

Hedging Pressure and Commodity Option Prices

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Literature

A larger number of papers about traders' position and commodity futures returns (e.g., Rouwenhorst and Kang, 2012; Cheng, Kirilenko, and Xiong, 2015; Kang, Rouwenhorst, and Tang, 2020).

However, how traders' positions affect commodity option returns remains unclear.

- Lack of theory
- Data on option traders' position
- Complexity of option trading strategy
- Hedge vs. speculation

In a nutshell

This paper proposes a new measure of commodity option hedging pressure (HPO): hedgers' net short option positions, scaled by open interest.

- 1) HPO predicts option returns and implied volatility smile.
 - **Hedgers' have net short option exposure.** When hedgers have a higher hedging demand, speculators get more compensations by providing liquidity.
 - Analogous to hedging pressure in futures (HPF).
- 2) The long-short option portfolio based on the HPO delivers an annualized delta-hedged return of **133.12%** ($2.56\% \times 52$) and Sharpe ratio of **1.298** ($0.18 \times \sqrt{52}$).
- 3) Several helpful robustness checks.

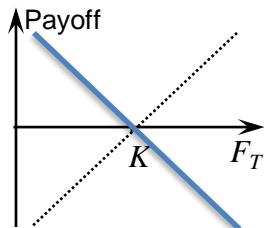
Motivate the HPO

The literature has accepted that hedgers have natural net short position in the commodity futures market. Therefore, it is intuitive that HPF predicts futures returns.

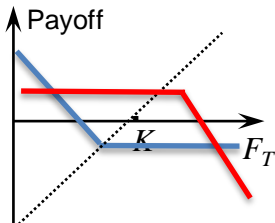
We need more convincing evidence that hedgers also have natural short positions in the commodity options market.

- Companies' 10-Q/10-K reports
- Percentage of hedgers' option positions from the Disaggregate Commitment of Traders (DCOT) reports

Motivate the HPO



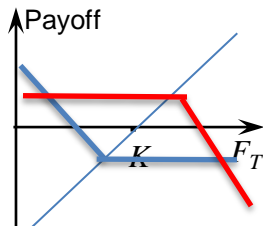
Futures Hedge: Producers have natural long physical positions, and they short **futures** to hedge.
→ **HPF**



Options Hedge: Producers have natural long physical positions, and they long **OTM puts** and short **OTM calls** to hedge.
→ **HPO**

Very different hedging outcome.

Motivate the HPO



Options Hedge: Suppose hedgers have net short futures positions, then speculators take large long futures positions. They will long **OTM puts** and short **OTM calls** to hedge. → **Not HPO**

This hedge is well justified because 1) options are settled in futures contracts (and cash); 2) stochastic volatility in the commodity futures market (Trolle and Schwartz, 2010).

Other options hedge such as calendar spreads.

Are commodity options mostly used to hedge the spot market (HPO) or the futures market?

Suggestions on the options data

Commodity futures options are American style.

- Convert American prices to European.
- Exclude options with prices below their intrinsic value.
- Exclude options with prices below \$0.05, for example.

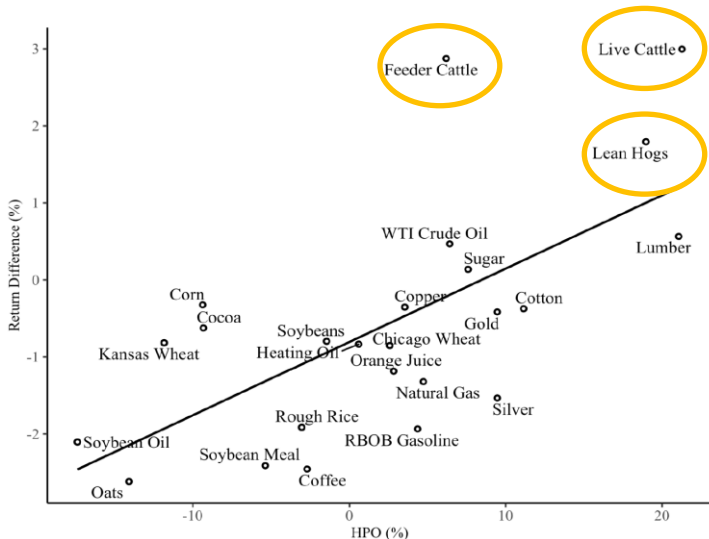
I prefer delta (Δ) to be calculated by implied volatility instead of realized volatility.

More appropriate to consider daily rebalanced delta-hedging instead of weekly, especially when futures prices exhibit frequent jumps.

Provide summary statistics of option contracts including open interest and trading volume across moneyness, if available.

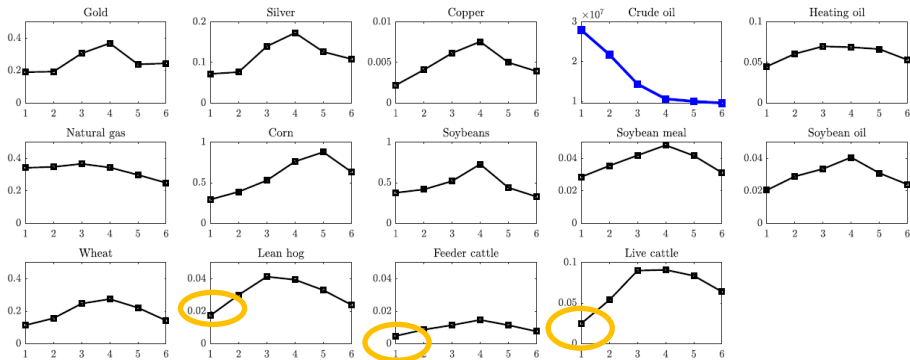
Robustness check (outliers)

Fig 2: HPO and the long-short portfolio return



Robustness check (outliers)

Commodity option trading volume, relative to the volume of crude oil.



Dew-Becker, Giglio, and Kelly (2021)

Other comments

You can also check raw option returns. Negative delta-hedged returns is consistent with negative volatility risk premium, which measures investors' willingness to hedge the volatility risk.

Better proxy for price pressure than the change in HPO? Speculators can also actively demand options, in the same direction as hedgers.

Margin requirements when trading commodity options.

[CME's margin requirements.](#)

May include the lagged dependent variable in Table 8.

Conclusion

Interesting paper in a fascinating research area.

Great potentials.

Main comments

- More evidence to motivate the key measure HPO.
- Strengthen the dataset and some of main results.