

# Deposit Insurance and the Coexistence of Commercial and Shadow Banks

Stephen F. LeRoy\*    Rish Singhania\*\*

\*University of California, Santa Barbara

\*\*University of Exeter

June 2017

# Motivation and research questions

- ▶ Government insurance of deposits is controversial
  - ▶ Prevent bank runs
  - ▶ Possibility of risk shifting by banks

# Motivation and research questions

- ▶ Government insurance of deposits is controversial
  - ▶ Prevent bank runs
  - ▶ Possibility of risk shifting by banks
  
- ▶ Recent financial crisis featured runs on “shadow banks”

# Motivation and research questions

- ▶ Government insurance of deposits is controversial
  - ▶ Prevent bank runs
  - ▶ Possibility of risk shifting by banks
- ▶ Recent financial crisis featured runs on “shadow banks”
- ▶ Shadow banks do not benefit from government guarantees

# Motivation and research questions

- ▶ Government insurance of deposits is controversial
  - ▶ Prevent bank runs
  - ▶ Possibility of risk shifting by banks
- ▶ Recent financial crisis featured runs on “shadow banks”
- ▶ Shadow banks do not benefit from government guarantees
- ▶ How can uninsured shadow banks compete with insured commercial banks?

# Motivation and research questions

- ▶ Government insurance of deposits is controversial
  - ▶ Prevent bank runs
  - ▶ Possibility of risk shifting by banks
- ▶ Recent financial crisis featured runs on “shadow banks”
- ▶ Shadow banks do not benefit from government guarantees
- ▶ How can uninsured shadow banks compete with insured commercial banks?
- ▶ How does the design of the deposit insurance program affect the structure of the financial system?

# Our approach

- ▶ Key features
  - ▶ Agents can transfer assets either to “commercial” banks or “shadow” banks
  - ▶ Commercial banks issue insured deposits, shadow banks do not
  - ▶ Commercial banks find out likelihood of eventual failure
  - ▶ Banks trade risky and riskless assets
  - ▶ Bank failures realized
  - ▶ Insurance payments and premia settled

# Our approach

- ▶ Key features
  - ▶ Agents can transfer assets either to “commercial” banks or “shadow” banks
  - ▶ Commercial banks issue insured deposits, shadow banks do not
  - ▶ Commercial banks find out likelihood of eventual failure
  - ▶ Banks trade risky and riskless assets
  - ▶ Bank failures realized
  - ▶ Insurance payments and premia settled
- ▶ Bank portfolios? Risky-asset prices? Structure of financial system?

# Our approach

- ▶ Key features
  - ▶ Agents can transfer assets either to “commercial” banks or “shadow” banks
  - ▶ Commercial banks issue insured deposits, shadow banks do not
  - ▶ Commercial banks find out likelihood of eventual failure
  - ▶ Banks trade risky and riskless assets
  - ▶ Bank failures realized
  - ▶ Insurance payments and premia settled
- ▶ Bank portfolios? Risky-asset prices? Structure of financial system?
- ▶ Under three financing regimes
  1. Lump-sum taxes
  2. Deposit-based premia
  3. Risky-asset-based premia

## Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance

## Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”

## Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks

## Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How?

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How? Shadow banks trade to their advantage

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How? Shadow banks trade to their advantage
  - ▶ **Deposit-based premia:** sell risky assets to commercial banks at a premium

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How? Shadow banks trade to their advantage
  - ▶ **Deposit-based premia:** sell risky assets to commercial banks at a premium
  - ▶ **Risky-asset-based premia:** buy risky assets from commercial banks at a discount

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How? Shadow banks trade to their advantage
  - ▶ **Deposit-based premia:** sell risky assets to commercial banks at a premium
  - ▶ **Risky-asset-based premia:** buy risky assets from commercial banks at a discount
  - ▶ As a result, shadow banks coexist with commercial banks

# Insurance subsidy determines financial system structure

- ▶ Insured commercial banks shift risk to insurer under subsidized deposit insurance
- ▶ When subsidy is “large”
  - ▶ Risk shifting leads to overvaluation of risky assets or bubbles
  - ▶ Commercial banks dominate shadow banks
- ▶ When subsidy is “not too large”
  - ▶ Deposit insurance indirectly benefits shadow banks
  - ▶ How? Shadow banks trade to their advantage
  - ▶ **Deposit-based premia:** sell risky assets to commercial banks at a premium
  - ▶ **Risky-asset-based premia:** buy risky assets from commercial banks at a discount
  - ▶ As a result, shadow banks coexist with commercial banks
- ▶ What if there is no subsidy?

## No subsidy $\Rightarrow$ no asset price distortion

- ▶ Revenue neutral deposit insurance
  - ▶ Premia paid by solvent banks cover payments to failed banks
  - ▶ No contribution from the taxpayer, so no subsidy

## No subsidy $\Rightarrow$ no asset price distortion

- ▶ Revenue neutral deposit insurance
  - ▶ Premia paid by solvent banks cover payments to failed banks
  - ▶ No contribution from the taxpayer, so no subsidy
  
- ▶ **Finding:** Revenue neutral deposit insurance eliminates asset price distortion

