

Chapter 8.1

The consequences of uncertain outcomes

Financing investments

Financing investments

- ▶ Companies can fund investment using **debt**

Financing investments

- ▶ Companies can fund investment using debt and equity

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- ▶ Companies choose the **optimal combination** of these funding sources

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Company profits

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► $\Pi_C = \pi (1 + R) L$

Company profits

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- ▶ $\Pi_C = \int_{(1+r_L)L}^{+\infty} \pi (1 + R) L dF(\pi (1 + R) L)$

Company profits

- ▶ Companies retain the **outcome** once the loan has been **repaid**, taking into account their **own investment**
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► Banks obtain the **outcome** if the loan **cannot be repaid**

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Bank profits

- ▶ Banks obtain the **outcome** if the loan **cannot be repaid** and are **repaid** for **higher outcomes**

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$$\Rightarrow \frac{\partial \Pi_B}{\partial (1+r_L)} = (F((1+\bar{r}_L)L) - F((1+r_L)L)) L > 0$$

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- ▶ If L is **small**, the **first term** will be small

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Non-monotonous supply curve

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► Isoprofit curve of the bank: $\frac{\partial(1+r_L)}{\partial L} = - \frac{\frac{\partial \Pi_B}{\partial L}}{\frac{\partial \Pi_B}{\partial(1+r_L)}}$

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- ▶ Isoprofit curve of the bank: $\frac{\partial(1+r_L)}{\partial L} = -\frac{\frac{\partial \Pi_B}{\partial L}}{\frac{\partial \Pi_B}{\partial(1+r_L)}}$
- ▶ Positive for small loans

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- ▶ Positive for small loans, **negative** for **intermediate loans**

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- \Rightarrow Maximal profits where the supply curve is **decreasing**

Non-monotonous supply curve

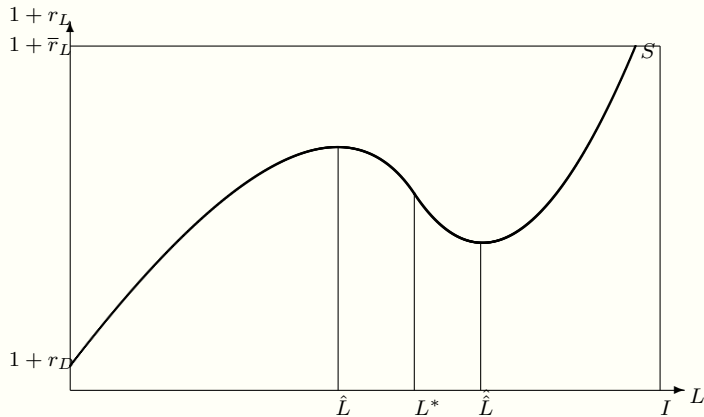
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Demand and supply

