

Best's Impairment Rate and Rating Transition Study: 1977 to 2015

Scope of Impairment Study

- Includes impairments associated with U.S. property/casualty and life/health insurers that have traditionally filed statutory statements
- Produces ratings performance data associated with:
 - 5,183 operating insurance companies that had at least one A.M. Best Financial Strength Rating (FSR) between 1977 and 2015
 - 3,222 operating insurance companies with assigned or implied Issuer Credit Rating (ICRs) from 2001 to 2015

Financially Impaired Company Defined

- An insurer is designated as a Financially Impaired Company (FIC) as of the first official regulatory action taken by an insurance department
- The regulatory action could be because:
 - Capital and surplus have been deemed inadequate to meet regulatory requirements; and/or
 - General financial condition of the insurer has triggered regulatory concern.

Financially Impaired Company Defined (cont'd)

- Insurance companies are specifically exempted from the Federal Bankruptcy Code
- For more serious impairments, insurance insolvency proceedings are conducted in state courts
- Most states have enacted statutes that govern resolution of insurance insolvencies based on NAIC Model Acts

Financially Impaired Companies (FICs)

Financially Impaired Company Defined (cont'd)

FICs are typically under some type of regulatory oversight, including:

- Administrative Supervision & other actions
- Conservation
- Rehabilitation
- Liquidation

Typically Receivership Done by Court Order

Financially Impaired Companies (FICs)

The Three Broad Categories of Receivership (Post Regulator Taking Control of Insurer's Properties and Assets)

Conservation

Conservation allows time to assess the nature of the insurer's financial condition. Regulator must typically decide within months if to move to Rehabilitation or Liquidation. Confidentiality sometimes imposed at this stage.

Rehabilitation

In **Rehabilitation**, regulator conducts the business of the insurer, and formulates plan to remove the causes and conditions causing the rehabilitation order. If no resolution, Liquidation is next step.

Liquidation

In **Liquidation**, regulator closes the insurance company, cancels policies or transfers policies to solvent insurers, sells the company's assets to pay off the company's insurance claims and debts. Guaranty Funds typically activated.

3 Subsets of Impairment Data Presented



Gross Impairments

- This is the data A.M. Best has traditionally presented in prior domestic impairment studies
- This is the broadest and most conservative definition of impairments which includes receiverships, administrative orders, and any other regulatory actions
- Impairments are counted even if insurers have withdrawn from the rating process
- Number of carriers counted under gross impairments is 761 for companies with FSRs

3 Subsets of Impairment Data Presented



Net Impairments

- We begin with the broadest and most conservative definition of impairments which includes receiverships, administrative orders, and any other regulatory actions
- Impairments are not counted if insurers have withdrawn from the rating process
- Similar to the tabulation methods used in corporate default studies produced by some credit rating agencies & generally consistent with regulatory filings
- Number of carriers counted under net impairments is 576 (out of 761 gross impairments) for FSRs

3 Subsets of Impairment Data Presented



Liquidations

- Liquidations reflect the insurers counted under net impairments that were eventually liquidated by regulators
- A.M. Best believes that the liquidation count is the best indication as to which impairments may give rise to losses to policyholders
- Number of liquidated carriers is 375 (out of 761 gross impairments) for FSRs

Impairment/Liquidation



Rates Based on the 3 Subsets of Impairment

Example: 10-Year Gross Impairment, Net Impairment, and Liquidation Rate Calculations

Assumptions

A) Number of Insurers in Beginning Cohort	1000
B) Total Impairments by 10 th Year (Regardless of Withdrawal Status)	40
C) Total Withdrawals by 10 th Year	15
C1) Total Withdrawn Insurers That Were Also Impaired	10
C2) Total Withdrawn Insurers That Were Not Impaired	5
D) Net Impairments by 10 th Year	30
E) Liquidations as a Subset of Net Impairments	15

$$\text{Gross Impairment Rate} = \frac{\text{Item B}}{(\text{Item A} - \text{Item C2})} = \frac{40}{(1000 - 5)} = \frac{40}{995} = 4.02\%$$

$$\text{Net Impairment Rate} = \frac{(\text{Item B} - \text{Item C1})}{\text{Item A}} = \frac{(40 - 10)}{1000} = \frac{30}{1000} = 3.00\%$$

$$\text{Liquidation Rate} = \frac{\text{Item E}}{\text{Item A}} = \frac{15}{1000} = 1.50\%$$

