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2003-12 Credit Risk Loss Experience Study: Private Placement Bonds

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Executive Summary

This report covers credit risk loss experience during the period 2003 through 2012 on non-Rule 144A private placement securities held by participating companies of the life insurance industry. The Society of Actuaries Private Placement Experience Committee (the Committee) initiated the report as part of its mission to conduct research with support from the participating companies, also referred to as contributors. 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. This report, also referred to as the Study, restarts the review of private placement experience, which was last updated in 2006, to cover experience from 1986 through 2002. Due to data availability and asset experience studied, prior study results do not link directly to the current study.

There were fifteen contributors of experience data to the study who collectively hold about 22%[1] of life insurance industry general account invested private placements at year-end 2012. The data was reviewed extensively for consistency and accuracy within and between contributors. The contributors provided balance sheet data as of the end of each study year and information on assets experiencing credit losses. The magnitude of losses was determined by comparing cash flows before and after credit events, using the data supplied by the contributors. The study experience was based on 11,910 CUSIPs that had 76.2 thousand exposure years by number and $1.16 billion exposure years by amount.

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.

Main Findings

Overall Results: The average annual incidence for the study period was 0.56% by number and 0.50% by amount. Loss severity was 29% and the annual economic loss was 0.15%. The latter two measures are generally conveyed only by amount in the report. Lower incidence by amount than by number of CUSIPs implies the contributors in aggregate benefited from their decisions to allocate different amounts to the CUSIPs they held. 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%.

[1] Percentage estimate based on total life insurance industry private placements reported by ACLI’s 2013 Life Insurance Fact Book.

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Incidence: The pattern of annual incidence is consistent with quality ratings supplied by the contributors (internal ratings) 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% in 2009. The highest incidence by number, 2.17%, occurred in 2003. Because each CUISP 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. This effect recurs in other areas of the analysis and is noted where appropriate. The next highest incidence by number, 1.52%, occurred in 2009. The lowest incidence, 0.12%, occurred in 2006 and 2011, by amount and number, respectively. The highest and lowest levels of incidence can be said to generally align with stressed and benign economic conditions.

Loss Severity: Average loss severity, 29%, shows highly dispersed losses. When loss given default was grouped in 10% ranges, only two of those ranges held more than 10% of CRE principal amounts. Loss severity varied by structure of the security. Senior securities had lower losses, 25%, than subordinated ones, 63%. But security did not reduce losses for senior instruments. Senior secured losses were 31% versus 23% for senior unsecured positions. This unexpected result is due to very low senior unsecured loss severity, 18%, 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% and 31%, respectively. There were 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% of the CREs had negative losses with an average 12% gain. 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%, 0.46% and 0.02%, respectively. The high and low years were 2003 and 2006, respectively, as compared to incidence, which had the same low but not high year. The highest incidence year, 2009, had relatively low loss severity, 18%, precluding it from being the highest economic loss rate year.

Public to Private Placement Comparison: Private placements showed a 0.15% annual advantage relative to public bonds based on economic loss by current rating assuming a senior unsecured instrument. Because private placements have higher average quality than rated public bonds, the advantage was estimated by controlling for the quality differences. The advantage assuming a private quality mix was 0.10%, and was 0.21% for a public quality mix. The basis of the study measures used for all other portions of this report was converted to have consistent comparisons of private placement to public bond experience.

Private placement incidence is lower for qualities AAA through A and for qualities below B but higher than public bond incidence for BBB through B. The lower incidence for qualities below B but higher for BB and B may be indicative of some lag in adjustments of ratings when credit conditions deteriorate. But whether aggregate incidence is based on a re-weighting by private placement or public bond quality mix, private placement aggregate incidence is higher. Generally, senior unsecured private placement loss severity has the strongest and most statistically reliable advantage compared to public bonds, 37% versus 56%. 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. The lower senior unsecured loss severity of private placements offsets the higher incidence, in aggregate, for either a private placement or public bond quality mix. A similar advantage may apply for subordinated bonds, but not for senior secured bonds.

The amount of the assumed advantage for senior unsecured bonds is dependent on the asset mix assumed. The private placement mix aligns with the contributors' average holdings, whereas the public bond mix is a hypothetical lower average quality mix. The 0.16% decrease of the advantage based on the private mix, 0.26% in the prior experience study versus 0.10% in the current, is explained by lower incidence and lower net loss severity advantage. The bulk of the change is due to lower incidence, a 0.53% decrease,

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which applied to the prior assumed 25% loss severity advantage reduces the economic loss advantage by 0.13%. The remainder of the decrease, 0.03%, is caused by a net reduction of 7% in the private to public loss severity advantage.

Debt Service Effect: Higher debt service costs, represented by higher coupon rates, show some association with higher losses. This is referred to as the coupon effect. On a standalone basis, bonds with coupons exceeding 8% show accelerating losses with increases in the coupon rate. Because higher coupons are also associated with lower quality debt, higher losses could be expected because of the quality effect. Additional analysis isolated the variation of loss by original coupon within the earliest rating quality. That analysis showed the strongest presence of the coupon effect for BBB-rated bonds when the coupon exceeded 6%. Bonds below BB also showed the effect, but with more variability, while there was no discernible effect for AAA through A quality ratings. Inversions, which are higher losses for bonds at a higher quality with higher coupons than bonds at the next lower quality with lower coupons, also indicate a coupon effect. They were present in the current study, but less prevalent relative to the prior study.

Seasoning Effect: 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. But similar to the pure coupon effect, the pattern is more statistically noisy as earliest rating quality decreases due to a very small proportion of BB and lower placements. 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.

Rating Consistency: The main quality rating used in the study, the internal rating supplied by the contributors for each CUSIP for all years, was 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. But there were also some CREs where both ratings understated the likelihood of loss. 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.

Limitations

Concentration: The data is highly concentrated. Five contributors provided 71% 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 our analysis will be affected as well.

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.

CRE Loss Measurement: The study used the CRE experience of one contributor for all contributors holding the same CUSIP to minimize data submission requirements. Actual results by the non-submitting contributors on commonly held assets may have been different. The study includes all cashflows that result from a CRE workout. Cashflows are both

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actual and estimated future amounts. These cashflows may include non-debt securities, i.e., equity, but the study does not attempt to analyze the unrealized gains or losses from non-debt securities before they are sold. The study also does not attempt to analyze gains or losses that result directly from calls or prepayments (e.g., prepayment penalties).

Future Plans

Although there has a been a large gap since the last report, the Private Placement Experience Committee intends to re-establish regular production of this study on a much more frequent cycle. The Committee will strive for timely data collection and updating reports, subject to cooperation from contributing companies. 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 process of planning for the collection of data for 2013 through 2015.

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Section 1: Introduction

1.1 BACKGROUND

This is a report on the study of credit risk experience of private placement bonds from 2003 through 2012. It is a self-contained report that does not require referencing the prior report covering experience from 1986 through 2002 but, where appropriate, references to experience in that report are highlighted in this report.

The report consists of five main parts: this Introduction; the Analysis and Commentary, which deals with the significant findings of the study including a comparison of the Private Placement credit risk experience developed by the study to the experience under Public Corporate Bonds; the Cross Tabulation section, which presents results relative to certain combinations of parameters or characteristics; the Data Summaries, which present the detailed results of the study in aggregate and in relation to various selected parameters or characteristics; and a set of Appendices setting out the technical aspects of the study methodology and validation of the data, the limitations the user should bear in mind in using the results of the study, a more in-depth commentary than is given in this introduction about the economic landscape before and during the study's observation period, and additional detail about the study results and underlying data.

This report adds to the body of credit risk event (CRE) loss experience on non-public debt instruments that has been gathered since 1986. At the inception of that work, private placement bond and commercial mortgage experience were covered. The first study was initiated by the Committee in cooperation with the American Council of Life Insurers (ACLI), representing a joint effort of actuaries and investment professionals. A series of five studies were done, focusing on private placements, through 2002. The last report combined those studies into one report that was issued for the period covering 1986 through 2002. This report was initiated by the Committee with support from investment professionals outside of its membership. It continues the gathering and analysis of private placement experience in an approach substantially similar to the prior studies through 2012 but, due to software issues, we were unable to combine the data from the prior study periods. Therefore, while the combined studies can be viewed as comprising 27 years of experience, this study in isolation only covers the most recent decade.

Private placement bonds represent a significant portion of fixed-income securities owned by life insurance companies. According to the ACLI's 2013 Life Insurance Fact Book, such assets represented 21% of life insurance companies' general account invested assets as of December 31, 2012, the last year of the current study. In spite of substantial holdings, there is no published, industry-wide, direct data from which default loss experience or, more importantly, economic loss from credit risk events related to these securities can be assessed. Consequently, a disciplined study of insurance company private placement bonds is important. An ongoing study is essential to:

- provide information of value in the portfolio management process,
- provide the basis for making informed choices about the setting of assumptions as to future credit risk losses for liability valuations and asset acquisition strategies,
- build a credible longitudinal database that allows the study of the behavior of these asset classes and the correlation of credit risk to environmental and asset-specific variables, and
- provide reasonable assumptions for issue-specific rating adjustments for use by the NAIC's Securities Valuation Office (SVO) and rating agencies to support their global ratings process.

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The definition of private placement bonds may vary by company and analysis source. For this study, contributors were given specific criteria used to determine whether assets were private placements. All credit tenant leases, project finance, military housing deals and capital leases were to be included.

Certain assets were specifically omitted. These include asset-backed securities (ABS), collateralized debt obligations (CDOs), corporate 144A bonds, and CAPCOs or other similar securities sponsored by states for economic development that provide payments using premium tax offsets or "equity" returns such as payments dependent on pooled company performance. It is important to note the definition of private placement utilized for the current analysis may be different than prior versions of this study. The current definition was arrived at through numerous discussions with investment professionals and extreme care was utilized to confirm the data contributions were consistent with this definition.

The suggestion has been made that since private placements are sufficiently similar to publicly-traded bonds, the value added by studying the former is limited. Evidence suggests there are differences in the experience of private placements versus public corporate bonds. See Section 2.5, Comparison with Public Bond Experience.

Economic Conditions during the Observation Period

The insurance business continually evolves with respect to the types of products sold and the types of investments made. The economic environment during the current study period varied significantly between expansion and severe recession conditions that posed substantial investment challenges. To understand better the credit risk events of 2003 through 2012, the reader may find it helpful to review the economic conditions and their impact on asset defaults. The period includes most of the last trough-to-trough cycle, November 2001 to June 2009. While the study period does not span a complete economic cycle, the variety of economic conditions inclusive of the Financial Crisis provide a wide range of conditions to measure private placement experience on a standalone basis and in comparison to public corporate bonds. See Appendix II-Economic Conditions during the Study for an expanded discussion on the economy during the study period.

Assessment of Credit Risk

Credit risk is a key risk facing life insurance companies with respect to the vast liabilities created transparently by investment-oriented products and indirectly by other products, most or all of which assume an investment return. Moreover, insurance companies are not the only entities subject to credit risk events. Banks, pension funds and other lenders encounter many of the same issues. With companies ever more sophisticated in searching out the lowest possible cost of funds and the continued movement towards more efficient utilization of capital, the margins of all lending institutions are under pressure. In this environment, the enhanced understanding and accurate assessment of credit risk becomes valuable knowledge for investment professionals and actuaries alike. The Committee believes the maintenance of a unique database of the kind the present study represents allows both those groups to enhance their understanding of credit risk behavior in ways unavailable otherwise.

While economic cycles are generally not easily identifiable, one independent source, the National Bureau of Economic Research (NBER), indicates there have been three trough-to-trough cycles during the period of November 1982 to June 2009. As noted above, prior to June 2009, the prior trough occurred in November 2001. According to this source, the Private Placement Study, since its inception in 1986, has spanned two full economic cycles, with this current report encompassing most of the last cycle. Although some relationships have become evident as more experience has been added, the Committee still anticipates the ongoing study, providing results over an even longer period of time, will be better able to identify or clarify such implications and provide information of significant value for this asset class.

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1.2 GOALS OF THE 2003-2012 STUDY

Though there has been a significant lag since the last report, the Committee continues to support its prior conclusion that it is desirable to produce updates to the study as an ongoing experience study. Investment professionals and contributors endorsed this view and again lent their support by providing data and input to the study. The goals of the ongoing study on Private Placements are to:

- compile a reliable, accurate database of credit risk events and associated exposures, on a "cash to cash" basis;
- continue to develop and refine the design of the study and the definition of the data to be collected;
- provide information about the incidence and severity of credit risk events and the economic loss resulting from them;
- provide insights of comparable incidence and severity measures to public corporate bond experience;
- perform analyses and develop insights into the behavior of private placement credit risk in relation to various parameters and environmental variables; and
- stimulate further thinking and research into credit risk behavior.

1.3 DATA CONTRIBUTORS

In all, 15 companies contributed to this study. The current study was originally designed to cover eight years, 2003 through 2010, but was later expanded to include 2011 and 2012. All companies that reported data in the study provided data for the expanded portion of the study. Each company's reported data was contiguous for all years that were reported. Nine companies contributed for all ten study years, four companies contributed for nine study years and the remaining two companies provided data for five and three years, respectively. The average number of years contributed, based on the average of annual time weighted principal by company, is 9.3 years. The Committee thanks all of these companies for their admirable efforts in supporting the private placement bond study.

Since the initial period of the study in 1986, a number of companies have contributed to it. The participating companies have varied over time as some joined and others withdrew. While the contributing companies are not the same across the full length of the study, 1986 through 2012, the continuity of study methods and consistent definitions of CREs support some limited comparisons of experience across the two study periods, 2003 – 2012 and 1986 – 2002. The contributing companies to this study are:

AIG
Aviva
AXA Equitable/MONY
CMFG
Hartford Life
John Hancock
Lincoln Financial
MetLife
Mutual of Omaha
Nationwide
Ohio National
Principal
State Farm
TIAA-CREF
Unum

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The total outstanding principal at each year-end in the current study is summarized in the following table. By way of comparison, the table also shows the aggregate amount of Private Placements in life insurers' general accounts. Finally, the table shows the number of Credit Risk Events by year in the study along with the exposure associated with them.

Year	TOTAL OUTSTANDING PRIVATE PLACEMENT PRINCIPAL AT YEAR END (BILLIONS)			PRIVATE PLACEMENT CRE DURING YEAR	
	Private Placements Study	Life Insurance Industry General Accounts*	%	Number	Outstanding Principal at time of CRE (Millions)
2002	$60.4	$392.6			
2003	$87.9	$445.6	15%	116	$864.6
2004	$95.1	$486.6	20%	36	$478.5
2005	$105.1	$492.1	20%	22	$239.7
2006	$112.6	$501.3	21%	14	$133.1
2007	$127.2	$527.0	22%	13	$266.0
2008	$127.2	$567.6	24%	57	$821.5
2009	$131.2	$616.7	22%	122	$2,254.8
2010	$137.1	$654.4	21%	20	$285.8
2011	$149.0	$689.8	21%	10	$186.6
2012	$160.4	$740.7	22%	18	$288.4
2003 - 2012				**428**	**$5,819.0**

*Source: ACLI Life Insurers Fact Book, General Account Bond Distribution

The reader may notice the outstanding principal amounts shown in the table do not agree with the aggregate exposures for the corresponding years in the data summaries section. The exposures in the data summaries section are computed in accordance with the formulae in Appendix I and represent average amounts exposed to credit risk during the calendar year, while the figures in the table above are year-end statistics.

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1.4 BASIC MODEL

The model used for the study was the so-called incidence and severity model. The study is, therefore, more like a morbidity study than a mortality study. The underlying concepts are defined in Appendix I. In general, incidence[2] refers to the number of times an event occurs over a given time period out of all possible occurrences (that is, the probability of occurrence of the event - in the present case a CRE), while severity describes the loss sustained given that the CRE has occurred. Severity is often also referred to as a loss given default (LGD). If expressed as a percentage, LGD is the same as one minus the recovery rate. Multiplying incidence by severity gives the economic loss per unit exposed. Economic loss is conveniently thought of as the loss in basis points of contractually promised investment return as a consequence of CREs.

It is important to note that private placement bonds are individually negotiated with borrowers. Therefore, if a CRE occurs, the company will typically approach the borrower to work out an alternative agreement. In some cases, the LGD would likely provide more than a make-whole, i.e., the LGD is negative since recovery is greater than 100%. This report shows both the true LGD, as well as calculations limiting the LGD to 0%. Care should be taken if utilizing this report for experience review or assumption setting to account for this. For example, utilizing a negative LGD would likely be viewed as an aggressive assumption since not all work-outs would result in an outcome "better than" a make-whole.

The definition of CRE parallels the rating agency definition of default with the exception of two additional types of CREs.

1. The sale of a private placement bond at a price less than or equal to 70 cents on the dollar.
2. Any other credit event a contributor substantiated as a default-like credit deterioration, but due to the nuances of the private placement market, does not fit the definitions above.[3] The purpose of including these types of events as CREs is to avoid understatement of the incidence of CREs for situations that, in similar circumstances in public bonds, would have most likely resulted in a default.

A complete definition of all CRE triggers is given in Appendix I-1.A Definition of Credit Risk Event.

For readers familiar with insurance models, the conceptual framework for this study was that of disability insurance. There is a parallel between the life cycle of a disability policy and the life cycle of a bond. Just as a disability policy is underwritten at issue, a bond is underwritten at origination. A policyholder may or may not become disabled while the policy is in force. Likewise, a bond may or may not experience credit deterioration. Once disabled, a person may remain disabled long enough to receive disability benefits, or become fully recovered before any benefit becomes payable, or die after a period of disablement. Similarly, once a bond's credit deteriorates, a bond may recover or may remain "ill." If its credit condition does not recover, it may eventually be unable to make its required payments and trigger a default. If a bond defaults, its creditors may receive a cash liquidation or the bond may be revived with new payment terms.

[2] Incidence may be measured two ways: by number of bonds and by dollar amount of bonds exposed. Both are computed in the present study.

[3] All CREs submitted by the contributors were reviewed for consistency of classification as a CRE. Where contributors had initial opposing views of the CRE status of a CUSIP, they were asked to substantiate their opinion. Some contributors revised their views in that process, which reduced the number of conflicting opinions. The remaining unresolved conflicting opinions were reviewed by a panel of investment professionals from the contributing companies who determined whether or not those CUSIPS experienced a CRE.

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For disability insurance, various risk factors are used to calculate a premium that is deemed to be commensurate with the risk assumed. For a bond, various risk factors are also taken into account in determining a basis point spread over treasuries at which the bond rate is set. Just as experience studies on disabilities can help calibrate the associated risk factors, experience studies on credit risk can serve the same purpose.

By collecting a sufficient amount of experience, the study attempts to calculate incidence rates, loss severity rates and economic loss rates to analyze their relationship to observable risk factors. The intent of the study is to follow the outflow of cash in the form of a loan until repayment is completed, "cash to cash" or "cradle to grave." Various characteristics can be investigated to determine their relationships to problem investments and to quantify their impacts on credit losses over the life cycle of the investments.

1.5 APPENDIX – TECHNICAL DESCRIPTION OF METHODOLOGY

Appendix I of this report gives the definition of a credit risk event, the definitions of date of credit risk event and date of loss calculation and a summary of the calculation methodology used in the study. The summary of the calculation methodology gives details about the discounting methodology and the calculation of economic loss, exposure and the loss statistics.

Appendix I also contains a description of the data validation procedures used to ensure, to the best of the Committee's ability, that the final "scrubbed" data used to compile the results of the study were of the best quality that could be achieved. Ultimately, however, the Committee must rely on the contributors for the accuracy of the data.

1.6 REVISIONS TO PRIOR STUDIES

The current study uses a discounting methodology similar to the most recent round of the last study covering experience through 2002. The methodology is described in Appendix I-1.C Actuarial Methodology. The spreads applied to the original and revised cashflows are distinct by calendar quarter. Previously, those spreads were applied to broader timeframes.

The current study revises the assets studied. Asset Backed Securities (ABS), which were in previous studies, have been excluded. They were excluded because, as securitized investments of small individual risks, the underlying credits were not deemed similar enough to institutional credit risk for inclusion in the study. During the course of data scrubbing, two other asset types were identified and examined. As a result of this review, and the lack of an investment professional consensus to exclude or retain them, state lottery annuities were left in the study. But because less than five companies supplied lottery deals, it was decided to exclude the indicator from the final database to protect contributor confidentiality. The other asset type, CAPCOs, were excluded from the study. A Capital Company (CAPCO) deal produces return that provides state investment tax credits that offset premium tax and potential distributions from a venture capital-like pool. Because the return does not fit the profile of a fixed income investment with stated coupon rates, fixed payment dates and maturity, these deals were excluded from the study.

The severity rate is produced on two different bases for this study. The prior basis utilizing principal has been supplemented with a basis that uses par value. The purpose of the par-based severity calculation is to have a measure that is more comparable to rating agency severity calculations. The principal and par methods are closely related, but serve different purposes. Section 2.13 Loss Severity Method Considerations - Study Method Versus Approximate Rating Agency Method describes these measures.

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1.7 LIMITATIONS OF THE 2003-12 STUDY

Although the Private Placement Experience Committee believes the 2003-2012 study makes a significant contribution to a better understanding of the economic loss resulting from credit risk events, the study has limitations that should be noted to minimize possible misinterpretation and misuse of the results. This report must be read in its entirety to be understood. Any distribution of this report must be in its entirety. The Committee does not intend to benefit from this study, and assumes no liability to parties who receive this report. A company's actual experience with private placements and CREs may differ from the results of this study.

More detailed limitations are listed in Appendix III. The three key limitations the Private Placement Experience Committee wishes to draw attention to are as follows:

1. Although the Committee devoted extensive and meticulous attention to the "scrubbing" of the data to ensure it was 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 our analysis will be affected as well.
2. In particular, the data field that caused the most concern was the original quality rating. In too many cases, the information was missing and had to be inferred by a backtracking method that gives rise to the 'earliest' quality rating. The backtracking method is reasonable and carefully undertaken, but this method can result in differences since an estimate is being used. For that reason, the Committee does not recommend blindly equating the earliest quality rating to the original quality rating at issue. Although the Committee believes the earliest quality rating is a reasonable proxy for rating at issue, it is certainly a noisy proxy.
3. The data is highly concentrated. Five contributors provided 71% of the data and these 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.

Notwithstanding the limitations of the study, the Private Placement Experience Committee believes the results are reliable overall and constitute a meaningful addition to the understanding of the behavior of credit risk with respect to Private Placements.

1.8 USE OF THE RESULTS

The data and data processing limitations identified in Appendix III suggest the results of this study need to be interpreted and used with great care. Overreliance on the absolute magnitude of these results should be avoided. They inevitably reflect market and economic conditions of the period in question. Even though these studies, since their inception in 1986, now encompass roughly three full economic cycles, much of the value of the 2003-2012 study lies in assessing the relative significance of identifiable risk factors. The approach of the study is an empirical one through the pooling of intercompany data using consistent definitions.

While not directly displayed in the interest of confidentiality, the variability of results by company suggests that material differences may exist in company risk tolerance standards and, perhaps, risk assessments. The large variability of results by year for the same company is not surprising for a low-incidence, potentially high-severity occurrence.

For those involved in product pricing, reserving and setting investment risk margins, the trends and patterns of the results can provide a basis for comparison with assumptions currently being used, keeping in mind, of course, the variability of results. Ultimately, it is anticipated that detailed results by asset type and asset characteristics will be useful in models in a manner similar to how companies often use intercompany mortality and morbidity data.

For those involved in developing and managing investment portfolios, the trends and patterns can assist in providing a better understanding of how various asset characteristics impact risk and, ultimately, how to set risk premiums.

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As noted above, an important caution to users of the study is that, generally, contributors to the study possess substantial private placement portfolios and expertise in underwriting of new offerings, monitoring their portfolios and working out troubled assets. Companies not possessing such expertise may or may not have similar results as the experience of the contributors to this study.

For the Private Placement Experience Committee, the trends and patterns observed frequently suggest new perspectives for analysis and new insights, as well as more efficient ways of collecting data in the future. If there is sufficient interest and demand for it, additional types of data elements may be included in the study. The Committee is pleased to receive comments, suggestions or feedback on any aspect of its work and on the study.

1.9 FUTURE PLANS

Although there has a been a large gap since the last report, the Private Placement Experience Committee intends to re-establish regular production of this study on a three-year cycle. The Committee will strive for timely data collection and updating reports, subject to cooperation from contributing companies. 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 process of planning for the collection of data for 2013 through 2015.

The value of future studies will depend in large measure on the willingness of companies active in the private placement market to participate by sharing their data. The larger, more representative the database, the more reliable and valuable the results are. The Private Placement Experience Committee wishes to express its gratitude and appreciation to the participants of the current study and to strongly encourage participation by companies not yet doing so.

Extra benefits of participation include early feedback on the participant's own experience and a comparison to the experience of all participants, as well as the indirect systems and data audit obtained through the data scrubbing efforts of the study.

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Section 2: Analysis and Commentary

2.1 INTRODUCTION (WITH GRAPH NOTES)

This section presents and discusses the major results of the study and also compares the credit risk experience of private placements to that of publicly-issued corporate bonds. There is some (but not complete) overlap between the results presented in this section and those appearing in Sections 3 and 4. Section 3 includes some cross tabulations and analysis, with particular attention to effects of bond seasoning on credit losses and the relationship between coupon interest rates and earliest quality rating. Section 4 features limited text but detailed tables and graphs giving breakdowns of experience by year and other variables of interest (for example, experience by NAIC rating and year). Results appearing only in Sections 3 and 4 include credit risk experience by coupon rate and years to maturity. Where there is overlap, the most detailed tables usually appear in Sections 3 and 4.

The main statistics reported in this study, the definitions of which are summarized in the table below, differ somewhat from the default and recovery rate statistics that are familiar from studies of default and loss on publicly-issued corporate bonds. Such studies typically compute default rates by issuer as the number of bond issuers in a given cell that default over some period of time, divided by the total number in the cell. For example, a cell might include all A-rated bond issuers outstanding at the beginning of 2010. This study treats each issue held by a contributor as one count. Incidence by amount is not affected by this treatment. Incidence on either measure also uses a slightly different and broader definition than rating agency defined default.

Loss severity rates (loss-given-default) calculations also differ from traditional rating agency approaches, which use either 30-day post default trading prices or a discounted future value (ultimate recovery) as a comparison to par value to determine a recovery percentage. In this study, the main reported measure of individual bond loss severity is the difference between the net present value of the remaining original and revised post-CRE contract cashflows, divided by the present value of the remaining original post-CRE contract cashflows. This measure was designed for actuarial use to capture the economic effect of the present value of future current coupon rates versus the coupon rate of the original cashflows at the time of the CRE. Section 2.5, Comparison with Public Bond Experience, uses an alternative loss severity measure that is closely related to the rating agency loss severity definition. Section 2.13 provides a detailed explanation of the comparison between the two loss severity methods. Severities are available for every CRE, making it possible to compute consistent economic loss rates for any subsample and to partition the loss into incidence and loss severity components.

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Definition of Primary Statistics (See Appendix I-1.C for details)

Statistic	Definition	Comments
Incidence By Number	Number of assets experiencing CREs in a given year divided by number exposed (roughly, the latter is the sum of the number in the cell[4] at the start of each year; see Appendix I-1.C.4 Loss Statistics Calculations for handling of maturities and originations within the year).	Like an average of one-year default rates, but CREs include distress sales and default like credit deterioration unique to private placements in addition to traditional rating agency defined defaults.
Incidence By Amount	Outstanding principal[5] of assets, at the time of their CREs, experiencing CREs in a given year, divided by total outstanding principal exposed (roughly, the latter is the sum of the outstanding principal for the cell; see Appendix I-1.C.4 Loss Statistics Calculations for handling of maturities and originations within the year).	Similar to incidence by number, but based on dollar amounts.
Loss Severity	The sum of dollar economic losses attributable to assets experiencing a CRE in a given year divided by the sum of outstanding principal at the time of the CRE. Economic loss for each CRE is measured as the difference in net present value of the remaining original and revised asset cashflows, multiplied by the ratio of outstanding principal to the present value of the remaining original cashflows. The latter ratio is applied in order to place economic loss on a book-value basis. With respect to a single CRE, the loss severity formula is equivalent to the difference in the net present value of the remaining original and revised cashflows, divided by the present value of the remaining original cashflows.	Sometimes called the loss-given-default rate. Same as (1- recovery rate).
Economic Loss Rate	The product of loss severity and incidence rate by amount for a cell. Equivalently, the sum of dollar economic losses for a cell divided by total principal exposed in the cell.	The average annual percentage loss resulting from CREs in the cell being analyzed.

[4] Cell is a generic reference to any defined subset of the data, e.g., "A" rated assets or the aggregate of the data.

[5] Outstanding principal (OP) is equivalent to amortized cost. It is carried in the exposure file for each year-end that a contributor holds a given asset. OP is based on the original amortization schedule as modified by any cashflow deviations from the original schedule. In the event of prior write downs before the CRE, OP is increased to negate the effect of the write down(s) on measurements associated with the CRE. This is done to avert understatement of the CRE incidence rate and economic loss by amount.

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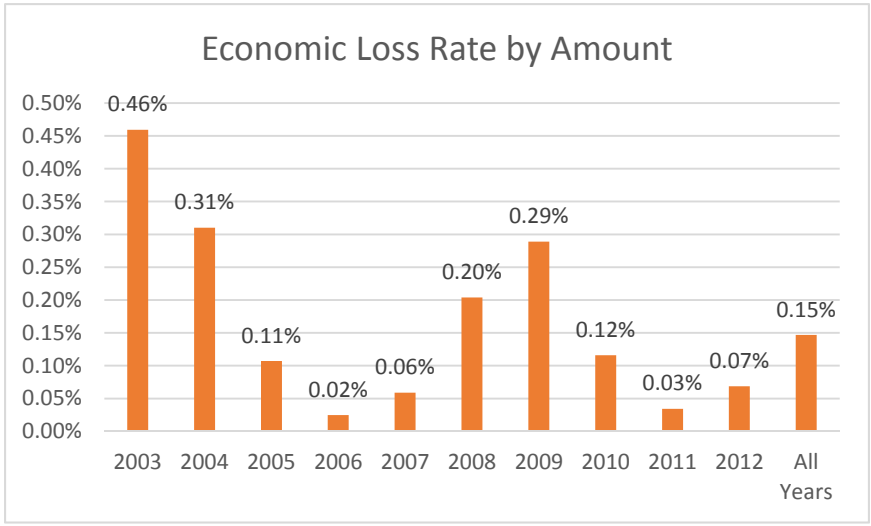
2.2 AGGREGATE PRIVATE PLACEMENT EXPERIENCE OVER TIME

The graph to the right shows economic loss rates for each calendar year of the current study. The economic loss rate is the percentage of the amount invested that is lost to CREs each year. The data shows an aggregate loss from CREs for the full study period of 0.15%, or $0.15 per $100 invested. The graph shows a loss pattern that reflects economic conditions during the study period. The study period covers portions of a full economic cycle. The study period starts in 2003, two years after the 2001 trough, and extends three years past the 2009 trough to the end of 2012.[6] Economic losses during the study are highest in 2003-2004 and during the Financial Crisis, 2008-2009. Other years reflect the significant swings of CRE losses as between unfavorable and benign economic conditions. Years with favorable economic conditions, 2005-2007 and 2010-2012, have much lower losses. Periods of higher and lower loss rates are similar to public bond experience. The higher losses in this study for 2003-2004 decreased from earlier higher losses in 2001-2002 in the prior private placement study. While the asset types covered and contributors are not identical, there is a consistency of the declining losses of private placement experience with public bond experience during that period. The peak in loss rates in 2008-2009 also coincides with peak losses in public bonds during that period.[7]



[6] See http://www.nber.org/cycles/cyclesmain.html for National Bureau of Economic Research (NBER) economic cycle dates.
[7] Moody's Investor Service, "Annual Default Study: Corporate Default and Recovery Rates, 1920-2014," March 4, 2015 (Rev March 20, 2015); Exhibit 23 Annual Credit Loss Rates by Letter Rating, 1982-2014.

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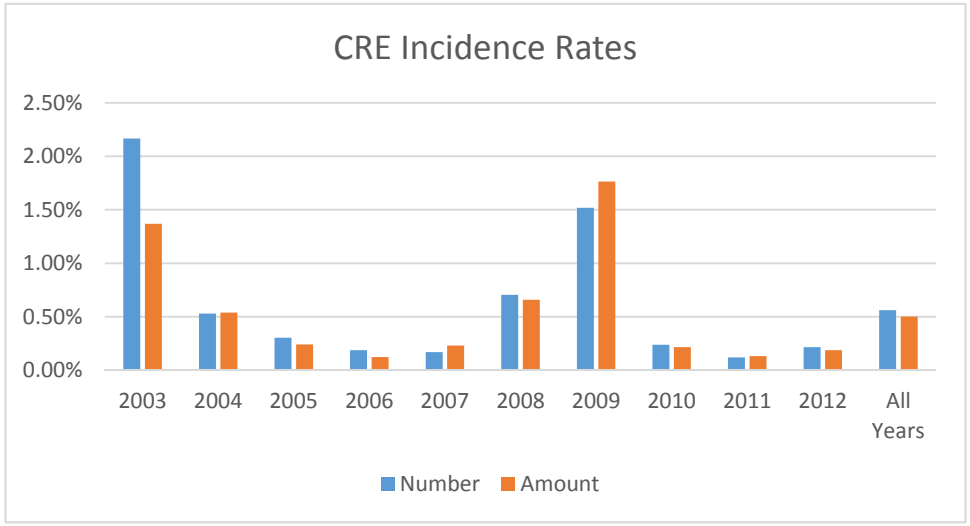
The graph to the right shows incidence during the study by number (count of CUSIPs owned by each contributor), and by amount. Overall, incidence is higher by number, .56%, than by amount, .50%, indicating that a higher proportion of lower than average amount positions had CREs. The highest one year incidence rate by number, 2.17% in 2003, is caused in part by CREs involving a unique series of trust assets that had different CUSIPs, but were from the same issuer. Because these CREs were relatively small individually, the corresponding incidence by amount of 1.37% is much lower. Except for 2003, incidence by number and amount are close to each other with generally small variations and no apparent pattern as to when one measure is higher or lower than the other. Because the economic loss in the graph above is shown by amount, it is more instructive to review the pattern of incidence by amount as well. The variation of incidence by amount and by year drives the corresponding variation in economic loss rates. With the exception of 2010, which had a high loss severity rate, all other years of incidence and economic loss rates match each other in pattern and relative level of comparisons between incidence and economic loss. Incidence rates generally had the same relative pattern as observed for economic loss across the study years and as compared to similar public bond experience.[8] 2003 was an exception to this, as the incidence rate was higher in 2003 than in 2002.



[8] Ibid.

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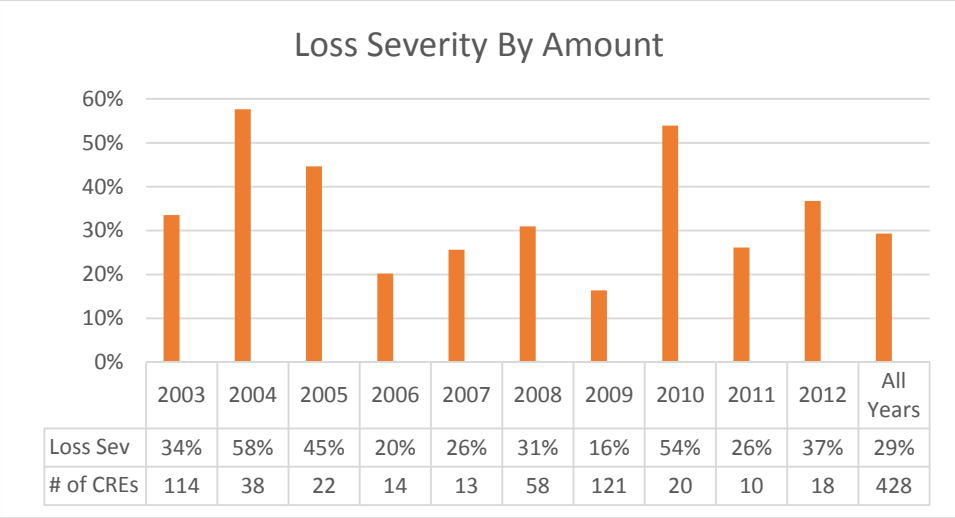
The graph to the right shows average loss severity by amount across study years. Because loss severity varies less proportionally, as compared to incidence, loss severity variation by year is less of a factor in economic loss variation by study year. Overall, the loss severity rate is 29% by amount (see Section 2.5 Comparison with Public Bonds for details of how this loss severity should be compared to public bond experience). Loss severity varies significantly by year, but without an apparent pattern. Generally, recovery studies observe that loss severity varies by economic conditions at the time of loss. If economic conditions are worse at the time of loss, higher severity (lower recovery) often occurs.[9,10] The study data does not reflect this general observation for private placements. A possible reason for this is there may be an insufficient numbers of CREs to produce statistically reliable results. While it appears that loss severity is peaking one year after the highest incidence (not consistent with public experience), those peak loss percentages in 2004 and 2010 are being produced by a small number of CREs, which raises the possibility of statistically unreliable results from a small number of CREs in those years.



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	All Years
Loss Sev	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%
# of CREs	114	38	22	14	13	58	121	20	10	18	428

[9] Moody's Investor Service, "Lessons from 1000 Corporate Defaults," November 30, 2011.

[10] Standard and Poor's "Default, Transition, and Recovery: Recovery Study (U.S.): Are Second Liens and Senior Unsecured Bonds Losing Ground As Recoveries Climb?," December 16, 2013. http://www.standardandpoors.com/spf/upload/Ratings_EMEA/2012-12-13_RecoveryStudyUSRecoveriesComeIntoFocus.pdf

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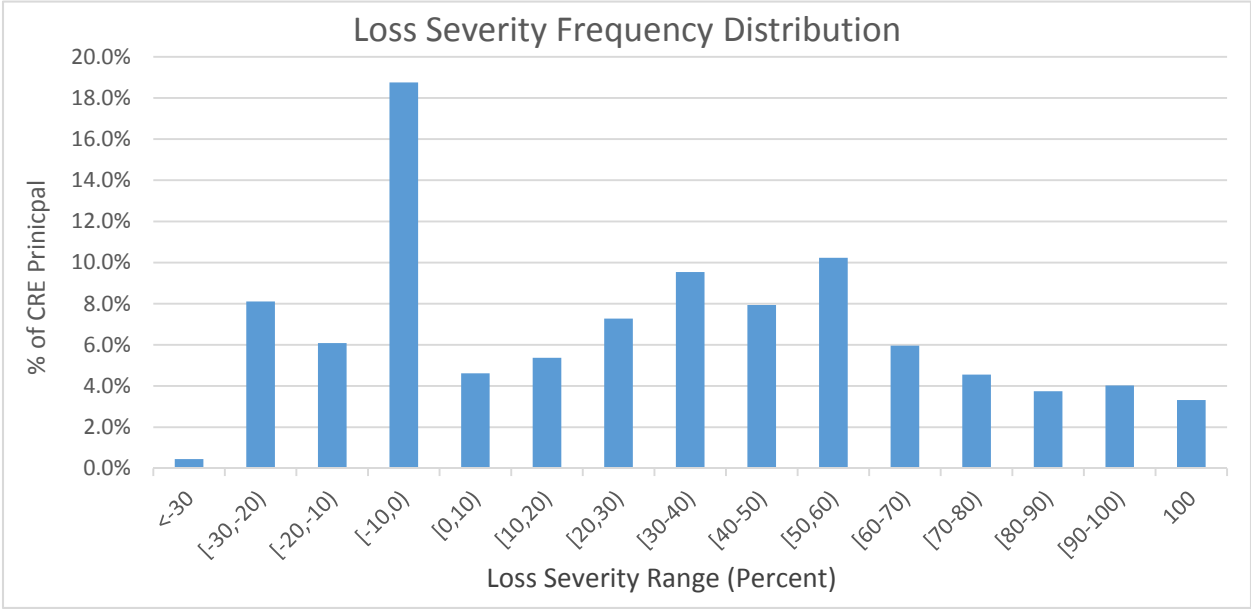
The graph below shows the distribution of loss severity by amount. While it is traditional to show loss severity histograms by issuer or number, we use amount in this view to have the distribution shown align with the stated 29% overall loss severity in the graph above. Section 4.3, Private Placement 2003-2012: Loss Severity Distribution, provides other views of loss severity, including loss severity by number (count of CUSIPs owned by each contributor). The graph below shows that loss severities are widely distributed. This is consistent with public bond experience. However, the proportion of CREs with negative loss severity (i.e., gains occurring as a result of a CRE) is substantial and, whether viewed by amount or company-CUSIP count, exceeds the proportion of gains seen in public bond experience.[11] By amount, gains resulting from CREs occurred 33% of the time, with an average gain of 11.5%; and by number of company-CUSIP pairs, the corresponding results are 21% occurrence with an average gain of 13.3%. The lower proportion of gains by number of company-CUSIP pairs aligns with the overall higher 34% loss severity by number. Because results are better by amount than number, we can conclude that larger deals are producing lower than average loss severities. While gains from a CRE may seem counterintuitive, we believe these results are valid (see Appendix I-1.D, Data Validation). CRE workouts can involve renegotiation of debt terms (coupon, collateral, and the inclusion of equity or warrants), which can produce a more favorable result than the original terms.



[11] Ibid.

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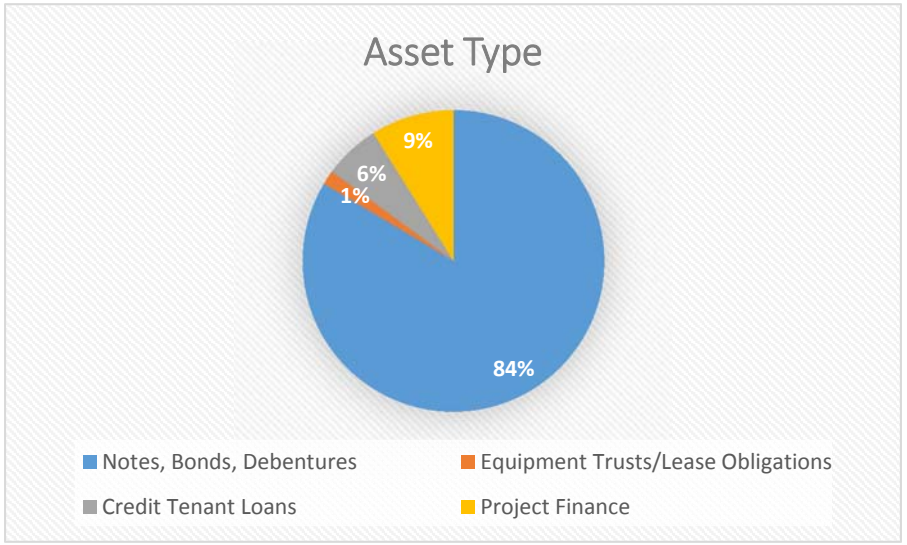
2.3 CHARACTERISTICS OF THE AGGREGATE PRIVATE PLACEMENT PORTFOLIO

This subsection provides some descriptive statistics that may be useful as background for interpreting results. All the percentages in this subsection refer to dollar amounts of exposed assets (not counts or numbers of CUSIPS). Unless otherwise noted, percentages are for reported values only (observations with unreported values, labeled Not Reported (NR), of the given variable are omitted from calculations).

The predominant asset in contributors' portfolios continues to be a traditional private placement: dollar-denominated, non-Rule 144A, investment-grade debt, which comprises 84% of study portfolios. Other asset types that comprise 16% of portfolios in the study are project finance, credit tenant leases, equipment trusts/lease obligations and lottery annuities (not shown due to very small allocation). Although analyzed in prior studies, Asset-Backed Securities were excluded from this study and are not included in this asset distribution. The graph below shows the shares of the asset types in the study.



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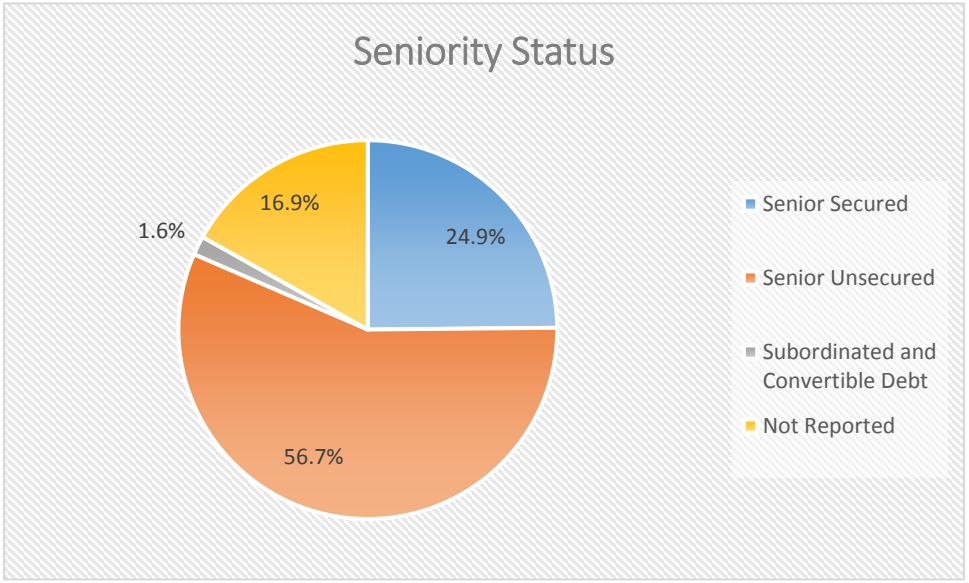
The majority of contributors' private placement portfolios are held in senior secured and senior unsecured instruments. As reported in the graph below, the concentration of these instruments is 81.6% of all assets, but may be higher because 16.9% of asset seniority status was Not Reported. For the purpose of this exhibit, convertible debt (0.1%) was combined with the subordinated category. The bulk of the combined category is comprised of subordinated assets. Because the loss severity in the Not Reported category is sandwiched by the senior and subordinated assets, it is likely that the Not Reported assets contain a mix of all asset types, but with a higher subordinated percentage than the reported 1.5%. Based on industry data[12], after allowing for the likely presence of more subordinated issues in the Not Reported category, the mix of senior and subordinated private placement bonds is similar to corporate bond holdings in the life insurance industry. But for private placement bonds, senior secured bonds as a proportion of senior bonds are higher than comparable life insurance industry company holdings of public bonds.



[12] American Academy of Actuaries Report to NAIC, "C-1 Factors for Corporate Bonds Project Update," p 14, March 29, 2014, https://www.actuary.org/files/C1WG_Factors_Corporate_Bonds_Update_3-29-14.pdf

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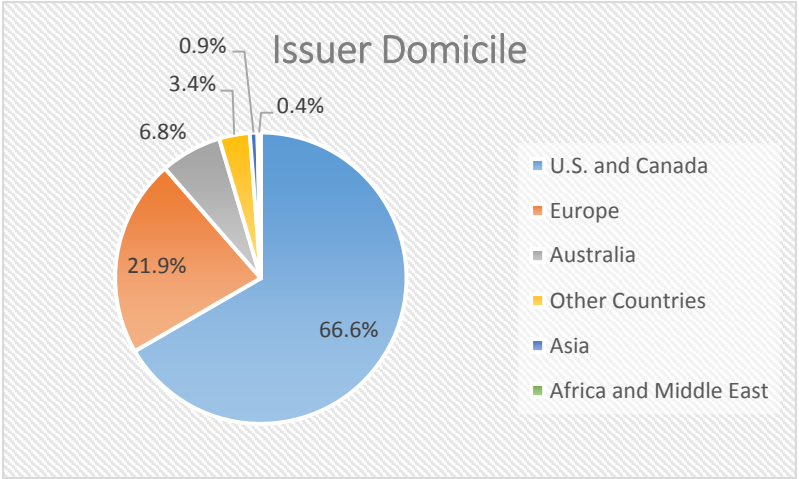
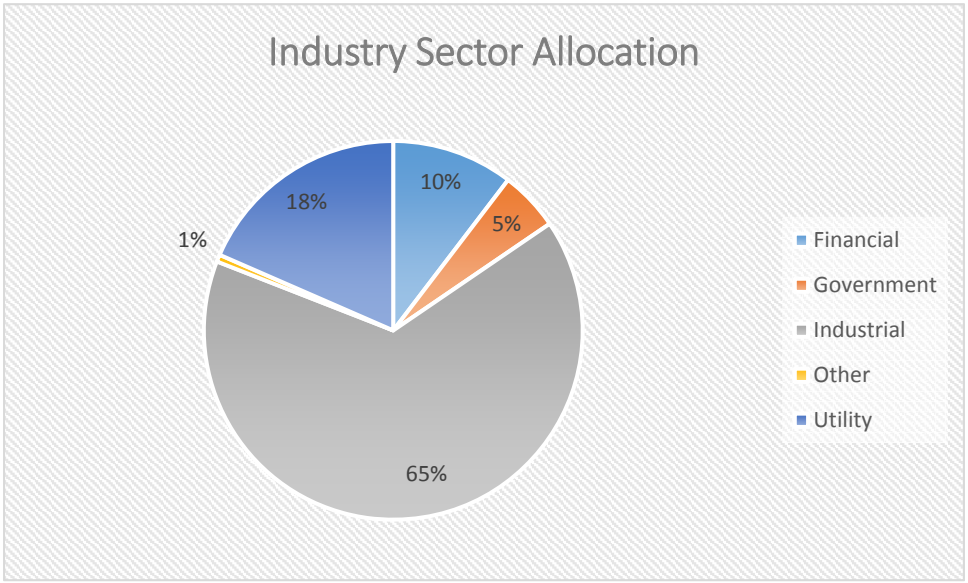
Most investors secure private placements at the time of issue (rather than in the secondary market). Over 99% of the private placement assets studied are denominated in dollars and 63% are from U.S. issuers. This is a decrease from 85-90% in the last report that reflects increasing private placements by European issuers. Issuer Domicile concentrations are shown in the graph to the right.



Private placements continue to be predominantly long-term, fixed-rate investments. The mean original years to maturity is 12.8 and 39% of the bonds have an amortization or pay-down feature that reduces the average life relative to the original time to maturity. Ninety-three percent carried fixed interest rates and 6% carried variable rates, with a small portion of zero-coupon instruments.

Assets are classified in five industry sectors, with the greatest concentration in industrials, utilities and finance. The graph below shows the sector distribution.



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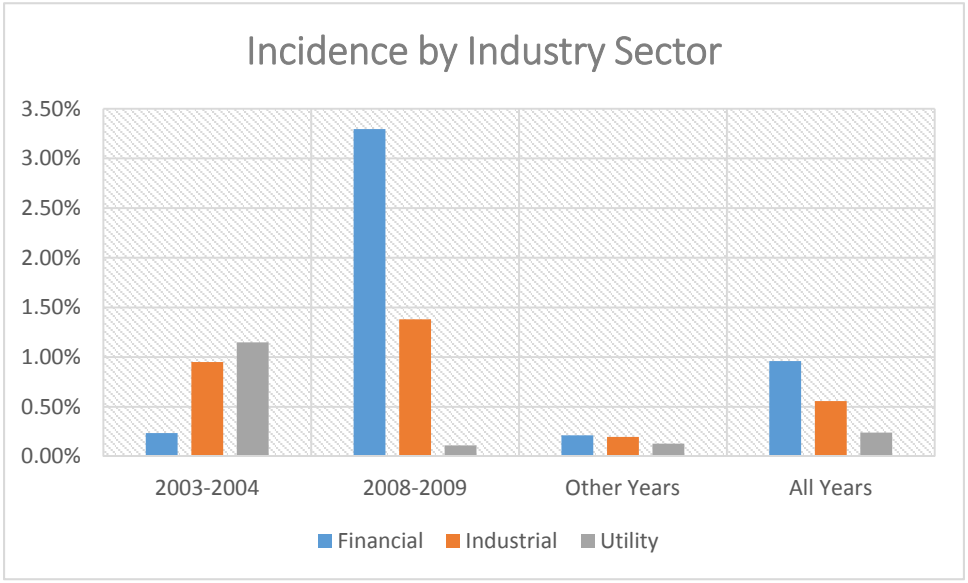
During the study period, Financials had the highest average incidence, which was caused by much higher incidence during the financial crisis years 2008-2009. During that time, Financials recorded incidence of 3.29%, as compared to 0.24% in 2003-2004. Conversely, Industrial incidence was higher than Financials in 2003-2004 and significantly lower than Financials in 2008-2009. The graph below compares incidence for the main sectors (Other and Government are excluded) across high and low incidence time periods.



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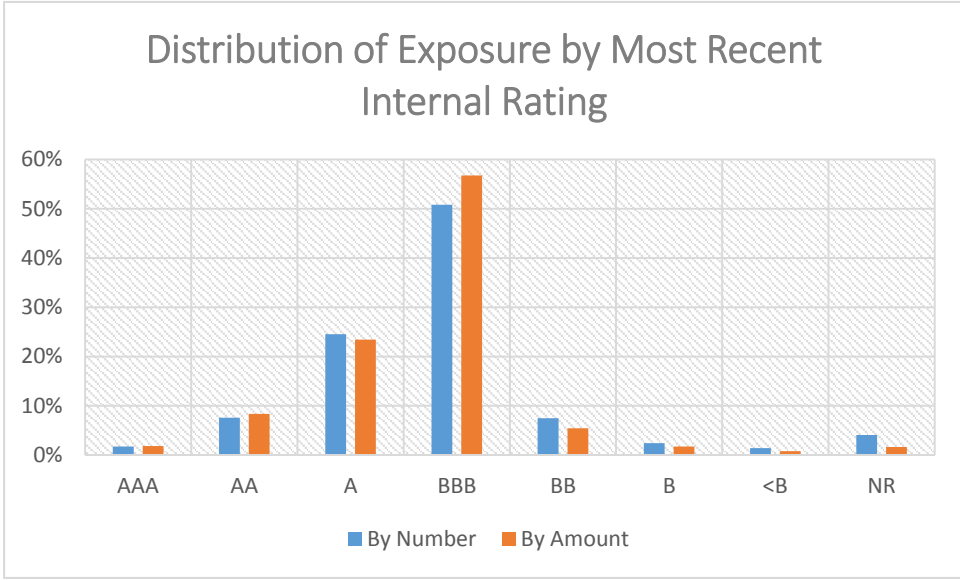
Based on contributors' most recent internal ratings, their private placement portfolios are predominantly investment-grade, as shown in the graph below for all year-ends 2003-2012. Omitting amounts in the NR (Not Reported) category, 88% of exposures by number and 92% by amount are rated BBB or higher. After allowing for the lower proportion of NR in this study than the prior one, there has been a shift of the quality distribution with quality ratings above and below BBB shifting to that quality. This is most notable for AAA, which decreased the most. Two factors contributed to the change. First, the number of AAA corporate issuers declined. Second, the current study excludes Asset-Backed Securities (ABS). In the prior study, ABS were 19% of the exposures and 37% of the ABS were rated AAA. Additionally, rating agencies and internal ratings may have experienced changes in underwriting or grading approaches which were not studied.



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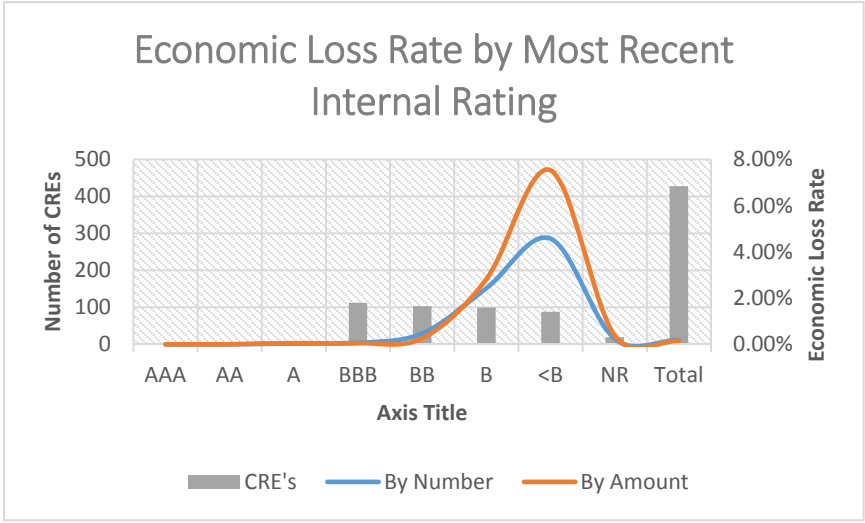
The graph below shows the economic loss rate by most recent internal rating before the CRE. The number of CREs is similar for each of BBB, BB, B and <B ratings, declining from 112 to 88 for BBB and <B, respectively. The economic loss rate is shown by number and by amount. The economic loss rate is lower by amount for BBB and BB. Generally, the loss rates are very low for A and BBB (there were no AAA or AA CREs) and increase noticeably for BB and below with substantial loss rates for assets rated <B. Overall, the By Amount measure is lower than the By Number, .15% versus .19%.



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2.4 EXPERIENCE BY THE INVESTOR'S MOST RECENT INTERNAL CREDIT RISK RATING

Losses are more likely on speculative-grade bonds than on highly-rated bonds. Although many of the bonds in our study did not include a Moody's, Standard and Poor's (S&P), Fitch or other rating from a major rating agency, most private placements included in this study were rated by the Securities Valuation Office of the National Association of Insurance Commissioners (NAIC). Most insurance companies participating in this study also routinely produced internal ratings of private placements in their portfolio. The latter ratings were reported on a scale comparable to S&P or Moody's. Experience by most recent internal rating (that is, rating as of the start of each year) is summarized in the table below.

EXPERIENCE BY MOST RECENT INTERNAL RATING

Comparable Rating	Incidence Rate		Loss Severity by Amt	Economic Loss Rate by Amt
	By Number	By Amount		
AAA	n/c[13]	n/c	n/c	n/c
AA	n/c	n/c	n/c	n/c
A	0.04%	0.07%	73%	0.05%
BBB	0.29%	0.25%	18%	0.04%
BB	1.94%	2.17%	12%	0.26%
B	5.84%	7.56%	37%	2.81%
<B	9.33%	16.25%	46%	7.53%
Unknown	0.62%	1.09%	34%	0.37%
All	0.56%	0.50%	29%	0.15%

[13] n/c means no CRE

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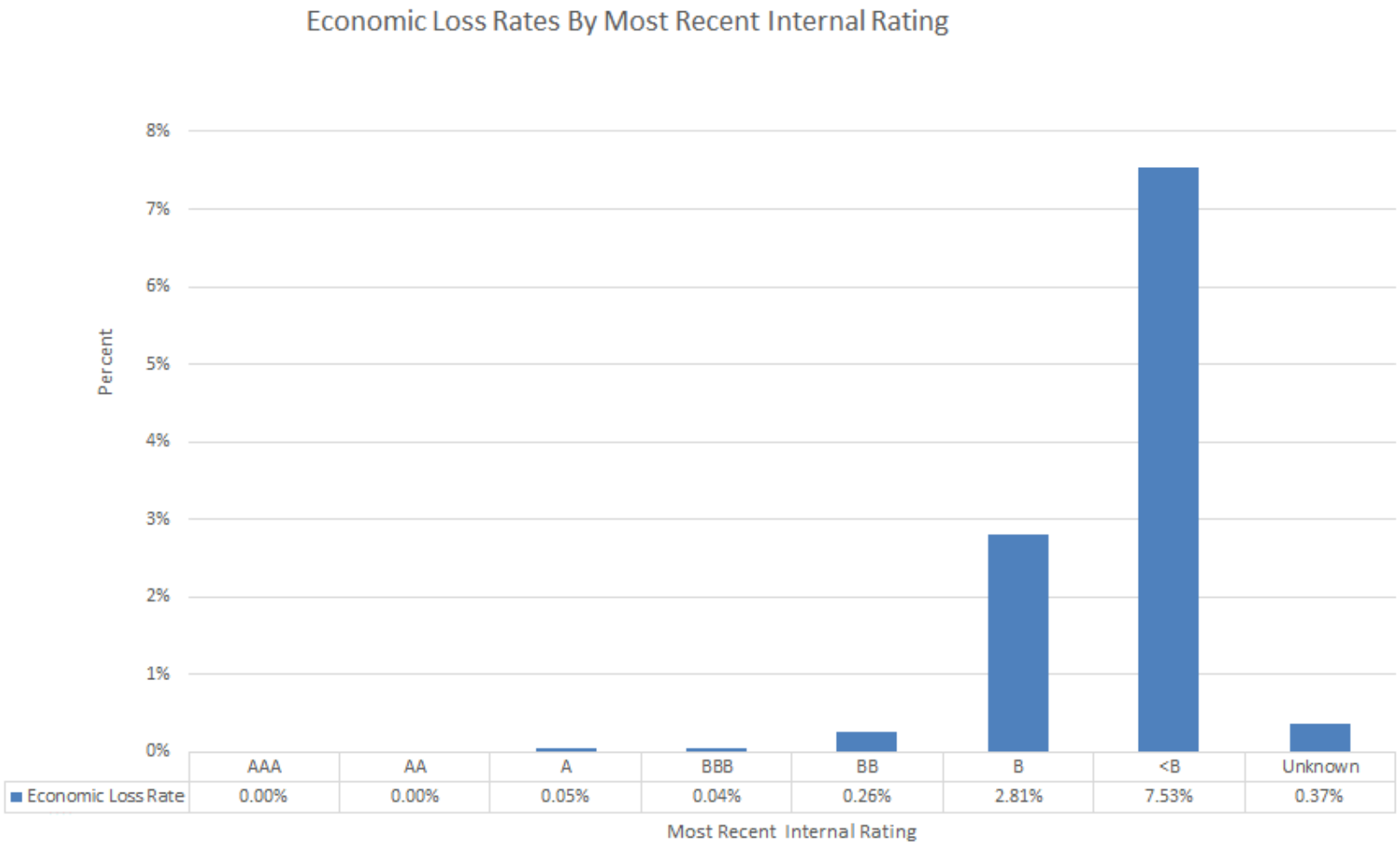

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No CREs during any year of the study were reported on assets rated AAA and AA in the beginning of that year. Average incidence and economic loss rates were low for other assets with the equivalent of investment-grade ratings (A and BBB) during the period of the study, but rose steeply in the speculative grades. Although there was an apparent tendency for below-investment-grade assets to experience larger severities in the prior study, this effect looks less pronounced during this study period. Although A-rated assets exhibited an unusually high loss severity, it is important to note that only nine CREs occurred in the A-rated bond population during the study period, corresponding to over 18,000 A-rated exposures, so the credibility of the loss severity for A-rated bonds is likely quite low.

