



Article from

Risk & Rewards

August 2016

Issue 68

Private Placement Bond Credit Risk Experience Study Released

By R. Jerome Holman

The Society of Actuaries (SOA) Private Placement Experience Committee recently released the 2003-12 Credit Risk Loss Experience Study on Private Placement Bonds. The full written report and associated fully functional Excel pivot table file can be downloaded from:

<https://www.soa.org/Research/Experience-Study/Credit-Risk/2003-2012-credit-risk-loss.aspx>

STUDY OVERVIEW

The report covers credit risk loss experience during the period 2003 through 2012 on traditional (generally non-144A) private placement securities held by participating companies (also referred to as contributors) of the life insurance industry. The Private Placement Experience Committee initiated the report as part of its mission to conduct research with support from participating companies. The study seeks to perform analyses and develop insights into the behavior of private placement credit risk, to compare incidence and severity measures to public corporate bond experience and to stimulate further research into credit risk.

The report, also referred to as the study, restarts the review of private placement experience that was last reported in 2006, to cover experience from 1986 through 2002. Previous reports and the current study aim to fill a knowledge gap in private placement credit risk experience. This report is a unique addition to the body of credit risk experience research. While there are many reports published by various entities on the default and recovery experience of public corporate bonds there is little or no other comparable experience published for private placements.

Measurement Basis

The study analyzes credit risk loss with respect to three measures: incidence (the frequency of loss), loss severity (the magnitude of a loss) and economic loss (the product of incidence and loss severity). The study uses the term “credit risk event” (CRE) for these losses. A CRE is more expansive than the definition of default generally used by rating agencies. The CRE definition is designed to capture situations where active management opportunities unique to private placements avoided losses that eventually would have resulted in default. This is intended to avoid

understatement of credit losses. CRE experience is analyzed relative to several asset characteristics, e.g., coupon, current quality rating and time since funding. The analysis of private placement experience by itself is supplemented with a comparison to corporate public bond default and recovery experience during the same time period.

CREDIT LOSS RESULTS

Incidence

The average annual incidence for the study period was 0.56 percent by number and 0.50 percent by amount. Lower incidence by amount than by number of CUSIPs¹ implies the contributors in aggregate benefited from their decisions to allocate different amounts to the CUSIPs they held.

Study Scope

15 participating companies

11,910 CUSIPs

428 CREs

Exposure (years):

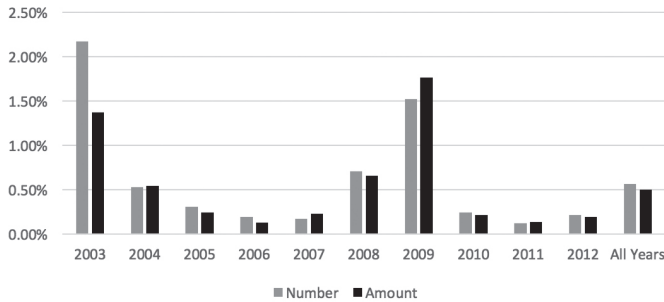
76.2 thousand by number

\$1.2 trillion by amount

The pattern of annual incidence is consistent with quality ratings supplied by the contributors and National Association of Insurance Commissioners (NAIC) ratings. Average incidence increases with decreasing credit quality. As would be expected in a general default study, incidence is more closely linked to current rating as opposed to earliest rating, and it is higher during economically stressed periods.

The highest aggregate incidence by amount was 1.76 percent in 2009. The highest incidence by number, 2.17 percent, occurred in 2003. Because each CUSIP held by a contributor is counted by measuring incidence by number, a large number of small CREs, held in different CUSIPs from a common issuer, inflated CRE counts for 2003. The next highest incidence by number, 1.52 percent, occurred in 2009. The lowest incidence, 0.12 percent, occurred in 2006 and 2011, by amount and number, respectively. The highest and lowest levels of incidence generally align with stressed and benign economic conditions (Figure 1, pg. 15, top).

Figure 1
CRE Incidence Rates



Loss Severity

Average loss severity, 29 percent, shows highly dispersed losses. When loss given default was grouped in 10 percent ranges, only two of those ranges held more than 10 percent of CRE principal amounts. There was a large proportion of CREs that had negative loss severity (amount recovered greater than the amount exposed to loss). Measured by the amount held at the CRE, 33 percent of the CREs had negative losses with an average 12 percent gain (Figure 2).

