Discussion of "Sluggish Price Reaction to Salient and Repeated Macroeconomic Releases" by Jian Feng, Shiyang Huang, Jiacui Li and Yang Song

Calvin Dun Jia

HSBC Business School

Peking University

2022 SFS Cavalcade Asia-Pacific 2022

(VIRTUAL CONFERENCE)

December 16, 2022

Brief Summary

- punchline: documents the stock return predictability of the disaggregated goods price series in the PPI/CPI basket

Brief Summary

- punchline: documents the stock return predictability of the disaggregated goods price series in the PPI/CPI basket
- general contribution: investors' attention *may not always* deliver efficient incorporation of new information into asset prices
  - why new and interesting? intensity of investors' (in)attention matters for price reaction to new information (Hirshleifer et al., 2009; Da et al., 2011; Ben-Rephael et al., 2021)

Brief Summary

- punchline: documents the stock return predictability of the disaggregated goods price series in the PPI/CPI basket
- general contribution: investors' attention *may not always* deliver efficient incorporation of new information into asset prices
  - why new and interesting? intensity of investors' (in)attention matters for price reaction to new information (Hirshleifer et al., 2009; Da et al., 2011; Ben-Rephael et al., 2021)
- return predictors: industry-specific factors, linear weighted combination of past disaggregated goods price series
- quantitatively important: a long-short strategy of the FF industry portfolios $\Rightarrow$ 1.2% of monthly *alpha* that is persistent
- key channel: the factor of disaggregated prices predicts the *profitability* of firms across industries

Brief Summary

- punchline: documents the stock return predictability of the disaggregated goods price series in the PPI/CPI basket
- general contribution: investors' attention *may not always* deliver efficient incorporation of new information into asset prices
  - why new and interesting? intensity of investors' (in)attention matters for price reaction to new information (Hirshleifer et al., 2009; Da et al., 2011; Ben-Rephael et al., 2021)
- return predictors: industry-specific factors, linear weighted combination of past disaggregated goods price series
- quantitatively important: a long-short strategy of the FF industry portfolios $\Rightarrow$ 1.2% of monthly *alpha* that is persistent
- key channel: the factor of disaggregated prices predicts the *profitability* of firms across industries
- "great work that expands our understanding of asset pricing implications of attention"

Roadmap for the Discussion

1. attention, inattention and the attention allocation
2. time-varying return predictability
3. price weights of the predictor factor
4. exposure to inflation risk

Comment 1. Attention Allocation

- a solid contribution if investors who paid attention are under-reacting to salient information, e.g. food prices, manufactured goods, electronic equipments prices etc.

* Question 1: whether or not attention is paid to the disaggregated prices along with the header PPI/CPI?

- clearly the monthly header PPI/CPI is attention absorbing, but less clear for whether investors' attention is high regarding the disaggregate price series

* Question 2: if *joint* attention is paid, do we see equal or varied degrees of attention paid to aggregate vs. disaggregate price series?

- this matters because varied attention is supposed to predicting varied degrees of price discovery or return predictability

Benefit-side Theories on Attention Allocation

1. models of rational inattention and rational attention allocation (Sims, 2003; Kacperczyk, Nieuwerburgh and Veldkamp, 2016)