Comparing Corporate Default Rates to Impairment Rates



Corporate Default Rates vs. Insurance Impairment Rates

- Corporate default studies by some credit ratings agencies generally include defaults associated with:
 - Corporate issuers
 - Insurance companies
 - Financial institutions
- These studies generally exclude defaults associated with asset-backed securities and government securities
- Insurance companies are normally a small fraction of the corporate default studies – ranging from 6% to 15% by our estimates
- Evidence of defaults in these studies is dominated by the following:
 - Missed interest or principal payments
 - Restructuring of debt in a manner that harms debt holders

Comparing Corporate Default Rates to Impairment Rates



Corporate Default Rates vs. Insurance Impairment Rates (cont'd)

- By contrast, A.M. Best's impairment studies only include insurance carriers
- A.M. Best rates a broad spectrum of carriers – very small to very large carriers
- Insurer liquidation rates (as opposed to gross impairment or net impairment rates) may be more comparable to corporate issuer default rates since they relate more to the possibility of defaults on policyholder obligations.
- Time period of study:
 - FSRs from 1977 to 2015
 - ICRs from 2001 to 2015

Impairment/Liquidation Rate Calculation Method



Static Pool Approach

- Static pool is defined as a cohort of insurers with A.M. Best ratings
- Multiple static pools can be created depending on the amount of ratings data available
- For each static pool of rated companies, we observe the number of companies that became impaired over a pre-determined calculation period (such as over 5 years)
- The results of the calculations are averaged over the number of static pools created

Impairment/Liquidation Rate Calculation Method



Example of the Static Pool Approach for 5-year Impairment Rates

- Since our data is from year-end 1977 to year-end 2015, we have the following 5-year static pools:
 - Rated insurers at year-end 1977 that became impaired by year-end 1982
 - Rated insurers at year-end 1978 that became impaired by year-end 1983
 - \vdots
 - Rated insurers at year-end 2010 that became impaired by year-end 2015
- Altogether there are 34 static pools – impairment results are to be averaged to arrive at the 5-year impairment rate for any given rating cohort (such as all “A-” rated insurers)

Results of Impairment Study (FSR)

Number of Gross Impairments

Years	No. of Impairments	% of Total Impairments
1978 - 1979	14	1.8%
1980 - 1981	15	2.0%
1982 - 1983	23	3.0%
1984 - 1985	57	7.5%
1986 - 1987	50	6.6%
1988 - 1989	64	8.4%
1990 - 1991	92	12.1%
1992 - 1993	62	8.1%
1994 - 1995	34	4.5%
1996 - 1997	50	6.6%
1998 - 1999	45	5.9%
2000 - 2001	76	10.0%
2002 - 2003	76	10.0%
2004 - 2005	20	2.6%
2006 - 2007	16	2.1%
2008 - 2009	23	3.0%
2010 - 2011	17	2.2%
2012 - 2013	13	1.7%
2014 - 2015	14	1.8%
Total	761	100.0%

Source: A.M. Best data and research

- **Macro economic issues (recessions, inflation, stock market declines, etc) and cat losses**
- **1984-1993 represents 10 years of heavy impairments (L/H insurance impairments related to junk bond and commercial mortgage holdings; P/C impairments related to cat losses)**

Results of Impairment Study (FSR)

Best's Average Cumulative Gross Impairment Rates (FSRs)

