# Hidden Non-Performing Loans in China


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# AMCs for bank clean-up

- Asset Management Companies (AMCs): designated entities to purchase and resolve banks’ troubled assets
- Started in late 1980s and early 1990s in USA and Sweden
- Used widely in developed and developing economies
  - USA, UK, Germany, Spain, …
  - China, Korea, Malaysia, Indonesia, Turkey, Nigeria, …
- Latest adoptions in response to COVID-related distressed debt

# AMCs in China

- Four national AMCs set up in 1999 by the central government.
- Local AMCs could be established as designated institutions to acquire NPLs from banks since 2012.
- Banks’ offloading NPLs through AMCs face few restrictions and are widespread.
- Compared to other countries which had more targeted and short-term uses, China’s setting permits both time-series and cross-sectional analyses of the AMC model of NPL resolution.

# Introduction

Research questions:

1. Do NPL transactions reflect orderly resolution of troubled assets?
2. What are the implications for financial stability?

Findings:

1. NPL transactions appear to be concealment rather than orderly resolution
   - Banks still exposed to the NPLs even though the NPLs are removed from their balance sheets.
2. Recognizing hidden NPLs implies true NPLs are understated by 2-4x.

# Related literature

- Measurement and resolution of problem loans: Demirgüç-Kunt (1989); Cole and White (2012); DeYoung and Torna (2013); Jimenez, Ongena, Peydro, and Saurina (2017)
  *This paper: Hidden NPLs are prevalent & should be recognized.*

- Policy recommendation of designated resolution entities: Geithner (2009); Avgouleas and Goodhart (2017)
  *This paper: Contrary to the policy objectives, the designated resolution specialists cooperate with banks.*

- Effectiveness of financial regulation: Acharya, Schnabl, and Suarez (2013); Begley, Purnanandam, and Zheng (2017); Flanagan and Purnanandam (2019); Nadauld and Sherlund (2013); Du, Tepper, and Verdelhan (2018)
  *This paper: A novel mechanism of regulatory arbitrage—the concealment of NPLs in China.*

# Management of NPLs in China

- 5 categories of loan quality: “normal”, “special mention”, “sub-standard”, “doubtful”, and “loss”.
  - Importantly, no direct mapping between delinquency status and 5-category classification. Banks are allowed to use their internal risk models.
- In 2012, the Ministry of Finance and the China Banking Regulatory Commission allowed the establishment of local AMCs to acquire NPLs from banks and resolve NPLs.
  - AMCs as designated NPL resolution specialists: national AMCs from the late 1990s and local AMCs from 2012
  - Banks transfer NPL packages (≥ 10 NPLs) to local AMCs. The transferred NPLs are removed from banks’ balance sheets.
- By the end of 2019, 59 local AMCs were set up.

# Data

- Data on NPL transactions from a large local AMC
- <u>Sample Period</u>: Q3 2014 – Q4 2019
- <u>Total number of banks</u>: 82
- <u>Banks Observed:</u>
  - Big 4: 4
  - Joint stock: 8 out of the total of 12
  - Other banks: 70
- <u>Geographical Distribution</u>:
  - Tier 1 city: 7
  - Tire 2 city: 12
  - Others: 63

Total number of transactions:
257

Total Amount traded:
165 billion CNY
(23 billion USD)

Mean Transaction Size:
642 million CNY
(92 million USD)

Median Transaction Size:
282 million CNY
(40 million USD)

# Are NPL transactions resolution or concealment?

- Empirical relation between the stringency of financial regulation and NPL transactions:
  - Binding required regulatory ratio: Allowance-to-NPLs ratio ≥ 150%
  - Violation of regulatory minimum predicts NPL transactions from banks to AMC
  - NPL transactions lead to more lending and less regulatory violation

  … is consistent with both actual resolution of NPLs as well as concealment of NPLs from financial regulators:
  - More pressure to comply with financial regulations may incentivize more orderly resolution of troubled assets.
  - Same pressure may also incentivize banks to conceal NPLs from financial regulators.
- The distinction is important for financial stability.

