Firm Financing over the Business Cycle

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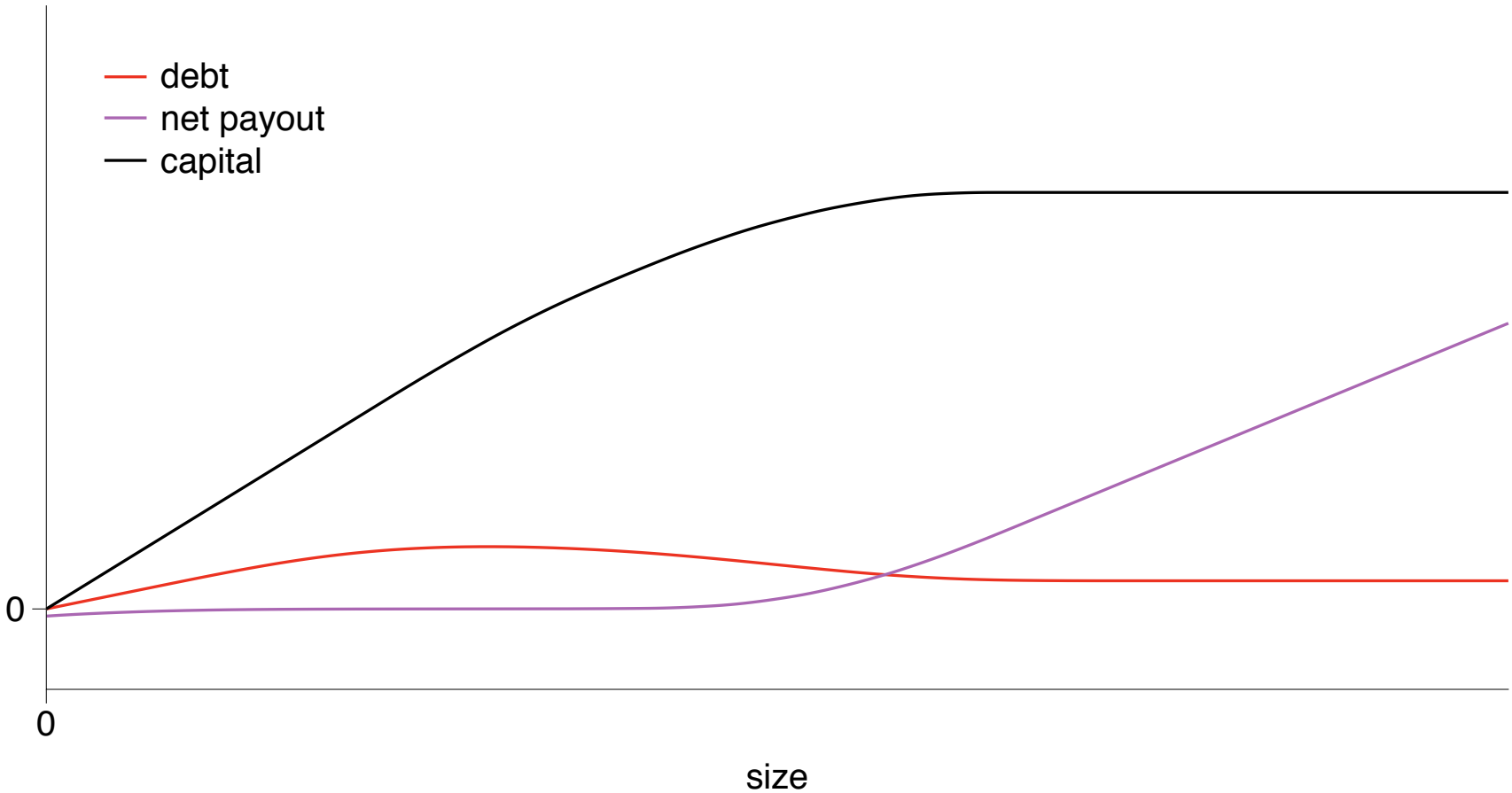
In the data, large and small firms finance differently over the business cycle.

- Small:
  - Raise both debt and equity more in booms than recessions.
  - Do not pay out much to shareholders ever.
- Large:
  - Raise more debt *relative* to equity in booms than in recessions.
  - Payout is procyclical.