Figure 2
Loss Severity Frequency Distribution

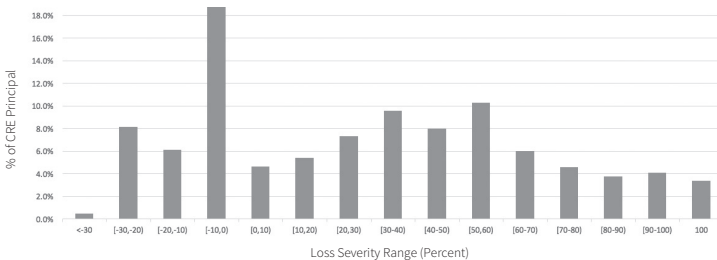


Figure 3. Loss Severity by Seniority and Security

		Senior Secured	Senior Unsecured	Subordinated	Not Reported	Total
All CUSIPs	Loss Sev	31.5%	22.9%	63.0%	41.6%	29.3%
	# of CREs	130	198	12	88	428
One Owner	Loss Sev	30.7%	35.5%	71.0%	51.7%	40.9%
	# of CREs	63	60	11	48	182
Multiple Owners	Loss Sev	33.3%	17.6%	-6.6%	27.3%	20.3%
	# of CREs	67	138	1	40	246

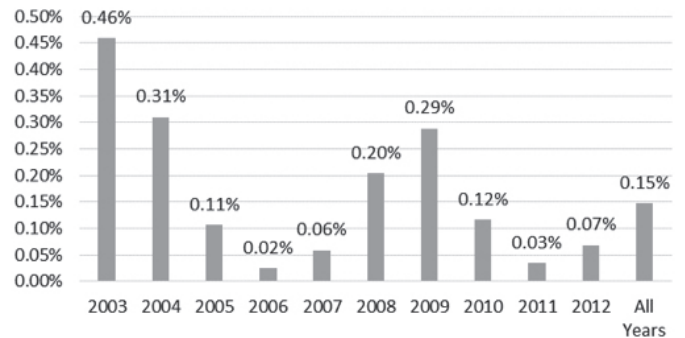
The economic loss rate is the percentage of the amount invested that is lost to CREs each year.

Loss severity varied by structure of the security. Senior securities (combined secured and unsecured) had lower losses, 25 percent, than subordinated ones, 63 percent (Figure 3). But security (secured vs. unsecured) did not reduce losses for senior instruments. Senior secured losses were 32 percent versus 23 percent for senior unsecured positions. This unexpected result is due to very low senior unsecured loss severity, 18 percent, when the same CUSIP is owned by more than one contributor. Loss severity of CUSIPs owned by only one contributor showed a normal relationship of senior unsecured losses being higher than senior secured ones, 36 percent and 31 percent, respectively. There were no discernable effects on loss severity from quality rating or between stressed and benign economic conditions.

Economic Loss

The economic loss rate is the percentage of the amount invested that is lost to CREs each year. Economic loss results exhibit similar, though not identical, behaviors as incidence when quality ratings or economic conditions vary. This is because incidence is closely related to those factors, but loss severity is not. Loss severity has little correlation with quality rating or economic conditions (the major drivers of incidence), which means that economic losses are less strongly correlated with these factors. The average, high and low economic losses were 0.15 percent, 0.46 percent and 0.02 percent, respectively (Figure 4).

Figure 4. Economic Loss Rate by Amount



While there are many reports ... on the ... experience of public corporate bonds there is little or no other comparable experience published for private placements.

Results varied significantly by contributor. Even though quality of holdings was similar among contributors, annual economic loss, measured in quartiles, for the period ranged from 0.04 to 0.41 percent (Figure 5).

Figure 5.

Company Quartile	Exposure by Amount	% of CREs	Average Quality*	Standard Deviation Quality**	Economic Loss
1	19%	12%	8.0	2.3	0.04%
2	49%	33%	8.2	2.5	0.11%
3	27%	39%	7.7	3.1	0.24%
4	5%	16%	8.8	2.5	0.41%
Total	100%	100%	8.1	2.6	0.15%

* Average Quality expresses A-, BBB+ and BBB numerically as 7, 8 and 9.

** Standard Deviation Quality is in units of rating notches.

ANALYSIS HIGHLIGHTS

Public to Private Placement Comparison

An important aspect of the study is the comparison of private placement experience to public corporate bonds. Private placements showed a 0.15 percent annual advantage relative to public bonds based on economic loss by current rating assuming a senior unsecured instrument. Because private placements held by the contributors have higher average quality than rated public bonds, the advantage was estimated by controlling for their quality differences. The advantage assuming a private placement quality mix was 0.10 percent, and was 0.21 percent for a public bond quality mix (Figure 6). Generally, the advantage is the result of average higher private incidence that is more than offset by lower loss severity, relative to public bonds, for private placements.