# Plausible scenarios

1. **Orderly market-based resolution**: AMCs acquire NPLs from banks at fair prices and work to resolve the NPLs.
   - Market mechanism for price discovery; also intended objective of the 2012 deregulation of local AMCs
   - Risk transfer from banks to AMCs and potentially other market participants

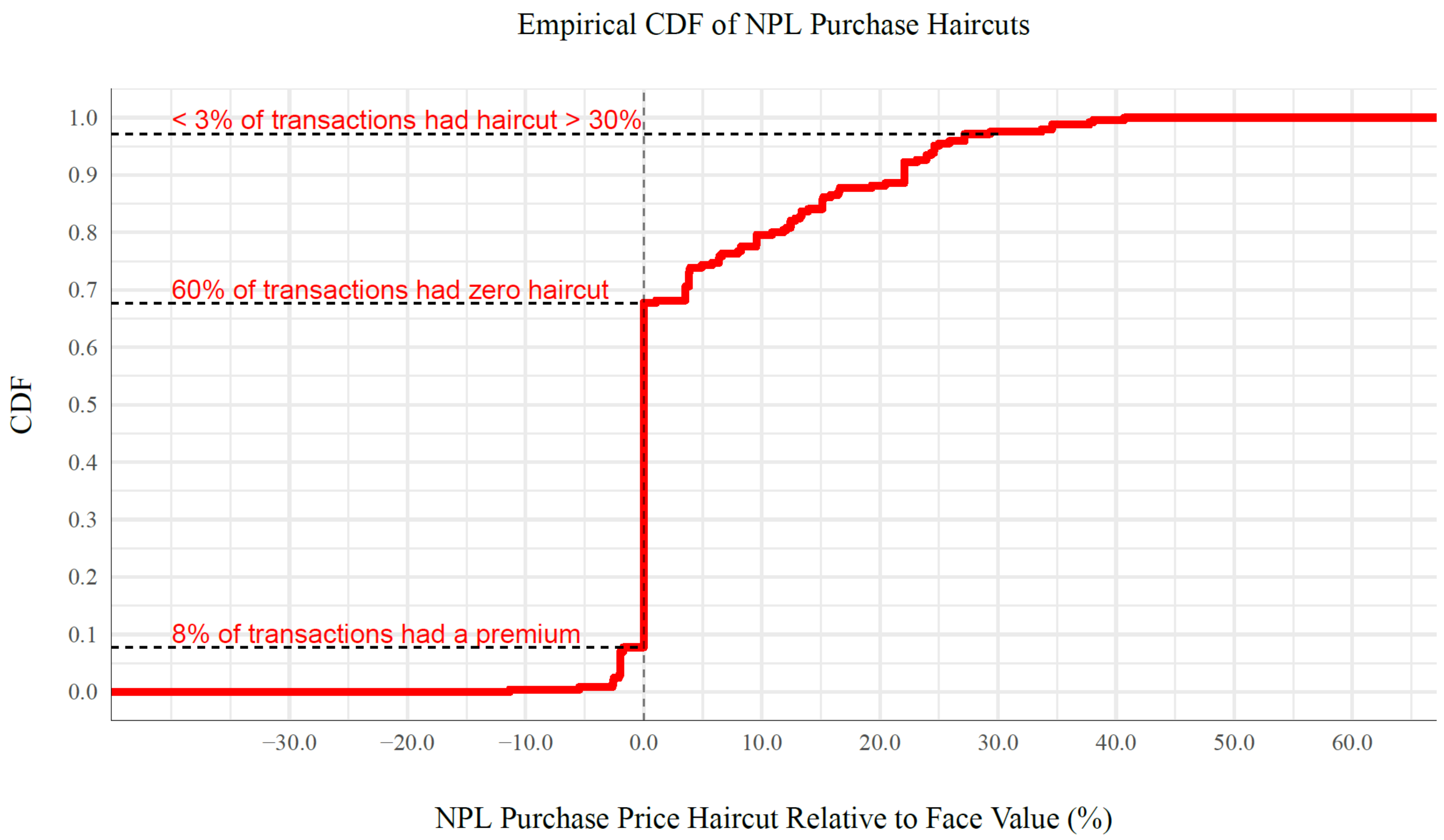
2. **Government-backed resolution**: AMCs can act as agents of the governments to bail out the troubled banks.
   - Government bail-out
   - Risk transfer from banks to AMCs and potentially other government entities

