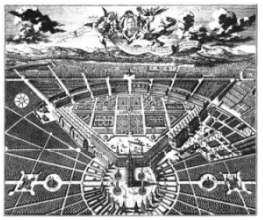


11th Symposium
on
Finance, Banking, and Insurance
Universität Karlsruhe (TH), December 17 – 19, 2008

Plenary Lecture

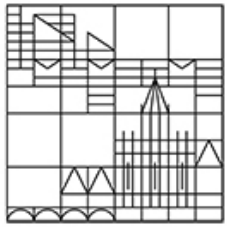
Chair: Prof. Dr. Dr. h.c. Wolfgang Bühler

Prof. Dr. Dr. h.c. Günter Franke

University of Konstanz, Department of Economics

„The Future of Securitization“

Universität Konstanz



CENTER FOR FINANCIAL STUDIES

HOUSE OF FINANCE
Goethe-Universität Frankfurt

The Future of Securitization

Günter Franke

University of Konstanz (Germany), CFS

Jan P. Krahnen

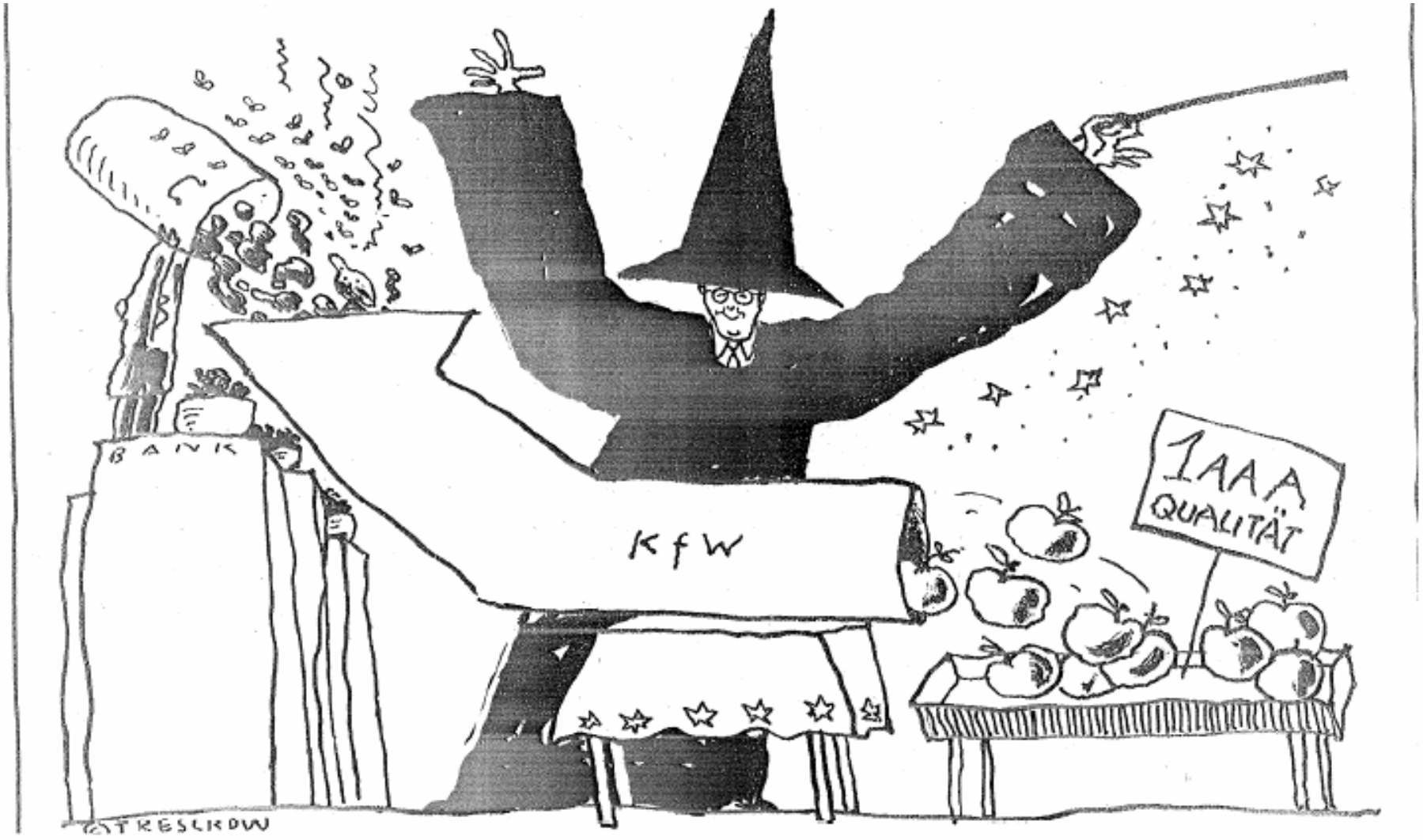
Goethe University (Frankfurt, Germany), CFS, CEPR