Public to Private Incidence and Loss Severity

Comparative aggregate private placement to public bond annual incidence is dependent on the assumed quality mix. The study uses respective private placement and rated public exposure to produce weighted default rates on a consistent basis. Viewed by Investment and Speculative Grade groupings, private placement incidence is higher except for Speculative Grade weighted by private placement exposure. The aggregate incidence is higher for private placements using either weighting (Figure 7).

Generally, senior unsecured private placement loss severity, restated to a basis consistent with public corporate bonds, has the strongest and most statistically reliable advantage compared to public bonds, 37 percent versus 56 percent. The combinations of incidence exposure weightings and senior unsecured loss severity corresponding to respective private and public experience, shown in Figure 7, produce the economic loss values shown in Figure 6.

The other seniority statuses do not show a clear advantage. While there is a similar difference for subordinated bonds, the low number of their CREs does not support credible results and the difference for senior secured bonds is not significant.

Figure 6.

Public vs. Private Economic Loss Rates			
Basis	Economic Loss Rate (bps)		
	Public	Private	Difference*
Public estimated based on study private quality mix	33	23	10
Private estimated based on public bond quality mix	86	65	21

* Average difference of 15 bps

Figure 7

	Incidence* - Issuer Basis			Loss Severity	Economic Loss
	Inv Grade	Spec Grade	All rated ^a		
Private Placement Exposure Weighting					
Public	0.12%	3.52%	0.59%	55.7%	0.33%
Private Placement	0.17%	3.38%	0.62%	37.2%	0.23%
Public Bond Exposure Weighting					
Public	0.11%	3.54%	1.53%	55.7%	0.86%
Private Placement	0.15%	4.06%	1.76%	37.2%	0.65%

* All incidence rates are issuer basis annual rates weighted by their respective issuer exposures for 2003 to 2012.

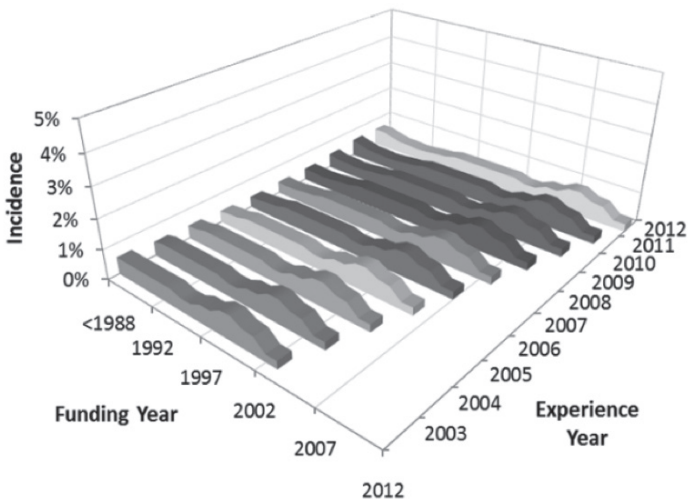
Public to Private Comparison to Prior Study

The amount of the assumed advantage for senior unsecured bonds is dependent on the asset mix assumed. Using the private mix for the comparison, the private placement economic loss advantage decreased 0.16 percent, 0.26 percent in the prior experience study versus 0.10 percent in the current one (Figure 8). The decrease is explained by lower incidence and lower net loss severity advantage in the current study. The bulk of the change is due to lower incidence, a 0.53 percent decrease, which applied to the prior assumed 25 percent loss severity advantage reduces the economic loss advantage by 0.13 percent. The remainder of the decrease, 0.03 percent, is caused by a net reduction of 7 percent in the private to public loss severity advantage.

Figure 8. Comparison to Prior Study—Economic Loss

Basis	Current	Prior
(1) Public (Issuer)	0.33%	0.67%
(2) Private (Issuer)	0.23%	0.41%
(3) Private versus Public Advantage, (1) - (2)	0.10%	0.26%

Figure 9. Incidence Normalized for Business Cycles



An insurance company might be able to improve its loss experience by more closely monitoring assets with ratings disagreements.

Seasoning

A seasoning effect consisting of three phases holds across earliest quality ratings. As the underwriting effect wears off, the incidence rate and economic loss rate both rise to a peak before declining to a steady state. In general, the lower the quality, the stronger the seasoning effect is. The seasoning effect is prominent with all qualities combined by number and for BB and lower by amount. The seasoning effect does not appear to be caused by the variation of incidence due to economic conditions. When incidence is normalized for its variation by economic conditions, the seasoning effect was apparent for experience years with high and low incidence (Figure 9).