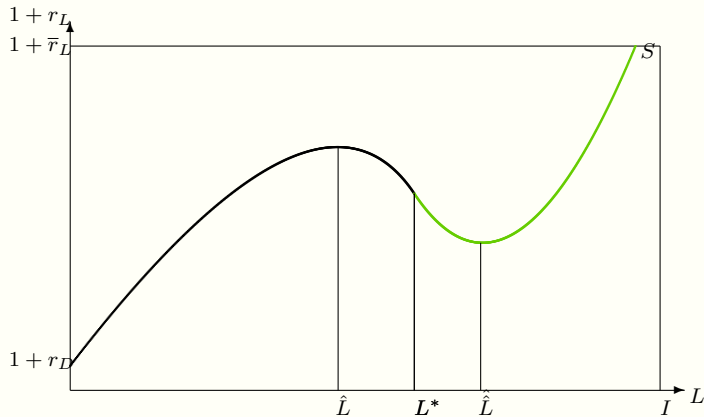
Demand and supply



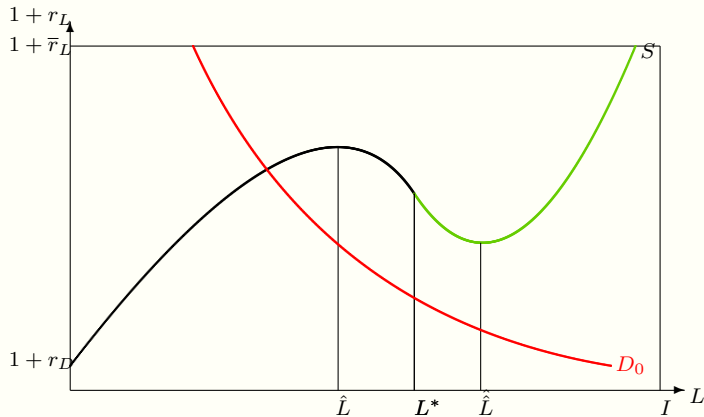
Demand and supply



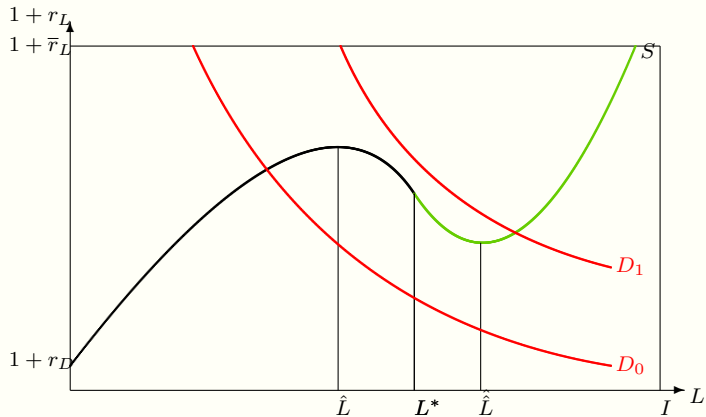
Demand and supply



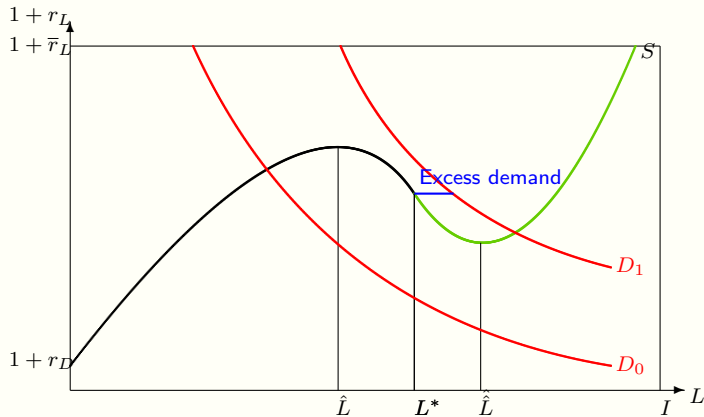
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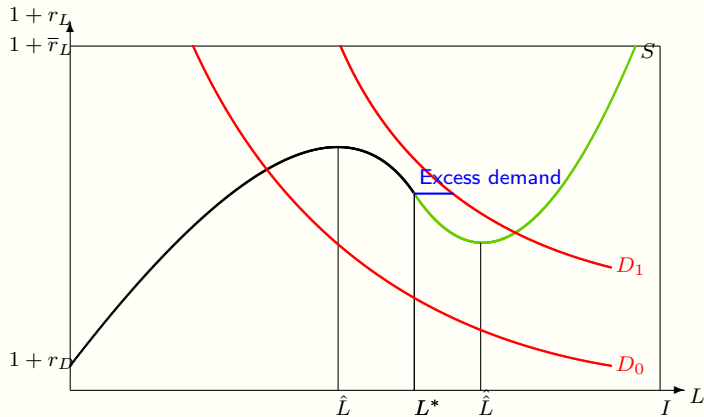
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- ▶ Uncertainty about loan repayments induces banks to **limit the size of loans** and maximize repayments

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- ▶ Companies seeking a large loan might be **rationed** and only obtain a smaller loan than they seek

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- ▶ Companies seeking a large loan might be rationed and only obtain a smaller loan than they seek



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