11 th Symposium on Finance, Banking and Insurance

Karlsruhe - December 18, 2008

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



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 transparency plays a role, e.g. opacity and illiquidity.
- 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 play 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.

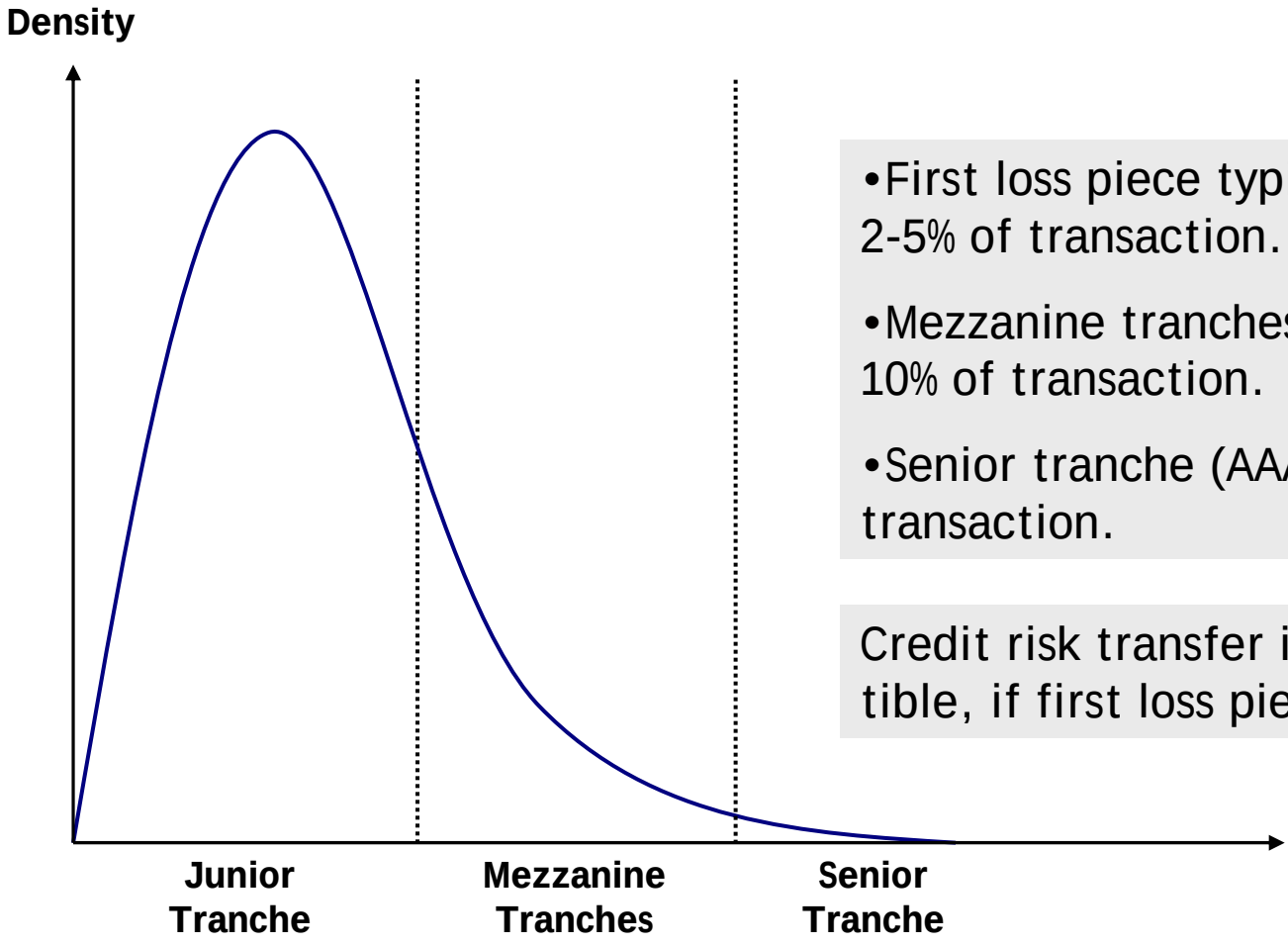
Agenda

- ✓ 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
   e. Inadequate ratings
3. Lessons for the future of securitization

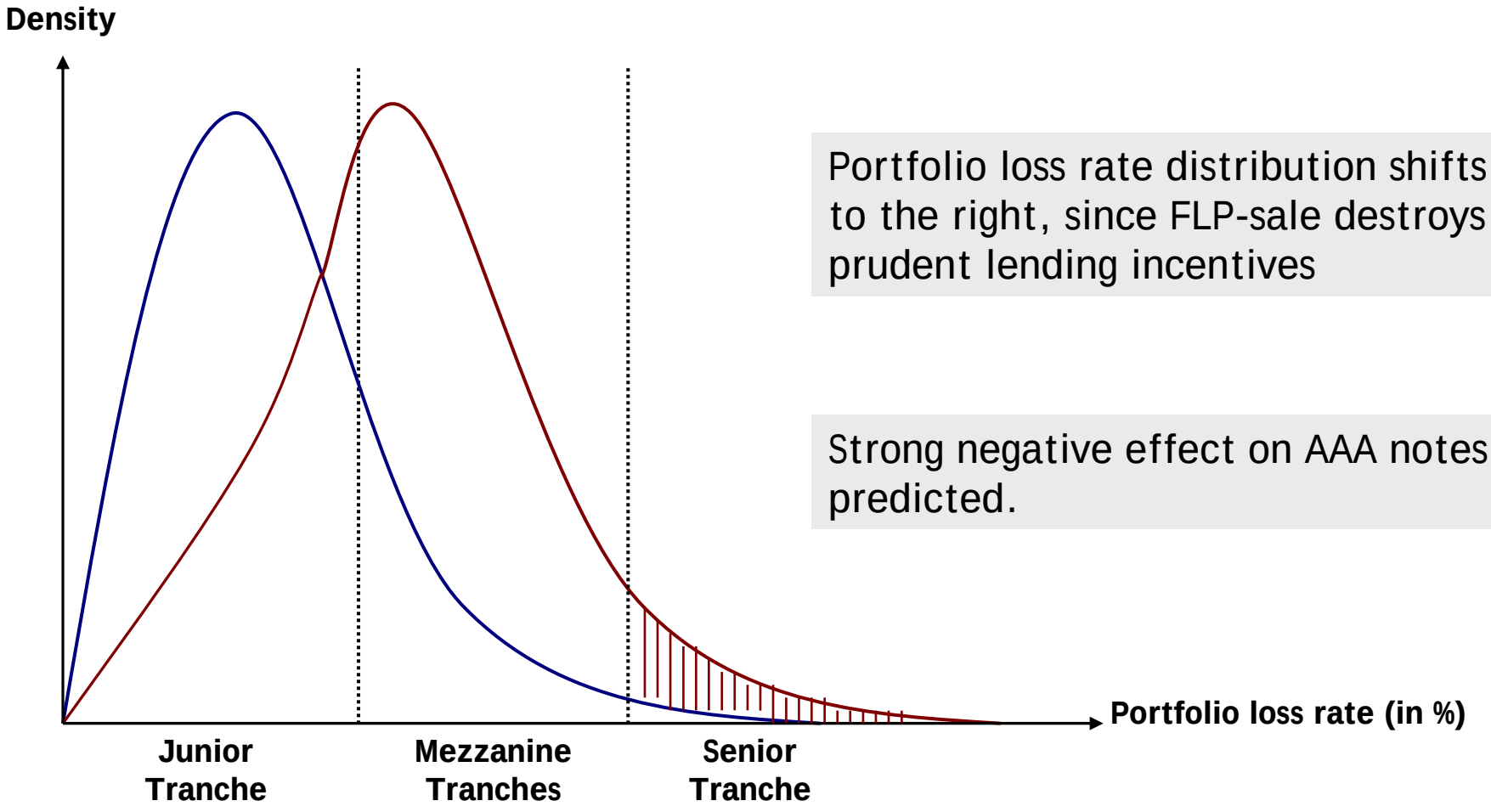
Basics of securitization: pooling and tranching



