

# Credit Rationing with Symmetric Information

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Credit is rationed in the sense that it is not allocated depending on its price – the interest rate.

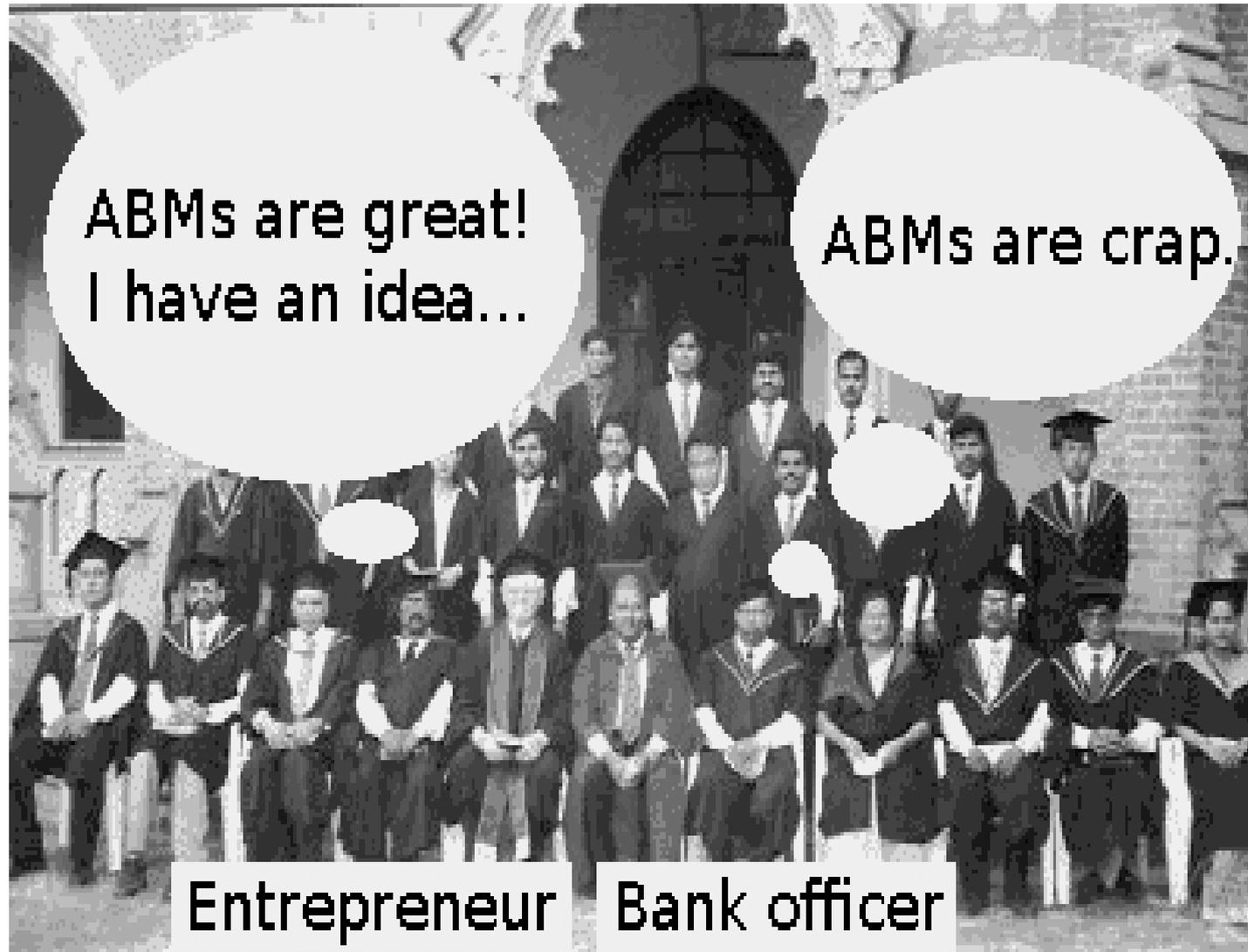
The received theory: this occurs because of **a**symmetric information.