The paper builds a model of ex-ante homogeneous firms to understand these facts.

- The model can be described as Hennessy and Whited (2007) meets Hopenhayn (1992).
- Dynamic industry equilibrium model with both immature and mature firms because of endogenous entry and exit.
- Firms use capital to produce output and finance with risky net debt, costly external equity, and internal funds.

The intuition can be seen with a stylized policy function



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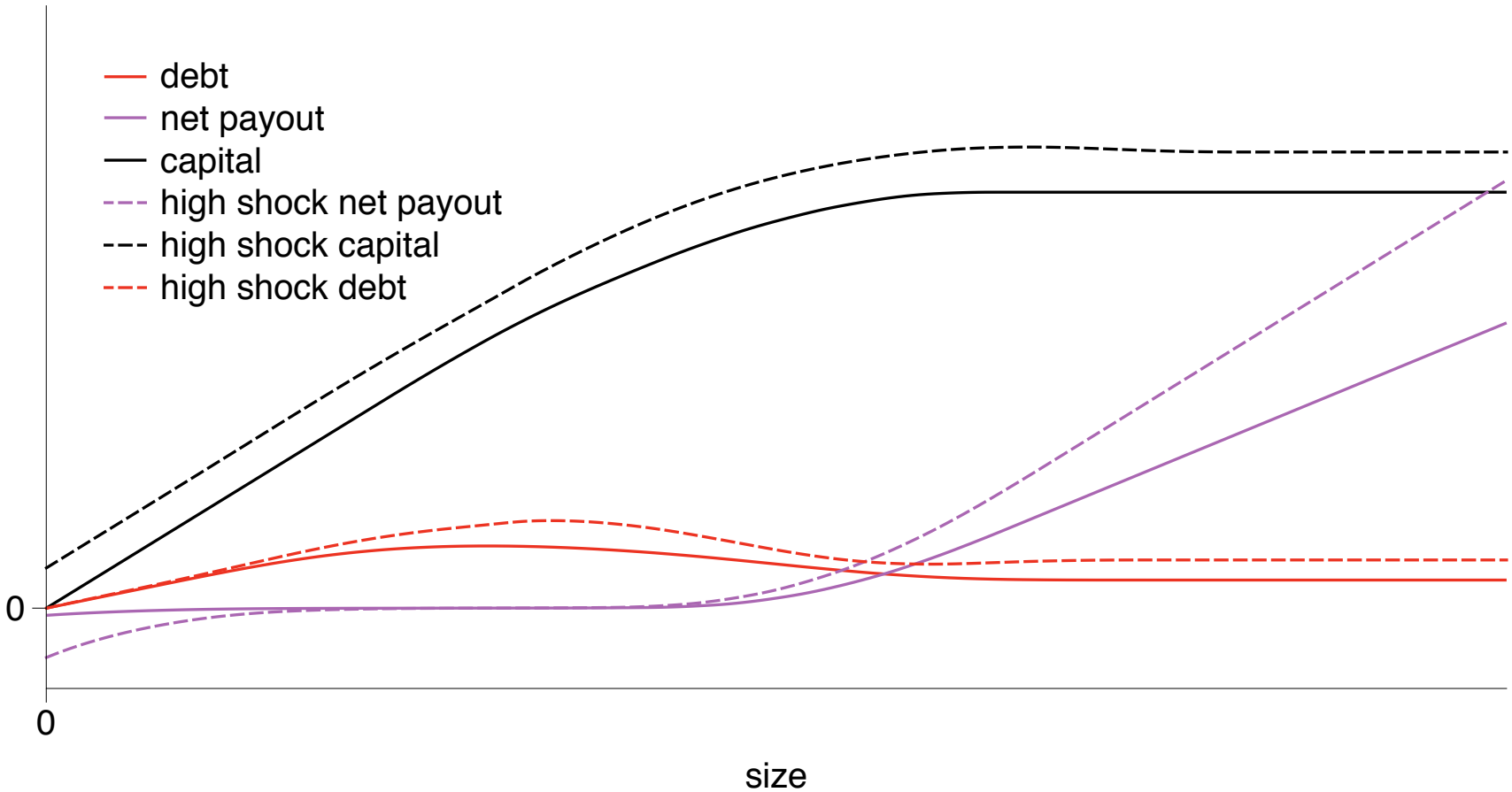


The presence of both mature and immature firms is important!