The table below shows the contributors' experience grouped into economic loss quartiles. While the average economic loss for all contributors was 0.15%, losses ranged by quartile from 0.04% to 0.41%. The contributors' average quality of assets varied only fractionally more than a single rating notch, i.e., a letter rating modifier and the standard deviation of the averages was fairly similar, ranging from two to three rating notches. Thus, even though the distributions of portfolio qualities held was similar among the contributors, their results varied significantly.

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.

2.5 COMPARISON WITH PUBLIC BOND EXPERIENCE

This study's comparison of private placement experience with that of publicly-issued corporate bonds has four motivations (no public-market government or agency issues are included in this study's calculations).

1. Numerous studies and experience reports on public bond default and recovery influence people's sense about corporate debt credit risk. In that regard, public bond experience provides a benchmark for comparison to private placement debt.
2. 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. This analysis 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.
3. Regulatory and rating agency treatment of private placements (such as risk-based capital requirements) has been based largely on public bond default experience. To the extent that private placement experience differs, a comparison may provide useful input.

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4. The analysis supports an assessment of the credibility of internal ratings of private placements. This issue is not wholly separable from the rest because, for example, a lower default rate on private placements for a given rating might be attributed to overly conservative ratings of privates by investors or to superior structuring and management relative to public bonds.

Summary of Comparative Loss Rates

A high-level comparison of public bond and private placement experience based on estimated economic loss rates is shown in the table below. This table provides unadjusted and adjusted estimates of annual loss rates for the combined 2003-2012 experience. Row 1 in the table shows the unadjusted loss rates. The unadjusted loss rate for public bonds is an estimate of the economic loss rate on an issuer basis for the study period. The corresponding private placement loss rate is based on amount, which is the main basis of measuring the economic loss rate provided in other sections of this report. The difference of the unadjusted loss rates, 0.71%, overstates the advantage of private placements. Because the quality mix and basis of reporting differ between public bonds and private placements, several adjustments are required to produce consistent comparisons. These adjustments are discussed below in, Development of a Comparable Study Measure. The main adjustments to the unadjusted private placement results are to convert results to an issuer basis for incidence and loss severity to a senior unsecured basis. Rows 2 and 3 modify the assumptions for a consistent comparison between public bonds and private placements. Private placement incidence rates are converted to an issuer basis and quality mix differences as between public bonds and private placements are removed. Private placement loss severity is converted to a senior unsecured basis for consistency with published public bond results of economic loss. Row 2 applies the study private placement exposure issuer quality mix to corresponding public bond economic loss rates to derive a modified aggregate public bond loss measure. Row 3 makes a similar adjustment to private placement economic loss rates, which are restated using a public bond quality mix. While both bases show a private placement advantage, it is greater using the public weighting in row 3. That is because private placements show their greatest advantage in less than B-rated bonds, and public bond rated issuer exposure for below B-rated bonds is higher than for private placements.

Public vs. Private Economic Loss Rates

Basis	Economic Loss Rate (bps)		
	Public	Private	Difference
Unadjusted	86	15	71
Public estimated based on study private quality mix	33	23	10
Private estimated based on public bond quality mix	86	65	21

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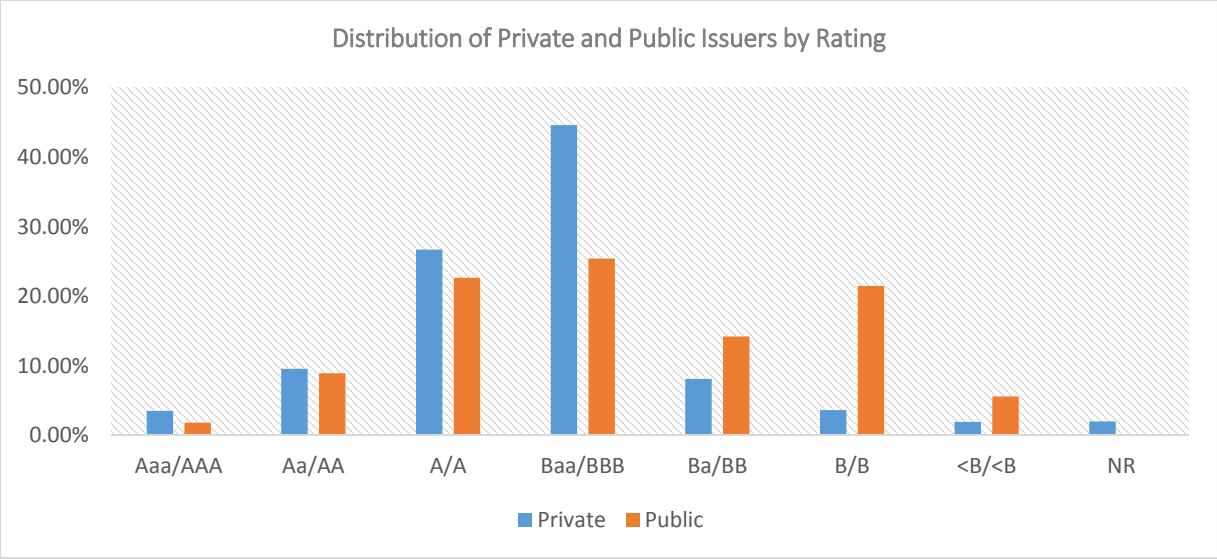

Because the aggregate private placement advantage varies by quality mix, stating its amount also implies an assumption of the quality mix. With respect to the table above, the row 2 amount is consistent with the quality mix held by the contributors. The row 3 amount is hypothetical relative to the contributors' actual holdings, but potentially attainable if a lower average quality was held. In that regard, private placement bonds can be viewed as having a 10 to 21 basis point economic loss rate advantage for senior unsecured bonds that is dependent on the quality mix assumed. Further discussion about the variation of results by quality mix and limitations of assuming the same advantage for other seniority statuses is provided later in this subsection under Economic Loss.

Development of a Comparable Study Measure

Comparing this study's experience to public bond experience requires a number of adjustments to the basis of the study measures to state them consistently with typical rating agency reporting assumptions. The main difference between the study and rating agency measures is the primary reported experience for the study is based on amount, while for rating agencies it is based on count (issuer centric). The study's focus on amount serves its primary purpose of analyzing the performance of this sector to support asset allocation decisions. This is in contrast to the main body of rating agency reported experience, which focuses on results by issuer that provide a better measure of the performance of ratings. This type of default rate reporting effectively reflects a passive management strategy of holding equal exposures by issuer within the rated investment universe.

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Because of a number of technicalities, further adjustments are required to make the study's experience directly comparable to rating agency experience. This study's main assumptions and corresponding rating agency study assumptions are shown below.

Assumption	Study	Rating Agency
Unit(s) of Exposure	Company-CUSIP or Amount	Issuer
Default	A credit risk event (CRE) includes rating agency default plus ➢ Sale at 70 cents on the dollar or below ➢ Other events deemed to be the equivalent of a default	➢ Debt payment missed ➢ Distressed exchange announced ➢ Bankruptcy ➢ Adverse sovereign imposed payment terms[14]
Economic Loss as Input to Loss Severity % Calculation	Present value of remaining original cash flows less present value of revised cash flows	Par value less either post default trading value or discounted settlement value

There are several reasons why default and economic loss are defined differently for this study. Given the unique nature of the private placement market, other events as noted are considered CREs to permit the capture of incidence analogous to default where either default was averted through a sale or the standard definition of default used by rating agencies would not apply. This is done to avoid understatement of CREs. The economic loss differs because the intent of the study is to capture the economic effect of loss given default. The substantive difference is the present value of the difference of the remaining original coupons to a market rate is captured in the study economic measure, but not a rating agency loss severity measure. The difference between these two loss measures is discussed more fully in Section 2.13, Loss Severity Method Considerations – Study Method vs. Approximate Rating Agency Method.

The table below sequentially shows the effects of converting aggregate results from the primary study assumptions to traditional rating agency assumptions. Steps (1) – (4) are discussed above. Step (5) shows the effect of isolating senior unsecured instruments within the CUSIP-only view. This is an alternative, though not exact, view of issuer basis

[14] Moody's includes adverse payment terms imposed by a sovereign, e.g., currency revaluation, in its definition of default. "Ratings Symbols and Definitions," August 2015. S&P does not specifically define sovereign actions in its definition of default.

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results. The two views share the assumption that the senior unsecured rating is generally most comparable to the issuer rating. However, experience by issuer rating combines the default rate experience of a family of issues under an issuer into one rating. Step (6) shows results on this basis which, in theory, should be equivalent to how Moody's and S&P's report experience.

In converting study experience from the primary reporting basis (amount) to an issuer basis (count), the number of filters applied reduces the total number of CREs. Fewer CREs will impact credibility. Additionally, the data does not lend itself well to a direct restatement on an issuer basis. Accordingly, it is appropriate to view the results in a range rather than as a single number. Steps (5) and (6) can be viewed as the low and high ends of the range, respectively, with Step (4) being within this range. The range rankings are the same for all three key measures, incidence, loss severity and economic loss.

Study Results Converted to Rating Agency Measures

		CRE Count	Incidence	Loss Severity	Economic Loss
	Measurement Basis				
(1)	Amount	428	0.50%	29.31%	0.15%
(2)	Number (Company-CUSIP)	428	0.56%	34.34%	0.19%
(3)	Number (CUSIP)	285	0.60%	38.30%	0.23%
(4)	Convert Loss Severity (Approximate Rating Agency Basis)	285	0.60%	36.61%	0.22%
(5)	Senior Unsecured Only (CUSIP)	122	0.55%	35.32%	0.19%
(6)	Number (Issuer)	143	0.62%	37.19%	0.23%

There are two notable results in the table above with regard to progressively changing the assumptions from the study's amount measure to an issuer basis. First, experience is better by amount and by company-CUSIP compared to a CUSIP or issuer-count basis. This difference between default experience for all CUSIPs (Company-CUSIP) versus a similar calculation where multiple company ownership of the same CUSIPs is eliminated, implies that shared CUSIPs are performing better than those owned by a single company. Second, the difference between the Step (4) average loss severity (36.61%) and the study basis implied in Step (3), 38.30%, is small. Even though the loss severity calculated for an individual CRE can differ significantly between the two methods, the overall averages calculated using each method are very similar. The approximate rating agency basis of loss severity calculated for private placements is intended to align with actual rating agency methods, but it is not an exact reproduction of them. The previously referenced Section 2.13 discusses this aspect of loss severity in more detail.

Converting study results to a rating agency basis, Step (6), allows us to best match the rating agency approach of implicitly assuming equal exposure across issuers within the rated investment universe. However, there are two key differences. First, the study data is a sample reflecting the contributors' asset selection within the private placement universe. It is not a random sample of all available private placements. Second, the results from the contributors are based on ongoing active management. Whereas there is little opportunity to reshape public deals if credit conditions deteriorate, the private placement market affords greater opportunities to manage deals during their life and, in some situations, assets sold as portfolios are actively managed.

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The reader should be aware that the measures derived for this section of the report are customized to facilitate the comparisons between private placements and public bonds. Because of that, measures reported in this section will not match similar measures used elsewhere in this report. The next two portions of this subsection discuss comparative incidence and loss severity results.

Incidence

The two tables below show a comparison of incidence between private placements and public bonds. One year annual CRE rates (study basis) are compared to annual corporate default rates (public basis) reported by Moody's and S&P. For this purpose, all study experience years, 2003-2012, are aggregated for both the study and rating agency data to produce combined incidence for all years by rating. Study and rating agency incidence are each aggregated based on their own exposure, and Moody's and S&P experience are each weighted 50% to derive average rating agency incidence.

Annual Incidence by Current Rating – Issuer Basis*

	Private Placement									Public Bonds** – Average of Moody's and Standard & Poor's							
	AAA	AA	A	BBB	BB	B	CCC	NR	Total	AAA	AA	A	BBB	BB	B	CCC	Total
2003	0.00%	0.00%	0.23%	0.70%	2.21%	1.31%	12.96%	0.76%	1.20%	0.00%	0.00%	0.00%	0.12%	0.82%	3.13%	28.05%	1.99%
2004	0.00%	0.00%	0.00%	0.19%	2.02%	1.64%	11.85%	1.46%	0.75%	0.00%	0.00%	0.04%	0.00%	0.44%	1.17%	14.48%	0.86%
2005	0.00%	0.00%	0.00%	0.19%	0.00%	7.25%	7.33%	3.95%	0.65%	0.00%	0.00%	0.00%	0.13%	0.16%	1.40%	7.92%	0.67%
2006	0.00%	0.00%	0.00%	0.10%	0.76%	1.46%	4.22%	0.00%	0.24%	0.00%	0.00%	0.00%	0.00%	0.26%	1.02%	9.81%	0.60%
2007	0.00%	0.00%	0.00%	0.20%	1.52%	1.96%	0.00%	5.88%	0.38%	0.00%	0.00%	0.00%	0.00%	0.10%	0.13%	10.67%	0.39%
2008	0.00%	0.00%	0.17%	0.59%	3.22%	2.00%	5.19%	5.25%	0.79%	0.00%	0.55%	0.47%	0.51%	1.02%	3.11%	21.04%	2.03%
2009	0.00%	0.00%	0.16%	0.63%	2.21%	13.40%	19.06%	0.00%	1.38%	0.00%	0.00%	0.22%	0.74%	1.54%	9.22%	42.12%	5.11%
2010	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	17.05%	0.00%	0.26%	0.00%	0.00%	0.12%	0.00%	0.29%	0.68%	17.31%	1.31%
2011	0.00%	0.00%	0.00%	0.10%	0.00%	4.89%	4.85%	0.00%	0.23%	0.00%	0.00%	0.00%	0.08%	0.10%	0.89%	12.57%	0.86%
2012	0.00%	0.00%	0.00%	0.19%	2.32%	3.82%	23.17%	0.00%	0.55%	0.00%	0.00%	0.00%	0.04%	0.24%	1.02%	19.60%	1.28%
All Years	**0.00%**	**0.00%**	**0.05%**	**0.29%**	**1.43%**	**3.89%**	**10.61%**	**1.64%**	**0.64%**	**0.00%**	**0.07%**	**0.08%**	**0.16%**	**0.49%**	**2.15%**	**19.50%**	**1.53%**
Study Issuer CREs	0	0	3	29	26	32	46	7	**143**								

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Annual Incidence by Ratings Summary – Issuer Basis*

	Private Placement					Public Bonds**		
	Inv Grade	Spec Grade	All Rated	NR	Total	Inv Grade	Spec Grade	Total
2003	0.46%	4.67%	1.21%	0.76%	1.20%	0.05%	5.33%	1.99%
2004	0.10%	3.74%	0.74%	1.46%	0.75%	0.02%	2.29%	0.86%
2005	0.10%	3.21%	0.57%	3.95%	0.65%	0.05%	1.66%	0.67%
2006	0.05%	1.44%	0.24%	0.00%	0.24%	0.00%	1.52%	0.60%
2007	0.11%	1.48%	0.30%	5.88%	0.38%	0.00%	0.95%	0.39%
2008	0.36%	3.06%	0.72%	5.25%	0.79%	0.48%	4.09%	2.03%
2009	0.38%	7.47%	1.40%	0.00%	1.38%	0.39%	11.60%	5.11%
2010	0.05%	1.79%	0.27%	0.00%	0.26%	0.04%	3.15%	1.31%
2011	0.05%	1.74%	0.24%	0.00%	0.23%	0.04%	1.94%	0.86%
2012	0.10%	4.93%	0.56%	0.00%	0.55%	0.02%	2.78%	1.28%
All Years	**0.17%**	**3.38%**	**0.62%**	**1.64%**	**0.64%**	**0.11%**	**3.54%**	**1.53%**
Study Issuer CREs	32	104	136	7	**143**			

* All incidence rates are issuer basis weighted by their respective issuer exposures.

** Calendar year annual default rates for public bonds from Moody's March 20, 2015 "Annual Default Study: Corporate Default and Recovery Rates, 1920-2014" and Standard and Poor's April 30, 2015 "Default, Transition, and Recovery: 2014 Annual Global Corporate Default Study and Rating Transitions."

With respect to All Years, the "Annual Incidence by Current Rating" table above shows that private placement incidence is lower for A and higher quality ratings and higher for lower ratings, except for the lowest rating category, than public bond experience. Four possible reasons for this are as follows:

1. Defaults associated with the additional study CRE definitions (sale at 70 cents on the dollar or less and other conditions deemed equivalent to default) may shift incidence to higher ratings. This could happen if a CRE occurs shortly before the rating would normally be lowered.
2. The revision of contributors' original internal ratings may lag credit conditions. This could explain why study experience is much better in the lowest category, while being worse in higher speculative grade categories and Baa/BBB. The graphs, "Predictive Ability of Different Kinds of Ratings" and "Relative Predictive Ability of NAIC vs. Internal Ratings" in Section 2.10, Rating Disagreements and Relative Predictive Power, provide related information about the quality of internal ratings. Generally, internal ratings are better estimators of loss than the equivalent NAIC ratings. This would seem to negate the hypothesis that internal ratings lag in some situations. It is also possible that both the internal and NAIC ratings are lagging changing credit conditions for stressed credits. Though it does not have a broad impact on that analysis,

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there are 36 company-CREs out of 428 in the Ba/BB and B/B range that show higher incidence than either internal or NAIC rating would imply. This supports the lag hypothesis of ratings updates for deteriorating credits.

3. Random fluctuation of the sample experience relative to the population may affect results. The total number of issuer CREs, 143, has 32 investment grade, 104 speculative grade and 7 not rated CREs spanning 10 years of experience. When these numbers are further split by letter rating, smaller numbers of CREs for each rating increase variability of the results. The corresponding average number of rating agency defaults is 31 investment grade and 697 speculative grade issuers.
4. Internal ratings by private placement contributors may be determined by considering total loss rather than incidence alone. In that case, because average private placement loss severity is lower than public bond loss severity, a higher rate of incidence could be expected at higher quality ratings.

Loss Severity

The table below shows loss severity percentages by seniority status on various bases to provide a range of results to make comparisons between private placement and public bond loss severity. The table after that shows the numbers of private placement CREs associated with the data in the table below.

Loss Severities – Public Bonds and Private Placements

	Public Bonds (Issuer Basis)[15]			Private Placements		
	Moody's Trading Basis 1982-2012	Moody's Ultimate Recovery Basis 1987-2012	Moody's and S&P[16]	Issuer	CUSIP	Company-CUSIP
Senior Secured	48%	36%	n.a.	36%	33%	32%
Senior Unsecured	63%	51%	56%	37%	35%	30%
Subordinated	69%	72%	n.a.	50%	58%	58%
Not Reported	n.a.	n.a.	n.a.	37%	41%	37%

[15] Moody's Post Trading Default and Ultimate Recovery data from Moody's February 28, 2013 Report, "Annual Default Study: Corporate Default and Recovery Rates, 1920-2012."
[16] Moody's loss severity for 2003-2012 estimated using data from Moody's March 20, 2015 "Annual Default Study: Corporate Default and Recovery Rates, 1920-2014." S&P loss severity based on value reported in American Academy of Actuaries August 3, 2015 Report, "Model Construction and Development of RBC Factors for Fixed Income Securities for the NAIC's Life Risk-Based Capital Formula."

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Loss Severities – Private Placement Counts

	Issuer	CUSIP	Company-CUSIP
Senior Secured	43	88	130
Senior Unsecured	67	122	198
Subordinated	9	12	12
Not Reported	35	63	88

Generally, senior unsecured private placement loss severity has the strongest and most statistically reliable advantage compared to public bonds. 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.

Where available, the preferred private placement comparison to public bonds is on an issuer basis because that is how most public results are reported. Focusing on senior unsecured seniority status, private issuer basis loss severity is 37% versus a range of 51% to 63% for reported public issuer results. The values for loss based on trading and ultimate recovery provide alternative views of public experience. Trading loss estimates tend to be more volatile and potentially overstate loss with results dependent on trading shortly after a default, whereas ultimate recovery values are based on present values of recoveries. The ultimate recovery basis of determining loss is more like, but not identical to, the loss severity measurement used for private placements in this study. The blended Moody's and S&P value is the loss severity based on ultimate recoveries. It is an average, equal to 55.7%, of Moody's 2003-2012 estimated loss severity, (58.3%), based on ultimate recovery and S&P's experience for the period 1987-2012 (53.1%). Because this blended measure is based on ultimate recovery and the Moody's estimate matches the same experience years as the study, we use it for the comparison to senior unsecured private placements in this section.

Generally, private placement loss severity is like public bond experience where losses increase as seniority decreases or less security is provided, with the exception of senior unsecured positions. This is also discussed in Section 4.3, Private Placement 2003-12: Loss-Severity Distribution. Relative to senior secured positions, senior unsecured loss severity is lower than you would expect. Whereas senior secured public bonds show about a 15% lower loss severity than senior unsecured public bonds, there is little to no similar advantage for private placement senior secured positions. Notably, when the Company-CUSIP basis is used (all CUSIPS owned by all contributors are counted), senior unsecured loss severity is lower than senior secured, 30% versus 32%, respectively. When the results are viewed by amount, the difference is similar, 25% versus 26%, respectively. A key cause of this apparent anomaly may be the significant variation between multiple-owner and single-owner CUSIPs. Loss severity for private placement senior unsecured positions in this study is significantly lower when more than one contributor owns a given CUSIP. When more than one contributor owns a CUISP, senior unsecured loss severity is 6% lower than senior secured positions. It is 9% higher than senior secured positions when only one contributor owns a CUSIP.

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Economic Loss

The table below shows an expanded view of rows (2) and (3) in the table at the start of this subsection titled "Public vs. Private Economic Loss Rates." All comparisons are on an issuer basis. Because an issuer rating is generally closest to a senior unsecured rating, the loss severities in this table are based on senior unsecured holdings. Depending on the assumed quality mix, the private placement advantage ranges from 0.10% (0.33% for public bonds versus 0.23% for privates) to 0.21% (0.86% for public bonds versus 0.65% for privates). Based on loss severities by seniority status, a similar net advantage may exist for subordinated positions, but there are too few CREs to substantiate such an advantage. There does not appear to be such an advantage for senior secured positions.

Public vs. Private Economic Loss Detail

	Incidence - Issuer Basis				
	Inv Grade	**Spec Grade**	**All rated¤**	**Loss Severity**	**Economic Loss**
Private Placement Exposure Weighting					
Moody's*	0.14%	2.85%	0.51%	58.3%	0.30%
S&P*	0.10%	4.20%	0.67%	53.1%	0.36%
Average Moody's and S&P	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[17]					
Moody's*	0.12%	3.94%	1.73%	58.3%	1.01%
S&P*	0.10%	3.14%	1.33%	53.1%	0.71%
Average Moody's and S&P	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 2003-2012.

[17] There is a significant difference between Moody's and S&P's annual default rates for speculative grade instruments. Generally, S&P's speculative grade default rates are higher. This analysis does not try to explain the differences between each rating agency's experience. They are both deemed to be valid experience. As noted above, each rating agency is assigned a 50% weighting for the combined public bond results.

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The weightings used to produce the results in the table above correct for differences in exposures with respect to quality mix and distribution across experience years within quality. Generally, the distribution across years within quality is similar for both publics and privates. The main source of variation is with respect to the quality mix, which is on average higher for private placements. Whether the view is based on exposures for private placements or public bonds, the loss severity advantage (limited to senior unsecured positions) for private placements leads to an economic or total loss advantage, even though incidence is higher for private placements. The magnitude of this advantage depends on the quality mix.

Reconciliation

The table below provides a reconciliation of the "private placement" view of the private placement advantage from the prior study to this one. The logic used in the prior study to state the advantage was the same, except the economic loss rate by amount was used for private placements as a comparison to the public bond issuer economic loss. This comparison adjusts the prior result to state the private placement value on an issuer basis as per the current study.

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%
(4)	Private (Amount)	0.15%	0.31%
(5)	Impact of Contributor Holdings, (2) - (4)	0.08%	0.10%

Rows 1, 2 and 4 are economic loss amounts. The use of issuer basis in rows 1 and 2 enable a consistent comparison of private placements to public results. As discussed above in Development of a Comparable Study Measure, there are some methodological differences, but after acknowledging those differences, we can conclude that private placements produced a 10 basis-point advantage relative to public bonds in the current study. Row 4 is indicative of the average loss inclusive of contributor performance from the allocation of invested amounts. The difference of loss in row 5 of the issuer and amount bases, 0.08% in the current study, can be interpreted as the impact of study contributor portfolio management decisions regarding the amount of each issuer's securities to hold[18].

The main source of change between the current and prior studies is the row 3 Private versus Public Advantage. The 0.16% decrease is caused by lower incidence and an adverse change in loss severity. Incidence decreased by 0.53% and the net private placement senior unsecured loss severity advantage decreased by 6% (privates went from 35% to 37%

[18] This is a limited measurement of investment performance. It does not consider investment spread nor capital gain or loss that may result from managing holdings.

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and public bonds went from 60% to 56%). Lower incidence implies a lower economic loss advantage, which explains 0.13% of the decreased issuer advantage. The remaining 0.03% results from the decreased net loss severity advantage.

2.6 LOSS ON TRADITIONAL PRIVATES RELATIVE TO OTHER ASSET TYPES

The private placement dataset is composed mostly of traditional notes, bonds and debentures. Hence, it is not surprising that this category has the highest number of CRE counts. The rest of the categories are equipment trusts and lease obligations, credit tenant loans, project finance, state lottery and an undefined category that comprises 16% of the total CREs. Note that asset-backed securities were not included in this study. The table below reports loss experience for the categories included in the study.

Asset Type	Number of CREs	Time-Weighted Principal	Incidence Rate		Loss Severity	Economic Loss
			Incidence by Number	Incidence by Number		
Notes, Bonds, Debentures	288	68.7%	0.57%	0.52%	30.75%	0.16%
Equipment Trusts/Lease Obligations	31	1.3%	1.02%	0.46%	45.74%	0.21%
Credit Tenant Loans	17	4.8%	0.29%	0.09%	44.81%	0.04%
Project Finance	31	7.2%	0.80%	0.75%	30.67%	0.23%
State Lottery	0	0.1%	0.00%	0.00%	0.00%	0.00%
Unknown Type	61	17.9%	0.49%	0.45%	19.94%	0.09%

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The economic loss rates are notably higher in the Equipment Trusts and Lease Obligations (0.21%) and in the Project Finance category (0.23%). Both of these categories have the highest CRE counts behind Notes, Bonds and Debentures. However, the underlying ratings of these asset classes may be the primary driver of the economic loss discrepancy. Only 2% of the assets in the Equipment Trusts and Lease Obligations category are assigned an investment grade rating, with 67% assigned a rating of B or below. Similarly, none of the assets in the Project Finance category are assigned an investment grade rating, with 93% assigned a rating of B or below.

Rating	Percentage of $ exposure of assets of each type falling in each most recent rating category					
	Notes, Bonds Debentures	Equipment Trusts/Lease Obligations	Credit Tenant Loans	Project Finance	State Lottery	Unknown Type
AAA	0%	0%	0%	0%	0%	0%
AA	0%	0%	0%	0%	0%	0%
A	3%	0%	0%	0%	0%	11%
BBB	36%	2%	2%	0%	0%	24%
BB	24%	33%	17%	7%	0%	18%
B	17%	9%	62%	41%	0%	36%
<B	20%	56%	19%	52%	0%	12%

The patterns and results compared to the last study are vastly different due to the different time periods and economic activities that have occurred. The prior study encompasses the dot-com bubble in the midst of a relatively stable and steady Moderation Period, whereas this study took place during a more volatile market environment that includes the Global Financial Crisis. Please refer to Appendix II-Economic Conditions during the Study to get an overview of the market environment when this study took place. Readers are urged to view the loss rates in this study as preliminary indicators of long-run average loss rates for each type of private placement asset since the size of the study is limited.

2.7 EXPERIENCE BY EARLIEST INTERNAL RATING

The first graph below shows the distribution of placements by earliest internal rating. 'Earliest rating' is a proxy for rating at private placement issuance, but is not a precise measure of it. Participating companies were asked to report their 'internal rating at acquisition' for each asset, but for those unable to report an 'internal rating at acquisition,' the 'most recent internal rating' as of the earliest reported year-end was used. For example, if data for an asset were reported for years 2003-2006 with a 'most recent internal rating' for year-ends 2004 and thereafter, but no 'internal rating at acquisition' was submitted, the 'earliest rating' was set equal to the year-end 2004's 'most recent internal rating.' About one third of the earliest rating values were inferred in this manner, with the remainder being the reported rating at acquisition. For all exposures studied, the distribution of earliest rating is very similar to that of most recent ratings although, as expected, the most recent ratings show a slightly lower proportion of investment grade bonds and a correspondingly higher proportion of lower rated bonds due to the rating migration between acquisition and the study end date. Because very few private placements have a rating below B at origination, results for those grades may mainly reflect the experience of privates for which the date of our earliest rating information was at least a year or two after origination. Thus, earliest-rating results for the less risky grades might somewhat understate losses relative to rates that would be revealed if at-origination ratings were universally available.

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The second and third graphs below show incidence rates (by number) and economic loss rates by earliest rating, respectively. These are average one-year rates, but default for an individual bond that occurs during a span of years after acquisition is associated with its rating at acquisition, not just with the most recent rating at the start of each year. Loss rates for investment grade bonds at acquisition are higher than loss rates for investment grade bonds at the most recent rating because a newly acquired bond does not typically default within a year or two of being rated investment grade. Instead, they transition through the lower grades, raising the loss rates by most recent rating of those grades on the way through.

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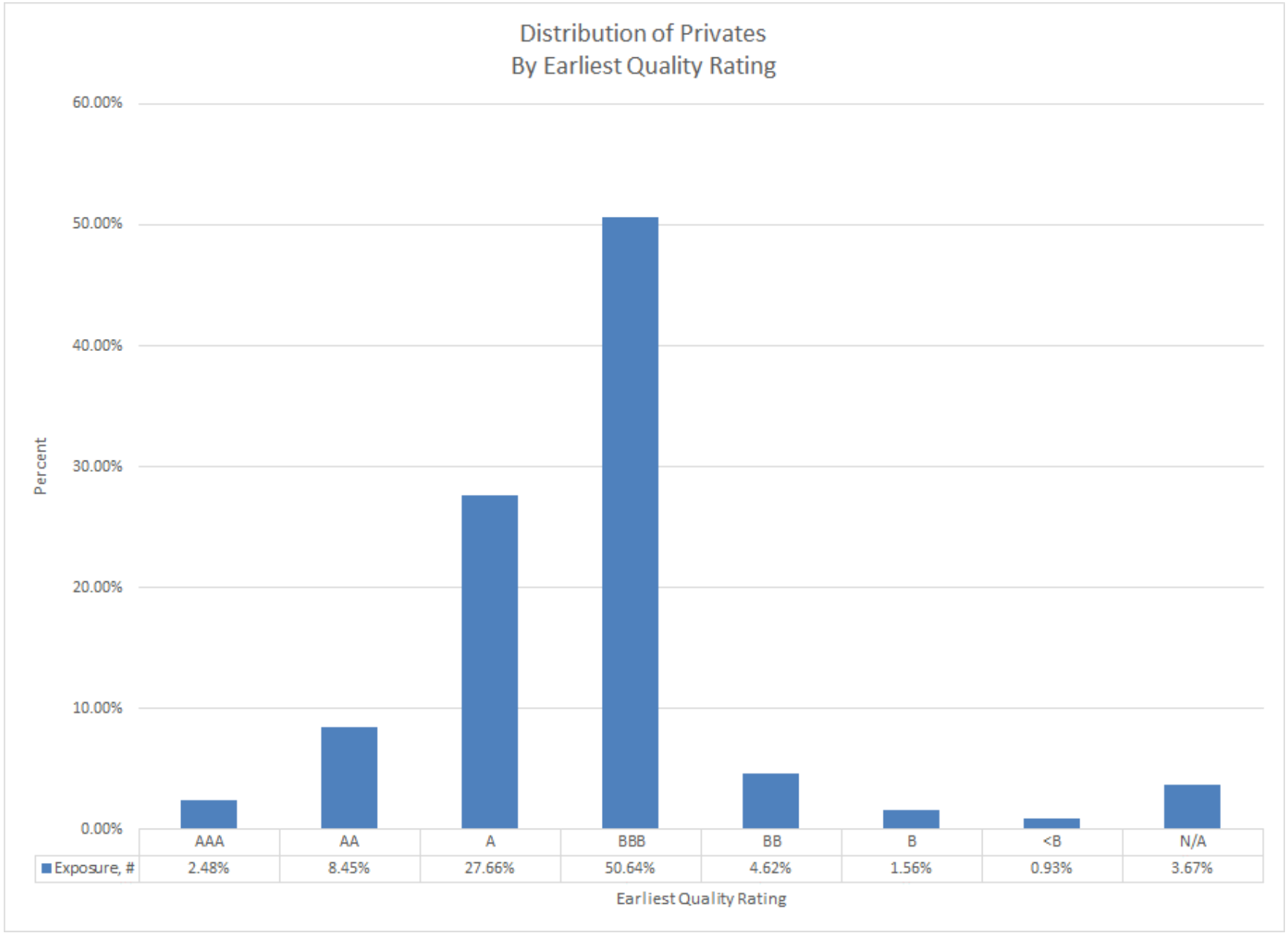

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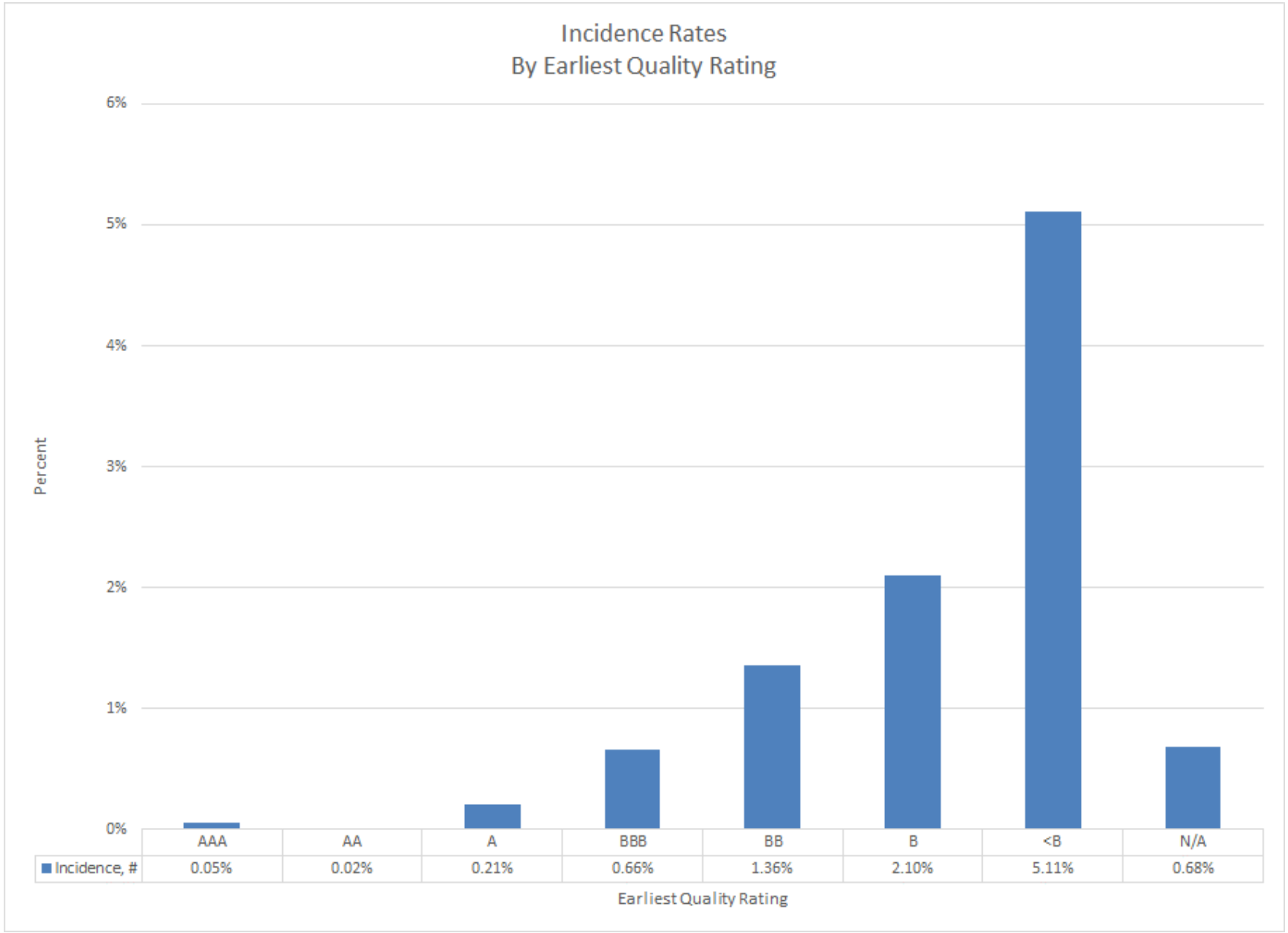

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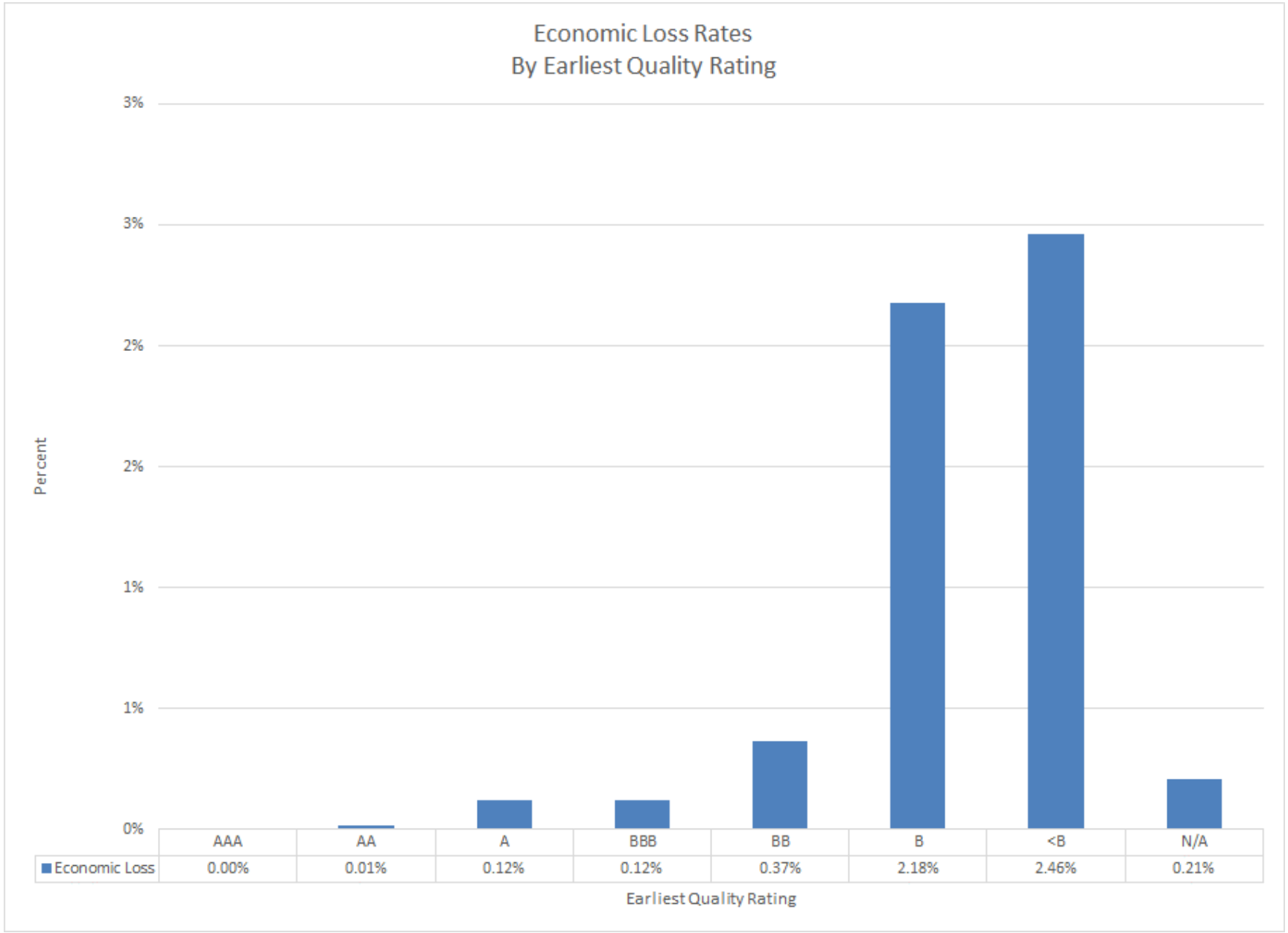

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Section 3 contains cross tabulations that provide economic loss rates for two secondary factors within each earliest internal rating. The secondary factors shown include years since funding and coupon rate.

2.8 EXPERIENCE BY NAIC RATING

NAIC ratings are specific alphanumeric symbols used by the NAIC SVO to denote the credit quality of the financial instrument. NAIC-1 is assigned to debt instruments with the lowest credit risk, whereas NAIC-6 is assigned to instruments that are in or near default. The ratings of NAIC approved Credit Rating Providers may also be used to determine the NAIC Designation (commonly referred to as an NAIC rating) for required reporting of securities by insurers to their regulators. The NAIC Designation scale, 1-6, has not been changed since 1990. NAIC ratings are available for most of the private placements in this study. The table below shows the translation of ratings from Moody's and Standard and Poor's (Credit Rating Providers) to the NAIC Designation.

NAIC Designation	Moody's	Standard and Poor's
1	Aaa, Aa1, Aa2, Aa3, A1, A2, A3	AAA, AA+, AA, AA-, A+, A, A-
2	Baa1, Baa2, Baa3	BBB+, BBB, BBB-
3	Ba1, Ba2, Ba3	BB+, BB, BB-
4	B1, B2, B3	B+, B, B-
5	Caa1, Caa2, Caa3	CCC+, CCC, CCC-
6	Ca, C	CC, C, D

The graph below illustrates the economic loss rate by most recent NAIC rating over the study period from 2003 to 2012. As expected, the economic loss rate has a clear trend of worsening as NAIC rating worsens.

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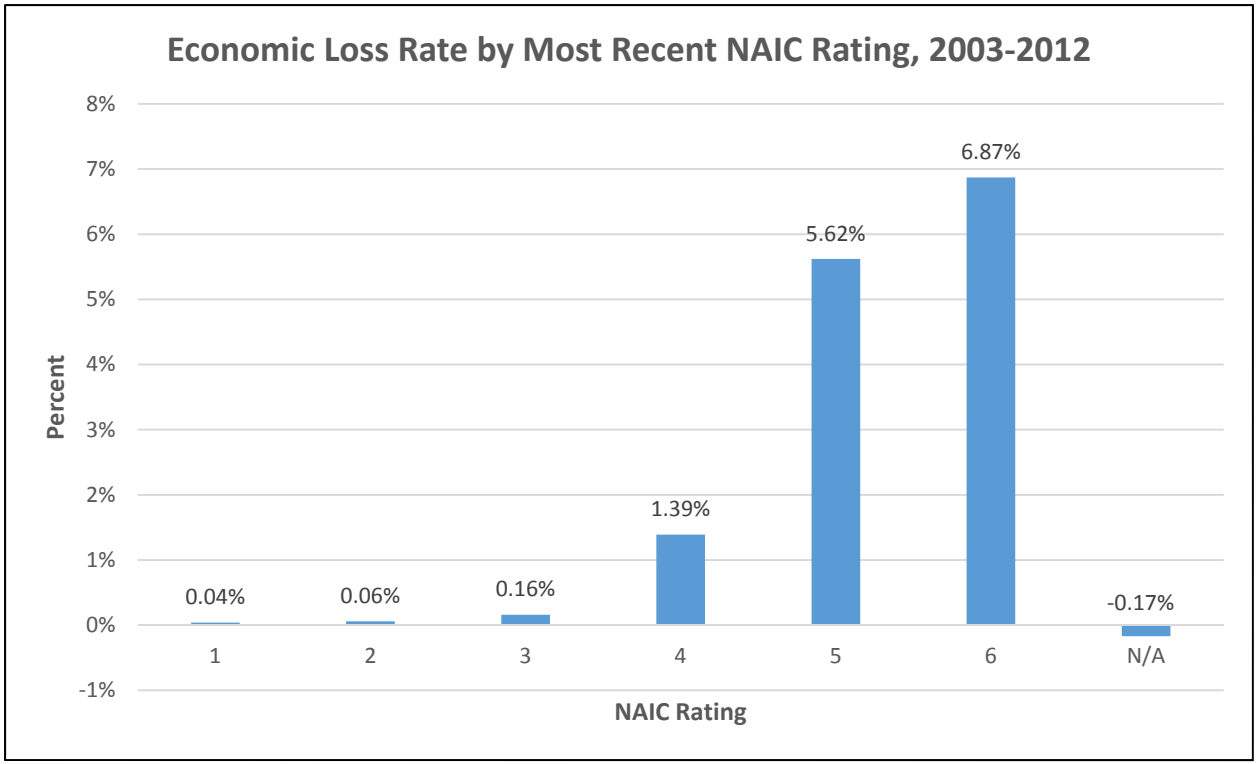

Rating	Incidence Rate		Loss Severity	Economic Loss Rate
	By Number	By Amount		
1	0.05%	0.06%	66.60%	0.04%
2	0.29%	0.30%	19.08%	0.06%
3	2.14%	1.47%	10.75%	0.16%
4	3.70%	4.67%	29.68%	1.39%
5	5.66%	9.60%	58.51%	5.62%
6	6.17%	15.40%	44.58%	6.87%
N/A	3.32%	3.57%	-4.65%	-0.17%
Total	0.56%	0.50%	29.31%	0.15%

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The table above shows the distribution of CREs and loss rates over the experience years from 2003 to 2012. The incidence rate by number and by amount corresponds well to the deterioration of the NAIC rating scale. At NAIC rating 5 and 6, we see an increase in incidence rate, as well as the amount involved. The reader will obviously note the negative values shown in this and other tables. In some cases, contract provisions are renegotiated following a CRE, which can produce more than 100% recovery. More description of this is included in Sections 2.12 and 2.13.

For high quality NAIC 1 assets, of those that experienced a CRE, the severity is notably high (67%). As expected of high quality assets, the incidence rate for this category of asset is very low. However, of those that experienced credit risk events, 90% of those NAIC 1 assets belonged to the financial sector. The CREs were observed during the period from 2007 to 2011, as expected from the 2007 Financial Crisis and the aftermath of the economic turndown.

For the comparison between the public and private sector, we utilized Moody's March 20, 2015 "Annual Default Study: Corporate Default and Recovery Rates, 1920-2014" and Standard and Poor's April 30, 2015 "Default, Transition, and Recovery: 2014 Annual Global Corporate Default Study and Rating Transitions." For the purpose of our high-level comparison, we aggregate the Moody's Aaa-A ratings to NAIC rating 1, and combined NAIC ratings 5 and 6 for Moody's rating Caa-C. Similar aggregation is done on Standard and Poor's ratings as shown below.

Moody's Study	Standard and Poor's	NAIC
Aaa	AAA	1
Aa	AA	1
A	A	1
Baa	BBB	2
Ba	BB	3
B	B	4
Caa-C	CCC/C	5 & 6

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Incidence Rate by Issuers

	Private (Issuer-Weighted)							Public (Issuer-Weighted)					
Year	1	2	3	4	5&6	N/A	Total	1	2	3	4	5&6	Total
2003	0.15%	0.80%	2.15%	2.78%	6.69%	1.97%	1.20%	0.00%	0.12%	0.82%	3.13%	28.05%	1.99%
2004	0.11%	0.00%	1.22%	3.59%	6.07%	3.80%	0.75%	0.03%	0.00%	0.44%	1.17%	14.48%	0.86%
2005	0.00%	0.10%	0.00%	9.30%	3.14%	2.46%	0.65%	0.00%	0.13%	0.16%	1.40%	7.92%	0.67%
2006	0.00%	0.10%	0.00%	0.00%	5.89%	1.21%	0.24%	0.00%	0.00%	0.26%	1.02%	9.81%	0.60%
2007	0.11%	0.10%	1.04%	3.00%	1.70%	3.10%	0.38%	0.00%	0.00%	0.10%	0.13%	10.67%	0.39%
2008	0.15%	0.61%	4.56%	0.79%	1.70%	0.00%	0.79%	0.47%	0.51%	1.02%	3.11%	21.04%	2.03%
2009	0.12%	0.75%	2.76%	5.81%	12.30%	9.59%	1.38%	0.14%	0.74%	1.54%	9.22%	42.12%	5.11%
2010	0.00%	0.09%	0.97%	0.00%	4.27%	0.00%	0.26%	0.08%	0.00%	0.29%	0.68%	17.31%	1.31%
2011	0.12%	0.00%	0.53%	0.00%	5.19%	0.00%	0.23%	0.00%	0.08%	0.10%	0.89%	12.57%	0.86%
2012	0.00%	0.20%	1.22%	1.52%	13.31%	3.00%	0.55%	0.00%	0.04%	0.24%	1.02%	19.60%	1.28%
Total	0.07%	0.26%	1.47%	3.06%	5.97%	2.50%	0.64%	0.07%	0.16%	0.49%	2.15%	19.50%	1.53%

Note that the table above provides the comparison between private placement study issuer incidence and public issuer-weighted data from 2003 to 2012. The public data above is derived using 50% of S&P data and 50% of Moody's figures. As shown in the table above, the issuer-weighted incidence rates for NAIC 1 bonds are comparable between private placements and public bonds when looked at in aggregate across 10 experience years. For bonds with NAIC ratings 2, 3 and 4 we are seeing better incidence rates in the public sector. However, most notably, for junk bonds with ratings equivalent to NAIC 5 and 6, incidence rate is significantly higher in the public sector (19.50%) as compared to the private sector (5.97%).

2.9 TIME PATTERNS OF CREDIT RISK EVENT OCCURRENCE

This section discusses the time-related patterns observed in the occurrence of credit risk events over the 2003 to 2012 period. The first graph shows the distribution of CREs that occurred between 2003 and 2012 by the year of funding.

Within the data analyzed, there is a notable surge of CREs in 1991 where 90% of the CRE counts (42 of 47) in that year can be attributed back to one issuer. We would consider the incidence rate observed for private placements funded in 1991 to be an outlier rather than the norm. Ignoring the possible outlier in 1991, the pattern post-1991 can be explained well by notable market events. As shown in the graph below, there are two notable peaks, one around 1998-1999, and a more severe one around 2004-2006. The 1998-2000 heightening of CREs was most likely driven by relaxed underwriting and heightened risk-taking surrounding the dot-com internet bubble, which had its climax in the spring of 2000. The second peak around 2004-2006 occurred near the end of the Great Moderation period, where relatively low inflation and stable economic growth also fueled an increasing appetite for risk-taking and borrowing. As a result, we observe a surge of CREs with years of funding between 2004 and 2006, right before the Financial Crisis.

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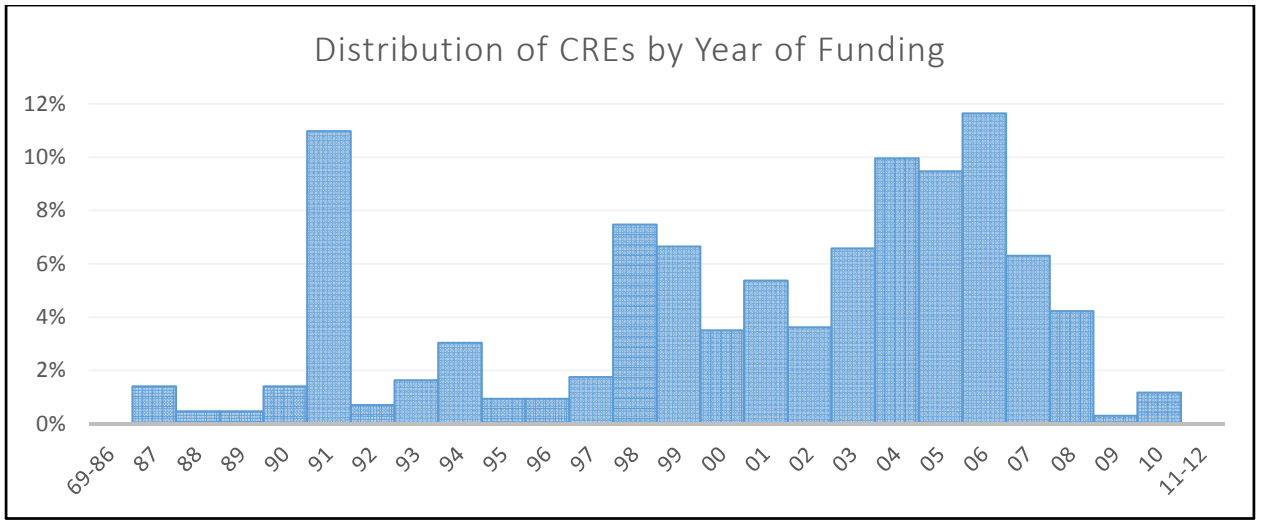
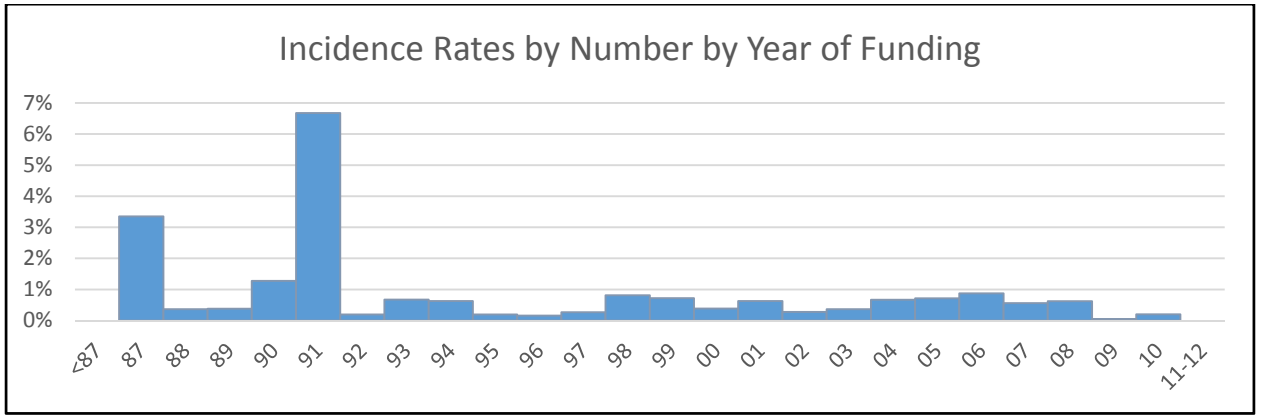


The graph below shows incidence rates by number (CRE count as a percentage of asset exposure by count) for each year of funding. Note that although incidence rates appear to be very high prior to 1991, those rates are misleading in two ways: (1) As mentioned before, the year of funding 1991 is a one-issuer outlier and (2) the incidence rate by number prior to 1992 is statistically noisy with low exposure and CRE counts. The incidence rates are much flatter post-1991, and they were never higher than 1%. Note the prior graph looks at how credit risk events are distributed over year of funding, but this graph looks at the CRE count as a percentage of total asset exposure by count.



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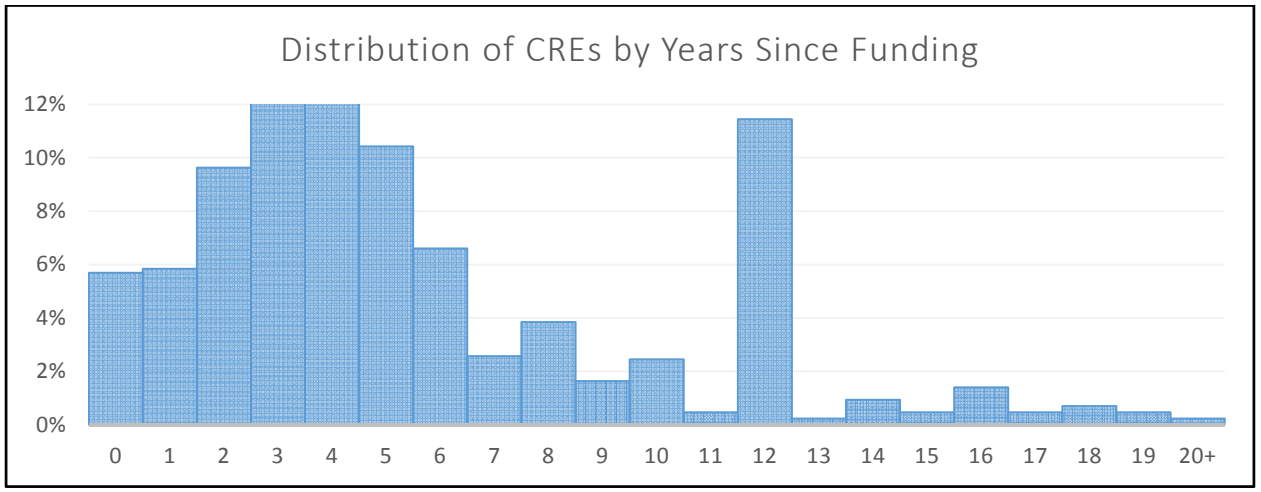
Now that we have looked at the dispersion of CREs over years of funding, let's turn our attention to the distribution of CREs by years since funding. The graph below shows how the credit risk events are distributed by years since funding. As shown, the majority of credit risk events (75%) occurred within the first seven years since funding. This is similar to the prior Private Placement report for the period 1986-2002. Note the surge in CREs observed in year 12 is tied to the 1991 outlier discussed above. The CREs for that one issuer occurred in 2003, which was 12 years after the funding year of 1991.



The distribution of CREs from the graph above is reflected in the pattern of incidence rate by number in the graph below. Except for the year 12 anomaly described above, a seasoning effect is the underlying cause of this pattern. The incidence rate is initially low then rises to a peak as the underwriting effect wears off before declining to a steady state. Although incidence in years 16, 18 and 19 goes back up, this is a result of statistical noise from low numbers of CREs in those years. While the seasoning effect is apparent with all qualities combined, evidence of it is stronger when it is analyzed with respect to earliest quality ratings. That is discussed in Section 3.3 Number of Years Since Funding by Earliest Quality Rating.

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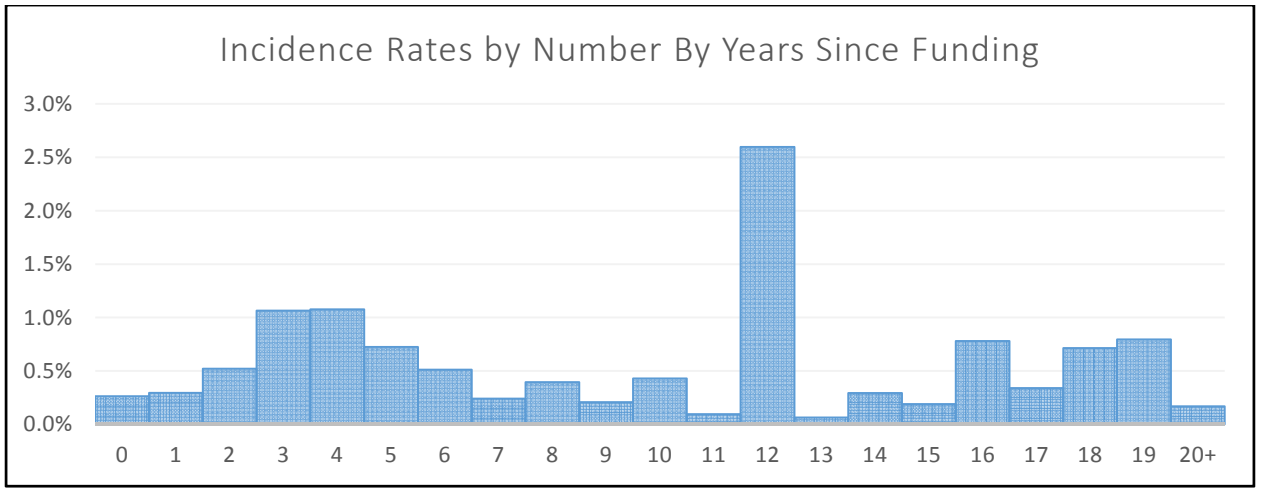

2.10 RATING DISAGREEMENTS AND RELATIVE PREDICTIVE POWER

Credit ratings are opinions about credit quality. Differences of opinion are to be expected. The frequency of differences of opinion is of some interest, as is the relative predictive power of different kinds of ratings for credit events and losses.

Results in this subsection should be interpreted with caution because of possible data issues. The most important possible data issues appear to be associated with miscoded or unreported most recent internal ratings and NAIC ratings. If there is any tendency for miscoded or unreported ratings to be associated with assets with volatile or very uncertain credit quality, that might tend to bias the results of this subsection in unknown ways.

Most assets in this study carry two ratings at each year-end, a most recent year-end internal rating and a most recent year-end NAIC rating. The two kinds of ratings can be compared using the NAIC scale from 1 to 6 as the common measure of rating quality.

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Frequency of Most Recent Internal versus NAIC Rating Disagreements

Difference	Marginal Frequency	Cumulative Frequency
0	84.5%	84.5%
1	13.7%	98.2%
2	1.2%	99.4%
3	0.4%	99.7%
4	0.2%	99.9%
5	0.1%	100.0%

The table above displays the frequency of differences between most recent internal and most recent NAIC ratings of each magnitude. The extent of agreement is remarkable, with full agreement for 84.5% of the number of assets and a difference of opinion of one grade or less for over 98.2% of the number of assets. Such agreement is perhaps unsurprising given that 85% of exposed assets were investment grade, falling into the NAIC 1 or 2 categories.

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Frequency of Most Recent Internal Rating Disagreements Across Insurance Companies

Grades Different	Frequency	Cumulative Frequency
0	81.6%	81.6%
1	17.1%	98.7%
2	1.0%	99.7%
3	0.3%	99.9%
4	0.1%	100.0%
5	0.0%	100.0%
6	0.0%	100.0%
7	0.0%	100.0%

The table above reports frequencies of disagreement across insurance companies about most recent internal ratings of the same asset. Assets were matched across companies by a combination of CUSIP and observation year where at least two companies owned the same CUSIP in the same year, yielding about 18,400 comparable pairs of ratings. While disagreements appear to be slightly more common than in the prior table, it's important to note that the rating scale used in the table above is more fine-grained, with eight rating categories instead of the six used in the prior table. The rating scale used to develop the table above was based on the internal rating equivalents to rating agency letter modifier ratings converted to a numerical letter-only rating basis, i.e., AAA = 1, AA = 2, A = 3, BBB = 4, BB = 5, B = 6, CCC = 7, D = 8.

