Discussion of "Collateral Crises" by Gary Gorton and Guillermo Ordonez

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A story of the crisis

1. Ignorance is bliss. Dang, Gorton, Holmstrom (2009).

2. Too much of a good thing is a bad thing.

Ignorance dynamically built up. Brought about a credit-boom but also **fragility**. An aggregate shock generated a **disproportionately large** crisis.

Story is interesting but somewhat forced onto the model.

The static model

Technology, $A\min(K, K^*)$,
succeed with probability q
Positive NPV: $qA > 1$
Not pledgeable

Pledgeable collateral
Quality uncertain (for everyone)
Price pC where $p \in [0, 1]$

Ignorance benchmark

Suppose noone knows anything.

- The most that can be borrowed is pC.
- When $pC > K^*$, this ensures:

$$K^{ignorance} = K^*$$

Expected net output,

$$Y^{ignorance} = (qA - 1) K^*.$$

Wisdom benchmark

Suppose everyone knows collateral type.

- Then:

$$\begin{cases} K = K^*, \text{ if good,} \\ K = 0, \text{ if bad.} \end{cases}$$

- Expected credit:

$$K^{wisdom} = pK^* < K^* = K^{ignorance} \text{ (similarly for } Y\text{).}$$

Ignorance is bliss for liquidity!

Reason: Credit and output are concave functions of collateral value.

Detour: The case against ignorance

Why wisdom might be desirable:

- Convex technology:

Suppose $pC < K^* < C$ and the project requires at least K^*...

- Information that guides investment decisions:

Suppose the collateral can be produced at some cost...

Central tension: Ignorance might be hard to sustain

Lenders can acquire info at some cost $\gamma > 0$. Would this be a desirable thing?

- Start with the ignorance equilibrium.
- Lend K^* **only if collateral is good**.
- New return to lender:

$$qK^* + (1-q)\underbrace{\frac{K^*}{p}}_{\text{borrower hands in valuable collateral}} > K^*.$$

An informed lender is able to exploit the borrower!

When does the constraint bind?

Lender acquires info when:

$$\underbrace{p\,\frac{(1-q)(1-p)K}{p}}_{\text{lenders' rents if project is good}} > \underbrace{\gamma}_{\text{lenders' info cost}}.$$

1. More likely to bind when p is small (lender exploits undervaluation).
2. More likely to bind when K is large (exploitation scales up).

Concern: A similar story can be told if **borrower** can acquire info. But some results (e.g., 1 above) are not robust to this change.

How to deal with the constraint?

Borrower has two options to avoid being exploited:

1. Reduce K. Outcome is:

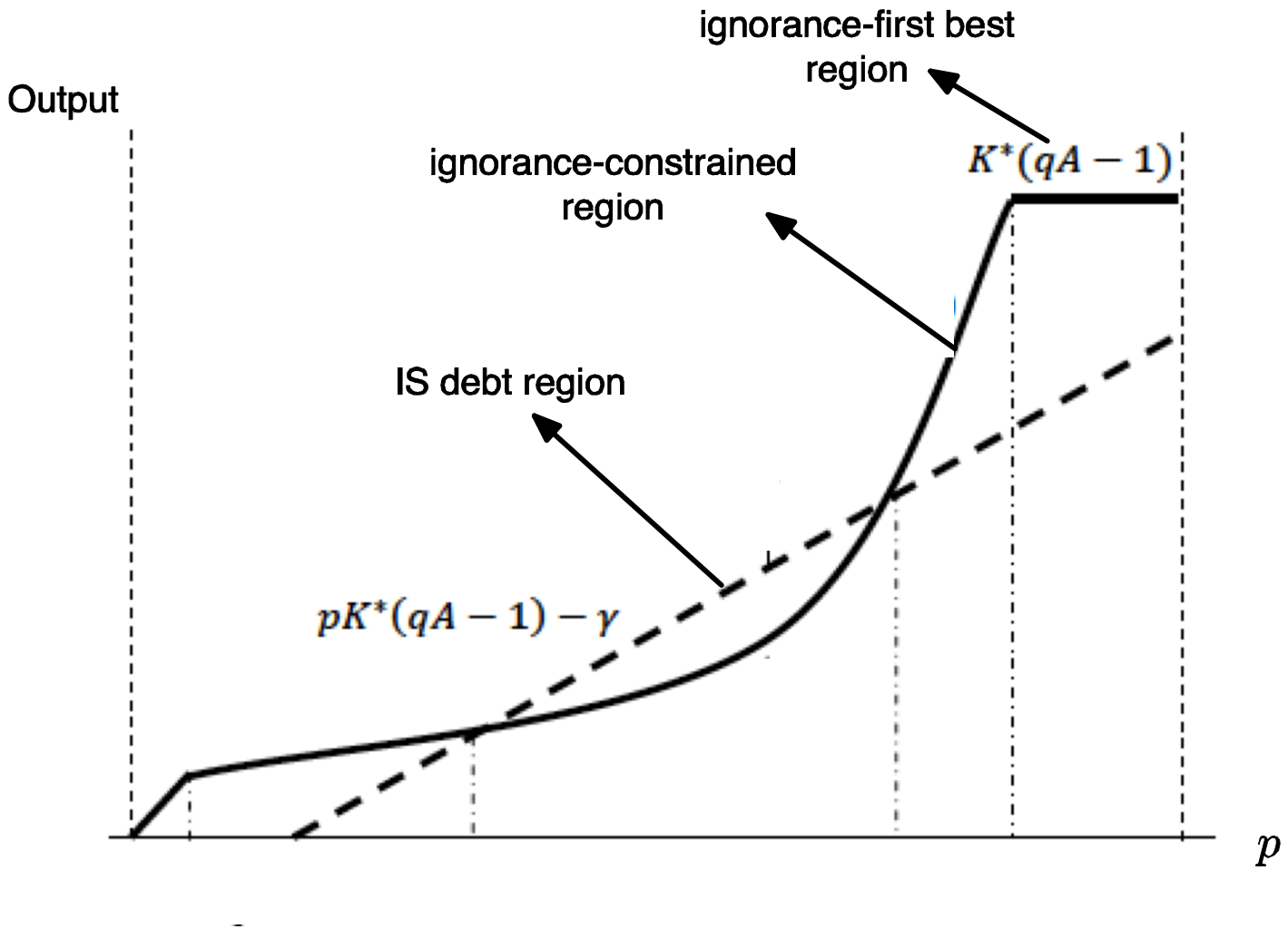
$$K^{constrained} < K^{*} \text{ (similarly for } Y\text{)}.$$