- Small firms are below an optimal scale and always want to invest more in good times.
- They exhaust debt capacity and use some equity finance.
- Large firms hover around an optimal size.
- Optimal investments are smaller, so they largely finance with debt in good times.
- Small firms rarely distribute to shareholders, and large firms pay out more in good times.

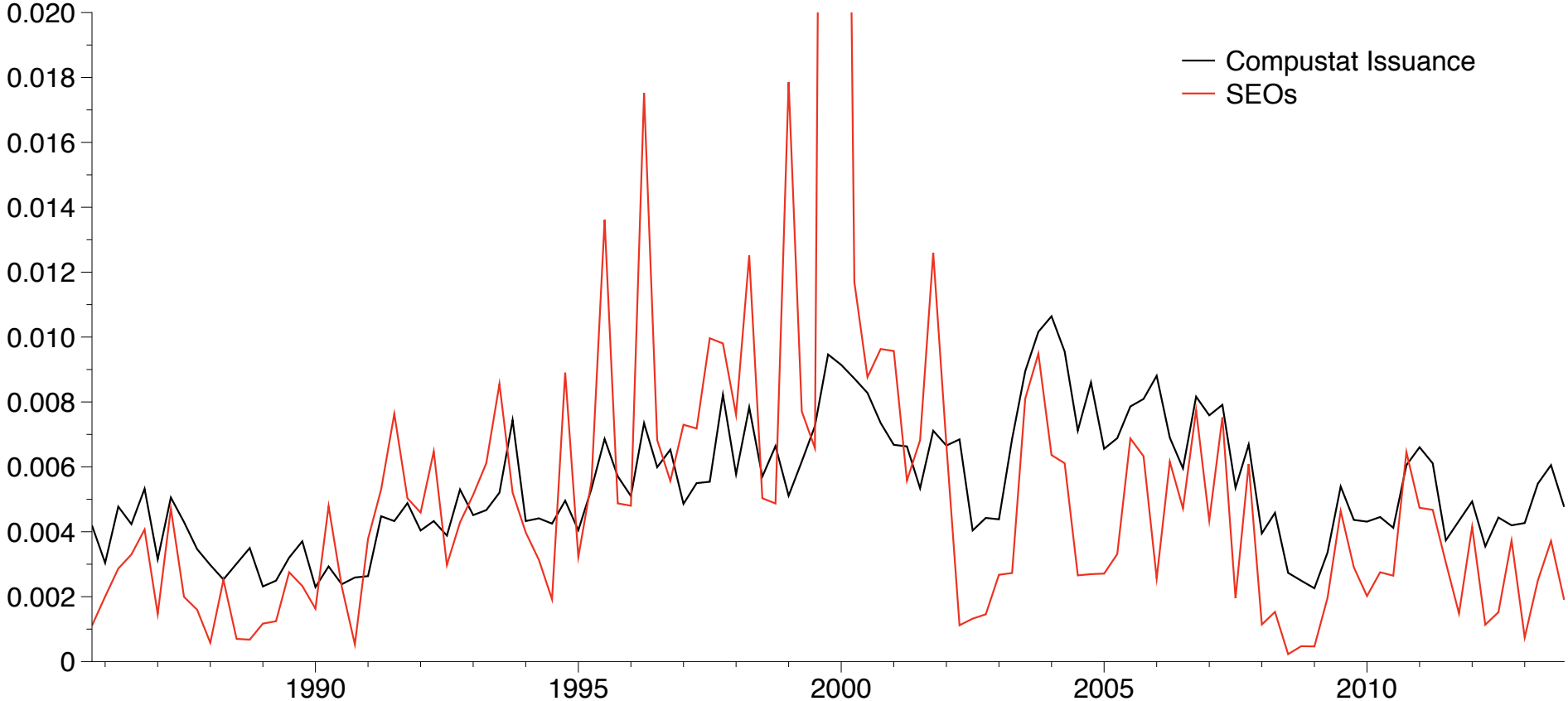
Outline

- Challenge the facts.
- Explain how the model can reconcile these new facts.
- Extra comments depending on how fast I talk.

