

WEEK 4 · MODULE 3

Financial Intermediation and Crises

Financial Institutions and Markets · MF50004.01

Prof. Jiajun Jiang · School of Economics, Fudan University · Semester 1, 2026–2027

Where we left off

Week 3 in brief

Two bonds with the same maturity trade at different yields because of default risk, liquidity and tax treatment, and the same borrower pays different rates at different maturities. We then measured risk: in a portfolio, what matters is how an asset moves with the others, which leads to beta and the Capital Asset Pricing Model. Finally we asked whether market prices are right: depending on the method, between **35% and 82%** of published anomalies survive when other researchers rebuild them.

This week is about why financial institutions exist

Weeks 2 and 3 priced assets as if buyer and seller knew the same things. A lender usually knows much less than the borrower. This week asks what follows from that gap: why most firms borrow from banks instead of selling shares or bonds, why loan contracts look the way they do, and what happens when the gap becomes so large that lending stops — a financial crisis, in the United States and in China.

This week

MEETING 1 · WHY INSTITUTIONS EXIST

- 1 Why intermediaries exist
- 2 Asymmetric information and contract design

MEETING 2 · WHEN THEY FAIL

- 1 The stages of a financial crisis
- 2 China: stimulus, shadow banking and Baoshang

Mishkin Chapters 7 and 8. One problem runs through all four sessions: one side of a financial contract knows something the other side does not.

MEETING 1

Session 1 · Why intermediaries exist

Session 2 · Asymmetric information and contract design

90 minutes · why banks and other intermediaries exist, and how contracts deal with hidden information · closes on private credit, a \$1.5–2.0 trillion market of non-bank loans

Why intermediaries exist

What this session covers

- How firms raise money: Mishkin's eight facts about financial structure
- Transaction costs, and how intermediaries reduce them
- Two Chinese cases where technology tried to cut those costs: robo-advisers and peer-to-peer lending

Most of the eight facts contradict what a model without frictions would predict, and each can be explained by a specific friction.

Predict before we look

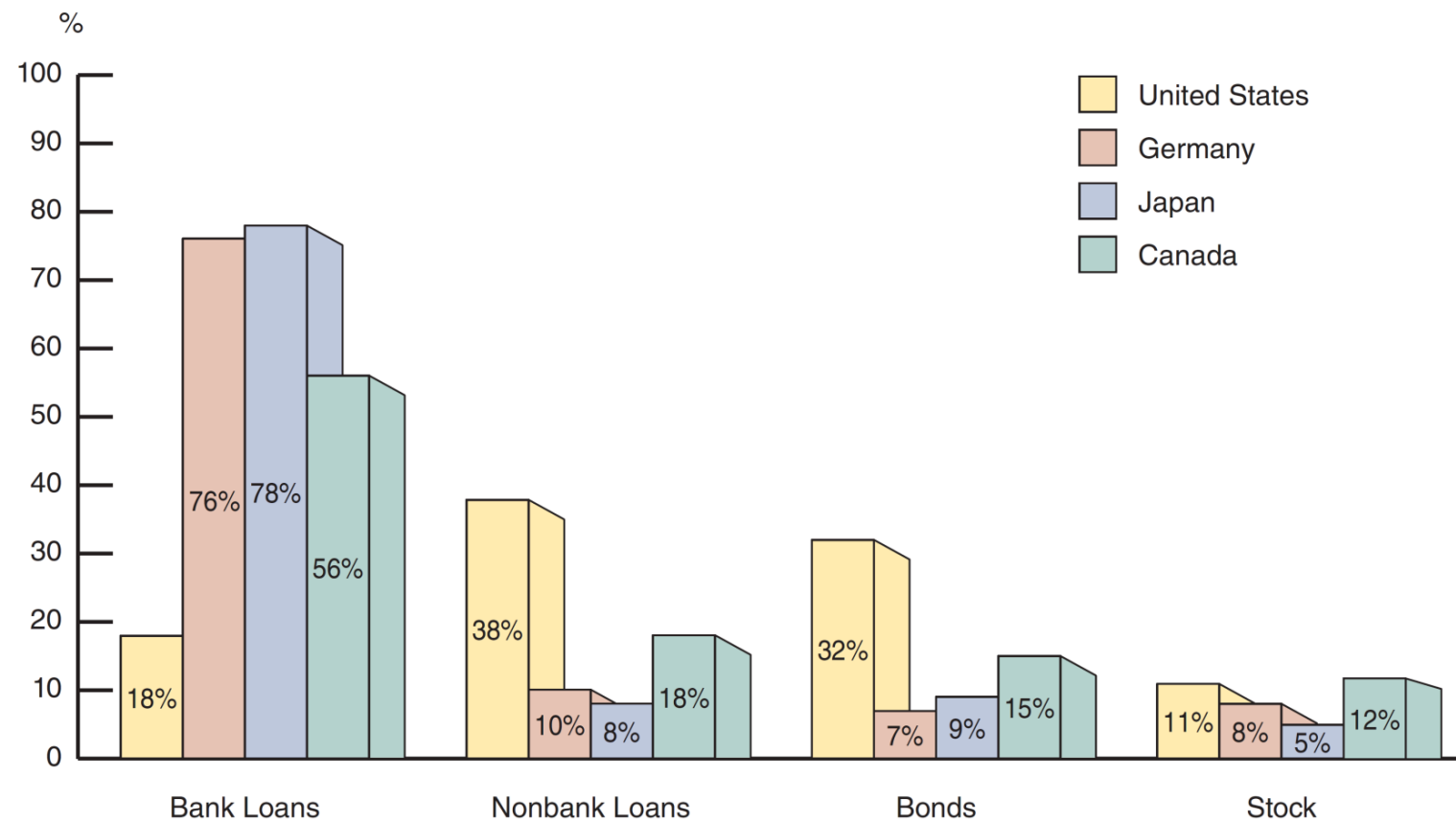
PREDICT BEFORE REVEAL · SHOW OF HANDS · 3 MIN

In the United States, Germany, Japan and Canada, 1970–2000, roughly what share of firms' external finance came from issuing new *shares*?