2. Trigger information acquisition: **information sensitive (IS) debt**. Outcome is wisdom net of info costs:

$$K^{IS} = K^{wisdom} \text{ and } Y^{IS} = Y^{wisdom} - \gamma.$$

In addition by Dang, Gorton, Holmstrom (2009): **Debt is optimal.**

Solution to static model



The dynamic model

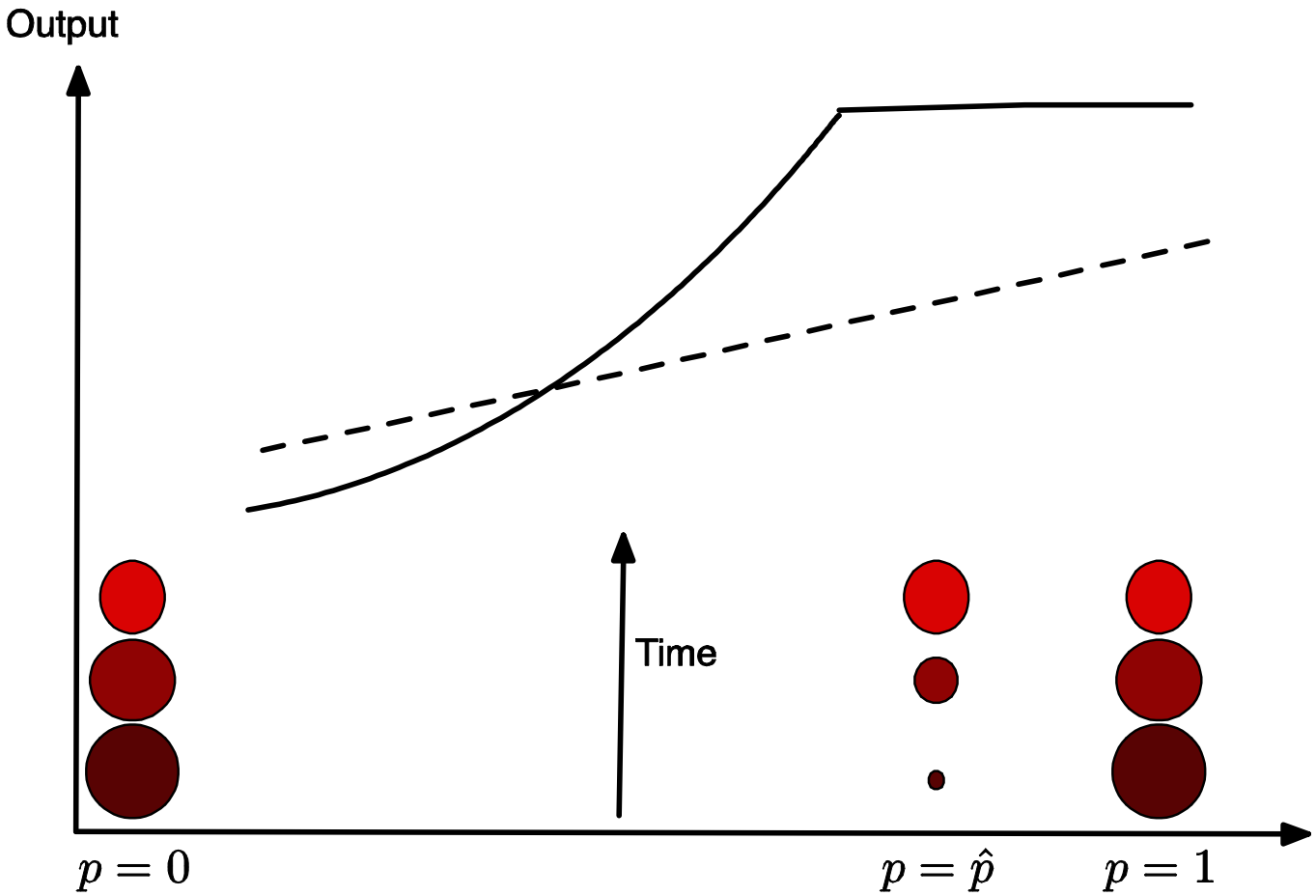
The rest: Combine the static model with dynamics for collateral p's.