U.S. Life/Health and Property/Casualty Data from 1977 to 2015

Rating	1 Year	2 Year	3 Year	4 Year	5 Year	6 Year	7 Year	8 Year	9 Year	10 Year	11 Year	12 Year	13 Year	14 Year	15 Year
A++	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.04%	0.09%	0.10%	0.11%	0.12%	0.14%
A+	0.06	0.19	0.35	0.53	0.71	0.96	1.23	1.52	1.88	2.25	2.65	3.14	3.67	4.21	4.69
A	0.13	0.38	0.75	1.17	1.63	2.14	2.71	3.35	4.01	4.68	5.45	6.17	6.92	7.69	8.34
A-	0.19	0.63	1.19	1.75	2.43	3.18	3.99	4.93	5.78	6.65	7.50	8.48	9.52	10.50	11.38
B++	0.55	1.65	2.67	3.82	4.91	5.92	7.02	7.92	8.93	10.13	11.38	12.84	14.23	15.61	16.64
B+	0.84	1.83	3.03	4.56	6.30	7.89	9.50	10.93	12.12	13.37	14.68	16.02	17.34	18.32	19.32
B	1.69	3.95	6.47	8.83	11.28	13.98	16.54	18.80	20.90	23.01	25.01	27.02	29.01	31.14	32.92
B-	5.06	9.06	11.35	13.28	16.12	18.58	20.75	22.28	24.56	27.20	29.84	32.34	35.26	34.80	35.15
C++/C+	3.85	6.70	10.18	13.77	16.74	19.68	22.29	25.76	28.79	31.48	33.42	35.26	36.70	38.45	40.47
C/C-	6.44	10.48	13.82	17.11	20.55	24.92	28.94	33.04	36.25	38.82	41.62	44.34	46.77	49.30	51.16
D	7.60	13.45	19.28	24.36	29.19	34.03	37.85	41.29	44.22	47.14	50.42	52.57	54.51	56.32	58.00
All	0.63%	1.31%	2.05%	2.84%	3.67%	4.56%	5.45%	6.36%	7.24%	8.15%	9.09%	10.05%	11.02%	11.97%	12.83%

