



ulm university universität
uulm



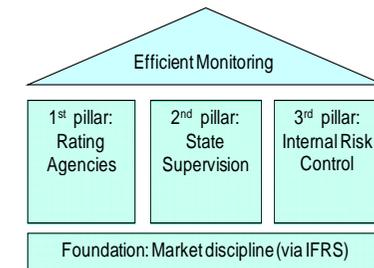
Market Discipline in the German Insurance Industry?

Martin Eling
Institut für Versicherungswissen-
schaften, Universität Ulm

Gesamtverband der Deutschen
Versicherungswirtschaft
2. November 2009

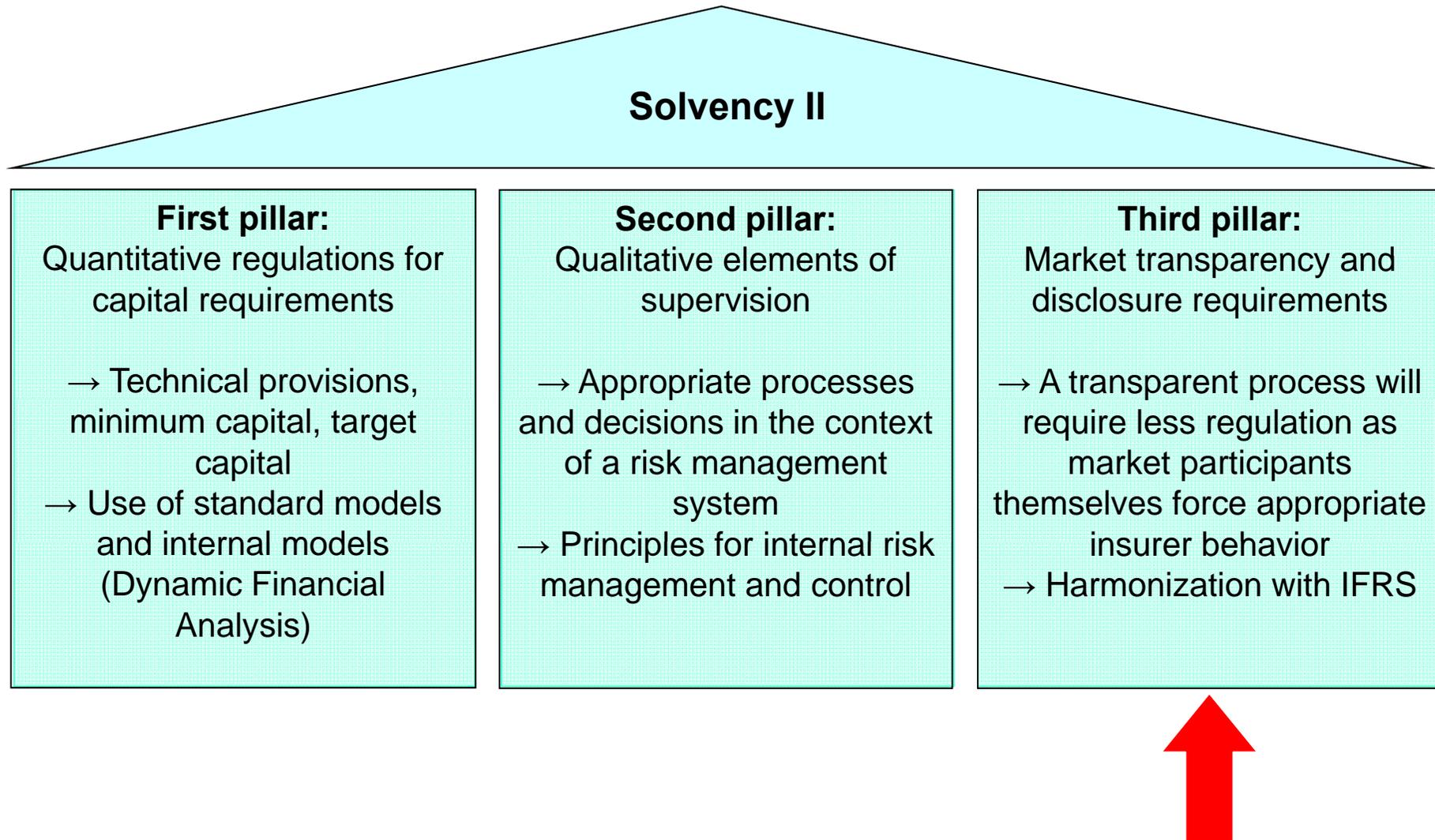
1. Presentation: Is there Market Discipline in the German Insurance Industry?