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Disagreements about most recent internal ratings are somewhat more frequent for very safe and very risky assets. For example, 81% of the cases where a pair of contributors hold the same asset, and one contributor rates the internal equivalent of BBB, it is also BBB for the other contributor, but for AAA and B assets the percentages are 43 and 39, respectively. The table below displays the frequency distribution of assets across all permutations of pairs of ratings by different companies of the same asset at the same time.

Rating Disagreements by Quality: Distribution of Ratings of the Same Asset
by Different Companies for All Permutations of Company Pairs for All Common Assets

Rating at One Company	Rating at Other Company							
	1	2	3	4	5	6	7	8
1	0.32%	X	X	X	X	X	X	X
2	0.29%	2.34%	X	X	X	X	X	X
3	0.07%	3.58%	19.21%	X	X	X	X	X
4	0.06%	0.25%	8.36%	55.01%	X	X	X	X
5	0.01%	0.02%	0.15%	4.07%	3.79%	X	X	X
6	0.00%	0.01%	0.02%	0.34%	0.60%	0.75%	X	X
7	0.00%	0.00%	0.01%	0.05%	0.12%	0.18%	0.07%	X
8	0.00%	0.01%	0.00%	0.04%	0.10%	0.04%	0.04%	0.07%

Some disagreements may arise, not because of any substantive disagreement, but because the schedules on which ratings are reviewed and updated are not synchronized across insurance companies or between insurance companies and the NAIC. For example, one company might update a rating just before year-end and another just after year-end.

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Mean Internal Rating Disagreement by Company (number of grades different than peers)

Company	Mean Disagreement
1	-0.06
2	-0.05
3	-0.04
4	-0.03
5	-0.03
6	-0.01
7	0.00
8	0.00
9	0.00
10	0.01
11	0.01
12	0.02
13	0.03
14	0.08
15	0.08

Although disagreements about most recent internal ratings are fairly common among companies, contributing companies generally agree about the average credit quality of assets. The table above displays mean disagreements about most recent internal ratings for each insurance company for assets that are common with any other company. Companies more optimistic than their peers have negative means in the table, and vice versa.

The relative predictive power of internal and NAIC ratings is of some interest. The two kinds of ratings are produced differently and are intended for different purposes. Results described earlier make clear that both are predictive of loss, but when there is disagreement, is one kind of rating more informative than the other?

The table below displays results from a logistic regression in which the dependent variable has a value of 1 if a CRE occurred in the experience year for the observation and a value of zero otherwise. The explanatory variables are a series of indicator variables for the combination of most recent ratings assigned by the NAIC and insurance company using the NAIC 1-6 scale similar to the one used in generating the table at the start of this subsection titled “Frequency of Most Recent Internal Versus NAIC Rating Disagreements” with one modification, where assets rated NAIC 5 or 6 were pooled together under the NAIC 5 rating. In essence, the regression splits the data into cells corresponding to each possible combination of most recent internal rating and most recent NAIC rating and measures the likelihood of a CRE for each cell.

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Incidence rates by number are shown in the third column of the table below. The focus of this analysis is on cases of disagreement. For example, if at the prior year-end an asset is rated 1 by the NAIC, but 3 by the insurance company, are incidence and loss rates over the following year similar to those of assets rated 1 by both the NAIC and the company?

As an example, consider the 12th row of the table below, which summarizes the findings for assets rated 3 by the NAIC, but rated 2 internally (hereafter referred to as 'assets rated 3/2'). There were quite a few of these assets in the study: the time-weighted number of exposures is 2,080 as shown in column 9 of the table below, and this group experienced 40 CREs during the time of the study. Is this more in line with the population that was rated 3 both internally and by the NAIC ('assets rated 3/3'), or is it more consistent with the experience of the population with quality rating 2 ('assets rated 2/2')?

Column 3 of the table below shows the incidence rate for assets rated 3/2 was 1.92%. The same table reveals that, for assets rated 3/3, the incidence rate is close (1.82%), and for assets rated 2/2, it is much lower (0.19%). So at first glance, it seems the NAIC rating is a better predictor of CREs than the internal rating. Indeed, Column 4 of the table shows an odds ratio (NAIC) equal to 1, meaning this population is just as likely to experience a default as a population rated 3/3. The next column confirms the difference between the population rated 3/2 and the one rated 3/3 is not statistically significant. Conversely, Column 6 of the table shows that assets rated 3/2 are 6.9 times more likely to experience a CRE than assets rated 2/2, and the difference between the 3/2 and 2/2 populations is statistically significant.

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Predictive Ability of Different Kinds of Ratings

NAIC Rating	Internal Rating	Incidence by Number	Odds Ratio, NAIC	Significance, NAIC	Odds Ratio, Internal	Significance, Internal	Economic Loss Rate	Number Exposed	Number of CREs
5	1	1.82%	0.2	N	46.7	Y	0.00%	55	1
5	2	3.47%	0.4	N	9.4	Y	4.93%	87	3
5	3	2.26%	0.3	Y	1.0	N	0.65%	177	4
5	4	4.85%	0.5	Y	0.7	N	5.30%	474	23
5	5	8.23%	1.0		1.0		8.48%	729	60
4	1	0.00%	n/c	n/c	n/c	n/c	0.00%	21	0
4	2	0.00%	n/c	n/c	n/c	n/c	0.00%	140	0
4	3	1.40%	0.2	Y	0.5	N	0.10%	571	8
4	4	5.04%	1.0		1.0		2.25%	854	43
4	5	13.46%	2.4	Y	1.8	N	2.65%	104	14
3	1	0.00%	n/c	n/c	n/c	n/c	0.00%	96	0
3	2	1.92%	1.0	N	6.9	Y	0.09%	2,080	40
3	3	1.82%	1.0		1.0		0.08%	3,682	67
3	4	7.24%	3.5	Y	1.4	N	1.08%	221	16
3	5	30.99%	15.2	Y	4.3	Y	12.89%	36	11
2	1	0.00%	n/c	n/c	n/c	n/c	0.00%	2,482	0
2	2	0.19%	1.0		1.0		0.03%	33,567	65
2	3	2.71%	11.9	Y	1.8	Y	0.99%	813	22
2	4	13.59%	58.4	Y	3.4	Y	3.49%	103	14
2	5	2.27%	9.8	Y	0.4	N	0.36%	44	1
1	1	0.03%	1.0		1.0		0.04%	23,788	6
1	2	0.14%	4.1	Y	0.5	N	0.00%	2,781	4
1	3	0.00%	n/c	n/c	n/c	n/c	0.00%	46	0
1	4	4.44%	158.2	Y	1.1	N	0.21%	23	1
1	5	3.57%	114.3	Y	0.6	N	8.49%	28	1

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N/C (No CREs) appears in some rows because the number of observations associated with the specified most recent internal and NAIC ratings was small and the number of CREs zero.

Relative Predictive Ability of NAIC vs. Internal Ratings

NAIC Rating	Internal Rating	Behaves Like
5	1	5
5	2	5
5	3	3
5	4	4
5	5	
4	1	n/c
4	2	n/c
4	3	3
4	4	
4	5	5
3	1	n/c
3	2	3
3	3	
3	4	4
3	5	?
2	1	n/c
2	2	
2	3	?
2	4	?
2	5	5
1	1	
1	2	2
1	3	n/c
1	4	4
1	5	5

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The table above on the left summarizes which rating is more often 'correct.' Out of 25 combinations considered in the study, five are 'greyed out' because there was no disagreement about the ratings, and another five were excluded because no CREs occurred in these subgroups and the exposures were small. Of the remaining 15, the NAIC rating was 'correct' three times, the internal rating served as better predictors nine times and the remaining three buckets exhibited default patterns statistically different and higher than either the NAIC or internal rating categories. Based on this, one might conclude the internal ratings are more often accurate or more up to date than those assigned by the NAIC. This finding is different from the prior study, which found NAIC ratings to be somewhat more frequently 'correct'.

Another question of interest is whether the optimistic or pessimistic rating is more predictive of future experience. Out of the 15 categories described in the preceding paragraph, three performed in line with the more optimistic prediction, nine were more consistent with the pessimistic prediction and the remaining three performed worse than even the pessimistic prediction would have suggested. This is consistent with the prior study, which found the more pessimistic party to be correct more often. This observation could be extended even further to imply that, when the NAIC and internal ratings disagree, the risk is sometimes higher than both ratings would predict.

The results in the fifth table in this subsection should be interpreted with caution because the number of exposures associated with some rows 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 insurance company.

2.11 IMPACT OF LOTTERY ANNUITY ASSET TYPE

The impact of lottery annuity deals on the study is trivial. There were no lottery deal CREs and their principal comprises less than 0.1% of the exposure. When these were discovered during the data review as an asset type that had not been anticipated at the time of the data request, the contributors were asked whether to retain or eliminate this asset type. There was no consensus. Because of that, the Committee decided to retain them in the study and comment on their effect. Further comment here is provided as a backdrop for decisions in the next study regarding the handling of these deals. A general description of lottery annuities, along with arguments for retaining or excluding them from the study, is given below.

Lottery deals have fixed payment dates, amounts and implied rates of interest. Generally, they follow a deal structure where, in most instances, a State Lottery Commission (SLC) remains the payor to a lottery winner who, through a broker, receives a lump sum from an insurance company (the investor) to which all future payments are assigned. The SLCs cover their future payment requirements by either defeasing the payments with U.S. Treasuries (UST) or purchasing a life insurance company policy.

Argument to Retain: Because the SLC remains the obligor of the payments, which occurs most of the time, this transaction can be viewed as a normal credit risk where the insurance company investor relies on the credit of the SLC. If the insurance company or UST fails, then the SLC would still be liable for the payments. This argues for keeping lottery annuity deals in the study.

Argument to Exclude: Alternatively, if the SLC is likely to fail making its payments because its funding device fails (insurance policy or UST), then the substantive credit risk would appear to be the insurance policy or UST. This raises the question of whether this type of deal should be included or viewed differently in the study.

These deals could be included without an adjustment, included with an adjustment to the supporting credit or included with a code set to allow these deals to be studied separately or excluded. The decision for this study was to retain these deals, but because less than five companies supplied lottery deals, it was decided to exclude the indicator from the final database to protect contributor confidentiality.

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2.12 LOSS SEVERITY – GAINS VERSUS NO GAINS

This section provides information regarding the comparative results of differences in loss severity and economic loss when loss severity is not allowed to be negative, i.e., no CRE gains are allowed. A gain is defined as more than 100% recovery if a CRE occurs. This study has, as discussed in Section 4.3 Private Placement 2003-12: Loss-Severity Distribution, a substantial proportion of CRE gains. These gains can be derived from individual CRE workouts resulting in warrants, equity, collateral or revised terms to the original financing. Including gains that actually have occurred is not a prediction or guarantee of future loss severity. Depending on the usage of the data and this analysis, the user of this report should consider whether it is appropriate to include gains or not in their own analysis.

A profile of CRE gains is given in the table below.

CRE Gains Summary

	% of Gains	Average Gain
By Amount	33.4%	11.5%
By Number	20.8%	13.3%

The effect of suppressing gains on the loss severity distribution is easily visualized by shifting all of the gains to a 0% loss in the histograms shown in Section 4.3. A sample of that change is shown for loss severity by amount in the graph below where 89 CREs with gains, in light green, are shifted as described into the dark green band, which is added to the 0-10% loss range.

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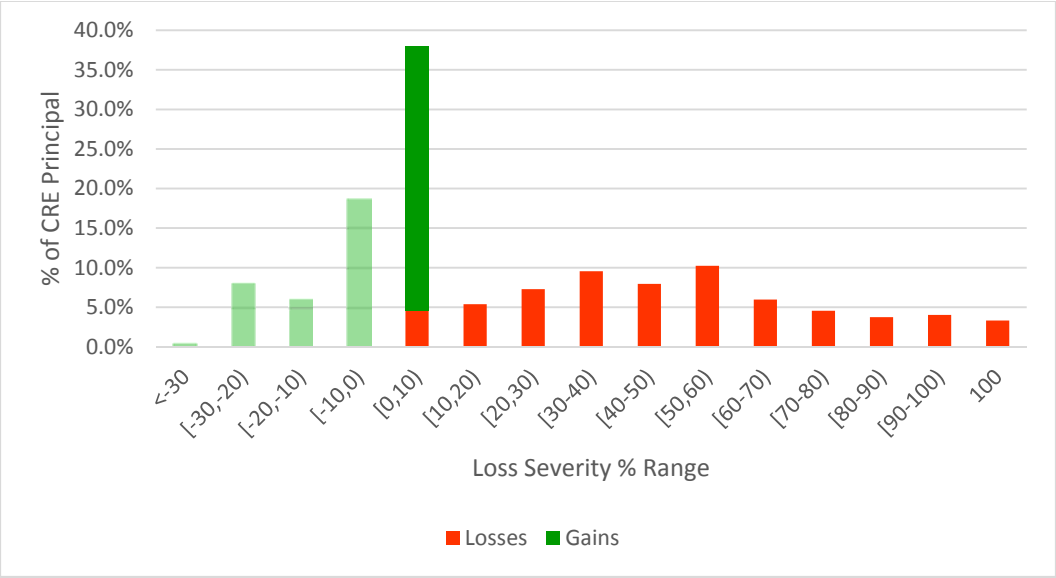
Loss Severity Distribution with Suppressed Gains



The effect of suppressing gains on key measures is shown in the table below. Generally, loss severity increases by 4%, while standard deviations decrease by 4%. The effect of limiting the loss severity results in a .02% economic loss rate increase. Even though there are some CREs with substantial gains, over half of the gains are less than 10%. When the overall average gain of 12% by amount is capped at 0%, the effect is less than might be expected based on the perception of the size of some of the gains.

Loss Severity Gains Effect on Key Measures

		0% to 10% Loss Band		Aggregate Values		
		Proportion	Average	Loss Severity	Loss Sev Std Dev	Economic Loss Rate
With Gains	By Amount	4.6%	5.8%	29.3%	36.7%	.15%
	By Number	6.5%	5.6%	34.3%	35.0%	.19%
No Gains	By Amount	38.0%	0.7%	33.2%	32.2%	.17%
	By Number	33.8%	1.3%	37.1%	30.9%	.21%

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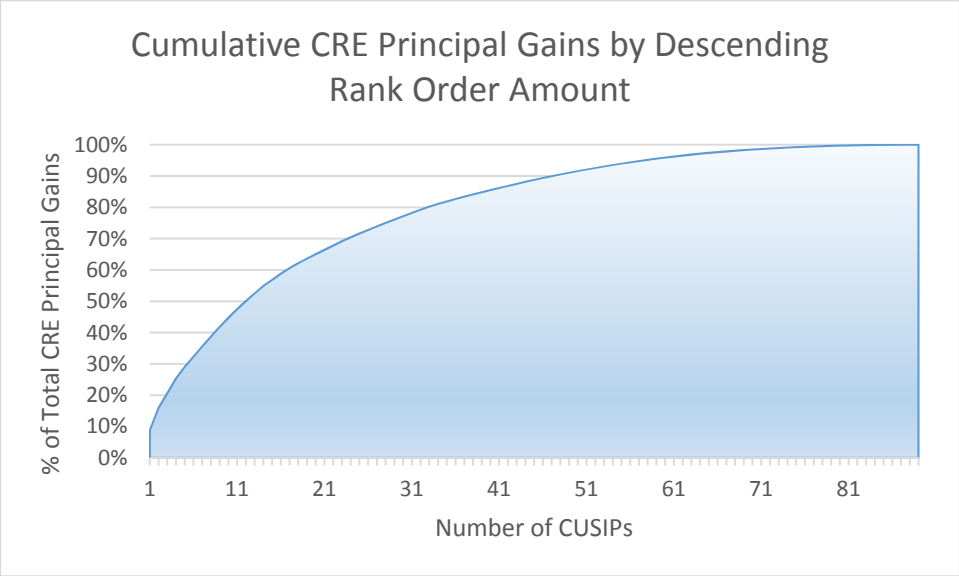
The graph below shows the concentration of gains by CUSIP. The total dollar gains are highly concentrated in a small number of CUSIPs. This metric determines the dollar gain by CUSIP, percent gain times CRE Principal. When these are rank ordered by descending value, half the amount of the gains is in just 12 CUSIPS out of 89 that had loss severity gains.



The table below shows loss severity differences (loss severity with no gains less loss severity with gains) for other variables that are analyzed in the Data Summaries portion of the report. Because incidence is the same whether there is a loss severity gain or not, we can focus on the effect of gain versus no gain on loss severity differences to gauge whether there are meaningful differences by variable for the two measures. The overall loss severity difference of 3.8% was used as a baseline to see if there are significant differences by each category within a variable. The graph below shows differences of the loss severities where a 50% deviation from the 3.8% baseline is flagged. If the loss severity difference is less than 3.8%, it implies there are fewer gains than the average in that cell and vice versa if the difference is greater than 3.8%. Cells are shaded where the difference deviates by more than half of the 3.8% difference and where there are 40 or more CREs (deemed statistically significant). Green-shaded cells have more gains than average and dark pink cells have fewer gains than average.

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No Gain Less Gain Based Loss Severity, (Delta LS), By:

Most Recent Internal Rating

	AAA	AA	A	BBB	BB	B	<B	NR	Total
Delta LS	0.0%	0.0%	0.0%	5.8%	6.9%	1.9%	0.8%	4.5%	
# of CREs	0		7	112	103	99	88	19	428

Earliest Internal Rating

	AAA	AA	A	BBB	BB	B	<B	NR
Delta LS	8.7%	0.0%	0.7%	4.6%	4.6%	0.3%	2.6%	5.8%
# of CREs	1	1	45	253	48	25	36	19

Current Coupon Rate

	0-3	3-6	6-9	9-12	12-15	15-18	18-21	NR
Delta LS	16.6%	6.2%	3.0%	3.3%	0.0%	0.0%	0.0%	0.0%
# of CREs	6	91	204	96	13	5	1	12

Funding Year

	<90	90-92	93-95	96-98	99-01	02-04	05-07	08-10	2011+
Delta LS	0.0%	0.3%	1.7%	3.9%	1.9%	6.9%	3.4%	0.8%	0.0%
# of CREs	10	56	24	44	66	86	117	24	0

Years Since Funding

	0-2 Yrs	2-3 Yrs	3-4 Yrs	4-5 Yrs	5-6 Yrs	6-8 Yrs	8-10 Yrs	10-13 Yrs	13+ Yrs
Delta LS	0.9%	2.7%	3.5%	7.5%	2.5%	5.7%	4.6%	0.8%	0.3%
# of CREs	49	41	75	73	45	39	23	62	21

Years to Maturity

	0-1 Yrs	1-2 Yrs	2-3 Yrs	3-4 Yrs	4-5 Yrs	5-6 Yrs	6-7 Yrs	7-9 Yrs	9+ Yrs
Delta LS	1.7%	5.0%	1.8%	1.9%	2.4%	11.0%	5.0%	2.0%	3.0%
# of CREs	41	52	68	58	42	49	37	34	47

Experience Year

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Delta LS	2.6%	0.3%	0.6%	0.0%	5.1%	6.2%	5.9%	0.0%	1.0%	0.0%
# of CREs	114	38	22	14	13	58	121	20	10	18

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2.13 LOSS SEVERITY METHOD CONSIDERATIONS – STUDY METHOD VERSUS APPROXIMATE RATING AGENCY METHOD

Loss severity was calculated using two methods that give different results depending primarily on the relationship between the original coupon rate and the current market rate for the original rating. The primary method used for measurements in this report is the Study Method. The Study Method is the same method used in prior studies. Another method, meant to approximate loss severity as measured by rating agencies, was introduced in this study for limited use in developing comparisons of private placement experience to public bond experience. The Approximate Rating Agency Method is labeled as ARA Method below. This section compares and contrasts these methods and their results.

The Study Method and ARA method are very similar, with the main difference being the Study Method captures the opportunity gain/loss of the difference between the original coupon rate and the corresponding current market rate at the original quality. This calculation is performed for the remaining term of the original expected cashflows at the time of the CRE. ARA methods do not include that opportunity gain/loss as part of measured loss severity. Because of this difference, the two methods produce different results depending on the difference of current interest rates and the original coupon rate. The table below summarizes the key components of the Study Method and ARA method. The derivation of the approximation to the rating agency method is described in the following table.

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Loss Severity Methods Features

Element	Study Method	ARA Method[19]	Evaluation
Economic Loss	(Principal/PV_{OCF})*(PV_{OCF} – PV_{RCF}) = Principal*(1 – PV_{RCF}/PV_{OCF}) Where: OCF = Original Cashflows RCF = Revised Cashflows	Par Value – PV_{RV} = Par Value*(1 – PV_{RV}/Par Value) Where: PV_{RV} = Present Value of Recovery Value, (RV). RV can be the near term, typically 30 days post default trading price or a future emergence value at the resolution of a default. Emergence Value (EV) is the market value of prepetition instrument, new instrument or liquidity value of acquired assets in exchange for the prepetition instrument.	1. If bonds are acquired at par value, then par value and principal will be the same. 2. PV_{RCF} and PV_{RV} are closely related. PV_{RCF} discounts all projected cashflow; PV_{RV} discounts the Recovery Value which is either a near term post default market value or the Emergence Value at the end of a workout period. 3. OCF current coupon rate affects difference of PV_{OCF} to Par Value.
Severity % (LGD%) Recovery % = 1 – LGD %	(1 – PV_{RCF}/PV_{OCF}) PV_{RCF}/PV_{OCF}	(1 – PV_{RV}/Par Value) PV_{RV}/Par Value	Assuming PV_{RCF} and PV_{RV} are closely related, main difference of methods is PV_{OCF} vs. Par Value.
Discount Rate	OCF: Spot rates from the term structure of current Treasury rates plus current credit spread at original quality at the time of the CRE. RCF: Spot rates from the term structure of current Treasury rates plus current credit spread at current quality, (just before the CRE), at the time of the CRE.	Par Value of Defaulted Bond: Implicitly discounted at coupon rate. Recovery Value: discounted at pre-petition instrument interest rate, i.e., coupon rate in effect prior to default.	Given similarity of PV_{RCF} and PV_{RV}, main difference of Study Method to Approximate Rating Agency Method is PV_{OCF} vs. Par Value. Since par value is implicitly discounted at coupon rate, differences between the two methods are driven by difference of coupon rate to OCF discount rate.

[19] Descriptions are provided by Moody's, see Overview in April 2007 "Moody's Ultimate Recovery Database," and by S&P see Definitions in December 16, 2013 "Default, Transition, and Recovery: Recovery Study (U.S.): Are Second Liens and Senior Unsecured Bonds Losing Ground As Recoveries Climb?

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Details of the Study Method are discussed more fully in Appendix I-1.C Actuarial Methodology. Generally, as detailed in the above table, rating agencies derive a recovery percentage, (equivalent to 1 – Loss Severity %), by comparing the present value of a recovered amount to par value. The recovered amount can be either a trading value 30 days after the default, trading basis, or the present value at the coupon rate of the emergence value at the end of the workout period, ultimate recovery value. Due to the proximity to default, trading values tend to be more volatile as a measure of recovery, but they are immediately available. Conversely, ultimate recovery values are a measure of the actual eventual recovery, but by their nature, take longer to be able to determine. Neither of those values are publicly available for private placements. But, if we assume that our actual and projected revised cashflows are a reasonable proxy to either the trading basis or ultimate recovery, then PV_{RCF} serves as a substitute for the rating agency "recovered amount." With this substitution, we create an Approximate Rating Agency (ARA) loss severity measure that is defined as, $(1 – PV_{RCF}/\text{Par Value})$.

Actuarial modelers may want to consider the difference of these two methods when performing credit modeling as part of valuation, capital or pricing modeling. The Study Method captures the opportunity gain/loss of the difference of the original coupon rate and the average OCF discount rate. This latter rate can be thought of as equivalent to a current coupon for the bond's remaining term at its original quality rating. Conversely, because the Approximate Rating Agency measure uses par value as a baseline of expected recovery, it does not include the opportunity gain/loss of the original coupon rate to a current coupon rate.

Although there is a difference between the two loss severity methods, the results on average for the study period were very similar, even though significant differences occurred within some Company-CUSIP CREs. The table below shows those results.

Loss Severity Method Comparison Summary

	Study Method	Approximate Rating Agency Method	Average of Differences	Standard Deviation of Differences
By Number[1]	34.3%	32.8%	1.6%	8.1%
By Amount[2]	29.3%	29.2%	0.5%	9.3%

1. By Number assumes each Company-CUSIP CRE is one count.
2. By Amount aggregate values by method are weighted by Principal and Par Value for the Study and ARA methods, respectively. The average and standard deviation of the differences by CRE between the two methods are weighted by Principal at the CRE.

The formulas in the first table in this section for the Study Method and the defined ARA loss severity formula can be used to derive the expected difference of the loss severities under the two methods. The difference of the two methods can be expressed as:

Study Method less Approximate Rating Agency Method = $[1 - (PV_{RCF}/PV_{OCF})] - [1 - (PV_{RCF}/\text{Par Value})]$

$$= (PV_{RCF}/\text{Par Value}) - (PV_{RCF}/PV_{OCF})$$

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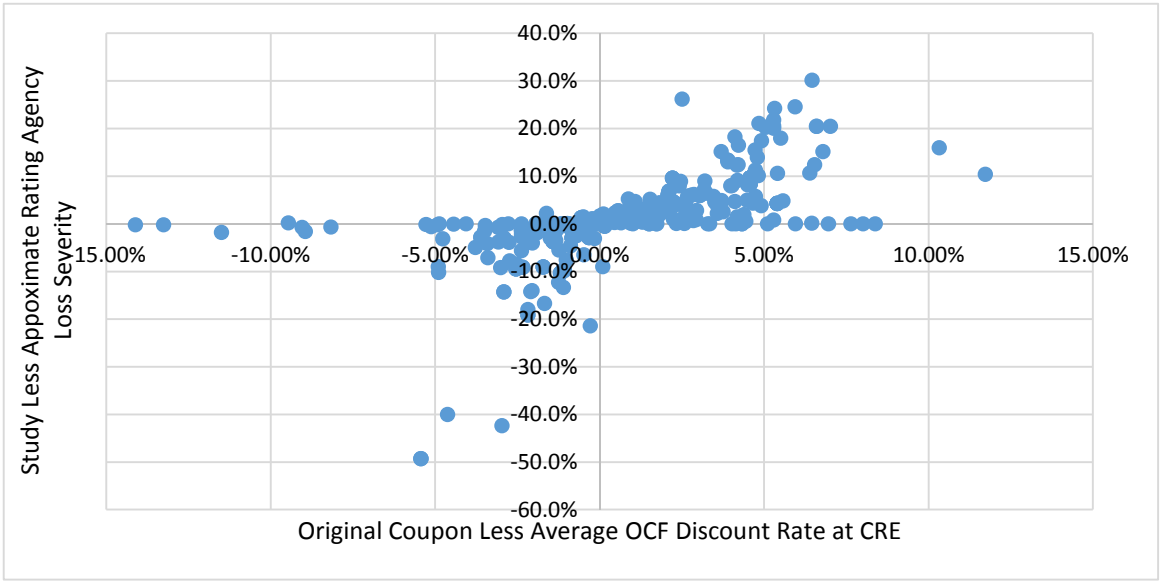
We can see from this that the loss severity for the Study Method will be greater than the ARA Method when the OCF discount rate, at the time of the CRE for the remaining original cashflows, is less than the original coupon rate and vice versa.

It is coincidental over the full study period that the two methods produced almost the same average loss severity for all CREs. Given the standard deviation of differences is significant, we can conclude there were many significant yet offsetting differences during the period. This is shown in the graph below where the loss severity difference by CRE is compared to the difference of the original coupon rate and the OCF discount rate at the time of the CRE. For this purpose, we assumed the US Treasury Constant Maturity Term Rate plus the average credit spread at the original quality of each CRE for a 4.5 year term, the average length of the remaining OCFs over all CREs, as a proxy for the average OCF discount rate for each CRE.

Comparison of Loss Severity Methods Relative to Original Coupon Rate vs. Average OCF Discount Rate



Consistent with the formula for the difference of the method, virtually all of the observations in the above graph are in the southwest or northeast quadrants. Most points are clustered near the origin with some outliers. These are reasonable. For example, the difference of the original coupon rate and average OCF discount rate can be large, but if the duration is short, there will be small to no difference. These observations are clustered on the x-axis. CREs that occurred at or near the original maturity substantiate this. Similarly, if there is a large coupon difference and a long remaining period to original maturity, points will be pushed away from the central point.

We conclude that it is important to be aware the primary loss severity measure in this study differs from what a practitioner might encounter in reviewing reports of public bond recovery analyses. Each measure serves a purpose. It is important that practitioners understand their differences to apply them appropriately.

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Section 3: Cross Tabulation

3.1 INTRODUCTION

This section examines data relationships where there may be a potential correlation between risk factors. For example, credit risk may seem to be driven by one factor, while actually being driven by another underlying factor with which it happens to be correlated. We are liable to misconstrue results by failing to make such connections. So as we study one factor at a time, we should control the other factors, not disregard them. One way to do so is by cross tabulation. The questions it will help answer include:

- Is the coupon effect the quality-rating effect in disguise?
- Is the seasoning effect the economic-cycle effect in disguise?

We discuss three cross tabulations involving the following pairs of variables:

1.	the coupon rate	by the earliest quality rating
2.	the number of years since funding	by the earliest quality rating
3.	the funding year	by the experience year

Two of the three cross tabulations involve the earliest quality rating, also referred to as the rating at acquisition, which serves in some instances as an imperfect proxy for the preferred original issue rating. The rating at acquisition is also an imperfect measure for the original rating when the bond is acquired in the secondary market. The requested rating at acquisition is the original issue rating when the bond is acquired when issued, i.e., not purchased in the secondary market.

The first cross tabulation explores the coupon effect. The second explores the seasoning effect which is the changing level of CREs relative to the time since funding. Low CREs after initial underwriting like a select period are followed by increasing CREs when there is a weeding out period followed by a decline as the remaining issuers transition to a survival-of-the-fittest 'ultimate' period. The third also explores the seasoning effect, but with an adjustment for economic conditions. Our analysis has led to two fairly compelling conclusions that are similar to our earlier studies. First, there is a coupon effect, which persists even after segregating by the earliest quality rating. Second, there is a seasoning effect, which persists even after normalizing for economic conditions.

As we discuss each cross tabulation, we will state the objective, suggest a hypothesis with an economic rationale, analyze the four key statistics in turn, cite a corroborative study if available and state the caveats where appropriate. The key graphs and tables for each of Sections 3.2, 3.3 and 3.4 appear within their respective portions of Section 3. Some auxiliary graphs and tables that expand on the underlying data that is used to construct the statistics in this section's graphs are provided in Appendix IV.

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Notes on the Graphs and Tables

The graphs often appear in sets of four, one for each key statistic. These four statistics are plotted in two granularities by quality rating and by coupon rate as summarized below and schematically presented in the next table:

- By quality, a two-way breakdown between Investment Grade (I.G.) and Below Investment Grade (B.I.G.)
- By quality, a four-way breakdown by AAA-A, BBB, BB, and <BB
- By coupon, a five-way breakdown, Type I, with more lower coupon rate granularity (1-4%, 4-6%, 6-8%, 8-10%, and 10+%)
- By coupon, a five-way breakdown, Type II, with more higher coupon rate granularity (0-6%, 6-9%, 9-11%, 11-13%, 13+%)

Earliest Quality Rating — Coupon Range in %

Coupon Granularity:		Type I	1-4	4-6	6-8	8-10	10+
		Type II	0-6	6-9	9-11	11-13	13+
Rating Granularity:							
	Broad	Fine					
Total	I.G.	AAA-A					
		BBB					
	B.I.G.	BB					
		<BB					
	NR						
	Rated and NR						

The Total results for all quality ratings combined do not necessarily fall between Investment Grade and Below Investment Grade because the Total includes the Not Reported category. As such, it is a three-way average, not a two-way average just between Investment Grade and Below Investment Grade. In addition, because Investment Grade and Below Investment Grade may be distributed differently, aggregating these categories may obscure trends (as with Simpson's paradox). For example, in the cross tabulation between the coupon rate and the earliest quality rating, Below Investment Grade is weighted towards high coupons, while Investment Grade is weighted towards low coupons. So both incidence rates can be horizontal as a function of the coupon rate, while the Total can still slope upwards.

In grouping data into cells, we can strive for either (1) an even distribution of calibration points or (2) an even distribution of CREs among the resultant cells. We have used more evenly distributed calibration points for both the coupon rate and the number of years since issuance. Thus, the coupon range is evenly spaced (in largely 2% or 3% intervals), while the seasoning is spaced with one-year increments and, in some cases, all years grouped beyond a distant horizon point.

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Because the number of CREs is indicative of the credibility of a cell, we have displayed the cell-specific number of CREs in the tables below most cross-tabulation graphs. A solid line linking data points is indicative of a trend line, while a dotted line is indicative of statistical fluctuation. The larger cells are more stable but, at the same time, more liable to gloss over nuances. This tradeoff between stability and nuances is the reason behind the dual granularities in our cell definition. They facilitate two viewpoints. Low granularity is better at capturing the underlying trend and high granularity reveals potential important variations embedded in lower granular data views.

3.2 COUPON RATE BY EARLIEST QUALITY RATING

The first cross tabulation between coupon rate and earliest quality rating examines whether the coupon rate is a risk factor in its own right, i.e., independently of the rating. In other words, is there a 'pure' coupon effect? The fact that the incidence of CREs is positively correlated with the coupon rate irrespective of ratings is inconclusive. After all other things being equal, the higher the coupon, the lower the quality. So what purports to be a coupon factor may turn out to be nothing but the quality-rating factor in disguise.

Nevertheless, there is an economic argument for a pure coupon effect. Debt service is more onerous to the borrower at 10% than at 4%. This is because a higher coupon requires more income to service. Therefore, it stands to reason that a bond with a higher coupon may exhibit more credit risk over time than a similar bond issued at the same rating, but with a lower coupon in a lower interest-rate environment at time of issue.

Analysis of the Four Statistics

One way to isolate the coupon effect from the quality-rating factor is to show how the experience varies by coupon while the rating is held constant. We excluded all cells under 1% to remove what may be a preponderance of discount or accrual ("zero-coupon") bonds at this end, where the very low coupon in and of itself may not capture the entire debt service. (For this reason, the coupon effect is a nomenclature adopted for ease of reference only; it is better called the debt-service effect.) We also merged the cells into five groups in order to achieve greater stability of results.

After such a consolidation of some cells and elimination of those where the coupon rate wasn't reported or was under 1%, the streamlined tabulation results in the following behavioral pattern across the coupon range. Incidence rates are largely invariant, if slightly rising, when the coupon rate does not exceed 8%, except for some noise associated with cells containing fewer life-year exposures. There is an increasing trend across the coupon rates over 8%. Loss severities are rising faster than incidence rates as coupon rates increase, with the exception of one cell grouping (8%-10%) where the trend is reversed.

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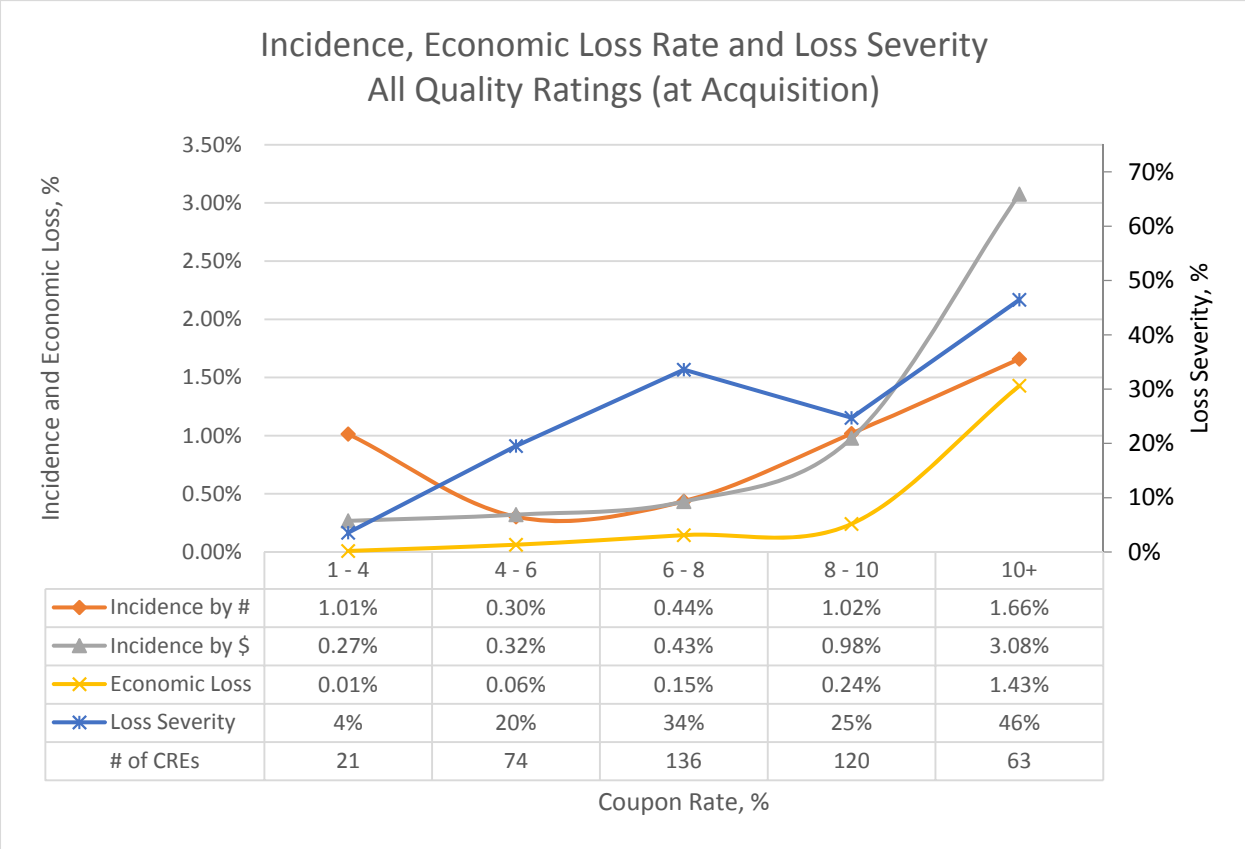

	1 - 4	4 - 6	6 - 8	8 - 10	10+
Incidence by #	1.01%	0.30%	0.44%	1.02%	1.66%
Incidence by $	0.27%	0.32%	0.43%	0.98%	3.08%
Economic Loss	0.01%	0.06%	0.15%	0.24%	1.43%
Loss Severity	4%	20%	34%	25%	46%
# of CREs	21	74	136	120	63

Next, we make a minimal, first-order division by quality, just between Investment Grade (AAA, AA, A and BBB) and Below Investment Grade (BB and below). Such bisection is enough to make the statistics 'noisier.' We can no longer make a blanket statement on all four statistics.

There's significantly more life-year exposures associated with bonds rated investment grade at issue, resulting in smoother key statistics associated with that split. While loss severity is still somewhat choppy, the other statistics increase consistently with higher coupon rates, with the exception of the first grouping (1%-4%) of incidence rates by #. Within that grouping, incidence rate by # is significantly higher than the incidence rate by $, indicating that bonds with lower principal values tended to experience relatively more CREs than bonds with higher principal in that grouping.

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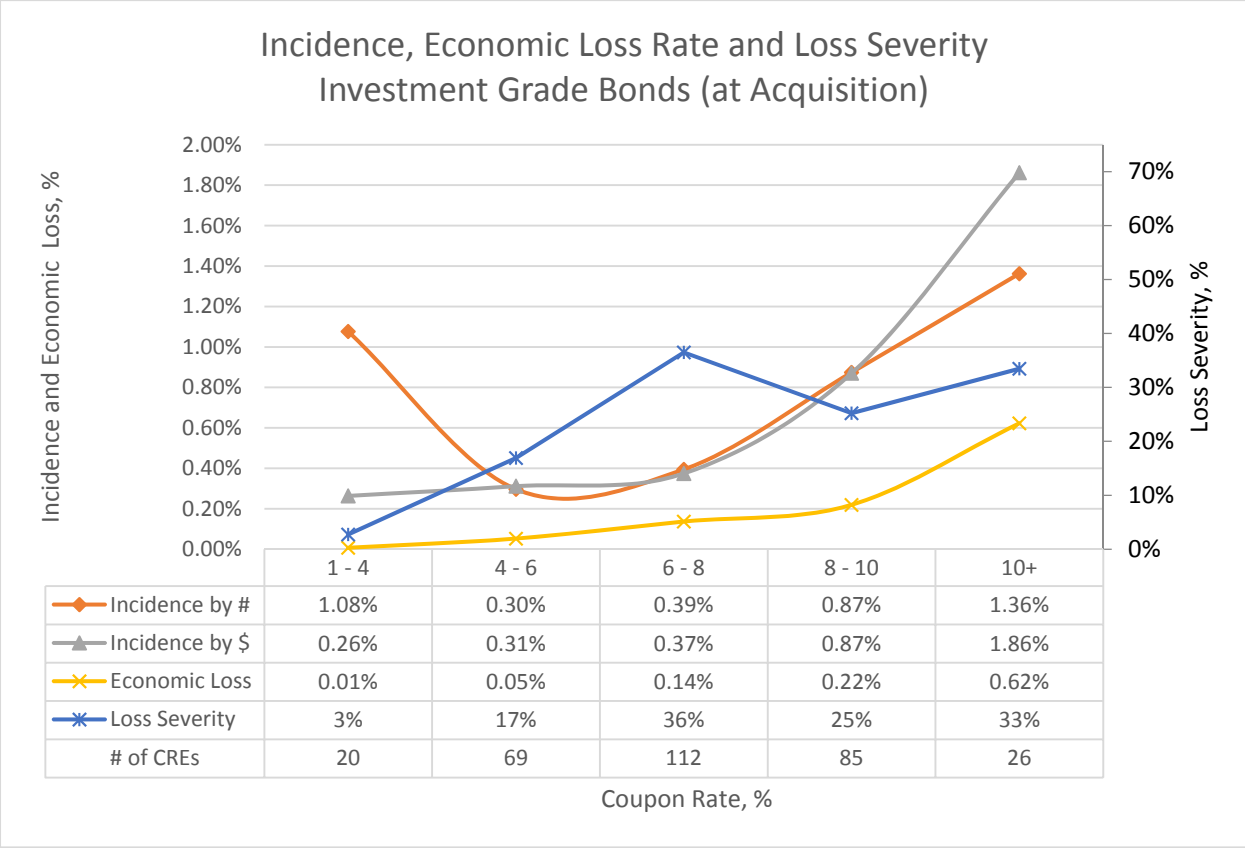

	1 - 4	4 - 6	6 - 8	8 - 10	10+
Incidence by #	1.08%	0.30%	0.39%	0.87%	1.36%
Incidence by $	0.26%	0.31%	0.37%	0.87%	1.86%
Economic Loss	0.01%	0.05%	0.14%	0.22%	0.62%
Loss Severity	3%	17%	36%	25%	33%
# of CREs	20	69	112	85	26

Not as many private placement bonds were rated below investment grade at issue, resulting in much choppier graphs of the key statistics. Nevertheless, the general trend of higher loss incidences and severities associated with coupon rates over 8% still seems to hold.

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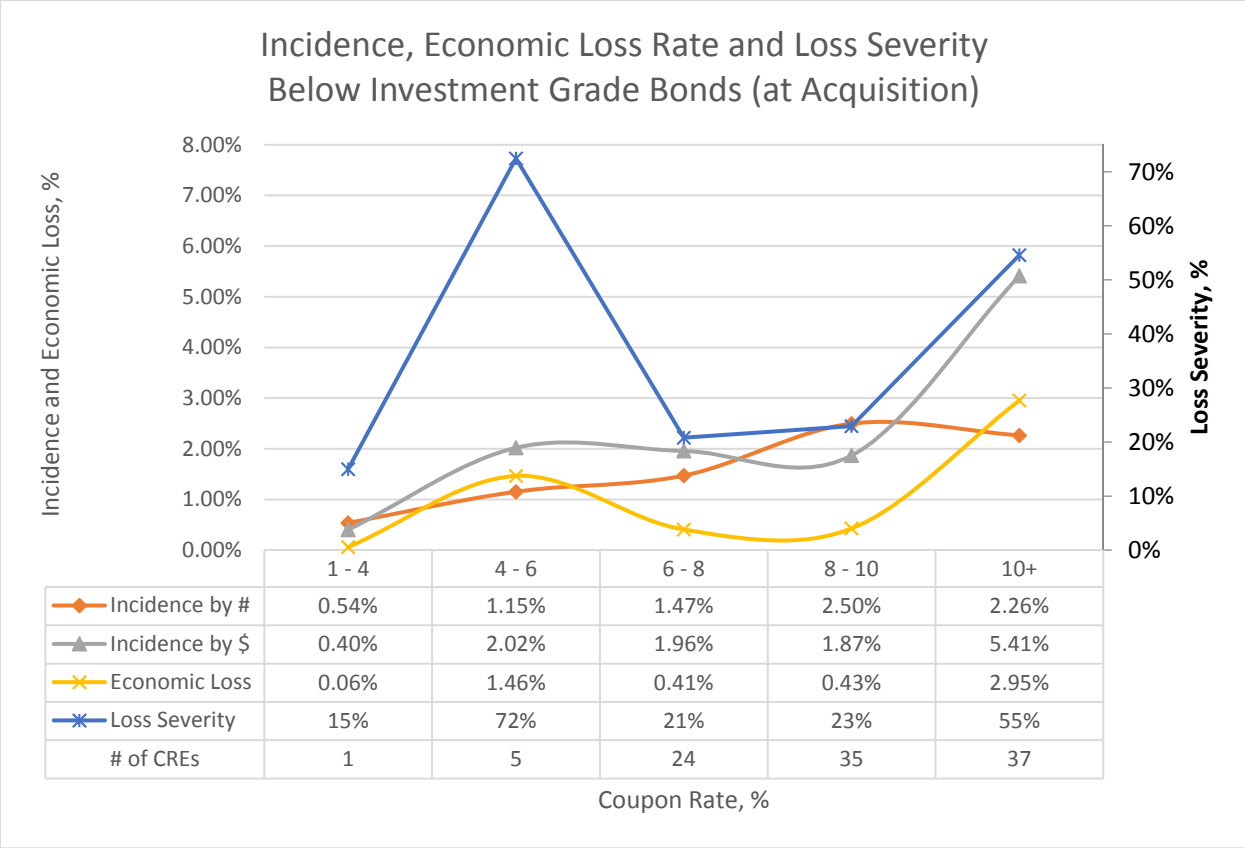

	1 - 4	4 - 6	6 - 8	8 - 10	10+
Incidence by #	0.54%	1.15%	1.47%	2.50%	2.26%
Incidence by $	0.40%	2.02%	1.96%	1.87%	5.41%
Economic Loss	0.06%	1.46%	0.41%	0.43%	2.95%
Loss Severity	15%	72%	21%	23%	55%
# of CREs	1	5	24	35	37

Even though a further division to the individual-rating level will result in sparser cells, it is incumbent upon us to do so because the mere classification between Investment Grade and Below Investment Grade is far too broad to produce truly homogenous cells by quality. So we minimally subdivided Investment Grade between AAA-A combined and BBB alone. We also minimally subdivided Below Investment Grade between BB alone and all below BB.

The AAA-A class exhibits almost no coupon effect. As the coupon rate increases, the incidence rates trend up slightly, while loss severity fluctuates, resulting in virtually constant economic loss rates throughout the range of coupon rates, except for the substantial increase in the economic loss for cells with over 10% coupon rate

The BBB class offers the most 'well-behaved' trend, exhibiting the coupon effect for all four key statistics. Incidence rates rise and loss severity stays relatively constant until the coupon rate reaches the 6% mark, and then both increase rapidly. The economic loss trend experiences an inflection point in the low double digits as well, showing a significant acceleration of economic losses for the bonds in that subdivision.

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The key statistics associated with the BB bucket are quite choppy. The incidence by # of CREs shows a downward incidence trend for bonds with coupon rates above 10%. However, the incidence rates are smoothed out when considered on a dollar-weighted basis, which shows an upward trend as coupon rates increase, although with some fluctuations in the middle. Loss severity stays between 15% and 25% for the most part, increasing to around 47% for the bonds with coupon rates above 10%. Economic losses, which are a combination of incidence rates and loss severities, stay relatively constant for the coupon rates below 8% and rise for the higher coupon bonds.

Finally, the class of bonds rated below BB shows steadily and rapidly increasing incidence rates, both number-weighted and dollar-weighted, with the exception of the '4%-6%' cell, which appears to be an outlier. Note this particular cell has very low credibility associated with it, with only 60 exposures and four CREs over 10 years of study. Loss severities are still choppy, although the trend still points to increased losses associated with higher coupon rates. Economic losses rise as well, although the trend is quite choppy due to the influence of the '4%-6%' cell.

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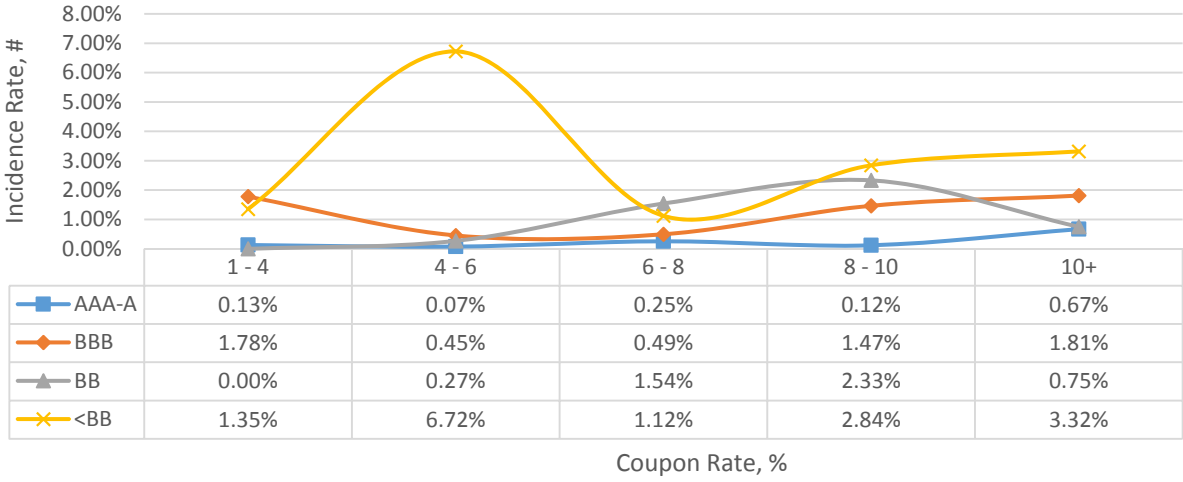
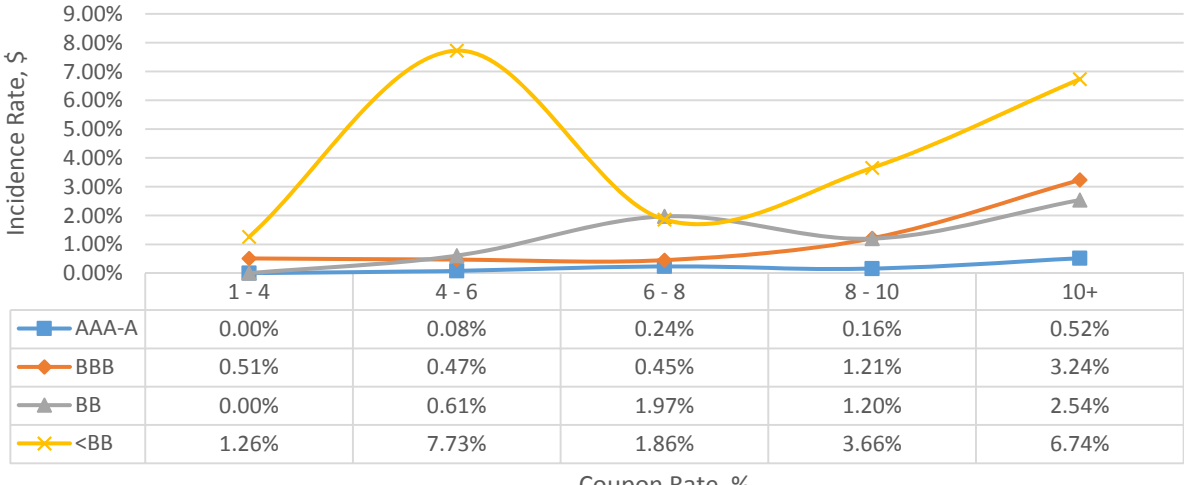


	1 - 4	4 - 6	6 - 8	8 - 10	10+
AAA-A	0.13%	0.07%	0.25%	0.12%	0.67%
BBB	1.78%	0.45%	0.49%	1.47%	1.81%
BB	0.00%	0.27%	1.54%	2.33%	0.75%
<BB	1.35%	6.72%	1.12%	2.84%	3.32%



	1 - 4	4 - 6	6 - 8	8 - 10	10+
AAA-A	0.00%	0.08%	0.24%	0.16%	0.52%
BBB	0.51%	0.47%	0.45%	1.21%	3.24%
BB	0.00%	0.61%	1.97%	1.20%	2.54%
<BB	1.26%	7.73%	1.86%	3.66%	6.74%

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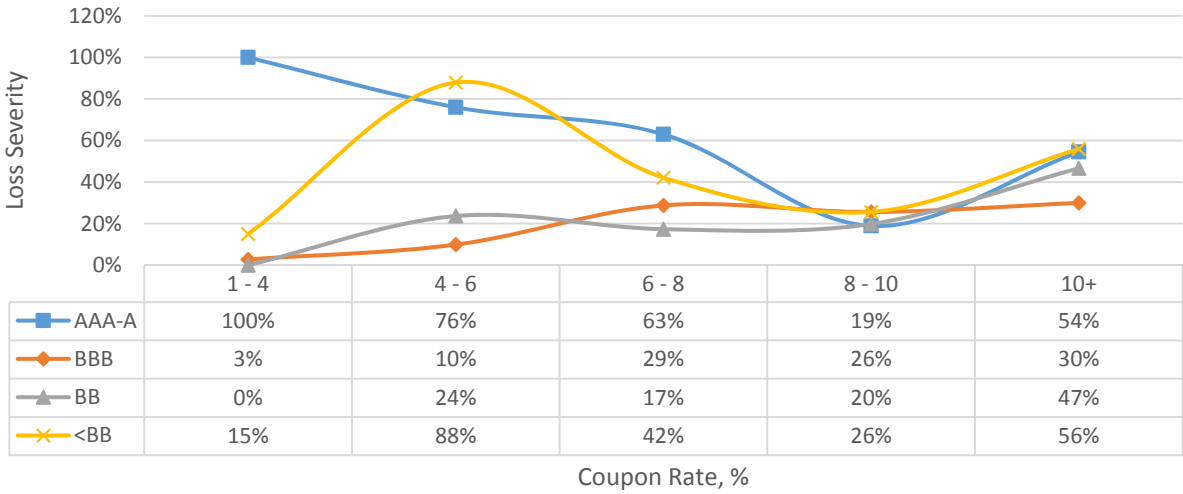
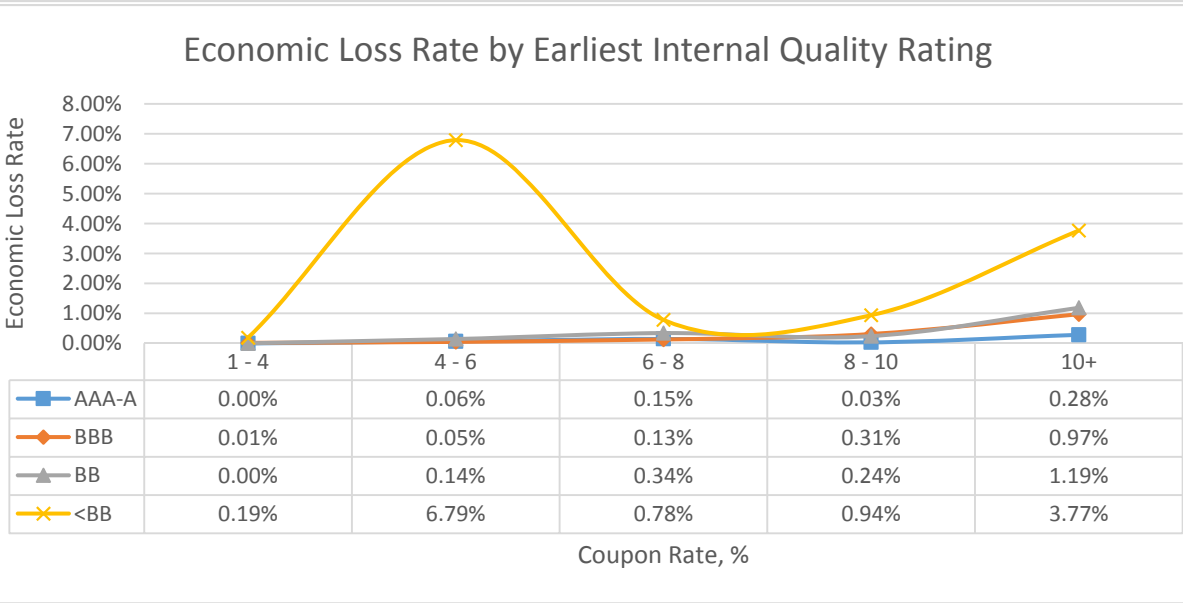


	1 - 4	4 - 6	6 - 8	8 - 10	10+
AAA-A	100%	76%	63%	19%	54%
BBB	3%	10%	29%	26%	30%
BB	0%	24%	17%	20%	47%
<BB	15%	88%	42%	26%	56%



	1 - 4	4 - 6	6 - 8	8 - 10	10+
AAA-A	0.00%	0.06%	0.15%	0.03%	0.28%
BBB	0.01%	0.05%	0.13%	0.31%	0.97%
BB	0.00%	0.14%	0.34%	0.24%	1.19%
<BB	0.19%	6.79%	0.78%	0.94%	3.77%

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Two Interpretations

The coupon effect lends itself to two interpretations, which are not mutually exclusive.

One is the coupon effect as a 'second-order' quality effect. The other is the debt-service effect, which we have characterized as a pure coupon effect.

The fact that the loss statistics are generally positively sloping within the same quality rating does suggest the coupon effect is not entirely a latent quality effect. However, to the extent that subtle quality distinctions within the same rating do give rise to a coupon differential, a residual quality effect may not be completely separable from the coupon effect. After all, quality is continuous while ratings are discrete. Bonds with the same rating are not all alike. Rating agencies recognize this by subdividing Baa into Baa1, Baa2 and Baa3 (Moody's) and BBB into BBB+, BBB and BBB- (S&P). The private placement market may be efficient enough to make similar quality distinctions through the coupon rate.

Nevertheless, there is more to the coupon effect than a second-order quality effect. Otherwise, we would see a smooth escalation in credit risk and no 'inversion' between high coupons of one rating and low coupons of a lower rating. We do see some inversion, although it is not as pronounced or conclusive as in the prior study. Our results show that economic losses associated with high-coupon AAA-A bonds exceed economic losses from low-coupon BBB bonds. This relationship mostly holds for incidence rates as well, although loss severities are, in general, too choppy to draw firm conclusions from. Similarly, this relationship holds for economic losses when comparing high-coupon BBB bonds to low-coupon BB bonds, and high-coupon BB bonds with low coupon <BB bonds. Higher economic losses associated with higher-quality, high-coupon bonds compared to lower-quality, low-coupon bonds are driven by both incidence rates and loss severity; however, severities range widely and do not follow predictable patterns as neatly as incidence rates tend to do.

A Caveat Regarding the Data

Here we study the relationship between the coupon rate for an asset as reported for the given experience year relative to the earliest quality rating. Because private placements often include material covenants, a bond that was high quality at issuance, but deteriorated thereafter, might have its coupon rate revised upward with the deterioration. This might account for some of the inversion mentioned above.

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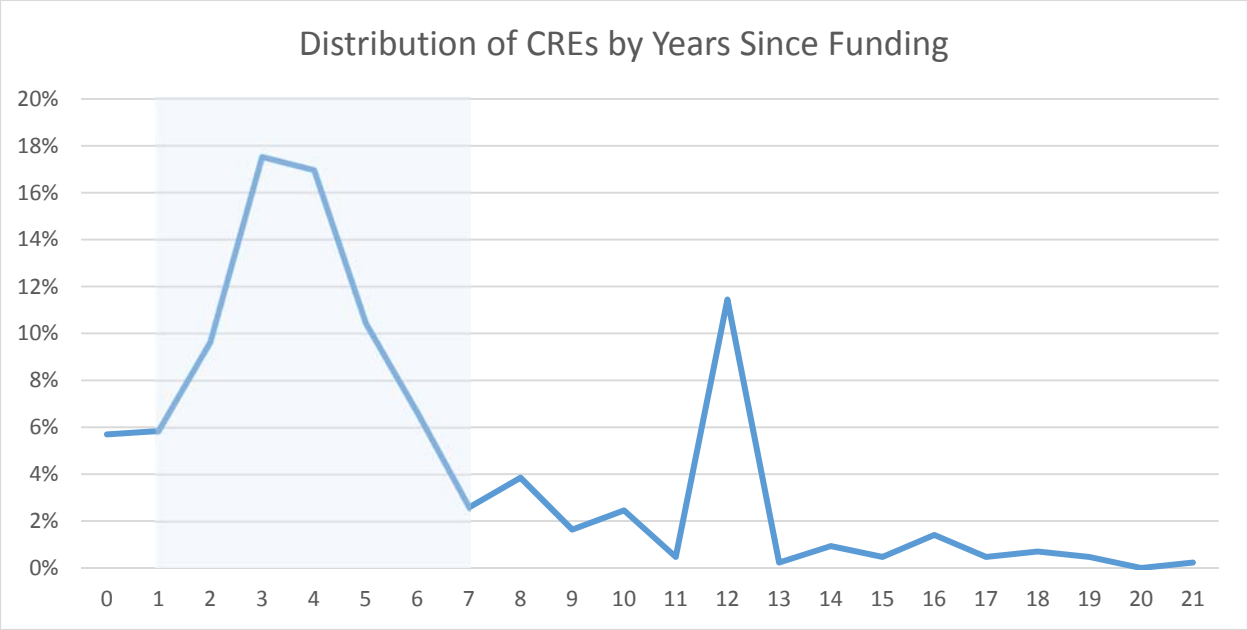
3.3 NUMBER OF YEARS SINCE FUNDING BY EARLIEST QUALITY RATING

The cross tabulation between the number of years since funding and the earliest quality rating examines how the seasoning effect comes into play. By seasoning effect, we mean a short 'select' period of about a year, followed by an intense weeding-out period of about three years, followed by a gradual transition to a survival-of-the-fittest 'ultimate' period past about eight years. The graph below shows the three periods where CREs by Years Since Funding rise and then decline.