- A. About 40%
- B. About 25%
- C. About 10%
- D. Under 5%

Whatever you answer, ask yourself why the stock market gets most of the news coverage.

Where firms get their external funds



New shares were **11%** of firms' external finance in the US, 8% in Germany, 5% in Japan and 12% in Canada. Bank loans were 18%, 76%, 78% and 56%.

Mishkin & Eakins, 9th Global Edition, Figure 7.1; averages for 1970–2000. China in 2025: loans were 45% of new aggregate financing to the real economy and bonds plus shares 47%, but 39 points of that 47 were government bonds; firms' own bonds and shares were 8% (PBoC, 15 January 2026).

Eight facts about financial structure

- 1 Stocks are *not* the most important source of external finance for businesses
 - 2 Marketable securities are not the primary source of finance either
 - 3 Indirect finance is many times more important than direct finance
 - 4 Banks are the most important source of external funds
 - 5 The financial system is among the most heavily regulated sectors of the economy
 - 6 Only large, well-established firms have access to securities markets
 - 7 Collateral is a prevalent feature of debt contracts
 - 8 Debt contracts are extremely complicated legal documents with substantial restrictive covenants
-

Facts 1 to 4 show that intermediaries do something markets cannot. Facts 6 to 8 show that it concerns **information**.

Transaction costs

The problem

With \$5,000 you can buy only a few shares, the broker's commission is a large part of the purchase, and some bonds are sold only in \$10,000 units. You cannot diversify



Economies of scale

Buying 10,000 shares costs little more than buying 50. A mutual fund pools many savers' money and pays that cost once for all of them



Expertise

Systems and knowledge built once and used for thousands of customers, such as a credit-scoring process or a legal template for loans

A by-product: liquidity services

A deposit can be withdrawn any day, while the loans it funds run for years. Savers value that for its own sake. It is Week 1's maturity transformation, seen from the saver's side.

Transaction costs explain why intermediaries exist. They do not explain why most external finance is debt, or why loan contracts are so long. For that we need information.

Robo-advisers in China, 2016–2026

2016–18

Banks launch robo-advisers: China Merchants Bank's 摩羯智投 *Mójié Zhìtóu* ("Machine Gene Investment"), the Industrial and Commercial Bank of China's AI投 ("AI Invest"). A fund portfolio for a small saver, at low cost

Oct 2019

The China Securities Regulatory Commission (CSRC) opens a pilot licence for fund investment advice, 基金投顾 *jījīn tóugù*. Banks do not receive it

30 Jun 2022

Bank robo-advisers close, because building a fund portfolio for a client now requires that licence

2026

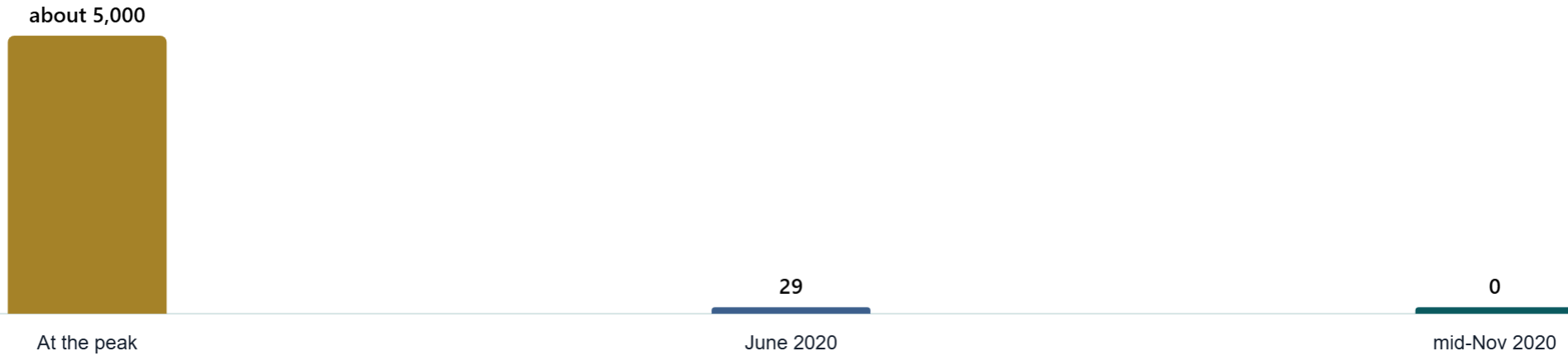
60 licensed institutions, up from 5; about **¥450bn** advised and close to **10m** clients — still a pilot

COLD CALL · 4 MIN

The bank that ran the robo-adviser also sold the funds it recommended, and earned a fee on every sale. What risk does this create for the client?