- 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 first-loss-piece is sold?



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

Strong negative effect on AAA notes predicted.

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.

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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.

- Interest-only tranches.

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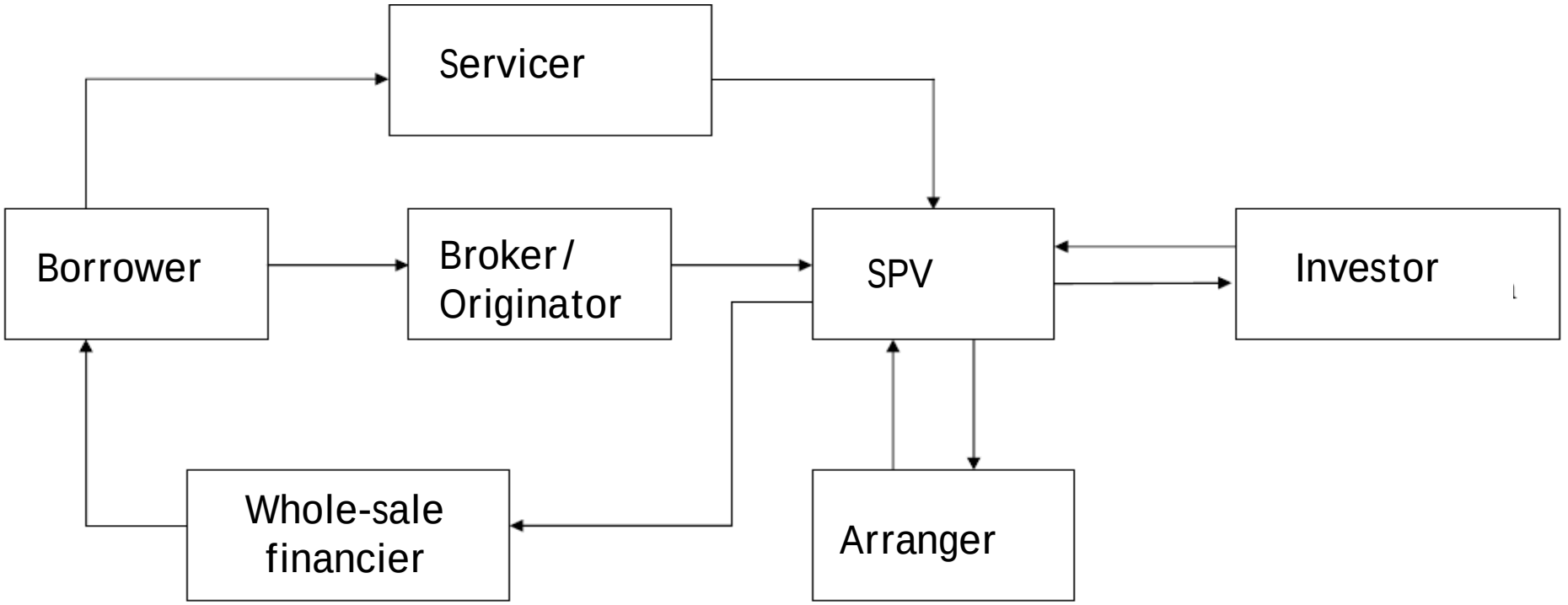
Lending value chain has been decomposed into its elements



...yielding multiple agency problems

- Value chain in mortgage loans has been decomposed into several separate activities, i.e. loan broker/originator, arranger, servicer, wholesale-financier, investor.
- Value chain trades off benefits from specialization against costs of incentive alignment (Ashcroft/Schuermann 2008).
- This may prove difficult, because agents
  - may have different time horizons,
  - may be compensated independent of loan performance.
- Also, reputation mechanism may not be strong enough to overcome agency problems.

