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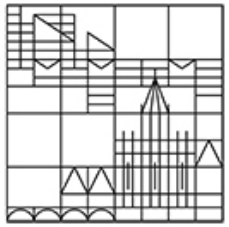

CENTER FOR FINANCIAL STUDIES

HOUSE OF FINANCE
Goethe-Universität Frankfurt

The Future of Securitization

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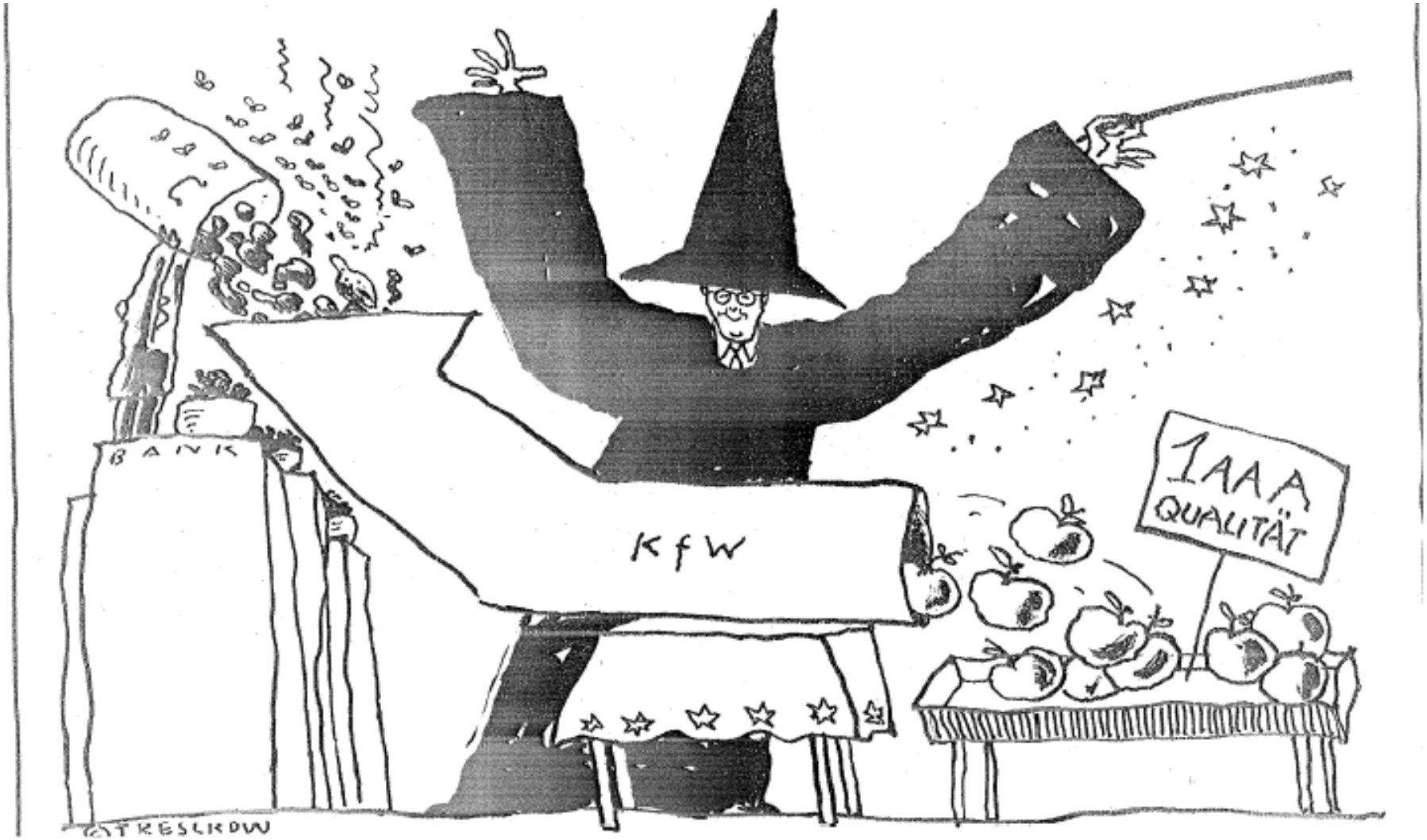