Permanent rules, the Measures for Securities and Fund Investment Advisory Business, appear in the CSRC's April 2026 legislative plan only as "to be issued when appropriate"; no draft had been published by September 2026. Caijing, 21 July 2026; CSRC.

The rise and fall of peer-to-peer lending in China



What P2P was, and what failed

Peer-to-peer (P2P) platforms were websites that matched individual lenders with individual borrowers. With almost no regulation until 2015, the sector grew **sixty-fold between 2013 and 2017**. Most platforms promised investors their money back. With that promise they were in effect banks, but with no capital, no deposit insurance and no supervisor. By mid-November 2020 the regulator said **every** operating platform had closed.

Ding, Kavuri & Milne (2021), Journal of Banking Regulation 22; Guo Shuqing, then chairman of the China Banking and Insurance Regulatory Commission, December 2020 (BIS). Peak lending volume ¥2.8tn in 2017.

Asymmetric information and contract design

Two problems, separated by when they happen

Adverse selection happens *before* the transaction: the borrowers most eager to borrow are often the ones you least want to lend to. **Moral hazard** happens *after*: once they have your money, the borrower may use it in ways you would not have agreed to.

Most clauses in a real loan contract deal with one of these two problems.

The lemons problem

Buyers cannot tell good from bad

So they will only pay the average value



Good sellers withdraw

The average price is below what their asset is worth



The average falls again

The process repeats, and the market can disappear

In securities markets

An investor who cannot tell a good firm from a bad one offers the average price. Good firms find that price too low and do not issue. The market is left with the firms you would least like to fund — which is Mishkin's Fact 6, derived from theory.

Akerlof (1970): when buyers cannot judge quality, a market can shrink until it disappears. In American English a "lemon" is a used car with hidden defects.

What reduces adverse selection

Device	How it works	Who supplies it
Private information production	Someone investigates firms and sells the answer	Rating agencies, analysts
Government-mandated disclosure	Standardised, audited, comparable, compulsory	Securities regulators
Financial intermediation	The lender keeps the loan, so its information stays private and is worth producing	Banks
Collateral and net worth	The lender is repaid even if the borrower turns out to be bad	The contract itself

The free-rider problem limits the first two

If you research a firm and buy its securities, others see the price move and copy you for free, so less research gets done. A bank avoids this by making a *private* loan that nobody can copy — one reason banks were the largest source of firms’ external funds in Mishkin’s data (Facts 3 and 4).

Moral hazard, and why most external finance is debt

EQUITY: THE PRINCIPAL-AGENT PROBLEM

Managers own a small share of the profits but do all of the work. To know what they are owed, shareholders must check the firm's results in *every* period, and checking is expensive.

DEBT: CHECK ONLY WHEN PAYMENT FAILS

A fixed payment means the lender needs to check nothing as long as the payment arrives. Costly checking happens only in default, and default is rare.

The result

Debt saves on monitoring. Mishkin calls the cost it saves *costly state verification*, and it is one reason firms raise much more through debt than through new shares (Fact 1).

Debt has its own moral-hazard problem: a borrower who keeps the gains of a risky project but shares its losses with the lender will prefer risk.

Worked example: how debt changes the borrower's choice of project

A firm owes 100 and has 90 to invest

Two projects. **Safe:** pays 95 for certain. **Risky:** pays 140 with probability 1/2, or 40 with probability 1/2 — expected value 90, so it is the *worse* project.

Project	Firm value	Lender receives	Owner receives
Safe (certain)	95	95	0
Risky, good half	140	100	40
Risky, bad half	40	40	0
Risky, expected	90	70	20

The owner prefers the project that destroys value: 20 against 0. The lender pays for it: 70 against 95. With limited liability the owner keeps the upside and passes the downside to the lender.

When the information producer has a stake

Institution	The two businesses	The conflict
Investment banks	Underwriting (selling a firm's new securities) and research	Research that hurts a client costs the underwriting fee
Accounting firms	Auditing and consulting	A tough audit costs the consulting work
Rating agencies	Rating and advising on structure	The issuer pays, and can choose the agency that rates it highest

Enron, 2001

Enron hid debt in off-balance-sheet companies; its auditor, Arthur Andersen, also sold it consulting services. Enron's collapse brought down Andersen and led to the US Sarbanes-Oxley Act (2002), which bars a firm's auditor from selling it many non-audit services.

In each case the producer of information is paid by the firm it is supposed to judge.

Diagnose the friction

THINK – PAIR – SHARE · 6 MIN

For each, say whether it addresses adverse selection or moral hazard, and how: a mortgage requiring a 30% deposit; a bond covenant limiting new borrowing; a bank demanding three years of audited accounts; a venture capitalist taking a board seat.

Case — private credit: non-bank lenders to mid-sized firms

SITUATION

Private credit funds are non-bank investment funds that lend directly to mid-sized companies and keep the loans. The market reached **US\$1.5–2.0 trillion** by end-2024, mostly in the US, the euro area and the UK. In May 2026 the Financial Stability Board, which coordinates financial regulators of the G20 economies, published its first report on the sector's risks. Banks have given these funds about **\$220 billion** of credit lines — promises to lend on demand, used and unused.