1. Typically, a select period (as in select and ultimate mortality in life insurance) of about one year is present with private placement bonds where the probability of a credit risk event taking place is very low. This is a result of good underwriting practice. Private placements do not usually perform negatively shortly after issue. However, contrary to this traditional belief, in our private placement data, 6% of the total CREs occurred in the first year since funding. A closer look, in the chart below, revealed that a majority of those CREs occurs during the Financial Crisis period from 2007-2009. During the global financial turmoil, it is not surprising that a higher than usual number of defaults occurred, even in the early years right after issue

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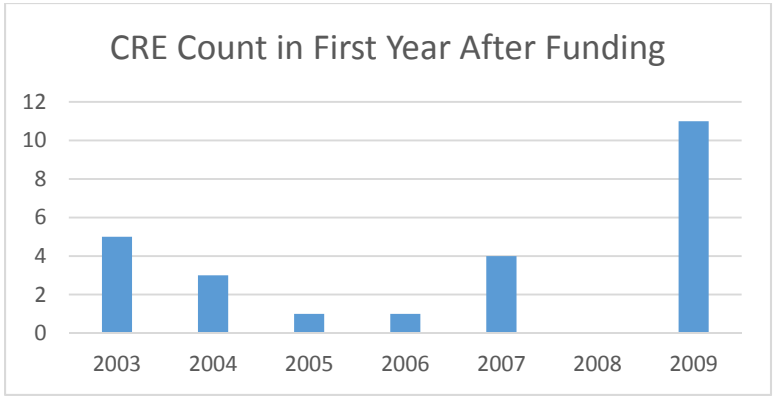

2. The second phase starts around year 2 and peaked between years 3 and 4, and then declines over the next two years. This is the survival of the fittest phenomena where the weakest bonds get weeded out, leaving the strongest candidates in the pool. The data implies that once a private placement has a strong proven record for the first 5 to 7 years, the probability of the bond defaulting significantly decreases.

3. After around seven years since issue, one can see the steady state where there is an overall lower incidence of CREs. This observation is consistent with the previous report from 1986-2002. Note that the spike in year 12 is an anomaly. There were an unusually high number of CREs due to a large number of bonds issued by the same issuer and owned by multiple contributors. In this study, CREs were counted at the issue level and each contributor's exposure to the same CRE would add to the incidence of CREs.

Analysis of the Four Statistics

To test the rigor of the pattern above, the primary statistics of incidence by count, incidence by number, economic loss and loss severity are analyzed through their earliest quality ratings in two ways:

1. Investment Grade and Below Investment Grade

2. More granular level of ratings: AAA-A, BBB, BB, <BB

The analysis is focused on seeing whether the statistic peaks and recedes back to a steady state. If the statistic does peak, it is of interest to study when it peaks and how high it goes. Incidence rate by amount follows this rise and fall pattern more closely than the other statistics.

For incidence rate by amount ($), the pattern fits Below Investment Grade very well (rises to peak in years 4-5), and reasonably well for Investment Grade (rises to a lower peak in year 4). A similar pattern was observed for BB.

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For incidence by number (#), we observed a similar pattern, which rises to peak in year 12, with small humps in years 3-5 for both Investment Grade and Below Investment Grade investments. Note the incidence by number for Below Investment Grade peaks in year 12 at 10.3%. Due to this anomaly, it is beyond the y-axis and, hence, not shown in the graph. The upticks in durations 18 and 19 are caused by a handful of assets which, despite the earliest quality rating being investment grade, have NAIC ratings of 5 and 6 at the end of the calendar year.

Loss severity doesn't fit this pattern at all. In addition, the poorer the rating quality, the higher the curve.

Corroboration

For a comparative study of the seasoning effect to the public bond sector, the report "Defaults and Returns in the High-Yield Bonds and Distressed Debt Market: The Year 2011 in Review and Outlook" by Edward I. Altman and Brenda J. Kuehne has been reviewed.

It is important to note the differences between the Committee's study and the Altman-Kuehne public bond study:

1. The Committee's study does not have enough data to isolate CCC from the B rating categories, whereas the Altman-Kuehne report isolates CCC from the B rating categories.

2. The Altman-Kuehne study only tracks experience for 10 years, whereas the Committee's study tracks experience for 12 years.

3. The Altman-Kuehne study uses the public bond original rating, whereas the Committee's study uses the earliest available rating.

Number of defaults by year of issuance from the Altman-Kuehne report and number of CREs by years since funding from the Committee's report have been plotted. A noteworthy similarity exists in the timing of CREs for private placements and defaults for public corporate bonds. This can be seen in the graph below:

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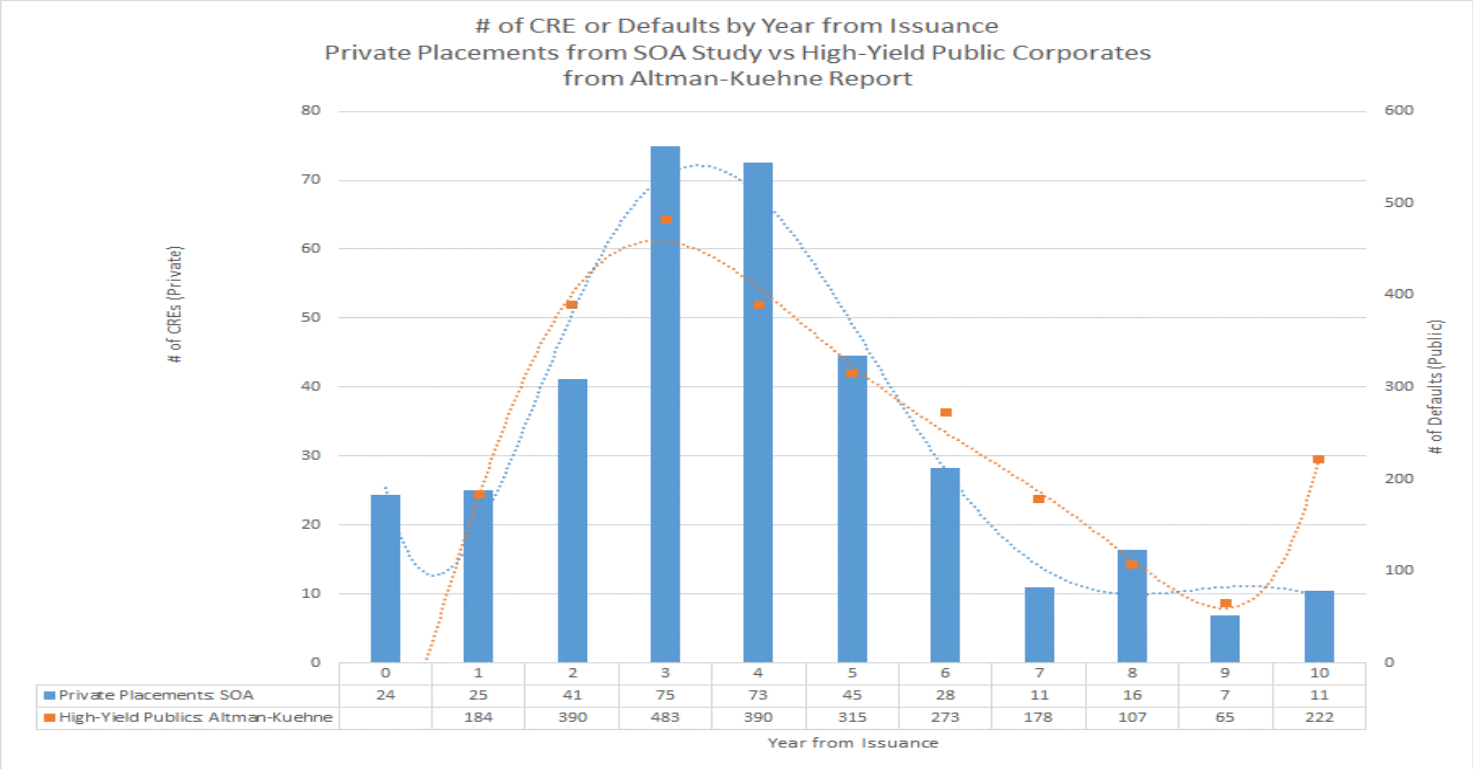

Public bond mortality rates and losses for ratings AAA-CCC have also been plotted using data from p. 35 of http://www.turnaround.org/cmaextras/Altman---PPT-1.19.15.pdf. This source, "Credit Markets: Is It a Bubble?" presented by Dr. Edward Altman on January 21, 2015, has default experience spanning 1971-2014 of originally rated bonds by experience year. In this Altman report, default is referred to as mortality. The series of graphs below (following graphs on the Analysis of the Four Statistics discussed above) use that 'mortality' terminology for default rates and default losses. There are ungraduated and graduated versions of the mortality rate and loss graphs. The ungraduated version is in one-year intervals as shown in the report, whereas the graduated version takes the data in the report to produce a two-year average of the adjacent years to avoid statistical fluctuations. The seasoning effect can be seen in both the graduated and ungraduated versions.

Similar to the Committee's study, one can observe in this Altman report that the lower the rating, the stronger the seasoning effect. CCC and B most notably peak around years 3 and 4. While private placements are also impacted by the seasoning effect, incidence rates by amount ($) for private placements with ratings lower than BB peak later (year 7), and those with rating BB peak earlier (around year 2). In addition, the seasoning effect in private placements is negligible for assets with ratings of BBB or higher, whereas one can still observe some seasoning effect in public corporate bonds with BBB ratings.

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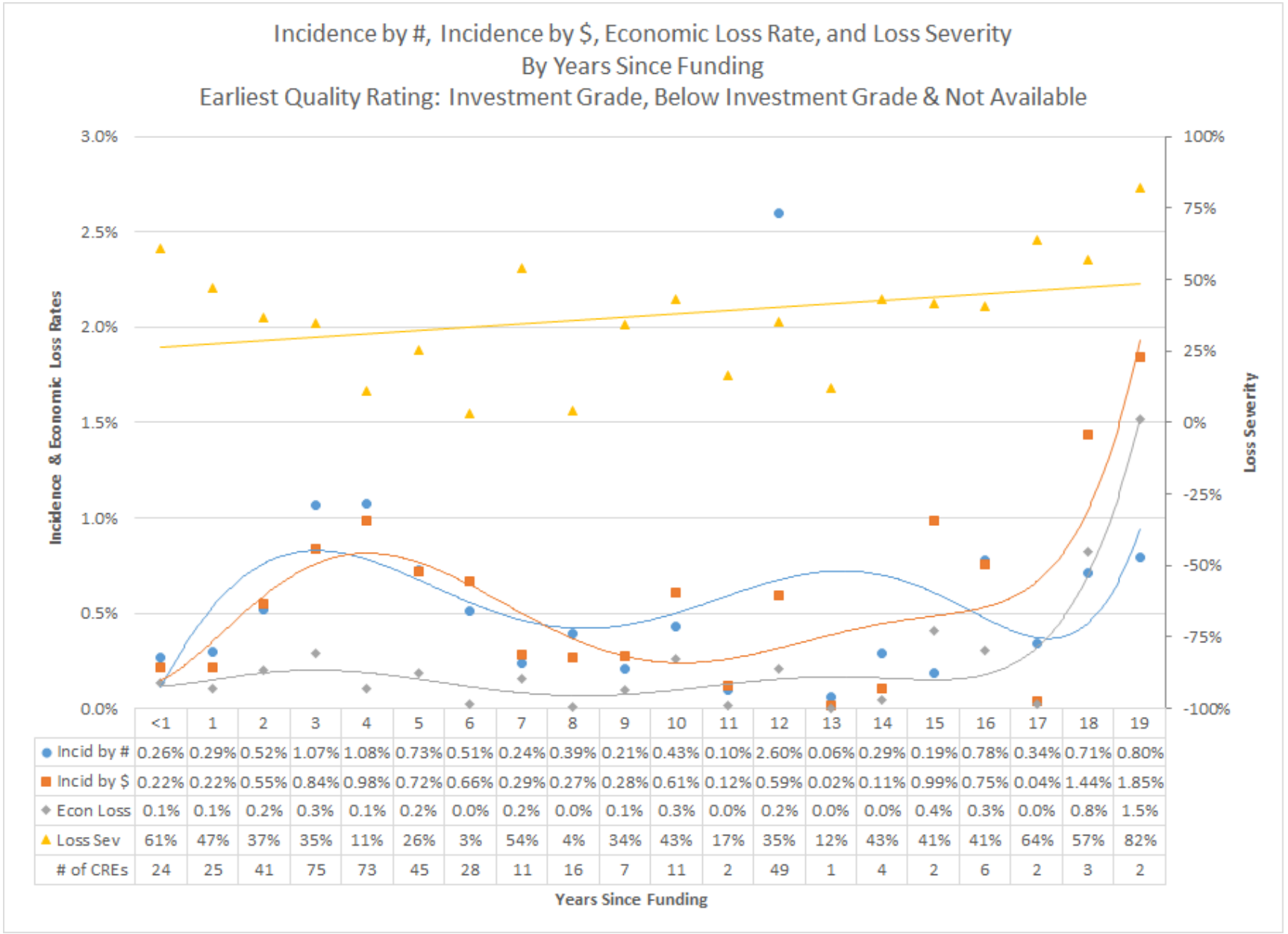

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Incid by #	0.26%	0.29%	0.52%	1.07%	1.08%	0.73%	0.51%	0.24%	0.39%	0.21%	0.43%	0.10%	2.60%	0.06%	0.29%	0.19%	0.78%	0.34%	0.71%	0.80%
Incid by $	0.22%	0.22%	0.55%	0.84%	0.98%	0.72%	0.66%	0.29%	0.27%	0.28%	0.61%	0.12%	0.59%	0.02%	0.11%	0.99%	0.75%	0.04%	1.44%	1.85%
Econ Loss	0.1%	0.1%	0.2%	0.3%	0.1%	0.2%	0.0%	0.2%	0.0%	0.1%	0.3%	0.0%	0.2%	0.0%	0.0%	0.4%	0.3%	0.0%	0.8%	1.5%
Loss Sev	61%	47%	37%	35%	11%	26%	3%	54%	4%	34%	43%	17%	35%	12%	43%	41%	41%	64%	57%	82%
# of CREs	24	25	41	75	73	45	28	11	16	7	11	2	49	1	4	2	6	2	3	2

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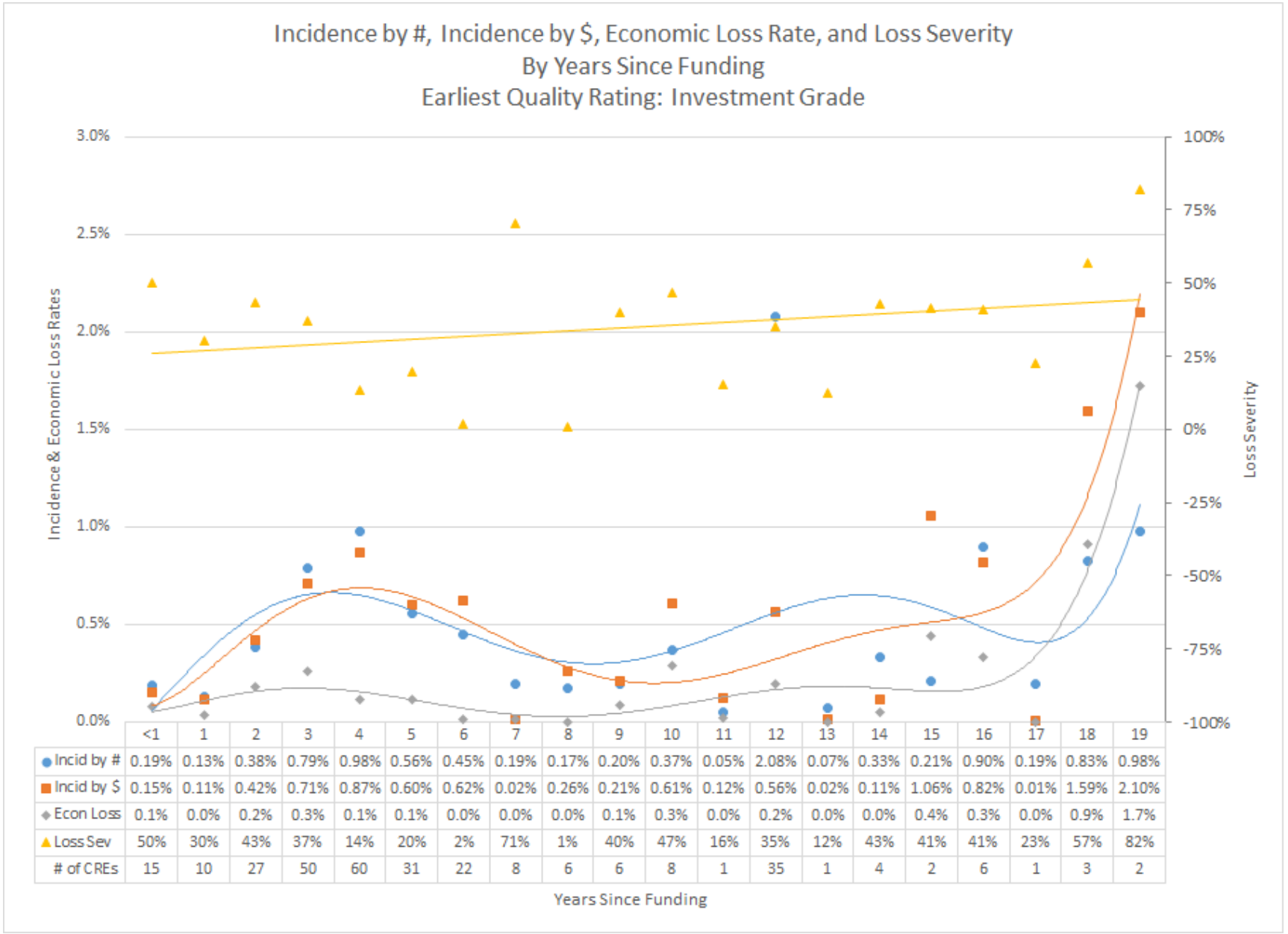

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Incid by #	0.19%	0.13%	0.38%	0.79%	0.98%	0.56%	0.45%	0.19%	0.17%	0.20%	0.37%	0.05%	2.08%	0.07%	0.33%	0.21%	0.90%	0.19%	0.83%	0.98%
Incid by $	0.15%	0.11%	0.42%	0.71%	0.87%	0.60%	0.62%	0.02%	0.26%	0.21%	0.61%	0.12%	0.56%	0.02%	0.11%	1.06%	0.82%	0.01%	1.59%	2.10%
Econ Loss	0.1%	0.0%	0.2%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.3%	0.0%	0.2%	0.0%	0.0%	0.4%	0.3%	0.0%	0.9%	1.7%
Loss Sev	50%	30%	43%	37%	14%	20%	2%	71%	1%	40%	47%	16%	35%	12%	43%	41%	41%	23%	57%	82%
# of CREs	15	10	27	50	60	31	22	8	6	6	8	1	35	1	4	2	6	1	3	2

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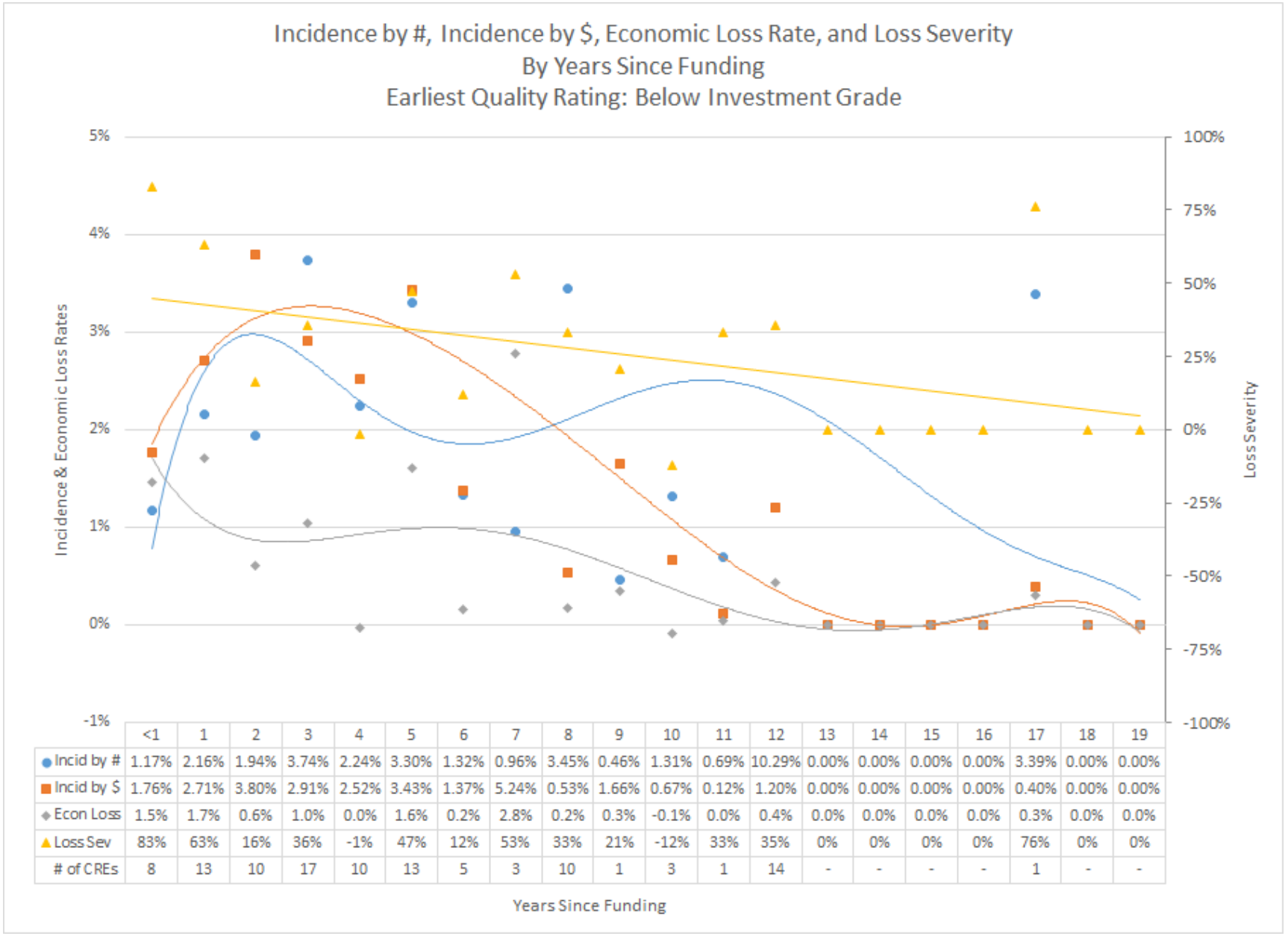

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Incid by #	1.17%	2.16%	1.94%	3.74%	2.24%	3.30%	1.32%	0.96%	3.45%	0.46%	1.31%	0.69%	10.29%	0.00%	0.00%	0.00%	0.00%	3.39%	0.00%	0.00%
Incid by $	1.76%	2.71%	3.80%	2.91%	2.52%	3.43%	1.37%	5.24%	0.53%	1.66%	0.67%	0.12%	1.20%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.00%
Econ Loss	1.5%	1.7%	0.6%	1.0%	0.0%	1.6%	0.2%	2.8%	0.2%	0.3%	-0.1%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
Loss Sev	83%	63%	16%	36%	-1%	47%	12%	53%	33%	21%	-12%	33%	35%	0%	0%	0%	0%	76%	0%	0%
# of CREs	8	13	10	17	10	13	5	3	10	1	3	1	14	-	-	-	-	1	-	-

Years Since Funding

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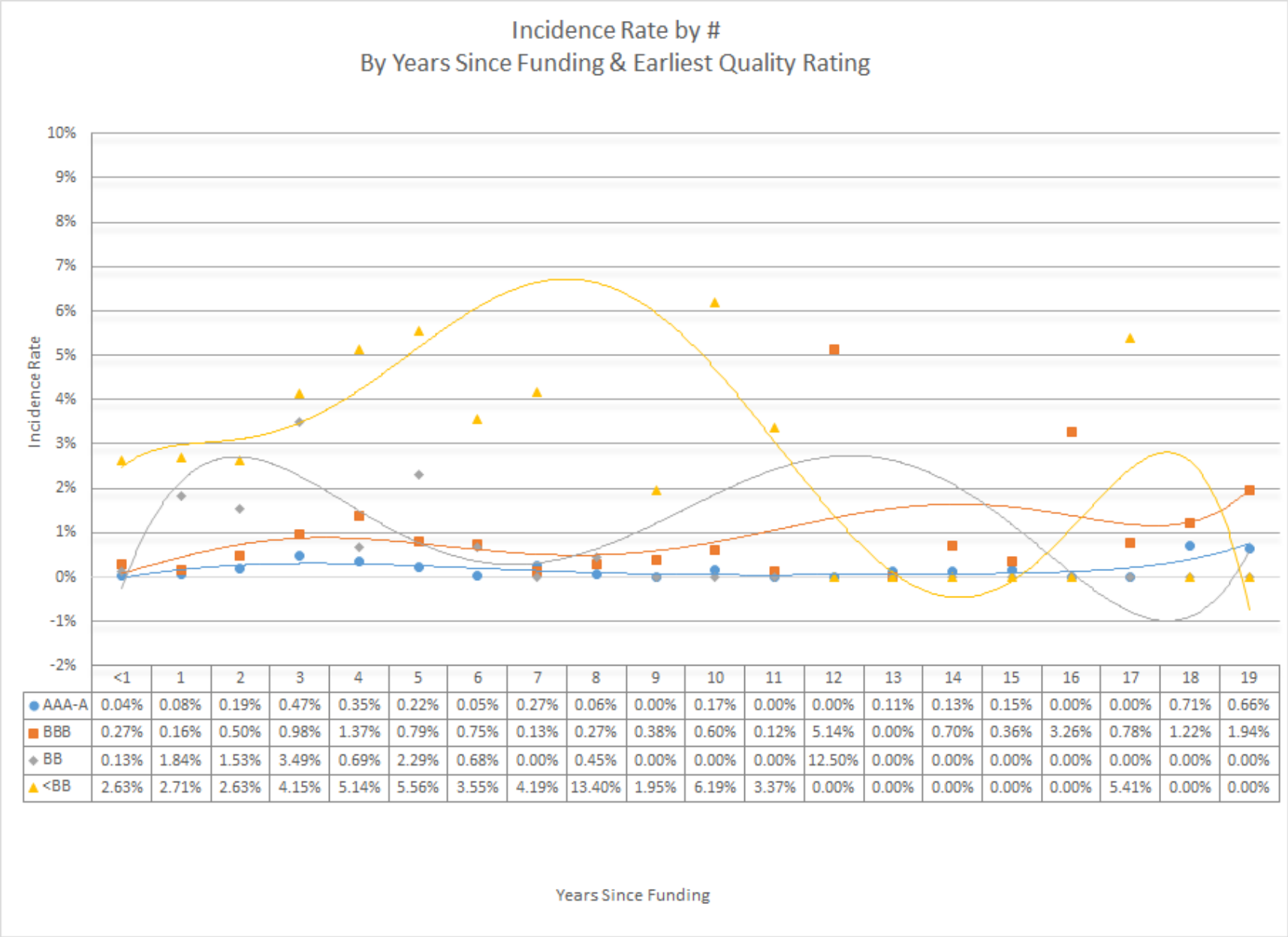

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AAA-A	0.04%	0.08%	0.19%	0.47%	0.35%	0.22%	0.05%	0.27%	0.06%	0.00%	0.17%	0.00%	0.00%	0.11%	0.13%	0.15%	0.00%	0.00%	0.71%	0.66%
BBB	0.27%	0.16%	0.50%	0.98%	1.37%	0.79%	0.75%	0.13%	0.27%	0.38%	0.60%	0.12%	5.14%	0.00%	0.70%	0.36%	3.26%	0.78%	1.22%	1.94%
BB	0.13%	1.84%	1.53%	3.49%	0.69%	2.29%	0.68%	0.00%	0.45%	0.00%	0.00%	0.00%	12.50%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<BB	2.63%	2.71%	2.63%	4.15%	5.14%	5.56%	3.55%	4.19%	13.40%	1.95%	6.19%	3.37%	0.00%	0.00%	0.00%	0.00%	0.00%	5.41%	0.00%	0.00%

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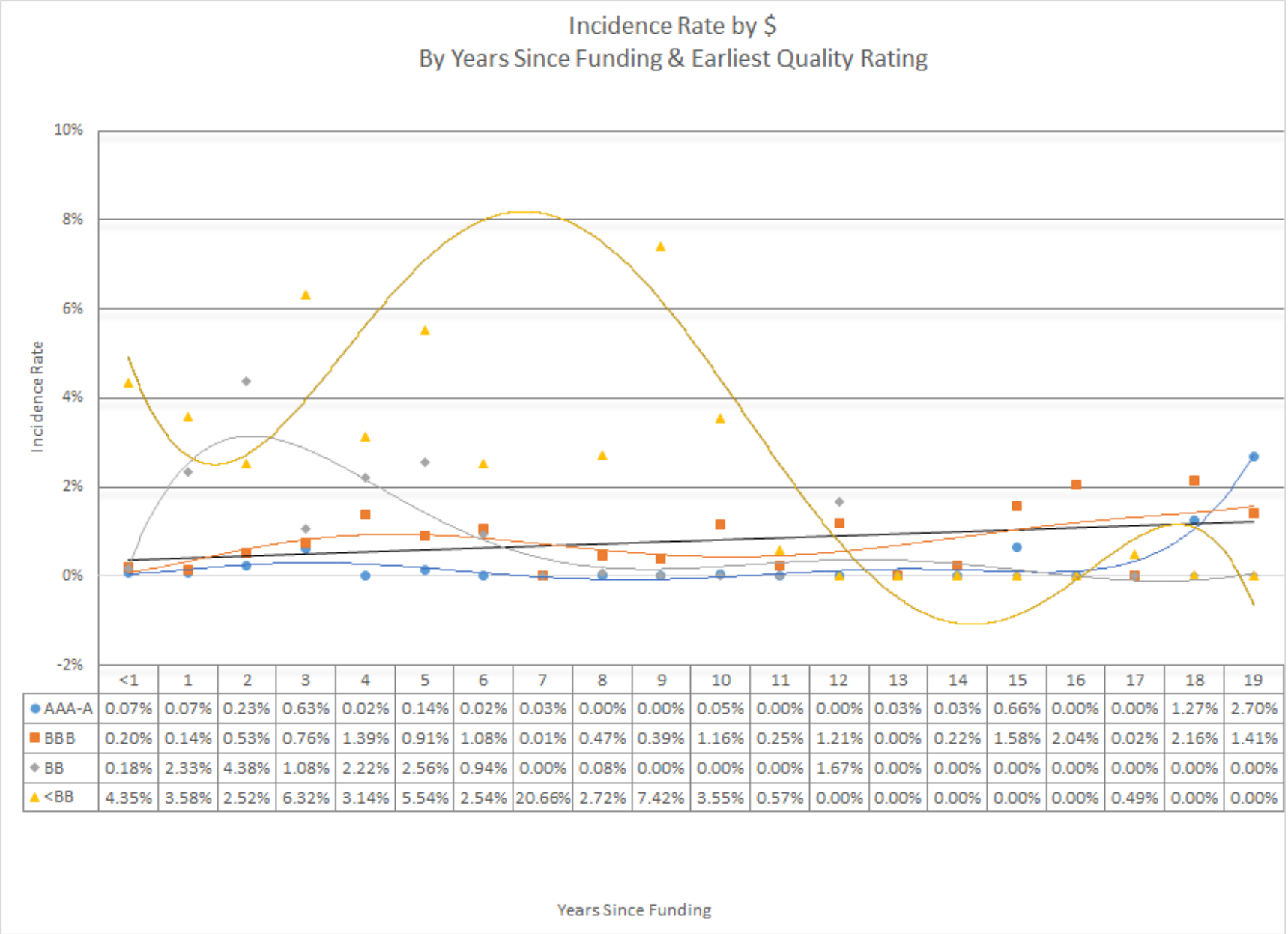

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AAA-A	0.07%	0.07%	0.23%	0.63%	0.02%	0.14%	0.02%	0.03%	0.00%	0.00%	0.05%	0.00%	0.00%	0.03%	0.03%	0.66%	0.00%	0.00%	1.27%	2.70%
BBB	0.20%	0.14%	0.53%	0.76%	1.39%	0.91%	1.08%	0.01%	0.47%	0.39%	1.16%	0.25%	1.21%	0.00%	0.22%	1.58%	2.04%	0.02%	2.16%	1.41%
BB	0.18%	2.33%	4.38%	1.08%	2.22%	2.56%	0.94%	0.00%	0.08%	0.00%	0.00%	0.00%	1.67%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
<BB	4.35%	3.58%	2.52%	6.32%	3.14%	5.54%	2.54%	20.66%	2.72%	7.42%	3.55%	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.00%

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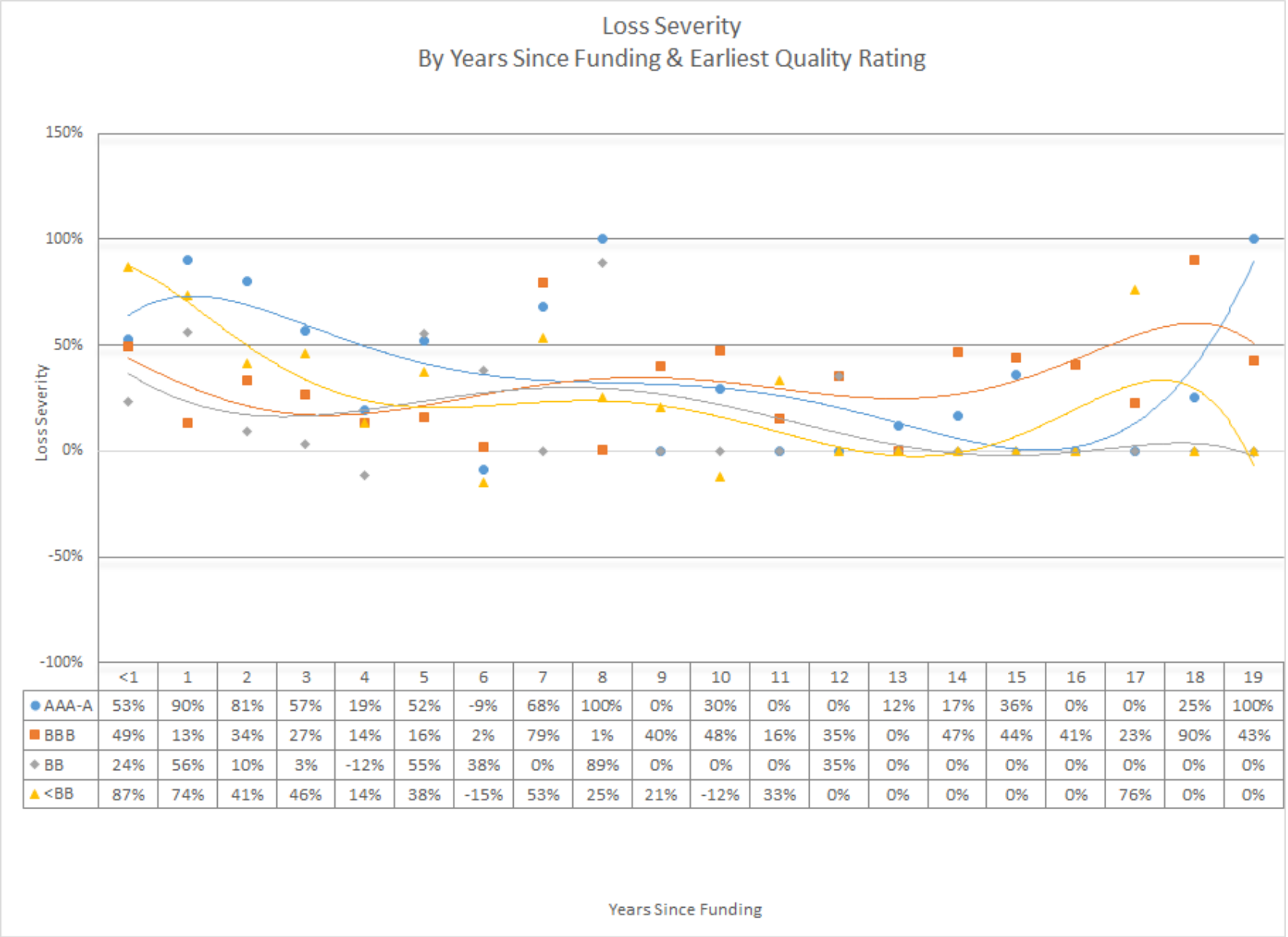

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
AAA-A	53%	90%	81%	57%	19%	52%	-9%	68%	100%	0%	30%	0%	0%	12%	17%	36%	0%	0%	25%	100%
BBB	49%	13%	34%	27%	14%	16%	2%	79%	1%	40%	48%	16%	35%	0%	47%	44%	41%	23%	90%	43%
BB	24%	56%	10%	3%	-12%	55%	38%	0%	89%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
<BB	87%	74%	41%	46%	14%	38%	-15%	53%	25%	21%	-12%	33%	0%	0%	0%	0%	0%	76%	0%	0%

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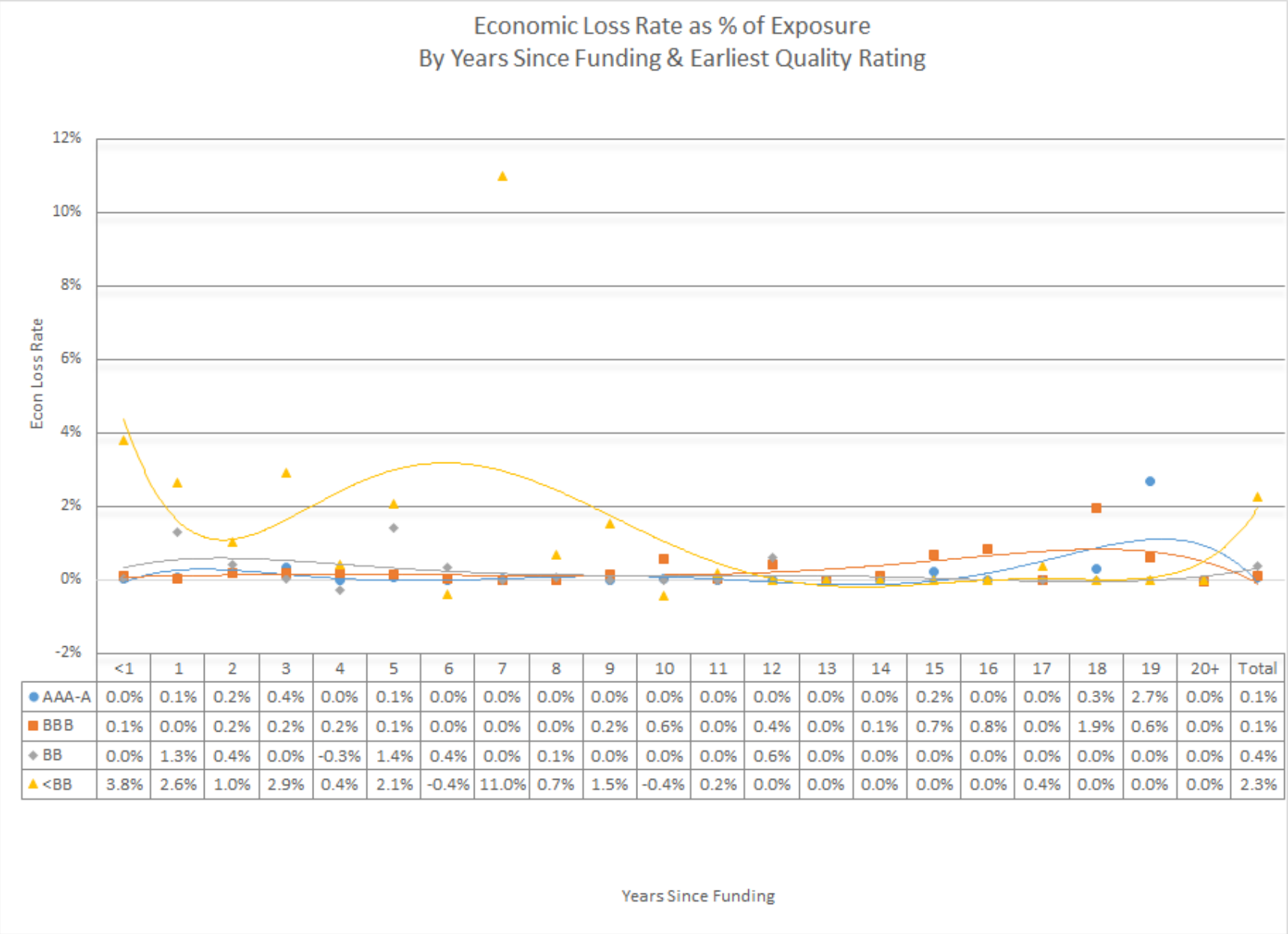

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA-A	0.0%	0.1%	0.2%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.3%	2.7%	0.0%	0.1%
BBB	0.1%	0.0%	0.2%	0.2%	0.2%	0.1%	0.0%	0.0%	0.0%	0.2%	0.6%	0.0%	0.4%	0.0%	0.1%	0.7%	0.8%	0.0%	1.9%	0.6%	0.0%	0.1%
BB	0.0%	1.3%	0.4%	0.0%	-0.3%	1.4%	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%
<BB	3.8%	2.6%	1.0%	2.9%	0.4%	2.1%	-0.4%	11.0%	0.7%	1.5%	-0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	2.3%

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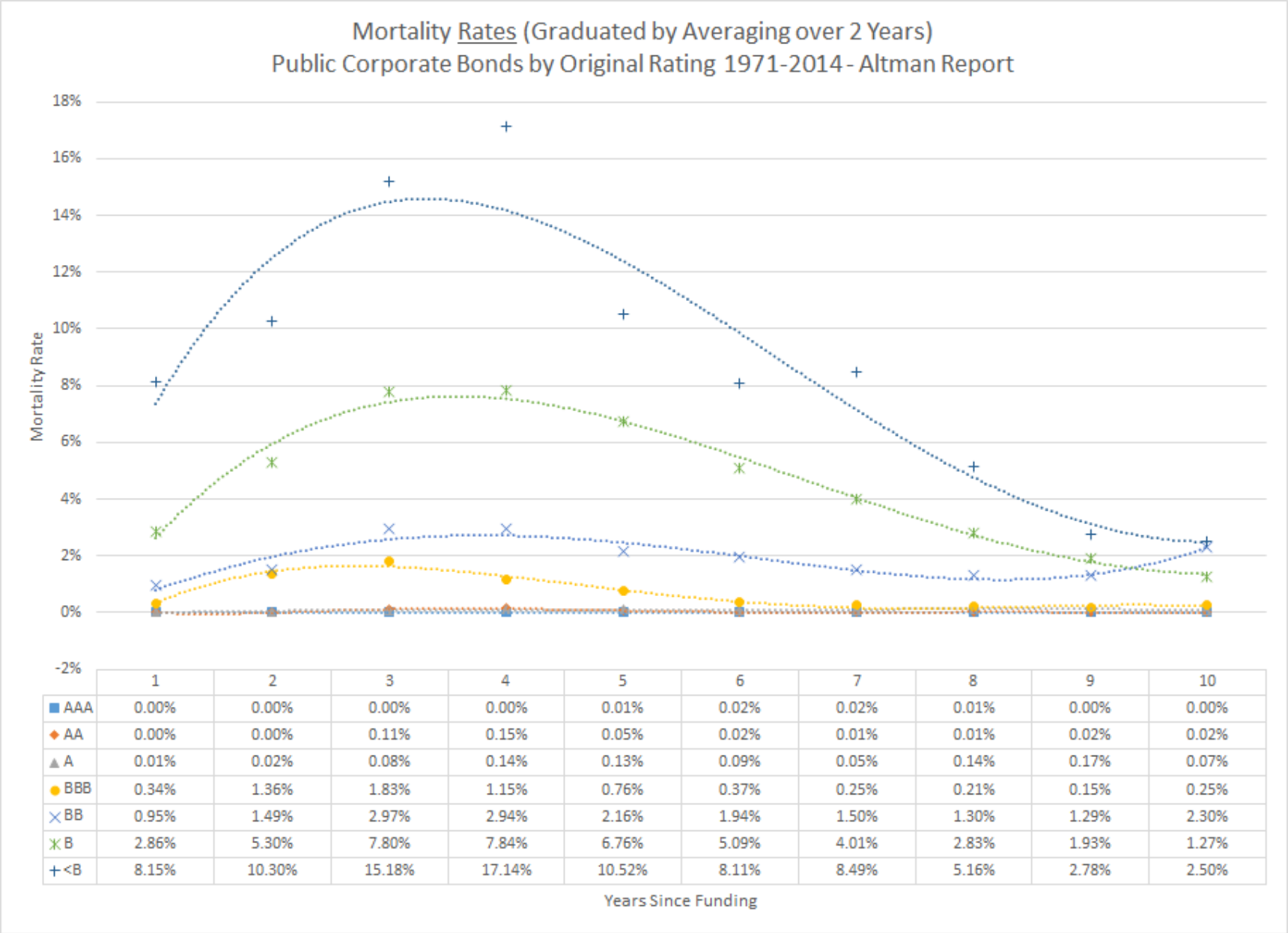

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.02%	0.01%	0.00%	0.00%
AA	0.00%	0.00%	0.11%	0.15%	0.05%	0.02%	0.01%	0.01%	0.02%	0.02%
A	0.01%	0.02%	0.08%	0.14%	0.13%	0.09%	0.05%	0.14%	0.17%	0.07%
BBB	0.34%	1.36%	1.83%	1.15%	0.76%	0.37%	0.25%	0.21%	0.15%	0.25%
BB	0.95%	1.49%	2.97%	2.94%	2.16%	1.94%	1.50%	1.30%	1.29%	2.30%
B	2.86%	5.30%	7.80%	7.84%	6.76%	5.09%	4.01%	2.83%	1.93%	1.27%
<B	8.15%	10.30%	15.18%	17.14%	10.52%	8.11%	8.49%	5.16%	2.78%	2.50%

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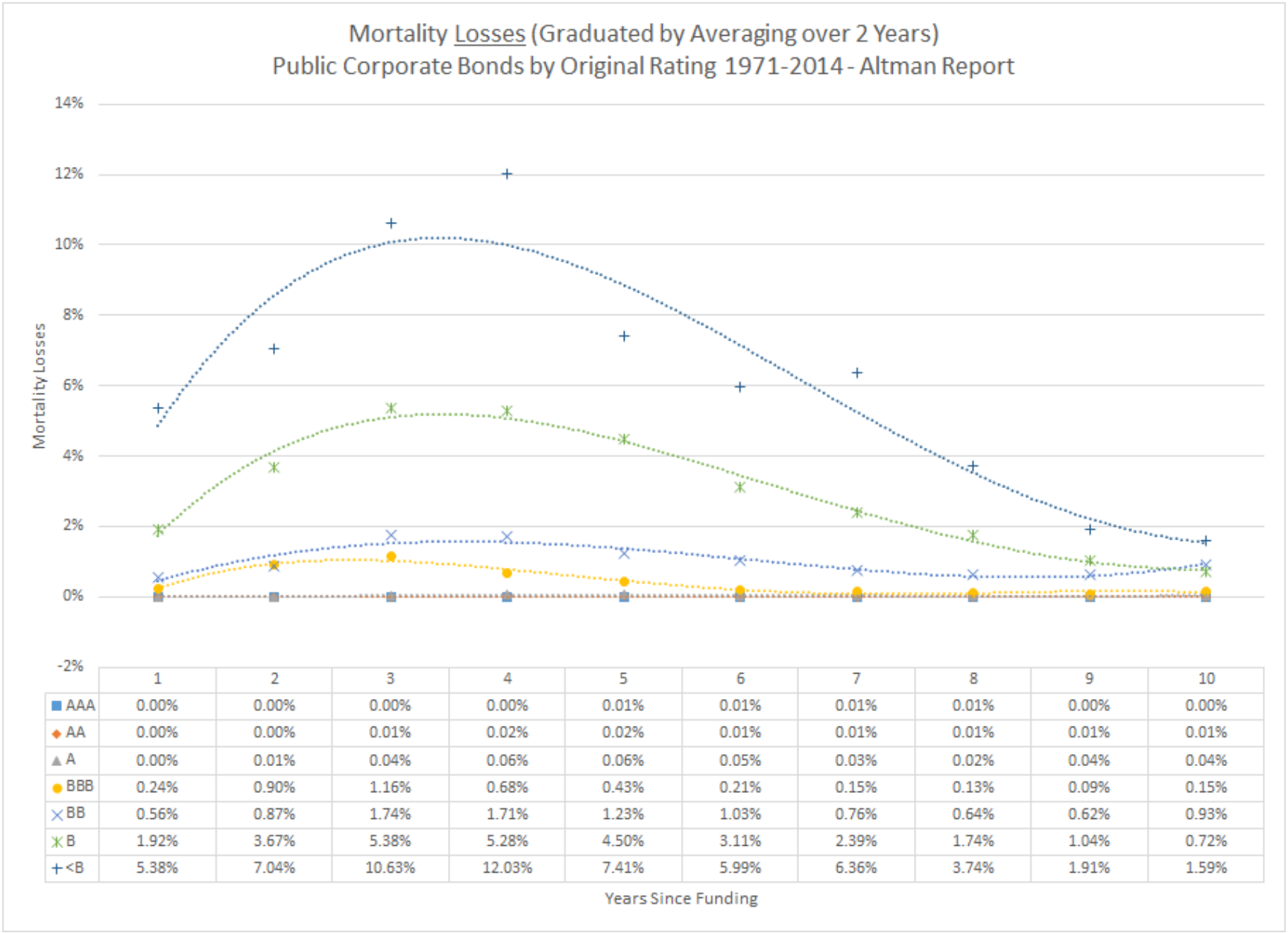

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.00%	0.00%
AA	0.00%	0.00%	0.01%	0.02%	0.02%	0.01%	0.01%	0.01%	0.01%	0.01%
A	0.00%	0.01%	0.04%	0.06%	0.06%	0.05%	0.03%	0.02%	0.04%	0.04%
BBB	0.24%	0.90%	1.16%	0.68%	0.43%	0.21%	0.15%	0.13%	0.09%	0.15%
BB	0.56%	0.87%	1.74%	1.71%	1.23%	1.03%	0.76%	0.64%	0.62%	0.93%
B	1.92%	3.67%	5.38%	5.28%	4.50%	3.11%	2.39%	1.74%	1.04%	0.72%
<B	5.38%	7.04%	10.63%	12.03%	7.41%	5.99%	6.36%	3.74%	1.91%	1.59%

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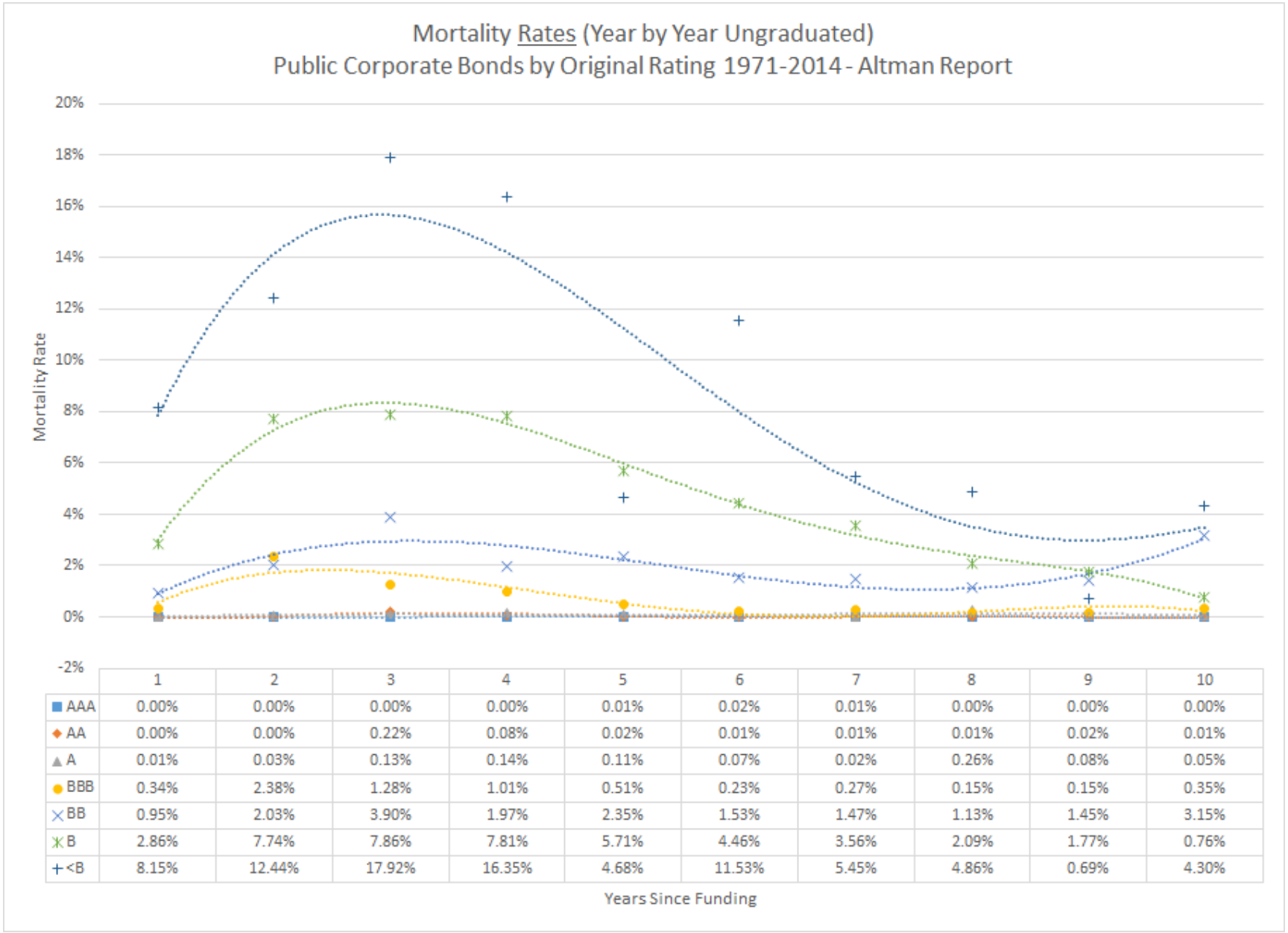

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.01%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.22%	0.08%	0.02%	0.01%	0.01%	0.01%	0.02%	0.01%
A	0.01%	0.03%	0.13%	0.14%	0.11%	0.07%	0.02%	0.26%	0.08%	0.05%
BBB	0.34%	2.38%	1.28%	1.01%	0.51%	0.23%	0.27%	0.15%	0.15%	0.35%
BB	0.95%	2.03%	3.90%	1.97%	2.35%	1.53%	1.47%	1.13%	1.45%	3.15%
B	2.86%	7.74%	7.86%	7.81%	5.71%	4.46%	3.56%	2.09%	1.77%	0.76%
<B	8.15%	12.44%	17.92%	16.35%	4.68%	11.53%	5.45%	4.86%	0.69%	4.30%

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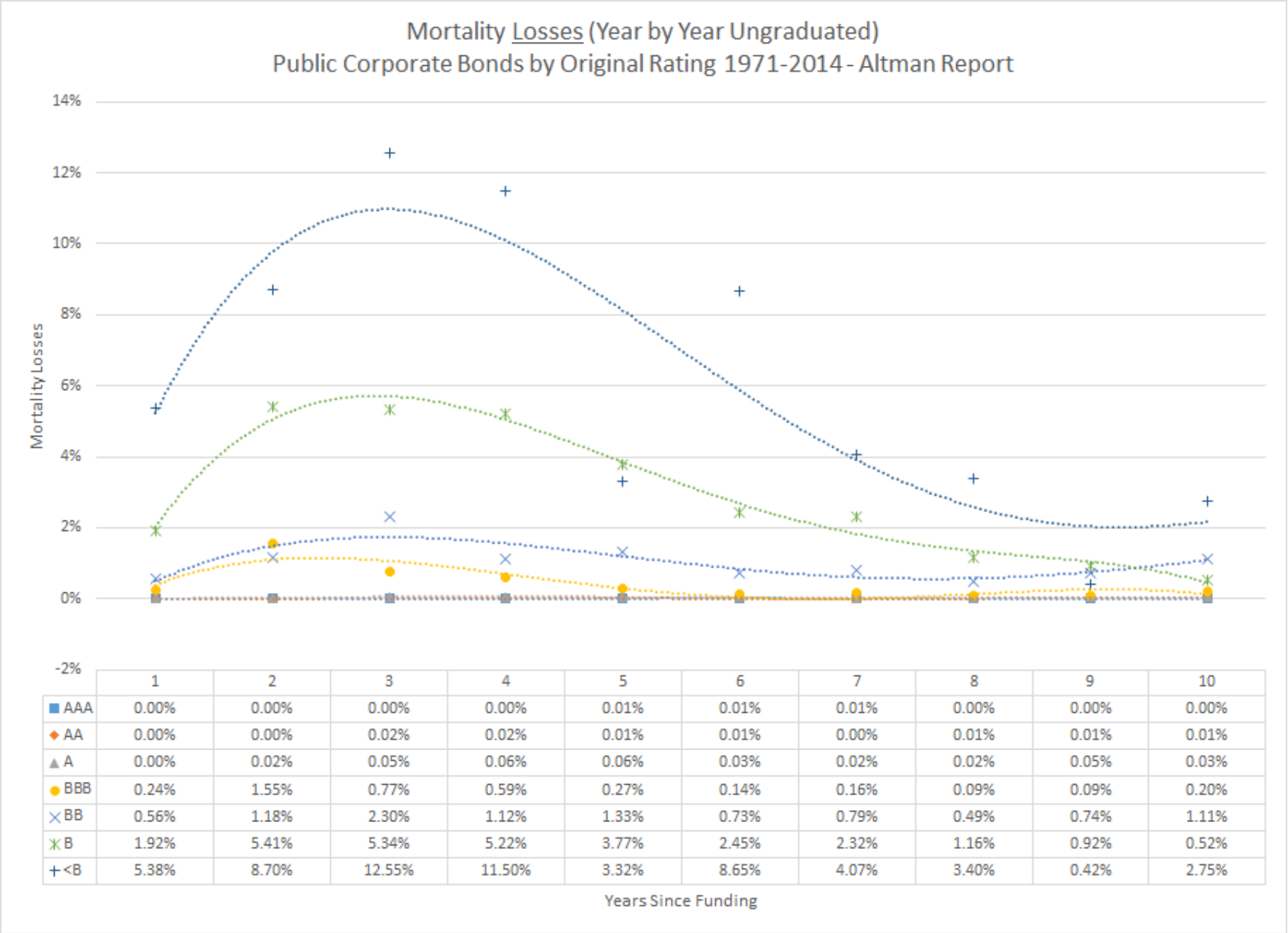

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.02%	0.02%	0.01%	0.01%	0.00%	0.01%	0.01%	0.01%
A	0.00%	0.02%	0.05%	0.06%	0.06%	0.03%	0.02%	0.02%	0.05%	0.03%
BBB	0.24%	1.55%	0.77%	0.59%	0.27%	0.14%	0.16%	0.09%	0.09%	0.20%
BB	0.56%	1.18%	2.30%	1.12%	1.33%	0.73%	0.79%	0.49%	0.74%	1.11%
B	1.92%	5.41%	5.34%	5.22%	3.77%	2.45%	2.32%	1.16%	0.92%	0.52%
<B	5.38%	8.70%	12.55%	11.50%	3.32%	8.65%	4.07%	3.40%	0.42%	2.75%

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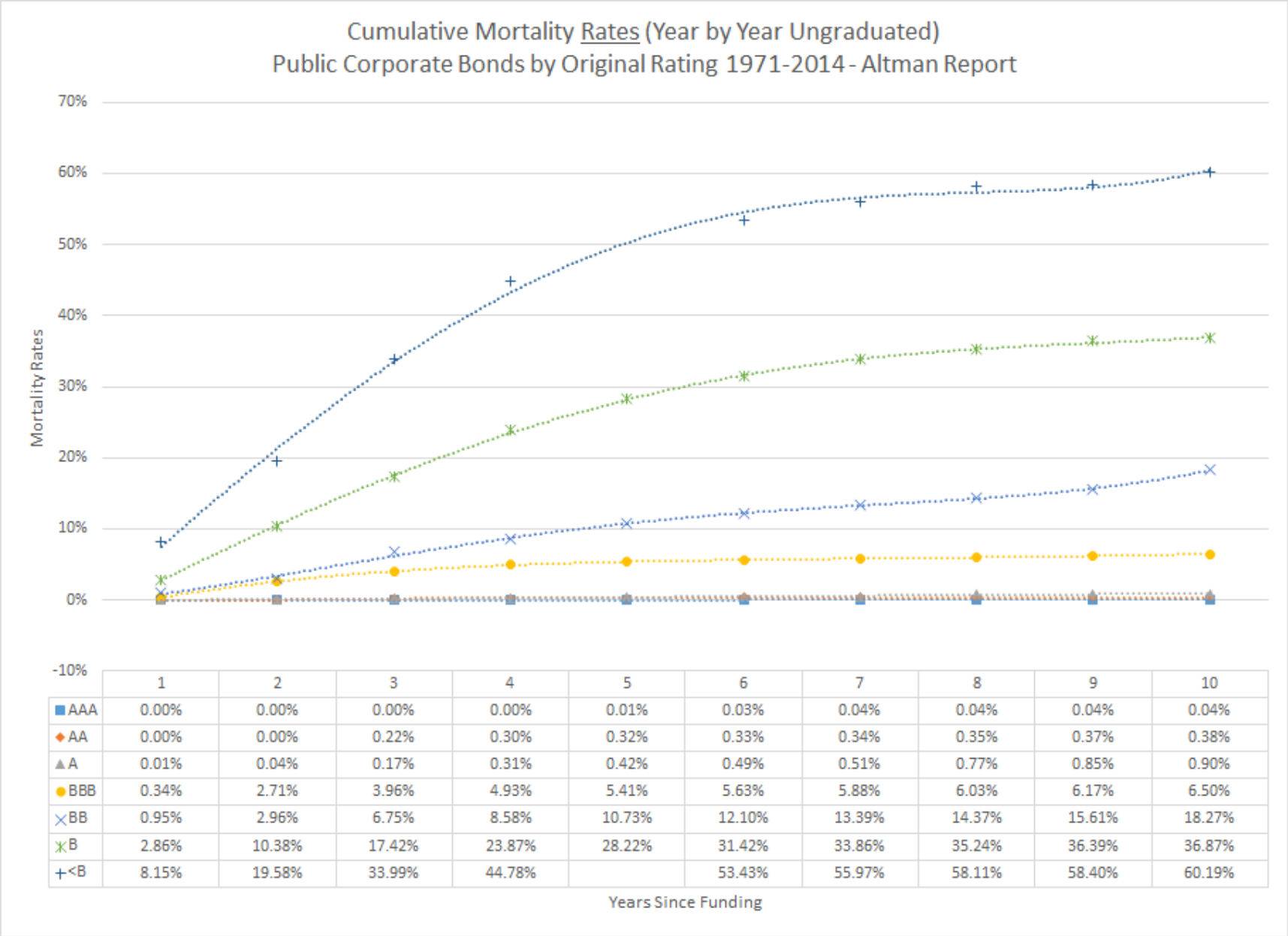

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.03%	0.04%	0.04%	0.04%	0.04%
AA	0.00%	0.00%	0.22%	0.30%	0.32%	0.33%	0.34%	0.35%	0.37%	0.38%
A	0.01%	0.04%	0.17%	0.31%	0.42%	0.49%	0.51%	0.77%	0.85%	0.90%
BBB	0.34%	2.71%	3.96%	4.93%	5.41%	5.63%	5.88%	6.03%	6.17%	6.50%
BB	0.95%	2.96%	6.75%	8.58%	10.73%	12.10%	13.39%	14.37%	15.61%	18.27%
B	2.86%	10.38%	17.42%	23.87%	28.22%	31.42%	33.86%	35.24%	36.39%	36.87%
<B	8.15%	19.58%	33.99%	44.78%		53.43%	55.97%	58.11%	58.40%	60.19%

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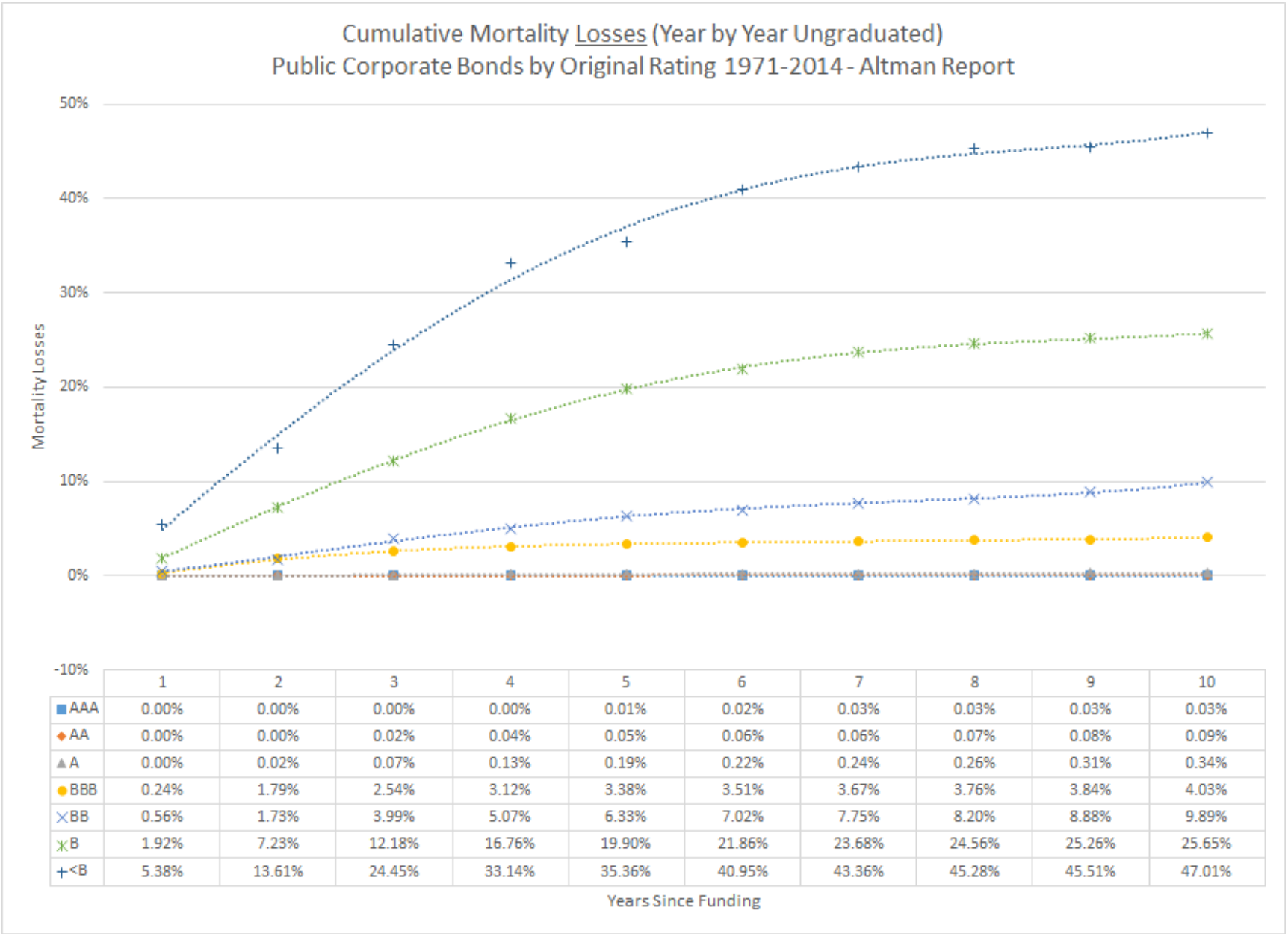

	1	2	3	4	5	6	7	8	9	10
AAA	0.00%	0.00%	0.00%	0.00%	0.01%	0.02%	0.03%	0.03%	0.03%	0.03%
AA	0.00%	0.00%	0.02%	0.04%	0.05%	0.06%	0.06%	0.07%	0.08%	0.09%
A	0.00%	0.02%	0.07%	0.13%	0.19%	0.22%	0.24%	0.26%	0.31%	0.34%
BBB	0.24%	1.79%	2.54%	3.12%	3.38%	3.51%	3.67%	3.76%	3.84%	4.03%
BB	0.56%	1.73%	3.99%	5.07%	6.33%	7.02%	7.75%	8.20%	8.88%	9.89%
B	1.92%	7.23%	12.18%	16.76%	19.90%	21.86%	23.68%	24.56%	25.26%	25.65%
<B	5.38%	13.61%	24.45%	33.14%	35.36%	40.95%	43.36%	45.28%	45.51%	47.01%

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3.4 FUNDING YEAR BY EXPERIENCE YEAR

(Seasoning Effect Adjusted for Business Cycles)

As in the prior iteration of this experience study, the 1986-2002 Credit Risk Loss Experience Study: Private Placement Bonds, The 'pure' seasoning effect was isolated in a cross tabulation between experience year and funding year. The number of years was defined since funding as the discrete variable of experience year minus funding year. So, in a two-dimensional array between experience year and funding year, the cells were 'rolled up' diagonally in order to aggregate them by the number of years since issue.

