Capital Budgeting, Uncertainty, and Misallocation by Charoenwong, Kimura, Kwan and Tan

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An Intriguing Paper

- New stylized facts from new data:
  1. planned investment capture important information
  2. investment plans are flexible
  3. deviation from plans are costly
- New model ingredients:
  1. costly information acquisition;
  2. costly deviation from investment plans.
- New intertemporal tradeoff:
  - acquiring better information ex ante versus deviating from investment plans ex post.

Comments

- Costs to deviate from plans.
- Capital adjustment costs, Euler Equation, and Q.
- Other comments.

Plan Adjustment Costs (1)

- Conceptually, what are such costs?
  - People like me make "new-year plan" every year, and soon revert it and plan it again next year.
  - Why are they material costs here?
  - "In practice, the adjustment costs may manifest through financing or organizational frictions which involve a large collection of agents coordinating to deviate from initial plans."
  - Capital adjustment costs create a wedge between internal versus external capital value (the Q). Plan adjustment costs create a wedge between planned vs. actual investment.
  - More concrete examples and detailed discussion needed.

Plan Adjustment Costs (2)

- Empirical foundation (equation (3))

$$\frac{\text{profits}}{\text{sales}}_{i,t+1} = \beta \log\left(1 + \left|\frac{i - i^P}{k}\right|\right) + \gamma i + \ldots$$

$\beta \approx -0.3$. (i should be i/k here?)

  - Major concern: picking up capital adjustment costs, which usually involves quadratic terms. Adding quadratic terms of i/k alleviates this concern.
  - In standard investment literature, denominators should be kept the same.
  - Biases from censored i^P: observed $i^P = 0$ when actual is negative. Bad-performing firms have more negative profits and negative investment at the same time. The latter leads to a larger deviation $\left|i - i^P\right|$, leading to a more negative β.

Plan Adjustment Costs (3)

- Welfare and policy implications:
  - It would also be great to check the welfare implications of the plan adjustment costs. i.e., contrasting the benchmark results with the counterfactual case in which such deviation is costless.

Capital Adjustment Costs, Euler Equation, and Q (1)

- To better connect the conventional literature, the authors can follow the standard procedure: add back capital adjustment costs, and derive and test the Euler equation.
  - The Euler equation in model will look like

$$\frac{i}{k} = \alpha_0 + \alpha_1 \underbrace{\frac{\partial J}{\partial k}}_{\text{marginal } Q} + \alpha_2 \frac{i^P}{k} + \alpha_3 \frac{\partial J}{\partial k^P}.$$

    In standard model without measurement error, $\alpha_2 = \alpha_3 = 0$.
  - This offers a straight-forward and model-related testable equation.

Capital Adjustment Costs, Euler Equation, and Q (2)

- In fact, stylized facts 1 and 2 are closely related to this Euler equation (eq (1) for example):

$$\frac{i}{k} = \alpha + \beta \frac{i^P}{k} + \gamma(\text{expected performance}) + \text{controls}$$

The authors intend to show that $\beta > 0$ meaning investment plans contain incremental information.

  - Expected TFP, sales, etc. are not the same as Q, which by definition is a summary statistics in traditional model.
  - More convincing: try a subset of public firms, using their market price of equity to derive Q.

Other Comments

- Censored regressors (i^P/k) can cause substantial biases, potential solution is MLE. See:
  Rigobon and Stoker (2007) Estimation with Censored Regressors: Basic Issues, *International Economic Review* Vol. 48, No. 4 (Nov., 2007), pp. 1441-1467.
  Rigobon and Stoker (2009) Bias From Censored Regressors, *Journal of Business & Economic Statistics* Vol. 27, No. 3 (July 2009), pp. 340-353.
- Why the firm level fixed effects are not included?
- Both the investment and the individual firm subscript are denoted by i, this affects readability.
- Utility cost for the manager is simply

$$\mathscr{C}(\sigma) = \xi\left(\frac{1}{\mathbb{V}} - \left(\frac{1}{\sigma_u^2} + \frac{1}{\sigma_\varepsilon^2}\right)\right) = \xi\left(\frac{1}{\varsigma^2} - \frac{1}{\sigma_\varepsilon^2}\right) = \frac{\xi}{\sigma^2}.$$

Other Comments

- Stylized facts 1-3 uses various forms of i/k: level, log, log(1+). This may give the reviewer a sneaky impression.
- Page 12, paragraph 2. There is no Panel B in Table II.
- Page 13, last paragraph: "This counterfactual is plausible..." seems to be ""This hypothesis is plausible..." because one cannot know it is a counterfactual before you refute it.
- It would be more clear if the timeline of the model is plotted.

Summary

- Very interesting and important paper with intriguing facts and counterfactual experiments.
- More integration and contrast with traditional investment models.
- Best luck!