- (1) First report of market discipline in the German insurance market
- (2) Weaker market discipline compared to the U.S.
- (3) Effect of IFRS/US-GAAP adoption on market discipline
- (4) Discussion of directions for improving market discipline



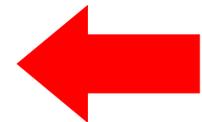
-
- With Joan T. Schmit, University of Wisconsin-Madison
 - Supported by the Swiss National Science Foundation and the Main Research Program Wealth and Risk at the University of St. Gallen
 - Outline:
 1. Motivation
 2. Literature
 3. Data, Hypotheses, and Methodology
 4. Empirical Results
 5. Conclusion and Directions for Improving Market Discipline

1. Motivation (1/4): Three-pillar structure of Solvency II



1. Motivation (2/4): Solvency II and IFRS - Harmonization

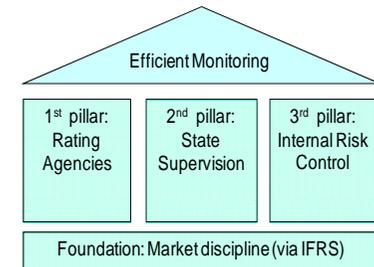
- Current limitations of financial reporting and solvency regulation:
 - Lack of consistency (different countries, financial intermediaries)
 - Lack of transparency (e.g., equalization fund, accounting policy)
- Solvency II and IFRS both address these limitations:
 1. Fair Value Measurement of assets and liabilities
 2. Improvement of corporate governance and internal risk control
 3. Improvement of transparency and disclosure requirements



1. Motivation (3/4): Pillar 3 of Solvency II – Market discipline

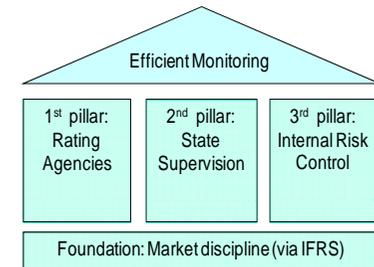
- Observable market signals influence firm decisions
Ratings as an example
- Can market discipline be an efficient element of supervision?
Depends on whether the market signals can be observed
- We consider different market signals:
 - Financial strength ratings from A.M. Best and S & P
 - Complaint statistics from the BaFin

=> Changes in ratings / complaint statistics (market signals) and their influence on abnormal premium growth / termination rates (market reaction)
- Voluntary adoption of international accounting standards (IFRS/US-GAAP):
Is market discipline stronger or weaker?



1. Motivation (4/4): Contribution

- First report of market discipline in the German insurance market
- We extend the existing literature with respect to:
 - Alternative markets (Germany)
 - Alternative branches of the insurance industry (life, p/c, health, reinsurance)
 - Alternative measures of market discipline (ratings, complaint statistics)
 - Alternative accounting regimes (national GAAP vs. IFRS/US-GAAP)
- We provide answers to the following questions:
 - Is the German insurance market transparent?
 - How do consumers react to new information?
 - Is this a normal, weak or strong reaction (benchmarking with studies from banking and for other countries)?



2. Literature (1/2): Primary driven by Banking (Basel II)

Google scholar [Erweiterte Schol](#) [Scholar-Einstellungen](#)
 Web-Suche Suche Seiten auf Deutsch

Scholar [Alle Artikel](#) [Kürzlich veröffentlichte Artikel](#)



Tipp: [Suchen nur nach Ergebnissen auf Deutsch](#). Sie können Ihre bevorzugten Spracheinstellungen in [Scholar-Einstellungen](#) angeben.