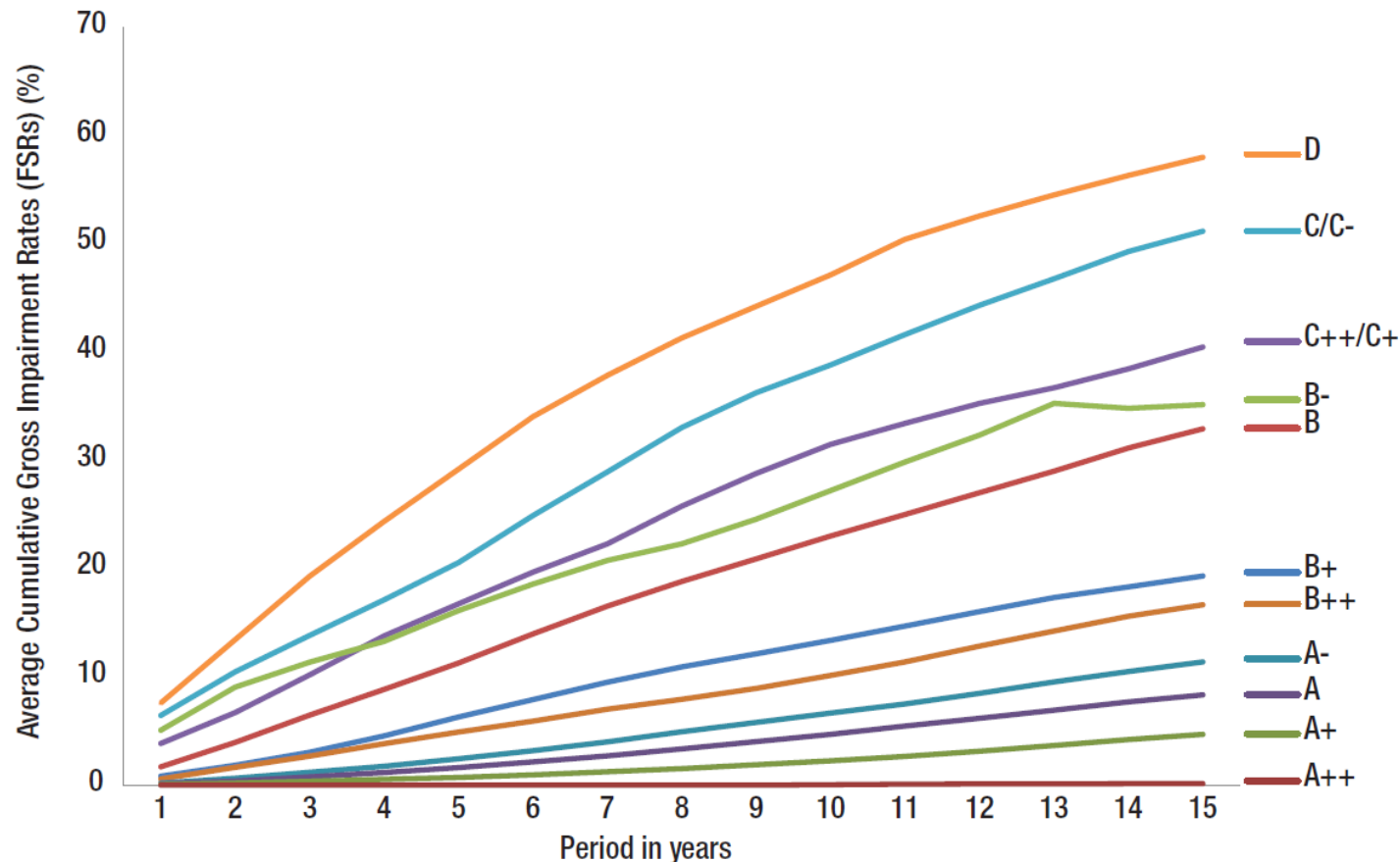
Source: A.M. Best data and research

- Covers 38 1-year periods; 5,183 insurers; gross impairments = 761 insurers
- Data represents averages over various measurement periods
- Table shows that impairment rates generally increase over time and increase as ratings degrade
- Normally a big jump from year 1 to year 2 impairments and then marginal defaults decrease

Results of Impairment Study (FSR)

Best's Ratings - Average Cumulative Gross Impairment Rates (FSRs)

U.S. Life/Health and Property/Casualty Data from 1977 to 2015



- Generally monotonically non-decreasing data set – higher impairments over time and higher impairments with lower ratings
- Data inconsistency due to sparse data set at lower ratings

Source: A.M. Best data and research

Results of Impairment Study (FSR)

Comparison of Gross Impairment, Net Impairment & Liquidation Rates

Best's Average 15-Year Cumulative Gross Impairment, Net Impairment, and Liquidation Rates (FSRs)

U.S. Life/Health and Property/Casualty Data from 1977 to 2015

Rating	Gross	Net	Liquidation
A++	0.14%	0.00%	0.00%
A+	4.69	3.03	1.62
A	8.34	5.28	2.86
A-	11.38	7.43	3.44
B++	16.64	9.68	5.24
B+	19.32	9.78	6.30
B	32.92	13.87	10.06
B-	35.15	18.59	12.53
C++/C+	40.47	18.41	13.80
C/C-	51.16	25.29	17.03
D	58.00	30.62	22.85
All	12.83%	7.65%	4.78%

Source: A.M. Best data and research

- Comparison of 15-year gross impairment, net impairment, and liquidation rates
- 24 static pools are involved in this calculation using data from 1977 to 2015
- 5,183 insurers rated in that period
- Gross impairments = 761 insurers
- Net impairments = 576 insurers
- Liquidations = 375 insurers

Results of Impairment Study (FSR)

Cumulative 15-Year "A-" Impairment/Liquidation Rates

Based on Various Calculations

Calculation	Impairment/Liquidation Rates
Gross Impairments	11.38%
Net Impairments	7.43%
Liquidations	3.44%

Source: A.M. Best data and research

- Gross impairment rate is about 1.5x the net impairment rate
- Gross impairment rate is over 3x the liquidation rate

Results of Impairment Study (FSR)

1-Year Ratings Transition Matrix for FSRs (Associated with Gross Impairments)

Rating	Rating One Year Later											Gross Impaired
	A++	A+	A	A-	B++	B+	B	B-	C++/C+	C/C-	D	
A++	91.24%	7.17%	1.47%	0.06%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A+	1.48	91.01	6.67	0.40	0.03	0.33	0.02	0.00	0.00	0.00	0.00	0.06
A	0.21	4.88	88.20	4.23	0.41	1.47	0.27	0.02	0.08	0.03	0.08	0.13
A-	0.08	0.48	7.01	86.31	3.76	1.14	0.73	0.07	0.06	0.07	0.11	0.19
B++	0.06	0.51	1.01	11.64	77.12	6.82	1.38	0.28	0.30	0.32	0.02	0.55
B+	0.00	0.26	5.46	3.39	5.67	75.47	6.51	0.87	0.68	0.24	0.61	0.84
B	0.04	0.26	0.74	0.60	0.92	14.89	71.93	3.03	3.66	0.94	1.31	1.69
B-	0.00	0.00	0.22	0.75	0.43	4.63	15.30	65.41	6.57	1.08	0.54	5.06
C++/C+	0.00	0.23	0.46	0.35	0.17	1.90	11.85	5.75	66.65	5.69	3.11	3.85
C/C-	0.00	0.00	0.62	0.00	0.00	0.25	3.59	0.37	14.37	66.42	7.93	6.44
D	0.00	0.10	0.66	0.10	0.00	1.02	2.55	0.31	2.91	3.42	81.33	7.60