FRICTION

The borrowers are the firms of Mishkin's Fact 6: too small or too opaque for strangers in a securities market to price. A fund screens and monitors them as a bank would. But the fund is outside bank regulation, its loans are valued only a few times a year, and it can draw on bank credit lines when it needs cash.

DECIDE

You supervise banks. (A) The credit risk has left the banking system; no action is needed. (B) Banks still carry it through their credit lines; act now. Choose, and name the one piece of information you would ask the banks for first.

THINK – PAIR – SHARE · 10 MIN

Choose A or B, then name the one piece of information.

Financial Stability Board, Report on Vulnerabilities in Private Credit, 6 May 2026; market size as at end-2024.

MEETING 2

Session 3 · The stages of a financial crisis

Session 4 · China: stimulus, shadow banking and Baoshang

90 minutes · what a financial crisis is, in the United States and in China · closes on Baoshang Bank, 2019

The stages of a financial crisis

In a crisis, the frictions from Session 2 all get worse at once

Mishkin's definition: a disruption in which asymmetric information problems become so severe that the financial system stops channelling funds to those with productive investment opportunities.

The definition does not mention falling asset prices. Prices usually fall in a crisis, but what makes it a crisis is that lending stops.

Three stages

Stage one — initial phase

Credit boom and bust, an asset-price decline, or a spike in uncertainty. Balance sheets deteriorate; adverse selection and moral hazard worsen; lending falls



Stage two — banking crisis

Insolvencies and runs. Surviving banks lend less, what failed banks knew about their borrowers is lost, and those borrowers cannot be funded by anyone else



Stage three — debt deflation

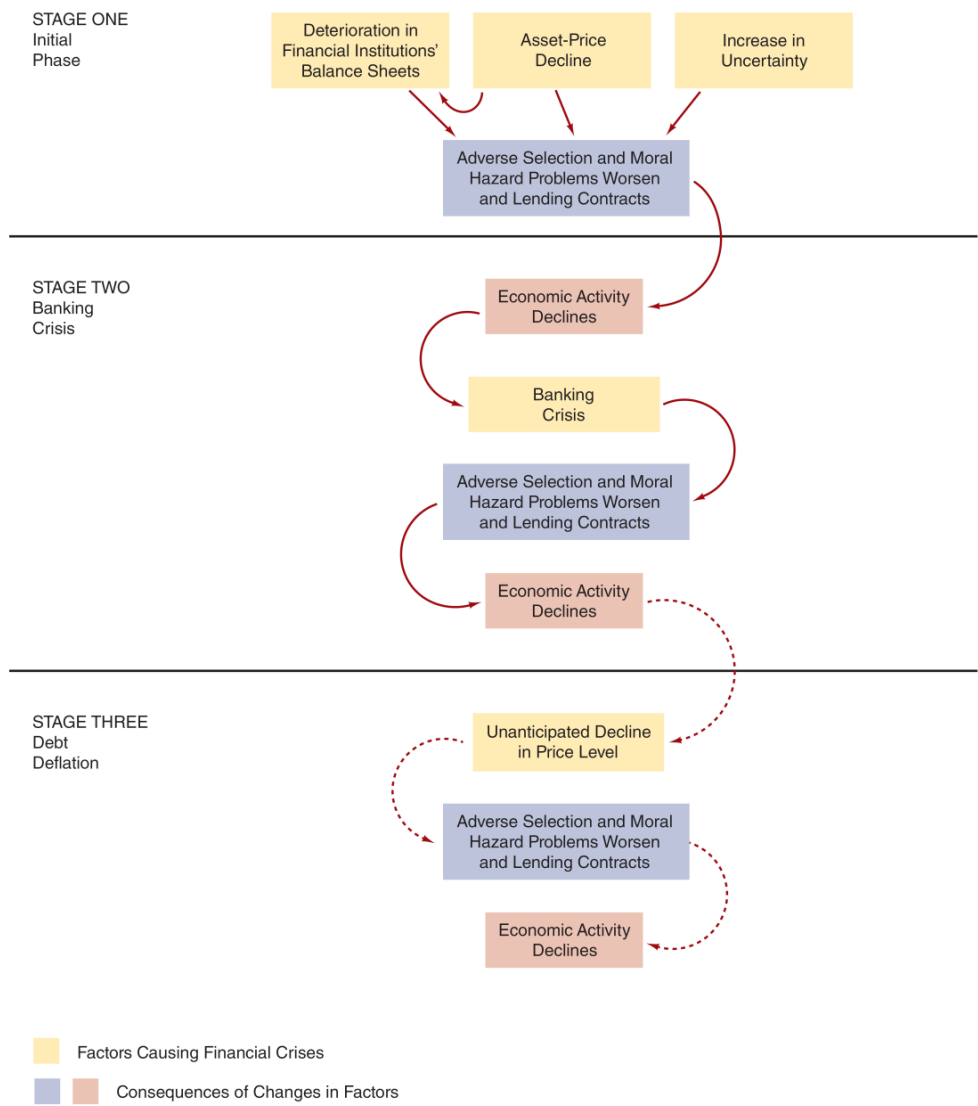
An unexpected fall in the price level raises the real value of debt. Borrowers' net worth falls although nothing else has changed

Why stage two is the dangerous one

A bank's knowledge of its borrowers cannot be handed to another lender. When the bank fails, that knowledge is lost, and the borrower's access to credit goes with it.