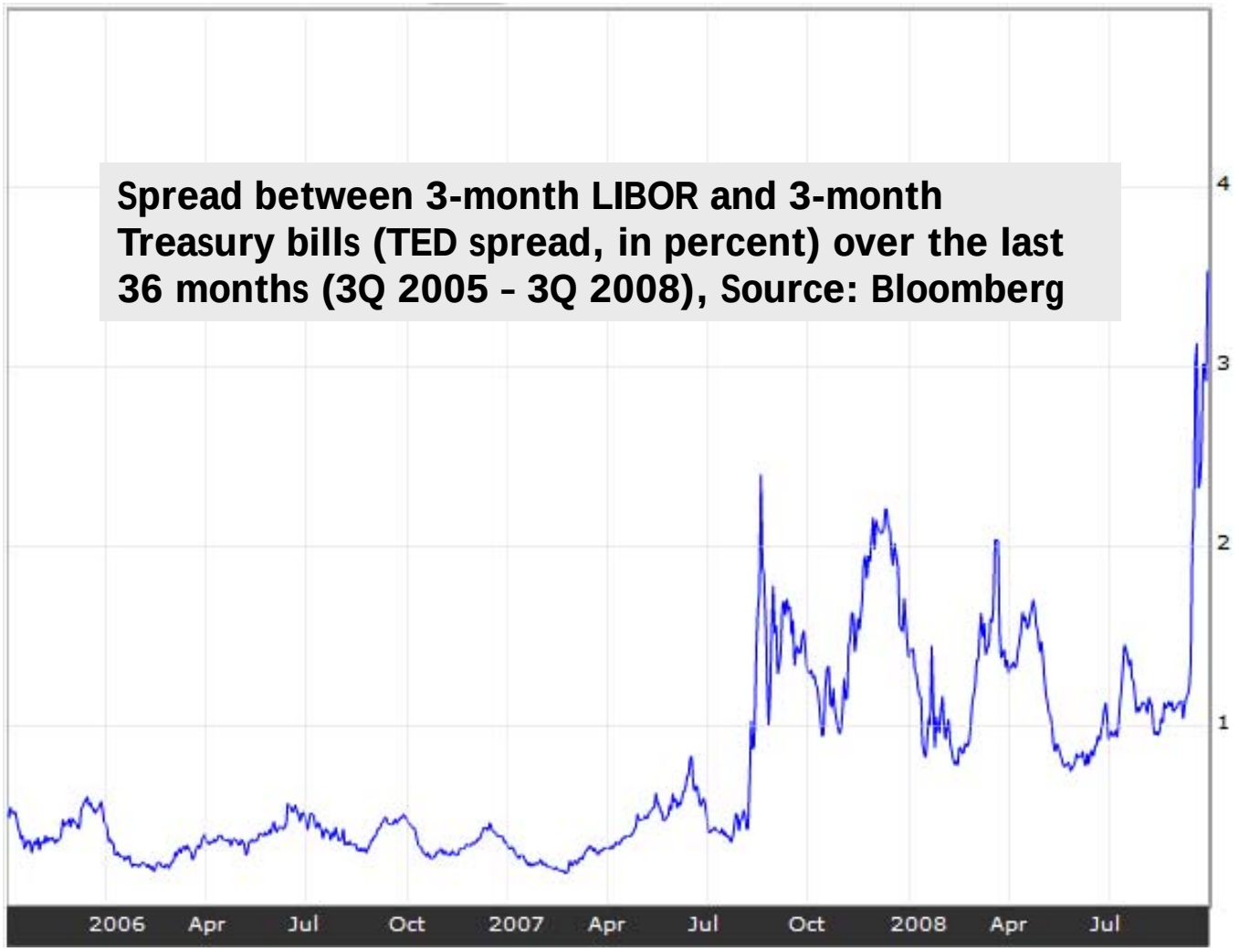
Back in 2003, securitization was sometimes likened to magic, being able to transform assets of poor quality into triple-A rated bonds*

Frankfurter Allgemeine Zeitung, May 16, 2003



The credit crisis 2007/2008 evolved in phases…



…leading to huge write-downs at banks in US and Europe.

