

Bank runs and deposit insurance



Fractional reserve banking

Fractional reserve banking

- ▶ Banks retain only a **small amount** of deposit as cash reserves to accommodate deposit withdrawals

Fractional reserve banking

- ▶ Banks retain only a small amount of deposit as cash reserves to accommodate deposit withdrawals
- ▶ This is known as **fractional reserve banking**

Fractional reserve banking

- ▶ Banks retain only a small amount of deposit as cash reserves to accommodate deposit withdrawals
- ▶ This is known as fractional reserve banking
- ▶ If the withdrawals are higher than the cash reserves, a bank may fail

Fractional reserve banking

- ▶ Banks retain only a small amount of deposit as cash reserves to accommodate deposit withdrawals
- ▶ This is known as fractional reserve banking
- ▶ If the withdrawals are higher than the cash reserves, a bank may fail
- ▶ This is known as a **bank run**

Fractional reserve banking

- ▶ Banks retain only a small amount of deposit as cash reserves to accommodate deposit withdrawals
- ▶ This is known as fractional reserve banking
- ▶ If the withdrawals are higher than the cash reserves, a bank may fail
- ▶ This is known as a bank run

Causes and prevention of bank runs

Causes and prevention of bank runs

- ▶ If **loans** are not repaid, banks may not be able to repay deposits

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to **withdraw** if they have this information

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to withdraw if they have this information
- ▶ It is not necessary to have such information, we will see how the **expectation** of others withdrawing will cause a bank run

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to withdraw if they have this information
- ▶ It is not necessary to have such information, we will see how the expectation of others withdrawing will cause a bank run
- ▶ Bank runs can be **avoided** if depositors do not face losses from a failing bank

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to withdraw if they have this information
- ▶ It is not necessary to have such information, we will see how the expectation of others withdrawing will cause a bank run
- ▶ Bank runs can be avoided if depositors do not face losses from a failing bank
- ▶ Deposit insurance affects the incentives of banks when taking risks

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to withdraw if they have this information
- ▶ It is not necessary to have such information, we will see how the expectation of others withdrawing will cause a bank run
- ▶ Bank runs can be avoided if depositors do not face losses from a failing bank
- ▶ Deposit insurance affects the incentives of banks when taking risks and the **competition** between them

Causes and prevention of bank runs

- ▶ If loans are not repaid, banks may not be able to repay deposits, causing depositors to withdraw if they have this information
- ▶ It is not necessary to have such information, we will see how the expectation of others withdrawing will cause a bank run
- ▶ Bank runs can be avoided if depositors do not face losses from a failing bank
- ▶ Deposit insurance affects the incentives of banks when taking risks and the competition between them

Expectations about other depositors

Expectations about other depositors

- ▶ Banks hold cash for **some** depositors to withdraw

Expectations about other depositors

- ▶ Banks hold cash for some depositors to withdraw
- ▶ Banks can obtain **additional cash** to repay more deposits

Expectations about other depositors

- ▶ Banks hold cash for some depositors to withdraw
- ▶ Banks can obtain additional cash to repay more deposits
- ▶ Banks are repaying deposits on a **first-come-first-served basis**

Expectations about other depositors

- ▶ Banks hold cash for some depositors to withdraw
- ▶ Banks can obtain additional cash to repay more deposits
- ▶ Banks are repaying deposits on a first-come-first-served basis, making **expectations** about the behaviour of other depositors essential

Expectations about other depositors

- ▶ Banks hold cash for some depositors to withdraw
- ▶ Banks can obtain additional cash to repay more deposits
- ▶ Banks are repaying deposits on a first-come-first-served basis, making expectations about the behaviour of other depositors essential
- ▶ If a depositor expects **many others** to withdraw, it would be beneficial to withdraw yourself

Expectations about other depositors

- ▶ Banks hold cash for some depositors to withdraw
- ▶ Banks can obtain additional cash to repay more deposits
- ▶ Banks are repaying deposits on a first-come-first-served basis, making expectations about the behaviour of other depositors essential
- ▶ If a depositor expects many others to withdraw, it would be beneficial to withdraw yourself



Discussion of model results

Discussion of model results

- ▶ Bank runs can become self-fulfilling

Discussion of model results

- ▶ Bank runs can become self-fulfilling, **no fundamental reason** needs to exist

Discussion of model results

- ▶ Bank runs can become self-fulfilling, no fundamental reason needs to exist
- ▶ **Expecting** others to withdraw, makes it **rational** to withdraw

Discussion of model results

- ▶ Bank runs can become self-fulfilling, no fundamental reason needs to exist
- ▶ Expecting others to withdraw, makes it rational to withdraw
- ? If a bank faces a liquidity problem from deposit withdrawals, is it **always** best to withdraw yourself?