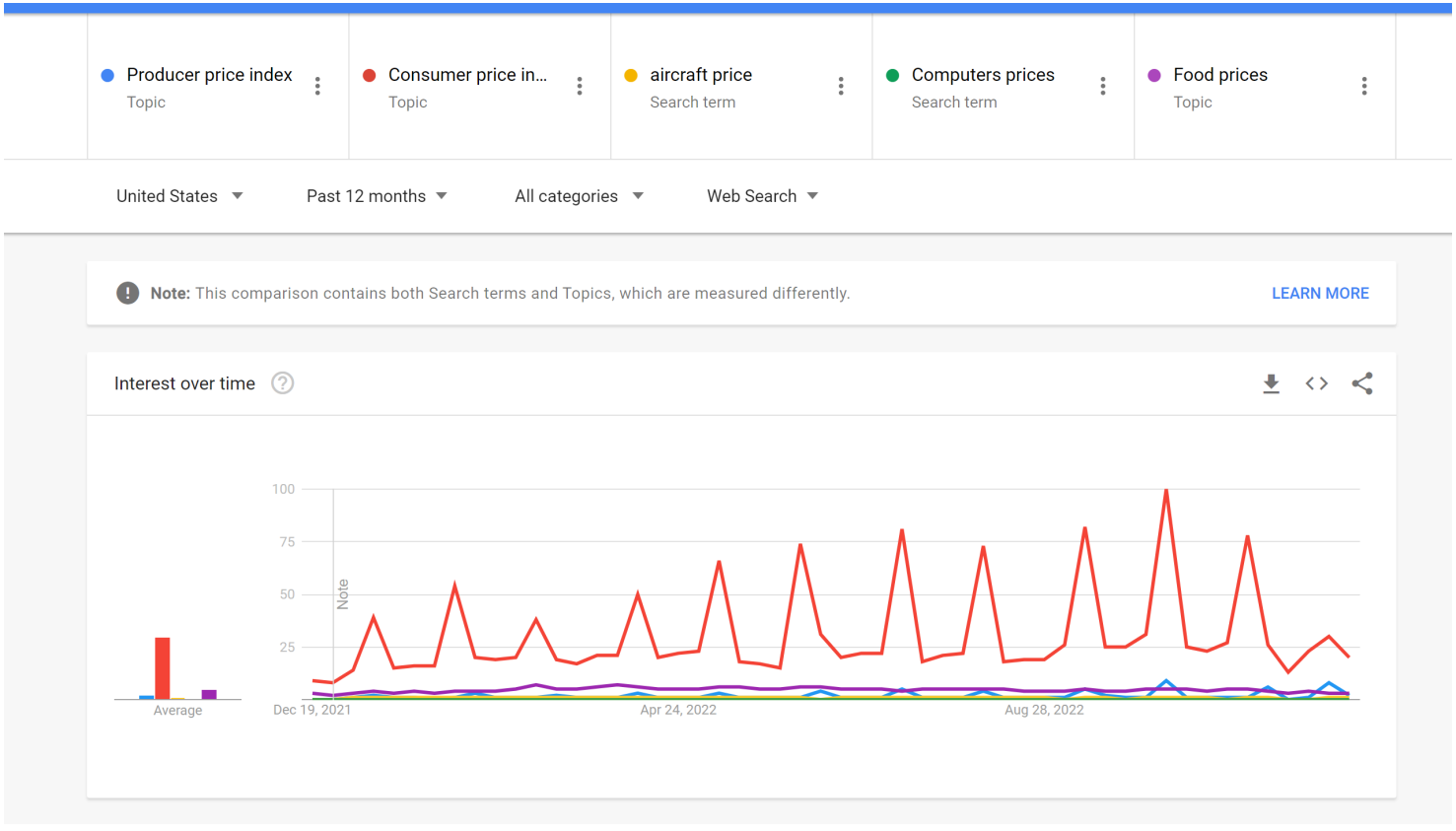
- ranking of variables of "interest/attention allocation" by their importance
- but subject to limited information processing capacity, i.e. unable to learn everything at the same time

* so, say header PPI/CPI could matter more than disaggregated series for asset allocation, e.g., more related to aggregate risk $\Rightarrow$ relatively less attention paid to disaggregated series
* if lower attention is paid to disaggregated series, slow price discovery and persistent return predictability?

Cost-side Theories on Attention Allocation

2. theory (plus evidence) of costly information processing (Engelberg, 2009)
   - hard information: quantitative information with low processing cost
   - soft information: qualitative information with high processing cost
   - qualitative information has greater predictability for returns at longer horizons, e.g, frictions in information processing generate price drift
   * on the cost-side, processing disaggregated prices for insights still incur "relatively greater cost" than the header PPI/CPI data? even if processing cost is low on average

Google Trends: CPI vs. Subcategories



Note: Disaggregated categories correspond to FF industry portfolio code (Food = 2, Aircraft/Aero = 24, Computers = 35)

1. CPI and PPI attract much more attention than disaggregated prices
2. greater interest in food prices than PPI on average

Comment 2. Potential Time-varying Return Predictability

- to closely link to the attention framework, may potentially exploit the time-variation changes in *data delivery cost*
- "BLS began operating its Web site, www.bls.gov in 1995—an initial set of a few dozen Web pages was posted in January 1995, followed by the launch of the full-fledged Web site in conjunction with Labor Day in September of that year." (`https://www.bls.gov/bls/10years.htm`)

  * before 1995, relying on post or newspaper delivery, investors facing larger info processing cost $\Rightarrow$ do we see a large alpha and stronger predictability?

  * since 1995, given digital delivery of disaggregate data and for processing raw data, we should see lowered info cost $\Rightarrow$ any sign for weakened return predictability in more recent years

- a prior is that price react more responsively to information release in a world of big data with the mobile internet and faster computers?