Accumulated write-downs by regions in billion USD, as of early September 2008 (3Q 2008 – 3Q 2007), Source: DZ Bank Research Publication (2008)

** = preliminary, July and August*

Region	Total	3Q08*	2Q08	1Q08	4Q07	3Q07
Worldwide	516	18*	115	168	168	47
America	263	18*	70	69	76	29
Europe	230	0*	41	89	81	18
Asia	24	0*	3	9	11	0

Our paper is on crisis prevention, not on crisis management.

- Understanding the reasons for the current failure of credit markets – a precondition for an effective regulatory response.
- Two camps.
  - One puts market forces and market failure first. Bursting of house price bubble, sudden shift of expectations, liquidity constraints. Investor sentiments play a role, e.g. euphoria and fear (Greenspan).
  - The other focuses on incentives and risk management. Irresponsible lending, overly complex financial instruments, conflicts of interest. Market intransparency and illiquidity play a role.
- Consider this year's Jackson Hole Conference (FRBKC)

Competing views: liquidity shock or incentive problem?

- Allen/Carletti (2008)
  - When housing bubble burst, AAA tranches are priced permanently below fundamental value, because limits to arbitrage (cash-in-advance constraint).
  - Bank liquidity plays key role in financial crisis.
- Calomiris (2008)
  - Run-up to crisis marked by conflict of interest between asset manager and investors, leading to understatement of risk in those investments, and ex-ante unwise investments by investors.
- Gorton (2008)
  - Rising complexity, unique to subprime market, generates loss of information, leading ultimately to a loss of confidence.
  - Sell-side of market understands the complexity, buy-side does not.

Our view: Flawed engineering and intransparency

- Incentive misalignment in transaction design and compensation system
  - Portfolio quality decline is endogenous, but determinants remain intransparent, impeding market valuation.
  - Asset quality depends on transaction design (e.g. originator's recourse), and embedded options in management compensation formulae.
  - As a consequence, illiquidity in bond and inter-bank markets.
  - In this view, a housing price bubble is not required to start the crisis.