Discussion of model results

- ▶ Bank runs can become self-fulfilling, no fundamental reason needs to exist
- ▶ Expecting others to withdraw, makes it rational to withdraw
- ? If a bank faces a liquidity problem from deposit withdrawals, is it always best to withdraw yourself?

Discussion of model results

- ▶ Bank runs can become self-fulfilling, no fundamental reason needs to exist
- ▶ Expecting others to withdraw, makes it rational to withdraw
- ? If a bank faces a liquidity problem from deposit withdrawals, is it always best to withdraw yourself?
- ! Banks might obtain **liquidity support** from the central bank or other banks through interbank loans, making staying with the bank more attractive

Discussion of model results

- ▶ Bank runs can become self-fulfilling, no fundamental reason needs to exist
- ▶ Expecting others to withdraw, makes it rational to withdraw
- ? If a bank faces a liquidity problem from deposit withdrawals, is it always best to withdraw yourself?
- ! Banks might obtain liquidity support from the central bank or other banks through interbank loans, making staying with the bank more attractive

Bank risks and withdrawals

Bank risks and withdrawals

- ▶ Banks' abilities to repay deposits depend on the **risks** in their loans and the **withdrawal rate** of depositors

Bank risks and withdrawals

- ▶ Banks' abilities to repay deposits depend on the risks in their loans and the withdrawal rate of depositors
- ▶ Allowing bank to **liquidate assets** increases their ability to meet withdrawals

Bank risks and withdrawals

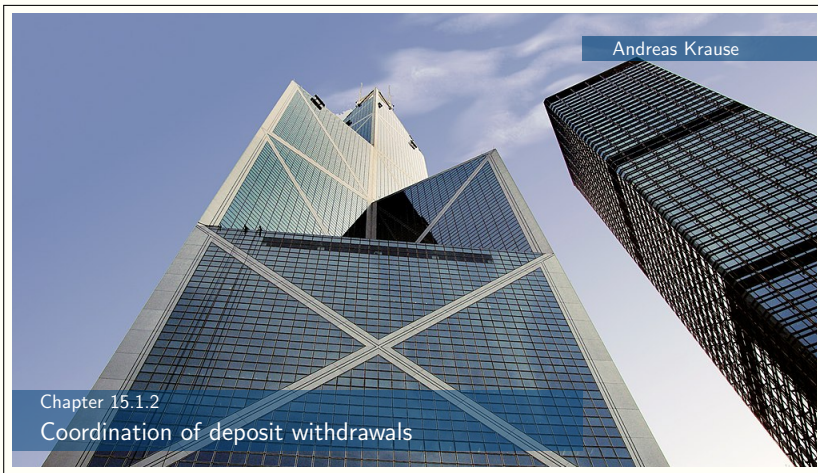
- ▶ Banks' abilities to repay deposits depend on the risks in their loans and the withdrawal rate of depositors
- ▶ Allowing bank to liquidate assets increases their ability to meet withdrawals
- ▶ The remaining assets are then used to repay the **remaining depositors**, each obtaining a larger share

Bank risks and withdrawals

- ▶ Banks' abilities to repay deposits depend on the risks in their loans and the withdrawal rate of depositors
- ▶ Allowing bank to liquidate assets increases their ability to meet withdrawals
- ▶ The remaining assets are then used to repay the remaining depositors, each obtaining a larger share
- ▶ This **trade-off** will be investigated

Bank risks and withdrawals

- ▶ Banks' abilities to repay deposits depend on the risks in their loans and the withdrawal rate of depositors
- ▶ Allowing bank to liquidate assets increases their ability to meet withdrawals
- ▶ The remaining assets are then used to repay the remaining depositors, each obtaining a larger share
- ▶ This trade-off will be investigated



Andreas Krause

Chapter 15.1.2
Coordination of deposit withdrawals

Discussion of model results

Discussion of model results

- ▶ A bank run may occur even if it is **not profitable** and not withdrawing deposits would yield a higher profit

Discussion of model results

- ▶ A bank run may occur even if it is not profitable and not withdrawing deposits would yield a higher profit
- ▶ The equilibrium exhibits a **coordination problem** between depositors whether to withdraw or not

Discussion of model results

- ▶ A bank run may occur even if it is not profitable and not withdrawing deposits would yield a higher profit
- ▶ The equilibrium exhibits a coordination problem between depositors whether to withdraw or not
- ? Can banks **easily and quickly** sell their assets?