3. **Concealment**: Banks devise strategies to conceal their NPLs without proper resolution; risks of NPLs do not get resolved.
   - Regulatory arbitrage
   - Banks may retain risk exposure to the NPLs

# Characteristics of NPL transactions

| Panel A: NPL Sales and Contract Types | | | | | | | |
|---|---|---|---|---|---|---|---|
| Variables: | Mean | S.D. | Min | P25 | Median | P75 | Max |
| Delinquency (months) | 53.1 | 14.0 | 11 | 42 | 55 | 64 | 98 |
| NPL Sale Haircut (%) | 5.10 | 10.1 | -11.3 | 0.000 | 0.000 | 6.40 | 6.50 |
| Annual commission fees (%) | 0.542 | 0.297 | 0.300 | 0.300 | 0.500 | 1.00 | 1.00 |
| AMC Transaction Funding from Bank (dec) | 1.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| NPL Collection Delegation to Bank (dec) | 1.000 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

- Average size of NPL package: 115 loans from 86.5 borrowers



Empirical CDF of NPL Purchase Haircuts
< 3% of transactions had haircut > 30%
60% of transactions had zero haircut
8% of transactions had a premium
CDF
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0.0
−30.0
−20.0
−10.0
0.0
10.0
20.0
30.0
40.0
50.0
60.0
NPL Purchase Price Haircut Relative to Face Value (%)