Stage three did not happen in 2008 or 2023. It did happen in the 1930s, and it is one reason central banks fear deflation.

The sequence, in full



2007–09, through the three stages

Stage	What happened in the United States
1 · Credit boom	Subprime mortgage lending grows on the belief that house prices never fall nationally; the loans are pooled into securities and sold to investors
1 · Asset-price bust	House prices turn in 2006. Nobody can value the mortgage securities, so they become unsellable — the lemons problem
1 · Balance sheets	Losses meet high leverage; short-term lenders refuse to roll over their loans
2 · Banking crisis	Bear Stearns rescued (March 2008), Lehman Brothers bankrupt (September 2008); banks stop lending to each other
3 · Debt deflation	Did not happen: US consumer prices fell 0.4% in 2009, then rose again

COLD CALL · 3 MIN

After Lehman failed, banks stopped lending to each other, even to banks that were sound. Which Session 2 problem explains that?

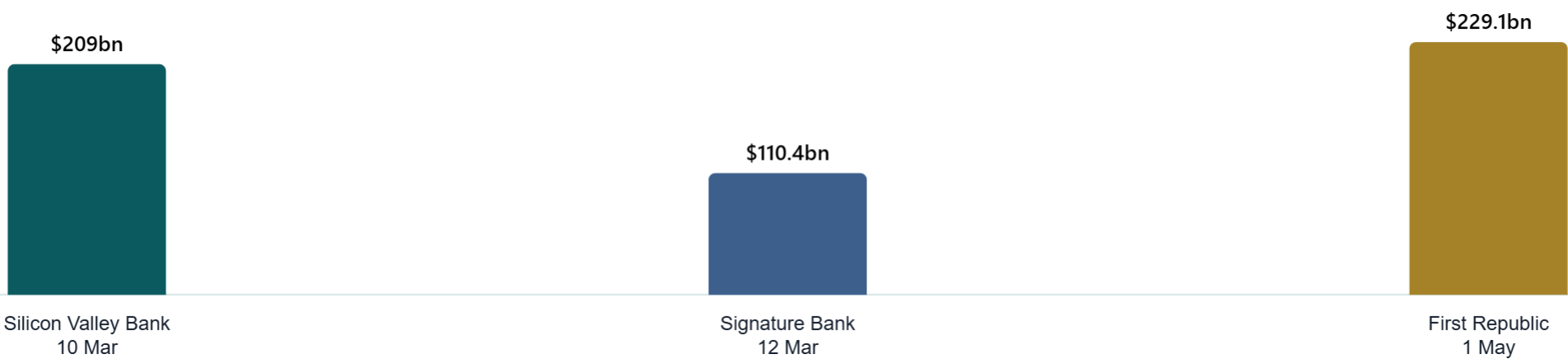
Research Spotlight

One in ten securitised mortgages carried a false statement, those loans defaulted about 70% more often, and the pools holding them sold at no discount at all

QUESTION	Did the banks that packaged mortgages into securities tell investors the truth about the loans, and did investors notice when they did not?
IDENTIFICATION	The loan data reported to investors in residential mortgage-backed securities (RMBS) compared with an independent record of the same loans, on two facts that are easy to check: whether the borrower had a second mortgage on the house, and whether the borrower lived in it. Then default rates and issue prices compared against otherwise similar loans
NUMBER	7–14% of loans misreported; about 70% higher default rate; no price discount for the pools that contained them
SO WHAT	The seller knew more than the buyer, exactly as in Akerlof, but buyers did not pay less. Securitisation passed the information problem on to investors, who did not price it

Piskorski, T., Seru, A. & Witkin, J. (2015). Asset Quality Misrepresentation by Financial Intermediaries: Evidence from the RMBS Market. *Journal of Finance* 70(6): 2635–2678.

March 2023 — the same sequence, in 48 hours



94%

of Silicon Valley Bank’s deposits were above the \$250,000 insurance limit

> \$40bn

withdrawn on 9 March; about \$100bn more expected on the 10th

31

open supervisory findings when it failed, about three times its peers

SVB’s losses were on Treasury bonds and mortgage securities that fell in price when rates rose, and its depositors could leave within hours.

Federal Reserve, Barr Review, 28 April 2023; FDIC failed bank list. Assets at failure: SVB \$209bn, Signature \$110.4bn, First Republic \$229.1bn.

Who paid for protecting all depositors

The systemic-risk exception

On 12 March 2023 the Treasury, the Federal Reserve and the Federal Deposit Insurance Corporation (FDIC) protected *all* depositors at SVB and Signature Bank, insured or not. The cost to the FDIC's Deposit Insurance Fund: about **\$16.7 billion** on its latest estimate.

The cost was charged to large banks afterwards

The FDIC recovered the cost with a special assessment on each bank's uninsured deposits above the first \$5 billion, collected over eight quarters to March 2026. Banks with less than \$5bn of assets paid nothing. In effect it charged, after the event, the banks that benefit most from an implicit guarantee.

Deposits above the limit were protected although the law did not require it. That protection is a subsidy, and the policy question is who should pay for it in advance.

FDIC, special assessment page (estimate as of 30 September 2025); Federal Register, 29 November 2023 and 19 December 2025.

Social media and the speed of a bank run

A measurable channel

Banks that were already discussed more on Twitter before March 2023 lost about **4.3 percentage points** more stock-market value during the run than otherwise similar banks — holding constant their share of uninsured deposits and their losses on securities.