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Incentives for excessive leverage (1/7)

3 important elements of compensation package

Shares of compensation package: base salary, bonus payments, shares & options

UBS	2006	6%	47%	47%
	2007	22%	50%	28%
DB	2007	13%	52%	35%

How define the bonus base?

How does bonus payment vary with bonus base?

Incentives for excessive leverage (2/7)

- 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 (3/7)

- Example:
  - Simulation exercise for a portfolio of 100 loans over 7 years
  - S&P default probabilities and rating transition matrix
  - credit spreads from securitization markets
  - LGD = 60 %
- Total income of manager = PV of certainty equivalents of income in 7 years
- Annual income = base salary + bonus
- Bonus-base = aggregate credit spreads – default losses
- Manager is CRRA with RRA = 2.5
- Volume = 1 + leverage

Incentives for excessive leverage (4/7)

Rating	Cumulative default probability (7 years)	Credit spread
AAA	0.144 %	0.75 %
AA	0.420 %	0.,85 %
A	0.887 %	0.95 %
BBB	3.672 %	1.45 %
BB	13.826 %	3.45 %
B	30.999%	7.70 %

Constant funding costs lead to maximum leverage (5/7)

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.

Increasing funding cost reduces optimal leverage (6/7)

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**	**105.2**	**139.2**	**151.5**	**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.

Incentives for excessive leverage (7/7)

- 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.
- High powered incentives may endanger managerial concern for financial stability.

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Incentives for inadequate ratings in structured finance?

Theory ...

- suggests rating agencies will be paid by investors.
- Rating agencies can generate long term income only if ratings are highly accurate:

  → reputation cost strong safeguard against biased rating

Ratings disciplined by reputation? Reality unlike theory…

- Around 1970, unsolicited ratings largely disappeared, being replaced by borrower-solicited ratings.
- For investment grade qualities, rating accuracy can only be measured with long time series.

  → Analysts unlikely to bear reputation costs.
- From 2002 to 2007 the 3 big rating agencies doubled their fee income from securitizations to $ 6 bn.
- Direct evidence still rare: for CMBS, subordination level for AAA-tranches fell sharply, from 36 % in 1996 to 15 % in 2005.

Oct. 22, 2008: US-Congress Hearings on the practice of rating agencies

- But: Moody´s claims to have raised subordination levels for AAA-tranches in subprime securitizations by 30 % between 2003 and 2006.
- S&P developed better rating systems in the nineties, but did not implement them for cost reasons.
- Since 2000 Moody´s focussed increasingly on short term fee maximization.
- Rating analyst gets high bonus, dependent on fees from companies not rated by him

  → creates atmosphere of joint fee-income maximization.

1. Intro: comparison of explanations of the credit crisis
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As a consequence, liquidity in markets will be affected adversely.

3. Lessons for the future of securitization

Asset value opacity impedes liquidity ...

- Loan quality is opaque to outsiders because reliable data input for valuation models is missing
  - Investors have little information about incentive misalignments.
  - Relating to FLP retention, rating agencies do not seem to have noticed the issue of incentive misalignment.
  - Avalanche of downgrades eroded credibility of ratings for mortgage-backed loans.
- As a consequence, no active market for opaque assets

→ Liquidity of secondary asset markets dries out. Sharp price drop expected.

...freezing interbank markets

- Asset opacity translates into risk opacity of banks.
- Banks can change their risk position quickly by trading derivatives.
- Banks hide own risk (private good, public bad).

  → counterparty risk opaque.

- For interbank market, counterparty risk transparency is vital.

  → 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.
- Side remark: Macroeconomic developments have leveraged the effects of incentive misalignment and opacity, e.g. bursting of house price bubble, low interest rate regime, abundance of liquidity and credit.

- ✓ Intro: comparison of explanations of the credit crisis
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Is there a future of securitization?