Seasoning effect means a short 'select' period of about a year, followed by an intense weeding-out period of about three years, followed by a gradual transition to a survival-of-the-fittest 'ultimate' period past about eight years. In the seasoning effect, the apparent weeding-out period can be exacerbated in bad economic years and ameliorated in good ones. As explained in the last experience study, it is possible that a bad recession at just the 'right' time, so to speak, is the culprit and only reason for the perceived 'bump' in the seasoning effect. In this study, the same route was taken to isolate the economic-cycle factor from the seasoning effect.

Over the time horizon of this study, recession periods occurred. One was from April 2001 to November 2001, and another was from December 2007 to June 2009.

Methodology for Filtering Out the Economic Cycle

The method of filtering out the economic cycle is predicated upon a model presupposing the economic and seasoning factors are multiplicatively linked. By way of example, whatever the 'normal' seasoning pattern is, in a year that is twice as bad as normal, the seasoning pattern will simply be 'lifted' by a factor of two. In other words, the economic environment (boom or bust) in any year is assumed to have the same multiplier effect on each funding-year cell for the experience year in question. So, the expected incidence rate for that cell is raised or lowered by the same multiplicative factor as any other funding-year cell in that experience year.

The steps for deriving the normalized incidence rate by number are outlined below.

- The cell-by-cell incidence rate in a two-dimensional array of experience year by funding year was assumed to be the product of two factors: a seasoning factor as a function of the experience year minus the funding year, and an economic factor as a function of the experience year alone.

- The economic factor was further defined to be the ratio between the incidence rate specific to that experience year and the 10-year average incidence rate from 2003 through 2012, the entire history of our study to date.

- Then, cell by cell in this two-dimensional array, economic variation by experience year was normalized by 'taking out' the economic cycle. To accomplish this, the actual incidence rate for each cell was divided by the ratio between the incidence rate specific to that experience year and the 10-year average incidence rate (i.e., the economic factor). After this division, all the funding-year cells that 'belong' to the same experience year will average to the same incidence rate as the corresponding cells for any other experience year.

- After artificially stabilizing the economic environment from experience year to experience year, all cells that share the 'index' of the experience year minus the funding year, i.e., the number of years since issue were diagonally 'rolled up'.

- In this manner, the diagonal mapping of this two-dimensional array to a single dimension produces an array of normalized or economically adjusted incidence rates as a function of a single variable, namely, the number of years since issue.

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- At this point, with the economic cycle already removed, a normalized function remains to which further refinements can be made, such as the consolidation of sparse cells, interpolation, graduation, and so on.

The above steps are schematically illustrated in a sequence of four three-dimensional graphs with the subheading of 'By Funding Year & Experience Year' and the headings of:

1. Ungraduated Incidence Rate by #

2. Graduated Incidence Rate by #

3. Graduated & Normalized Incidence Rate by #

4. Graduated, Normalized & Diagonally Averaged Incidence Rate by #

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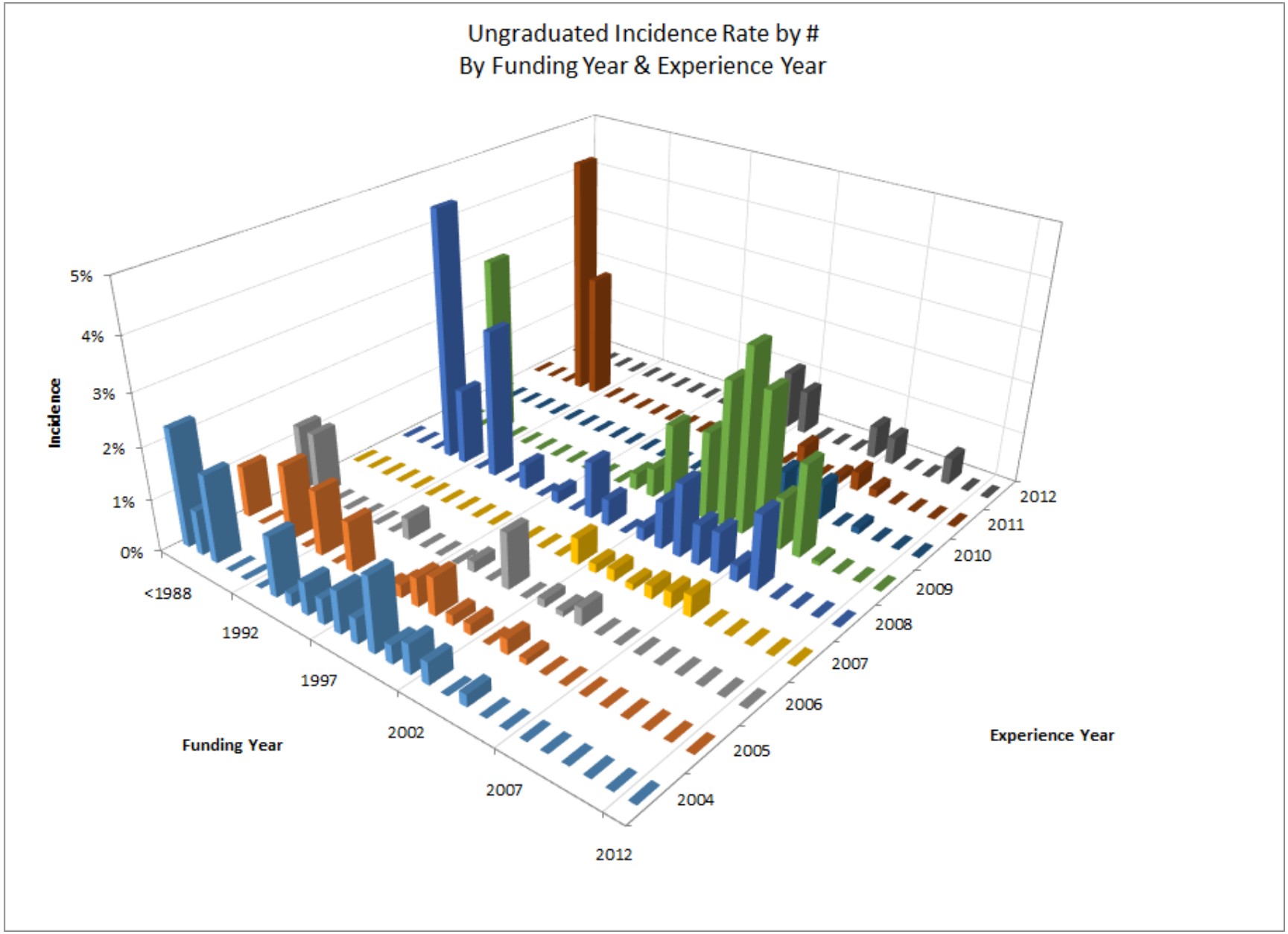

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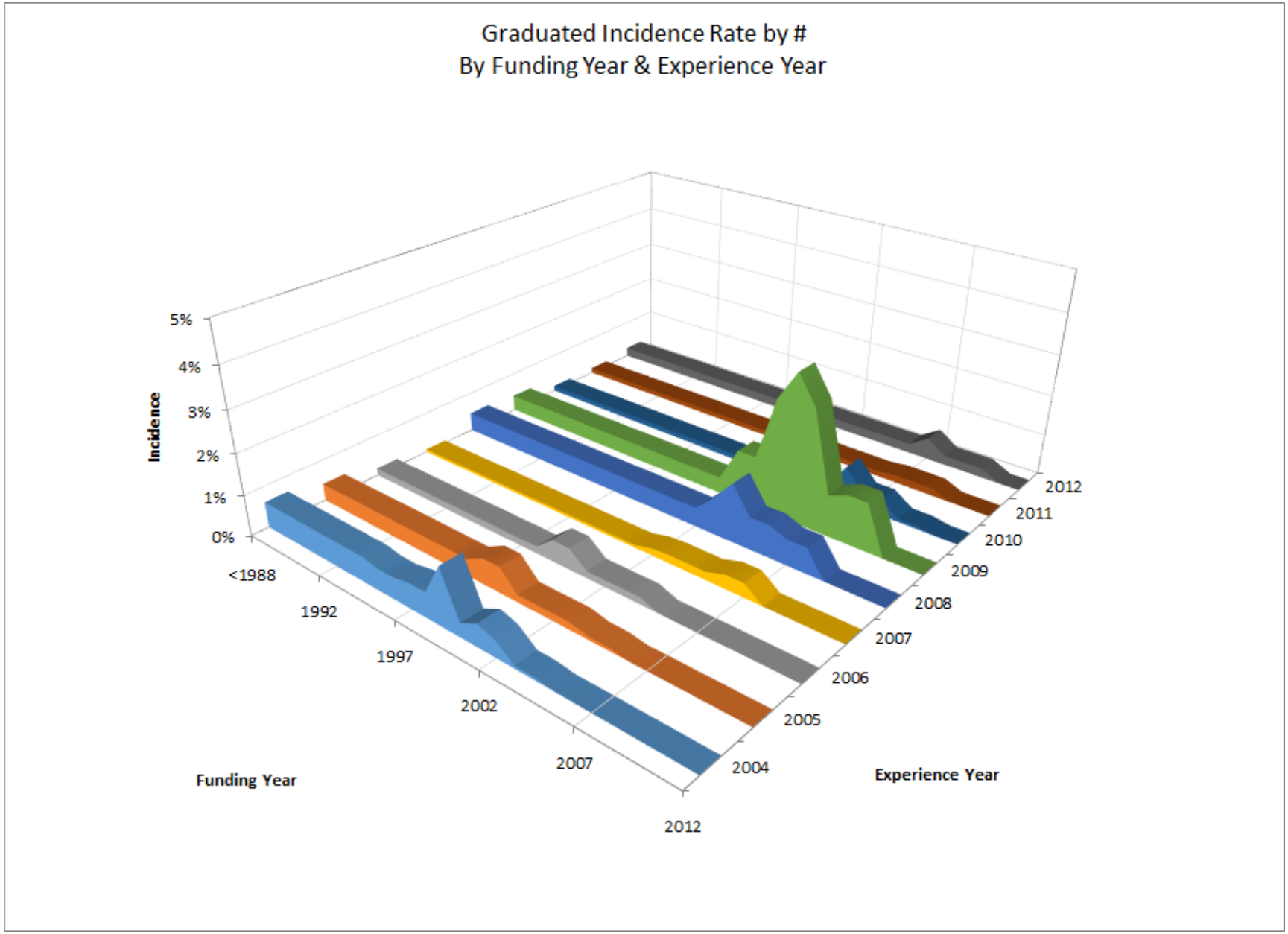

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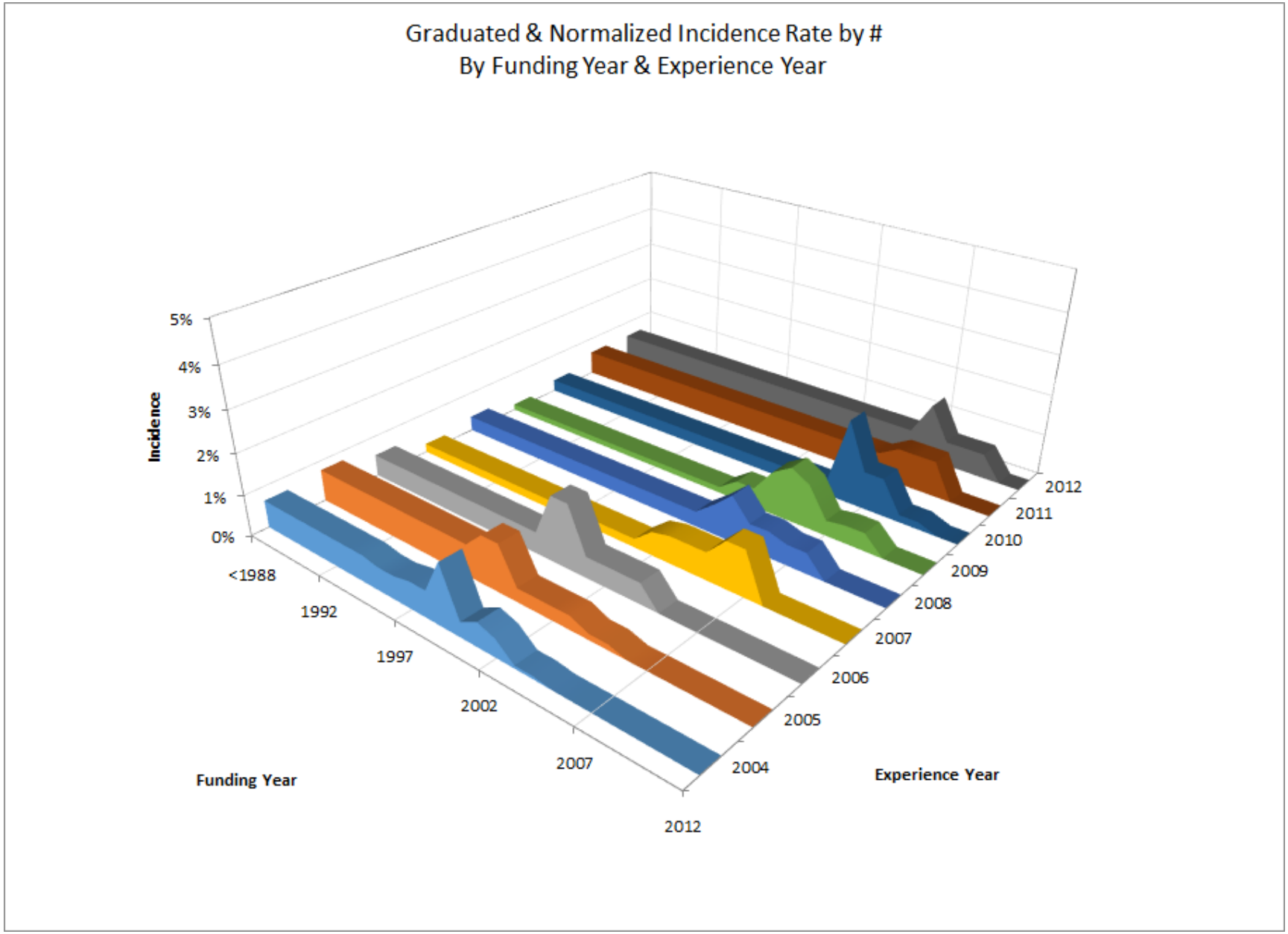

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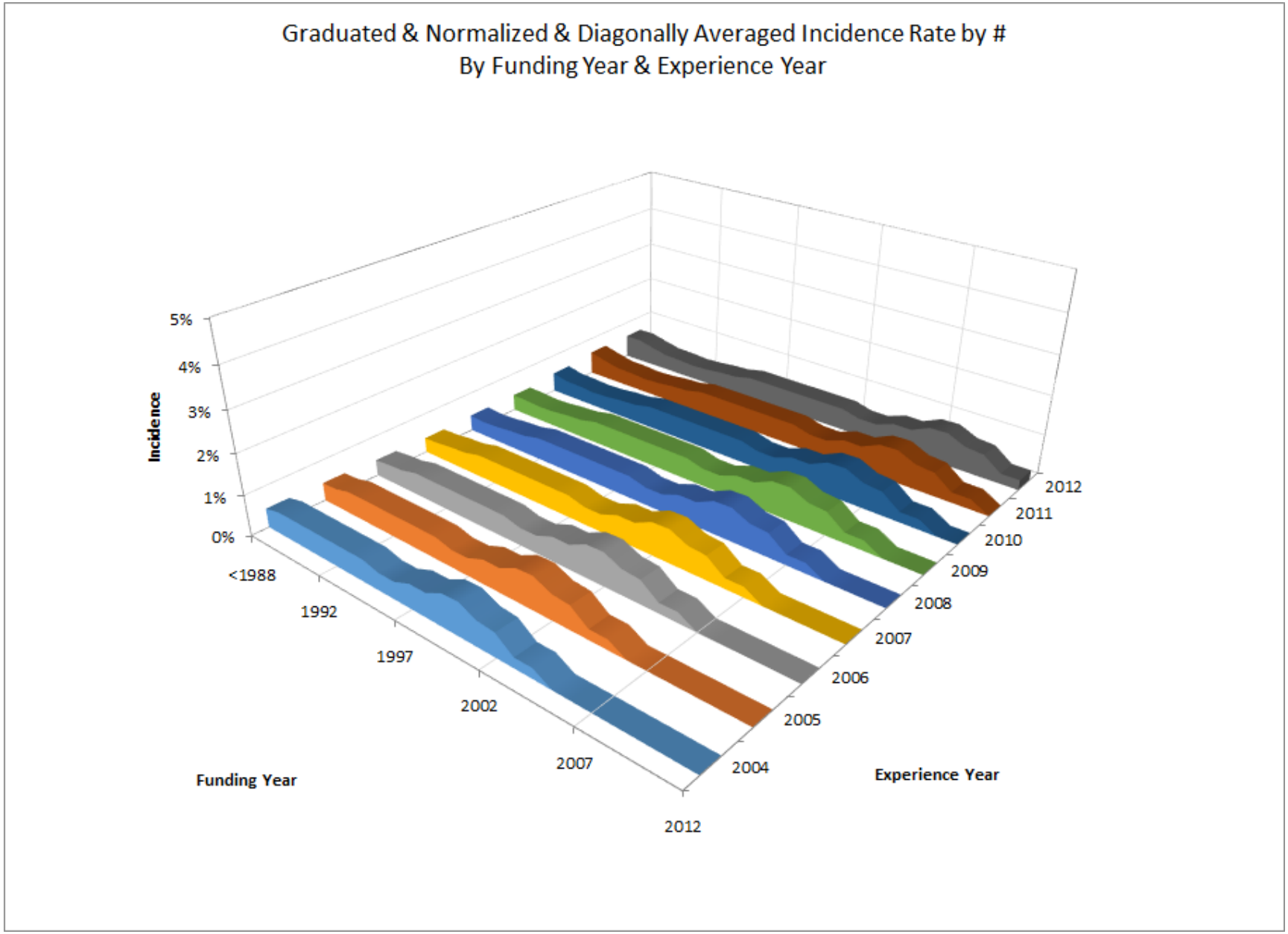

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After ‘normalizing’ the incidence rate by number, the incidence rate by amount was also normalized analogously. Any normalization of the loss severity was bypassed because the impact of the economic cycle on loss severity is far from clear. Finally, the economic loss rate was normalized by the same ratio used in normalizing the incidence rate by amount. So, the economic loss rate will remain the product between the incidence rate by amount and the loss severity.

The results of this process are captured in a graph with the subtitle “By Years Since Funding (Normalized for Economic Cycles).” For the incidence rate by number and incidence rate by amount, the general pattern of rising to a peak and falling to a steady state remains unchanged. After normalization, the incidence rate by number shows a clearer picture of the three periods (underwriting effect for the first a couple of years; weeding out middle period through year 5 or 6 and tailing off period afterwards) than the incidence rate without normalization. The economic loss pattern does not change much after normalization and appears to remain level across all years. Overall, this analysis affirms the presence of a pure seasoning effect.

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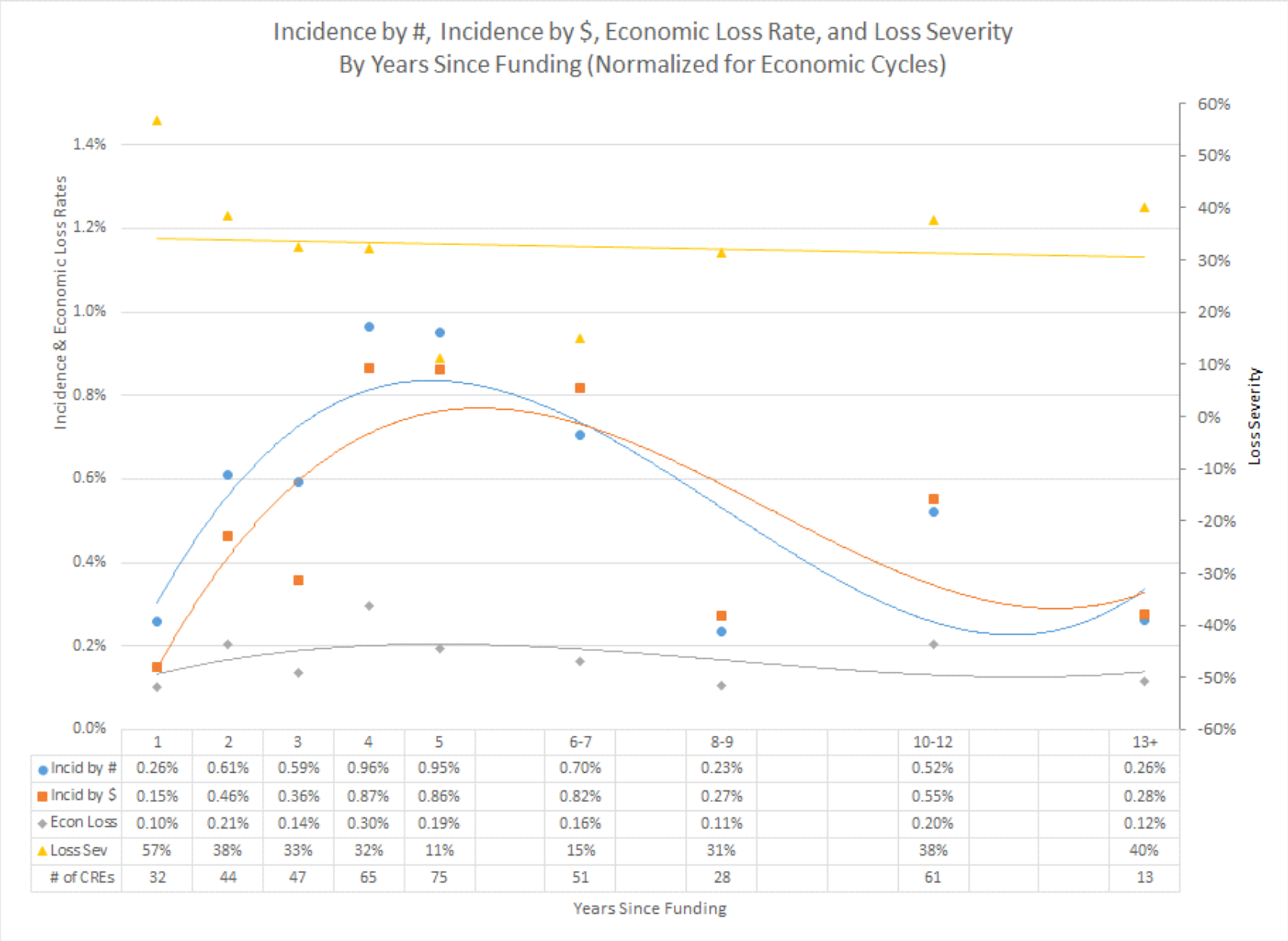

	1	2	3	4	5	6-7	8-9	10-12	13+
Incid by #	0.26%	0.61%	0.59%	0.96%	0.95%	0.70%	0.23%	0.52%	0.26%
Incid by $	0.15%	0.46%	0.36%	0.87%	0.86%	0.82%	0.27%	0.55%	0.28%
Econ Loss	0.10%	0.21%	0.14%	0.30%	0.19%	0.16%	0.11%	0.20%	0.12%
Loss Sev	57%	38%	33%	32%	11%	15%	31%	38%	40%
# of CREs	32	44	47	65	75	51	28	61	13

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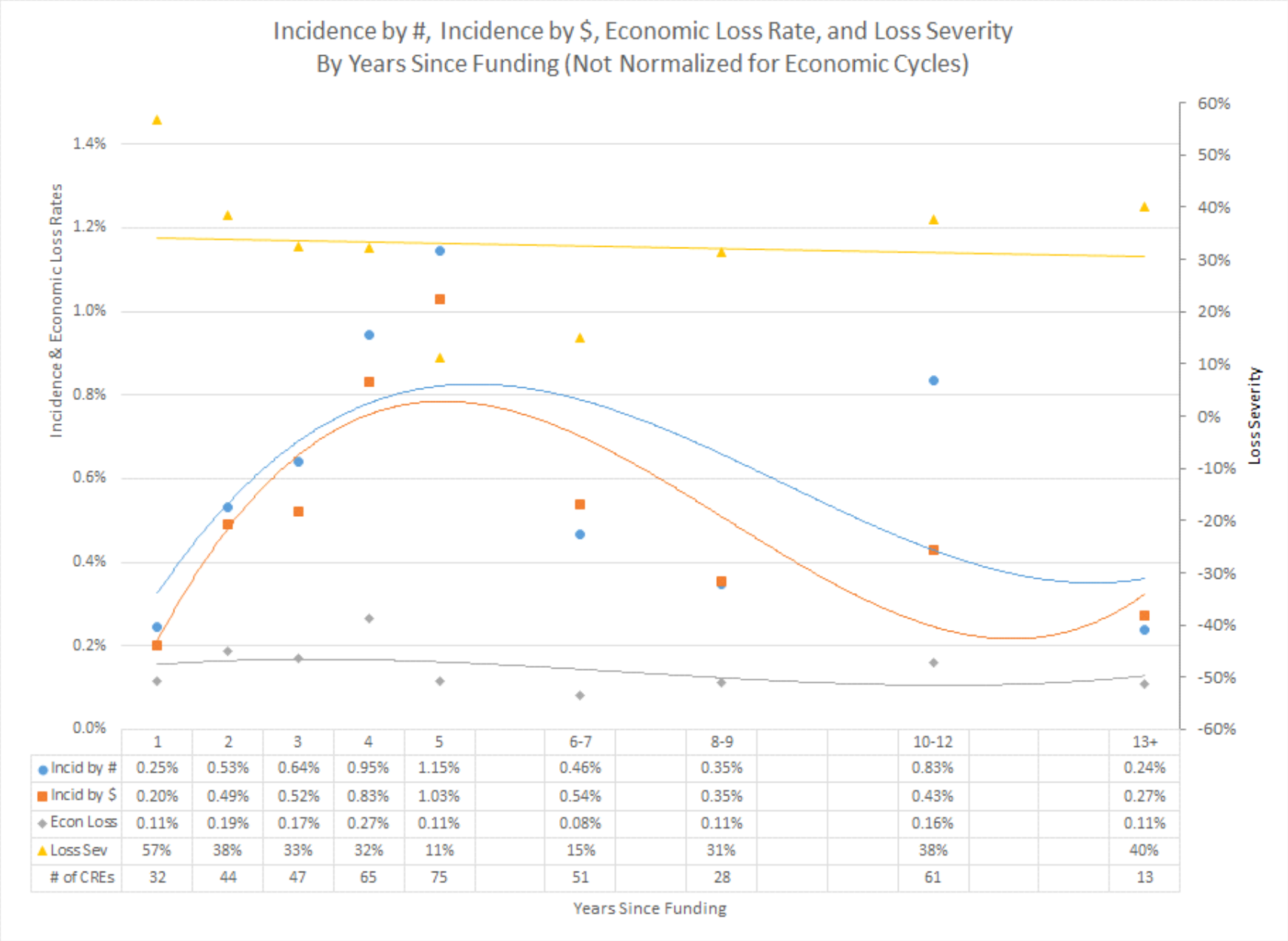

	1	2	3	4	5	6-7	8-9	10-12	13+
Incid by #	0.25%	0.53%	0.64%	0.95%	1.15%	0.46%	0.35%	0.83%	0.24%
Incid by $	0.20%	0.49%	0.52%	0.83%	1.03%	0.54%	0.35%	0.43%	0.27%
Econ Loss	0.11%	0.19%	0.17%	0.27%	0.11%	0.08%	0.11%	0.16%	0.11%
Loss Sev	57%	38%	33%	32%	11%	15%	31%	38%	40%
# of CREs	32	44	47	65	75	51	28	61	13

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3.5 RECAPITULATION

In summary, the following are the key observations from this section:

- There is a pure coupon effect separate and distinct from the credit-quality effect. For the same earliest quality rating, a higher coupon gives rise to a higher incidence of CREs. In general, the effect becomes pronounced at coupon rates over 8%. Because the exposure by earliest rating is predominantly investment grade, the effect is demonstrated more clearly for higher quality assets as compared to the lower ones.

- 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. But similar to the pure coupon effect, the pattern is more statistically noisy as earliest rating quality decreases due to a very small proportion of private placements that initially receive a rating below investment grade. The seasoning effect is seen very clearly with all qualities combined by number and for below investment grade private placements by amount.

- The seasoning effect remains intact when incidence by funding year is normalized relative to the economic conditions of the associated calendar experience years. After incidence is normalized, the seasoning pattern of increasing and then decreasing incidence and a leveling off with advancing experience years is seen consistently for economic expansion and contraction years. The seasoning effect does not seem to be the effect of economic cycles in disguise.

- In contrast to relationships of incidence to the coupon and years since funding, loss severity does not bear a consistent pattern to either. Relationships with regard to coupon and years since funding for the economic loss rate are driven by the incidence rate. Because loss severity appears to be random relative to these two variables, conclusions about their relationships to the economic loss rate are statistically noisier.

- As mentioned before, the sparse cells created by cross tabulations are particularly susceptible to certain drawbacks inherent in the four key statistics:

Key Statistic	Potential Drawback
Incidence rate by number	Distortion due to multiple issues by the same issuer
Incidence rate by amount	Distortion due to significant disparity in bond size
Loss severity	Significant statistical dispersion
Economic loss rate	Bond-size disparity and statistical dispersion

- In interpreting the results, the incidence rate by number was relied on because it is not biased by allocation of invested amounts. This statistic is by no means foolproof. While independent of amount, it is subject to concentration of the same CUSIP held by more than one contributor. However, any attempt to circumvent its inherent drawbacks by measuring the incidence rate by issuer rather than by companies holding the CUSIPs would have to overcome the hurdle of consolidating (1) multiple ratings and (2) multiple coupons into one issuer rating and coupon for all CUSIPs of an issuer.

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Section 4: Data Summaries

4.1 USING THE DATA SUMMARIES

This section of the report presents:

- the aggregate experience by calendar year,
- the loss-severity distribution among CREs, and
- the experience by selected characteristics as single-analysis variables:

    1. Most Recent Quality Rating
    2. Earliest Quality Rating
    3. NAIC Rating
    4. Coupon Rate
    5. Funding Year
    6. Years Since Funding
    7. Years to Maturity

For the experience in aggregate and by each variable, detailed data for the four loss statistics (Incidence Rate by Number, Incidence Rate by Amount, Loss Severity and Economic Loss Rate) are calculated. In each case, there is a one-page narrative of highlights and data notes, followed by a single graph depicting the four loss statistics. The loss-severity distribution is analyzed by Seniority and Calendar Year in a one-page narrative followed by two graphs. To facilitate using the graphs, the underlying data are summarized beneath each graph. Each reader is likely to find different items of interest and alternative interpretations of the data.

Auxiliary graphs and tables that expand on the underlying data of the single-analysis variables and loss severity distributions, which are used to construct the statistics in this section's graphs, are provided in Appendix IV.

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Formatting Notes on Graphs for the Aggregate Experience

- The graph shows the four statistics for each of the 10 years in the 2003-2012 study period.
- The left scale of the graph measures Incidence and Economic Loss Rates, while the right scale measures Loss Severity.
- A solid line linking data points is indicative of a trend line, while a dotted line is indicative of statistical fluctuation.
- The solid colored areas indicate average results over ten years for each of the four statistics.
- The Economic Loss Rate is expressed as a percentage of total principal exposed.
- The number of CREs by cell is provided with the data to convey relative statistical credibility (but is not shown in the graph).

Formatting Notes on Graphs for the Loss-Severity Distribution

- The first two graphs show loss severity distribution by amount and number respectively.
- The loss-severity distribution is captured in 10% ranges that are left-inclusive rather than right-inclusive, as denoted by [0%, 10%), for example.
- The third and fourth graphs show Loss Severity by Seniority, Calendar Year and Overall.
- Stacked bars are used to show the frequency distribution in the two graphs depicting Loss Severity by Seniority.
- + / - one standard deviation is indicated by the top and bottom of each stacked bar relative to its middle point.

Formatting Notes on Graphs for the Single-Analysis Variables

- Same as the Aggregate Experience graph, the left scale of each graph measures Incidence and Economic Loss Rates, while the right scale measures Loss Severity.
- Line graphs are used for all of the loss statistics, complemented by single markers for Total and N/A (not available) categories.
- When data points suggest some kind of a trend line, they are linked by a solid line; otherwise, they are linked by a dotted line.
- The Economic Loss Rate is expressed as a percentage of total principal exposed.
- The number of CREs by cell is provided with the data to convey relative statistical credibility (but is not shown in the graph)

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4.2 PRIVATE PLACEMENT 2003-12: AGGREGATE EXPERIENCE

Highlights

- The economic loss rate over all 10 years was 0.15%. The 0.15% is equal to average incidence by amount of 0.50% times the average loss severity of 29%.
- The incidence rates by amount and number peaked in 2003 and 2009, shortly after the 2001 recession and the great recession from 12/2007 to 6/2009, respectively.
- The economic loss rate remained under 0.5% throughout the study period, even with the jump in incidence in 2003 and 2009.
- The incidence by amount remained close to incidence rate by number, suggesting the size of CREs on average was similar to the size of all outstanding private placement bonds.
- Loss severity varied between a low of 16% in 2009 and a high of 58% in 2010. Local maximums occurred in 2004 and 2010, each a year after the peak in incidence rates.
- In 2003, the incidence rate by number is 0.8% higher than the incidence rate by amount. This is due to several bond issues from one defaulting bond issuer owned by multiple contributing companies.

Data Notes

- For incidence by number, each occurrence of a default on a bond owned by each contributor is counted as one occurrence of a CRE. If a bond that defaults is owned by three contributors, it will count as three occurrences of a CRE.
- Nine of the 15 participating companies contributed data for all years of the 2003-2012 study period. In all,
    - 15 companies contributed to the 2010-12 period,
    - 14 companies contributed to the 2008-12 period,
    - 13 companies contributed to the 2004-12 period, and
    - 9 companies contributed to the 2003-12 period.

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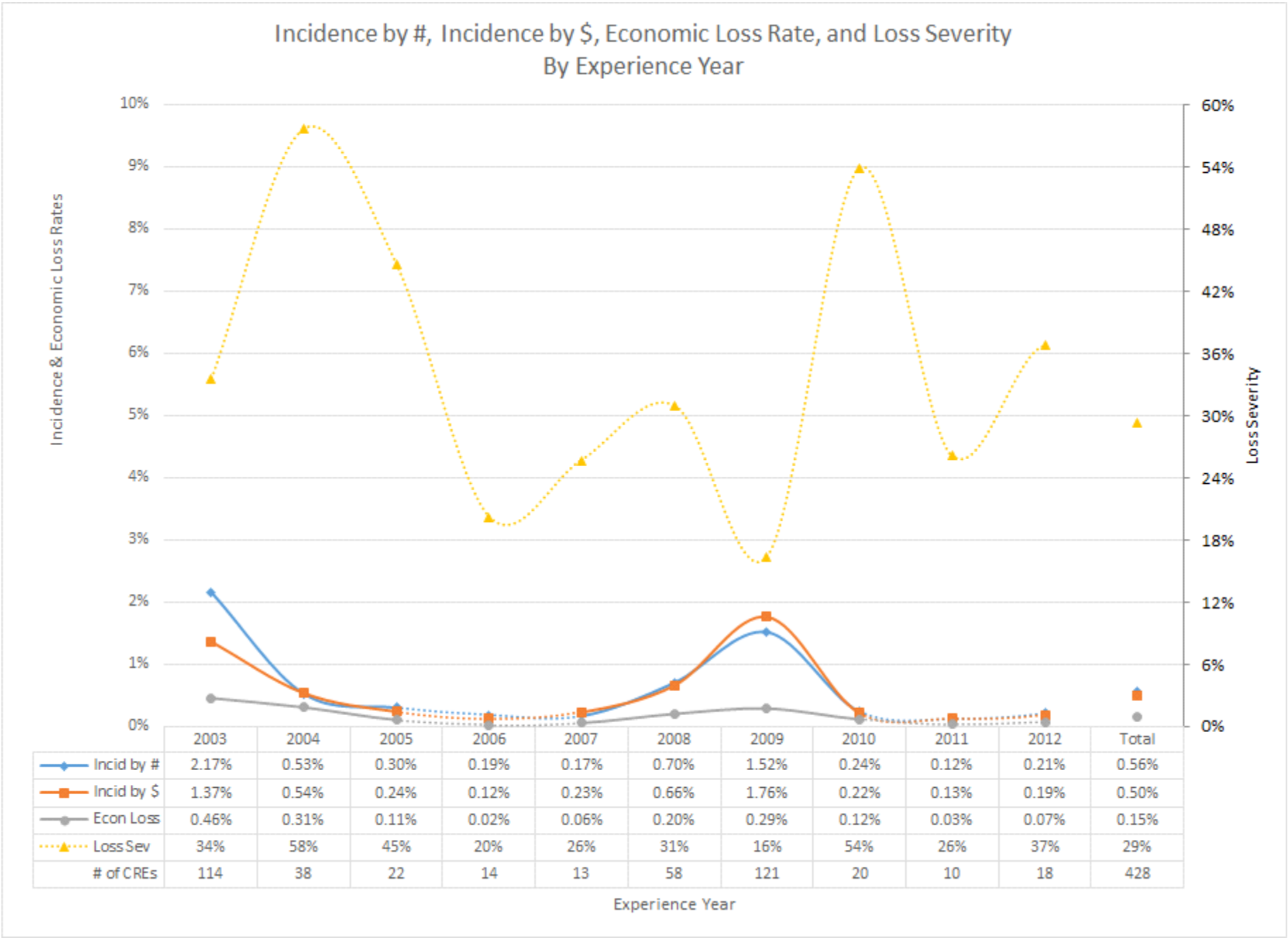

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Incid by #	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%
Incid by $	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%
Econ Loss	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%
Loss Sev	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%
# of CREs	114	38	22	14	13	58	121	20	10	18	428

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4.3 PRIVATE PLACEMENT 2003-12: LOSS-SEVERITY DISTRIBUTION

- The loss severity among CREs is widely dispersed. When grouped into bands of 10% loss severity percentages, only a few of those bands have more than 10% of the losses when measured by amount or number of CUSIPs.

- Generally, the distribution of losses is similar by amount and by number of company-CUSIPs. The proximity of the mean and median by both amount and number are indicators that loss percentage distributions have minimal skewness.

	Mean	Median	Std Dev
By Amount	29.3%	28.8%	36.7%
By Number	34.3%	34.3%	35.0%

- The distribution by number is influenced by one set of CREs with a loss severity in the 30-40% band. This was due to a unique series of trust assets that have different CUSIPS, but had underlying assets subject to the same CRE cause. Because these CREs were individually relatively small, the corresponding proportion of loss severity in the 30-40% band by amount is smaller than by number, 9.5% versus 17.1%.

- The proportion of CREs with negative loss severity gains as a result of the CRE is substantial and, whether viewed by amount or company CUSIP, exceeds the proportion of gains seen in public bond experience[20]. By amount, gains resulting from CREs occurred 33% of the time with an average gain of 11.5%; by number of company CUSIPs, the corresponding values are 21% occurrence with an average gain of 13.3%. The lower proportion of gains by number of company-CUSIPS combined with the concentration of losses in the 30-40% band mentioned previously contribute to the overall higher 34% loss severity by number.

- Aggregate losses by seniority show an unexpected result where, by amount, senior unsecured bonds have a lower average loss severity (22.9%) than senior secured bonds (31.5%). Results show a similar differential by number. Subordinated bonds show higher losses, 63% by amount, than senior bonds.

- The relationship of loss severity between senior secured and senior unsecured bonds is different by the number of companies owning a CUSIP. When one company owns a CUSIP, there is a normal relationship. When two or more companies own the same CUSIP, there is a substantial segment of senior unsecured bonds that have superior loss severity performance. Those much lower loss severities explain the overall better performance of senior unsecured versus senior secured bonds whether measured by amount or number.

[20] S&P's "Default, Transition, and Recovery: Recovery Study (U.S.): "Are Second Liens and Senior Unsecured Bonds Losing Ground as Recoveries Climb?," December 16, 2013. http://www.standardandpoors.com/spf/upload/Ratings_EMEA/2012-12-13_RecoveryStudyUSRecoveriesComeIntoFocus.pdf

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		Senior Secured	Senior Unsecured	Subordinated	Convertible Debt or Equity	NR	Total
All CUSIPS	Loss Sev	31.5%	22.9%	63.0%	0.0%	41.6%	29.3%
	# of CREs	130	198	12	0	88	428
One Owner	Loss Sev	30.7%	35.5%	71.0%	0.0%	51.7%	40.9%
	# of CREs	63	60	11	0	48	182
Multiple Owners	Loss Sev	33.3%	17.6%	-6.6%	0.0%	27.3%	20.3%
	# of CREs	67	138	1	0	40	246

- A significant proportion of bonds did not have a reported seniority classification. The proportions of CREs and exposure of Not Reported bonds measured by amount or number were confined to a 17-21% range. This similarity of the CRE and exposure proportions of the Not Reported bonds indicates there does not appear to be a bias in their incidence relative to the reported seniority types. But, the combined loss severity weighted by CRE amount of the reported types is 26.4% versus 41.6% for the Not Reported. This indicates a bias of a higher proportion of subordinated or less secure bonds in the Not Reported category.

- Loss severity, whether reported by amount or number, did not show a discernible relationship to years with stressed or benign economic conditions. There were similar results by amount and number. By amount, the highest incidence years of 2003-2004 and 2008-2009 produced average loss severities of 42.3% and 20.4%, respectively. The other lower incidence years had a 36.5% loss severity.

Data Notes

- See Section 2.12 Loss Severity - Gains versus No Gains for an expanded discussion on the comparative results of loss severity with and without gains.

- See Section 2.13 Loss Severity Method Considerations – Study Method versus Approximate Rating Agency Method, which compares and contrasts the loss severity methods used by the study for private placements and methods rating agencies generally used for recovery studies on public bonds.

- Each CRE's cashflow was individually reviewed for internal consistency and reasonableness. See Appendix I-1.D Data Validation for details of the data review process.

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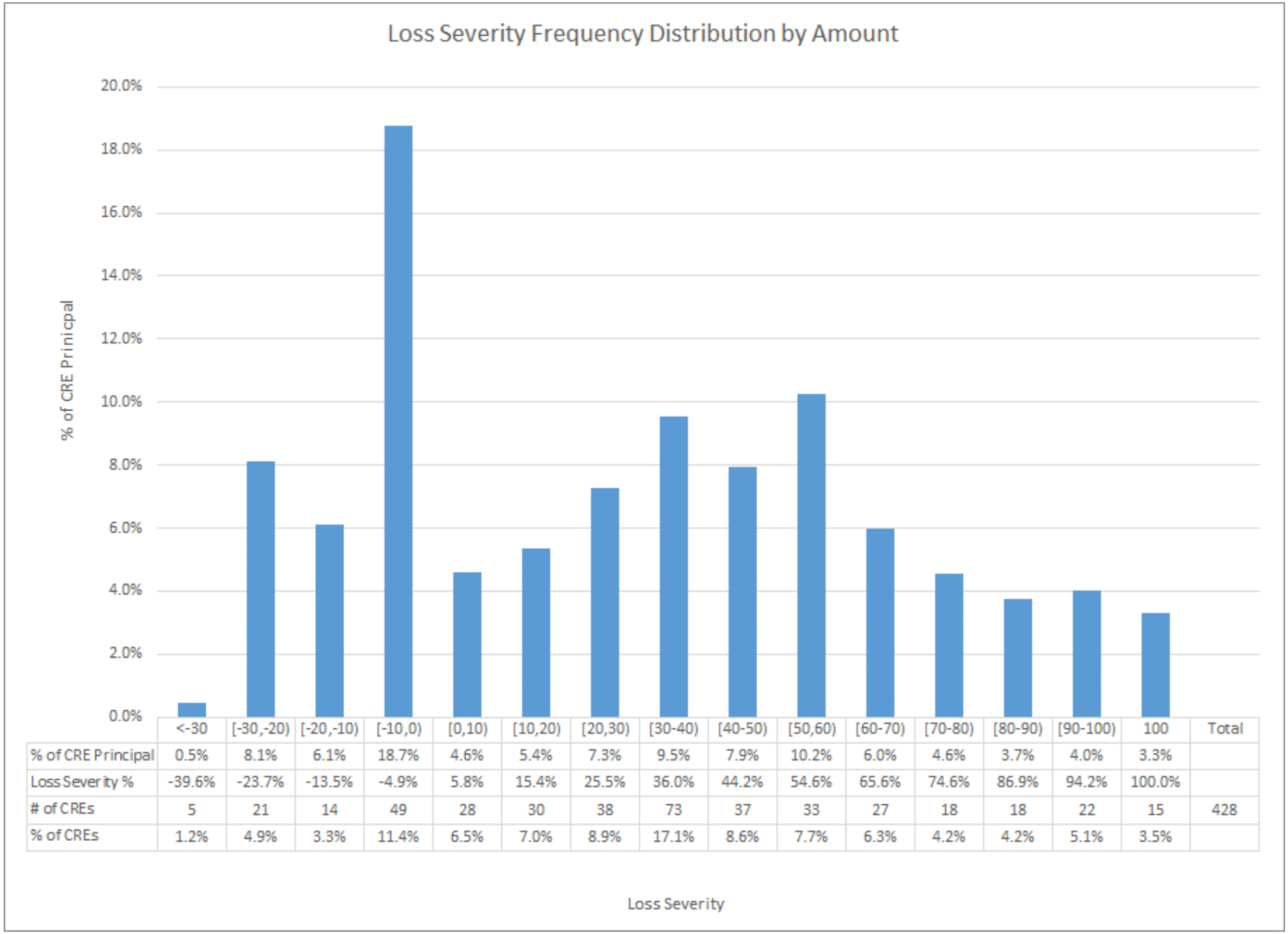

	<-30	[-30,-20)	[-20,-10)	[-10,0)	[0,10)	[10,20)	[20,30)	[30-40)	[40-50)	[50,60)	[60-70)	[70-80)	[80-90)	[90-100)	100	Total
% of CRE Principal	0.5%	8.1%	6.1%	18.7%	4.6%	5.4%	7.3%	9.5%	7.9%	10.2%	6.0%	4.6%	3.7%	4.0%	3.3%	
Loss Severity %	-39.6%	-23.7%	-13.5%	-4.9%	5.8%	15.4%	25.5%	36.0%	44.2%	54.6%	65.6%	74.6%	86.9%	94.2%	100.0%	
# of CREs	5	21	14	49	28	30	38	73	37	33	27	18	18	22	15	428
% of CREs	1.2%	4.9%	3.3%	11.4%	6.5%	7.0%	8.9%	17.1%	8.6%	7.7%	6.3%	4.2%	4.2%	5.1%	3.5%	

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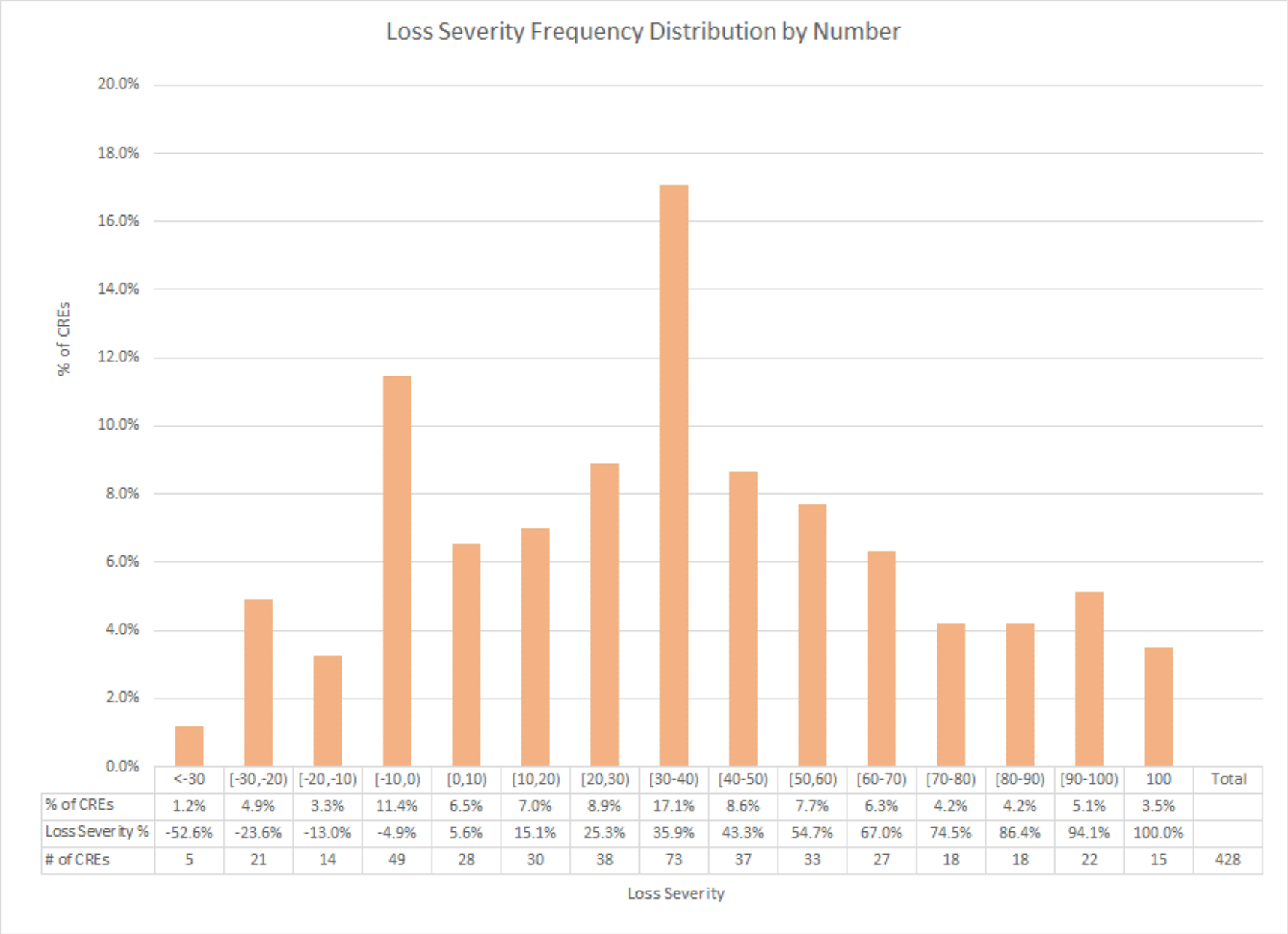

	<-30	[-30,-20)	[-20,-10)	[-10,0)	[0,10)	[10,20)	[20,30)	[30-40)	[40-50)	[50,60)	[60-70)	[70-80)	[80-90)	[90-100)	100	Total
% of CREs	1.2%	4.9%	3.3%	11.4%	6.5%	7.0%	8.9%	17.1%	8.6%	7.7%	6.3%	4.2%	4.2%	5.1%	3.5%	
Loss Severity %	-52.6%	-23.6%	-13.0%	-4.9%	5.6%	15.1%	25.3%	35.9%	43.3%	54.7%	67.0%	74.5%	86.4%	94.1%	100.0%	
# of CREs	5	21	14	49	28	30	38	73	37	33	27	18	18	22	15	428

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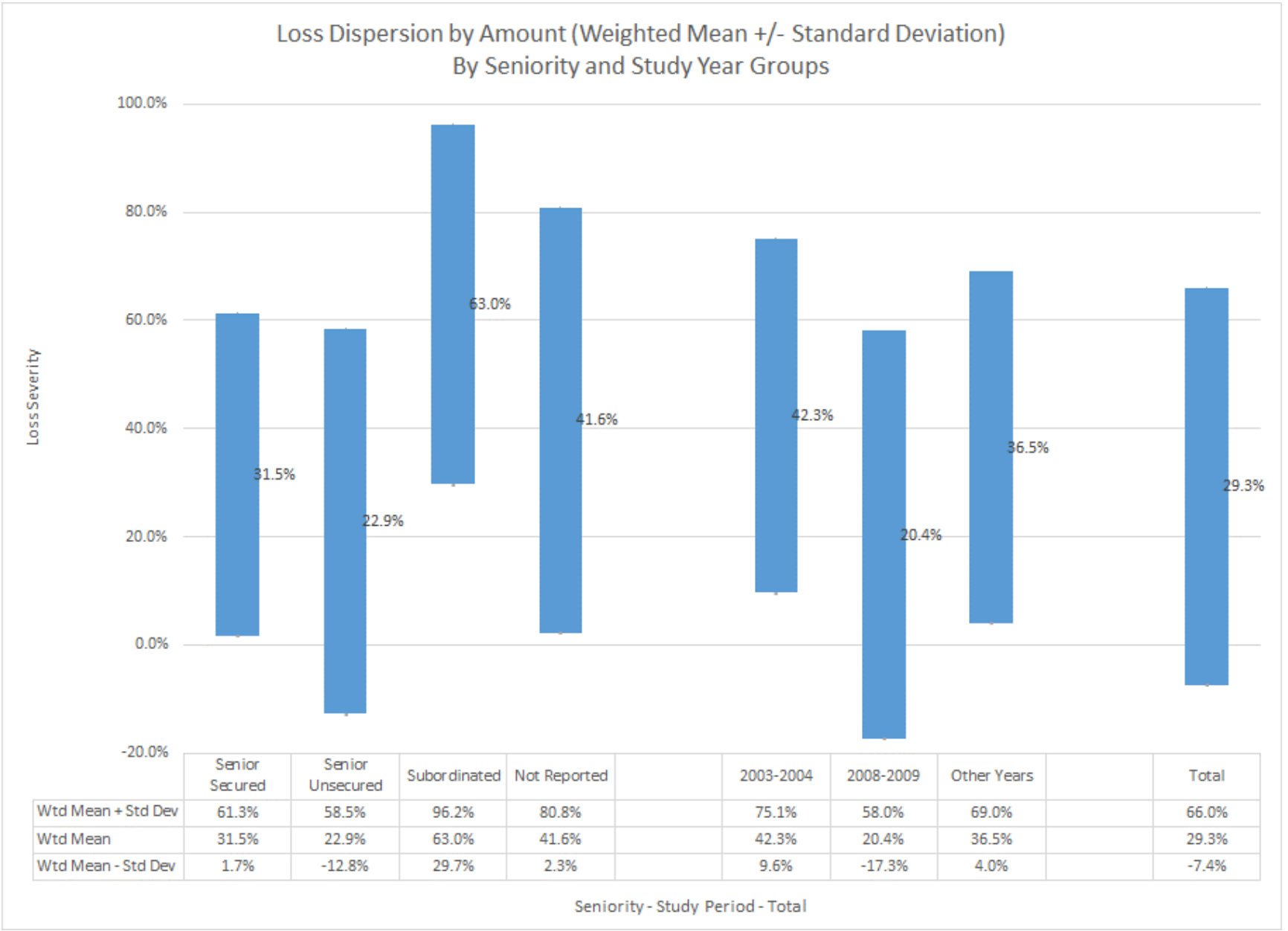

	Senior Secured	Senior Unsecured	Subordinated	Not Reported		2003-2004	2008-2009	Other Years		Total
Wtd Mean + Std Dev	61.3%	58.5%	96.2%	80.8%		75.1%	58.0%	69.0%		66.0%
Wtd Mean	31.5%	22.9%	63.0%	41.6%		42.3%	20.4%	36.5%		29.3%
Wtd Mean - Std Dev	1.7%	-12.8%	29.7%	2.3%		9.6%	-17.3%	4.0%		-7.4%

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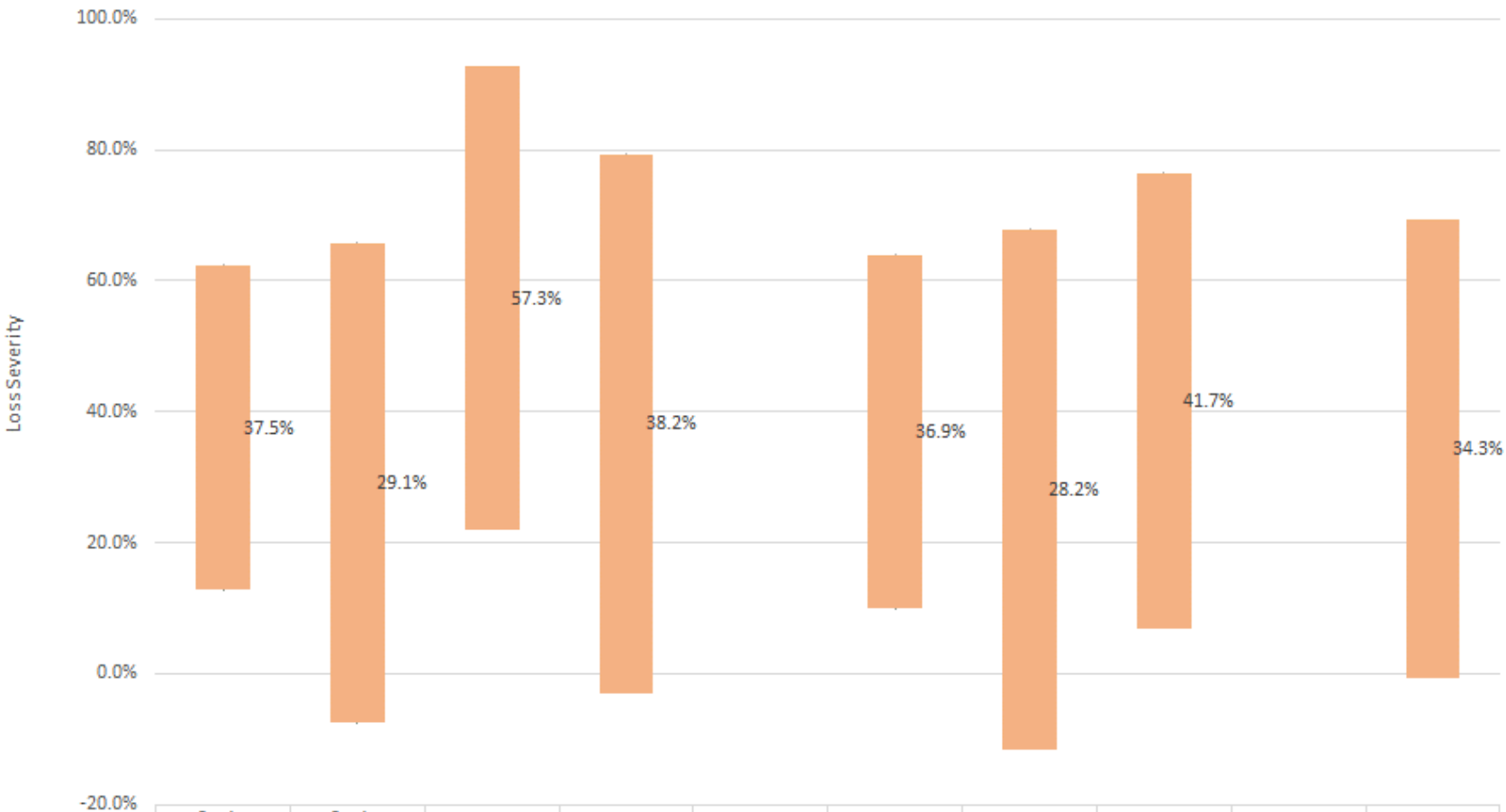

	Senior Secured	Senior Unsecured	Subordinated	Not Reported		2003-2004	2008-2009	Other Years		Total
Mean + Std Dev	62.3%	65.8%	92.6%	79.3%		63.9%	67.9%	76.5%		69.3%
Mean	37.5%	29.1%	57.3%	38.2%		36.9%	28.2%	41.7%		34.3%
Mean - Std Dev	12.8%	-7.5%	22.0%	-3.0%		9.8%	-11.5%	6.9%		-0.7%

Seniority - Study Period - Total

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4.4 PRIVATE PLACEMENT 2003-12: MOST RECENT QUALITY RATING

Data Notes

'Most Recent Quality Rating' was supplied by participating companies. The internal rating corresponds to a Moody's or other rating scale as determined by the contributors. The submitted ratings were mapped to a simplified study-wide scale patterned after S&P's format.