Discussion of model results

- ▶ A bank run may occur even if it is not profitable and not withdrawing deposits would yield a higher profit
- ▶ The equilibrium exhibits a coordination problem between depositors whether to withdraw or not
- ? Can banks easily and quickly sell their assets?

Discussion of model results

- ▶ A bank run may occur even if it is not profitable and not withdrawing deposits would yield a higher profit
- ▶ The equilibrium exhibits a coordination problem between depositors whether to withdraw or not
- ? Can banks easily and quickly sell their assets?
- ! The **market** for bank assets will be **limited** as the valuation of loans is difficult and buyers are subject to **adverse selection**

Discussion of model results

- ▶ A bank run may occur even if it is not profitable and not withdrawing deposits would yield a higher profit
- ▶ The equilibrium exhibits a coordination problem between depositors whether to withdraw or not
- ? Can banks easily and quickly sell their assets?
- ! The market for bank assets will be limited as the valuation of loans is difficult and buyers are subject to adverse selection

Insuring deposits

Insuring deposits

- ▶ Banks or depositors could purchase **insurance** against any losses

Insuring deposits

- ▶ Banks or depositors could purchase insurance against any losses, this would **avoid** a bank run

Insuring deposits

- ▶ Banks or depositors could purchase insurance against any losses, this would avoid a bank run
- ▶ Such deposit insurance is often provided by governments for free or a fixed premium, based on total deposits

Insuring deposits

- ▶ Banks or depositors could purchase insurance against any losses, this would avoid a bank run
- ▶ Such deposit insurance is often provided by governments for free or a fixed premium, based on total deposits
- ▶ Depositors would **not** demand a risk premium for their deposits

Insuring deposits

- ▶ Banks or depositors could purchase insurance against any losses, this would avoid a bank run
- ▶ Such deposit insurance is often provided by governments for free or a fixed premium, based on total deposits
- ▶ Depositors would not demand a risk premium for their deposits
- ▶ This might affect the incentives of banks about the **type of loans** they give

Insuring deposits

- ▶ Banks or depositors could purchase insurance against any losses, this would avoid a bank run
- ▶ Such deposit insurance is often provided by governments for free or a fixed premium, based on total deposits
- ▶ Depositors would not demand a risk premium for their deposits
- ▶ This might affect the incentives of banks about the type of loans they give



Andreas Krause

Chapter 18.1.1
Fixed-price deposit insurance

Discussion of model results

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to **increase risks**

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating **moral hazard**

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating moral hazard
- ▶ The price of deposit insurance needs to **take into account the risk** banks take to avoid moral hazard

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating moral hazard
- ▶ The price of deposit insurance needs to take into account the risk banks take to avoid moral hazard
- ? With many governments providing free deposit insurance, why are bank failures **not more common**?

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating moral hazard
- ▶ The price of deposit insurance needs to take into account the risk banks take to avoid moral hazard
- ? With many governments providing free deposit insurance, why are bank failures not more common?

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating moral hazard
- ▶ The price of deposit insurance needs to take into account the risk banks take to avoid moral hazard
- ? With many governments providing free deposit insurance, why are bank failures not more common?
- ! Banks are **heavily regulated**, in terms of capital requirements; the time delay of repayments and inconvenience of deposit insurance makes depositors **not indifferent** to bank failures

Discussion of model results

- ▶ Fixed-price deposit insurance induces banks to increase risks, creating moral hazard
- ▶ The price of deposit insurance needs to take into account the risk banks take to avoid moral hazard
- ? With many governments providing free deposit insurance, why are bank failures not more common?
- ! Banks are heavily regulated, in terms of capital requirements; the time delay of repayments and inconvenience of deposit insurance makes depositors not indifferent to bank failures

Incomplete deposit insurance coverage

Incomplete deposit insurance coverage

- ▶ Deposit insurance is usually **limited** to a certain amount of deposits per bank