Main assumptions:

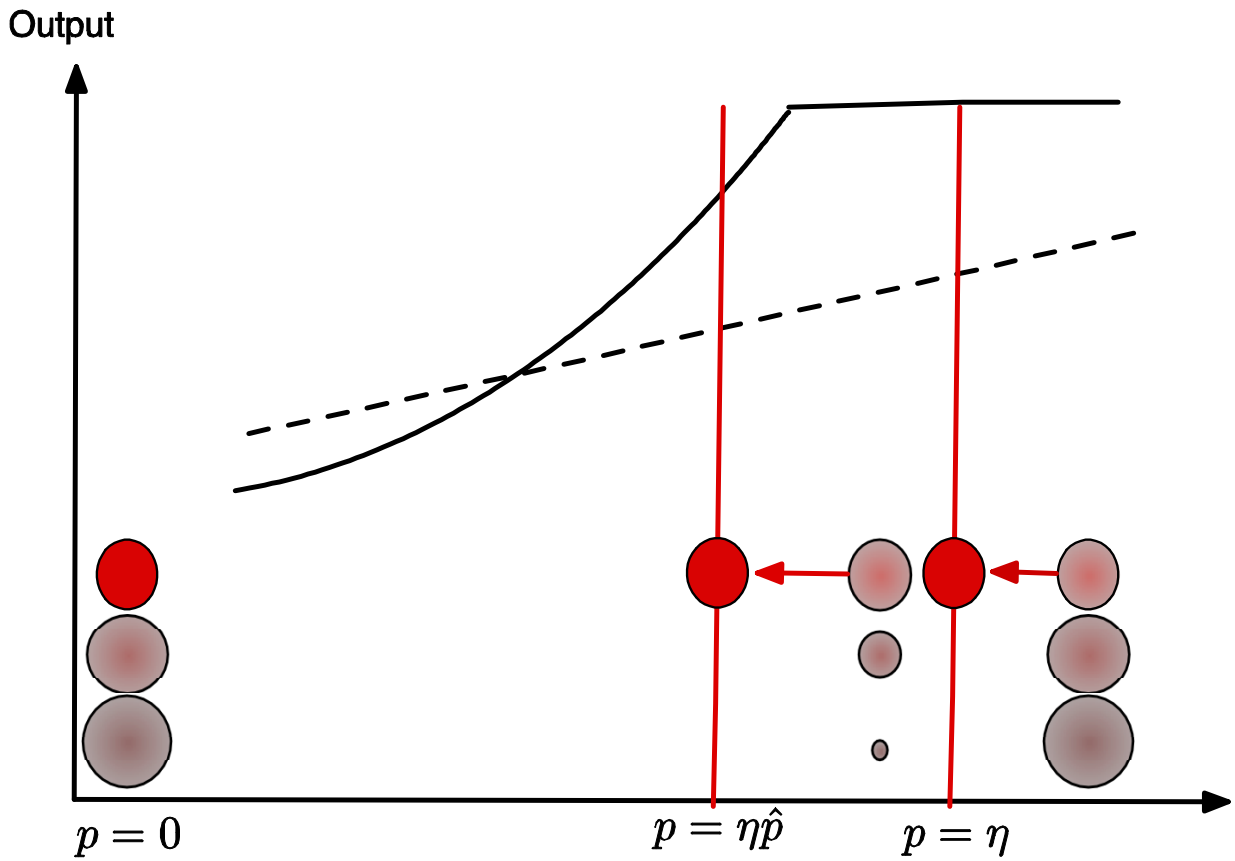
- Start with full information: All p's are either 0 or 1.
- They mean mean-revert to $\hat{p} \in (0, 1)$.