Exposures and Credibility:

The study included 107,938 asset records submitted by the contributors corresponding to 76,230 life-year exposures over 10 years of study. Exposure wasn't evenly distributed among the quality ratings. The most populous of the most recent quality ratings was investment-grade bonds (equivalent to S&P ratings AAA through BBB), which together accounted for 64,520, or 85%, of exposures. Below Investment Grade bonds constituted 11% of exposures in the study, as follows:

- BB: 7.5%
- B: 2.4%
- CCC-C: 0.7%
- D: 0.7%

The remaining 4.1% of exposures are associated with the bonds missing the most recent quality rating.

Incidence Rate and Economic Loss Rates

As expected, incidence rates and economic loss rates rise steeply with lower quality ratings. Both are significantly higher for below investment-grade bonds than for higher rated issues.

Incidence rates were measured by both numbers and amounts of exposure. Incidence by number was consistently lower than incidence by amount, except for bonds rated BBB. The two metrics are close for the investment grade bonds, likely because of the large amount of exposures and the high standalone credibility in these segments. Incidence rates were more volatile for below investment-grade bonds, reflecting lower credibility within those segments. Although not credible to draw firm conclusions, this relationship could also indicate that low-rated bonds with a large amount of principal are more likely to default than smaller ones.

Loss Severity

Loss severity is the highest in the A-rated segment, however, this number is likely not credible given that only nine CREs were recorded for bonds most recently rated A. All of those defaults occurred between 2006 and 2009. Loss severity associated with these defaults was consistently high, ranging from a 69% loss in 2009 to a 100% loss in 2006 and 2007.

In the other segments, severity remained relatively low for bonds rated BBB and BB, and rose for bonds rated B and below to 37% and 46%, respectively.

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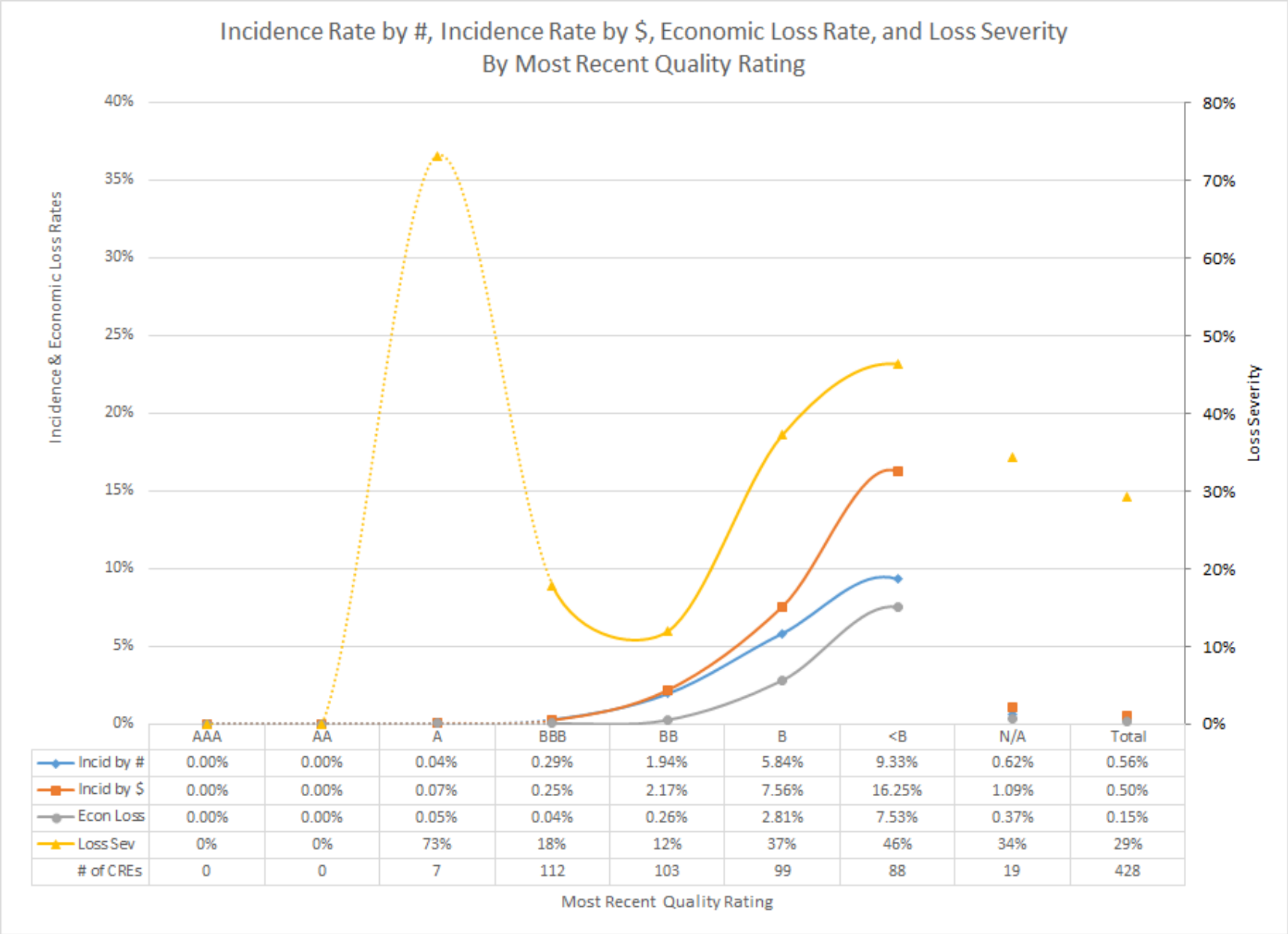

	AAA	AA	A	BBB	BB	B	<B	N/A	Total
Incid by #	0.00%	0.00%	0.04%	0.29%	1.94%	5.84%	9.33%	0.62%	0.56%
Incid by $	0.00%	0.00%	0.07%	0.25%	2.17%	7.56%	16.25%	1.09%	0.50%
Econ Loss	0.00%	0.00%	0.05%	0.04%	0.26%	2.81%	7.53%	0.37%	0.15%
Loss Sev	0%	0%	73%	18%	12%	37%	46%	34%	29%
# of CREs	0	0	7	112	103	99	88	19	428

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4.5 PRIVATE PLACEMENT 2003-12: EARLIEST QUALITY RATING

Data Notes

'Earliest rating' is a proxy for rating at private placement issuance, but is not a precise measure of it. Participating companies were asked to report their 'internal rating at acquisition' for each asset, but for those unable to report an 'internal rating at acquisition,' the 'most recent internal rating' as of the earliest reported year-end was used. In addition, if a private placement was purchased on the secondary market, rating at acquisition will not correspond to rating at issuance.

Exposures and Credibility:

The study included 107,938 asset records submitted by the contributors corresponding to 76,230 life-year exposures over 10 years of study. As mentioned in the section above, exposures weren't evenly distributed among the quality ratings. The most populous of the earliest quality ratings was investment grade bonds (equivalent to S&P AAA through BBB), which together accounted for 68,033, or 89%, of exposures. Below Investment Grade bonds constituted approximately 7% of exposures in the study, as follows:

- BB: 4.6%
- B: 1.6%
- CCC-C: 0.5%
- D: 0.4%

The earliest quality rating of the remaining 3.6% of exposures is unknown.

Note that there are fewer investment grade-rated bonds based on most recent quality rating compared to earliest quality rating. This results from, on average, downward rating migration over the bonds' lives.

Incidence Rate and Economic Loss Rates

As with the results by the most recent rating, the incidence rates and economic loss rates rose with lower quality ratings, but not as steeply.

Incidence rates were measured by both numbers and amounts of exposure. The two metrics were close for the investment grade bonds, likely because of the large amount of exposures and the high credibility of these buckets. Incidence rates were more volatile for below investment-grade bonds, reflecting lower exposures within those segments. The pattern by year of incidence by number compared to incidence by amount is similar to the pattern by most recent quality rating.

The economic loss rate by Earliest Quality Rating is higher than the economic loss rate by Most Recent Quality Rating in investment grades and BB grade, but lower in highly speculative grades below BB. This is to be expected because most assets that originated as investment grade migrate to speculative grade before the onset of a CRE.

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Loss Severity

The pattern of loss severity generally increases with lower quality ratings, with some notable exceptions. The pattern may be due in part to a greater frequency of subordinated debt among lower grades at issue.

Loss severity is surprisingly high in segments rated AA and A. While the incidence of credit risk events in this segment was very low, once an event has occurred, it triggered higher losses than in BBB or BB segments. This may be partially explained by the timing of A-rated credit events, where 74% of the reported economic loss happened in 2008 and 2009 when the private placement market suffered from loss of liquidity, low confidence in asset valuations and depressed market values. Conversely, less than a quarter of economic losses in BBB and BB rated segments happened in 2008 and 2009.

Loss severity is volatile in below investment-grade buckets rated equivalent to CCC through D, likely due to lower exposures associated with these segments.

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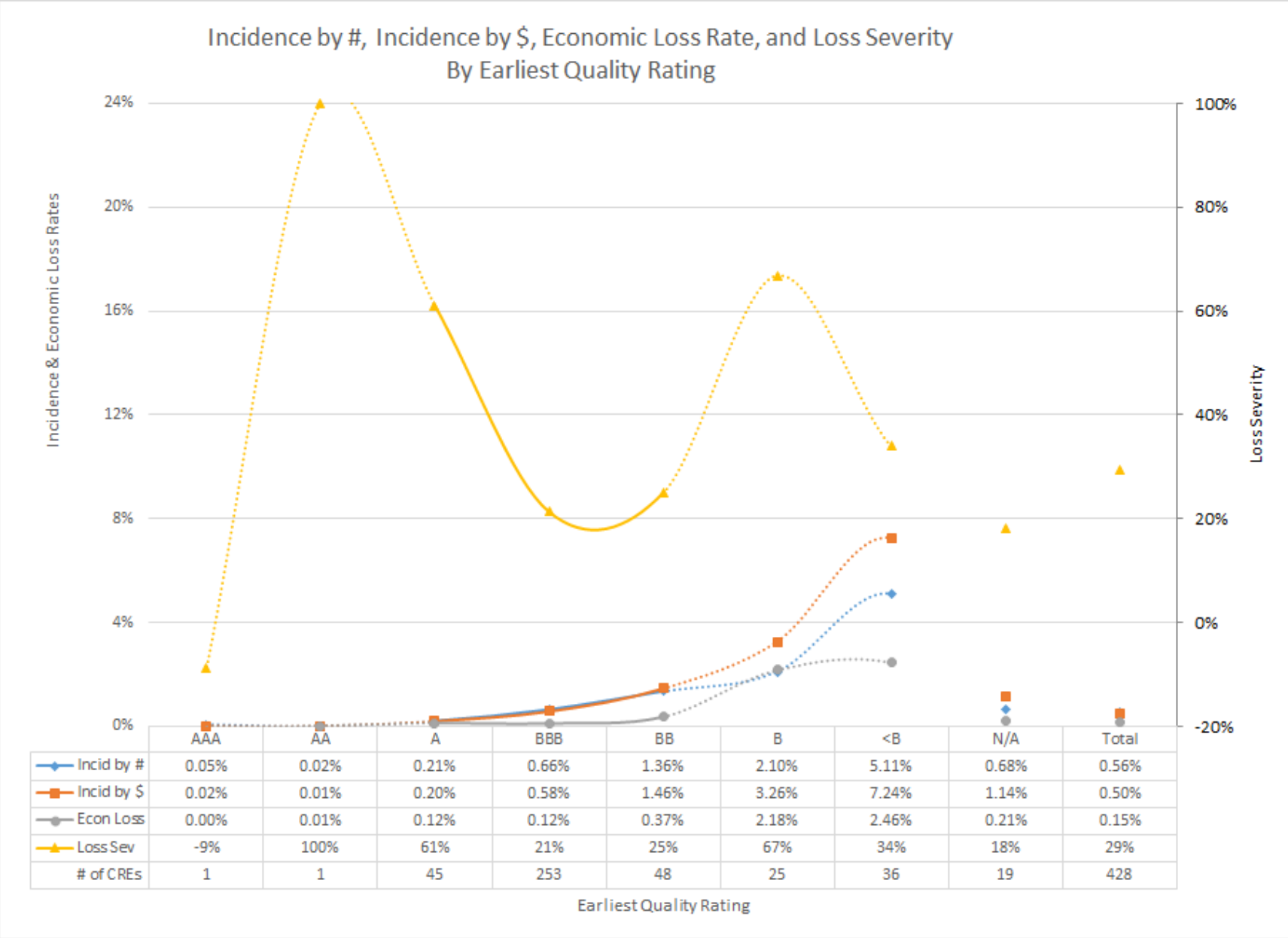

	AAA	AA	A	BBB	BB	B	<B	N/A	Total
Incid by #	0.05%	0.02%	0.21%	0.66%	1.36%	2.10%	5.11%	0.68%	0.56%
Incid by $	0.02%	0.01%	0.20%	0.58%	1.46%	3.26%	7.24%	1.14%	0.50%
Econ Loss	0.00%	0.01%	0.12%	0.12%	0.37%	2.18%	2.46%	0.21%	0.15%
Loss Sev	-9%	100%	61%	21%	25%	67%	34%	18%	29%
# of CREs	1	1	45	253	48	25	36	19	428

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4.6 PRIVATE PLACEMENT 2003-12: NAIC RATING

Highlights

- NAIC Designations (commonly referred to as NAIC ratings) are specific alphanumeric ratings used by the NAIC to denote the credit quality of the financial instrument. NAIC 1 is assigned to debt instruments with the lowest credit risk, whereas NAIC 6 is assigned to instruments that are in or near default. The NAIC rating scale has not been changed since the 1990s.
- Although almost 60% of the absolute CRE counts appear in the NAIC 2 and 3 categories, there are a lot more assets that belong in the NAIC 1, 2 and 3 categories in this study. There are around 36% in NAIC 1, 51% in NAIC 2, 8% in NAIC 3 and 5% in lower quality ratings, with the remaining having unknown ratings. Once adjusted by time-weighted count, we see assets that are not NAIC 1 or 2 having a much higher chance of a credit risk event. Of the assets with an NAIC rating of 5 or 6, over 5% of them have a CRE, and over 2% for NAIC 3 and 4. If observed in light of principal amounts, over 8% of the principal experienced a CRE for NAIC rating 5, and nearly 13% of the principal amount experienced a CRE for NAIC rating 6.
- For high quality NAIC 1 assets, of those that experienced a CRE, the severity is notably high (67%) as measured by the market economic loss by amount over the principal amount at the time of the credit event. This is due to the fact that 90% of those NAIC 1 assets that experienced a CRE belong to the financial sector. The CREs were observed during the period from 2007 to 2011, as expected from the 2007 Financial Crisis and the aftermath of economic turndown.
- Market economic loss by amount as a percentage of the principal amount at the time of the credit event is high for NAIC 4 (30%), 5 (58%) and 6 (45%) assets as well.
- Incidence rate has steadily increased as the NAIC rating worsens. The increases from NAIC 4 to 5 and NAIC 5 to 6 are particularly steep.
- The economic loss has a clear trend of worsening as the NAIC rating decreases from 1 to 6.

Data Notes

- The NAIC rating in question is as of the year-end prior to each exposure year in question.
- See discussion in Analysis and Commentary Section 2.8: Experience by NAIC Rating.

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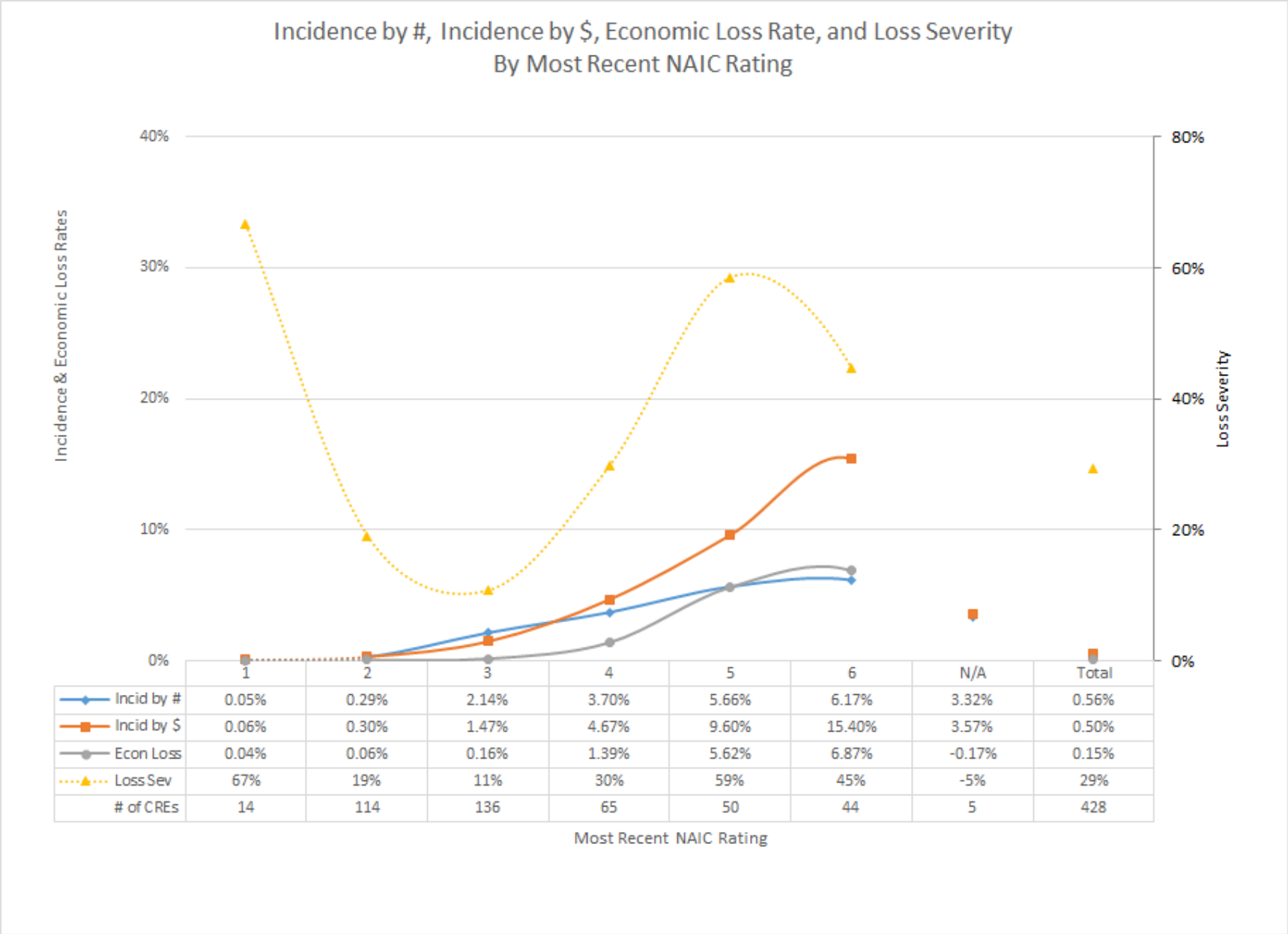

	1	2	3	4	5	6	N/A	Total
Incid by #	0.05%	0.29%	2.14%	3.70%	5.66%	6.17%	3.32%	0.56%
Incid by $	0.06%	0.30%	1.47%	4.67%	9.60%	15.40%	3.57%	0.50%
Econ Loss	0.04%	0.06%	0.16%	1.39%	5.62%	6.87%	-0.17%	0.15%
Loss Sev	67%	19%	11%	30%	59%	45%	-5%	29%
# of CREs	14	114	136	65	50	44	5	428

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4.7 PRIVATE PLACEMENT 2003-12: COUPON RATE

Highlights

- An analysis by coupon rate has to normalize for the quality rating because of the correlation between credit spread and quality rating. This is done in the Cross Tabulation section, which showed that a high coupon, even after normalizing for the credit rating, is still associated with a higher incidence rate of credit events and a higher economic loss rate.
- The analysis below is performed on a standalone basis focused only on the coupon rate of the assets.
- Given a credit risk event has occurred, there appears to be a positive correlation between the coupon rate and severity of the loss. The higher the coupon rate, the more severe the loss. In addition, a higher coupon rate also correlates to a higher incidence rate.
- The coupon effect is less clear on bonds with less than an 8% coupon rate.
- Given the low CRE counts and incidence rate for bonds with less than an 8% coupon rate, the coupon effect observed in those categories is less credible and inconclusive. The same goes for the N/A category.
- The low interest rate environment and low inflation level in the past decade could have compounded the high coupon rate effect and contributed to the severe economic loss as observed in the bonds with coupon rates greater than 15%.

Data Notes

- See Cross Tabulation Section 3.2, Coupon Rate by Earliest Quality Rating.

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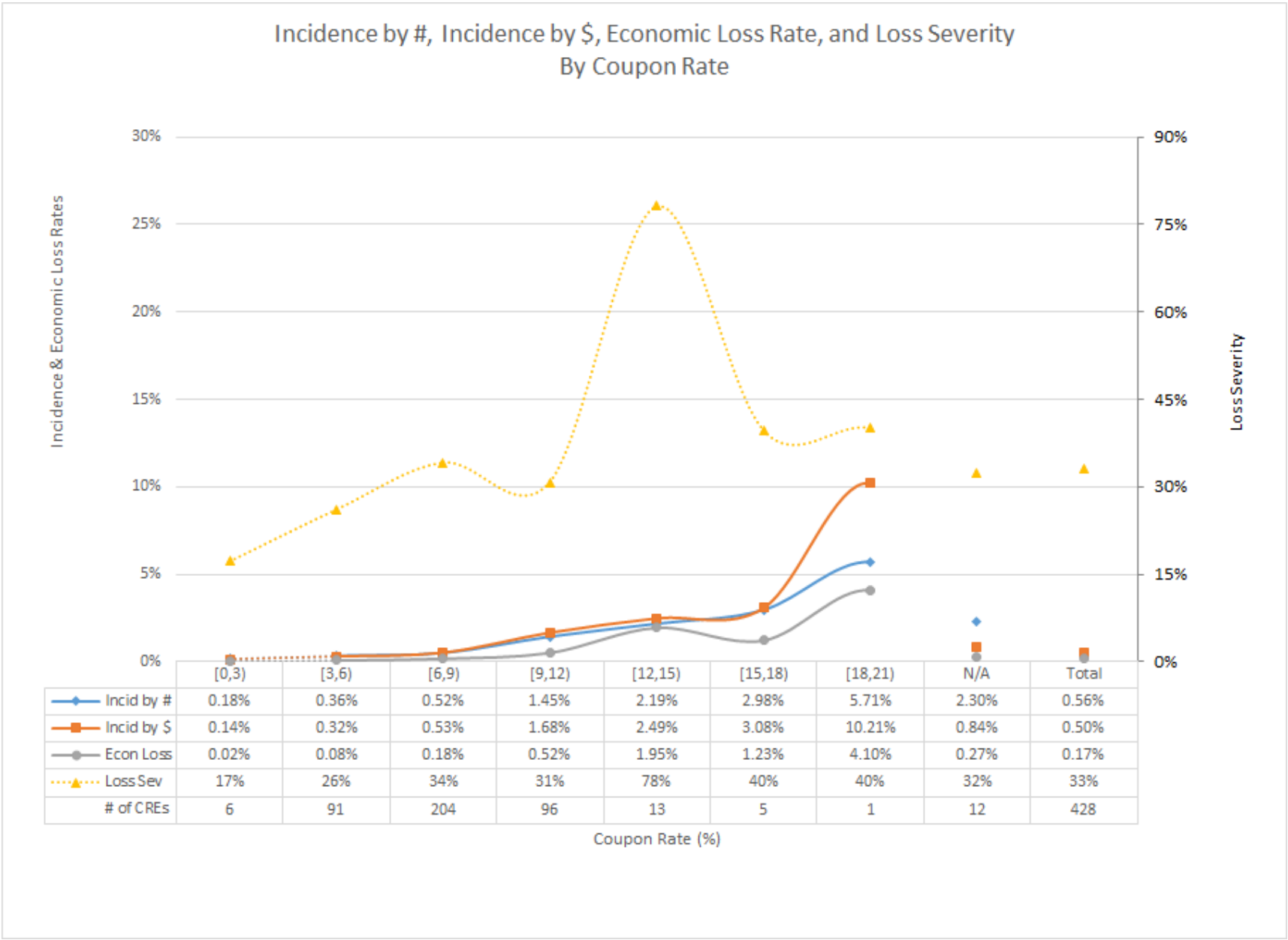

	[0,3)	[3,6)	[6,9)	[9,12)	[12,15)	[15,18)	[18,21)	N/A	Total
Incid by #	0.18%	0.36%	0.52%	1.45%	2.19%	2.98%	5.71%	2.30%	0.56%
Incid by $	0.14%	0.32%	0.53%	1.68%	2.49%	3.08%	10.21%	0.84%	0.50%
Econ Loss	0.02%	0.08%	0.18%	0.52%	1.95%	1.23%	4.10%	0.27%	0.17%
Loss Sev	17%	26%	34%	31%	78%	40%	40%	32%	33%
# of CREs	6	91	204	96	13	5	1	12	428

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4.8 PRIVATE PLACEMENT 2003-12: FUNDING YEAR

Highlights

- The 1990-1992 cohort exhibited the highest incidence rate by number and one of the highest incidence rates by amount and economic loss. Although there was not enough credible information to form a conclusion, these rates may be the result of multiple CREs involving the same issuer, whose bonds were owned by multiple contributing companies. The 1990-1991 recession may also have had an impact on the 1990-1992 cohort.

- The Pre-1990 cohort also exhibited the highest incidence rates by amount. Although there was not enough credible information to form a conclusion, the 1990-1991 recession may also have had an impact here.

- Other local maxima were observed with respect to both incidence rates and economic loss. One is the 1999-2001 cohort and the other is the 2005-2007 cohort. We believe both are the result of looseness or the relaxation of underwriting standards and related to the recessions in 2001 and 2007-2009.

- The 1990-1992 cohort exhibits the highest incidence rates by number. This might be due to multiple issues by the same issuer owned by multiple contributing companies.

Data Notes

- The incidence rates are measured by issue rather than issuer.

- The same CUSIP held by more than one company is treated as a separate CRE. One company's CRE experience was used to represent the others holding that CUSIP, with only rating to determine spreads as a difference of each company's CRE result.

- Many individual year cells have limited credibility due to a low number of CREs.

- See discussion in Analysis and Commentary Section 2.9, Time Patterns of Credit Risk Event Occurrence.

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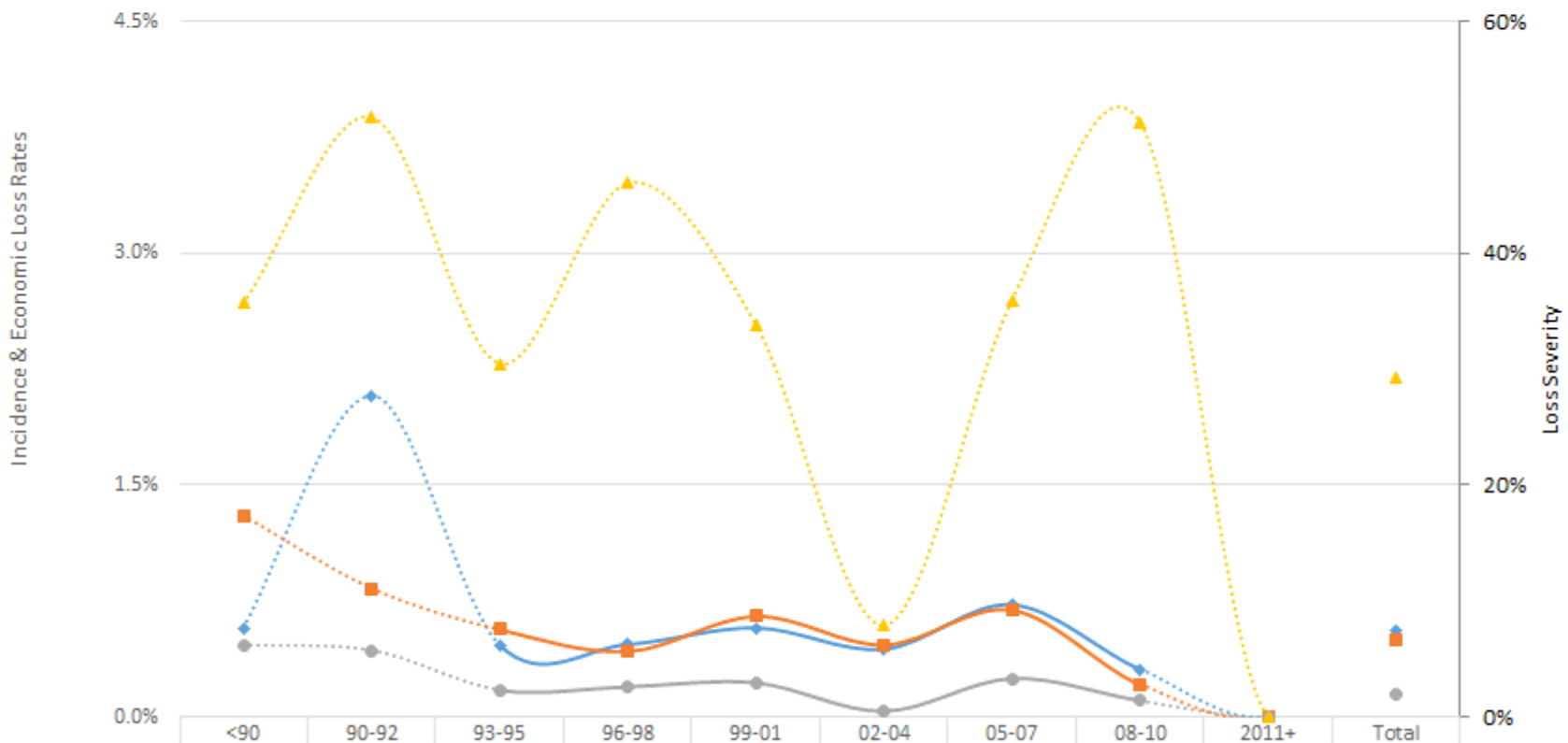

	<90	90-92	93-95	96-98	99-01	02-04	05-07	08-10	2011+	Total
Incid by #	0.57%	2.08%	0.46%	0.47%	0.58%	0.44%	0.73%	0.31%	0.00%	0.56%
Incid by $	1.30%	0.83%	0.56%	0.42%	0.65%	0.47%	0.69%	0.21%	0.00%	0.50%
Econ Loss	0.46%	0.43%	0.17%	0.19%	0.22%	0.04%	0.25%	0.11%	0.00%	0.15%
Loss Sev	36%	52%	30%	46%	34%	8%	36%	51%	0%	29%
# of CREs	10	56	24	44	66	86	117	24	-	428

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4.9 PRIVATE PLACEMENT 2003-12: YEARS SINCE FUNDING

Highlights

- There seemed to be an underwriting effect, which wore off within a 'select' period of a couple of years after funding.
- The select period was followed by a 'weeding out' middle period, after year 2 through year 5 or 6, when the incidence rates hovered at a relatively high level.
- With the exception of years 10 to 13, there appeared to be a 'tailing off' period from years 6 to 8 when the incidence rates trended to a lower level. Upon further investigation, the blip in incidence rates in years 10 to 13 was due to multiple CREs associated with a single issuer, whose bonds were owned by multiple contributing companies.
- The relatively level pattern of economic loss across all years since funding is interesting and something that will continue to be monitored in future updates to this study.

Data Notes

- This variable is defined as the current experience year minus the funding year. As such, it is a discrete variable rather than a continuous one.
- The incidences are measured by issue rather than issuer.
- The same CUSIP held by more than one company is treated as a separate CRE. One company's CRE experience was used to represent the others holding that CUSIP, with only rating to determine spreads as a difference of each company's CRE result.
- Many individual year cells have limited credibility due to a low number of CREs.
- See discussion in Analysis and Commentary Section 2.9, Time Patterns of Credit Risk Event Occurrence. Also see Cross Tabulation Section 3.3, Number of Years Since Funding by Earliest Quality Rating.

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	0-2 Yrs	2-3 Yrs	3-4 Yrs	4-5 Yrs	5-6 Yrs	6-8 Yrs	8-10 Yrs	10-13 Yrs	13+ Yrs	Total
Incid by #	0.28%	0.52%	1.07%	1.08%	0.73%	0.39%	0.31%	0.96%	0.32%	0.56%
Incid by $	0.22%	0.55%	0.84%	0.98%	0.72%	0.50%	0.27%	0.45%	0.40%	0.50%
Econ Loss	0.12%	0.20%	0.29%	0.11%	0.18%	0.08%	0.05%	0.17%	0.20%	0.15%
Loss Sev	55%	37%	35%	11%	26%	16%	17%	38%	51%	29%
# of CREs	49	41	75	73	45	39	23	62	21	428

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4.10 PRIVATE PLACEMENT 2003-12: YEARS TO MATURITY

Highlights

- Incidence rates by amount and number decrease dramatically with years to maturity, with the lowest levels (below 0.2%) present when more than nine years remain to maturity.
- The relatively level pattern of economic loss across all years to maturity is noteworthy and something that will continue to be monitored in future updates to this study.

Data Notes

- This variable is defined to be the year of maturity minus the current experience year.
- Many individual year cells have limited credibility due to a low number of CREs.

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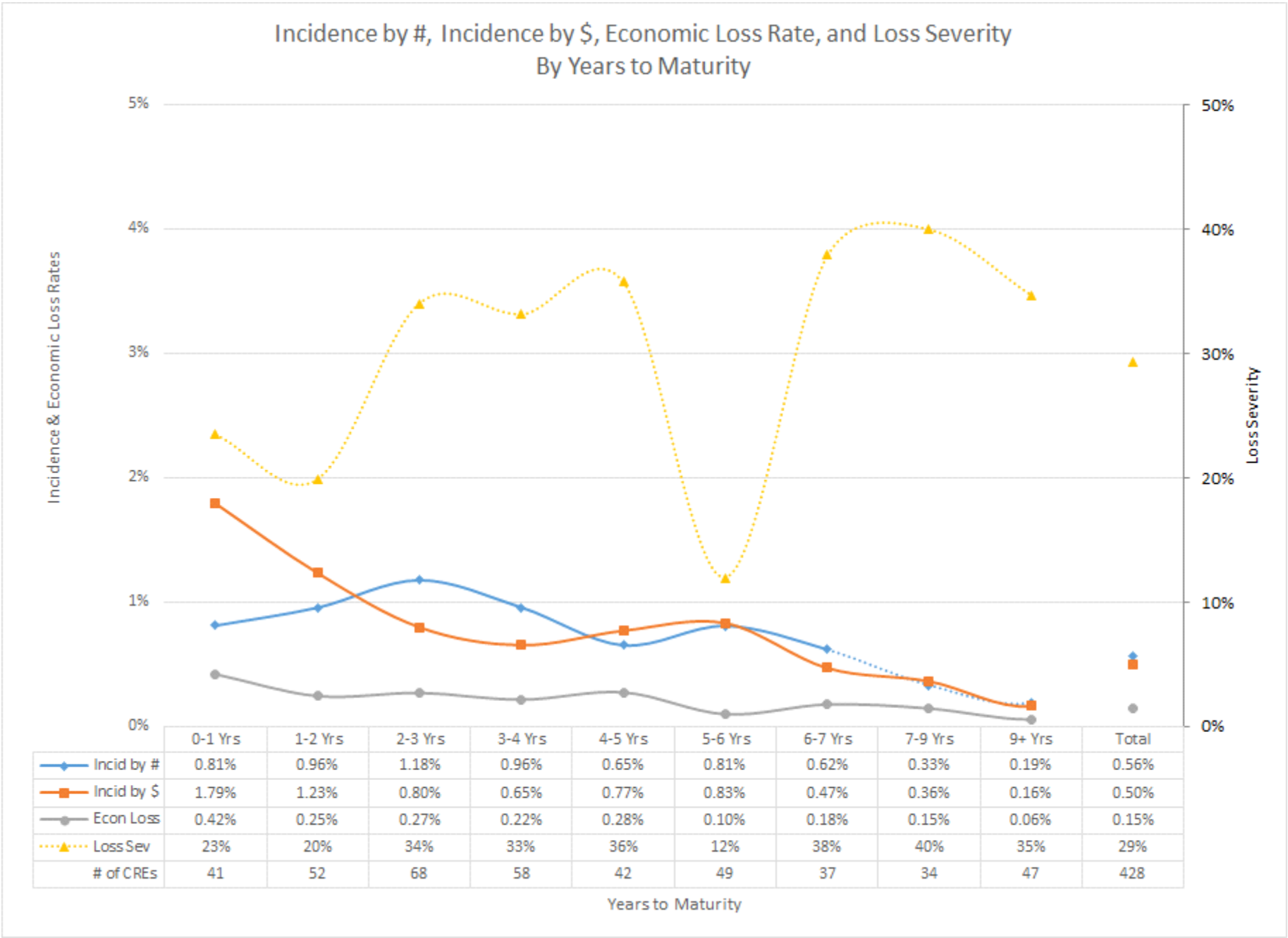

	0-1 Yrs	1-2 Yrs	2-3 Yrs	3-4 Yrs	4-5 Yrs	5-6 Yrs	6-7 Yrs	7-9 Yrs	9+ Yrs	Total
Incid by #	0.81%	0.96%	1.18%	0.96%	0.65%	0.81%	0.62%	0.33%	0.19%	0.56%
Incid by $	1.79%	1.23%	0.80%	0.65%	0.77%	0.83%	0.47%	0.36%	0.16%	0.50%
Econ Loss	0.42%	0.25%	0.27%	0.22%	0.28%	0.10%	0.18%	0.15%	0.06%	0.15%
Loss Sev	23%	20%	34%	33%	36%	12%	38%	40%	35%	29%
# of CREs	41	52	68	58	42	49	37	34	47	428

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Appendix I—Technical Aspects of the Study

1.A DEFINITION OF CREDIT RISK EVENT

In general, any failure (other than for known non-credit-related reasons, such as administrative problems) to pay interest or principal under the terms of the investment contract is considered a credit risk event. Specifically, the occurrence of any of the following is considered a credit risk event:

a) a missed or delayed disbursement of a contractually-obligated interest or principal payment (excluding missed payments cured within a contractually-allowed grace period), as defined in credit agreements, note purchase agreements and indentures;

b) a bankruptcy filing or legal receivership by the debt issuer or obligor that will likely cause a miss or delay in future contractually-obligated debt service payments;

c) a distressed exchange whereby 1) an obligor offers creditors a new or restructured debt, or a new package of securities, cash or assets that amount to a diminished financial obligation relative to the original obligation and 2) the exchange has the effect of allowing the obligor to avoid a bankruptcy or payment default in the future;

d) a change in the payment terms of a credit agreement, note purchase agreement or indenture imposed by the sovereign that results in a diminished financial obligation, such as a forced currency re-denomination (imposed by the debtor himself or his sovereign) or a forced change in some other aspect of the original promise, such as indexation or maturity.

e) the sale of a private placement bond at a price less than or equal to 70 cents on the dollar.

f) any other credit event that a contributor substantiated as a default-like credit deterioration but, due to the nuances of the private placement market, does not fit the definitions above.[21] The purpose of including these types of events as CREs is to avoid understatement of the incidence of CREs for situations that, in similar circumstances with public bonds, would have most likely resulted in a default.

The opportunity cost associated with the call or contractually allowed prepayment of an asset in a low interest rate environment is excluded as a credit risk loss because the call or prepayment is an exercise of the borrower's right and is, therefore, not credit-related. However, the opportunity cost associated with a restructuring or default in a low interest rate environment is captured as part of the credit loss in the economic loss calculation, see Section 1.C.5, Cashflow Discounting below.

[21] All CREs submitted by the contributors were reviewed for consistency of classification as a CRE. Where contributors had initial opposing views of the CRE status of a CUSIP, they were asked to substantiate their opinion. Some contributors revised their views in that process which reduced the number of conflicting opinions. The remaining unresolved conflicting opinions were reviewed by a panel of investment professionals from the contributing companies who determined whether or not those CUSIPS experienced a CRE.

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1.B DATE OF CREDIT RISK EVENT AND LOSS CALCULATION DATE

The credit risk event date is considered to be the earliest occurring date of the six CRE triggers listed above in Section 1.A. The loss calculation date is the same as the CRE date, except for bankruptcy. In the case of bankruptcy prior to default, rather than being the bankruptcy filing date, the loss calculation date is the date of the first missed payment or, if earlier, the date of modification or the date of sale of the asset.

1.C ACTUARIAL METHODOLOGY

1. Basic Model

The actuarial model used as a basis to formulate this study is the incidence and severity model. It is described in Section 1.4 of this report.

2. Definition

a) Incidence

Incidence of an event is generally defined as the number of actual occurrences of that event out of the total possible number of occurrences, in a given time interval. For credit risk, incidence can be measured either by number of assets or by $ volume (also referred to as by amount). It is the number ($ volume) of assets experiencing a CRE in a given year (the unit of time interval used for the study) divided by the total number ($volume) of assets exposed. The measurement can be made for the entire database or by any predefined component thereof, referred to as a "cell."

b) Economic Loss and Loss Severity

Loss severity with respect to a particular asset is defined as the loss actually sustained, given the occurrence of a CRE, as a proportion of the maximum possible loss on that asset. The maximum possible loss is calculated as the present value, on the Loss Calculation Date (LCD), of originally scheduled cashflows still remaining. The "recovery rate" or "salvage rate" is the present value on the LCD, of the revised cashflows the investor received (and expects to receive in the future) on the CRE, divided by the maximum loss. The severity is then one minus the salvage rate.

Economic loss on a particular asset is defined as its exposure, which is its carrying value or book value at the time of the CRE, multiplied by the loss severity.

Present values are calculated using interest rates described in 1.C.5 of this Appendix.

For a group of assets, each of which experienced a CRE, the economic loss is the sum of the asset by asset economic losses, while the loss severity is that sum divided by the sum of the corresponding exposures.

Economic Loss and Loss Severity can also be calculated on a by number basis.

c) Economic Loss per unit of Exposure

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Economic loss per unit of exposure is defined as the total economic loss with respect to those assets in the cell that experience a CRE, divided by the book value (outstanding principal) of all assets exposed in the cell (for a precise description of how to calculate the exposure, please refer to 1.C.4 of this Appendix). This measure can be derived by $ volume or by number of assets.

Equivalently, the economic loss per unit of exposure may be expressed as the product of the incidence and loss severity by amount (number) for the cell.

It may be interpreted (after multiplying by 10,000) as the cost, in basis points, of credit risk in the particular year. In other words, it is the reduction of investment yield on the exposed assets, compared to their contractually promised yield, caused by the occurrence of CREs on the exposed assets during the particular year.

3. Loss Statistics

Consistent with the model, the following loss statistics are calculated for each exposure year. The primary analysis in the report is done by amount for Loss Severity and Economic Loss per unit of Exposure. These measures were also available by number in the experience database used to develop this report.

a) Incidence rate by number, IR#:

$$IR^{\#} = \frac{Number\ of\ CREs\ in\ cell}{Total\ number\ of\ Exposure\ units\ in\ cell}$$

b) Incidence rate by amount, IRAmt:

$$IR^{Amt} = \frac{Amount\ of\ CREs\ in\ cell}{Total\ amount\ of\ Exposure\ in\ cell}$$

c) Loss Severity, LS:

$$LS = \frac{Ecomomic\ Loss\ for\ cell}{Amount\ of\ CREs\ in\ cell}$$

d) Economic Loss per unit of Exposure, EL/E:

$$\frac{EL}{E} = IR^{Amt} * LS = \frac{Ecomomic\ Loss\ for\ cell}{Total\ amount\ of\ Exposure\ in\ cell}$$

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4. Loss Statistics Calculations

This subsection provides a detailed description of the general formulas listed in 1.C.3 just preceding this. These more detailed formulas apply to determination of the measures by amount. They can be modified easily for comparable measures by number. The formulas apply to all CREs held by all companies for a particular calendar year, t. They can be modified to capture any prescribed cell such as an industry type, a rating or the aggregate of the data. A hypothetical example of the calculations is provided following the generalized formulas.

The CRE cashflow experience of one company is used to represent other companies' experience when a CUSIP is owned by more than one company. This approach was used to minimize the data submission requirements of participating companies. The company that provides the cashflows is referred to as the proxy company. The present value of the cashflows is dependent on each company's reported quality rating of the CUSIP at acquisition, or earliest rating, and at the time of the CRE as described in the subsection below.

$$Incidence\ Rate_t = \frac{\sum_i OP_t^{CRE_i}}{TotalOPExposure_t}$$

Where:

CREi = an asset, with a unique CUSIP, that resulted in a credit risk event.

i = a counter for each unique CUSIP that resulted in a credit risk event, CREi. Will vary from 1 to the total number of CREs in this study.

t = calendar year of the CRE

$OP_t^{CRE_i}$ = *Total Outstanding Principal, (OP), of* CRE_i, *occurring in year t for all companies holding* CRE_i

$$= (ParValue_{LCD}^{Co\#,CRE_i} / ParValue_{YE-1}^{Co\#,CRE_i}) * (\sum_j OP_{YE-1}^{CO_j,CRE_i})$$

Where: Co# is the proxy cashflow company for all companies holding the same asset. The purpose of the par value adjustment is to allow for principal payments that are made after year-end but before the LCD. Ideally this adjustment would be based on a ratio of outstanding principal but those values were not available in the database at the LCD. The par value change before the LCD, if any, is gathered from the submitted CRE cashflows. The adjustment reduces the sum of outstanding principal of the CREs for all companies at year-end to what it was at the time of the CRE.

YE = year-end date of the current calendar year t.

j = a counter for each company, Coj, holding CREi.

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$TotalOPExposure_t$ = Total Outstanding Principal Exposed in Year t

The calculation of exposure is based on year-end values of outstanding principal and the outstanding principal that has a CRE in calendar year t as follows:

a) Assets that are not credit risk events

i. Assets in both year-end t-1 and year-end t exposure data files

$$Exposure_t = (OP_{YE-1} + OP_{YE})/2$$

ii. Assets only in year-end t-1 exposure date file (e.g., maturity)

$$Exposure_t = (OP_{YE-1})/2$$

iii. Assets only in year-end t exposure data file (e.g., new acquisition during year)

$$Exposure_t = (OP_{YE})/2$$

b) Assets that incurred a credit risk event during year t

$$Exposure_t = \sum_i OP_t^{CRE_i}$$

This is the same formula that is used for the numerator of the Incidence Rate.

c) Assets that incurred a credit risk event prior to year t

$$\text{Exposure}_t = 0$$

Aggregate exposure is the sum of the exposure for the individual assets. Exposure by number of assets is calculated using the same principles.

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$$Loss\ Severity_t = \frac{\sum_i EL_t^{CRE_i}}{\sum_i OP_t^{CRE_i}}$$

Where:

$EL_t^{CRE_i}$ = *Economic Loss of CRE$_i$ occurring in year t*

$$= (\sum_j OP_t^{Co_j, CRE_i} * [1 - PVRCF_{ValDate}^{Co_j, CRE_i} / \{(\frac{ParValueRCF_{LCD}^{Co\#, CRE_i}}{ParValueOCF_{LCD}^{Co\#, CRE_i}}) * (PVOCF_{ValDate}^{Co_j, CRE_i})\}])$$

Where:

a. $OP_t^{Co_j, CRE_i}$, is a subset of $OP_t^{CRE_i}$ as defined for the Incidence Rate calculation. It is the total outstanding principal, (OP), at the time of CRE$_i$, occurring in year t for company j holding CRE$_i$.

b. $ParValueRCF_{LCD}^{Co\#, CRE_i}$ is the par value of CRE$_i$ held by the proxy cashflow company, Co#, in year t at the LCD. Whereas the CRE date is substituted for the LCD in determining the Incidence Rate when the CRE is caused by bankruptcy and that data is available, no substitution is made for this value. It is always based on the par value at the LCD.

c. $ParValueOC\,F_{LCD}^{Co\#, CRE_i}$ is the par value of CRE$_i$ held by Co# in year t assuming payments since inception followed their expected schedule at inception of the security. Generally the par values of the original and revised cashflows will be equal unless unscheduled principal payments are made or scheduled principal payments are not made before the LCD.

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d. $PVOCF_{ValDate}^{Co_j,CRE_i}$ is Company j's present value at the valuation date of the proxy cashflow company's original cashflows of CRE_i occurring in year t valued using the Company j's rating of the asset at acquisition.

e. $PVRCF_{ValDate}^{Co_j,CRE_i}$ is Company j's present value at the valuation date of the proxy cashflow company's revised cashflows of CRE_i occurring in year t valued using Company j's rating of the asset at the time of the CRE.

The present value of original cashflows is normalized with the ratios of par values shown to adjust for unscheduled principal payments made or scheduled payments not made as respects the original and revised cashflows of the proxy cashflow company.

Sample Calculations - All samples are hypothetical and not actual 2008 results.

2008 Incidence Rate:

Start by deriving measures to support Incidence Rate by amount calculations.

First derive total Outstanding Principal (OP) exposed in 2008 that had a CRE. Calculation of CRE1 exposed outstanding principal is shown below.

Assume the following for CRE1:

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CRE_1 LCD = 5/14/2008

		Outstanding Principal from Exposure File	Par Value from Revised Cashflows		Outstanding Principal at CRE
		12/31/2007 (000's)	12/31/2007 (000's)	5/14/2008 (000's)	(000's)
Company					
1		10,000			9,857
2		14,750			14,539
3	= Co3	7,000	7,000	6,900	6,900
4		40,000			39,429
5		23,000			22,671
Total		94,750			93,396

$$OP_{2008}^{CRE\ 1} = 94{,}750*(6{,}900/7{,}000) = 93{,}396$$

This is the amount of exposed outstanding principal for 2008 attributable to CRE1. Company 3, Co3, is the proxy cashflow company. Companies 1, 2, 4 and 5 use the ratio of par value change of Co3 to state their outstanding principal at the CRE.

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Follow the same process to determine the exposed outstanding principal for all other 2008 CREs.

Assume the following for the other 2008 CREs, 2 - 8:

2008 CREs	$OP_{2008}^{CRE_i}$ (000's)
1	93,396
2	23,500
3	17,800
4	55,600
5	32,600
6	45,400
7	12,200
8	16,100
Total	296,596

This is the total outstanding principal exposed in 2008 that had a CRE. It is a consolidated view that lists the total of each of the CREs 1 - 8 held by all companies. The individual positions comprising the eight CREs are shown in the fifth table in this subsection.

$$\sum_i OP_{2008}^{CRE_i} = 296{,}596$$

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Derive Total 2008 Exposure for Outstanding Principal (amount) and CUSIPs (count)

Assume the following:

End of Year:	2007	2008	2007	2008
	Outstanding Principal (000's)		CUSIP Count	
Assets That Are Not CREs:				
Assets Held Begin and End of 2008	20,634,000	20,640,000	1,094	1,105
Assets Only Held Begin of 2008	2,579,250		156	
Assets Only Held End of 2008		2,837,180		164
Assets That Have Had a CRE:				
Assets with a CRE During 2008	296,596	222,447	17	13
Assets with a CRE Before 2008	1,186,780	949,109	68	54
Total 2008 Exposed OP		23,641,811		1,277

$$TotalOPExposure2008 = (20,634,000 + 20,640,000)/2 + 2,579,250/2 + 2,837,180/2 + 296,596$$

$$= 23,641,811$$

$$2008\ Incidence\ Rate\ by\ Amount = \frac{\sum_i OP_{2008}^{CRE_i}}{TotalOPExposure_{2008}} = (296,596/23,641,811) =$$

$$= 1.25\%$$

Assume the data from the above table to derive incidence by number.

$$Total\ Count\ Exposure = (1,094 + 1,105)/2 + 156/2 + 164/2 + 17 = 1,277$$

$$2008\ Incidence\ Rate\ by\ Number = 17/1,277 = 1.33\%$$

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2008 Loss Severity:

Start by deriving the Economic Loss amount for a CRE-Company combination, e.g., CRE1 for Company 3, the proxy company, also referred to as Co#.

The Economic Loss calculation for Company 3's holding of CRE1 uses data from the first table in this subsection,

Outstanding Principal at Prior Year-end = 7,000

Par Value of Revised Cashflows at LCD = 6,900

Par Value of Revised Cashflows at Prior Year-end = 7,000

and the following values:

Present Value of Revised Cashflows = 5,040

Par Value of Original Cashflows at LCD = 7,000

Present Value of Original Cashflows = 7,200

$$= [(7{,}000) * (6{,}900/7{,}000)] * [1 - 5{,}040/((6{,}900/7{,}000) * 7{,}200)] = 2{,}000$$

The first table in this subsection provides all values in the first bracket in the formula above. The value of 7,000 in the first set of brackets is the outstanding principal at the year-end before the LCD. The ratio of (6,900/7,000) in the first set of brackets is with respect to par values at the year-end before the LCD and at the LCD. The par value at the prior year-end to the LCD is calculated by adding principal payments paid, if any, after the year-end through the valuation date per the revised cashflows.

The ratio of (6,900/7,000) in the second set of brackets is the par value of the revised, (actual) and original, (scheduled or expected), cashflows at the LCD. The present value of the original cashflows are scaled by this ratio to make them comparable to the present value of the revised cashflows.

It is coincidental in this example that the outstanding principal at the year-end before the LCD, the par value at the prior year end based on the revised cashflows and the par value of the original cashflows at the LCD are all equal to 7,000. Although these values are related to each other they do not have to be the same.

Note that since the proxy cashflow company is the only source of the cashflows for all companies owning the asset both the first and second ratios in parentheses in this formula are always based on the proxy cashflow company's experience that is shared with the other companies that did not report cashflows on a given asset. Conversely each company uses its own present value of the original (PV OCF) and revised cashflows (PV RCF) which are based on the proxy cashflow company's cashflows but valued using asset ratings designated by each company holding the asset.

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The table below shows values for all of the companies comprising the Economic Loss calculation of CRE1. The values for $OP_{2008}^{Co_j,CRE_1}$, PV OCF and PV RCF are specific to each company.

CRE_1 Company Economic Loss

Company	$OP_{2008}^{Co_j,CRE_1}$ (000's)	PV OCF (000's)	PV RCF (000's)	Economic Loss %	Economic Loss Amount (000's)
1	9,857	7,345	5,040	30.4%	2,995
2	14,539	7,056	5,005	28.0%	4,077
3	6,900	7,200	5,040	29.0%	2,000
4	39,429	7,200	5,000	29.5%	11,651
5	22,671	7,100	5,039	28.0%	6,348
Total					27,071

The sum of the Economic Loss from CRE1 for all companies is $EL_{2008}^{CRE_1}$ = 27,071.

The loss percentage by company is derived per the following formula:

$$= (\sum_j OP_t^{Co_j,CRE_i} * [1 - PVRCF_{ValDate}^{Co_j,CRE_i} / \{(\frac{ParValueRCF_{LCD}^{Co\#,CRE_i}}{ParValueOCF_{LCD}^{Co\#,CRE_i}}) * (PVOCF_{ValDate}^{Co_j,CRE_i})\}])$$

where for all companies:

i = 1

$ParValueOCF_{LCD}^{Co\#,CRE_1}$ = 7,000

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$ParValueRCF_{LCD}^{Co\#,CRE_1}$ = 6,900

Since each company uses its own asset ratings applied to the proxy company cashflows, each company can have a different loss percentage. The Company 1 Economic Loss % is:

*= [1 – 5,040/((6,900/7,000)*7345)] = 30.387%*

The Economic Loss Amount is the outstanding principal at the time of the CRE times the Economic Loss %.

*= 9,857*30.387% = 2,995*

The table below shows the combined company loss severity rate calculation by amount and number (also referred to as by count). CRE 1 data from the table above is listed along with corresponding information for CREs 2 - 8. The CRE amounts owned by each company, $OP_{2008}^{CRE_i,Co_j}$, total to the amount shown for each of the 8 CREs in the second table in this subsection. The CRE 1 loss percentage data is determined as described in the explanations accompanying the table above. The CUSIP loss percentage values for CREs 2 - 8 in this table are not explicitly calculated as part of this demonstration.

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CRE	Company	$OP_{2008}^{CRE_i,Co_j}$ (000's)	CUSIP Count	CUSIP Loss %	$EL_{2008}^{CRE_i,Co_j}$ (000's)
1	1	9,857	1	30.4%	2,995
1	2	14,539	1	28.0%	4,077
1	3	6,900	1	29.0%	2,000
1	4	39,429	1	29.5%	11,651
1	5	22,671	1	28.0%	6,348
2	4	7,000	1	67.0%	4,687
2	7	16,500	1	57.1%	9,413
3	3	17,800	1	11.6%	2,057
4	5	6,950	1	37.0%	2,572
4	7	24,325	1	29.0%	7,054
4	8	24,325	1	29.0%	7,054
5	3	27,943	1	71.0%	19,839
5	9	4,657	1	64.0%	2,981
6	1	45,400	1	20.0%	9,080
7	6	12,200	1	10.0%	1,220
8	5	14,950	1	79.5%	11,885
8	8	1,150	1	86.5%	995
Total		296,596	17	706.5%	105,908

This is the total economic loss in 2008 for all CREs.

$$\sum_i \sum_j EL_{2008}^{CRE_i,Co_j} = 105{,}908$$

The corollary measure by count is

$$\sum_i \sum_i CusipLoss\%^{CRE_i,Co_j}$$

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2008 Loss Severity by amount

$$= \frac{\sum_i EL_{2008}^{CRE_i}}{\sum_i OP_{2008}^{CRE_i}} = 105{,}908/296{,}596 = \mathbf{35.7\%}$$

2008 Loss Severity by number

= Average of CRE % Loss = 706.5%/17 = 41.6%

2008 Economic Loss Rate per unit of Exposure:

2008 Economic Loss Rate per unit of Exposure by amount

= Incidence Rate * Loss Severity

$$= \frac{\sum_i OP_{2008}^{CRE_i}}{TotalOPExposure_{2008}} * \frac{\sum_i EL_{2008}^{CRE_i}}{\sum_i OP_{2008}^{CRE_i}} = (105{,}908/23{,}641{,}811) = \mathbf{.45\%}$$

2008 Economic Loss Rate per unit of Exposure by number

= (17/1,277)*(707.5%/17) = 706.5%/1,277 = .55%

5. Cashflow Discounting

The determination of the interest rates to use to calculate the present values of the original and revised cashflows is a critical component because the ultimate quantification of the economic loss depends upon the interest rates used. There are different possible approaches to determining the rates. The following summarizes the approach used.