[Testing the imports-as-market-discipline hypothesis](#)

JA Levinsohn - NBER working paper, 1991 - [papers.ssrn.com](#)
 ... Looking for changes in price-marginal cost markups as trade policy shift
 I test the imports-as-market discipline hypothesis. In ...
[Zitiert durch: 334](#) - [Ähnliche Artikel](#) - [Alle 8 Versionen](#)

[Trade liberalization, market discipline and productivity growth](#)

P Krishna, D Mitra - *Journal of Development Economics*, 1998 - [ideas.repec.org](#)
 Trade Liberalization, Market Discipline and Productivity Growth: New Evidence
 From India. Author info | Abstract | Publisher info ...
[Zitiert durch: 219](#) - [Ähnliche Artikel](#) - [Im Cache](#) - [Alle 5 Versionen](#)

[Evidence of bank market discipline in subordinated debenture](#)

MJ Flannery, SM Sorescu - *Journal of Finance*, 1996 - [jstor.org](#)
 ... Evidence of Bank Market Discipline in Subordinated Debenture Yields:
 J. FLANNERY and SORIN M. SORESCU* ... I. Past Studies of SND Market Discipline
[Zitiert durch: 277](#) - [Ähnliche Artikel](#) - [Alle 5 Versionen](#)

[Market Discipline and Bank Subordinated Debt: Note](#)

G Gorton, AM Santomero - *Journal of Money, Credit and Banking*, 1990 - [jstor.org](#)
 Market Discipline and Bank Subordinated Debt A Note by Gary Gorton and
 M. Santomero A lengthy literature in banking has addressed the question of
[Zitiert durch: 137](#) - [Ähnliche Artikel](#) - [Alle 3 Versionen](#)

[Market discipline in regulating bank risk: New evidence from](#)

RB Avery, TM Belton, MA Goldberg - *Journal of Money, Credit and Banking*
 ... AVERY TERRENCE M. BELTON MICHAEL A. GOLDBERG Market Discipline
 Risk: New Evidence from the Capital Markets The dramatic rise in bank ...
[Zitiert durch: 151](#) - [Ähnliche Artikel](#) - [Alle 4 Versionen](#)

Google scholar [Erweiterte Schol](#) [Scholar-Einstellungen](#)
 Web-Suche Suche Seiten auf Deutsch

Scholar [Alle Artikel](#) [Kürzlich veröffentlichte Artikel](#)

Tipp: [Suchen nur nach Ergebnissen auf Deutsch](#). Sie können Ihre bevorzugten Spracheinstellungen in [Scholar-Einstellungen](#) angeben.

[... punish banks for bad behavior? Market discipline, deposit insurance, and banking crises](#) - [no-ip.info](#) (PDF)

SL Schmukler - *Journal of Finance*, 2001 - [jstor.org](#)
 ... Market Discipline, Deposit Insurance, and Banking Crises ... Second, we study
 the link between market discipline and deposit insurance. ...
[Zitiert durch: 142](#) - [Ähnliche Artikel](#) - [Alle 23 Versionen](#)

[Market discipline and deposit insurance](#)

A Demirgüç-Kunt, H Huizinga - *Journal of Monetary Economics*, 2004 - Elsevier
 ... Market discipline and deposit insurance. ... 3. International evidence on market discipline
 and deposit insurance. 3.1. Do riskier banks pay higher interest rates? ...
[Zitiert durch: 126](#) - [Ähnliche Artikel](#) - [Alle 2 Versionen](#)

[Bank runs, deposit insurance, and liquidity](#) - [psu.edu](#) (PDF)

DW Diamond, PH Dybvig - *The Journal of Political Economy*, 1983 - UChicago Press
 ... (2007) Deposit insurance and credit unions: an international perspective. ... Isabelle
 Distinguin, Philippe Rous, Amine Tarazi. (2006) Market Discipline and the ...
[Zitiert durch: 3392](#) - [Ähnliche Artikel](#) - [Alle 44 Versionen](#)

[Does the debt market assess large banks' risk? Time series evidence from money center ...](#)