- Aggregate shocks reduce p's by a factor of η.

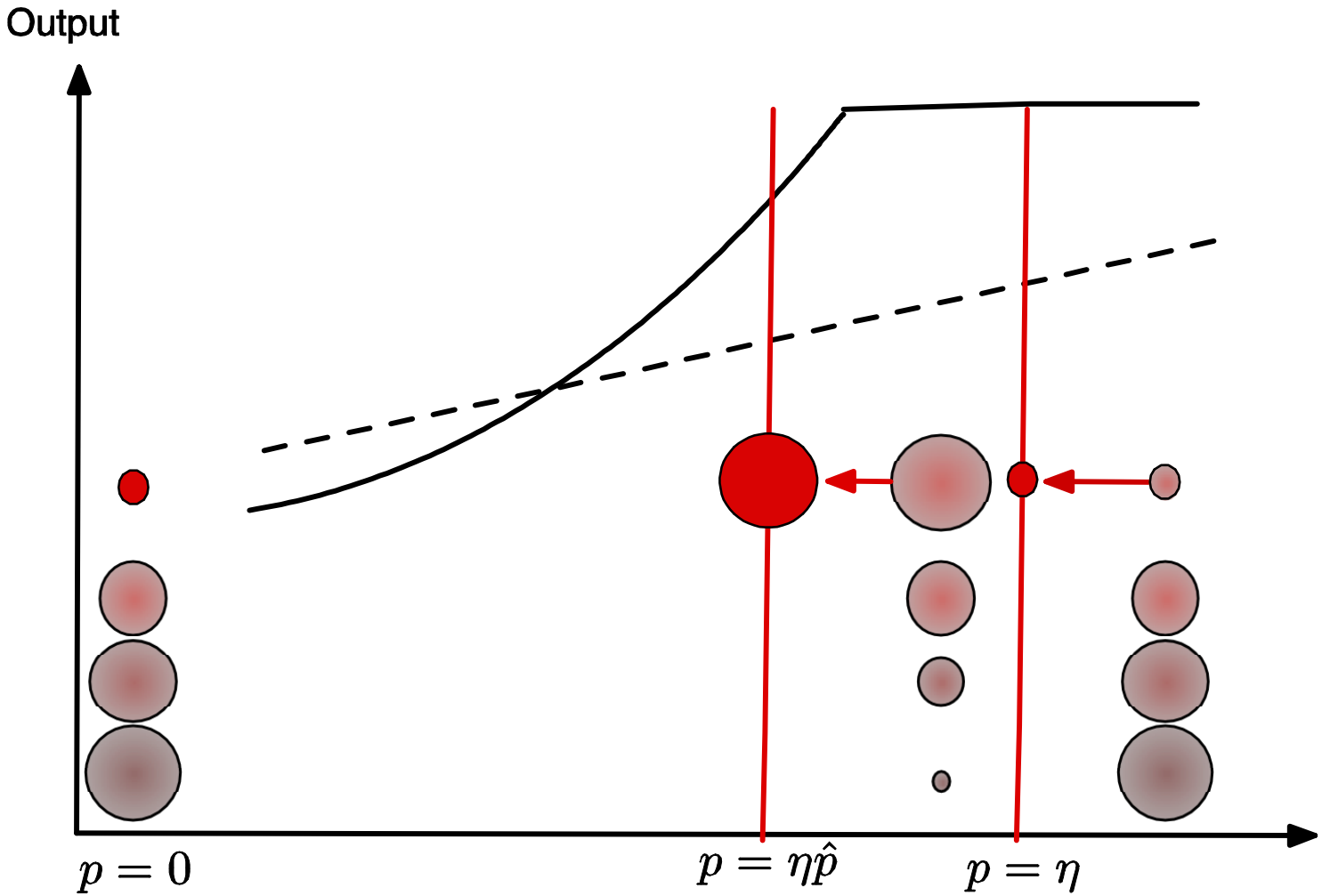
Warmup result (the run-up): Ignorance and credit builds up