Set the interest rate by period as the yield curve spot rates derived from the sum of the associated treasury rates and spreads determined as follows:

a) The rate source for the treasury rates is the St. Louis Federal Reserve H.15 Treasury constant maturities.
b) The spreads were determined for calendar quarter-end valuation dates from 3/31/2002 through 12/30/2012. The present value of the combined original and revised cashflows discounted using the term structure of spreads was used to solve for the equivalent level spread. For this purpose A, AA and AAA spreads were weighted 70%, 25% and 5% respectively to determine the combined AAA-A spread. The spreads are shown in the table below.

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Spread in Basis Points

Date	AAA-A	BBB	BB	B and Below
3/31/2002	214	269	513	743
6/30/2002	179	290	444	548
9/30/2002	207	298	573	951
12/31/2002	170	290	581	1,031
3/31/2003	162	272	549	950
6/30/2003	157	264	497	806
9/30/2003	117	232	441	960
12/31/2003	121	184	413	1,073
3/31/2004	126	177	267	508
6/30/2004	135	224	415	602
9/30/2004	133	163	378	616
12/31/2004	95	160	313	706
3/31/2005	96	125	181	383
6/30/2005	96	135	315	951
9/30/2005	86	149	271	879
12/31/2005	90	133	205	489
3/31/2006	97	127	284	618
6/30/2006	88	120	231	650
9/30/2006	87	130	305	619
12/31/2006	88	132	254	642
3/31/2007	73	119	352	640
6/30/2007	89	115	213	603
9/30/2007	119	162	358	984
12/31/2007	168	210	392	792
3/31/2008	251	303	528	986
6/30/2008	266	284	477	1,010
9/30/2008	330	335	733	1,085
12/31/2008	464	634	965	1,813

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Date	AAA-A	BBB	BB	B and Below
3/31/2009	359	536	776	651
6/30/2009	251	438	581	331
9/30/2009	320	283	706	1,338
12/31/2009	240	235	556	1,186
3/31/2010	176	228	435	1,481
6/30/2010	170	254	539	1,307
9/30/2010	150	253	661	1,204
12/31/2010	171	280	551	834
3/31/2011	129	175	457	627
6/30/2011	125	198	410	965
9/30/2011	126	278	517	1,140
12/30/2011	206	319	811	1,022
3/30/2012	191	250	534	851
6/30/2012	191	242	379	590
9/30/2012	159	229	416	473
12/30/2012	118	294	454	416

The data used to develop the spreads is based on public corporate bond spreads and data provided by ACLI for private placement spreads at issue. Ideally, a full term structure of spreads would be used to develop the cashflow present values. But, consistency of the supplied spreads at that degree of granularity did not support the use of a full term structure. For similar reasons of data consistency and a high concentration of A-rated assets, AAA, AA and A ratings were combined into one rating grouping.

The loss severity calculation uses economic loss, as an input which is the difference of the present value of the original cashflows, (the maximum amount that can be lost) and the present value of the revised cashflows, (the amount recovered); see prior subsection for details. The present value of the original cashflows, PVOCF, is designed to use the current spread of the quality rating at acquisition. The present value of the revised cashflows, PVRCF, is designed to use the spread of the quality rating at the CRE. The spread difference contributes to capturing a market value like difference of the asset in a before and after CRE state. The other contributing factor is the difference of the revised cashflows to those originally expected.

Data substitutions are made to the design of cashflow present values. As applicable, the earliest known reported rating is used if the rating at acquisition is not known. And for all CREs, the quality rating at the year-end before CRE is used for the rating at the CRE. That is not ideal but given that credit deterioration often affects ratings well before an actual default, much of the rating deterioration effect in the loss severity calculation is likely to be captured.

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The valuation date of the cashflow present values is the most recent received interest or principal amount before the LCD. This point is selected to include interest that would be earned at time of the CRE in the loss measures. Cashflow on the valuation date is excluded from the present values. Modifications are made as appropriate. For example, the valuation date of a zero coupon bond is the LCD because until a default occurs, interest is assumed to be earned with the amount defaulting equal to the accreted value on the LCD.

The quarter-end rate series used is the one that is closest to the valuation date. The formulas for PVOCF and PVRCF are shown below.

Equation (1)

$$PVOCF_{ValDate}^{CRE_i} = v_1^{t_1} * OCF_1 + v_2^{t_2} * OCF_2 + \ldots + v_j^{t_j} * OCF_j + \ldots + v_n^{t_n} * OCF_n$$

Where

$$v = \frac{1}{(1 + \frac{i_j^{(j)}}{2})^2}$$

$i_j^{(2)}$= the spot rate for date j derived from the treasury constant maturity plus spread yield curve defined above (assuming nominal annual rates compounded semi-annually)

tj = (number of months from valuation date to date j)/12

date j = jth payment date

OCFj = jth original cashflow

n = number of remaining scheduled cashflows after the valuation date

Equation (2)

$$PVRCF_{ValDate}^{CRE_i} = v_1^{t_1} * RCF_1 + v_2^{t_2} * RCF_2 + \ldots + v_j^{t_j} * RCF_j + \ldots + v_k^{t_k} * RCF_k$$

RCFj = jth revised cashflow

k = number of revised cashflows after the valuation date

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Notes:

The $v_j^{t_j}$ in Equations 1 and 2 usually are different from one another because the PVOCF and PVRCF use quality ratings from different points in time to select the current spread. The PVOCF uses the quality at acquisition whereas the PVRCF uses the quality at the CRE.

All payments are assumed to be made on the same day of the month. This results in an integral number of months from the valuation date to any payment date.

1.D DATA VALIDATION

A number of checks were done to validate submitted exposure, CRE cashflow and CRE characteristic data. The exposure data was analyzed in a multi-stage review process. The CRE data was examined as each CRE's set of cashflows was processed, peer reviewed and then subjected to additional reasonableness checks.

The initial exposure file check used automated edits to check for syntax, logic and consistency of inter and intra-company records. Due to practical limitations, the file was not 100% scrubbed. Initially, problem fields were prioritized and pursued directly with contributors. Emphasis was placed on reviewing the consistency of high-impact fields: par value, outstanding principal, maturity date, bond equivalent yield at acquisition (BEY), amortization code, coupon rates and standard industry codes (SIC). A substantial amount of review of inconsistencies and outliers was done directly with the contributors. For example, maturity date and inforce amount consistencies were thoroughly examined. Similarly, inconsistencies of amortization status and SIC across observation years were also reviewed in detail. When data was revised through direct correspondence with a contributor, it was deemed to have the same validity as the originally supplied contributor data.

In addition to field data revisions, this phase of the data review revealed two asset types that were reviewed by all contributors. This resulted in the elimination of Capital Company Programs (CAPCOs) from the study data. These assets are state-sponsored private venture capital funds that must invest in small businesses. The funds provide an ongoing non-guaranteed return through premium tax credits. Because the securities do not have an interest payment element, they were taken out of the study. State lottery annuities were also identified in the data. Because the contributor to retain them was not unanimous, these assets were left in the study. But because less than five companies supplied lottery deals, it was decided to exclude the indicator from the final database used for analysis to protect contributor confidentiality. Other assets were also eliminated from the data when their asset type did not qualify for inclusion, i.e., money market funds and asset-backed securities.

The study was expanded in its later stage to include two additional years of experience. Contributors were given the option on existing assets to send full data (full reporters) for 2011-2012 or streamline data (streamline reporters) that omitted fields not expected to change from one observation year to the next. These fields, referred to as static fields, were filled in according to rules that generally followed either use of the corresponding 2010 value or, in some cases, the corresponding value from the earliest observation year. The latter option was used when the 2010 and prior values were themselves inconsistent, i.e., different quality ratings at acquisition. Some fields that had already been scrubbed extensively, i.e., amortization code, used the 2010 value because, with the prior scrubbing, it was deemed the best value for use in the 2011 and 2012 observation years. Companies that submitted 2011-2012 data on a streamline basis for assets held in 2010 effectively authorized the Study Committee to supply the missing data fields. The data that was filled in is deemed to have the same validity as the originally supplied contributor data.

The submission of supplemental data for 2011-2012 exposure years by full reporters highlighted static field consistency problems across CUSIP observation years. Seven of the 13 static fields were assigned the highest priority for further review and the scope of the review was expanded to include streamline reporters. The static fields reviewed were Original Funding Date, Original Coupon, Internal Rating at Acquisition, Moody's Rating at Acquisition, NAIC Rating End of Calendar Year of Acquisition, BEY at Acquisition and SIC. Changes to these fields were done without further contributor input. The original data submissions were saved and corresponding revised fields, referred to as study fields, were created. This is standard operating procedure for SOA experience studies to maintain the integrity of company data and be able to reconstruct what modifications were made.

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The philosophy of recommended changes is to draw inferences from the original data submission to make selected changes to it in creating the study fields. Where changes were made, alternative data designations of the original submission were made with a combination of automated rules-based changes and, in some instances, judgment applied to a manual review of records. Where a logical conclusion could not be drawn, no changes to the original data were made in creating the study data.

Ideally, static field values would be the same across all observation years in a CUSIP but, either due to small errors or valid circumstances, they can be different. Tolerances were set for the acceptability of different values. Given that experience study analysis is done in ranges of values, small differences are acceptable, i.e., a maximum .50% difference of the original coupon across all observation years. Tolerance tests were modified for companies that reported multiple records for a given observation year. It is likely they reported each asset lot acquisition, rather than combining them into one entry for an observation year. In that instance, the same tolerance differences were tested on the basis of matching groups of asset records across observation years. This allowed the preservation of accurately reported records that were otherwise producing false positives. After the screens were performed, remaining inconsistencies not passing the tolerance tests were examined to see if the data could be easily corrected.

A final process included the creation of study data, where feasible, for blank or null data field submissions. Initially, the data screens treated an "all nulls" entry as consistent because there was no variation of the data across observation years. When these false negatives were discovered, rules were applied to fill in data gaps where feasible. For example, if a contributor did not provide the ratings at acquisition, the earliest current rating, if available, was used to state a rating at acquisition. Using the "earliest of" current data enabled many null fields to be filled in the study data. When there was no supporting current data, the corresponding study field value was left as null.

SIC values were scrubbed separately from the above process for the other static fields. The SIC field was one of the initial high priority fields that was reviewed with direct contributor input. The Committee determined through that process to convert the alpha-numeric combinations of submitted data to one of five groupings: Industrial, Financial, Utility, Government and Other. The last stage of the review was an automated process to check for unresolved company conflicts, intercompany conflicts and blank entries (null values). The automated process replaced null entries with the industry group determined by one or more other companies if those companies had a unanimous view on the industry group of the CUSIP. Special codes, listed below, were created to identify the nature of the industry field value if it was not one of the five valid industry groupings

1) DQ1 – Company has an unresolved internal conflict across observation years. No value available.

2) DQ2 – Two or more companies have an unresolved view on the industry group.

3) Null – Appears as blank. Company supplied no data.

CRE characteristic data and the associated cashflows were also extensively reviewed. Generally, the characteristic files, which were submitted at an earlier stage of the project, were used to corroborate and fill in some of the needed information to determine the present value of the cashflows. When there were inconsistencies between the cashflows and the characteristic data, contributors were asked to explain the reasons for them or supply revised data. In some cases, the initially supplied cashflows did not meet the minimum standards to process. They were returned to the contributor for subsequent resubmission.

Each CRE CUSIP was coded by SOA staff, MIB or a contracted consultant to the project to determine the present values of the original and revised cashflows. As noted under Section 1.C Actuarial Methodology in this Appendix, where a CUSIP is owned by more than one contributor, one company's cashflows, the proxy company, are used for all companies owning that CUSIP. The cashflows were subjected to a rigorous review of consistency between the cashflows supplied and the associated characteristic data. Particular attention was given to the remaining loaned amount equating to the projected repaid par value amounts for the original cashflows and as feasible for the revised cashflows too. Generally, each CRE cashflow processor worked to validate the consistency of key variables, i.e., funding date, maturity date, loss calculation date and coupon of the cashflows with other corroborating data. The primary source for this was the characteristic data, but the exposure file was also used in some instances. Each CRE was peer reviewed as part

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of this process. Before or after a peer review, unresolved questions were posed to the contributors. Any changes to submitted cashflows were only made at the direction of a contributor.

A high-level check was also done after all the CRE present values were determined. The original cashflows were checked for integrity by discounting them at the coupon rate. A small number of material differences of the present value from par value were reviewed for potential errors. Most were explained by the circumstances. A small number of CUSIPs were revised as a result of this check. Similarly, very limited occurrences of present value anomalies seen in the Beta versions of the CRE-Exposure file were investigated and resolved.

The initial submissions of identified CREs resulted in some conflicts regarding whether a CUSIP experienced a CRE when it was owned by two or more companies. Because a unanimous view of the yes/no CRE status of all CUSIPs is critical to the study, the conflicts were resolved with direct contributor input. All contributors involved in a conflict for each CUSIP were asked to submit the rationale for their view. In some instances, opinions changed, which resolved some of the conflicts. After the revised yes/no views were compiled, the remaining CUSIPs in question were reviewed individually by a sub-group of investment professionals from the contributing companies. Their determinations, through the authority of all contributors, resolved any remaining conflicts.

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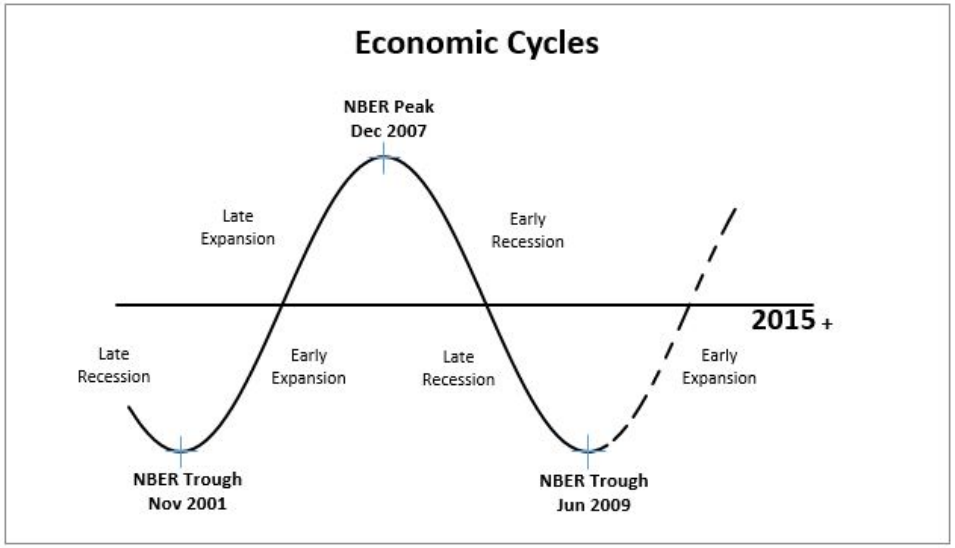
Appendix II—Economic Conditions during the Study

Public bond default studies have shown that defaults, or the timing of when defaults occur, are highly correlated with the economic cycle. The same applies to private placement defaults. This section is included to provide the reader with some basic insight on economic cycles and conditions for the studied period of this report. This section represents the Committee's observations only and is useful when viewing the cyclical nature of the data. This is a general high-level summary of the U.S. economy and is not meant to be a substitute for economic research reported by professional economists.

2.A INTRODUCTION

During the ten-year (2003-12) Private Placement research study period, the U.S. economy experienced portions of two economic cycles, as defined by the economic research performed by the National Bureau of Economic Research (NBER). The peak and trough dates are determined through the use of various economic indicators such as Real Gross Domestic Production (GDP), Real Gross Domestic Income (GDI), Real Manufacturing and Trade Sales, Index of Industrial Production, Real Personal Income Less Transfers, Payroll Survey Employment, Household Survey Employment and Aggregate Weekly Hours Index in Total Private Industries. Note the graph below is for illustration purposes only. The true expansion and contraction of the economy are not strictly monotonically increasing or decreasing in terms of economic activities. In both recessions and expansions, momentary reversals in economic activity may occur. For example, a recession may include a short period of expansion followed by further decline. Similarly, an expansion may include a short period of contraction resumed by further growth.



Source: National Bureau of Economic Research

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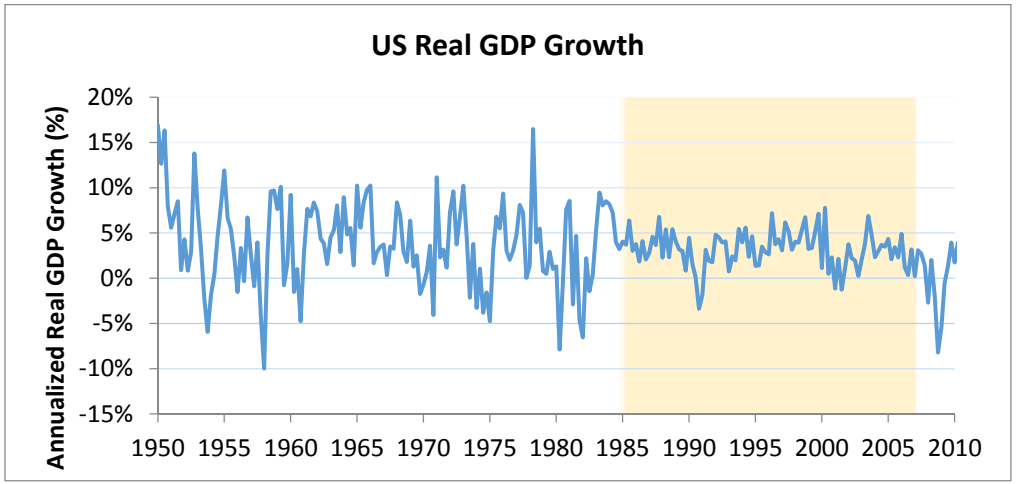
The following subsection discusses the economy in the three sub-periods shown above and discusses the implications each economic cycle has on the wider financial markets, particularly the rising and falling cyclical stresses impacting interest rates and credit risk:

- Expansion Period: 2002 to Late 2007
- Financial Crisis: Late 2007 to Mid-2009
- Historically Low Interest Rate Environment: Mid-2009 and Beyond

2.B EXPANSION PERIOD: 2002 TO LATE 2007

The NBER determined that a peak in economic activity occurred in the U.S. economy in December 2007. The peak marked the end of the expansion that lasted 73 months, and the beginning of a recession triggered by the Financial Crisis. This period is the last part of the Great Moderation period, which was defined by economists starting in the mid-1930s where volatility of business cycle fluctuations had decreased compared to other economic periods. This reduction of volatility is believed to be due to greater independence of the central banks from political and financial influences, information technology advancements and improved and stabilized economic structure. Shifting away from manufacturing and adopting better inventory management practices and sales forecasts, along with more fluid communications, has increased corporations' stability. Limited governmental interference was perceived as the best way to provide growth in the banking industry and the world's economy during this period of time. More relaxed regulation is also seen through the "Financial Services Modernization Act of 1999," which partially deregulated the financial services industry by permitting commercial banks to integrate with investment banks as a means to foster growth. Despite the bursting of the Tech Bubble in 2001, with over a decade of relatively low inflation and stable growth, the Great Moderation cultivated complacency and risk-taking in the market that ultimately led to the Financial Crisis in 2007.



Source: Federal Reserve Economic Data

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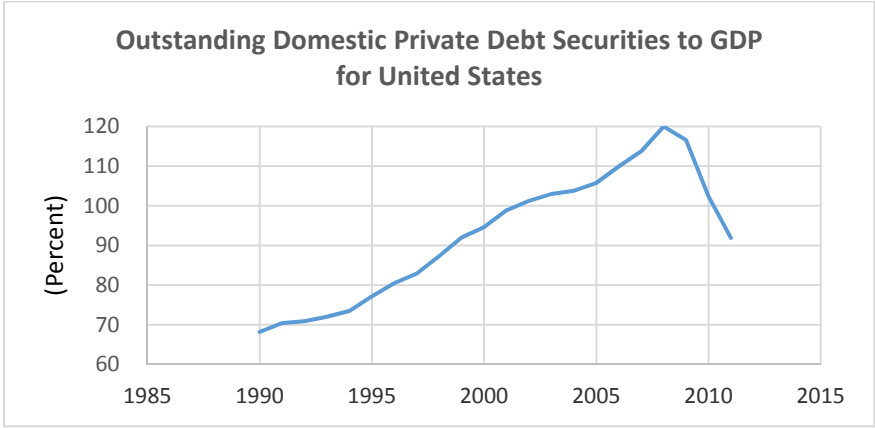
2.C FINANCIAL CRISIS: LATE 2007 TO MID-2009

2007 to 2009 was a period where economic activity was in widespread decline across the U.S. economy, as indicated by figures such as real income, real GDP, unemployment ratios, industrial production and wholesale-retail sales. The recession lasted approximately 18 months, which is the longest since World War II. The Federal Reserve reduced interest rates to historic lows and purchased approximately four trillion dollars of U.S. debt to bring the recession to a stop and help the economy recover to its current state. The actions the Federal Reserve took during this period of time were widely known as Quantitative Easing.

Multiple causes led to the Financial Crisis of 2008, also known as the Global Financial Crisis. Due to the interconnectedness of financial markets and the U.S. being a dominant world economy, the bursting of the U.S. housing bubble caused the prices of structured products such as mortgage-backed securities (MBS) to plummet, severely damaging financial institutions worldwide – some of which required significant bailouts by national governments to prevent a total collapse like that of Lehman Brothers in 2008.

The partial collapse of the U.S. economy during the Financial Crisis was triggered by an intricate interplay of lending practices, risky and complex financial products such as subprime mortgages, as well as the monitoring and evaluation of the risk levels at financial institutions. Financial engineers pooled together mortgages, which they, in turn, labeled as less risky due to diversification of risk through pooling. However, in reality, pooling of these risks did not lower the inherent risks since property markets in different U.S. cities are not always correlated with each other. For example, if risks were positively correlated, defaults in one region may be related to defaults in other regions. But if negatively correlated, defaults in one region may be more localized or exhibit other characteristics such as different severity, different incidence of loss, or length of recovery period, not similar to other regions. After the housing bubble peaked in 2006, the U.S. suffered a nationwide house-price decline, with a surge in foreclosures. As shown in the graph below, there was also an increase in the total amount of domestic private debt securities issued in domestic markets as a share of the GDP, which included data on long-term bonds and notes, commercial paper and other short-term notes.



Source: Federal Reserve Economic Data

During the same period, Asia's excessive savings further lowered global interest rates, driving investors to accept riskier investments in their search for returns. European banks borrowed excessively in American money markets with their low interest rate before the crisis and then used the funds to buy risky investments as well. All of these factors contributed to the magnitude and pervasiveness of the Global Financial Crisis.

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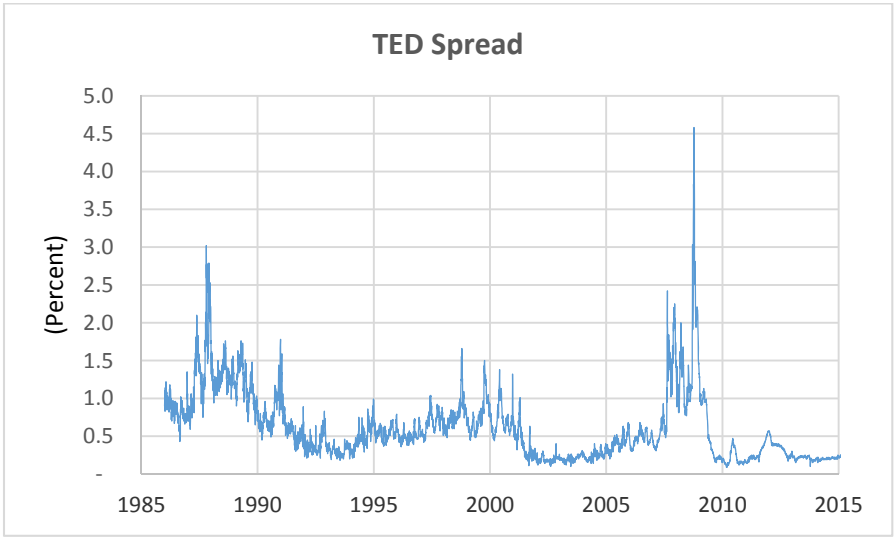
The Treasury-Eurodollar (TED) spread, the difference between interest rates on interbank loans (e.g., LIBOR) and short-term U.S. government debt (e.g., T-Bills), spiked in 2008, breaking historic records set during the crash of 1987. The TED spread is an indicator of counterparty risk in financial markets since T-bills are considered risk-free, while LIBOR reflects the counterparty risk associated with lending to large commercial banks. An increase in the TED spread is a signal of increasing default risk between interbank lenders or the absence of a liquid lending market. These two phenomena were both observed during the Financial Crisis.



Source: Federal Reserve Economic Data

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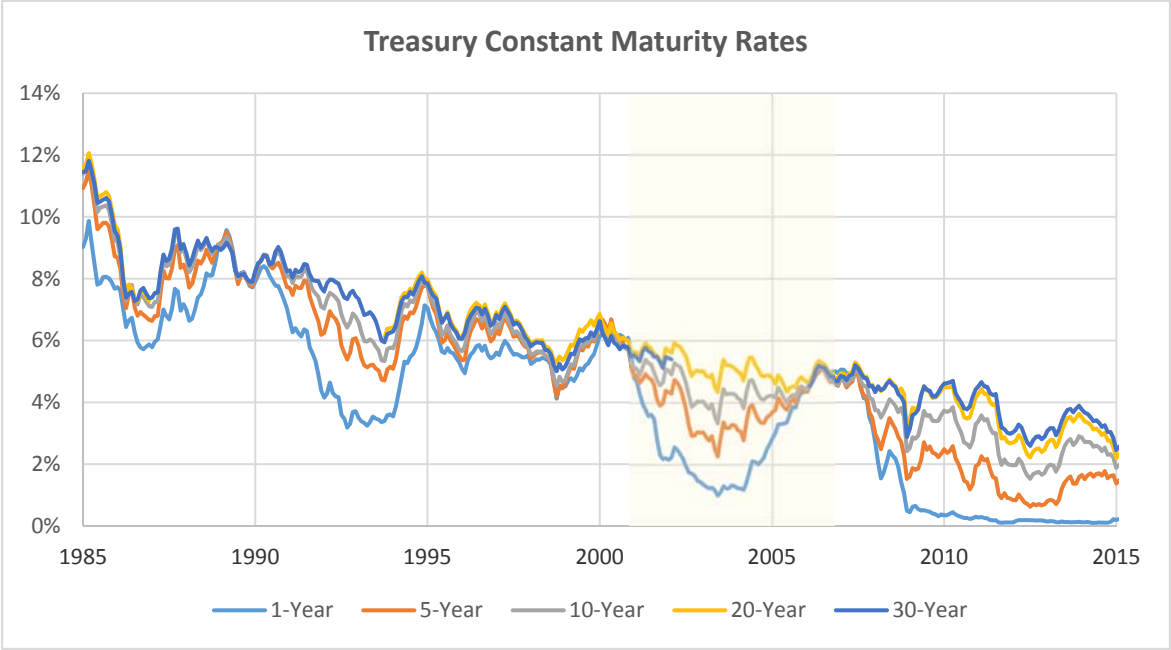
2.D HISTORICALLY LOW INTEREST RATE ENVIRONMENT: MID-2009 AND BEYOND

In September 2010, the Business Cycle Dating Committee of the NBER marked June 2009 as the trough of the economic cycle, which defined the end of the recession that began in December 2007. Despite the fact that the recession had ended, economic recovery was slow and gradual. The 2007 Financial Crisis was the most intense global financial downturn since the Great Depression. The Federal Reserve took extraordinary measures to help stabilize the U.S. financial market and wider economy. One of the most prominent actions taken by the Federal Reserve was the reduction of short-term interest rates to a near-zero level. In addition, the Federal Reserve purchased large quantities of long-term Treasury securities and securities issued by government-sponsored agencies, such as Fannie Mae and Freddie Mac, to lower long-term interest rates and help stabilize asset prices. As shown by the Treasury Constant Maturity Rates below, the 1-year CMT rate has been near zero. Rates for other maturities are also at historic lows.



Source: Federal Reserve Economic Data

The main role of the Federal Reserve is to manage monetary policy to both generate full employment and keep inflation at a low, stable level. Market data from the early months of 2015 suggests that economic growth is continuing at the stable pace observed in prior years, with continual improvement in labor market indicators. At the same time, inflation has declined below the Federal Reserve's long-term goal of around 2%. This has been driven to some extent by the decline in energy prices, with U.S. crude oil prices hitting a six-year low.

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Despite some challenges to continued economic growth, the Federal Reserve announced a rate increase in late 2015. The strengthening dollar has been putting downward pressure on exports.

Some have also expressed concerns over various risks abroad, particularly the slowing economy of China, the world's second largest economy. In mid-2015, the Chinese stock market experienced multiple large declines as the government allowed their currency (the yuan) to depreciate. There is growing concern about how this market volatility in the world's second largest economy will affect the rest of the world.

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Appendix III—Limitation of the Study

3.A LIMITATIONS DISCUSSION

There are generally two types of limitations found in this study: those related to the quality and completeness of the data collected and used, and those concerning the sufficiency of the data for purposes of drawing valid conclusions about credit risk.

Limitations include:

- Nine of the 15 participating companies contributed data to all years of the study. Four companies participated in 9 years. The average participation was 9.3 years for all 15 companies.

- The proportion, as noted in Section I Introduction, of private placements in the study versus those held in life insurance company general accounts ranges from a low in 2003 of 15% to a high of 24% in 2008. While the sample size is substantial in amount, it is highly concentrated. The top five contributors provided 73% of the exposures.

- The nature of private placements and the definition of a CRE introduce an active investment management element to the study. Private placement investors may, in many instances, have greater control if credit deteriorates than they would have with a similar public bond. Their active investment management in those situations can affect results, whereas the same opportunity to control the outcome with public bonds is less certain given the larger groups of investors with diverse ownership interests. Also related to active investment management, a sale at or less than 70 cents on the dollar is defined as a CRE. The sale decision and its timing affect study experience. Companies with less experience in underwriting these bonds may or may not replicate the experience presented in the study.

- Study results are not directly comparable to public corporate bond studies. The definition of a CRE is broader to accommodate the nuances of the private placement market as discussed in Section 1.1, Background. The loss severity calculation is slightly different, too, as discussed in Section 2.5, Comparison with Public Bond Experience. And the number or count basis treats each CUSIP, i.e., each issue, held by each contributor as a distinct entity, whereas public corporate bond studies typically report experience on an issuer basis. This is also discussed in the Comparison with Public Bond Experience section. Results by amount are not affected by this treatment.

- The CRE cashflow for each CUSIP held by more than one company is based on the cashflow experience of one submitting company that represents the experience of all companies holding the CUSIP. This was done to minimize the data submission requirements. Results of active management, if any depending on circumstances, may lead to differences with other companies that hold the same CUSIP.

- Credibility is related to the incidence of unique CREs. There are 428 company-CUSIP CREs and 285 of those are unique. There are 143 unique issuers that experienced a CRE. The relatively small number of CREs makes it difficult to analyze results by some characteristics.

- A long "tail" exists before the final outcomes of many credit risk events are known with certainty. In some instances, the CRE cashflow is estimated past the submission date of the data.

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- Although significant efforts were made to ensure the reasonableness and completeness of the contributed data, the results of the study are ultimately dependent on the nature and scope of the data submitted. See Appendix I-1.D Data Validation, for a detailed discussion of the procedures used to review and process the data.

- The study does not link experience between this and the prior study, 1986-2002. Great care was taken in the determination of CRE dates, which are in some cases subject to interpretation of the specific circumstances. We believe CREs occurring near the beginning of this study have been included or excluded correctly. However, we were unable to audit the CRE CUSIPs in the current and prior studies to determine if there was any unintended double counting or omission of a CUSIP with both study periods combined.

- This study does not attempt to measure the risk-reward tradeoff of any investment.

- The study includes all cashflows that result from a CRE workout. These cashflows may include traditional debt instruments and non-debt securities, i.e., equity. But the study does not attempt to analyze the unrealized gains or losses from non-debt securities before they are sold, even though private placement bonds, particularly those associated with leveraged buyouts, often include equity components which, on a portfolio basis, can provide substantial gains to offset losses. The study also does not attempt to analyze gains or losses that result directly from calls or prepayments (including the impact of prepayment penalties).

- While not a limitation of the study per se, the attention of the reader is drawn to the fact that the bulk of the experience has been contributed by companies that were and are continuous and substantial participants in the private placement market. They have developed considerable expertise in the origination, acquisition and tracking of private placements, and the management of the work-out of distressed or defaulted assets. A new entrant to the market, lacking the expertise and resources of more experienced market participants, may or may not achieve similar or better credit loss results.

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Appendix IV—Additional Results

4.A INTRODUCTION

This Appendix provides expanded views of the four key statistical measures from Section 3, Cross Tabulations, and Section 4, Data Summaries, for each of the study analysis views in those sections, e.g., Most Recent Quality Rating. It also shows for each of those views the aggregate measures used to derive the statistic. The graph below is a map of the relationship of the statistics to the aggregate measures.

Four Key Statistics as Ratios of Aggregate Values

Five Aggregate Values		Incidence Rate by Number	Incidence Rate by Amount	Loss Severity	Economic Loss Rate
1	# of CREs	# of CREs			
2	# of Exposure	# of Exposure		$ of Loss	$ of Loss
3	$ of Loss		$ of CRE		
4	$ of CRE			$ of CRE	$ of Exposure
5	$ of Exposure		$ of Exposure		

The following study views are provided in this Appendix:

Loss Severity by Debt Seniority	Funding Year
Most Recent Quality Rating	Years since Funding
Earliest Quality Rating	Years to Maturity
Most Recent NAIC Rating	Cross Tabulation: Coupon Rate by Earliest Quality Rating
Coupon Rate	Cross Tabulation: Funding Year by Experience Year

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4.B LOSS SEVERITY BY DEBT SENIORITY

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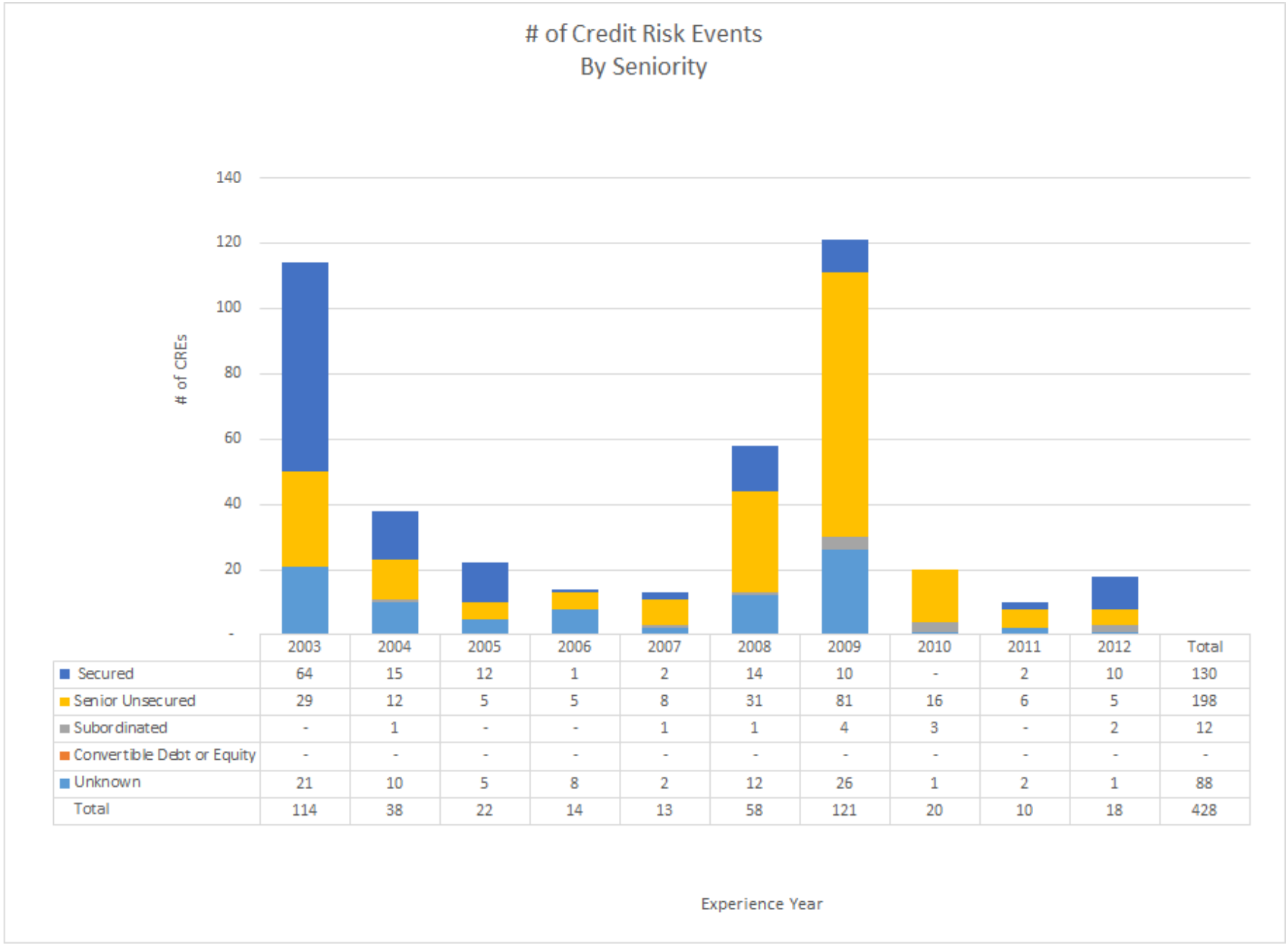

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	64	15	12	1	2	14	10	-	2	10	130
Senior Unsecured	29	12	5	5	8	31	81	16	6	5	198
Subordinated	-	1	-	-	1	1	4	3	-	2	12
Convertible Debt or Equity	-	-	-	-	-	-	-	-	-	-	-
Unknown	21	10	5	8	2	12	26	1	2	1	88
Total	114	38	22	14	13	58	121	20	10	18	428

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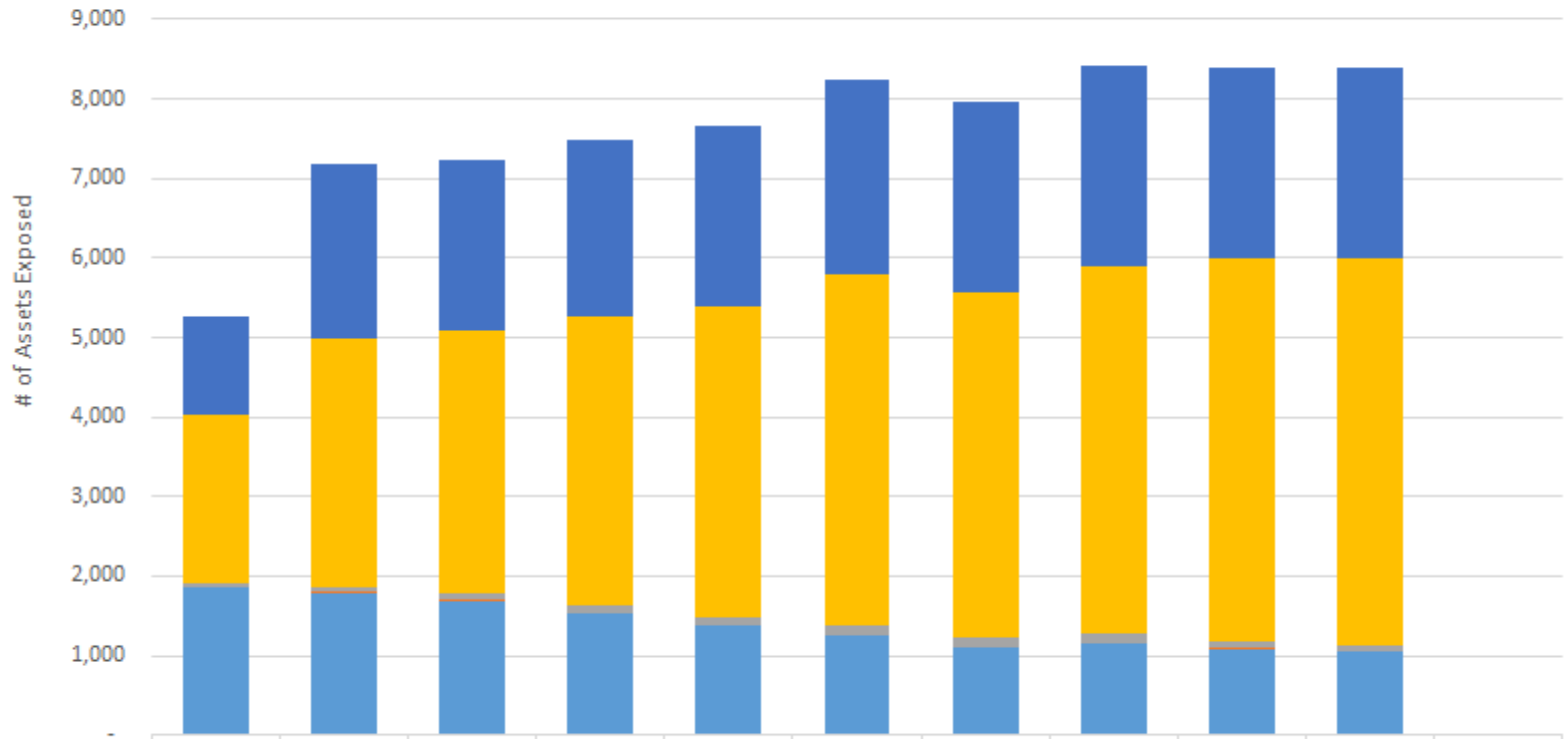

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	1,231	2,187	2,159	2,217	2,268	2,447	2,402	2,520	2,381	2,381	22,193
Senior Unsecured	2,128	3,119	3,304	3,630	3,909	4,421	4,351	4,629	4,825	4,882	39,197
Subordinated	46	74	79	93	103	111	115	116	91	73	898
Convertible Debt or Equity	4	12	12	9	6	4	4	7	4	3	63
Unknown	1,854	1,785	1,687	1,533	1,383	1,253	1,101	1,155	1,087	1,042	13,879
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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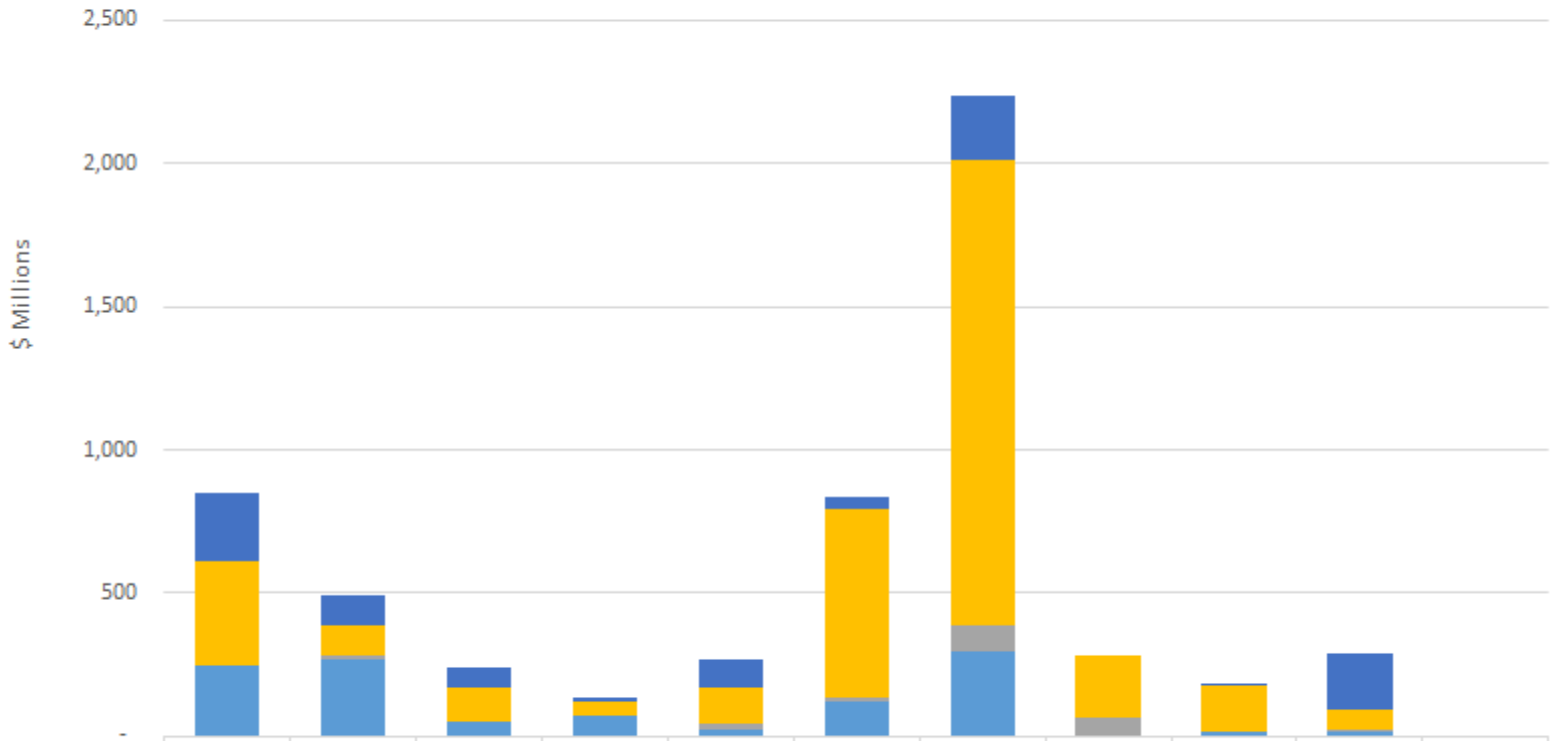

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	240	102	71	11	93	43	225	-	10	198	992
Senior Unsecured	367	105	118	53	126	661	1,627	222	161	69	3,507
Subordinated	-	13	-	-	21	10	90	60	-	8	201
Convertible Debt or Equity	-	-	-	-	-	-	-	-	-	-	-
Unknown	246	271	51	69	26	123	298	4	16	15	1,119
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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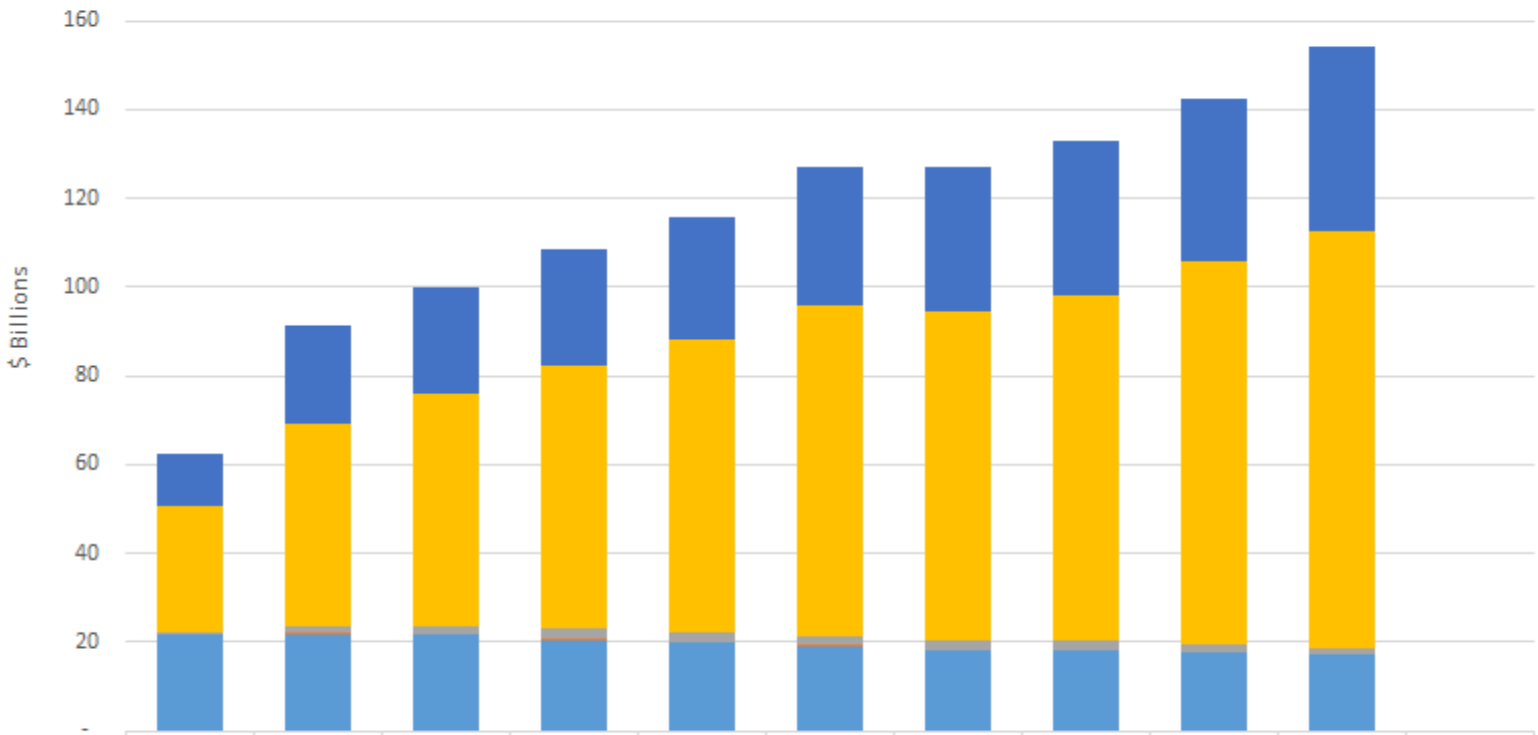

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	11.5	21.9	23.9	26.2	27.9	31.4	32.5	34.9	36.8	41.8	288.6
Senior Unsecured	28.5	45.8	52.3	59.4	65.8	74.2	74.2	77.7	86.3	93.9	658.2
Subordinated	0.5	1.2	1.6	2.2	2.1	2.1	2.2	2.0	1.6	1.6	17.1
Convertible Debt or Equity	0.1	0.3	0.3	0.3	0.2	0.1	0.1	0.2	0.1	0.0	1.7
Unknown	21.7	22.0	21.6	20.6	19.9	19.2	18.0	18.2	17.7	17.1	195.9
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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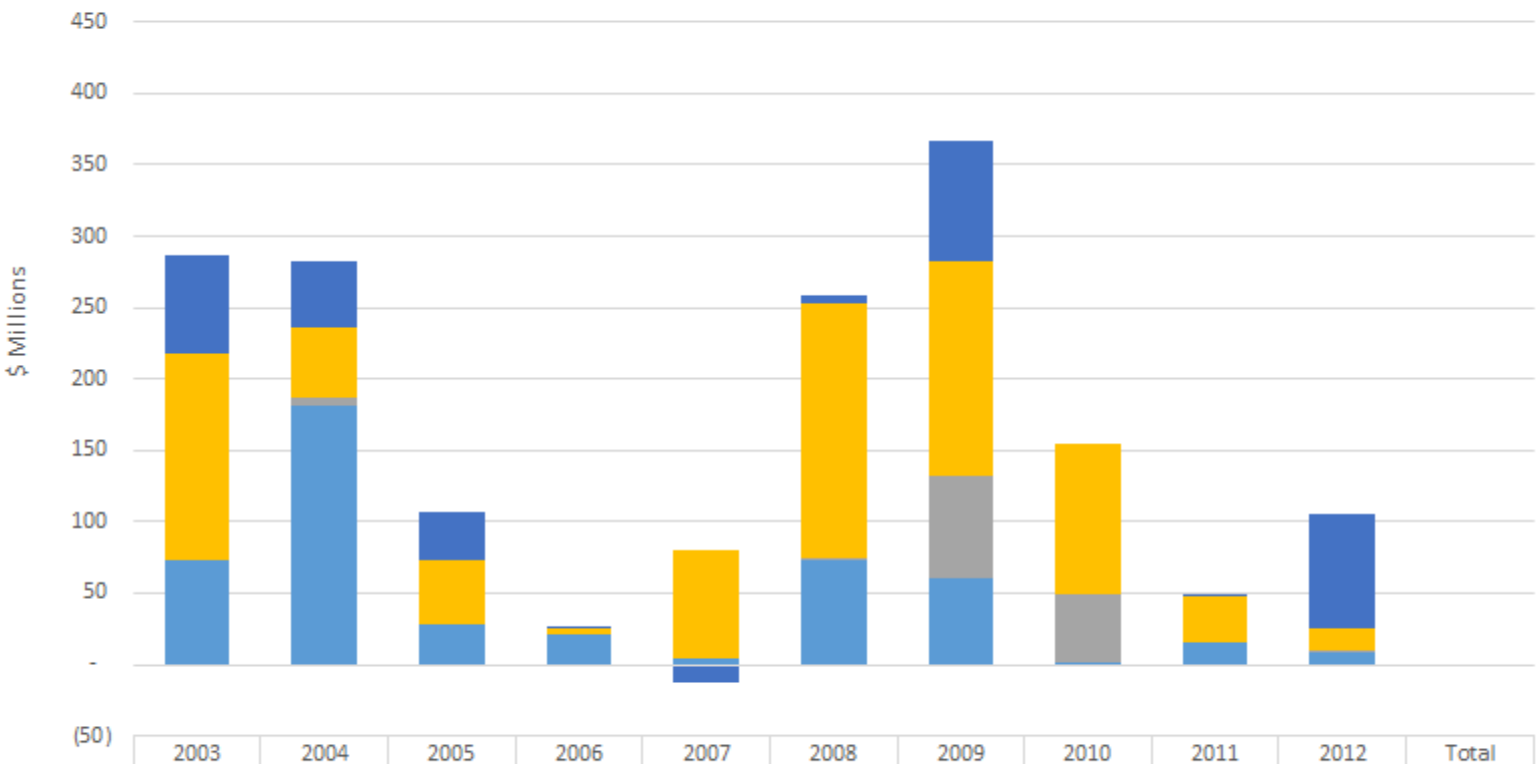

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	69	47	34	1	(11)	7	84	-	2	80	312
Senior Unsecured	145	49	46	5	75	178	150	105	32	17	802
Subordinated	-	5	-	-	(1)	1	72	48	-	1	127
Convertible Debt or Equity	-	-	-	-	-	-	-	-	-	-	-
Unknown	73	182	27	21	5	73	60	1	15	8	465
Total	286	283	107	27	68	259	367	154	49	106	1,706

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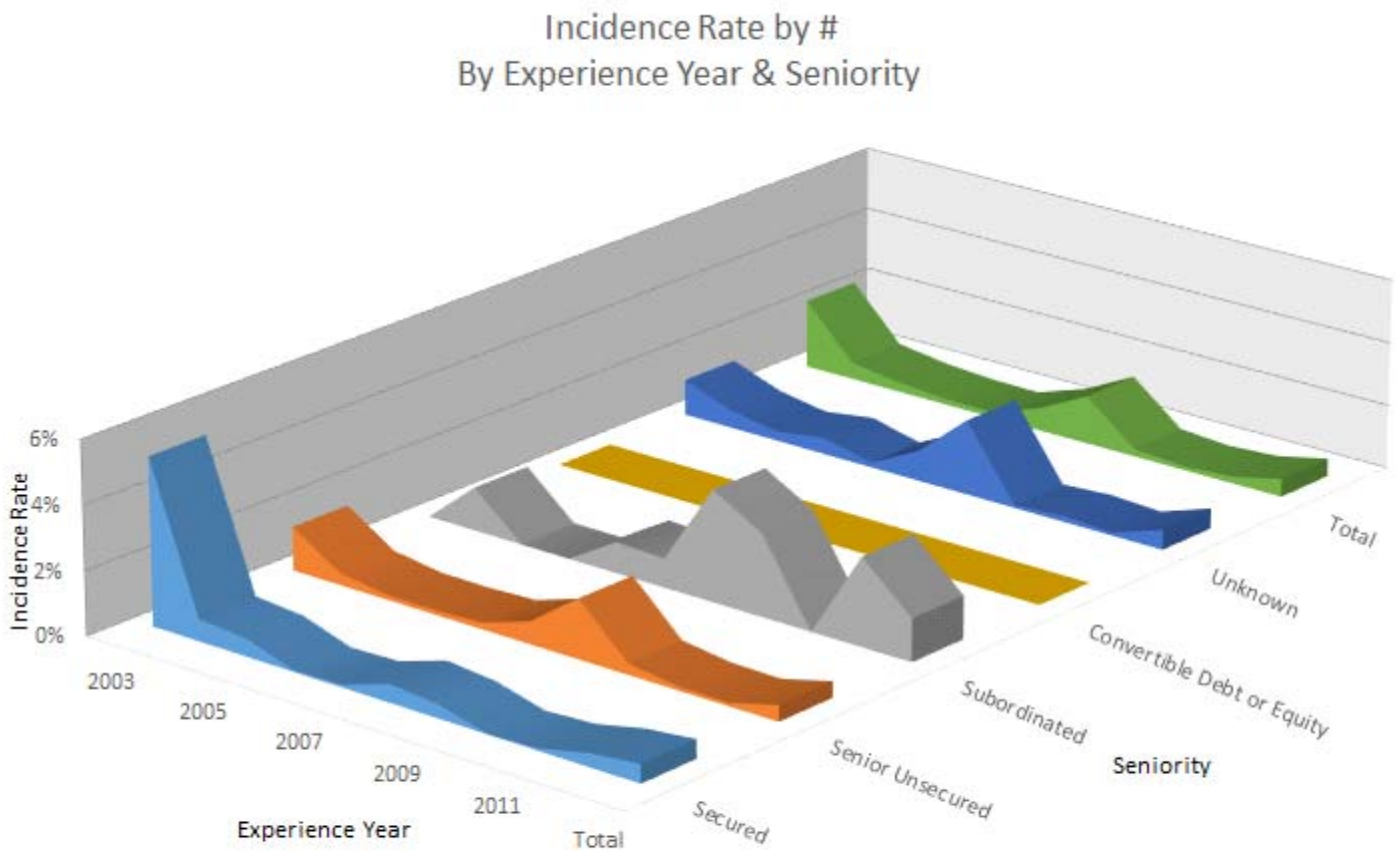

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	5.20%	0.69%	0.56%	0.05%	0.09%	0.57%	0.42%	0.00%	0.08%	0.42%	0.59%
Senior Unsecured	1.36%	0.38%	0.15%	0.14%	0.20%	0.70%	1.86%	0.35%	0.12%	0.10%	0.51%
Subordinated	0.00%	1.36%	0.00%	0.00%	0.98%	0.90%	3.48%	2.59%	0.00%	2.76%	1.34%
Convertible Debt or Equity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Unknown	1.13%	0.56%	0.30%	0.52%	0.14%	0.96%	2.36%	0.09%	0.18%	0.10%	0.63%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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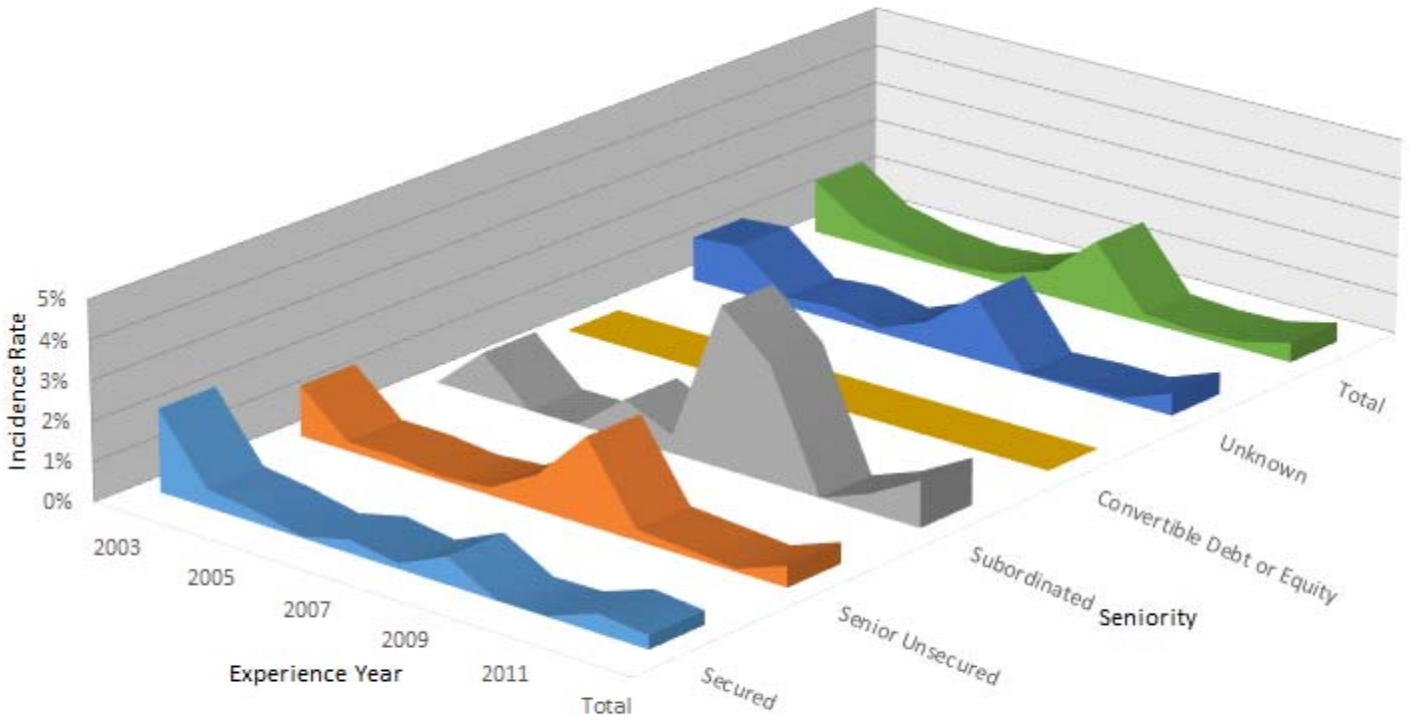