Comment 3. Factor Weights on Disaggregated Prices

- construction of the predicting factor: partial least squares (PLS) that extract a linear combination of disaggregated PPI items that maximizes the covariance with industry portfolio returns

$$WPPI_{I,t+1} = E^{PLS}(R_{I,t+2}|I_t) = \hat{a}_I + \hat{w}_I' I_t$$

- where $I_t = \{I_{1,t}, I_{2,t}, ..., I_{k,t}\}$ of potential k disaggregated inflation series
- source of long-short seeking for α strategy based on lagged $WPPI$:
  - given the common set of prices, the magic is derived from the *heterogeneity* in the linear weights of disaggregate price series of $\hat{w}_I$ for each industry portfolio

Comment 3. Factor Weights on Disaggregated Prices

- better show the weights for the L and the S industry portfolio across k inflation series
- also, more structural interpretation can be offered here to shed light on why *WPPI* is a predicting factor
  - if more positive coefficients for L portfolio, some prices increase are good for the upstream industries as revenue boosts
  - if more negative coefficients for S portfolio, prices increases are therefore bad for downstream industries for being cost rise of those intermediary inputs
  - also interesting to look at time-variation of these coefficients over time because some price series have a very long sample since year 1929, 1933, 1947 and 1969

Comment 4. Ruling out the Inflation Risk Story

1. measurement issue. measures of the inflation shocks are based on a VAR, which is often subject to the problem of identifying the structural shocks and the model misspecification

- alternative measure 1: inflation-protected securities (TIPS) yield relative to the nominal yield for the same maturity, i.e. expected inflation
- alternative measure 2: survey-based quarterly inflation expectation and focus on the forecast error of inflation, perhaps for CPI forecast only

SPF Forecast on Inflation Rates

Data Files - Survey of Professional Forecasters (CPI)

CPI Inflation Rate (CPI)

14 Nov '22

Annualized percentage points. Seasonally adjusted. Based on quarterly average index level.

- **Individual Responses**
- **Mean Responses**
- **Median Responses**
- **Measures of Cross-Sectional Forecast Dispersion**
- **Documentation**

Forecast Evaluation Tools

- **Real-time data for this variable**
- **SPF forecast error statistics** (PDF version)
- **SPF forecast error statistics** (TXT version)
- **Data for error statistics** (projections and realizations)

Comment 4. Ruling out the Inflation Risk Story

2. 48 FF Industry Portfolio contains financial sector stocks, e.g. 44 = Banks; 45 = Insurance; 46 = Real Estate; 47 = Trading

- intuitively, they are less likely load on PPI/CPI goods prices, at least directly
- if coefficients on these industry returns on PPI/CPI are low, *WPPI* factor may have low R^2 from estimation or insignificant price coefficients, are they in the L portfolios?
- L-S alpha may still reflect different degrees of risk exposure to the inflation risk? is it also due to natural wedge of financial vs. non-financial stock portfolios?

Comment 4. Ruling out the Inflation Risk Story

3. by construction, aggregate inflation rate is the weighted average of sectoral prices

- WPPI larger coefficients on certain disaggregated inflation rates, which may more or less comove with the aggregate inflation

- some placebo test: sort industry portfolio by the PPI/CPI basket weights that correspond to the industry portfolio's largest 3 WPPI's price coefficient categories, i.e. can be another measure of risk exposure to aggregate inflation

Other Details

- perhaps need more work/citation on establishing why disaggregated prices and revenue/profitability are fundamentally/economically linked, for example,
  - Luo and Villar (2022): sector prices responding to network changes
  - Ferrante, Graves and Iacoviello (2022), price stickiness at the sector level propagate impacts of real demand shocks that affect firms' revenue
- placebo test: artificial series $WPPI = Ret_{l,t+1} + \epsilon_{l,t}$, why not $Ret_{l,t+2} + \epsilon_{l,t}$ to be consistent with the horizon of predictor factor $t + 2$?

Other Details

- perhaps need more work/citation on establishing why disaggregated prices and revenue/profitability are fundamentally/economically linked, for example,
  - Luo and Villar (2022): sector prices responding to network changes
  - Ferrante, Graves and Iacoviello (2022), price stickiness at the sector level propagate impacts of real demand shocks that affect firms' revenue
- placebo test: artificial series $WPPI = Ret_{l,t+1} + \epsilon_{l,t}$, why not $Ret_{l,t+2} + \epsilon_{l,t}$ to be consistent with the horizon of predictor factor $t + 2$?
- a superb paper with solid and clear contributions and rich implications