What that does to deposit insurance

The \$250,000 limit was set when withdrawing money took time. When depositors share news online and can move money by phone within minutes, uninsured deposits can leave much faster.

Mishkin's stage one is about balance sheets. How quickly depositors receive news and move money now matters as well.

Cookson, Fox, Gil-Bazo, Imbet & Schiller (2026), Journal of Financial Economics 176.

Deposit insurance is a design choice

Jurisdiction	Limit per depositor	Note
United States	\$250,000	Per ownership category
Euro area	€100,000	Harmonised across member states
United Kingdom	£120,000	Raised from £85,000 in December 2025
Japan	¥10 million	
China	¥500,000	In force since 1 May 2015; the People’s Bank of China calculates it covers 99.6% of depositors in full

For run risk, what matters is the share of *deposits* covered, and that differs from the share of depositors. At SVB 94% of the money was above the limit.

Should deposit insurance have a limit?

POLL · SHOW OF HANDS · 3 MIN

Should deposit insurance cover all deposits in full, with no limit?

- A. Yes — the limit was not applied in 2023, so the rule should match practice
- B. No — uninsured depositors are the main outside check on a bank
- C. Yes, but charge for it: unlimited cover with a premium based on each bank's risk
- D. Keep the limit, and let large depositors take losses next time

China: stimulus, shadow banking and Baoshang

A different sequence

China did not have a banking crisis in 2008. It had a very large credit expansion instead, and the consequences appeared over the following decade in a form Mishkin's three stages do not describe.

The chain: stimulus → a borrowing constraint → shadow credit → an implicit guarantee → the day the guarantee was withdrawn.

The 4-trillion stimulus

¥4tn

announced 9 November 2008 — about US\$586bn, or 12.5% of 2008 GDP

¥4.9 → 9.6tn

new bank lending, 2008 to 2009: the money came mostly from bank credit

1994

the Budget Law that barred local governments from borrowing directly

The friction is the third number

Local governments had to carry out much of the spending and had no legal way to borrow. They borrowed through local government financing vehicles (LGFVs) — companies they set up to borrow for them — mostly as bank loans, with bank-loan maturities.

State Council announcement via Library of Congress; Naughton (Hoover Institution); new renminbi loans from the People's Bank of China.

When the stimulus loans came due

2009

Stimulus lending to LGFVs at bank-loan maturities of about three to four years



2012 onward

The loans come due before the projects produce cash. Provinces with more 2009 lending later sold more bonds to repay bank loans: about **15 cents per dollar** of 2009 lending



Shadow credit

LGFV bonds, trust loans, entrusted loans (company-to-company loans arranged by a bank) and wealth-management products — shorter, off banks' balance sheets, and assumed to be guaranteed

A second channel: competition for deposits

Small and mid-sized banks that competed for deposits with the large state banks sold wealth-management products — savings products outside the bank's balance sheet — as substitutes for deposits, which had to be rolled over every few months (Acharya, Qian, Su & Yang, 2025).

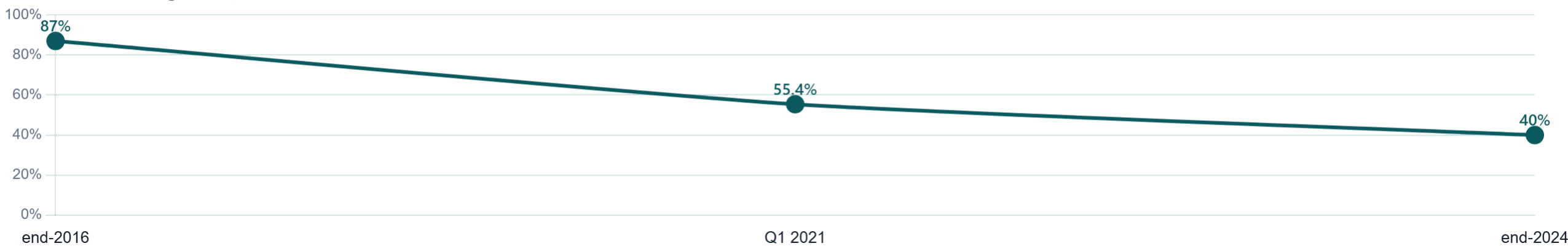
Chen, He & Liu (2020), Journal of Financial Economics 137(1); Acharya, Qian, Su & Yang (2025), Management Science 71(7).

Chinese shadow banking, 2016–2024

What is counted

Shadow banking here means credit provided outside banks’ balance sheets: trust loans, entrusted loans, wealth-management products and similar channels, on Moody’s broad measure.

Broad shadow banking assets, % of nominal GDP



From about 87% of GDP at end-2016 to about 40% at end-2024. In yuan the total stopped falling: **¥49tn** in 2023, **¥53.3tn** in 2024.

Moody’s Quarterly China Shadow Banking Monitor (2016, 2021); BBVA Research, China Banking Monitor 2025, estimates based on Moody’s (2023, 2024). No 2025 figure has been published, so the series stops there.