I claim that credit can be rationed even when borrower and lender have the same information.

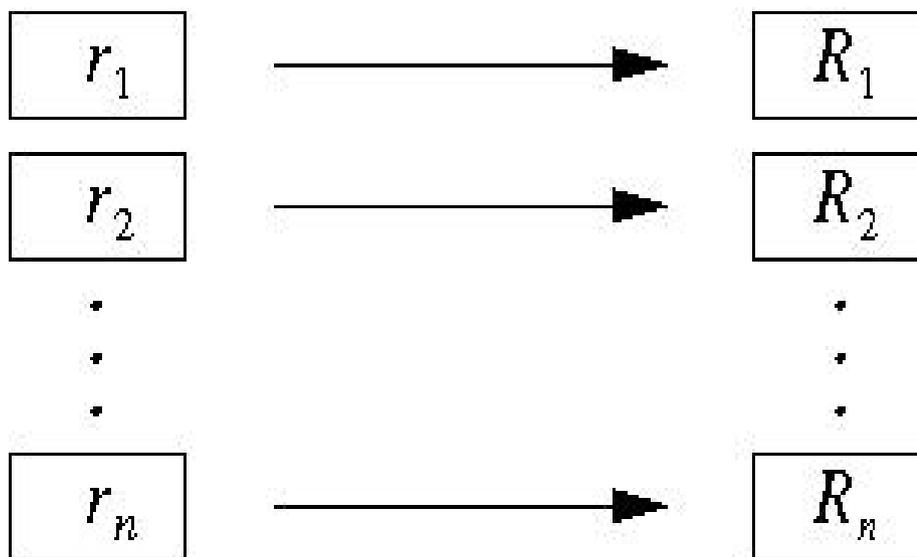
# Example: A Class on ABMs



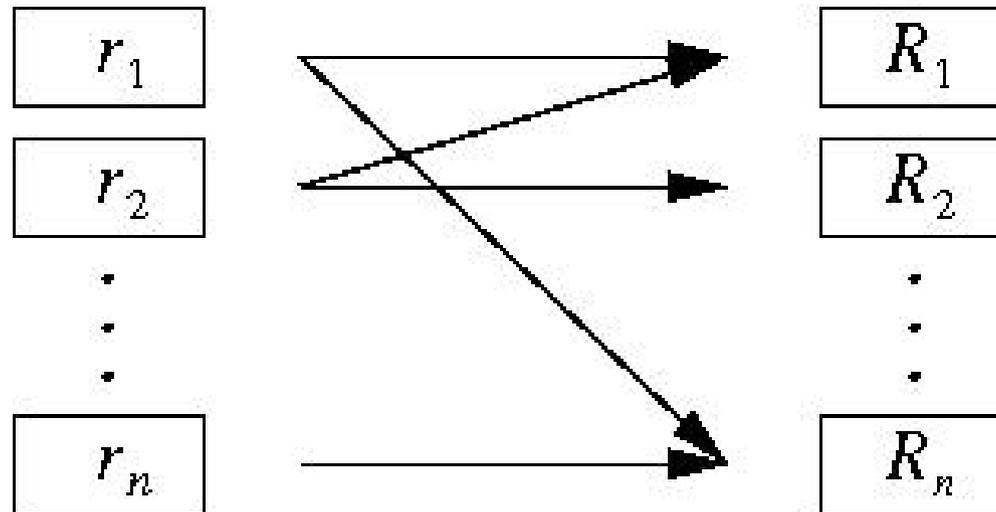
# Example: A Class on ABMs



# One-to-one correspondence between classes of risk $r$ and returns $R$



# One-to-many correspondence between classes of risk $r$ and returns $R$

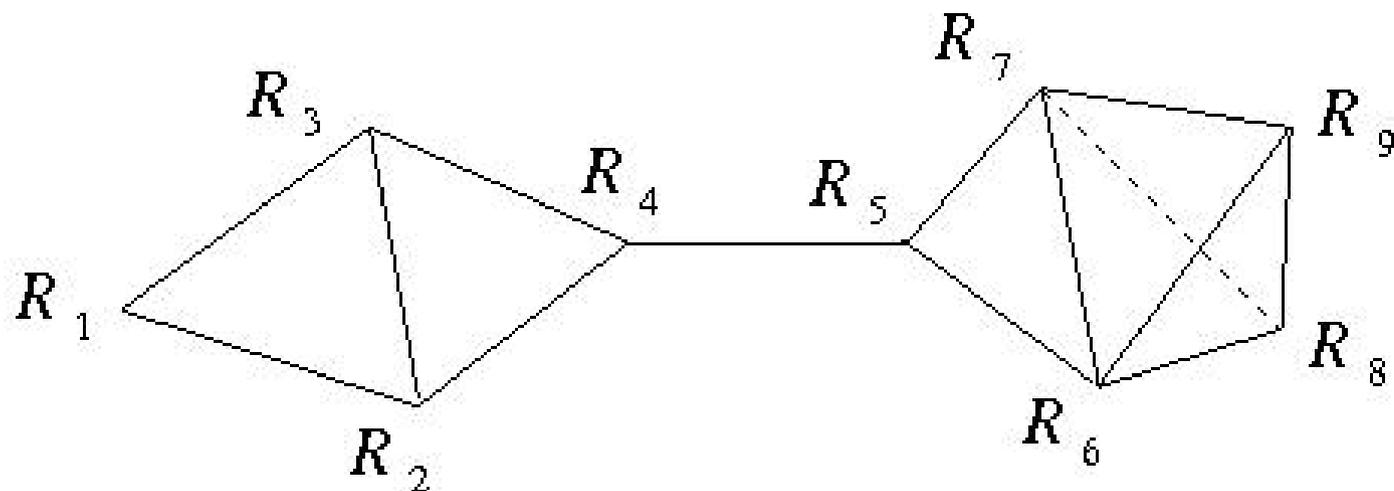


# What we know about banks' risk categories:

- Data from about the past three years are used.
- The number of categories increased during the 1990s. It now ranges from 2 to 20, with a mean at about 10.
- Eventually, a separate set of categories might be considered for each single aspect of available information (e.g., financial indicators, management quality, etc.). Credit might be denied because of one single aspect.

Represent each class of risk  $r$  a simplex.

The vertices of each simplex  $r$  are the returns  $R$  to which it is connected.