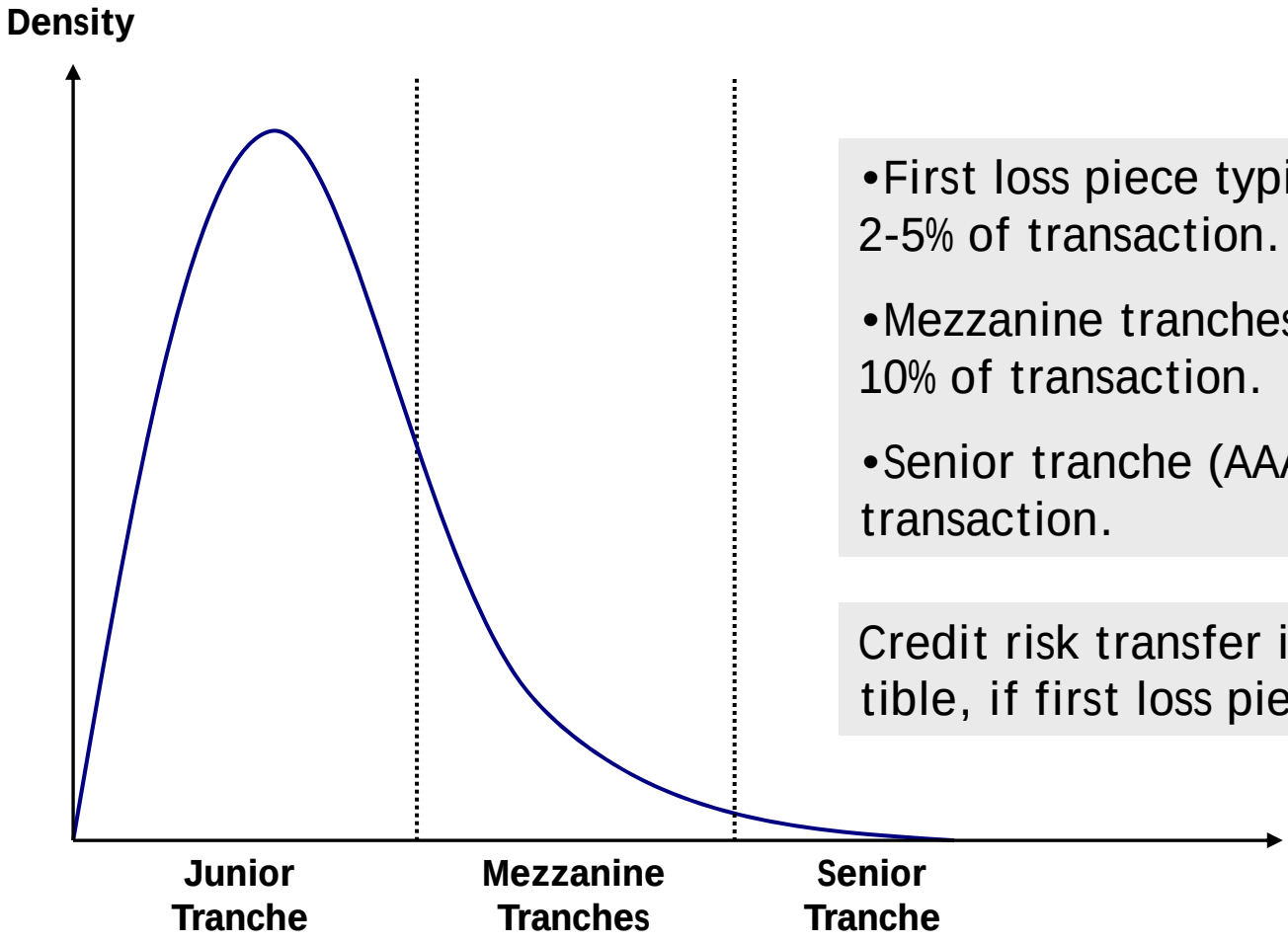
Agenda

- ✓ Intro: comparison of explanations of the credit crisis
2. Misaligned incentives
3. Lessons for the future of securitization

Agenda

1. Intro: comparison of explanations of the credit crisis
2. **Misaligned incentives**
   a. Sale of first loss piece by originator
   b. First profit position of originator
   c. Multiple agency problems in value chain
   d. Incentives for excessive leverage
3. Lessons for the future of securitization