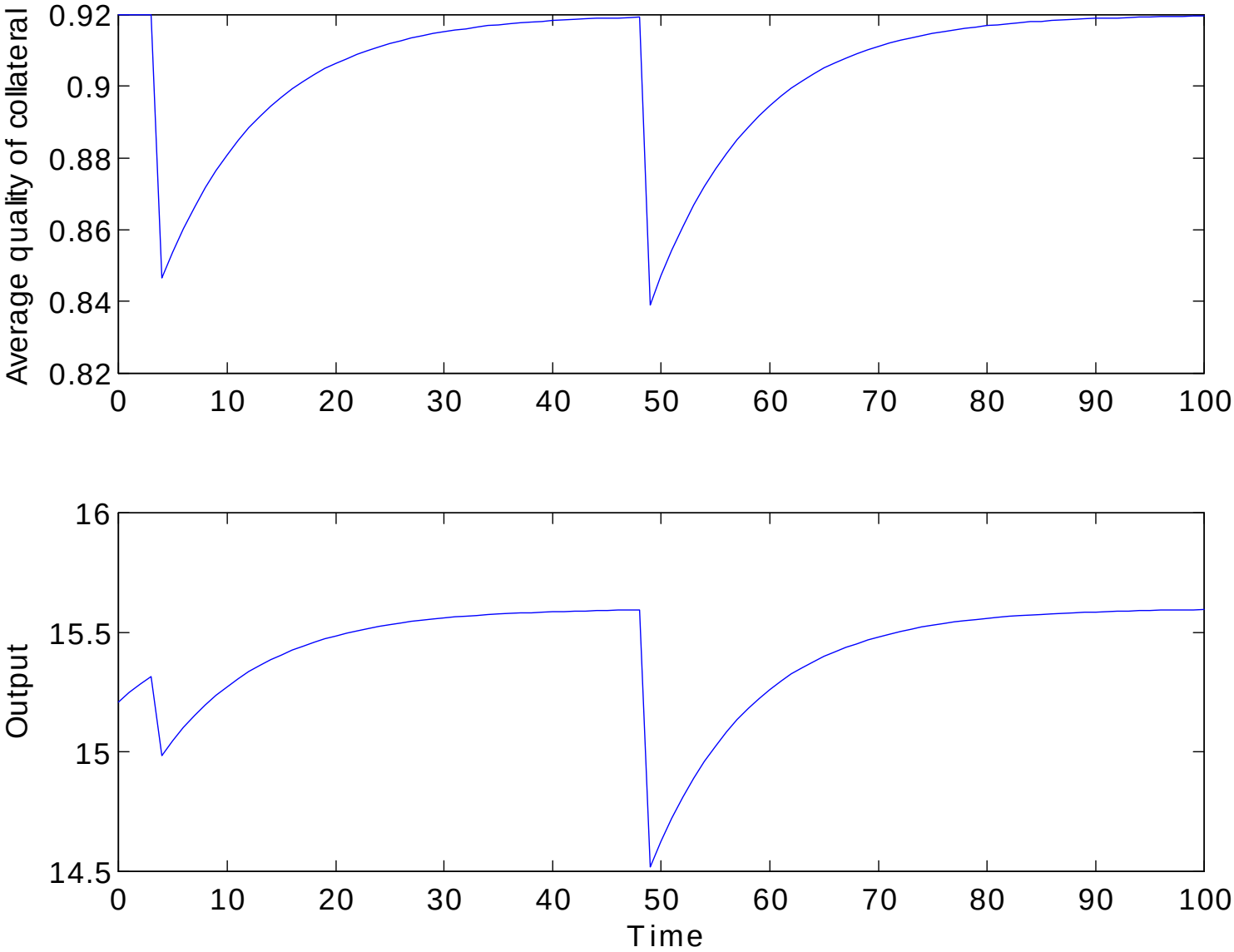
Warmup result (credit crunch): Aggregate shock triggers the constraint



Main result (amplification): The longer the ignorance build-up, the larger the credit crunch