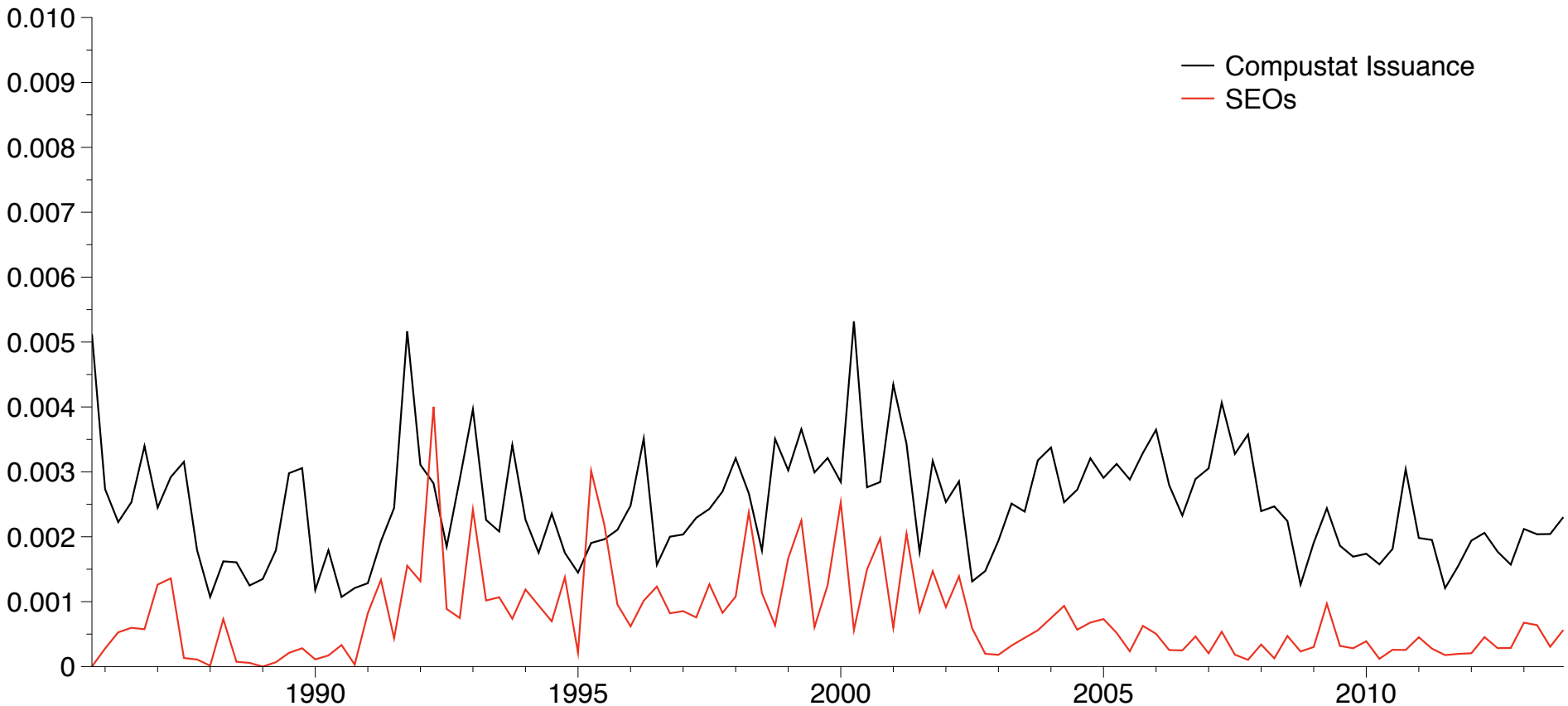
Compustat equity issuance data are terrible!

- The numbers include what we want to model: seasoned equity offerings and private placements.
- The numbers are dominated by what we do not want to model: option exercise.
- This problem matters more for large than for small firms.