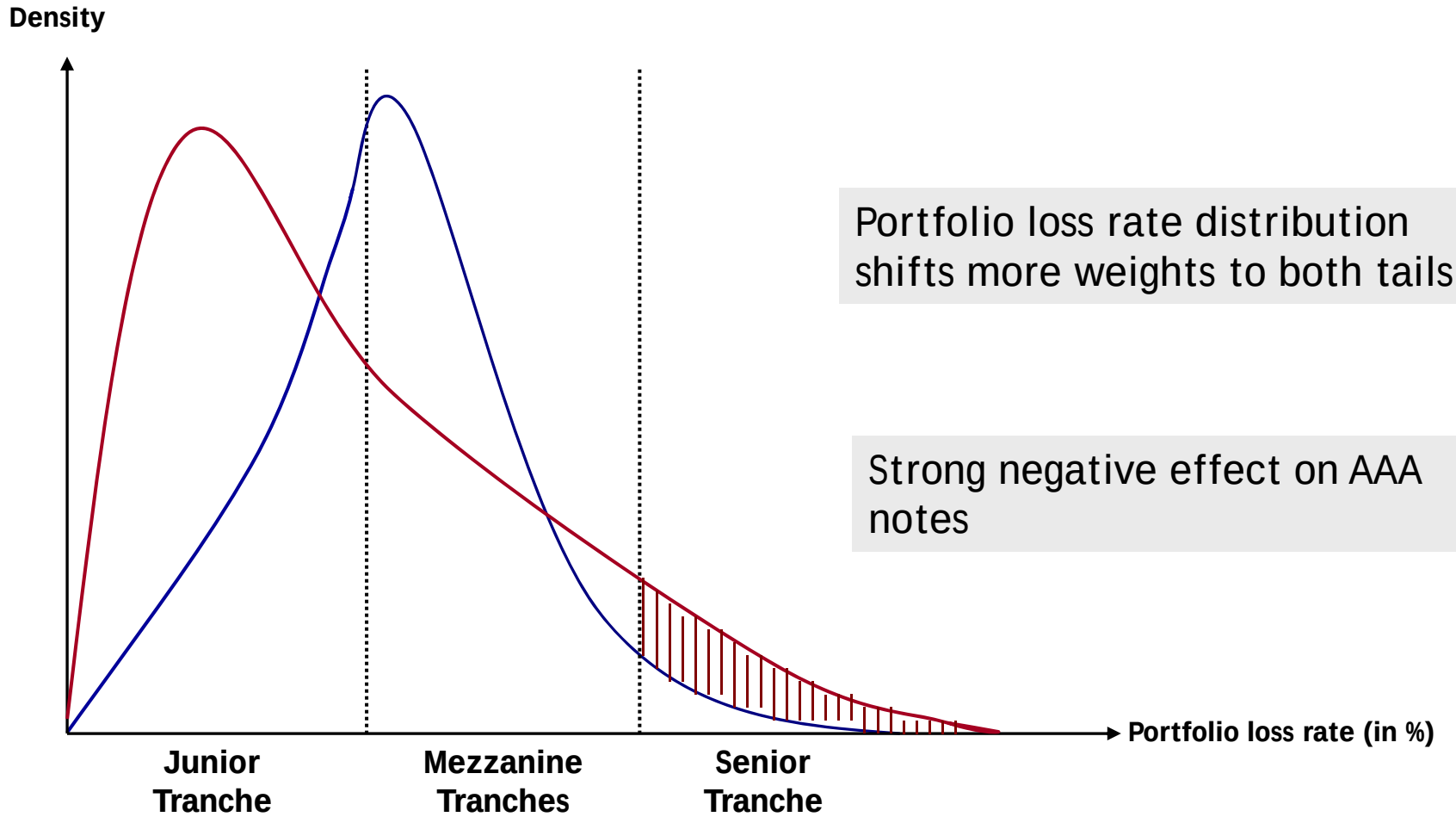
Basics of securitization: pooling and tranching



- First loss piece typically larger than EL, 2-5% of transaction.
- Mezzanine tranches small, typically 3-10% of transaction.
- Senior tranche (AAA) typically 85%+ of transaction.

Credit risk transfer is incentive compatible, if first loss piece is retained

What happens to tranches if correlations rise (e.g. due to risk concentration in lending)?



Portfolio loss rate distribution shifts more weights to both tails

Strong negative effect on AAA notes

Asset quality deterioration is endogenous: conclusion

- Retention decision is important for preservation of asset value, but is typically not included in loss rate projections.
- Arrangers and rating agencies base simulations and stress tests on historical data, implicitly assuming incentive alignment.
- However since early 2003/5, FLP were often sold, with no mention.
- Causing loss rate distribution to shift, with severe consequences for AAA tranches.

Further incentive misalignments

1. Intro: comparison of explanations of the credit crisis
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First profit position of originator

- First profit position: Originator has super senior claim
  - on visible fees,
  - on hidden fees included in various swaps with SPV,
  - estimated value 3-6% of par value.

- First profit position is almost risk free, creating a strong interest of originator in large transaction volumes, regardless of default risks.