Amplification

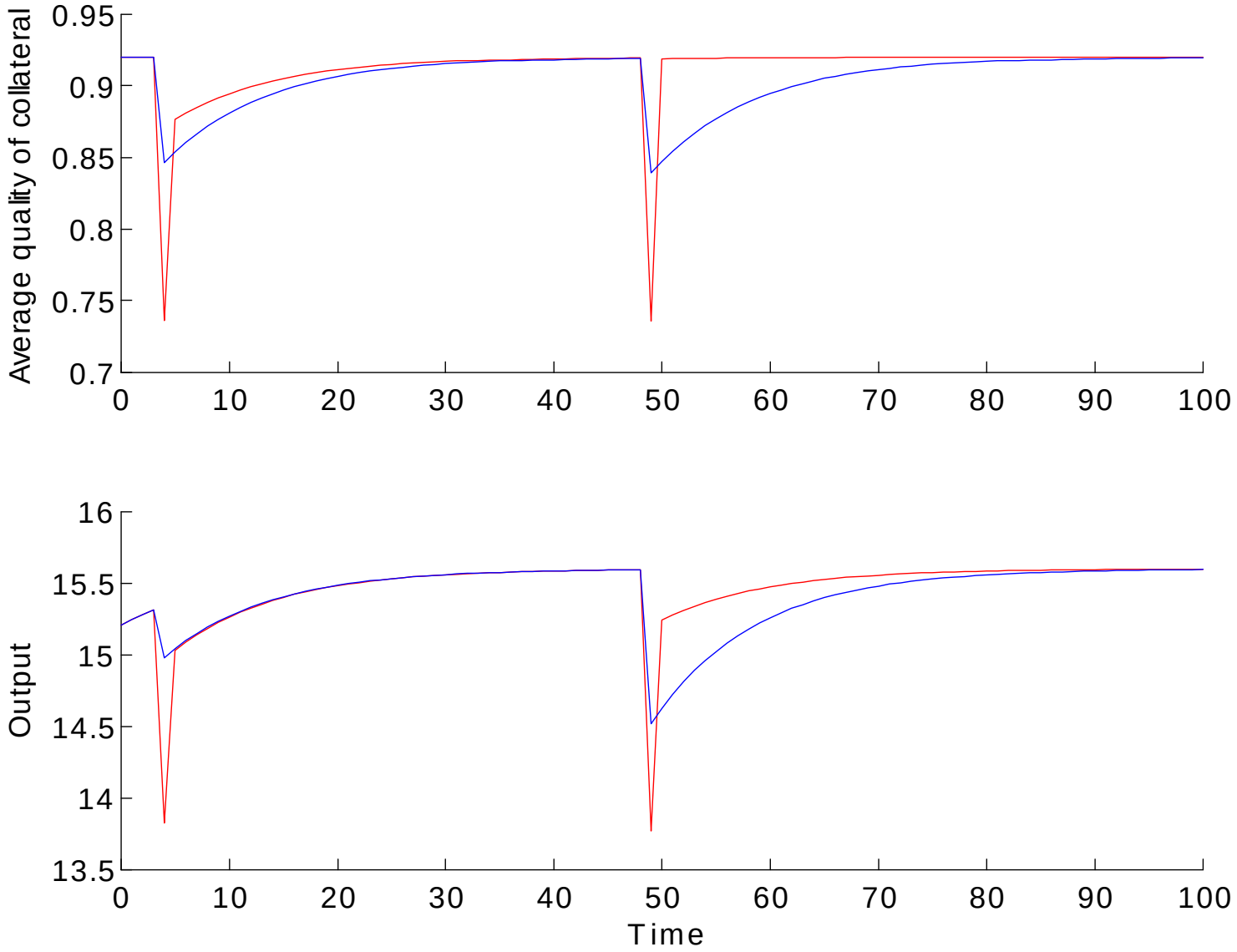


Strange aspect: It does not matter if the shock is anticipated

Perhaps ignorance wouldn't build-up if the shock was anticipated.

But here, anticipation/surprise does not matter. How can that be?