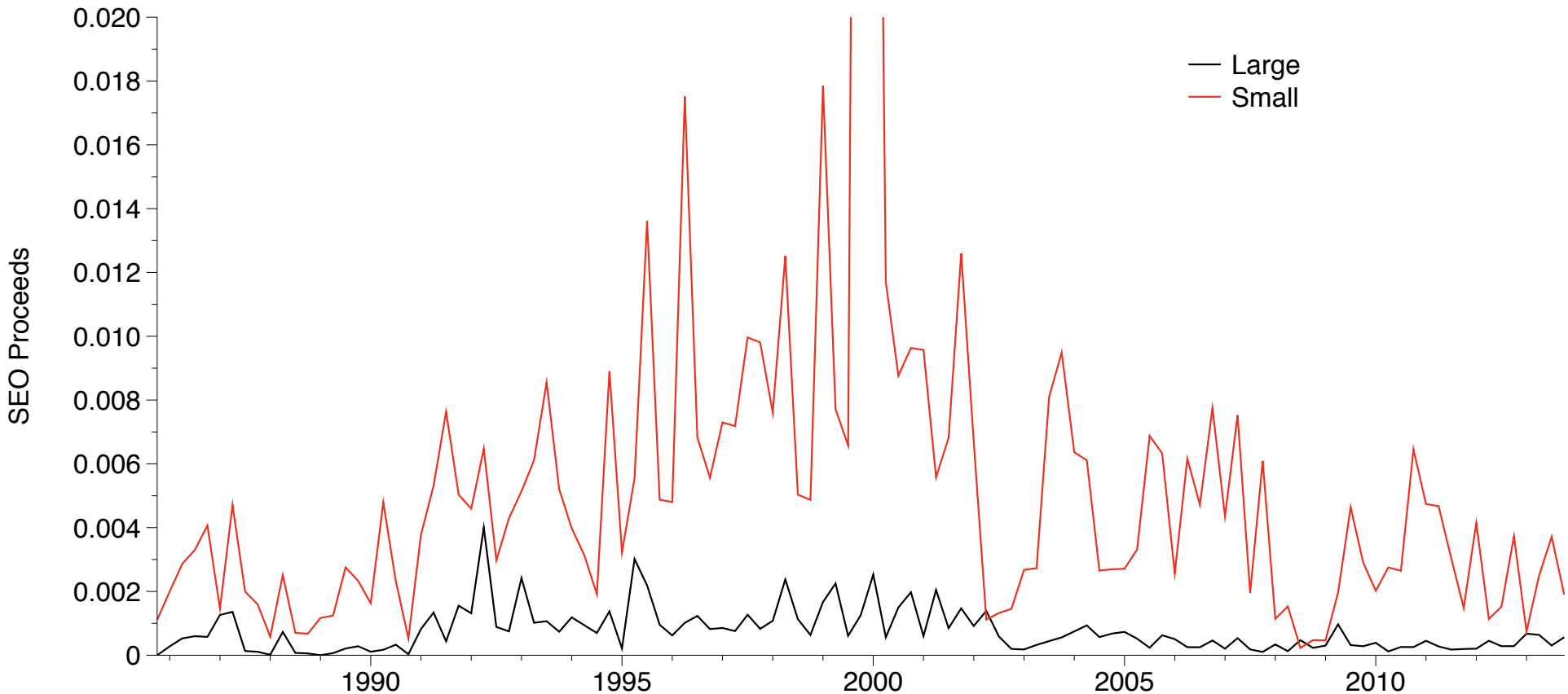
SEOs are close to Compustat "equity issuance" for small firms.



