

# Economics 4905: Lecture 10

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# Prelim 1

Prelim 1 will be in class on Monday, October 1.

## Next Lecture

Reading for next lecture: Shell and Zhang, *Macroeconomic Dynamics*, forthcoming.

(Click here)

# Ungraded Homework Assignment

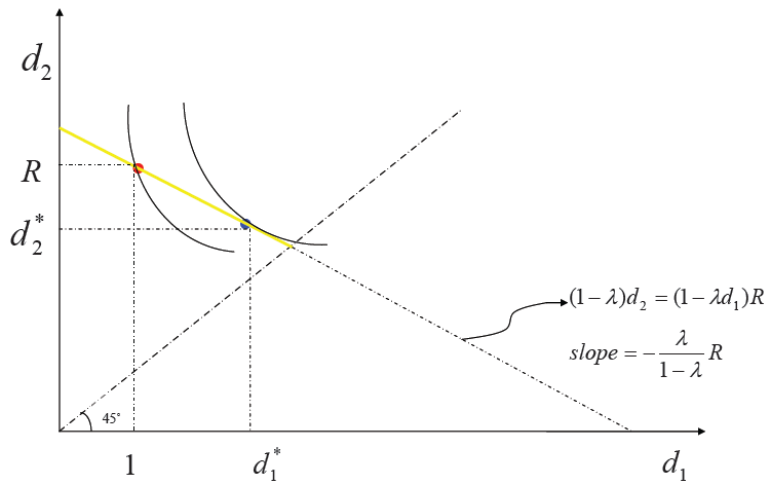
The solutions will be at [www.karlshell.com](http://www.karlshell.com)

Consider

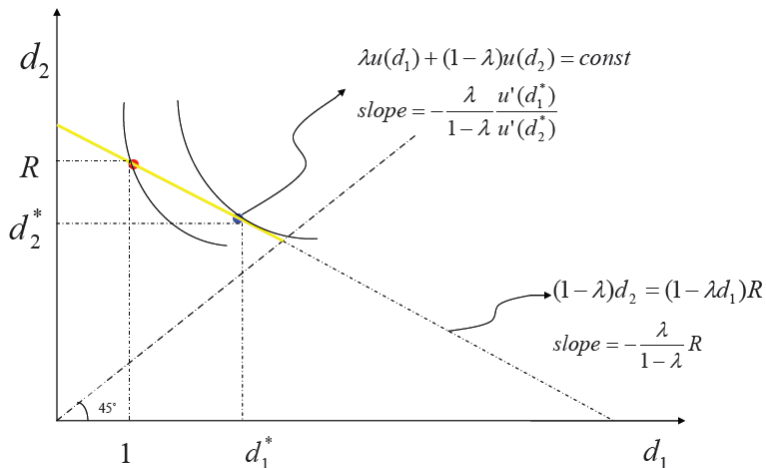
$$\begin{aligned} \max \quad & u_h(x_h^1, x_h^2) = A \log x_h^1 + B \log x_h^2 \\ \text{subject to} \quad & p^1 x_h^1 + p^2 x_h^2 = p^1 \omega_h^1 + p^2 \omega_h^2 = w_h \end{aligned}$$

Derive the demand function  $x_h(p^1, p^2)$  where  $p^1, p^2, w_h, A, B$  are positive and given to Mr.  $h$ .

## Optimal Deposit Contract:



## Optimal Deposit Contract:



$$\underbrace{\frac{\lambda}{1-\lambda} \frac{u'(d_1^*)}{u'(d_2^*)}}_{MRS} = \underbrace{\frac{\lambda}{1-\lambda} R}_{MRT}$$

## What do banks do?

- $u'(d_1^*)/u'(d_2^*) = R$
- $u'' < 0 \Rightarrow d_1^* < d_2^*$
- CRRA:  $u(c) = \frac{c^{1-\gamma}}{1-\gamma}$ 
  - ▶  $u'(c) = c^{-\gamma} \Rightarrow u'(d_1)/u'(d_2) = (d_2/d_1)^\gamma$
  - ▶ if  $\gamma = 1 \Rightarrow d_1^* = 1, d_2^* = R$
  - ▶ if  $\gamma > 1 \Rightarrow 1 < d_1^* < d_2^* < R$

## Why do bank runs occur?

- $\gamma > 1 \implies 1 < d_1^* < d_2^* < R$
- IC:  $d_1 \leq d_2$
- Expectation: Only the impatient depositors withdraw in period 1.
- A patient depositor can  $\left\{ \begin{array}{ll} \text{get } d_2^* & \text{if he withdraws in period 2} \\ \text{get } d_1^* & \text{if he withdraws in period 1} \end{array} \right.$



## Why do bank runs occur?

- $\gamma > 1 \implies 1 < d_1^* < d_2^* < R$
- Expectation: All other depositors demand withdraw in period 1.
- A patient depositor can
  - get *nothing* if he withdraws in period 2
  - get  $d_1^*$  w.p.  $(1/d_1^*)$  if he withdraws in period 1

## Some Remarks on Finance, Financial Fragility, and Banking

# Housing and Mortgages

- ▶ Non-recourse loans in US (jingle repayment)
- ▶ Tax advantages
- ▶ Implicit subsidies: FNMA, GNMA, etc.
- ▶ Inflation
- ▶ Rising interest rates
- ▶ ARM's

# Personal Income Tax

- ▶ Definitions of progressive, proportional, and regressive taxation
- ▶ High marginal “tax” rates on the poor
- ▶ Capital gains taxation

# Corporate Income Taxation

- ▶ Recent changes
- ▶ Ideal
- ▶ Transition

# Retirement

- ▶ Social security
- ▶ 401K
- ▶ 403B
- ▶ Alternatives

# Student Loans

# Personal Loans

- ▶ Collateral
- ▶ Home equity loans