futures Association: [http://www.cfachina.org/yjyjb/hysj/ydjy/201901/t20190102\\_2636927.html](http://www.cfachina.org/yjyjb/hysj/ydjy/201901/t20190102_2636927.html).

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### Keywords

China, commodity futures, speculators, volatility, co-movement, correlation.

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