Rating Consistency

An important part of the study is to analyze the reasonability of the ratings supplied by contributors. These internal ratings are used as the main quality rating in the study because private placements are not usually rated by rating agencies. The internal ratings supplied by the contributors for each CUSIP for all years, were found to be consistent across two dimensions. Based on comparisons of commonly held CUSIPs, ratings were very consistent between contributors. They were also reasonably consistent in comparison to NAIC ratings. The NAIC ratings are determined by the NAIC Securities Valuations Office (SVO) for otherwise non-rated CUSIPs, or a rating agency if the CUSIPs are rated and treated as filing exempt with the NAIC. Consistency relative to NAIC ratings supports the internal ratings as being aligned with ratings determined by an external entity.

Differences of internal and NAIC ratings on CREs were analyzed to test for reliability of one versus the other. In those instances, the internal ratings tended to have more predictive power than the NAIC ratings (9 cells internal rating vs. 3 cells NAIC rating). But there were also some CREs (3 cells) where both ratings understated the likelihood of loss (Figure 10). It is possible that, in those situations, both ratings lagged deteriorating credit conditions. A caveat to these conclusions is that ratings were not supplied on all assets. If assets with no reported rating are more volatile on average, overall results could be affected.

The results in this table should be interpreted with caution because the number of exposures associated with some cells is small. Moreover, even though most recent internal ratings and most recent NAIC ratings are measured as of year-end, it is possible the instances of large differences in ratings arose because one rating was downgraded or upgraded just before year-end and the other was changed just after year-end. Bearing all the caveats in mind, the results imply that an insurance company might be able to improve its loss experience by more closely

monitoring assets with rating disagreements between the NAIC and the insurance company.

LIMITATIONS

Public to Private Analysis

Although private placements are similar to public bonds in some respects (generally fixed rate and often fairly long term to maturity, for example), privates are widely viewed as offering additional protection and value to investors. The report aims to quantify and explain observed differences on a consistent basis. However, it does not provide a complete analysis of all potential sources of incremental value between public and private debt.

Concentration

The data is highly concentrated. Five contributors provided 71 percent of the data, and the contributors have significant experience in the private placement market. Actual experience for any one company, whether new or an experienced market participant, may or may not be in line with the experience results presented in this study.

Data

Although the Private Placement Experience Committee devoted extensive and meticulous attention to the “scrubbing” of the data to ensure they are as clean and reliable as possible, ultimately the quality of the data depends on the contributors and is beyond the control of the committee. The committee performed no audits or independent verification of the information furnished to us. To the extent there are any material errors in the information provided, the results of the analysis will be affected as well.

Figure 10. Relative Predictive Ability of NAIC vs. Internal Ratings

Entity Rating with Better Match to Actual Incidence*					
NAIC Rating	Contributor Internal Rating				
	1	2	3	4	5
1		Contributor	n/c	Contributor	Contributor
2	n/c		Neither	Neither	Contributor
3	n/c	NAIC		Contributor	Neither
4	n/c	n/c	Contributor		Contributor
5	NAIC	NAIC	Contributor	Contributor	

* Rating agreements are not evaluated.
n/c means low CRE count; no credibility.

Credibility

The credibility of results is related to the incidence of unique CREs. There are 428 company-CUSIP CREs and 285 of those are unique CUSIPs. There are 143 unique issuers that experienced a CRE. The relatively small number of CREs limits analysis by some characteristics.

FUTURE PLANS

The next report will present new experience and, as appropriate, link to the analysis in this report. Based on input from contributing companies and the committee, the report will also be modified to include different characteristics or new analyses. Currently, the committee is in the early stages of producing an experience study for 2013 through 2015. Members who may be interested in participating on this Committee should contact Korrel Rosenberg, SOA senior research administrator, at krosenberg@soa.org. ■

ENDNOTES

- 1 CUSIP stands for Committee on Uniform Securities Identification Procedures. A CUSIP number is a nine character alphanumeric code that identifies a North American security for the purposes of facilitating clearing and settlement of trades. A similar system is used to identify foreign securities (CUSIP International Numbering System or CINS). The use of CUSIP in this article implies CUSIP and CINS in reference to securities in the study.



R. Jerome Holman FSA, CFA, MAAA, is a consultant to the SOA with RJH Integrated Solutions. He can be reached at jholman@soa.org.