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

Aligning incentives

- 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%.

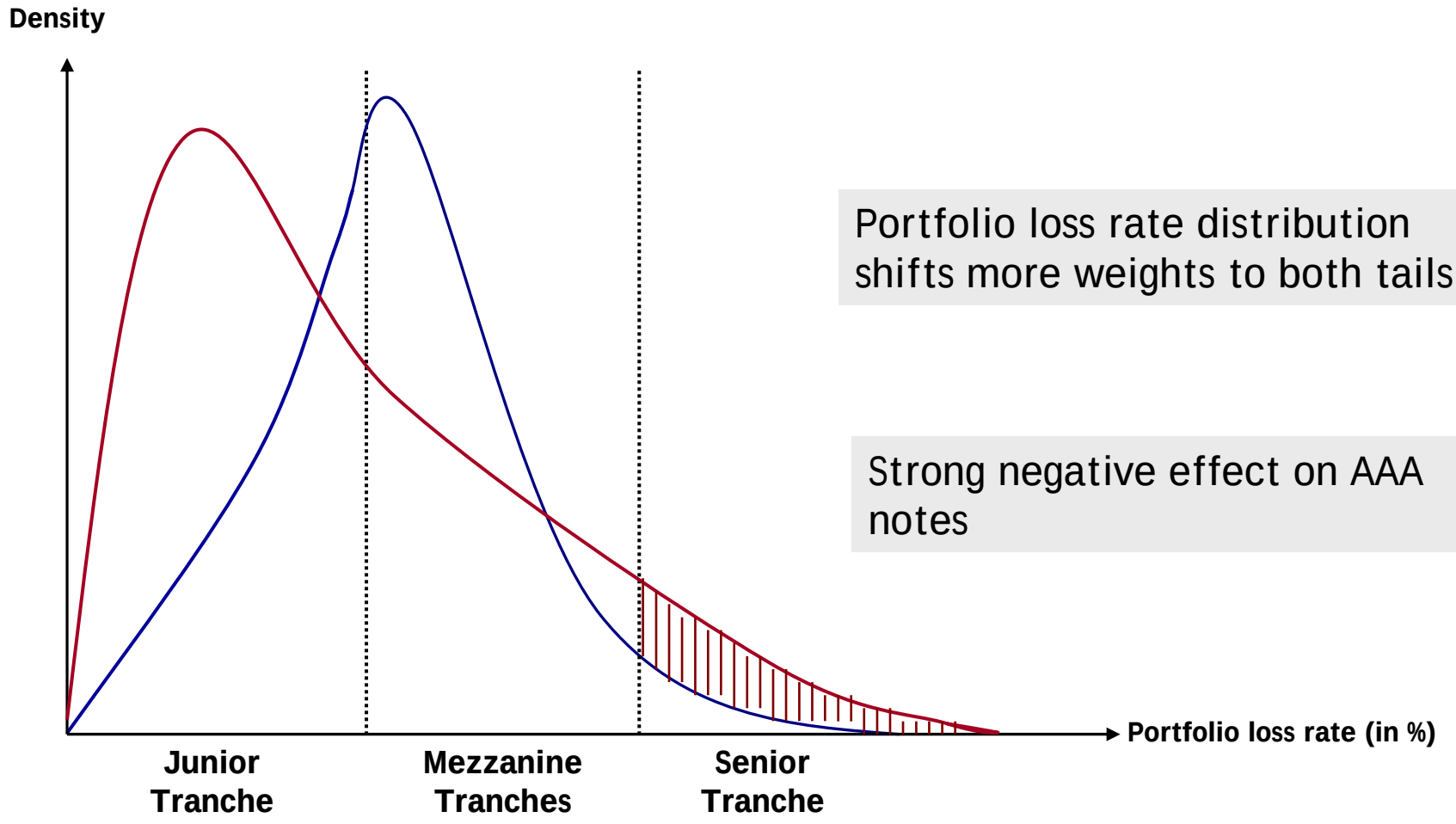
Towards intelligent transparency

- Rating
  - Incentives in rating agencies: Necessary to lower fee-dependent income component of rating analysts?
  - 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

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