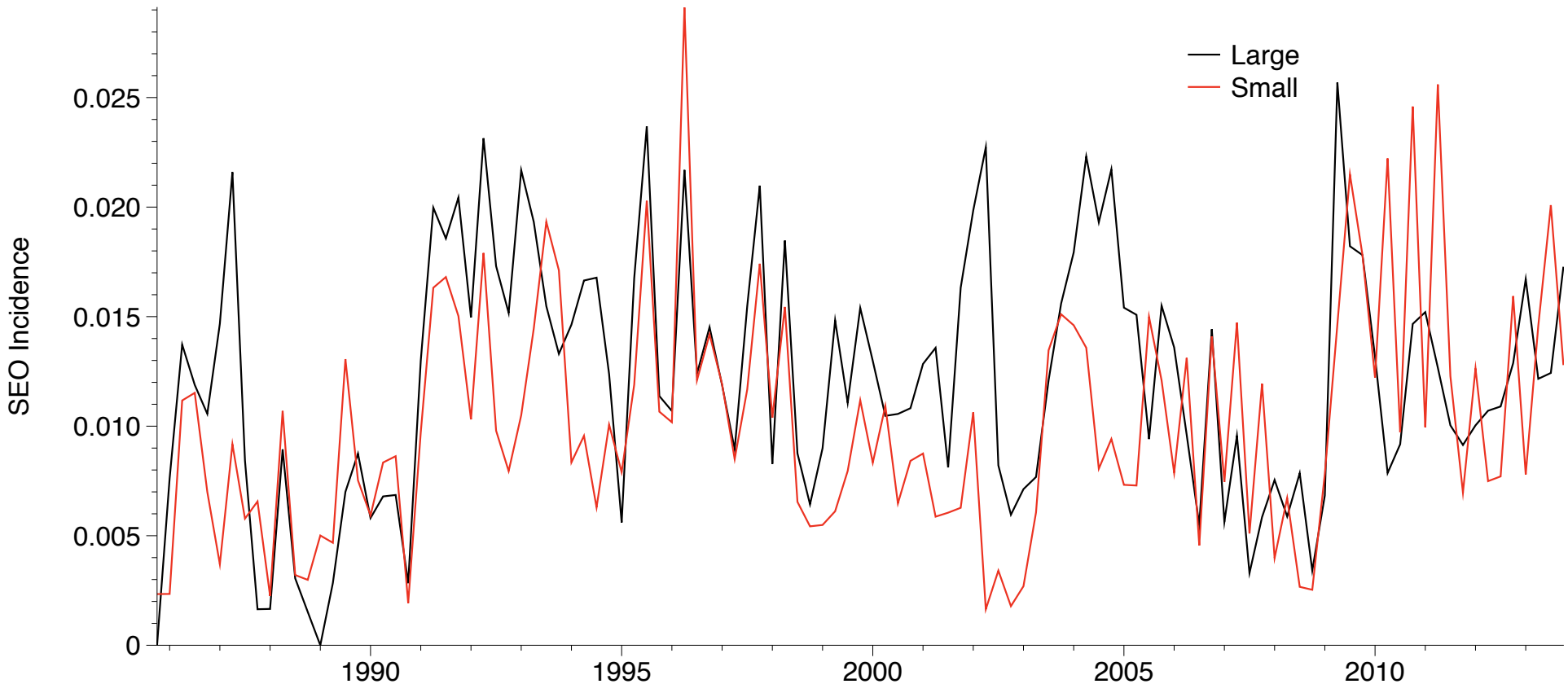
SEOs are nowhere near Compustat "equity issuance" for large firms.



SEO Proceeds: No cyclicality for large and slight cyclicality for small firms.