Strange result: Larger shocks lead to faster recoveries



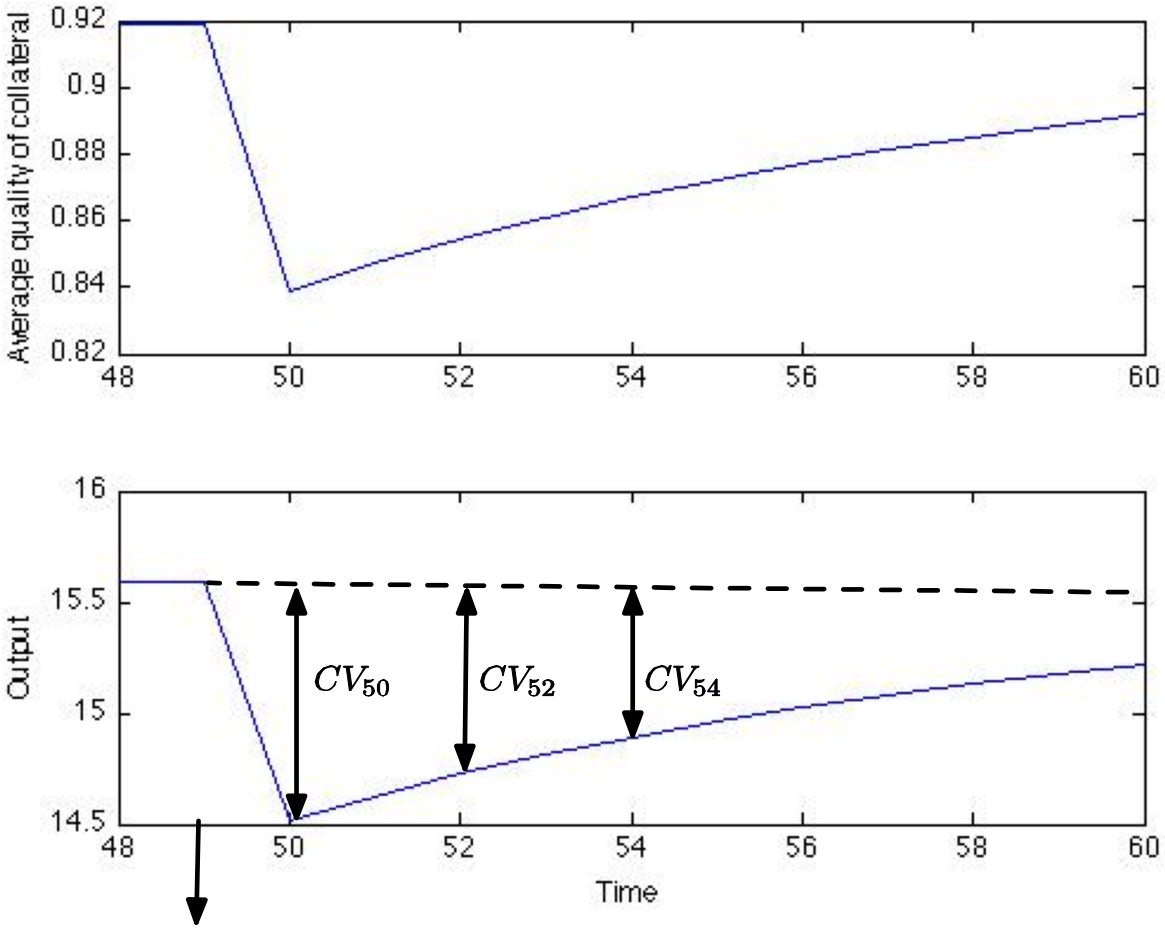
The source of the strange stuff

From Geanakoplos:

$$\text{Asset price} = \text{PDV of dividends} + \underbrace{\text{Collateral value (CV)}}_{\text{Value of relaxing constraints}}.$$

- Here, CV is suppressed. Assumptions on market structure ensure price is pC.
- But CV is important because it depends on **the value of relaxing all future constraints**.
- This drives the strange results of the paper.

If shock is anticipated, CV is potentially very large



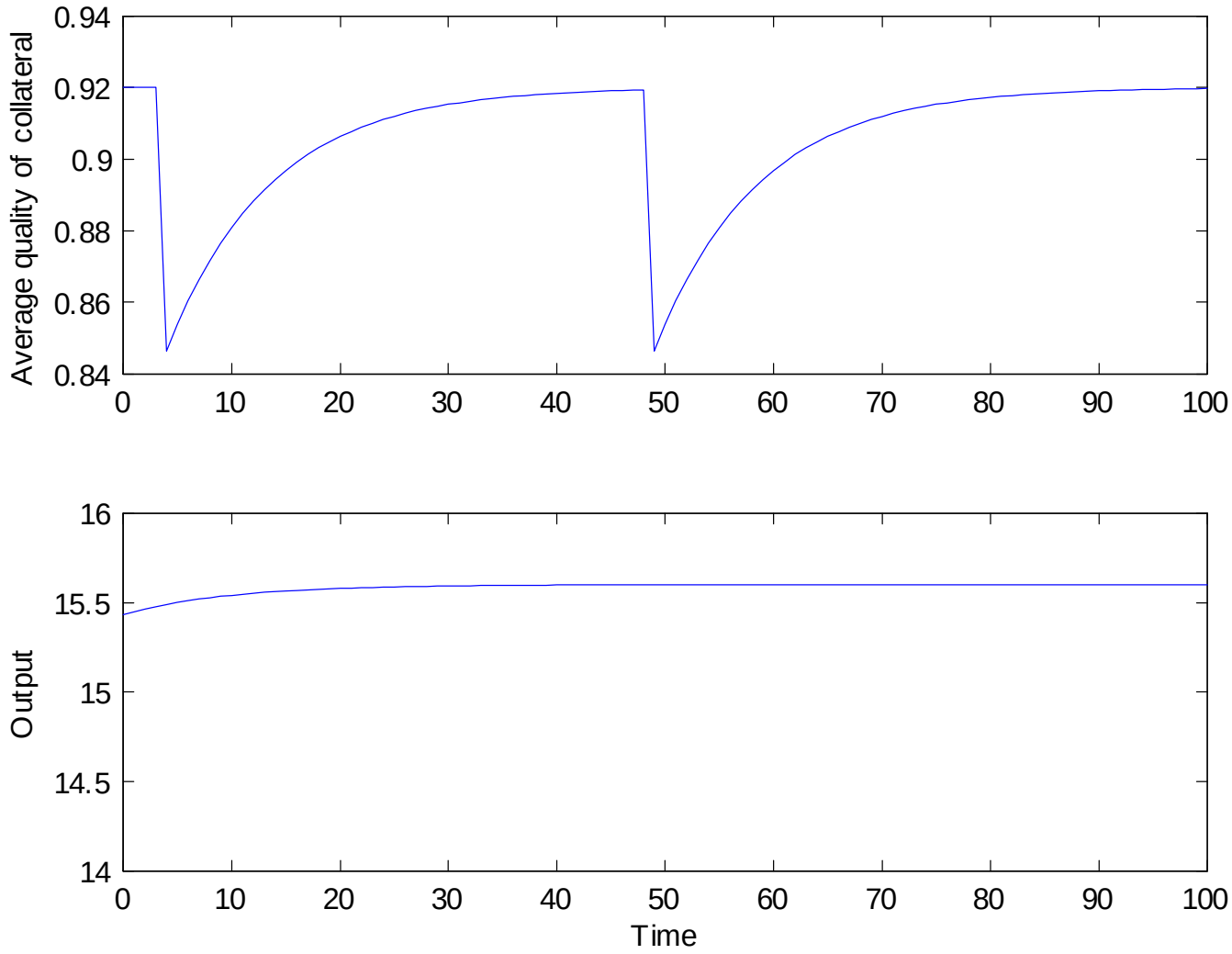
Price of **good collateral** could be:

$$C + CV_{50} + CV_{51} + CV_{52} + ...$$

How would CV change the results

- A large CV generates very strong incentives for info acquisition in the period right before the shock!
- Ignorance can be sustained only if γ is even larger.
- But if γ is very large, then the constraint stops binding and the crisis disappears!

Equilibrium with large information costs



Main result goes through if shock is unanticipated

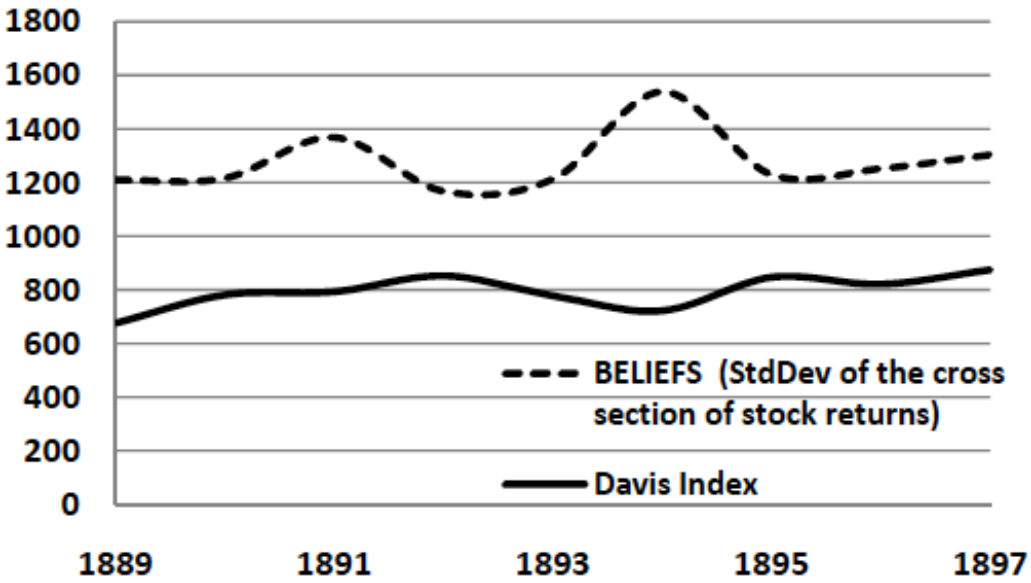
What do we learn from the CV:

- Main result is more robust if the shock is unanticipated (which is reasonable).

- "Bigger shocks lead to faster recovery" does not sound right.
- The welfare results do not sound right.

Empirical evidence consistent with other models of uncertainty and leverage (e.g., Geanakoplos)

Figure 11: The Panic of 1893



Open question: Is the relevant constraint **asymetric information** (or fear of it) or **heterogeneity of borrowers and lenders**.

Conclusion

Interesting and thought provoking paper.

Story is clear. Whether the model delivers is not.

Nonetheless, two important takeaways:

- Virtues of ignorance.
- New constraint: How to preserve ignorance.