Low interest rates, market power, and productivity growth
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Overview

- In recent years: significant decline in real interest rates
- Source of concern?
  - Excessive risk-taking?
  - Misallocation of resources?
- This paper:
  - Very low interest rates stifle competition.
  - Ultimately, low productivity growth (i.e., secular stagnation).
  - Theory and empirical evidence.
Theory

In principle: low interest rates have mixed effects.

- Pro-competitive: make it easier for follower to catch up.
- Anti-competitive: make it easier for leader to sustain leadership.
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- This paper: for \( r \) low enough, anti-competitive effect.
Theory: main ingredients

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- Given \( R&D \) investment by leader and follower \((\eta_s, \eta_{-s})\) in interval \( \Delta \), productivity gap:
  - Increases by one step with probability \( \Delta \cdot \eta_s \).
  - Decreases by one step with probability \( \Delta \cdot (\eta_{-s} + \kappa) \).
  - Remains constant otherwise.
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- **Assumption:** flow payoffs negative if both firms invest.
**Result #1**: leader invests in more states than follower, $n \geq k$.

- Intuition: suppose $k > n$, leadership is short-lived.
Theory: main results (steady state)

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- **Corollary**: competitive and monopolistic region.

Suppose $(n_k)_0$ and $(n_k)_0$

- **Flow**: payoffs negative!
  - Ultimately, all industries monopolistic, decline in productivity growth!

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Theory: main results (steady state)

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- **Corollary**: competitive and monopolistic region.

- **Main result**: $\lim_{r \to 0} k = \infty$ and $\lim_{r \to 0} (n - k) = \infty$.
  - Both $k \to \infty$ and $n \to \infty$
  - Two possibilities: (i) $(n - k) \to \infty$ or (ii) $(n - k) \to 0$
  - Suppose $(n - k) \to 0$
    - Leader and follower invest in all states.
    - Economy is always in the competitive region.
    - Flow payoffs negative!

![Diagram showing competitive and monopolistic regions](image-url)
Theory: main results (steady state)

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![Diagram showing competitive and monopolistic regions with transition rates](image)

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- Theory’s main prediction: at low levels of $r$...
  - ...a decline in $r$ should increase the relative valuation of leaders vs. followers
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- Regress firm stock return on 10-year treasury yield:

$$R_{i,j,t} = \alpha_{j,t} + \beta_0 D_{i,j,t-1} + \beta_1 D_{i,j,t-1} \cdot \Delta i_{t} + \beta_2 D_{i,j,t-1} \cdot i_{t-1} + \beta_3 D_{i,j,t-1} \cdot \Delta i_{t} \cdot i_{t-1} + \gamma X_{i,j,t} + \varepsilon_{i,j,t}$$

where $D_{i,j}$ is an “industry leader” dummy
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- Theoretical predictions:
  - $\beta_1 < 0$
  - $\beta_3 > 0$
  - Confirmed in their data (post 1980)
General reaction

- Very rich (and long!) paper.
- Provocative message, elegant model, and suggestive empirics.
- My discussion: general comments.
On the theory

- After all is said and done, main question lingers.
  - Why does anticompetitive effect dominate?
    - Strengthen intuition, concentrate discussion in one section.
    - Horizon of leader vs. horizon of follower
  - Formally, what is the role of $\kappa$?

- Low interest rates improve performance of leader.
- But low interest rates could also allow development of new industries.
  - e.g. horse-carriage industry vs. development of combustion engine!
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- In model, number of industries (varieties) fixed.
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BOOKS

Commentary: Stores like Barnes & Noble used to be the bad guys, but now I'm nostalgic for them

The shuttering of once-mighty video-rental chain Blockbuster, store after store, in the face of competition from Netflix and other streaming services prompted similar twinges.
On the theory

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Key takeaway of model: decline in $r$ could have anticompetitive effects.
On the empirics

Basic mechanism of the theory

- Decline in interest rates
- Industry monopolistic: leader increases investment relative to follower
- Decline in productivity growth

Empirical exercise: Decline of interest rates on relative return of leaders

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On the empirics

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2. Industry monopolistic: leader increases investment relative to follower
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Empirical exercise:
Decline of interest rates on relative return of leaders
On the empirics

- Basic mechanism of the theory

Decline in interest rates → Industry monopolistic: leader increases investment relative to follower → Decline in productivity growth

**Empirical exercise:**
Decline of interest rates on relative return of leaders
On the empirics

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  **Empirical exercise:**
  Decline of interest rates on relative return of leaders

- But $\Delta r$ could raise return of leaders for many reasons:
  - Enable firms of certain size (i.e., leaders) to upgrade technology (e.g. Melitz-type model).
  - In such a case, productivity growth need not decrease.
On the empirics

- **Basic mechanism of the theory**

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- **More direct evidence?**
  - Effect of $\Delta r$ on $R&D$ or productivity growth.
  - Differential effects of $\Delta r$ across industries (depending on contestability).
On the empirics II

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    separately in subsamples.
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- Regressions use *nominal* interest rates.
  - *Real* interest rates matter for theory.
  - Significant fluctuations in inflation during sample.
  - I would stick to real.
Conclusions

- Very thought provoking paper.

- Key takeaways:
  - Theory: declines in $r$ could have anticompetitive effects.
  - Empirics: declines in $r$ appear to benefit large firms.
    - Is this bad for productivity growth?