Source: A.M. Best data and research

- This table represents 1-year averages over multiple static pools from 1977 to 2015
- Over the long term, high ratings stability is generally consistent with higher ratings (except for rating categories with sparse ratings)

Results of Impairment Study (FSR)

Gross Impairments in Each Rating Category By Years Before Impairment U.S. Life/Health and Property/Casualty Data from 1977 to 2015

Rating Category	-----Number of Years Before Impairment----->					In Year of Impairment
	5 Years	4 Years	3 Years	2 Years	1 Year	
A++/A+	35	36	35	29	14	1
A/A-	142	140	143	116	60	9
B++/B+	144	143	126	129	102	25
B/B-	89	90	110	129	132	98
C++/C+	34	43	46	41	67	63
C/C-	18	20	22	28	52	74
D	67	71	85	92	147	222
Not Formally Followed*	232	218	194	197	187	269
All	761	761	761	761	761	761

* The "Not Formally Followed" category represents companies that did not have a Best's FSR at the time period in question but had a Best's FSR at some time after Dec. 31, 1977.

Source: A.M. Best data and research

- This table shows the ratings of impaired companies years before impairment
- Highly rated companies (B+ and above) generally migrate to lower ratings as impairment approaches
- There are 142 "A/A-" rated carriers 5 years before impairment but only 60 one year before impairment
- Number of companies rated below "B+" one year before impairment is higher than the number 5 years before impairment

Results of Impairment Study (FSR)

Average Years to Gross Impairment For the 761 Impaired Companies

U.S. Life/Health and Property/Casualty Data from 1977 to 2015

Initial Rating Category	No. of Impairments	Average Years to Impairment from Initial Rating Date*
A++/A+	106	16.40
A/A-	169	13.30
B++/B+	147	11.00
B/B-	123	10.50
C++/C+	57	7.80
C/C-	35	11.80
D	124	9.60
All	761	11.74

* Initial rating date is the later of Dec. 31, 1977, or the date of the original rating.

Source: A.M. Best data and research

- This table shows the average number of years to impairment based on various rating categories
- Average years to impairment from initial rating date generally decreases as ratings decrease
- It took an average of 16.4 years for impaired companies initially rated “A++/A+” to become impaired
- It took an average of 9.6 years for impaired companies initially rated “D” to become impaired

Results of Impairment Study (ICR)

ICR Data Presented for 1st Time

- A.M. Best began issuing Issuer Credit Ratings (ICRs) in 2001

FSR/ICR Translation Table

FSR	Long-Term ICR	FSR	Long-Term ICR
A++	aaa aa+	B	bb+ bb
A+	aa aa-	B-	bb-
A	a+ a	C++	b+ b
A-	a-	C+	b-
B++	bbb+ bbb	C	ccc+ ccc
B+	bbb-	C-	ccc- cc
		D	c

Source: A.M. Best

Currently all insurers rated by A.M. Best have both an FSR(13-point scale) and an ICR (21-point scale)

Results of Impairment Study (ICR)

ICR Data Presented for 1st Time (cont'd)

Best's Average Cumulative Gross Impairment Rates by Rating Symbols and Notches (ICRs)

U.S. Life/Health and Property/Casualty Data from 2001 to 2015

Rating	1-Year	2-Year	3-Year	4-Year	5-Year
aaa	0.00%	0.00%	0.00%	0.00%	0.00%
aa+	0.00	0.00	0.00	0.00	0.00
aa	0.00	0.00	0.00	0.00	0.00
aa-	0.00	0.00	0.00	0.00	0.00
a+	0.00	0.26	0.28	0.30	0.32
a	0.00	0.00	0.00	0.00	0.00
a-	0.08	0.25	0.41	0.61	0.83
bbb+	0.19	0.42	0.68	0.97	1.31
bbb	0.48	1.25	1.77	2.70	3.95
bbb-	1.30	2.42	3.57	4.91	6.35
bb+	2.24	4.59	6.84	8.78	10.41
bb	1.83	3.43	8.80	10.78	10.34
bb-	4.75	7.52	9.84	11.18	14.09
b+	8.11	14.56	15.84	19.78	22.73
b	7.69	16.28	25.00	27.27	28.00
b-	6.80	9.64	13.89	24.62	31.58
ccc and below	20.81	32.14	44.44	53.33	61.76
All	0.40%	0.75%	1.04%	1.35%	1.67%