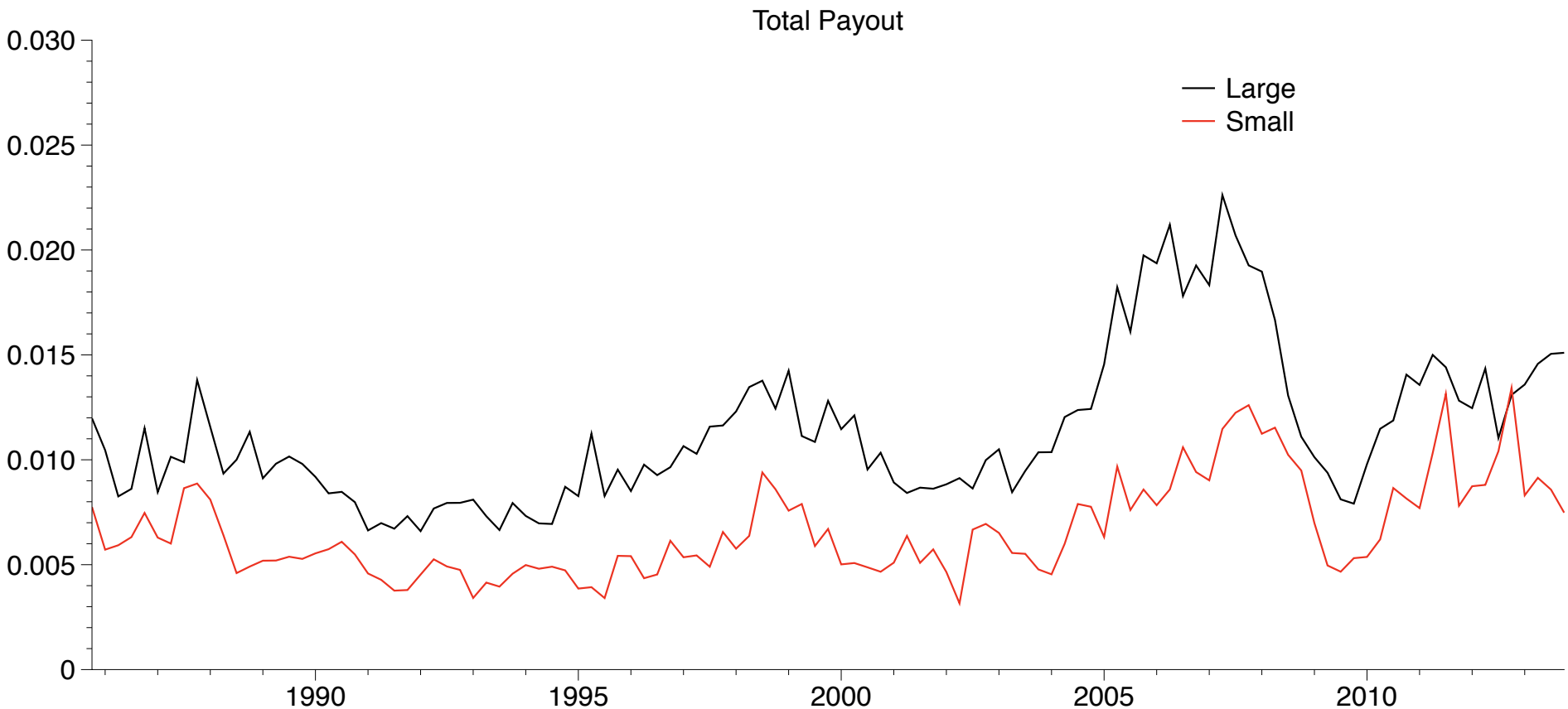
SEO Incidence: Strong cyclicality for both large and small firms



The SEO facts and the Compustat facts are roughly the same for small firms.

- Phwew!
- No such luck for large firms.

Much of the movement in net payout is from the payout side.