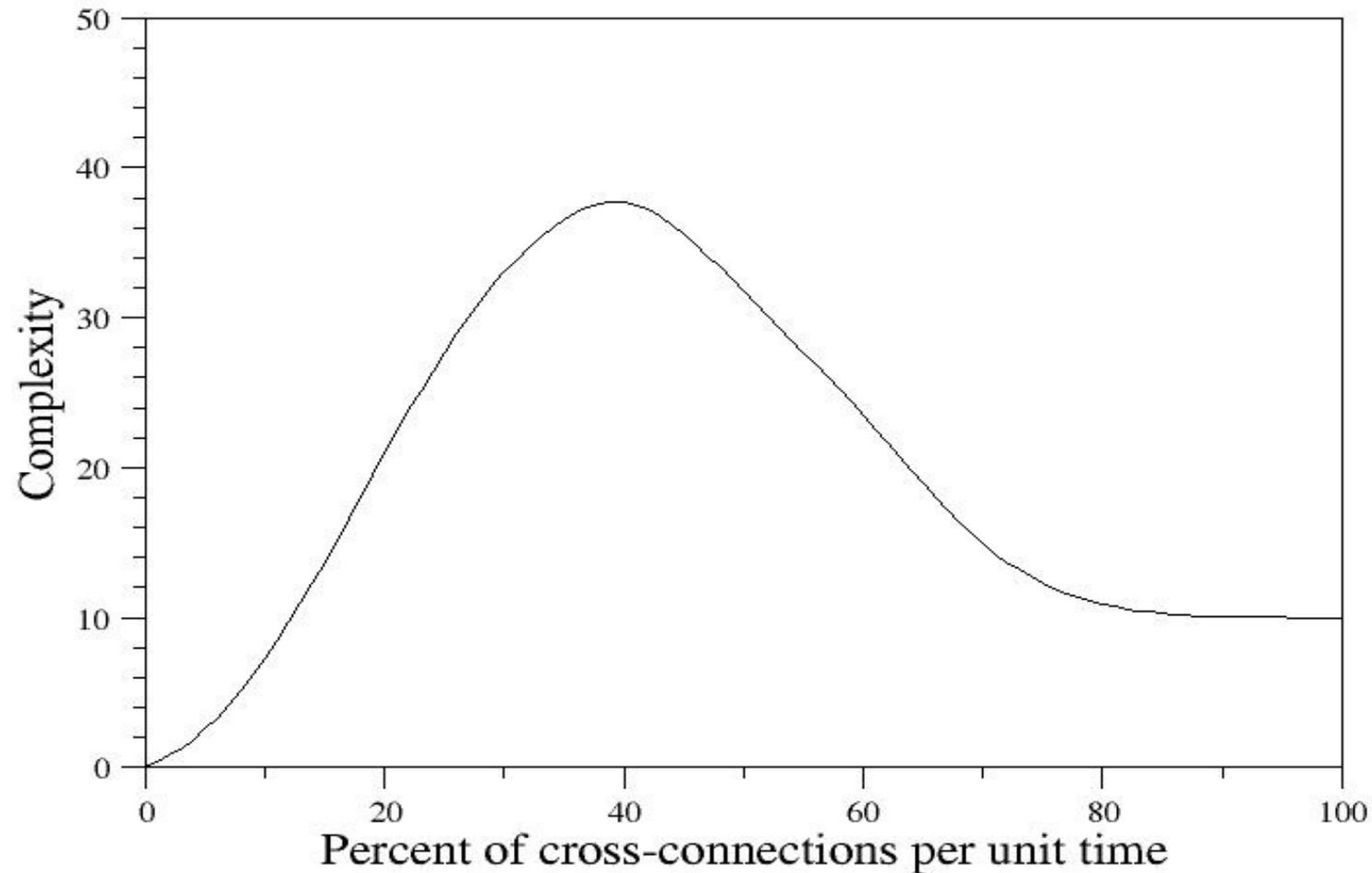
$q$ : the dimension of the common face between two simplices.

$s_q$ : the number of classes of simplices connected at level  $q$ .