# Haircut does not reflect credit risks

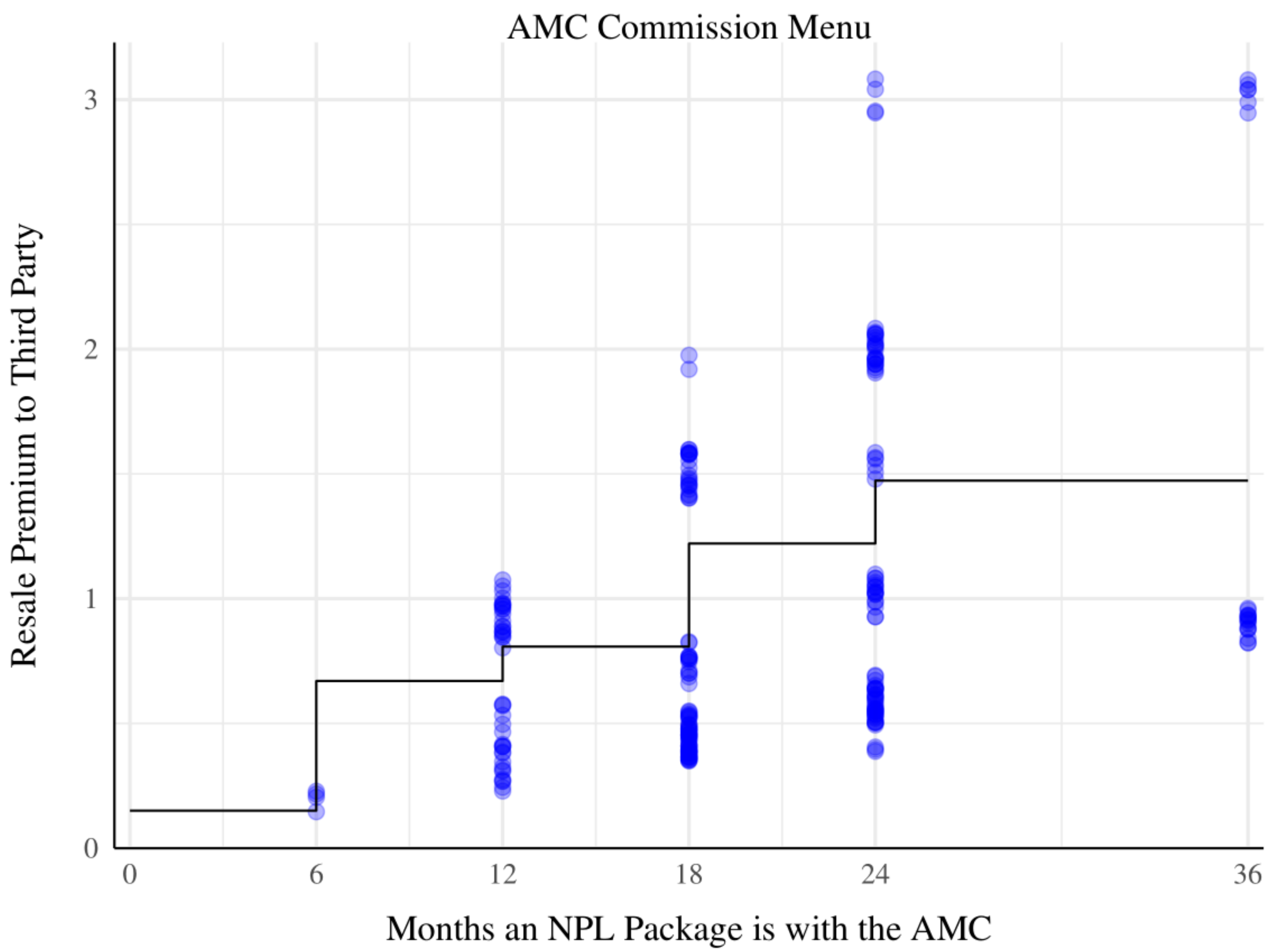
| Dependent Variable: | Haircut of NPL Sale Relative to Loan Face Value | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| NPL Quality Measure = | Num. Months Delinquent | Share of Loans to SOEs | Share of Secured Loans | Share of Loans with Maturity > 1 year |
| NPL Quality Measure | -0.002** | -0.003 | 0.039 | -0.051 |
| | (-2.50) | (-0.03) | (0.60) | (-0.20) |
| Capital Ratio$_{t-1}$ | 0.353*** | 0.352*** | 0.360*** | 0.351*** |
| | (10.74) | (9.54) | (9.70) | (9.52) |
| Violation$_{t-1}$ | 0.0420 | 0.0251 | 0.025 | 0.0240 |
| | (1.30) | (0.80) | (0.77) | (0.78) |
| N | 159 | 159 | 159 | 159 |
| $R^2$ | 0.599 | 0.565 | 0.566 | 0.565 |