Multiple agency problems in value chain

- Value chain trades off benefits from specialization of involved agents against agency costs.
- Extended value chain in MB loans (Ashcroft/Schuermann 2008).
- Agents actively involved over very different time spans.
  - May earn fees largely independent of loan performance
- Problems can hardly be solved satisfactorily by implicit contracts or reputation

Incentives for excessive leverage (1/4)

- Consider leverage policy of financial institution.
- Bank, SIV or ABCP-conduit buys securitization tranches funded by some equity capital and borrowing (arbitrage transaction).
- Manager earns base salary, annual bonus, participates (like shareholders) in terminal transaction value.
- If bank borrows at constant rate, then expanding the bank´s leverage increases nonnegative bonus by first order stochastic dominance.

Incentives for excessive leverage (2/4)

- Example:
  - Simulation exercise for a loan portfolio over 7 years,
  - S&P default probabilities and rating transition matrix
  - credit spreads from securitization markets.

- LGD = 60 %

Incentives for excessive leverage (3/4)

Total Income of Manager (in 1000 $)					Shareholder Value (in million $)			
Base salary	40							
Participation Rate	8 %							
Volume	1	2	25	35	1	2	25	35
Borrowing Rate	3.25 %	3.25 %	3.25 %	3.25 %	3.25 %	3.25 %	3.25 %	3.25 %
Rating								
AAA	605.4	954.3	**8,345.8**	**11,306.1**	103.9	108.0	202.7	243.8
AA	631.7	994.8	7,097.7	8,886.4	104.1	108.6	209.0	**252.1**
A	648.0	1,007.7	5,237.6	6,159.1	**104.2**	**108.8**	**209.8**	**252.1**
BBB	682.7	992.2	2,604.5	2,708.3	104.0	108.6	183.8	202.6
BB	794.1	1,020.4	1,470.6	1,485.7	102.9	107.2	104.7	100.2
B	**994.4**	**1,223.1**	1,579.7	1,579.7	101.3	104.7	69.7	66.5

Table 6: The table displays manager total income and the shareholder value for different portfolio volumes due to leverage. The manager earns a base salary of $40,000; her profit participation rate is 8%. The first column shows the rating of the underlying portfolio. The bank always pays 3.25% on its debt. Bold figures show the highest total income resp. shareholder value, given volume.

Incentives for excessive leverage (3/4)

Total Income of Manager (in 1000 $)						Shareholder Value (in million $)			
Base salary	40								
Participation Rate	8 %								
Volume	1	2	25	35		1	2	25	35
Borrowing Rate	3.25 %	3.25 %	3.25 %	3.25 %		3.25 %	3.25 %	3.25 %	3.25 %
Rating									
AAA	605	954	**8,346**	**11,306**		104	108	203	244
AA	632	995	7,098	8,886		104	109	209	**252**
A	648	1,008	5,238	6,159		**104**	**109**	**210**	**252**
BBB	683	992	2,605	2,708		104	109	184	203
BB	794	1,020	1,471	1,486		103	107	105	100
B	**994**	**1,223**	1,579	1,579		101	105	70	67

Incentives for excessive leverage (4/4)

- In example: Manager chooses AAA assets, and an extremely high leverage.
- Shareholders agree as long as lenders do not penalize them.
- Even then, penalty may be insufficient if default losses are absorbed by third parties (deposit insurance, tax payers).
- Therefore, essential to build enough malus components into compensation
  - effective penalty increasing with leverage,
  - bonus deferral.
- We are sceptical about reputation costs being a sufficiently severe penalty for high leverage.

1. Intro: comparison of explanations of the credit crisis
2. Misaligned incentives
   - ✓ Retention of first loss piece by originator
   - ✓ First profit position of originator
   - ✓ Multiple agency problems in value chain
   - ✓ Incentives for excessive leverage

As a consequence, liquidity in markets will be affected.