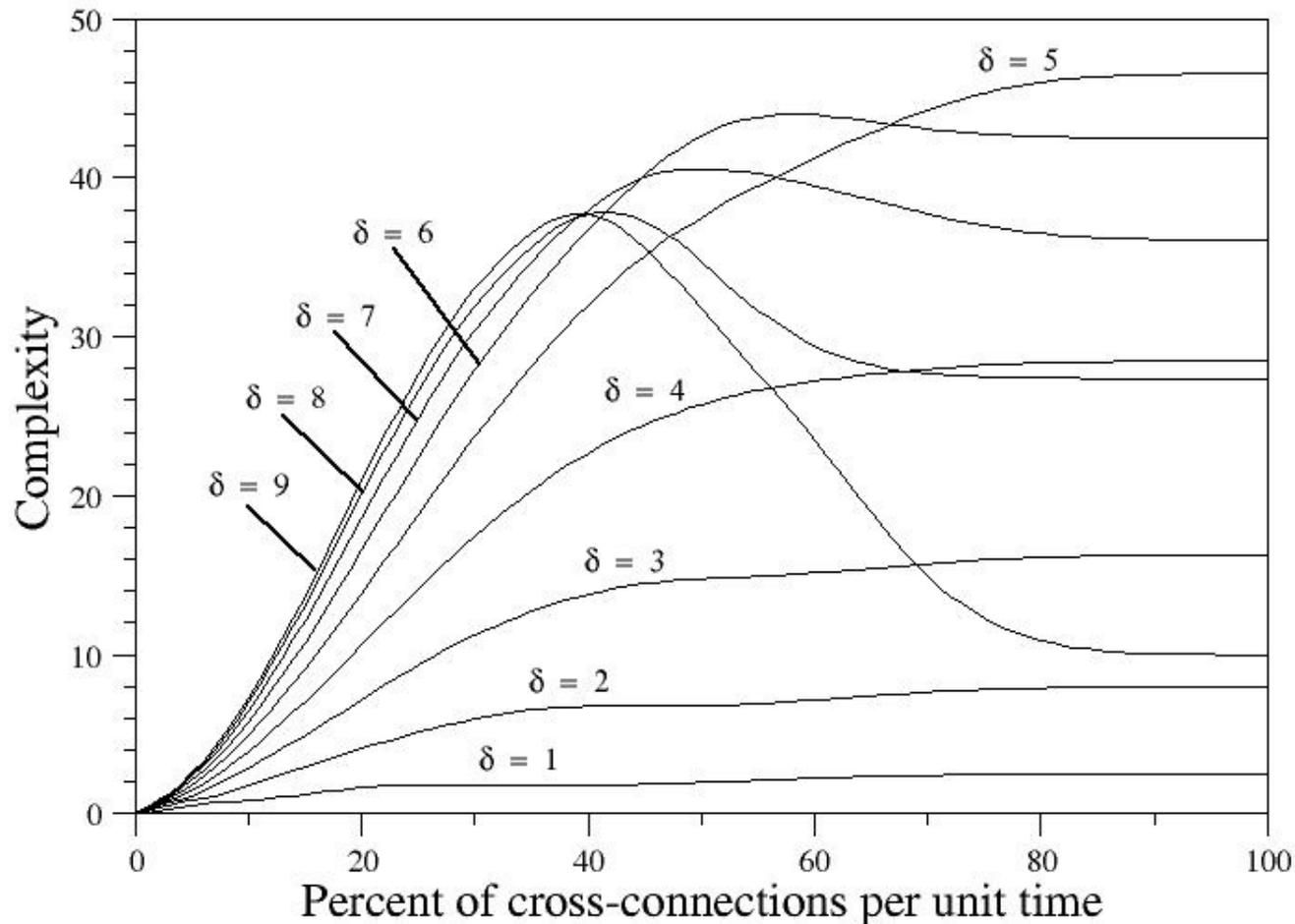
$$\text{Complexity} = \sum_q \frac{q + 1}{s_q}$$

Memory = 3

N. of risk categories = 10



If cross-connections extend only within a range  $\delta$  around their one-to-one correspondence:



If credit was not conceded because categories were not appropriate, then their classification criteria should be changed.

Are there criteria for re-defining banks' categories in the face of novelties?

# Aspects considered by banks when considering an applicant for a loan:

- Collaterals and terms of payment;
- Financial indicators of the applicant;
- The product and technology of the project;
- Psychological traits and management quality;
- Reliability of the information provided;
- Stock market and rating agencies.

Classification criteria might be re-formulated by re-arranging sub-aspects that constitute aspects.

In the case of venture capitalists, we know a lot of details. For instance, the aspect “product and technology” is split into:

# E.G.: Sub-aspects within the aspect “product and technology” (for VCs):

- Protected from imitation;
- Uniqueness of product;
- There is a functioning prototype;
- Demonstrated market acceptance;
- Availability of raw materials;
- Availability of specialized labour;
- Availability of equipment;
- Able to create a new market;
- Expected growth rate of the new market;
- Distribution system;
- Geographical location.

# Simulations suggest that:

- If the decomposition is coarser than the optimal one, then the optimal solution is found later.
- If the decomposition is finer than the optimal one, then a sub-optimal solution may crowd out the optimal solution in the initial implementation phase. Did this happen because of too many categories being considered in the 1990s ?