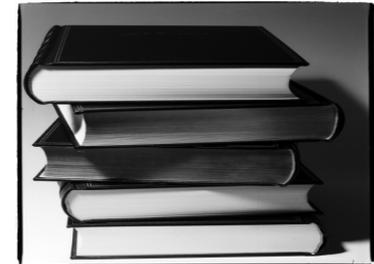
DM Ellis, MJ Flannery - ... LIBRARY OF CRITICAL WRITINGS IN ECONOMICS, 2001 - [ideas.repec.org](#)
 ... "The Impact of Explicit Deposit Insurance on Market Discipline," DNB Working
 Papers 089, Netherlands Central Bank, Research Department. ...
[Zitiert durch: 123](#) - [Ähnliche Artikel](#) - [Im Cache](#)

[Market discipline and financial safety net design](#)

A Demirgüç-Kunt, H Huizinga - [books.google.com](#)
 ... Market Discipline and Financial Safety Net Design Asli Demirgüç-Kunt and Harry
 Huizinga Keywords: market discipline, deposit insurance JEL Classification: E43 ...
[Zitiert durch: 149](#) - [Ähnliche Artikel](#) - [Alle 14 Versionen](#)

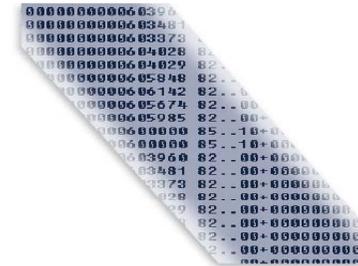
2. Literature (2/2): Banking – quite a lot of work

- Banking – quite a lot of work:
 - Use of European data, e.g., Sironi (2003), Distinguin/Rous/Tarazi (2006), King (2008)
 - There is market discipline in banking
- Insurance – still new:
 - Zanjani (2002; U.S. data): Positive relationship between policyholder termination rates and insurer default risk (proxied by the A.M. Best ratings)
 - Epermanis/Harrington (2006; U.S. data): Significant premium declines in the year of and the year following a rating downgrade
- Monitoring in the insurance industry is fundamentally different



3. Data, hypotheses, and methodology (1/7): Company data

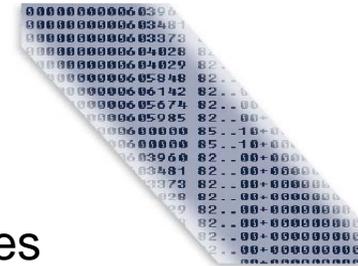
- Database: 561 German insurance companies
(130 life, 316 P/C, 63 health, and 52 reinsurance)
- Investigation period 1996 to 2005: Era of consolidation after the deregulation 1994, stock market crash from 2000 to 2003
- Descriptive statistics: Number of companies and premiums



Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Growth 1996 - 2005
Number of companies	493	490	494	491	478	469	452	448	444	434	-11.97%
Premiums (bn. €)	134	140	143	153	162	170	184	187	189	194	44.73%
Premiums (bn. €)/ Number of companies	0.27	0.29	0.29	0.31	0.34	0.36	0.41	0.42	0.43	0.45	64.40%

3. Data, hypotheses, and methodology (2/7): Rating data

- Ratings from Standard & Poor`s
 - 485 ratings from 196 companies
 - 202 first time ratings/unchanged, 77 upgrades and 206 downgrades
 - Distribution among the investigation period:

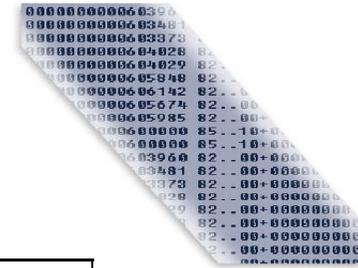


Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Initial/unchanged	22	13	40	30	45	26	12	8	4	7	207
Upgrading	0	3	10	2	10	9	4	9	13	17	77
Downgrading	0	1	1	4	11	27	65	76	12	9	206
Total	22	17	51	36	66	62	81	93	29	33	490

4. Data, hypotheses, and methodology (3/7): Initial test

- The data suggests a connection between company risk in terms of ratings and premium growth