# Ultimate owners and re-sale of NPLs

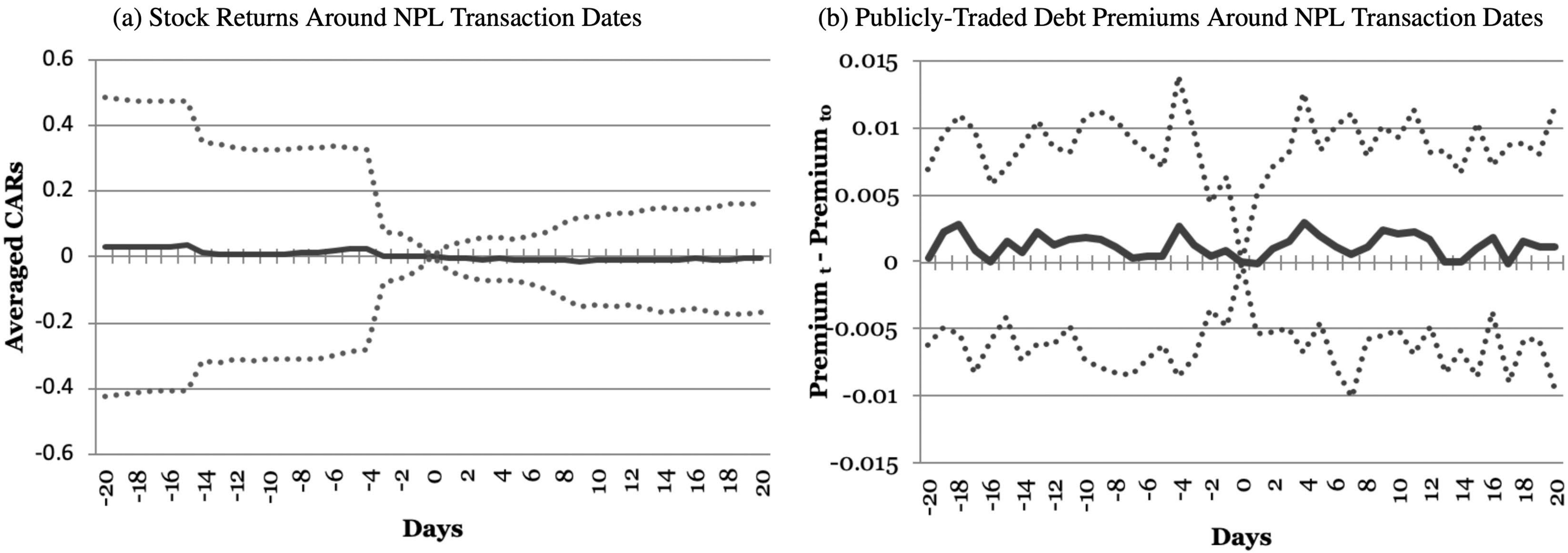
| Panel A: Ultimate Owners | | | | | | | |
|---|---|---|---|---|---|---|---|
| Variables: | Mean | S.D. | Min | P25 | Median | P75 | Max |
| Time of NPL with the AMC (months) | 21.0 | 7.60 | 6 | 18 | 18 | 24 | 48 |
| NPL Package Resolution: | | | | | | | |
| Go to a third party (dec) | 0.741 | 0.439 | 0 | 0 | 1 | 1 | 1 |
| Stay with the AMC (dec) | 0.159 | 0.367 | 0 | 0 | 0 | 0 | 1 |
| Change to another AMC (dec) | 0.099 | 0.299 | 0 | 0 | 0 | 0 | 1 |
| Re-syndication of the NPL (dec) | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Pre-arranged Third Party Identity (dec) | 0.051 | 0.220 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| Panel B: Re-Sale Transactions and Third-Party Identities | | | | | | | |
| Variables: | Mean | S.D. | Min | P25 | Median | P75 | Max |
| NPL Package Resale Premium (%) | 1.00 | 0.70 | 0.15 | 0.50 | 0.90 | 1.50 | 3.00 |
| Third Party in Same City as Bank (dec) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Third Party Type: | | | | | | | |
| Borrower (dec) | 0.953 | 0.213 | 0.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Discounted Bill User (dec) | 0.034 | 0.181 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |
| Others (dec) | 0.014 | 0.116 | 0.000 | 0.000 | 0.000 | 0.000 | 1.000 |

