Discussion "*Assessing the Financialisation Hypothesis*" by Bassam Fattouh and Lavan Mahadeva

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The aim of the paper

Does financialisation impact oil prices?

- **Very important and timely question** (Hamilton and Wu, 2012; Kilian and Murphy, 2010, Singleton, 2011)

- **Original approach**:
  - Calibrated macro model of the oil market (2 periods)
  - Includes physical and financial speculators
  - Includes spot and future markets
  - Financialisation is defined as shifts in preferences or constraints of financial speculators

Main results

The paper finds no support for the financialisation hypothesis

1. *Does financialisation impact oil prices?* **No**, financialisation cannot shift spot prices, only 'twist' the slope between actual and expected spot prices.

2. *Does financialisation interfere with the price discovery process?* **No**, financialisation raises inventories and lower spreads, in contrast to the definition of French (1986). This is in line with Acharya, Lochstoer and Ramadorai (2011).

3. *Does financialisation lowers consumer welfare?* **No**, financialisation has a beneficial effect on consumer welfare.

Four comments

This is quite an ambitious (and complex) model

1. The link between speculation and the convenience yield.
2. Aggregate demand for oil.
3. Calibration.
4. Welfare analysis.

1. The link between speculation and the convenience yield

The general problem of financial speculators in an infinite-horizon model

- $\max_{C_t^f, B_t^f, X_t} E_0 \sum_{t=0}^{\infty} \beta^t u(C_t^f)$,

$$\begin{aligned} s.t.\ C_t^f + B_t^f &\leq R_{t-1} B_t^f + (F_{t-1} - S_{t-1}) X_{t-1}^f, \\ B_0^f &= B_0 > 0. \end{aligned}$$

- With complete markets, the initial wealth does not affect the equilibrium solution.

- The equilibrium is given by

$$F_t = E_t \left[\frac{\beta u'(C_{t+1}^f)}{u'(C_t^f)} S_{t+1} \right] R_t.$$

- At time t, they get long (short) X_t^f future contracts and short (long) X_{t-1}^f spot contracts.

- $\max_{C_t^f, B_t^f, X_t} E_0 \sum_{t=0}^{\infty} \beta^t u(C_t^p)$,

$$s.t.\ C_t^p + B_t^p + S_t(O_t - O_{t-1}) + \kappa O_t \leq R_{t-1} B_t^p + (F_{t-1} - S_{t-1}) X_{t-1}^p,$$

where κO_t are the physical storage costs.

- The equilibrium is given by the **no-arbitrage condition**

$$\left.\begin{aligned} F_t &= E_t\left[\frac{\beta u'(C_{t+1}^p)}{u'(C_t^p)} S_{t+1}\right] R_t, \\ S_t + \kappa &= E_t\left[\frac{\beta u'(C_{t+1}^p)}{u'(C_t^p)} S_{t+1}\right] \end{aligned}\right\} F_t = (S_t + \kappa) R_t, \qquad (1)$$

- At time t, they get long (short) X_t^p future contracts and short (long) $\left(X_{t-1}^p + O_{t-1} - O_t\right)$ spot contracts.

1. The link between speculation and the convenience yield

In this paper, there are "wedges" to generate the convenience yield

- Some ad-hoc variables modify the spreads for both types of speculators:

$$
\begin{aligned}
c_{q1,1} &= \bar{c}_{q1} + \varrho \Pr(P_1 > P^*), \\
c_{q2,1} &= \bar{c}_{q1} + \varrho \Pr(P_1 > P^*) - c_{g,1} + E_0 \log(R_{e,1}), \\
c_{g,1} &= \mu_{cg} + e_{cg,1}.
\end{aligned}
$$

- No references to previous literature (Brennan,1991; Fama and French, 1988; Gibson and Schwartz, 1990; Pindyck, 1994).

- No microeconomic foundations (Williams, 1987; Ramey, 1989; Litzenberger and Rabinowitz, 1995; Considine, 1997; Alquist and Kilian, 2010).

- This is worrying for welfare analysis

1. The link between speculation and the convenience yield

How robust are the results to all these assumptions?

- The *no-arbitrage condition* (1) may breaks down if stock-outs, no short-selling, or maximum capacity limits, as in Gustafson (1958) or Deaton and Laroque (1996). This is not the case in the paper.
- Consumers and producers cannot access the futures market (then, *why is there a futures market?*).
- Consumers and producers *cannot save* and *cannot store oil* (no intertemporal smoothing).

2. Aggregate oil demand

- Given oil demand by consumers in the paper (X_s) and by physical speculators (Q_s), the aggregate oil demand should be

$$D_s = X_s + Q_s, \ s = 0, 1.$$

- However, in the paper the aggregate demand is

$$D_s = X_s^{\varsigma} Q_s^{(1-2s)(1-\varsigma)}, \ s = 0, 1.$$

- **Why?**

3. Calibration

A more transparent calibration would be positive

- Which are the parameter values? A Table would be welcome!
- Which are the moments to match? Is the $\#moments > \#parameters$? How does the model perform in those extra moments?
- Model calibrated to pre-2003 data. Are results robust to alternative calibrations? (until 2012, for example)
- A better discussion of the sources would be nice

4. Welfare analysis

Is the model ready for welfare analysis?

- Why is the welfare (in consumption terms) C_ω?

$$C_\omega = \left(\frac{\Pi_{base}}{\Pi}\right)^{\frac{1}{1-\chi}} - 1$$

$$\Longrightarrow \Pi_{base} = \frac{(C_0)^{1-\chi} - 1}{1-\chi} + \beta E_0 \frac{(C_1)^{1-\chi} - 1}{1-\chi} = \Pi (1 + C_\omega)^{1-\chi}$$

- An interesting related question is: which would be the welfare *in absence* of physical and/or financial speculators?

Conclusions

- A policy (and academic) relevant paper. A nice blend of theory and simulations.
- It seems to support in theory the results of several empirical studies about speculation in oil markets.
- However, it is not clear the robustness of the results to the particular assumptions about market participation and the convenience yield.