3. Lessons for the future of securitization

Asset value intransparency breeds illiquidity

- Given incentive misalignment, portfolio quality is opaque to outsiders
  - Investors know little about incentive misalignments.
  - Relating to FLP retention, rating agencies do not seem to have noticed the issue of incentive misalignment either.
  - Avalanche of downgrades eroded credibility of ratings, at least for structured finance products.

- As a consequence to opaque tranche values, liquidity of secondary asset markets dries out.

…interbank market is also affected

- Asset opacity translates into risk opacity at banks.
  - In addition, banks may hide risk (private good, public bad).
- However, for interbank market some degree of transparency seems to be vital.
- Thus, interbank market dries out as well.

Lessons so far

- Structural explanation of the crisis
  - Misaligned incentives on micro level can lead to opacity on macro level
  - Eliminating basic market functionalities, like pricing efficiency, market depth and liquidity.
- A rational crisis, not irrational exuberance, nor euphoria and fear.
- Constructional faults are to blame.
  - Concerning securitization design, compensation and bonus systems, and transparency.

- ✓ Intro: comparison of explanations of the credit crisis
- ✓ Misaligned incentives
- 3. Lessons for the future of securitization

The Future of Securitization

- We look for market transparency to assure smooth functioning of markets, enforced by minimum government intervention.
  - Incentive-related
  - Information-related: micro level
  - Information-related: macro level

Incentive-related

- Retention
  - Analysis suggests, markets need to know at all times the size and the fraction of FLP retained by the originator.
  - No mandatory retention, because a rule can always be gamed.
- Compensation
  - Towards backend loading via balancing bonus and malus components.
  - No regulation required, only transparency on remuneration system, including an independent assessment of incentive properties.
- Capital charges
  - An extra capital charge related to opacity of bank risk, e.g. 8% +X%.

Information-related

- Rating (information – micro level)
  - Providing and evaluating information on incentive alignment, for evaluating complex transactions.
  - No regulation of rating processes.
  - Public reporting of rating performance, e.g. by regulator or Central Bank.

- Risk map (information – macro level)
  - Comprehensive collection of data on risk exposure of financial intermediaries.
  - Quarterly publication of risk map, signalling early warnings.