# Higher re-sale premium for longer stays

| Dependent Variable: | Re-Sale Premium (%) | | | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| NPL Quality = | Num. Months Delinquent | Share of Loans to SOEs | Share of Secured Loans | Share of Loans with Maturity > 1 year |
| Num. of Month NPL Stays with AMC | 0.002*** | 0.002*** | 0.002*** | 0.002*** |
| | (5.33) | (6.26) | (5.80) | (6.13) |
| NPL Quality | -0.0002 | 0.230 | 0.236 | 1.068 |
| | (-0.09) | (0.54) | (-0.94) | (1.18) |
| Haircut in Initial NPL Transaction | 0.003 | 0.003 | 0.003 | 0.002 |
| | (0.53) | (0.48) | (0.50) | (0.39) |
| Capital Ratio$_{t-1}$ | 0.033 | 0.026 | -0.010 | 0.047 |
| | (0.16) | (0.11) | (-0.05) | (0.21) |
| Violation$_{t-1}$ | 0.074 | 0.083 | 0.069 | 0.098 |
| | (0.66) | (0.69) | (0.64) | (0.80) |
| N | 135 | 135 | 135 | 135 |
| $R^2$ | 0.594 | 0.591 | 0.596 | 0.596 |


AMC Commission Menu
Resale Premium to Third Party
Months an NPL Package is with the AMC
0
1
2
3
0
6
12
18
24
36

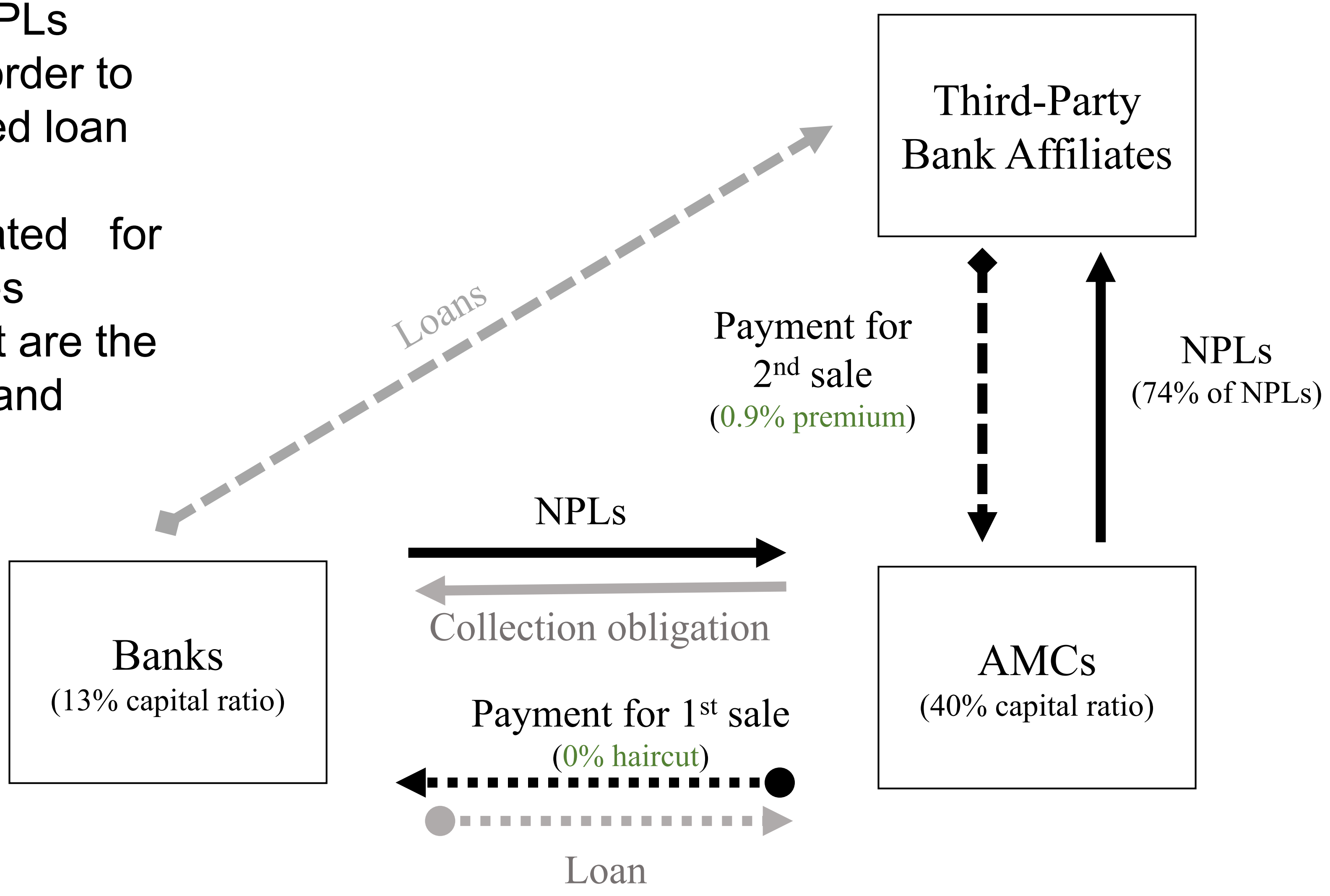
# Markets don’t react to NPL transactions