Baoshang Bank, 2019–2020 — what was done

Date	Action
24 May 2019	The People's Bank of China and the banking regulator take control of Baoshang, a city commercial bank in Inner Mongolia. The cause: about ¥156bn of fraudulent loans to 209 shell companies linked to one group
Same day	Personal deposits protected in full. Interbank and corporate claims protected in full only up to ¥50m ; larger claims negotiated. Interbank borrowing was about 44% of Baoshang's liabilities
Apr 2020	Good assets moved to a new bank, Mengshang, with money from the Deposit Insurance Fund
Nov 2020	¥6.5bn of Tier-2 capital bonds (bank bonds that absorb losses) written down to zero on 13 November, a first in China; declared bankrupt in February 2021

Regulators had taken over troubled banks before and always paid creditors in full. The new step was a **loss for large interbank creditors**.

Xu, Liu & Zhang (2024), Finance Research Letters 59, 104696; Liu, Wang & Zhou, BOFIT Discussion Paper 11/2024.

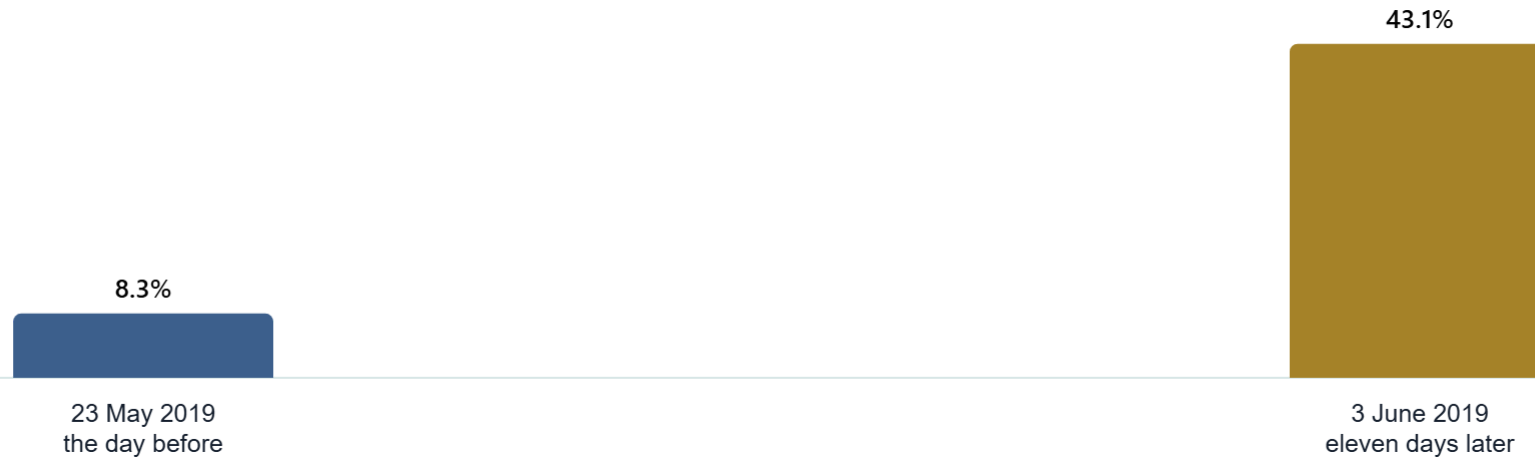
Predict before we look

PREDICT BEFORE REVEAL · SHOW OF HANDS · 3 MIN

Chinese banks borrow from each other by selling negotiable certificates of deposit (NCDs), short-term debt securities. In the eleven days after the Baoshang announcement, what happened to the share of banks that tried to sell NCDs and could not?

- A. It barely moved — from about 8% to about 11%
- B. It roughly doubled, to about 17%
- C. It rose to about 43%
- D. Almost no small bank could sell one

After Baoshang: funding costs for other banks



The structural change

Before Baoshang, the interest rate a bank paid on its NCDs hardly depended on the bank's own financial condition. Afterwards it did — but only for small banks whose failure would not threaten the whole system.

The interbank market became **tiered**: an NCD is now priced on how important the issuing bank is thought to be. Spreads had mostly returned to normal by end-2019.

Closing case — Baoshang and the next small-bank failure

SITUATION	On 24 May 2019 regulators took over Baoshang Bank and protected interbank claims in full only up to ¥50m. Within eleven days the share of Chinese banks unable to sell an NCD rose from 8.3% to 43.1%. Six more small banks got into trouble later, and every one was rescued with no losses for creditors.
FRICTION	While an implicit guarantee is believed, it costs the government nothing; removing it is costly. Removing it made prices informative — spreads began to reflect each bank's condition — and at the same time cut off funding to weak banks whose problems the guarantee had kept out of prices.
DECIDE	You regulate China's banks and the next small bank fails. (A) Protect every creditor in full and charge the banking industry afterwards, as the US did in 2023. (B) Protect deposits up to the limit and let large creditors take losses, as China did with Baoshang. Which do you choose?

THINK – PAIR – SHARE • 10 MIN

Choose A or B, give one reason from this week, and say what you would watch over the next five years to know you chose well.