Incomplete deposit insurance coverage

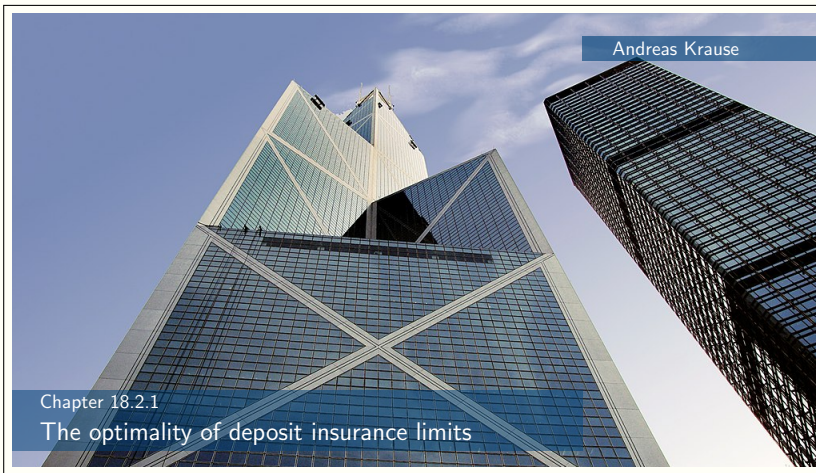
- ▶ Deposit insurance is usually limited to a certain amount of deposits per bank
- ▶ With deposit insurance **competition between banks** is affected as there the value of insured deposits is higher than uninsured deposits

Incomplete deposit insurance coverage

- ▶ Deposit insurance is usually limited to a certain amount of deposits per bank
- ▶ With deposit insurance competition between banks is affected as there the value of insured deposits is higher than uninsured deposits
- ▶ We will assess how this competition affects the preferences of banks for deposit insurance

Incomplete deposit insurance coverage

- ▶ Deposit insurance is usually limited to a certain amount of deposits per bank
- ▶ With deposit insurance competition between banks is affected as there the value of insured deposits is higher than uninsured deposits
- ▶ We will assess how this competition affects the preferences of banks for deposit insurance



Andreas Krause

Chapter 18.2.1
The optimality of deposit insurance limits

Discussion of model results

Discussion of model results

- ▶ Banks balance **lower deposit rates** due to deposit insurance with **higher competition** due to offering a more valuable 'product'

Discussion of model results

- ▶ Banks balance lower deposit rates due to deposit insurance with higher competition due to offering a more valuable 'product'
- ▶ This results in a **limit** on the amount of deposits that are **insured**

Discussion of model results

- ▶ Banks balance lower deposit rates due to deposit insurance with higher competition due to offering a more valuable 'product'
- ▶ This results in a limit on the amount of deposits that are insured
- ? Would a retail bank with mainly **low-income customers** advocate for a limit on deposit coverage?

Discussion of model results

- ▶ Banks balance lower deposit rates due to deposit insurance with higher competition due to offering a more valuable 'product'
- ▶ This results in a limit on the amount of deposits that are insured
- ? Would a retail bank with mainly low-income customers advocate for a limit on deposit coverage?

Discussion of model results

- ▶ Banks balance lower deposit rates due to deposit insurance with higher competition due to offering a more valuable 'product'
- ▶ This results in a limit on the amount of deposits that are insured
- ? Would a retail bank with mainly low-income customers advocate for a limit on deposit coverage?
- ! While providing deposit insurance would increase competition, banks might benefit through the absence of **bank runs** emerging from largely uninformed small depositors.

Discussion of model results

- ▶ Banks balance lower deposit rates due to deposit insurance with higher competition due to offering a more valuable 'product'
- ▶ This results in a limit on the amount of deposits that are insured
- ? Would a retail bank with mainly low-income customers advocate for a limit on deposit coverage?
- ! While providing deposit insurance would increase competition, banks might benefit through the absence of bank runs emerging from largely uninformed small depositors.

Summary of key results

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling and need **not** have a fundamental reason

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling and need not have a fundamental reason
- ▶ Deposit insurance prevents bank runs

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling and need not have a fundamental reason
- ▶ Deposit insurance prevents bank runs, but it affects the incentives of banks to take higher risks

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling and need not have a fundamental reason
- ▶ Deposit insurance prevents bank runs, but it affects the incentives of banks to take higher risks
- ▶ Banks are also concerned about the impact deposit insurance has on **competition between them** and seek to **limit the amount of deposits insured**

Summary of key results

- ▶ Bank runs can occur due to depositors forming expectations about other depositors' behaviour
- ▶ Bank runs can be self-fulfilling and need not have a fundamental reason
- ▶ Deposit insurance prevents bank runs, but it affects the incentives of banks to take higher risks
- ▶ Banks are also concerned about the impact deposit insurance has on competition between them and seek to limit the amount of deposits insured



Copyright © by Andreas Krause

Picture credits:

Cover: The wub, CC BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0>, via Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Canary_Wharf_from_Greenwich_riverside_2022-03-18.jpg

Back: Seb Tyler, CC BY 3.0 <https://creativecommons.org/licenses/by/3.0>, via Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Canary_Wharf_Panorama_Night.jpg

Andreas Krause
Department of Economics
University of Bath
Claverton Down
Bath BA2 7AY
United Kingdom

E-mail: mnsak@bath.ac.uk