| Aspect of NPL transactions | Prediction of Orderly market-based resolution | Prediction of Government-backed resolution | Prediction of Concealment | Empirical results |
|---|---|---|---|---|
| 1. NPL transaction price | Risk-based pricing: haircut is large, increasing in credit risk, & decreasing in bank health | Can be higher than risk-based fair prices | Can be higher than risk-based fair prices | Most transactions have 0 haircut, some even at a premium. Haircut decreases with delinquency and increases with bank health. |
| 2. Who services NPLs? | AMCs | AMCs | Banks | All transactions have collection delegation terms that delegate the banks to continue collecting the NPLs. |
| 3. Who supply funds for the AMCs? | Debt holders & equity holders of the AMCs | Government | Banks | Banks. The dominant form changes from direct lending to indirect lending following the July 2019 regulation that banned direct lending. |
| 4. Does the AMC sell NPLs to someone else? | Unlikely | Unlikely | Re-sales are prevalent. | More than 80% of NPL packages are re-sold. |
| 5. Price in the re-sales | At a discount | At a discount | At a premium (to compensate the AMC) | All re-sales have a positive premium; re-sale premium appears to be a step function of the length of the AMC's holding period. |
| 6. In re-sales, who buy from the AMC? | Can be anyone | Government entities | Banks' affiliates | More than 90% third-party buyers are borrowers/clients of the banks. |
| 7. Market reaction to banks' transferring NPLs | Positive price response | Positive price response | Null or negative price response | No response in either the stock market or the public debt market. |

# Movement of NPLs in the financial system

1. Banks that want to remove NPLs from their balance sheets in order to comply with the quantity-based loan quality regulation
2. AMCs that are compensated for acting as pass-through entities
3. Third-party bank affiliates that are the ultimate owners of the NPLs and borrowers of the banks.