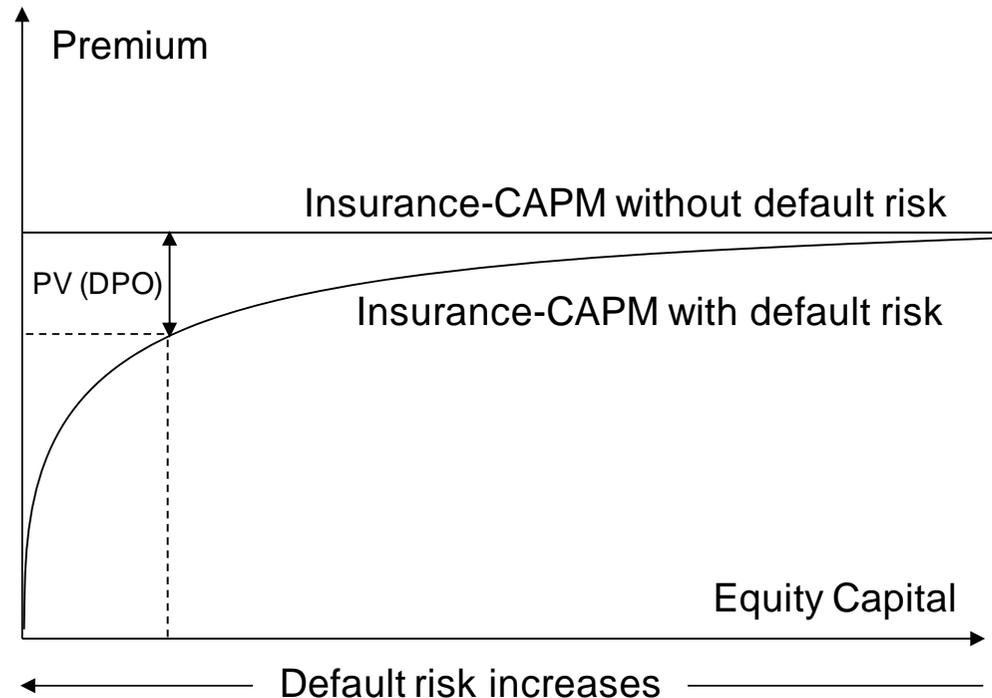
Rating	From	To	Average premium growth (1997-2005)	Average termination rate (1997-2005)
very strong	AAA	AA	5.76%	16.31%
strong	AA-	A-	5.37%	15.40%
good	BBB+	BBB-	4.47%	21.03%
weak	BB+	CC-	-0.55%	24.43%



3. Data, hypotheses, and methodology (4/7): Theoretical foundation

- Neoclassical economic theory:
Insurance CAPM with default risk (Doherty/Garven, 1986)

- Agency theory:
Incentives for risk taking and risk sensitive demand (Jensen/Meckling, 1976)



- Behavioral finance:
 - Prospect theory (Wakker/Thaler/Tversky, 1997)
 - Positive and negative news (De Bondt/Thaler, 1985)

3. Data, hypotheses, and methodology (5/7): Hypotheses

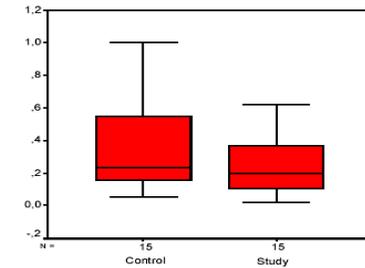
- Expected influence on premium growth and termination rates:

Hypotheses	Market Signal = Input Variable	Market Reaction = Output Variable	Expected influence between input and output
1	Change in company rating	Premium Growth	+
2	Change in company rating	Termination Rates	-
3	Change in complaint statistics	Premium Growth	-
4	Change in complaint statistics	Termination Rates	+

- Focus today on ratings (hypotheses 1 and 2); results for hypotheses 3 and 4 are comparable to hypotheses 1 and 2
- Additional hypotheses:
 - IFRS/US-GAAP should improve transparency compared to local GAAP
 - We expect stronger effects for companies that have adopted IFRS/US-GAAP

3. Data, hypotheses, and methodology (6/7): Methodology

- Control group tests:
 - We consider abnormal premium growth premium growth minus premium growth in the industry) before and after rating change
 - Four definitions of abnormal premium growth:
 - a) mean vs. median
 - b) unadjusted vs. size adjusted (large, medium, small)
 - Investigation period: Years $T - 1$ to $T + 1$ (rating change in year T)



3. Data, hypotheses, and methodology (7/7): Methodology

- Regression tests:

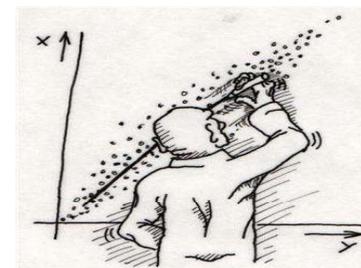
$$(1) \Delta P_{jt} = E(\Delta P_{jt} | \text{no rating change}) + \delta' RC_{jt} + \varepsilon_{jt}$$

$$(2) RC'_{jt} = \left[RC_{jt-1}^{Up}, RC_{jt}^{Up}, RC_{jt+1}^{Up}, RC_{jt-1}^{Down}, RC_{jt}^{Down}, RC_{jt+1}^{Down} \right]$$

$$(3) E(\Delta P_{jt} | \text{no rating change}) = \beta' X_{jt} + \lambda' T + v_j$$

$$(4) X'_{jt} = \left[P_{jt-1}, Mutual_{jt-1}, A_{jt-1}, Low_{jt-1} \right]$$

- Hausman test for endogeneity rejects the null hypothesis that firm fixed effects are uncorrelated with the regressors
 - => Least squares estimates are inconsistent
 - => Focus on fixed-effects regressions



4. Results (1/4): Hypotheses 1 (Change in rating → abnormal premium growth)

- Control group tests:

A) Upgraded insurers

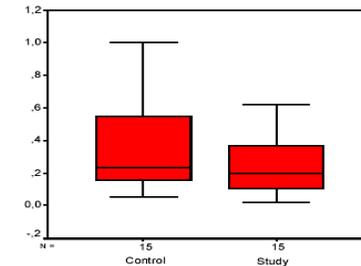
Time	t-1	t	t+1
Life Insurance			
Unadjusted	4.06	-0.11	1.81
Size-adjusted	3.20	-0.38	1.75
P/C Insurance			
Unadjusted	-1.01	0.58	-0.58
Size-adjusted	-0.20	1.15	0.22
Reinsurance			
Unadjusted	-0.86	-0.95	-0.80
Size-adjusted	-0.54	-0.92	-0.16

- No clear indication
- No significant increase in abnormal premium growth

B) Downgraded insurers

Time	t-1	t	t+1
Life Insurance			
Unadjusted	-1.08	-1.80**	-0.43
Size-adjusted	-1.08	-1.73**	-0.82
P/C Insurance			
Unadjusted	0.20	0.40	-2.85**
Size-adjusted	0.44	0.79	-1.99**
Reinsurance			
Unadjusted	4.18	-1.82	-3.23
Size-adjusted	2.77	-3.69*	-3.05

- Significant premium decline: 2 to 4% (compared to 4 to 12% for the U.S.)
- One year time lag with P/C

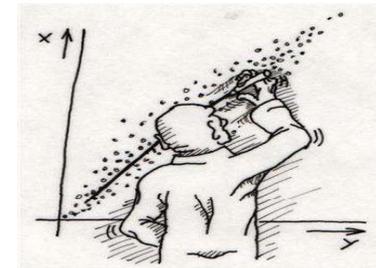


4. Results (2/4): Hypotheses 1 (Change in rating → abnormal premium growth)

- Regression tests:

		Life	P/C	Re	
Controls	Ln Premiums t-1	-0.10***	-0.02**	-0.02	
	Mutual	-0.11***	-0.05***	0.04	
Rating	A	-0.01	-0.01	-0.04	
	Low	-0.02	-0.02	-0.04	
Upgrades	Rating Up t-1	0.04	0.00	0.03	
	Rating Up t	-0.02	0.02	0.01	
	Rating Up t+1	0.01	-0.02	0.01	- No significant increase in premium growth

Downgrades	Rating Down t-1	-0.03	0.03	0.07	- Significant premium decline: 4 to 5%
	Rating Down t	-0.04***	0.03	-0.06	(compared to 4 to 12% for the U.S.)
	Rating Down t+1	-0.01	-0.05*	-0.03	(reinsurance is not significant)



4. Results (3/4): Hypotheses 2 (Change in rating → abnormal termination rates)

- Control group tests:

A) Upgraded life insurers

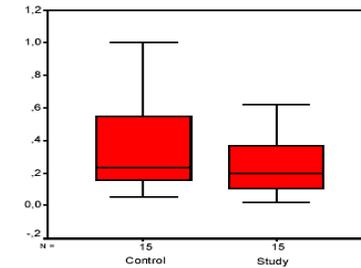
Time	t-1	t	t+1
Upgraded insurers			
Unadjusted	-2.87	4.46	-4.73
Size-adjusted	-2.73	4.21	-3.77

- No clear indication
- No significant decrease in termination rates

B) Downgraded life insurers

Time	t-1	t	t+1
Downgraded insurers			
Unadjusted	1.81	3.80*	6.43**
Size-adjusted	2.35	3.24	5.36**

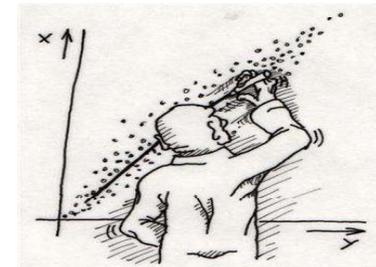
- Significant increase in termination rates following rating downgrades: 4 to 6%
- Findings in line with hypotheses 1



4. Results (4/4): Hypotheses 2 (Change in rating → abnormal termination rates)

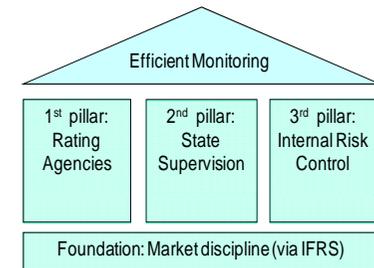
- Regression tests:

Controls	Ln Premiums.t-1	0.15**	
	Mutual	0.31*	
Rating	A	-0.02	
	Low	0.00	
Upgrades	Rating Up t-1	-0.03	
	Rating Up t	0.05	
	Rating Up t+1	-0.09	- No significant decrease in termination rates
Downgrades	Rating Down t-1	0.00	- Significant increase in termination rates: 5%
	Rating Down t	0.01	- Findings in line with hypotheses 1
	Rating Down t+1	0.05**	



5. Conclusion (1/5): Main findings

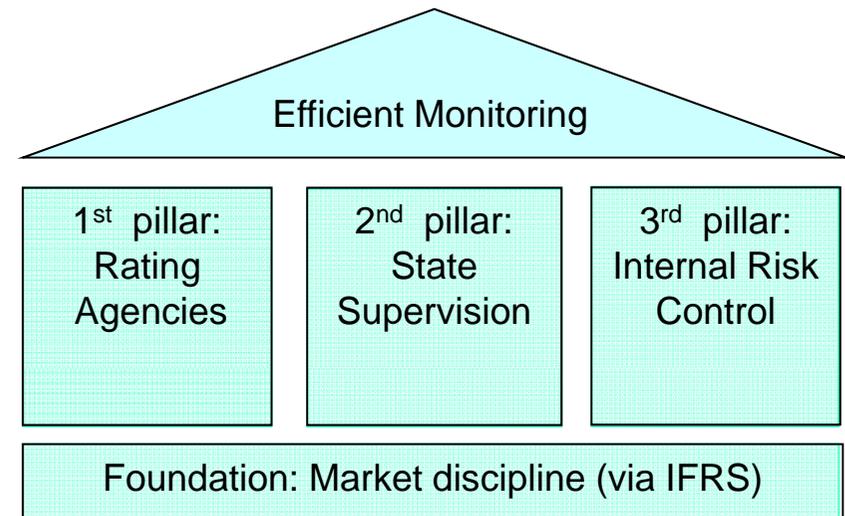
1. Significant premium declines following rating downgrades, but less clear reactions following rating upgrades (consistent with the results for the U.S. market)
 2. The premium declines are smaller than in the United States (weaker market discipline in the German market)
 3. The downside risk of sending a bad market signal is greater than the upside potential of a good market signal (consistent with the literature on the effects of negative and positive news)
- => There is some market discipline in the German insurance industry, but regulators need to enforce the mechanisms than can strengthen it (IFRS and Solvency II; first empirical indication is promising)