Main takeaways

What we covered

1. Why intermediaries exist: the eight facts, transaction costs, and two Chinese FinTech cases
2. Asymmetric information: adverse selection, moral hazard, and how contracts deal with them
3. Financial crises: Mishkin's three stages, 2007–09 and March 2023
4. China: the 2008 stimulus, shadow banking, and the Baoshang takeover

The points to remember

- New shares were only **5–12%** of firms' external finance in the US, Germany, Japan and Canada
- Adverse selection happens **before** the contract, moral hazard **after**; disclosure, collateral, covenants and bank monitoring each answer one of them
- With limited liability the owner chose the worse project: **20** for the owner, and the lender's expected payment fell from **95 to 70**
- A crisis has **three stages**: balance sheets worsen, banks fail, debt deflation. 2008 and 2023 stopped at stage two
- SVB: **94%** of deposits uninsured; all depositors were protected, and large banks were charged afterwards
- Baoshang: claims above **¥50m** lost protection, and banks unable to sell an NCD rose from **8.3% to 43.1%** in eleven days

Questions to Think About

1. Misreported mortgage pools sold at no discount. Give two explanations, and one observation that would tell them apart.
2. Private credit serves the firms of Fact 6 outside bank regulation. Is the financial system more or less stable as a result?
3. China withdrew an implicit guarantee and prices became informative; six banks then needed rescuing. Was it worth doing?
4. If bank runs now happen in hours, which banking rule most needs to be revised?

These are for you to think about, not to hand in.

Before Next Class

Required

- Mishkin & Eakins — Chapters 7 and 8 (this week)
- Mishkin & Eakins — Chapters 9 and 10, central banks and monetary policy (Week 5)

Optional

- Piskorski, Seru & Witkin (2015), *Journal of Finance* — today's Research Spotlight; read the introduction
- Chen, He & Liu (2020), *Journal of Financial Economics* — how the 2009 stimulus loans turned into shadow credit
- FSB, *Report on Vulnerabilities in Private Credit*, 6 May 2026 — the executive summary

Week 5 begins tomorrow, Friday 16 October, with central banks and monetary policy. Monday 19 October is FinTech.

References

- Acharya, V. V., Qian, J. "QJ", Su, Y. & Yang, Z. (2025). Fiscal Stimulus, Deposit Competition, and the Rise of Shadow Banking. *Management Science* 71(7): 5645–5675.
- Akerlof, G. A. (1970). The Market for "Lemons". *Quarterly Journal of Economics* 84(3): 488–500.
- Chen, Z., He, Z. & Liu, C. (2020). The Financing of Local Government in China. *Journal of Financial Economics* 137(1): 42–71.
- Cookson, J. A., Fox, C., Gil-Bazo, J., Imbet, J. F. & Schiller, C. (2026). Social Media as a Bank Run Catalyst. *Journal of Financial Economics* 176.
- Ding, D., Kavuri, A. S. & Milne, A. (2021). Lessons from the Rise and Fall of Chinese Peer-to-Peer Lending. *Journal of Banking Regulation* 22: 133–143.
- Federal Reserve (2023). *Review of the Federal Reserve's Supervision and Regulation of Silicon Valley Bank*, 28 April.
- Financial Stability Board (2026). *Report on Vulnerabilities in Private Credit*, 6 May.
- Liu, L., Wang, X. & Zhou, Z. (2024). Let a Small Bank Fail: Implicit Non-guarantee and Financial Contagion. *BOFIT Discussion Paper* 11/2024 — working paper.
- Mishkin, F. S. & Eakins, S. G. (2018). *Financial Markets and Institutions*, 9th Global Edition. Pearson — Chapters 7 and 8.
- Piskorski, T., Seru, A. & Witkin, J. (2015). Asset Quality Misrepresentation by Financial Intermediaries. *Journal of Finance* 70(6): 2635–2678.
- Xu, Y., Liu, Z. & Zhang, L. (2024). The Spillover Effect of Bank Distress. *Finance Research Letters* 59, 104696.

APPENDIX

Optional depth

The full asymmetric-information map, and the numbers on one page.

Appendix — the asymmetric-information map

Problem	When	Consequence	Reduced by
Adverse selection	Before	The worst borrowers are the most eager; good ones withdraw; the market can disappear	Information production · mandated disclosure · intermediation · collateral and net worth
Moral hazard, equity	After	Principal–agent: the manager’s effort is unobserved and their share of the gain is small	Monitoring · board representation · mandated reporting · debt contracts themselves
Moral hazard, debt	After	Risk-shifting: limited liability lets the borrower keep the gains of a risky project and pass losses to the lender	Net worth requirements · covenants · collateral · monitoring and enforcement
Free-riding on information	Continuous	Researchers cannot capture the value of what they discover, so too little is produced	Private lending, where the information cannot be copied

Each of Mishkin’s eight facts follows from one of these four lines.

Appendix — the numbers on one page

Indicator	Value	As of
China, new aggregate financing	¥35.6tn: loans 45%, government bonds 39%, corporate bonds and shares 8%	2025
Global private credit	US\$1.5–2.0tn; bank credit lines ≈\$220bn	end-2024
SVB at failure	\$209bn assets; 94% uninsured; >\$40bn out on 9 Mar; 31 open findings	Mar 2023
Systemic-risk exception	≈\$16.7bn; charged on uninsured deposits above \$5bn over eight quarters	2023–26
China stimulus	¥4tn (US\$586bn), ≈12.5% of GDP; new loans ¥4.9tn → ¥9.6tn	2008–09
Shadow banking, broad	≈87% of GDP (2016) → ≈40% (2024); ¥49tn → ¥53.3tn (2023–24)	2016–24
Baoshang	≈¥156bn fraudulent loans; full protection to ¥50m; NCD failures 8.3% → 43.1%	May–Jun 2019

Sources on the slides where each figure appears.