

Product Market Competition and the Profitability Premium, by Yao Deng

Discussion by Andrew Detzel¹

¹University of Denver

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Main question and answers

- What explains the profitability premium?

Empirics: “...[gross] profitability predicts returns, but only among firms in competitive industries.”

Theory: “...more profitable firms derive most of their value from assets in place, their returns in the model are relatively less exposed to IST shocks, which carry a negative price of risk, than the returns of less profitable firms.”

“Market power reduces a firm’s investment response to [investment-specific technology] shocks and thus lowers risk exposure.”

- Very interesting question
 - Why should firms with high profitability have high risk/risk premia?
 - I pose this to my investments class.

- Interesting new perspective on profitability premium
- Very impressive for a PhD student (by herself!)
- Already makes a significant contribution
- **My suggestions:** Packaging and limitations I would try very hard to push out before job market/journal submission
 - Not sure the question *asked* is the question *answered*
 - Possibly a new profitability-related effect as opposed to explanation for “profitability premium”
 - Differentiate/position theory/empirical work more relative to profitability literature
 - Questions about model interpretation/mapping onto empirics
 - Questions about how story reconciles with prior theory/evidence
 - Some missing empirical results?

When empiricists think about “profitability premium” ...

- What comes to mind first is Hou, Xue, Zhang (2015) q -theory (or Fama-French/Novy-Marx clean-surplus present-value identity):

$$\max_{I_0} E(SDF_1 \cdot ROA_1) \cdot A_1 - I_0 - \frac{c}{2} (I_0/A_0)^2 A_0,$$

- I would *add* discussion of results in context of this class of theories.
- Given high expected return, firms will only invest a lot in high- $E(ROA_1)$ projects:

$$1 + c (I_0/A_0) = \frac{E(ROA_1)}{1 + E(r_1)}$$

- Can not separate profitability from *investment*
 - Do profitable firms in high-competition industries simply have low investment? (everyones' priors and consistent with market power lowering quantities produced) Or is there something more?
 - Investment appears perfectly correlated with IST state variable (Eq. 22)?

When empiricists think about “profitability premium” ...

$$1 + E(r_1) = \frac{E(ROA_1)}{1 + c(I_0/A_0)}$$

-suggests that if $E(r_1)$ are risk-based, firms with high (investment-adjusted) $E(ROA_1)$ are choose to be riskier.
- This paper’s intuition/story is more about **ex-post** profitability, which is not the same as expected profitability $E_0(ROA_1)$ (e.g., Detzel et al., *FM* 2019)

“Profitable firms earn significantly higher average stock returns than unprofitable firms...Product market competition drives down future profit opportunities...Profits in highly competitive markets are more likely to be competed away and more exposed to aggregate macroeconomic shocks.”

- Is this a new story about **ex-post** profitability or a deeper investigation about **expected** profitability?
 - $E(ROA_1)$ seems more in line with *PVGO*

- This paper tries to explain profitability premium, but does not model consumer problem/preferences

$$SDF_t = a - \gamma_{MKT} dB_{MKT,t} - \gamma_{IST} dB_{IST,t}$$

- Extreme SDF calibration $\gamma_{IST} = -0.7$, $\gamma_{MKT} = 2$

$$\begin{aligned} \Rightarrow \max SR^2 &= \frac{\text{Var}(SDF)}{E(SDF)} = 1.03 * (2^2 \cdot 1 + (-0.7)^2 \cdot 1) \\ &= 4.6!!! \end{aligned}$$

- Equity prem puzzle: Reasonably calibrated models can't make $SR^2 \geq .25$
- *Huge* market premium offset by large negative IST risk premium for unprofitable/low-competition firms \Rightarrow profitability premium.
- Can modeling consumer preferences (following Papanikolaou, 2011?) help see where these big numbers are coming from?

Which profitability premium?

- It is not clear that GP (or ROE/ROA) is the right/most interesting measure of profitability.
 - **Empirically:** GP (from 2013)
 - < OP (2015)
 - < cash profitability (Ball et al 2016) or FCFE (Lewellen and Resutek, RAST 2016)
 - **In model:** no labor (SG&A), no “fuel” (COGS), and no taxes, interest, or accruals
 - REVT = GP = OP = NI = Cash-based OP
 - *q-theory* suggests $E(ROA)$, possibly adjusted for investment
 - which is not subsumed by any one ex-post measure (e.g., Detzel et al)
- Ideally, would explain modern profitability measures, especially if model does not really say otherwise.

Which profitability premium?

- Concentrated industries could *mechanically* have lower theoretical profitability for a given level of GP.
 - E.g. Tech companies (low COGS/SG&A) tend to be concentrated (even if competitive).
 - E.g. Established consumer products (high COGS/SG&A) tend to be un-concentrated.
 - Both could have same profitability, but *GP* will be higher for former.
 - Same spread in GP across L and H competition portfolios yields <half the ROA spread in *H*-concentration industries as *L*-concentration

Further empirical questions

- Measure IST shocks with long-short portfolio:

$$R_t^{IMC} = \text{Return on investment goods producers}_t \\ - \text{Return on consumption goods producers.}$$

- Look at β_{IMC} 's across portfolios and perform GMM-SDF tests, which are equivalent to cross-sectional regressions of average returns on β s:

$$\bar{r}x_i = \hat{\beta}'\lambda.$$

- **But**, R_t^{IMC} should earn the IST risk premium.

- What is $E(R^{IMC})$?

- $r_t^{PROF} = \alpha + \beta_{MKT}MKT_t + \beta_{IMC}R_t^{IMC} + \epsilon_t$?

- Also, are investment good producers more/less likely to be concentrated?

Further empirical questions

- **Table A5 (FF5 model):** The profitability factor (RMW) does not price the profitability-sorted portfolios in high-concentration industries?
- RMW loadings are about the same for high-minus-low GP portfolios in high- and low-competition industries.
 - I though highly profitable firms should have relatively least (absolute) exposure to IST shocks in concentrated industries?
 - What then accounts for lack of variation in profitability-factor loadings across concentration portfolios?
 - To be on the safe side, I would also spell out why profitability factor should not price GP-sorted portfolios (conditional on competition) in your story

- Interesting new story about profitability premium
- Market power effects are timely with popular concentration literature and press
 - I was not aware that monopolistic firms' values less exposed to IST shocks. Indicates they capture more rents following technological improvements? Seems important
- Still some limitations that could be reduced, repackaging to be done, questions to explain.