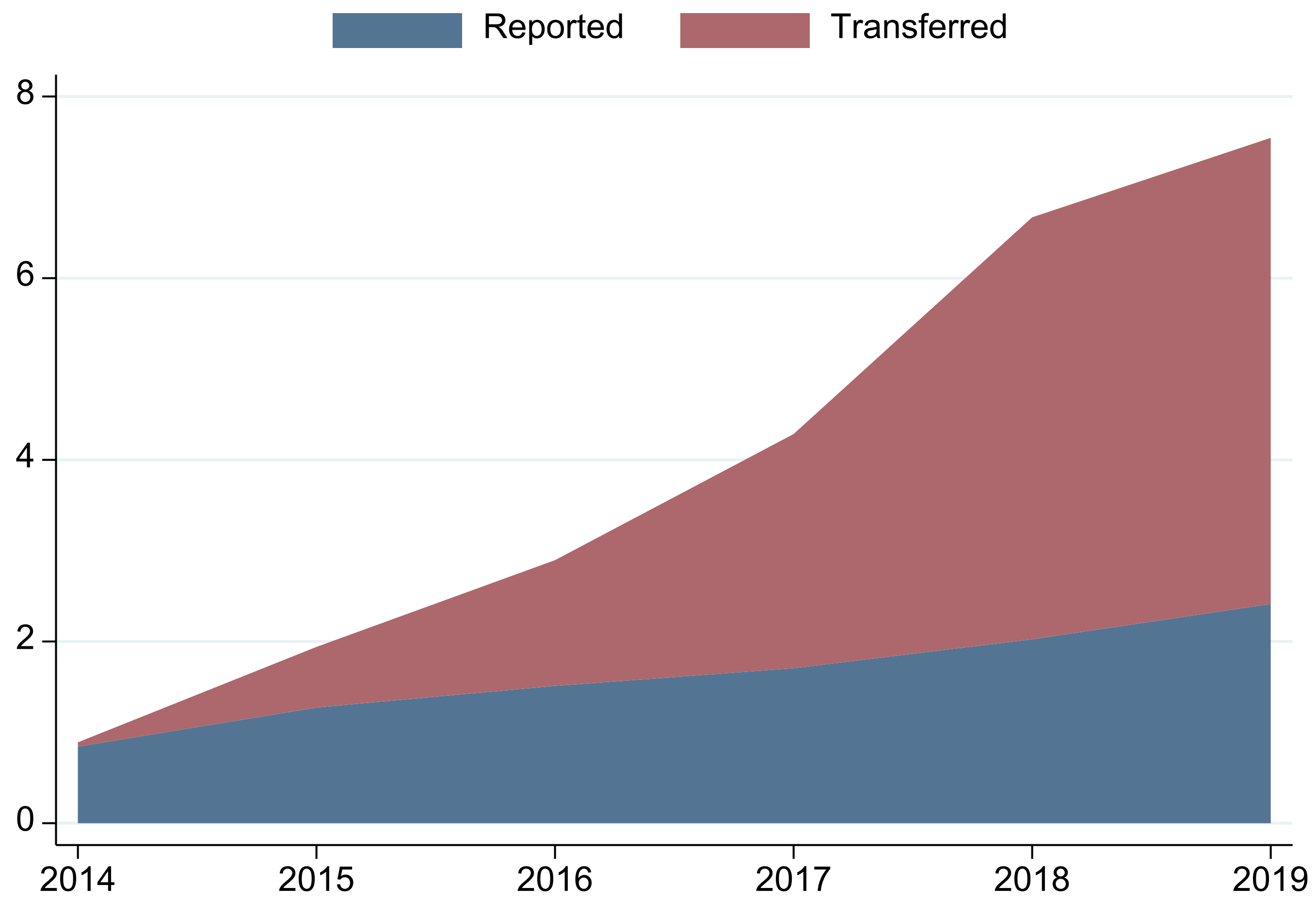


# Total NPLs in the financial system

"In 2019, the banking industry disposed of 2.3 trillion yuan of non-performing assets." (compared with the end-of-year reported NPLs of 2.41 trillion)

- Liu Guoqiang, Vice President of the People's Bank of China

As of 2019, 5.13 trillion hidden vs. 2.41 trillion reported



# NPL loss propagation

Banks

| Pass-through from affiliates to banks | Total loss for banks (bn) | Total loss/total capital | Revised capital ratio |
|---|---|---|---|
| 10% | 228 | 1.03% | 14.5% |
| 50% | 1,140 | 5.13% | 13.9% |
| 100% | 2,280 | 10.3% | 13.1% |

Third-party bank affiliates

74% of loss: 2,280 billion CNY

Asset Management Companies

26% of Loss: 800 billion CNY

Hidden NPLs

If loss given default = 60%

# Conclusion

- Despite the intention to cultivate a market for orderly resolution, NPL transactions appear to be concealment rather than orderly resolution.
- As a result, banks are still exposed to the NPLs even though the NPLs are removed from their balance sheets.
- Recognizing hidden NPLs is crucial for effective financial stability policies.
- Good governance practices and timely supervisory monitoring would be crucial for actual resolutions.
- Finally, financial fragility in a large economy such as China can have global implications.

# Thank you!

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