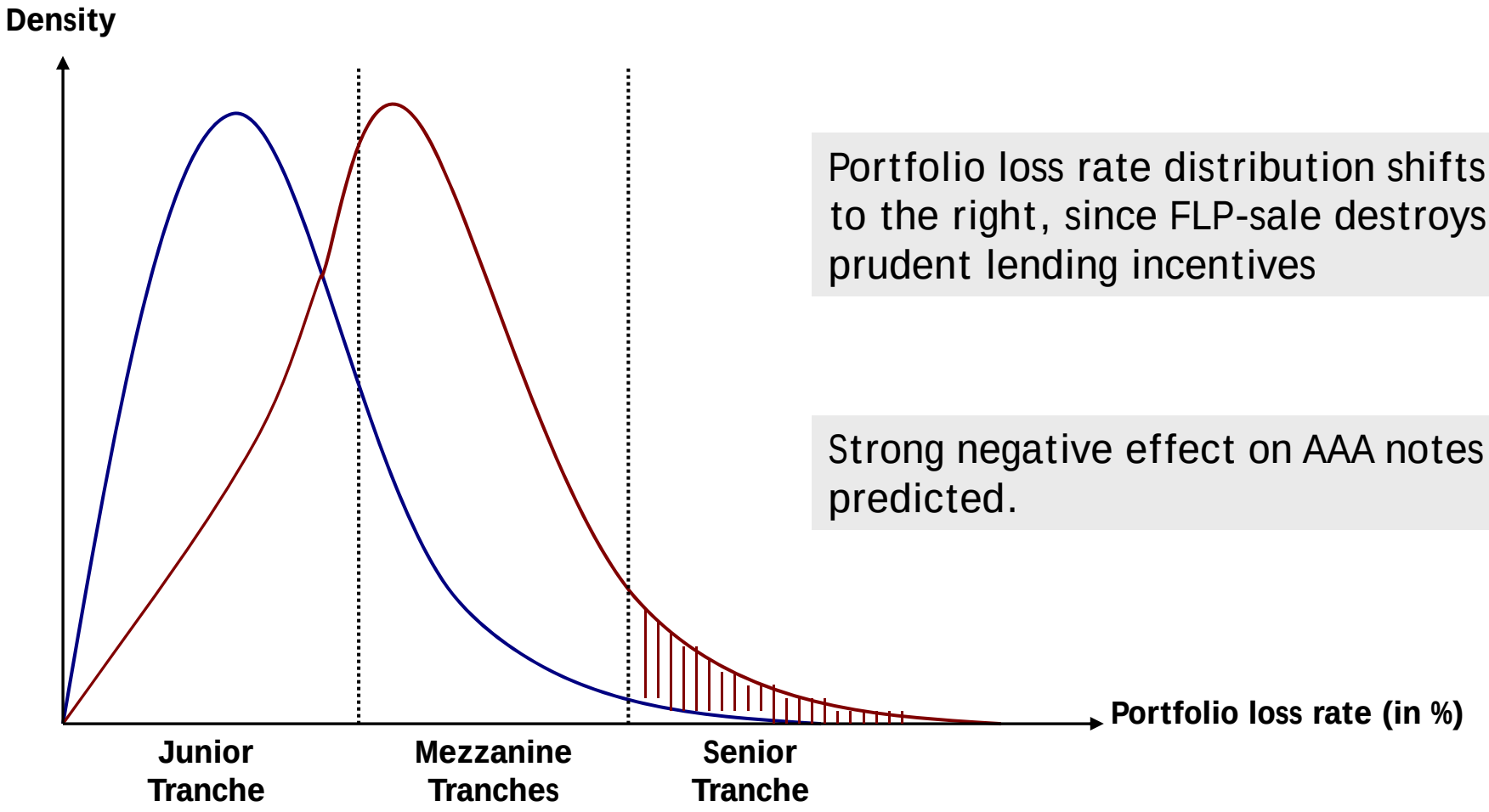
Thank you for your attention

Appendix: Table 7 - Incentives for excessive leverage

Total Income of Manager (in 1000 $)							Shareholder Value (in million $)					
Base salary	40											
Participation Rate	8 %											
Volume	1	2	10	15	20	25	1	2	10	15	20	25
Borrowing Rate	3.25%	3.3%	3.36%	3.44%	3.55%	3.75%	3.25%	3.3%	3.38%	3.48%	3.6%	3.75%
Rating												
AAA	605.4	891.2	2,913	2,925	**3,065**	**2,527**	103.9	107.4	135.6	146.9	150.4	135.2
AA	631.7	931.6	**3,005**	**3,284**	1,919	1,813	104.1	108.0	138.3	150.9	155.5	**141.0**
A	648.0	951.1	2,784	3,239	2,834	1,319	**104.2**	**108.2**	**139.2**	**151.8**	**156.3**	140.3
BBB	682.7	936.1	1,875	1,661	1,155	1,149	104.0	108.0	136.0	143.1	138.2	113.1
BB	794.1	990.7	1,310	1,280	1,194	1,132	102.9	106.7	112.1	101.0	87.7	70.4
B	**994.4**	**1,203**	1,482	1,482	1,411	1,344	101.3	104.4	82.2	71.9	64.6	56.5

Table 7: The table displays manager total income and the shareholder value for different portfolio volumes due to leverage. The manager earns a base salary of $40,000; her profit participation rate is 8%. There is no firing of the manager. The interest rate paid by the bank increases with volume as shown in line five. The first column shows the rating of the underlying portfolio. Bold figures show the highest total income resp. shareholder value, given volume.

What happens to tranches if first-loss-piece is sold? Loan quality deteriorates.



Portfolio loss rate distribution shifts to the right, since FLP-sale destroys prudent lending incentives

Strong negative effect on AAA notes predicted.