Source: A.M. Best data and research

- Table shows granular ICR-related gross impairment data
- Shows only up to 5-year impairment rates due to short time frame of ICR issuance
- Data from 2001 to 2015
- 3,322 insurers rated in that period
- Gross impairments = 153 insurers
- Net impairments = 135
- Liquidations = 74

Results of Impairment Study (ICR)

ICR Data Presented for 1st Time (cont'd)

Best's Average Cumulative Gross Impairment Rates by Major Rating Groupings* (ICRs)

U.S. Life/Health and Property/Casualty Data from 2001 to 2015

Rating	1-Year	2-Year	3-Year	4-Year	5-Year
aaa	0.00%	0.00%	0.00%	0.00%	0.00%
aa	0.00	0.00	0.00	0.00	0.00
a	0.03	0.18	0.26	0.35	0.46
bbb	0.70	1.39	2.06	2.87	3.76
bb	2.98	5.38	8.05	9.79	11.61
b	7.52	13.10	16.75	22.75	26.47
ccc and below	20.81	32.14	44.44	53.33	61.76
All	0.40%	0.75%	1.04%	1.35%	1.67%

Source: A.M. Best data and research

* Each rating grouping represents a combination of all rating symbols and notches associated with a rating category. For example, the "a" grouping includes the following ratings: "a+", "a", and "a-".

- Same data as in prior table except ratings data grouped by major rating groupings
- 3,322 insurers rated in that period
- Gross impairments = 153 insurers
- Net impairments = 135
- Liquidations = 74

Results of Impairment Study (ICR)

ICR Data Presented for 1st Time (cont'd)

Best's Average 5-Year Cumulative Gross Impairment, Net Impairment, and Liquidation Rates by Major Rating Groupings (ICRs)

U.S. Life/Health and Property/Casualty Data from 2001 to 2015

Rating	Gross	Net	Liquidation
aaa	0.00%	0.00%	0.00%
aa	0.00	0.00	0.00
a	0.46	0.42	0.21
bbb	3.76	3.05	1.77
bb	11.61	7.79	4.53
b	26.47	13.09	8.36
ccc and below	61.76	27.40	9.59
All	1.67%	1.40%	0.77%

Source: A.M. Best data and research

- Comparison of 5-year gross impairment, net impairment, and liquidation rates
- Covers 10 5-year periods from 2001 to 2015
- 3,322 insurers rated in that period
- Gross impairments = 153 insurers
- Net impairments = 135 insurers
- Liquidations = 74 insurers

Results of Impairment Study (ICR)

Why Time Periods Matter In Impairment Studies

Best's Average Cumulative Gross Impairment Rates

Rating	1-Year	2-Year	3-Year	4-Year	5-Year
"A-"(FSR)*	0.19%	0.63%	1.19%	1.75%	2.43%
"a-"(ICR)**	0.08%	0.25%	0.41%	0.61%	0.83%

- "a-" ICR is equivalent to the "A-" FSR in the A.M. Best rating universe.
- Table shows difference based on time frame selected for the analysis
- Important to perform analysis through various economic cycles

*FSR Data from 1977-2015

**ICR data from 2001-2015

Summary

- A.M. Best's impairment rate calculations are solely based on insurance carriers – not a mixture of corporates, etc.
- Corporate default rates are not directly comparable to gross or net impairment rates – liquidation rates may be a better comparison since liquidations could result in losses to policyholders
- Correlation exists between ratings and impairments: in general, the higher the ratings, the lower the observed impairment rates
 - True for both the insurers rated based on the traditional FSR scale as well as the ICR scale most familiar to the debt markets.
- Higher ratings tend to be more stable and lower ratings exhibit more volatility
- Time to impairment is generally longer for higher rated insurers

APPENDIX

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