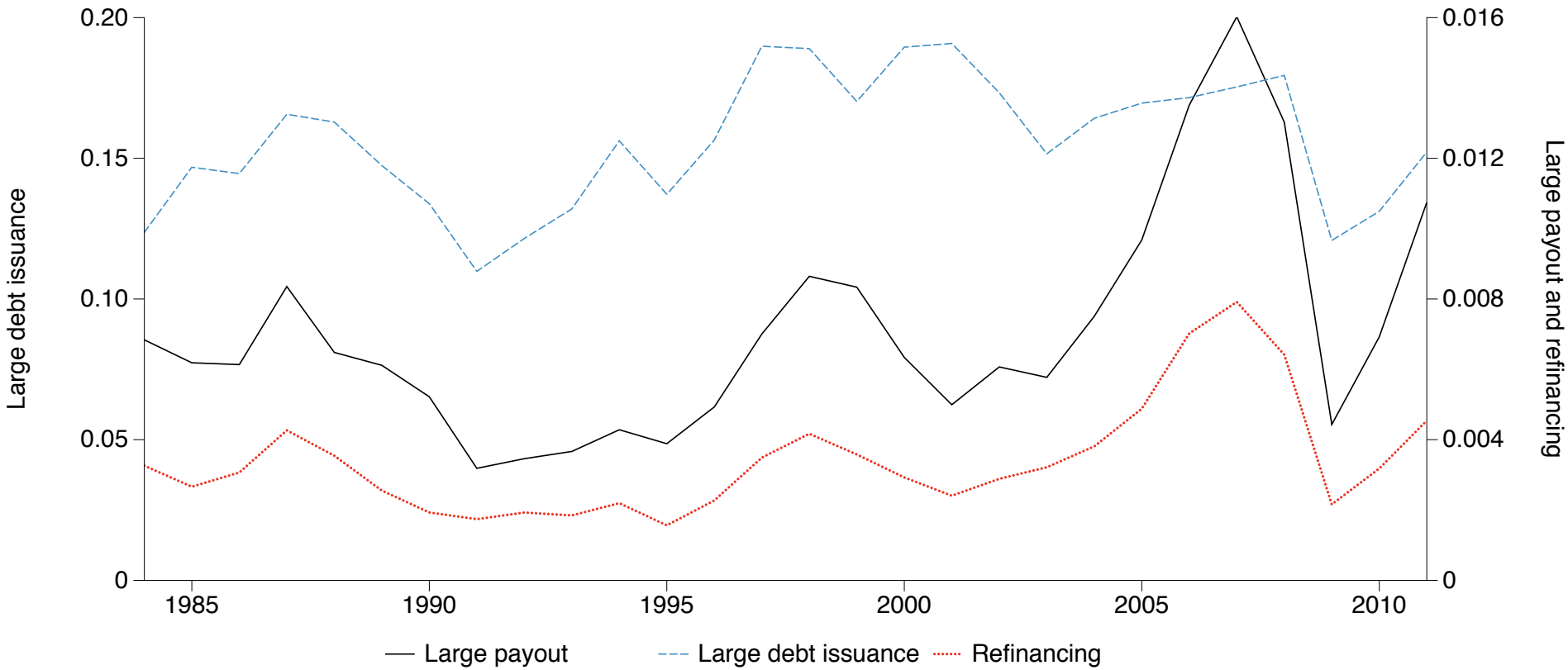
How can a model of ex-ante homogeneous firms give us acyclical proceeds but cyclical incidence for large firms?

- We need more frequent, smaller investment projects in booms than in recessions.
- Why? Financing is driven by the budget constraint!
- One possibility is countercyclical irreversibility.
- If investment is harder to reverse in recessions, optimal projects will be larger when they happen, but they will happen less frequently.

The paper claims that large firms issue debt to finance payout in booms

- In the data, this type of activity is rare.
- I suspect it also is in the model.

Danis, Rettl and Whited (2014) show that refinancing activity is rare.



Refinancing is nearly nonexistent in dynamic investment-finance models.

- I solved and simulated the Hennessy and Whited (2007) model and found no observations in which a firm did a large payout and a large concurrent debt issuance.

- Why?

Refinancing is nearly nonexistent in dynamic investment-finance models.

- Firms optimally want to preserve debt capacity.
- The value of this free debt capacity is more valuable to shareholders in nearly all states of the world than the value of taxable dividends.
- We can observe concurrent debt issuance and dividend increases, but no refinancings, per se.
- A positive shock increases cash flow, optimal investment expenditures, and optimal payout. Distress costs fall, and debt rises, but not to finance payouts, per se.

Why .55?

- Returns to scale are **very** decreasing.
- This number comes from a model with a convex cost of dividends and no adjustment costs (Hennessy and Whited 2007).
- Leverage in the model is way too high $(.38)$
- Investment policy is way too conservative.

Other stuff

- "This generates an endogenous debt limit that becomes binding when a firm's funding needs exceed its debt funding cost."

  This makes no sense. A comparison of prices and quantities. In these endogenous default models, funding costs are basically the risk-free rate up to a limit, and then they skyrocket. So there is something "like" a debt limit but not really.
- Get rid of all of all mention of collateral. There is no collateral constraint in the model. Firms can borrow more than their capital stocks.
- "Large firms on the other hand find equity financing too costly."

  No. The difference in financing policies comes from the differences in investment policies.

This is a hard paper to discuss.

- It is asking an interesting and important question.
- It is answering the question in careful and sensible way.
- I think that moving the focus to *active* equity issuances and away from "accounting" net payout would make a great deal of sense.