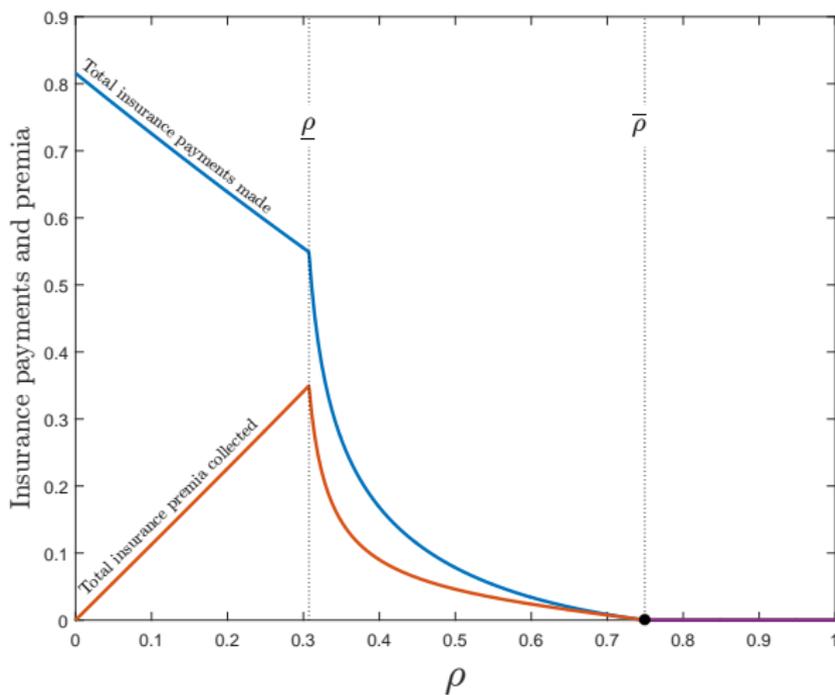
## No subsidy $\Rightarrow$ no asset price distortion

- ▶ Revenue neutral deposit insurance
  - ▶ Premia paid by solvent banks cover payments to failed banks
  - ▶ No contribution from the taxpayer, so no subsidy
- ▶ **Finding:** Revenue neutral deposit insurance eliminates asset price distortion
- ▶ **Intuition:** Price distortion reflects taxpayer subsidy to banks

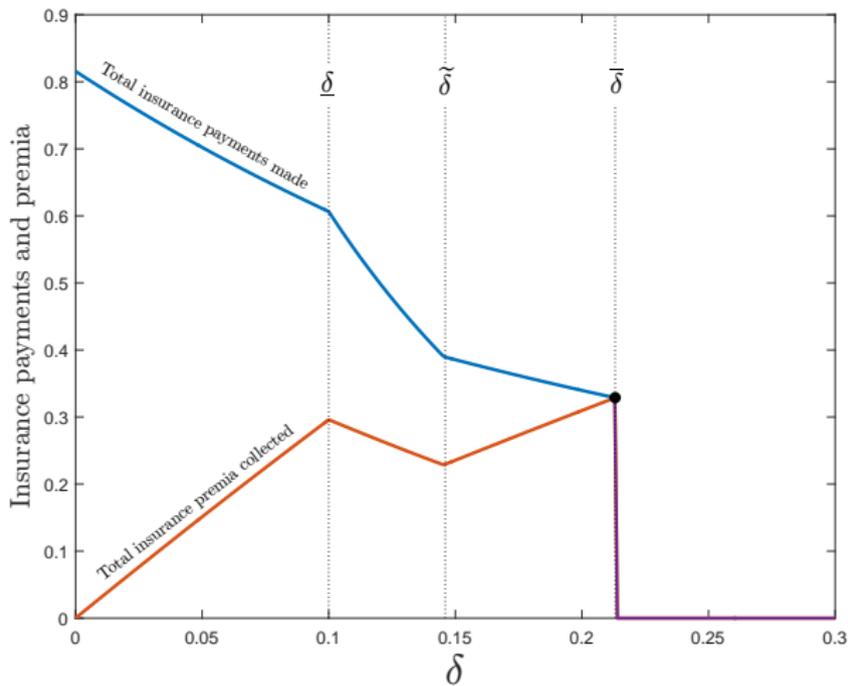
## No subsidy $\Rightarrow$ no asset price distortion

- ▶ Revenue neutral deposit insurance
  - ▶ Premia paid by solvent banks cover payments to failed banks
  - ▶ No contribution from the taxpayer, so no subsidy
- ▶ **Finding:** Revenue neutral deposit insurance eliminates asset price distortion
- ▶ **Intuition:** Price distortion reflects taxpayer subsidy to banks
- ▶ Are all revenue neutral insurance programs identical?

# Commercial banking collapses under risky-asset-based premia



# Commercial banking survives under deposit-based premia



## Conclusion: Insurance design affects financial system structure

- ▶ Design of insurance determines breakdown between commercial and shadow banks

## Conclusion: Insurance design affects financial system structure

- ▶ Design of insurance determines breakdown between commercial and shadow banks
- ▶ When insurance subsidy is not too large, risky assets move
  - ▶ **Deposit-based premia:** into commercial banks
  - ▶ **Risky-asset-based premia:** into shadow banks

## Conclusion: Insurance design affects financial system structure

- ▶ Design of insurance determines breakdown between commercial and shadow banks
- ▶ When insurance subsidy is not too large, risky assets move
  - ▶ **Deposit-based premia:** into commercial banks
  - ▶ **Risky-asset-based premia:** into shadow banks
- ▶ Cautionary tale about design of deposit insurance programs

## Conclusion: Insurance design affects financial system structure

- ▶ Design of insurance determines breakdown between commercial and shadow banks
- ▶ When insurance subsidy is not too large, risky assets move
  - ▶ **Deposit-based premia:** into commercial banks
  - ▶ **Risky-asset-based premia:** into shadow banks
- ▶ Cautionary tale about design of deposit insurance programs
- ▶ Might defeat the very purpose of insurance by shifting risky assets to vulnerable shadow banks