5. Conclusion (2/5): Improving market discipline – Three ideas

- Some ideas to improve market discipline:

1. Publish financial strength ratings
2. Publish capital requirements and stress testing results
3. Publish information on internal risk management and control



... on regulator's web page and in the annual reports

- Lack of comparability as the main impediment (standardization? regulator?)
- Insurance industry might benefit from more transparency (reputation in general and customer and shareholder trust specifically are key assets)

5. Conclusion (3/5): Improving market discipline – Three ideas

- Ad 1. Publish financial strength ratings (New Zealand)



Solvency issues

The Insurance Companies (Ratings and Inspections) Act 1994 requires all insurers selling general or disaster insurance to:

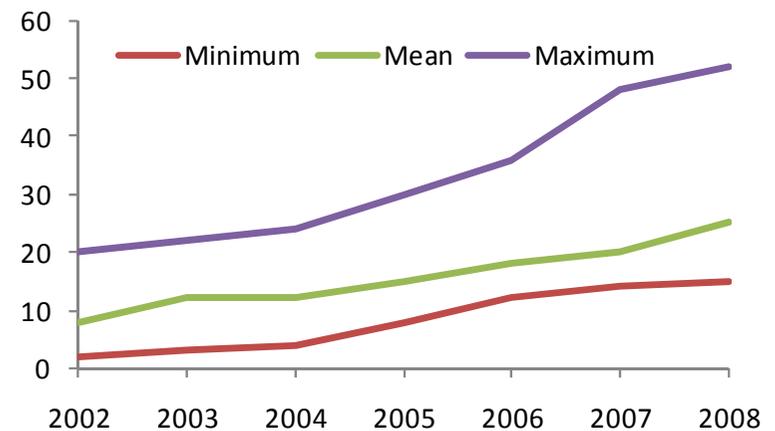
- Obtain a rating from an approved rating agency
- Register that rating with the Registrar of Companies, and
- Disclose the rating before entering into or renewing a contract of insurance.

Insurance companies who are required to obtain a rating must have a current rating at all times, and must renew their ratings annually. New annual ratings must be registered at the Companies Office.

NAME OF INSURER	REGISTERED RATING	DATE RATING GIVEN BY APPROVED RATING AGENCY	APPROVED RATING AGENCY	DATE RATING REGISTERED
Allianz New Zealand Limited - AK 445514	A-	9 November 1995	Standard & Poors	14 November 1995
	A-	8 November 1996	Standard & Poors	12 November 1996
	A-	8 November 1997	Standard & Poors	14 November 1997
	A-	8 November 1998	Standard & Poors	18 November 1998
	A-	8 November 1999	Standard & Poors	15 November 1999
	A-	8 November 2000	Standard & Poors	12 February 2001
	A-	8 November 2001	Standard & Poors	16 November 2001
	A-	8 November 2002	Standard & Poors	9 December 2002
	A-	8 November 2003	Standard & Poors	10 November 2003
	A	8 November 2004	Standard & Poors	8 November 2004
	A	8 November 2005	Standard & Poors	2 December 2005
	A	8 November 2006	Standard & Poors	9 November 2006
	A	8 November 2007	Standard & Poors	19 November 2007
A	8 November 2008	Standard & Poors	21 November 2008	

5. Conclusion (4/5): Improving market discipline – Three ideas

- Ad 2. Publish capital requirements and stress testing results
 - Concerns about competition (herding, bank run,...)
 - Lack of literature in this respect (Holmström, 1979)
- Ad 3. Publish information on internal risk management and control
 - More information is not necessarily better information
 - Information must be easily accessible and standardized, so that a comparison with other market participants is possible (e.g., 10-K-Filings required by the U.S. Securities and Exchange Commission (SEC))



5. Conclusion (5/5): Improving market discipline – Evaluation

- Analysis of costs and benefits requires consideration of three aspects:
 - Impact of measures on market discipline: unclear
 - Costs: not irrelevant (especially for SMB)
 - Impact on competition: not trivial
- Lack of comparability as the main impediment so far, but standardization possible (additional job for the regulator)
- Further need for research and discussion both in academia and practice necessary to derive the right measures for market discipline