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	2.08%	0.47%	0.30%	0.04%	0.33%	0.14%	0.69%	0.00%	0.03%	0.47%	0.34%
Senior Unsecured	1.29%	0.23%	0.23%	0.09%	0.19%	0.89%	2.19%	0.29%	0.19%	0.07%	0.53%
Subordinated	0.00%	1.11%	0.00%	0.00%	1.00%	0.46%	4.05%	2.96%	0.00%	0.48%	1.18%
Convertible Debt or Equity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Unknown	1.13%	1.23%	0.24%	0.34%	0.13%	0.64%	1.66%	0.02%	0.09%	0.09%	0.57%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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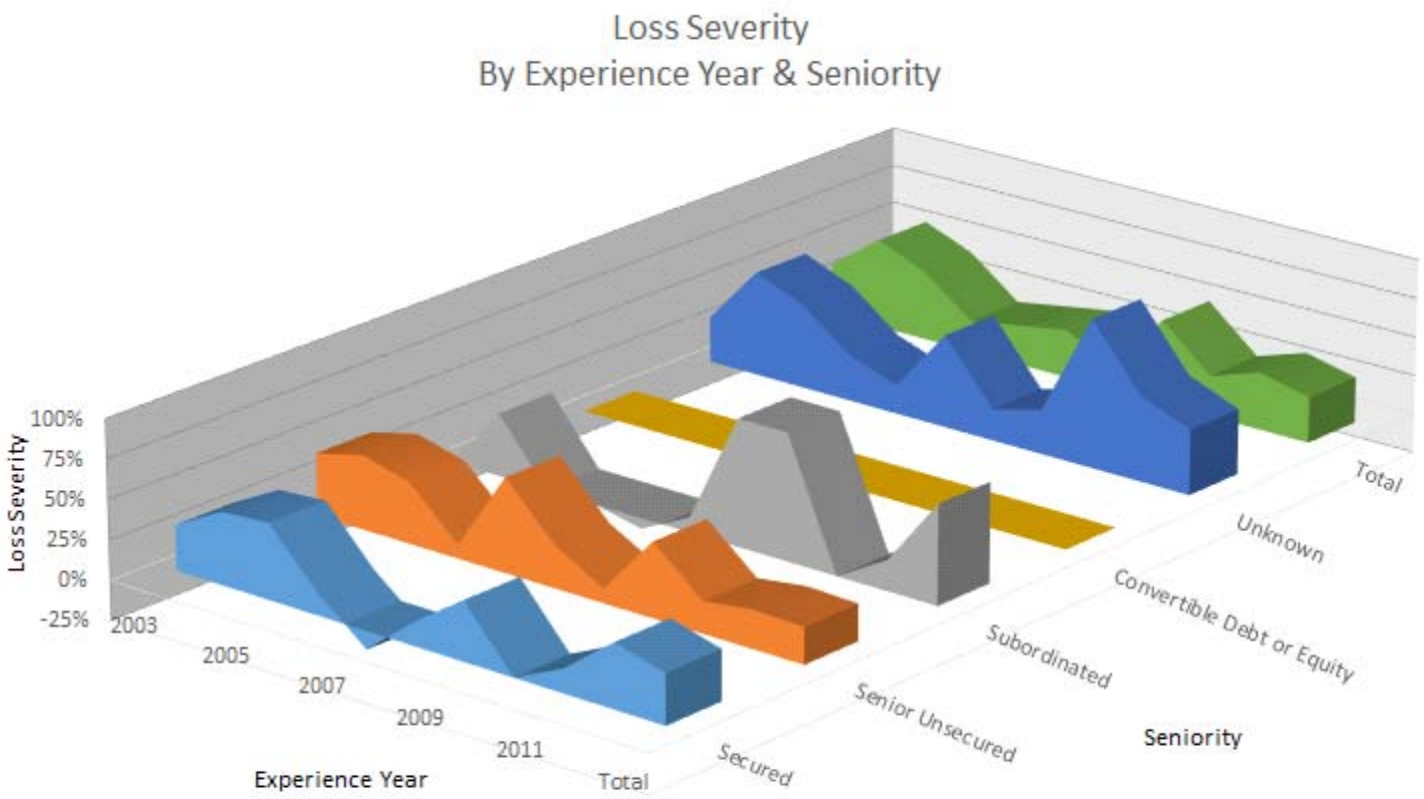

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	29%	46%	48%	14%	-11%	15%	38%	0%	15%	40%	31%
Senior Unsecured	39%	47%	39%	9%	60%	27%	9%	47%	20%	24%	23%
Subordinated	0%	40%	0%	0%	-7%	9%	80%	80%	0%	19%	63%
Convertible Debt or Equity	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Unknown	30%	67%	54%	30%	18%	59%	20%	28%	95%	55%	42%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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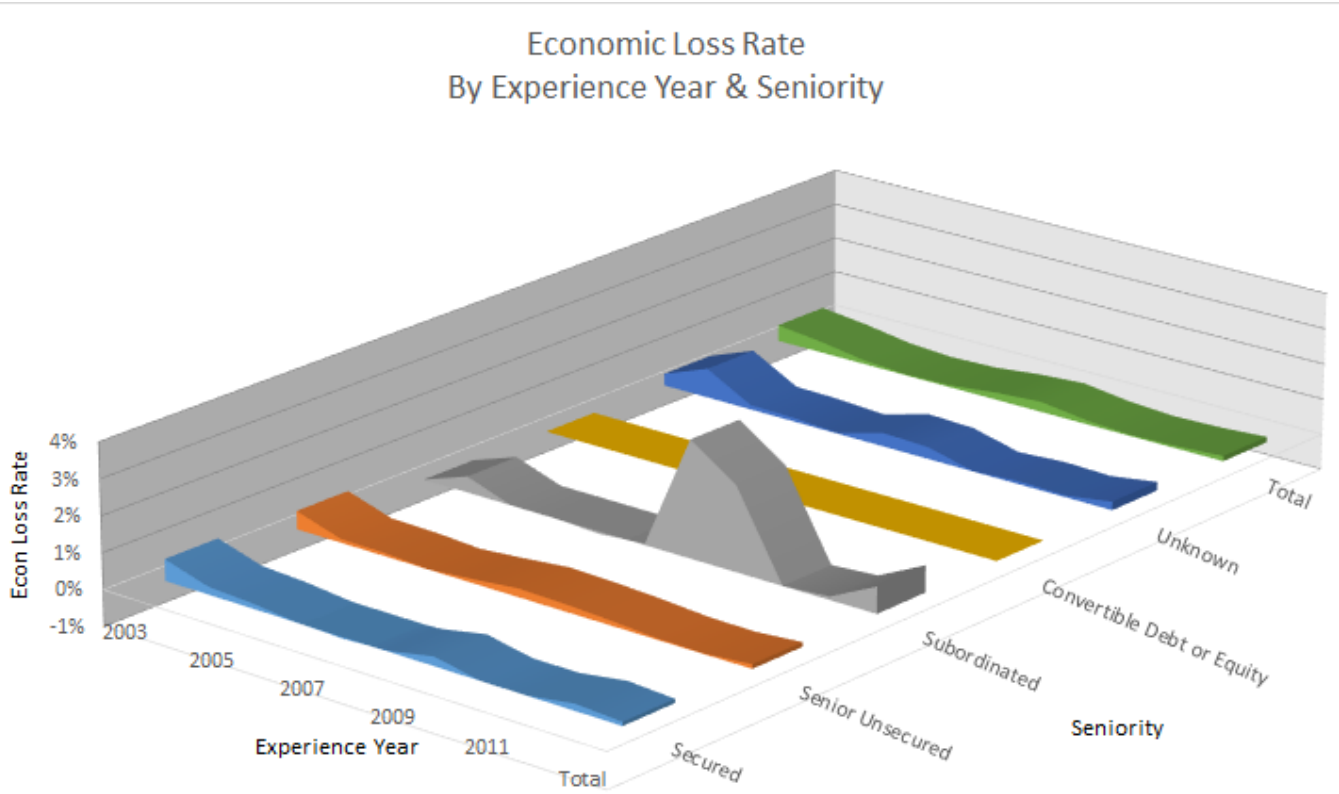

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Secured	0.59%	0.21%	0.14%	0.01%	-0.04%	0.02%	0.26%	0.00%	0.00%	0.19%	0.11%
Senior Unsecured	0.51%	0.11%	0.09%	0.01%	0.11%	0.24%	0.20%	0.13%	0.04%	0.02%	0.12%
Subordinated	0.00%	0.45%	0.00%	0.00%	-0.07%	0.04%	3.26%	2.37%	0.00%	0.09%	0.74%
Convertible Debt or Equity	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Unknown	0.34%	0.83%	0.13%	0.10%	0.02%	0.38%	0.33%	0.01%	0.08%	0.05%	0.24%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.C MOST RECENT QUALITY RATING

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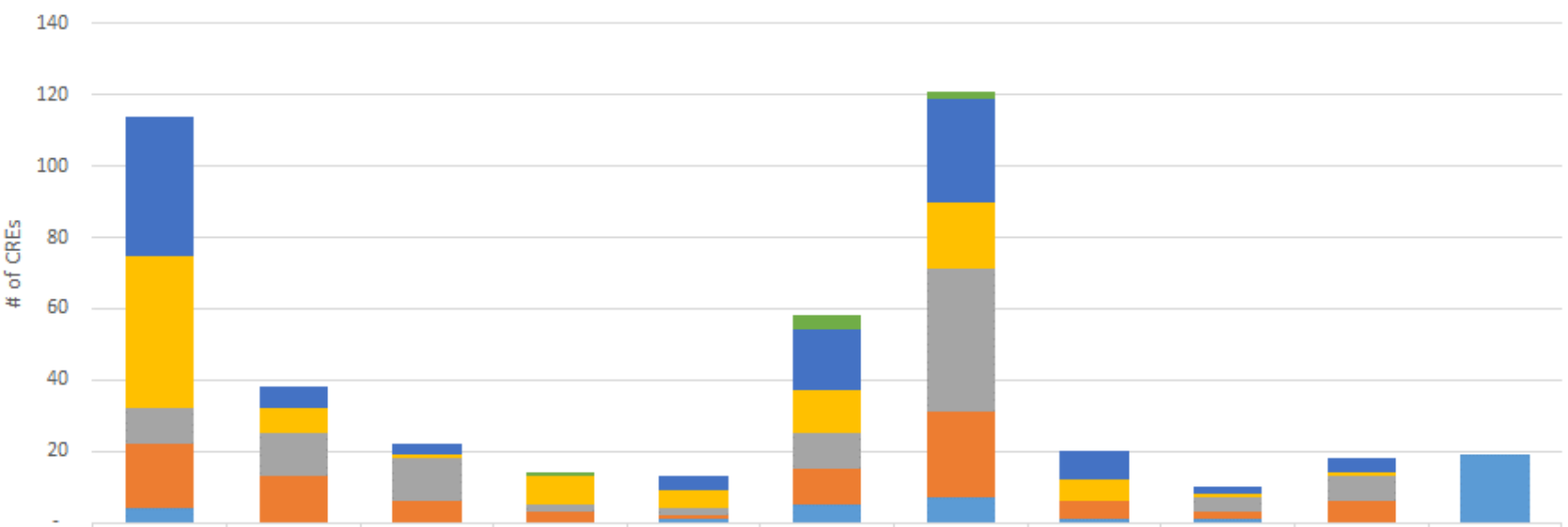

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	-	-	-	-	-
AA	-	-	-	-	-	-	-	-	-	-	-
A	-	-	-	1	-	4	2	-	-	-	7
BBB	39	6	3	-	4	17	29	8	2	4	112
BB	43	7	1	8	5	12	19	6	1	1	103
B	10	12	12	2	2	10	40	-	4	7	99
<B	18	13	6	3	1	10	24	5	2	6	88
N/A	4	-	-	-	1	5	7	1	1	-	19
Total	114	38	22	14	13	58	121	20	10	18	428

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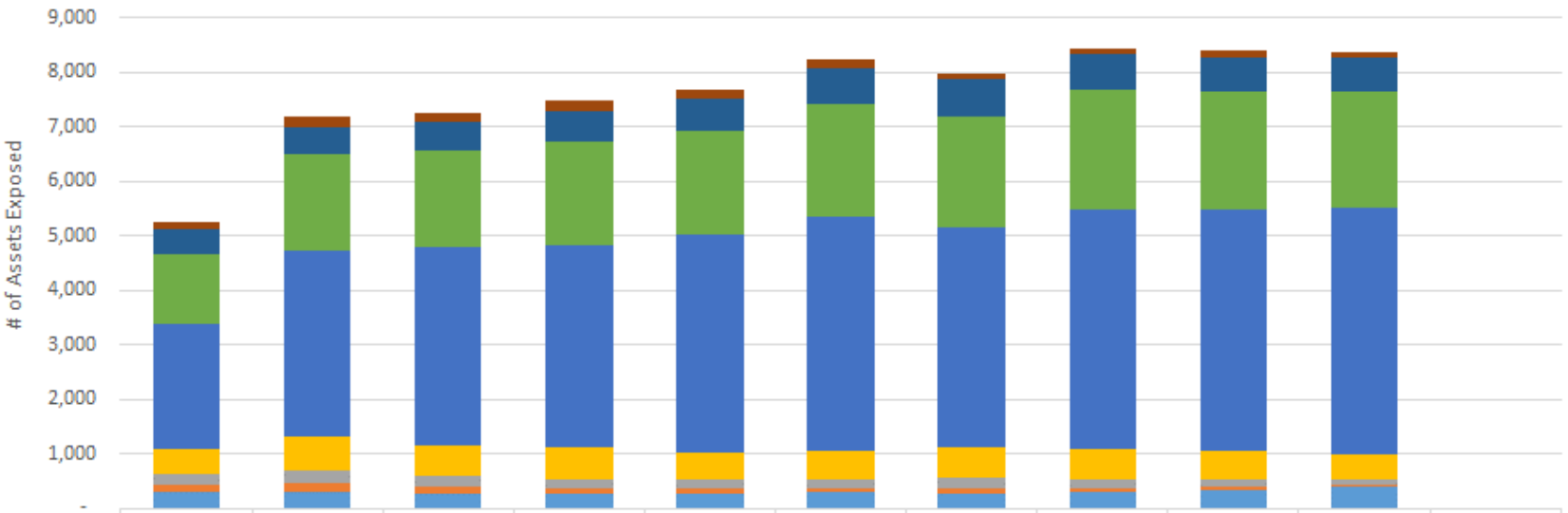

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	146	173	161	176	162	171	99	99	101	112	1,399
AA	457	509	521	562	587	659	674	639	642	620	5,868
A	1,283	1,752	1,769	1,904	1,905	2,044	2,051	2,202	2,151	2,145	19,207
BBB	2,299	3,430	3,630	3,728	3,968	4,308	4,020	4,390	4,440	4,520	38,733
BB	447	612	559	582	524	524	549	544	527	434	5,300
B	187	243	181	144	152	161	201	179	135	114	1,696
<B	152	156	130	107	79	74	89	72	52	35	944
N/A	292	304	289	279	291	296	291	302	340	401	3,084
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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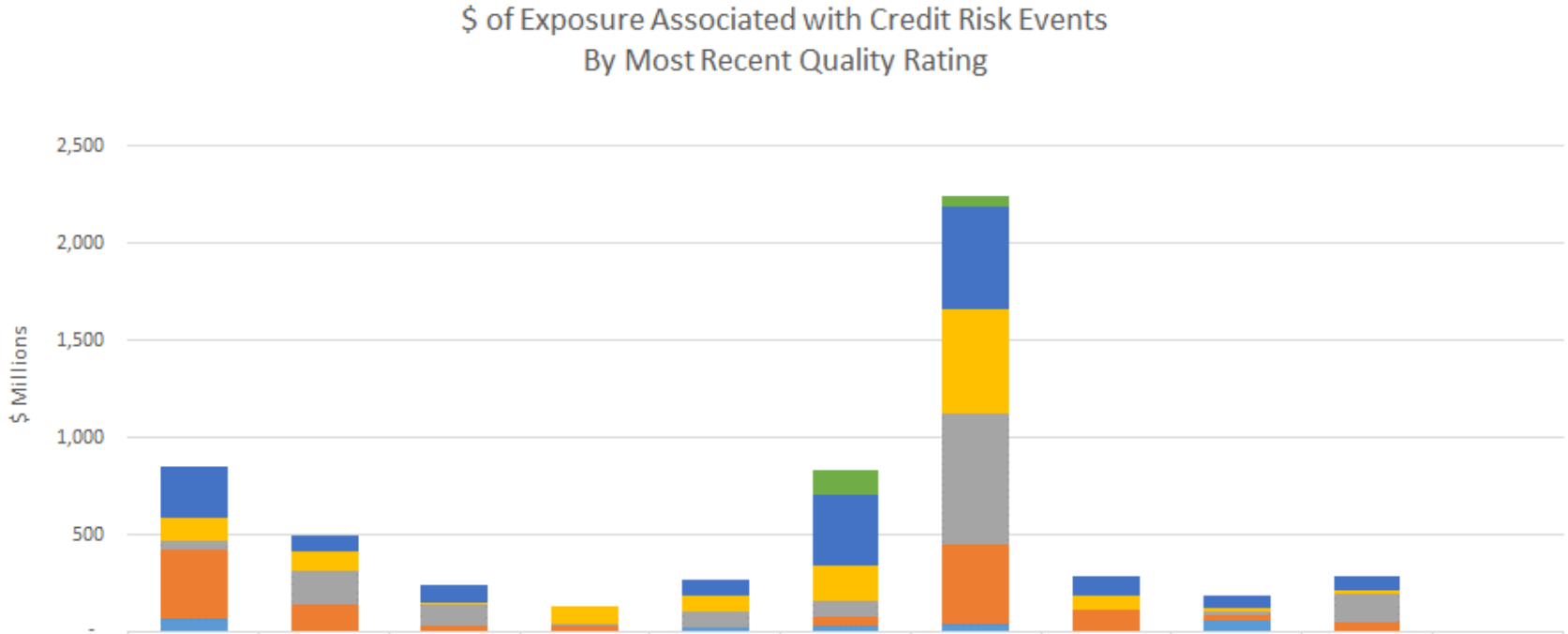

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	-	-	-	-	-
AA	-	-	-	-	-	-	-	-	-	-	-
A	-	-	-	0	-	132	50	-	-	-	182
BBB	269	79	91	-	79	367	530	102	68	75	1,660
BB	113	100	10	96	79	182	533	68	15	20	1,216
B	50	170	109	6	83	83	679	-	21	145	1,346
<B	355	142	30	31	5	46	410	112	28	49	1,207
N/A	65	-	-	-	20	27	38	4	55	-	209
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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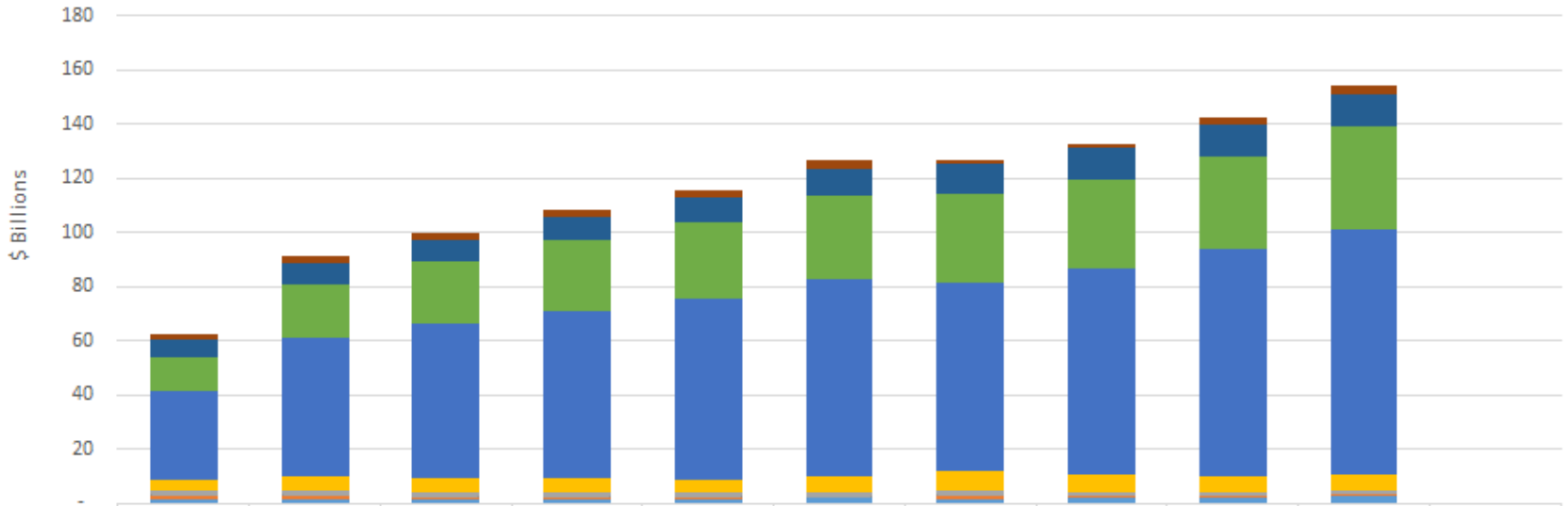

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	1.7	2.1	2.2	2.7	3.1	3.3	1.4	1.8	2.4	3.1	23.8
AA	6.4	8.1	8.5	8.7	9.1	10.3	11.5	11.5	11.6	11.8	97.4
A	12.9	19.9	22.5	26.4	28.0	30.8	32.5	32.9	34.6	38.0	278.5
BBB	32.7	50.7	57.3	61.5	66.6	72.7	69.7	76.1	83.5	90.5	661.2
BB	4.0	5.5	5.3	5.3	5.1	5.9	6.9	6.2	5.9	5.9	56.0
B	1.7	2.0	1.8	1.7	1.6	1.7	2.3	1.9	1.6	1.5	17.8
<B	1.5	1.3	0.8	0.7	0.4	0.4	0.9	0.6	0.4	0.5	7.4
N/A	1.4	1.6	1.5	1.6	1.8	1.9	1.9	2.0	2.4	3.1	19.2
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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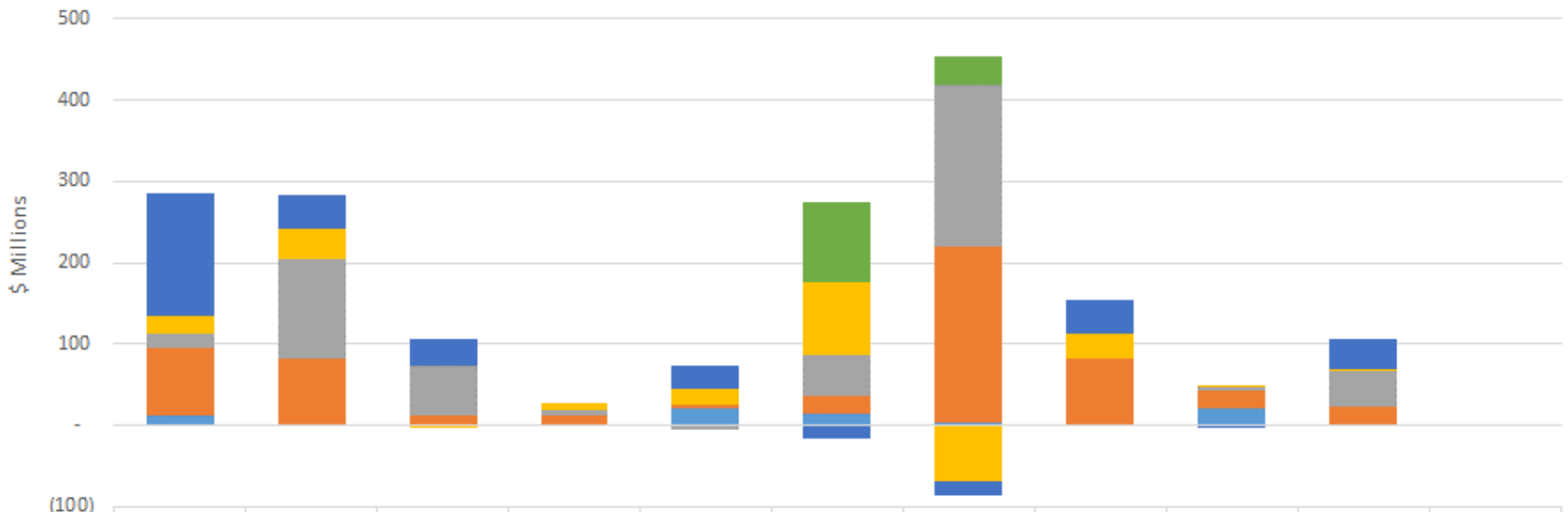

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	-	-	-	-	-
AA	-	-	-	-	-	-	-	-	-	-	-
A	-	-	-	0	-	98	35	-	-	-	133
BBB	152	40	33	-	27	(16)	(17)	41	(0)	36	296
BB	21	39	(0)	8	21	89	(69)	30	1	3	145
B	18	121	63	5	(5)	50	199	-	5	44	501
<B	83	83	11	13	5	24	216	82	21	23	560
N/A	12	-	-	-	20	13	4	1	22	-	72
Total	286	283	107	27	68	259	367	154	49	106	1,706

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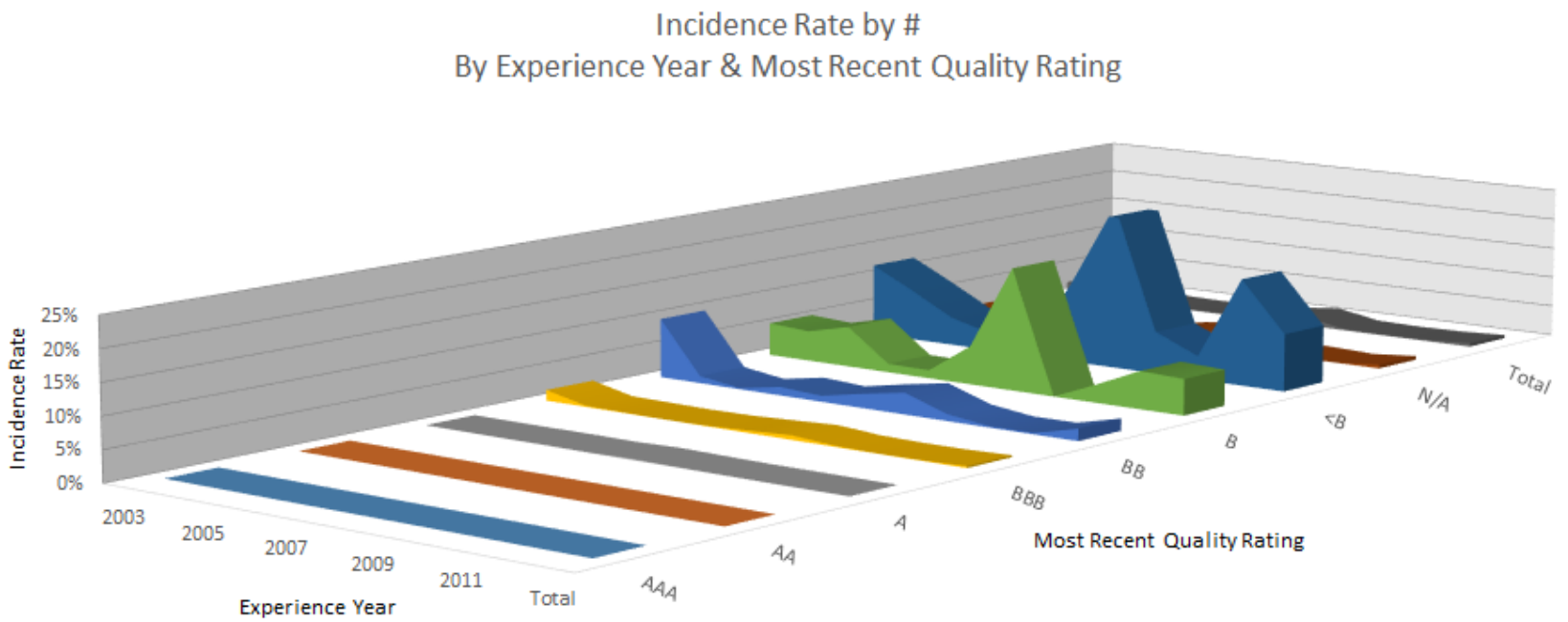

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.05%	0.00%	0.20%	0.10%	0.00%	0.00%	0.00%	0.04%
BBB	1.70%	0.17%	0.08%	0.00%	0.10%	0.39%	0.72%	0.18%	0.05%	0.09%	0.29%
BB	9.62%	1.14%	0.18%	1.37%	0.96%	2.29%	3.46%	1.10%	0.19%	0.23%	1.94%
B	5.33%	4.94%	6.61%	1.39%	1.32%	6.23%	19.90%	0.00%	2.97%	6.14%	5.84%
<B	11.84%	8.36%	4.63%	2.80%	1.27%	13.61%	26.97%	6.93%	3.85%	17.39%	9.33%
N/A	1.37%	0.00%	0.00%	0.00%	0.34%	1.69%	2.41%	0.33%	0.29%	0.00%	0.62%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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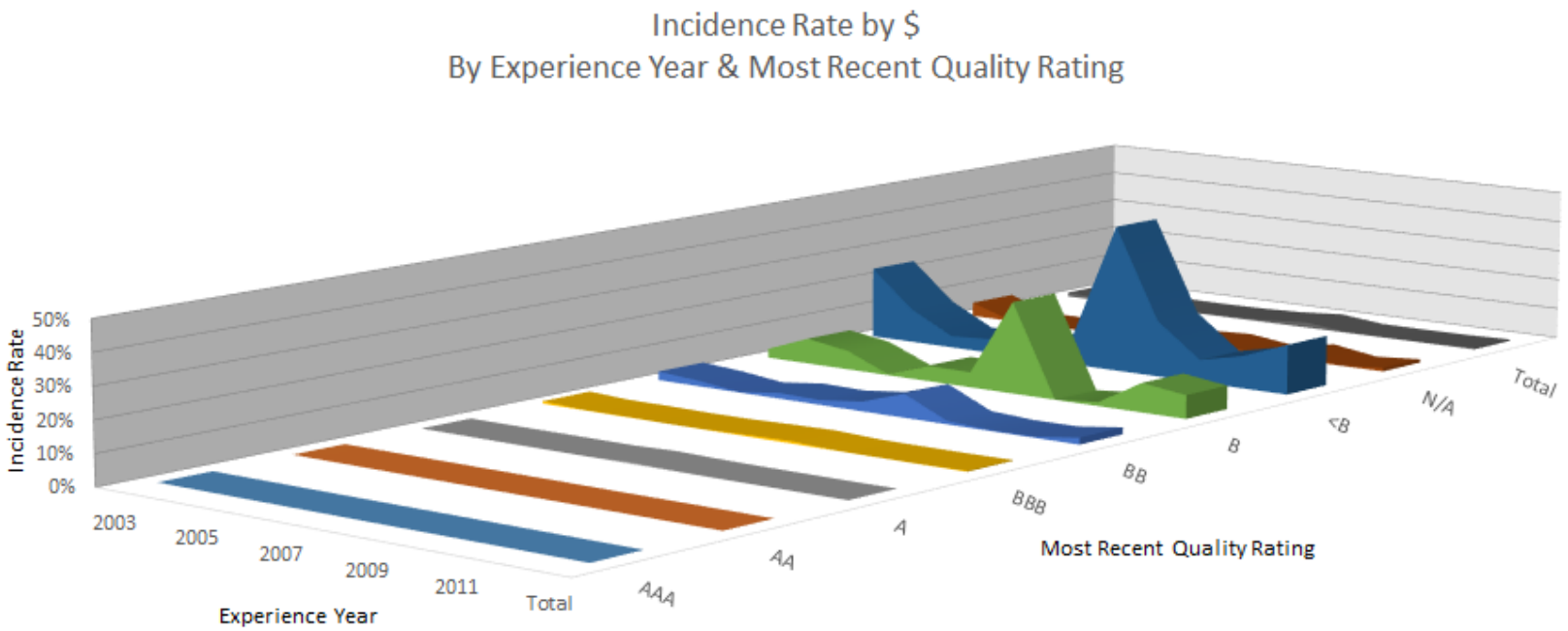

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	0.00%	0.43%	0.15%	0.00%	0.00%	0.00%	0.07%
BBB	0.82%	0.16%	0.16%	0.00%	0.12%	0.50%	0.76%	0.13%	0.08%	0.08%	0.25%
BB	2.82%	1.83%	0.19%	1.80%	1.54%	3.10%	7.67%	1.10%	0.26%	0.34%	2.17%
B	3.01%	8.30%	6.15%	0.37%	5.05%	4.93%	29.81%	0.00%	1.27%	9.47%	7.56%
<B	23.38%	11.08%	3.83%	4.67%	1.13%	10.36%	47.88%	18.39%	7.36%	10.68%	16.25%
N/A	4.69%	0.00%	0.00%	0.00%	1.09%	1.38%	2.04%	0.20%	2.27%	0.00%	1.09%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.5010%

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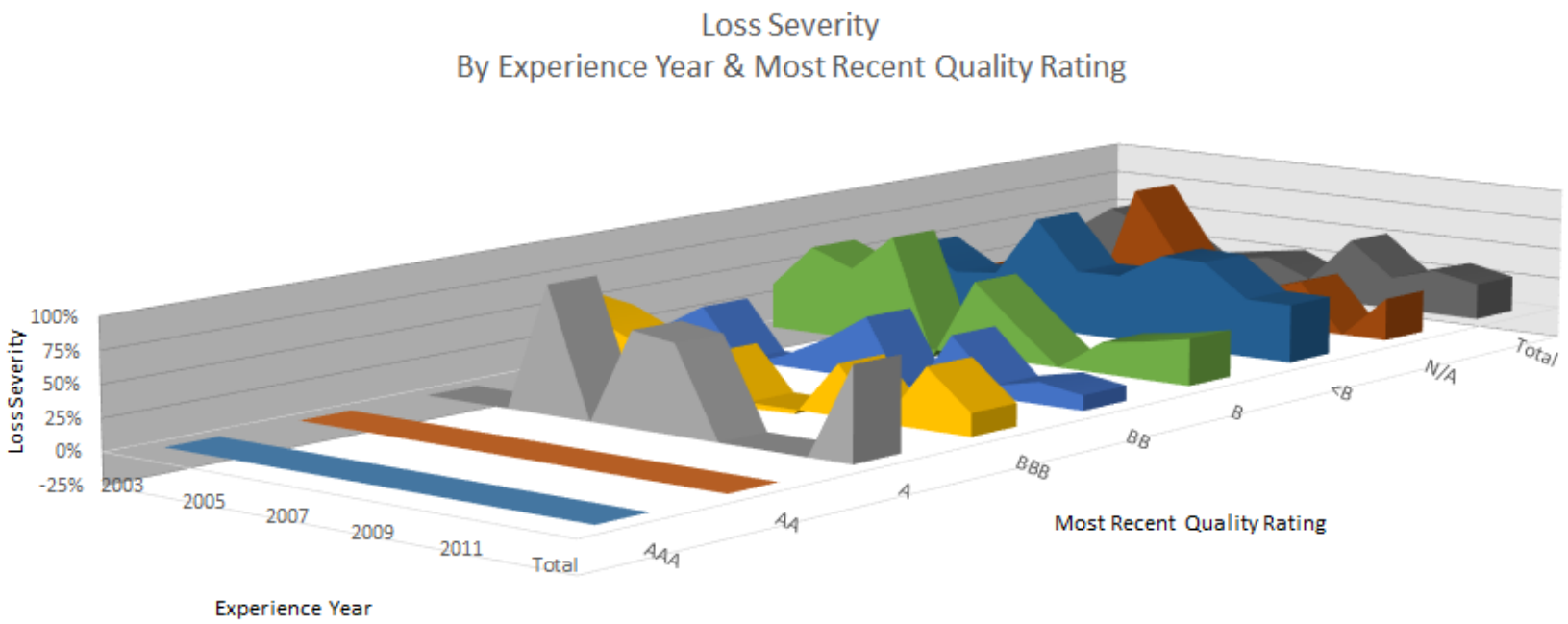

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AA	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
A	0%	0%	0%	100%	0%	75%	69%	0%	0%	0%	73%
BBB	57%	51%	36%	0%	34%	-4%	-3%	40%	0%	48%	18%
BB	19%	39%	-3%	9%	26%	49%	-13%	44%	10%	17%	12%
B	36%	71%	58%	88%	-6%	60%	29%	0%	25%	30%	37%
<B	23%	58%	39%	42%	91%	52%	53%	73%	72%	47%	46%
N/A	18%	0%	0%	0%	100%	50%	10%	28%	40%	0%	34%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29.31%

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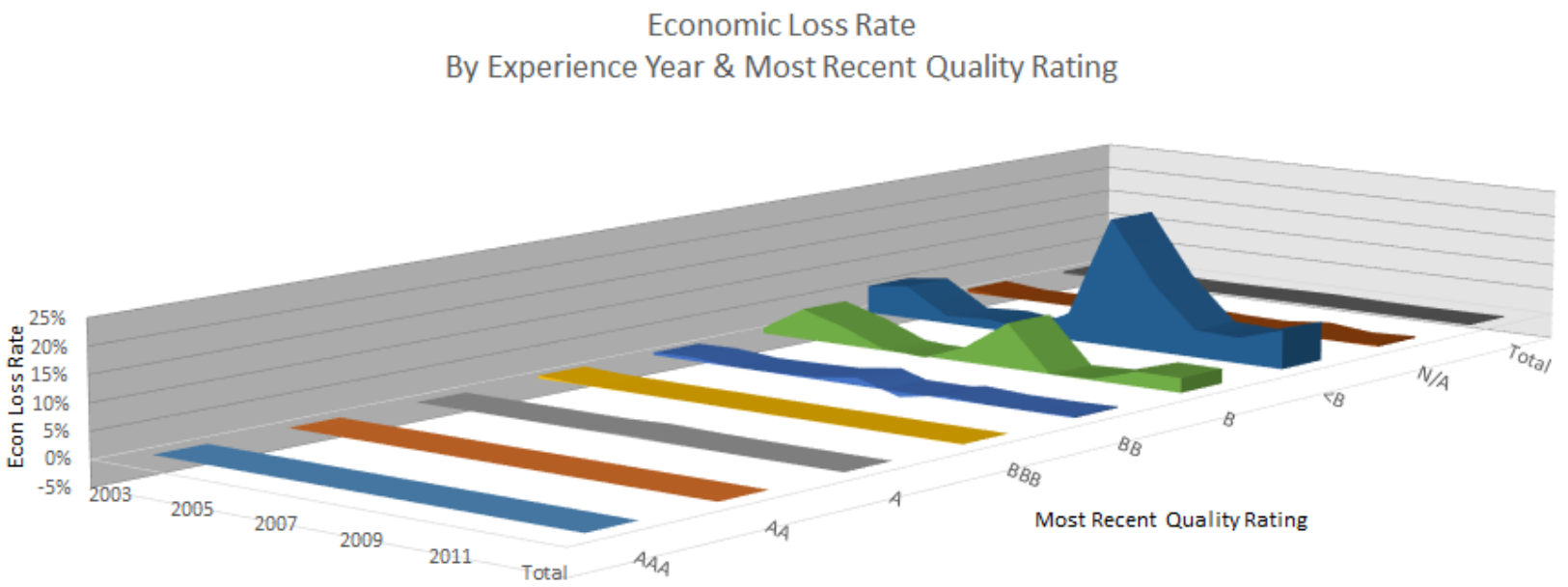

Experience Year

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
A	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%	0.11%	0.00%	0.00%	0.00%	0.05%
BBB	0.46%	0.08%	0.06%	0.00%	0.04%	-0.02%	-0.02%	0.05%	0.00%	0.04%	0.04%
BB	0.53%	0.71%	-0.01%	0.16%	0.41%	1.52%	-0.99%	0.49%	0.02%	0.06%	0.26%
B	1.09%	5.92%	3.55%	0.32%	-0.28%	2.96%	8.73%	0.00%	0.32%	2.87%	2.81%
<B	5.47%	6.47%	1.48%	1.96%	1.03%	5.37%	25.24%	13.44%	5.33%	4.98%	7.53%
N/A	0.83%	0.00%	0.00%	0.00%	1.09%	0.69%	0.21%	0.06%	0.90%	0.00%	0.37%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.D EARLIEST QUALITY RATING

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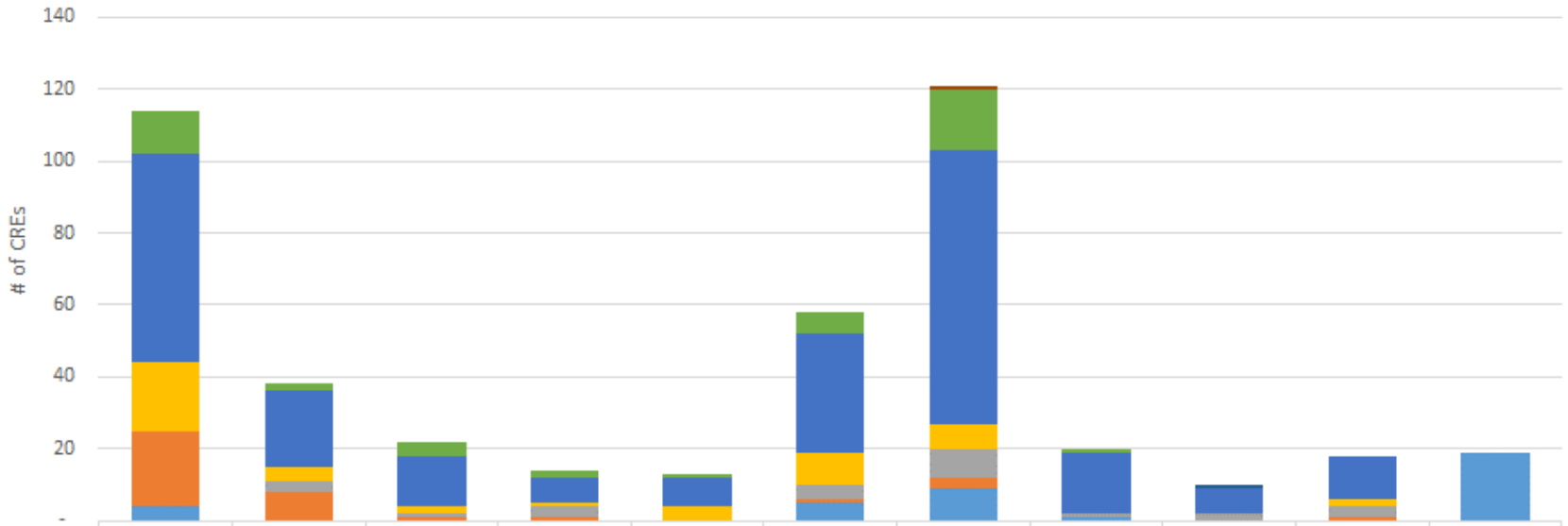

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	1	-	-	-	1
AA	-	-	-	-	-	-	-	-	1	-	1
A	12	2	4	2	1	6	17	1	-	-	45
BBB	58	21	14	7	8	33	76	17	7	12	253
BB	19	4	2	1	4	9	7	-	-	2	48
B	-	3	1	3	-	4	8	1	2	3	25
<B	21	8	1	1	-	1	3	-	-	1	36
N/A	4	-	-	-	-	5	9	1	-	-	19
Total	114	38	22	14	13	58	121	20	10	18	428

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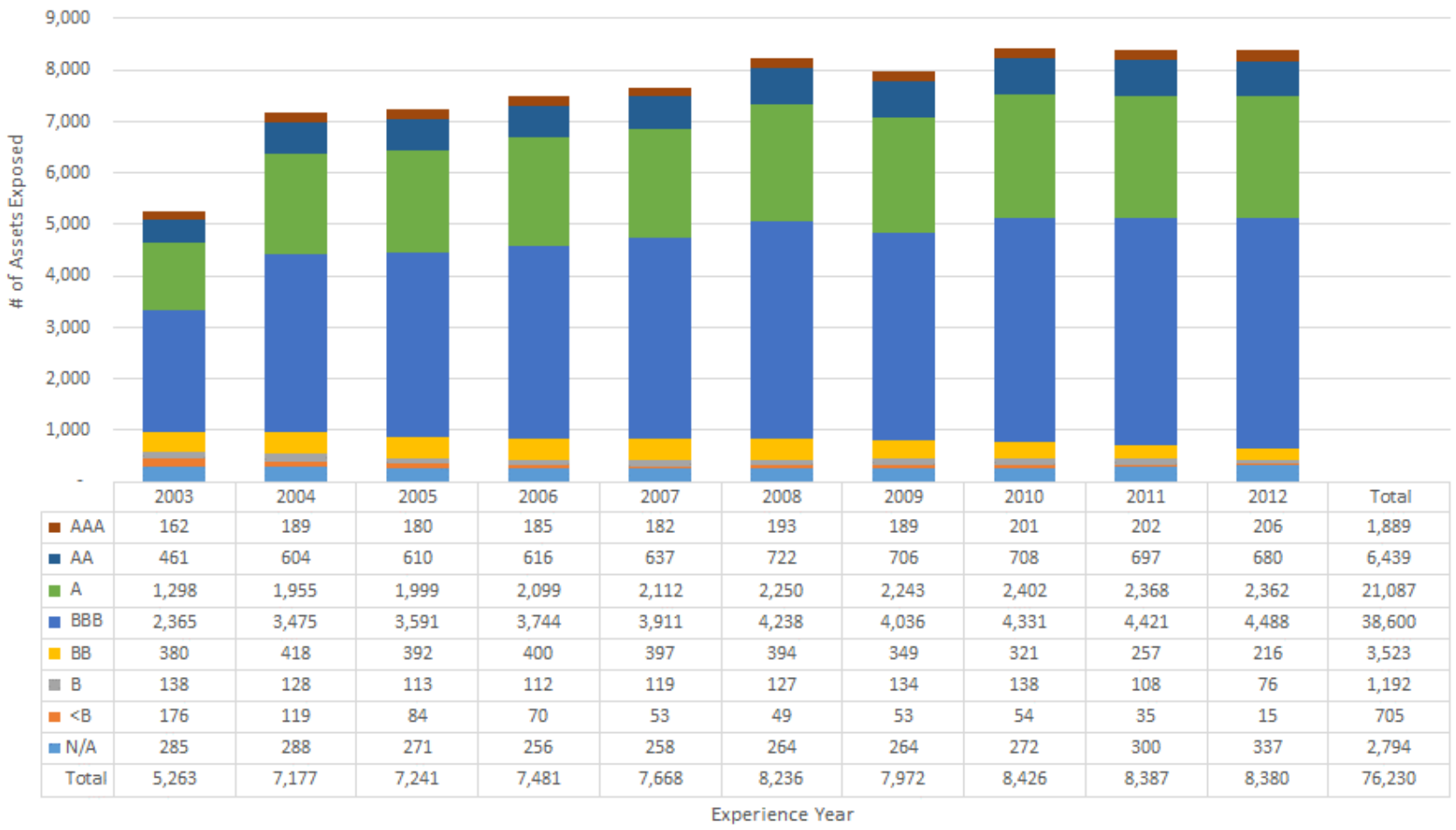

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	162	189	180	185	182	193	189	201	202	206	1,889
AA	461	604	610	616	637	722	706	708	697	680	6,439
A	1,298	1,955	1,999	2,099	2,112	2,250	2,243	2,402	2,368	2,362	21,087
BBB	2,365	3,475	3,591	3,744	3,911	4,238	4,036	4,331	4,421	4,488	38,600
BB	380	418	392	400	397	394	349	321	257	216	3,523
B	138	128	113	112	119	127	134	138	108	76	1,192
<B	176	119	84	70	53	49	53	54	35	15	705
N/A	285	288	271	256	258	264	264	272	300	337	2,794
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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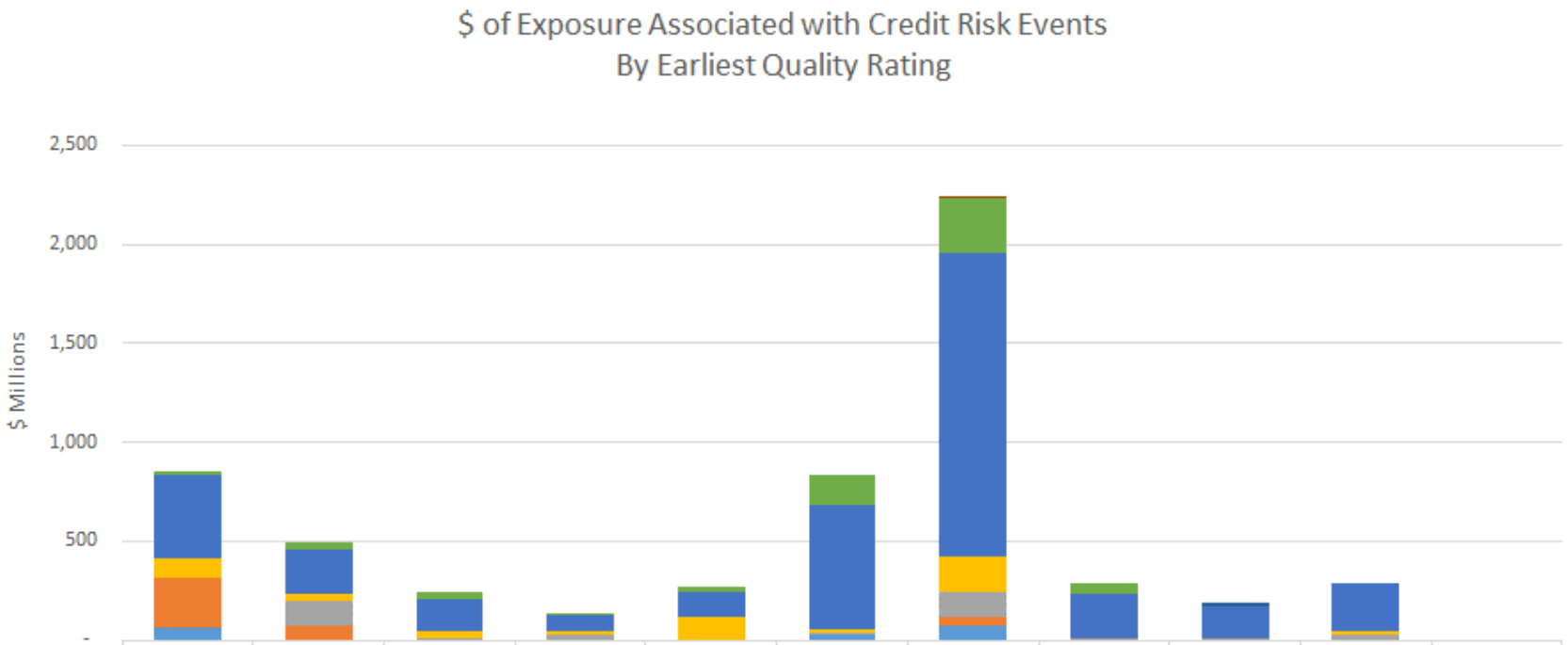

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	5	-	-	-	5
AA	-	-	-	-	-	-	-	-	15	-	15
A	17	30	36	11	20	158	278	50	-	-	600
BBB	421	226	158	81	131	624	1,538	226	161	240	3,805
BB	97	41	35	11	115	20	172	-	-	18	510
B	-	124	10	26	-	7	127	6	10	29	338
<B	253	69	1	4	-	1	50	-	-	2	380
N/A	65	-	-	-	-	27	70	4	-	-	166
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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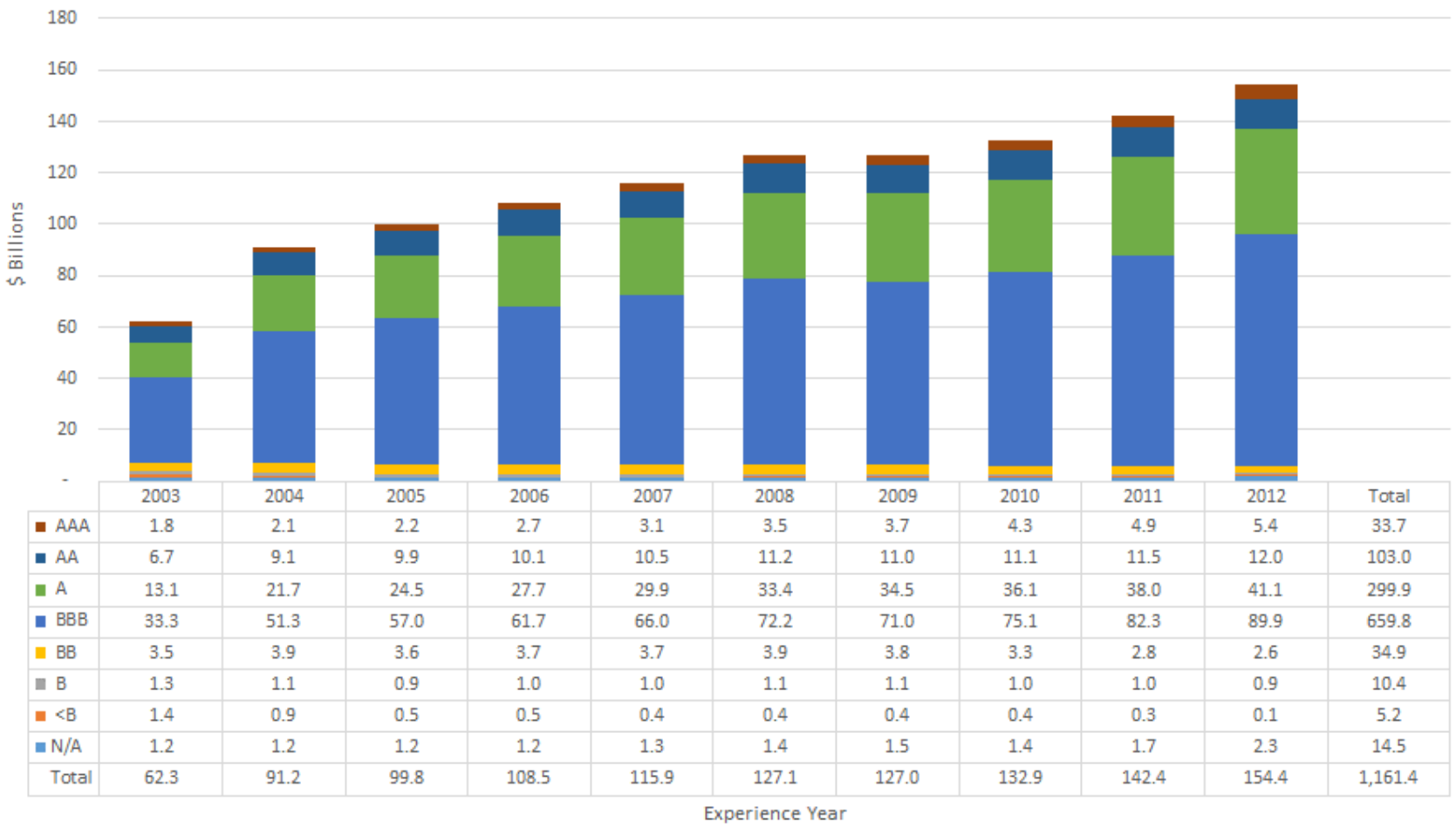

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	1.8	2.1	2.2	2.7	3.1	3.5	3.7	4.3	4.9	5.4	33.7
AA	6.7	9.1	9.9	10.1	10.5	11.2	11.0	11.1	11.5	12.0	103.0
A	13.1	21.7	24.5	27.7	29.9	33.4	34.5	36.1	38.0	41.1	299.9
BBB	33.3	51.3	57.0	61.7	66.0	72.2	71.0	75.1	82.3	89.9	659.8
BB	3.5	3.9	3.6	3.7	3.7	3.9	3.8	3.3	2.8	2.6	34.9
B	1.3	1.1	0.9	1.0	1.0	1.1	1.1	1.0	1.0	0.9	10.4
<B	1.4	0.9	0.5	0.5	0.4	0.4	0.4	0.4	0.3	0.1	5.2
N/A	1.2	1.2	1.2	1.2	1.3	1.4	1.5	1.4	1.7	2.3	14.5
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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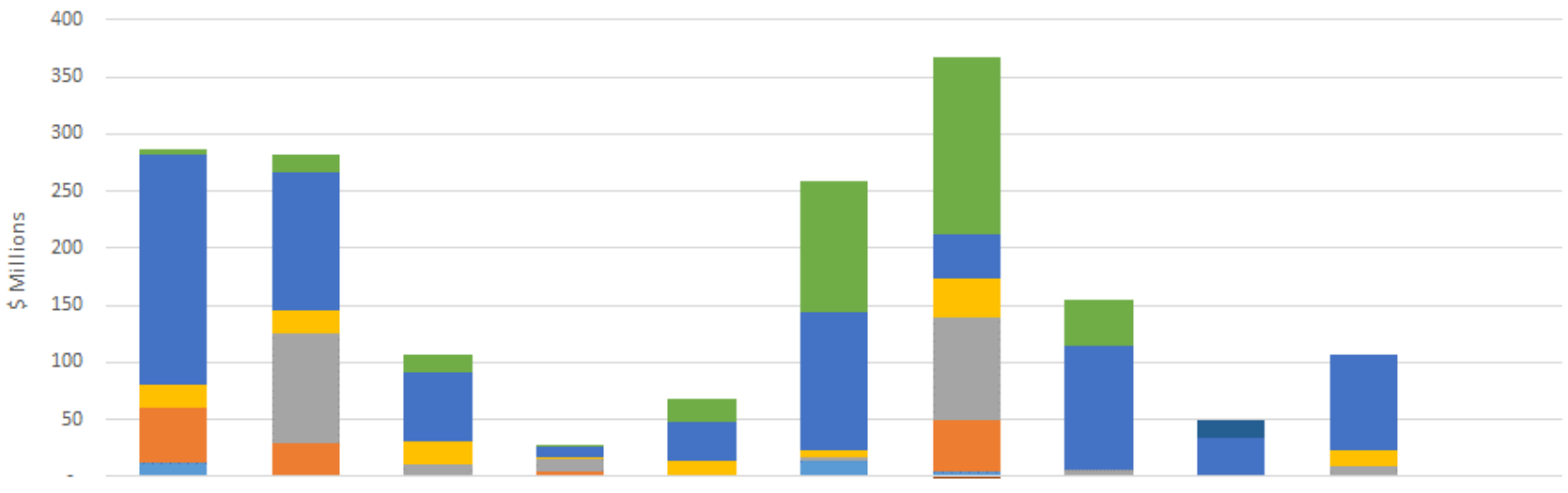

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	-	-	-	-	-	-	(0)	-	-	-	(0)
AA	-	-	-	-	-	-	-	-	15	-	15
A	4	16	17	1	20	114	155	39	-	-	367
BBB	201	121	60	9	35	122	39	109	32	83	812
BB	20	20	21	1	13	6	34	-	-	13	127
B	-	97	10	11	-	3	90	5	2	8	226
<B	49	29	0	4	-	1	46	-	-	1	129
N/A	12	-	-	-	-	13	4	1	-	-	30
Total	286	283	107	27	68	259	367	154	49	106	1,706

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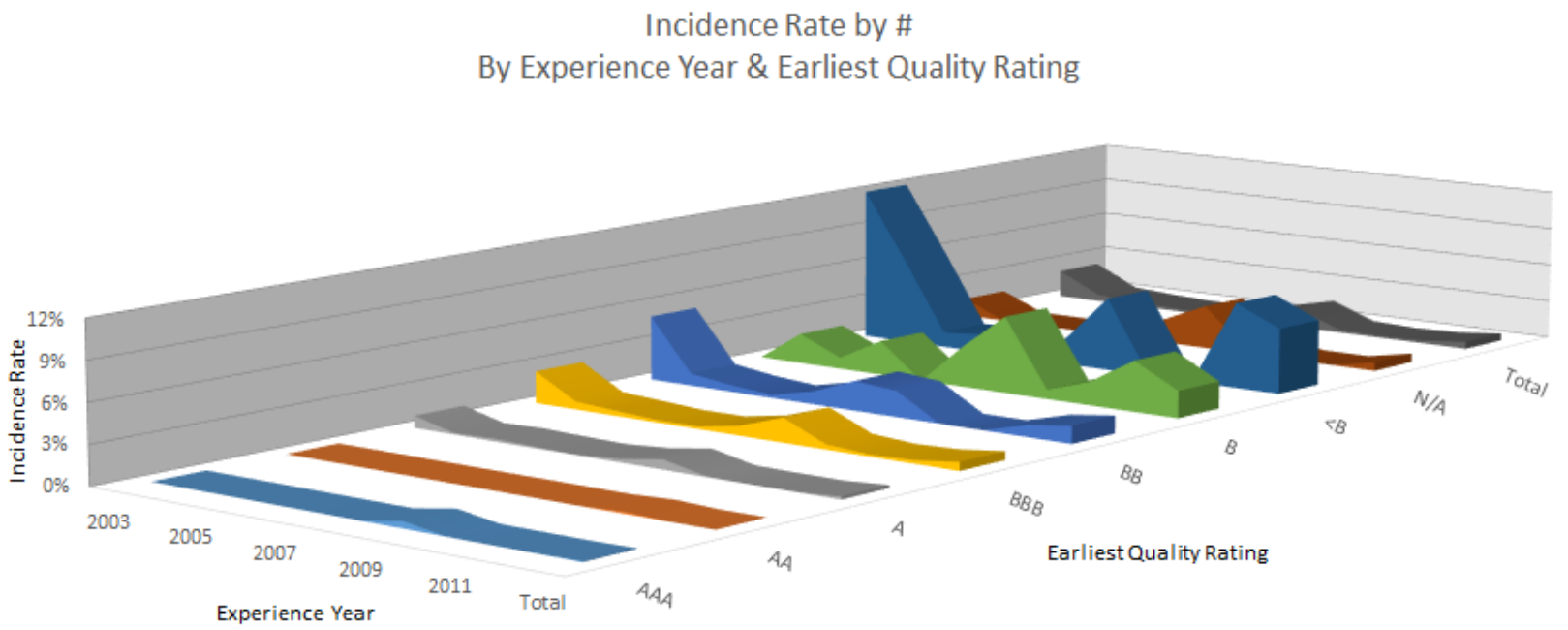

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.53%	0.00%	0.00%	0.00%	0.05%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	0.00%	0.02%
A	0.92%	0.10%	0.20%	0.10%	0.05%	0.27%	0.76%	0.04%	0.00%	0.00%	0.21%
BBB	2.45%	0.60%	0.39%	0.19%	0.20%	0.78%	1.88%	0.39%	0.16%	0.27%	0.66%
BB	5.01%	0.96%	0.51%	0.25%	1.01%	2.28%	2.01%	0.00%	0.00%	0.93%	1.36%
B	0.00%	2.33%	0.88%	2.68%	0.00%	3.16%	5.97%	0.72%	1.86%	3.95%	2.10%
<B	11.97%	6.72%	1.19%	1.44%	0.00%	2.06%	5.71%	0.00%	0.00%	6.67%	5.11%
N/A	1.41%	0.00%	0.00%	0.00%	0.00%	1.89%	3.42%	0.37%	0.00%	0.00%	0.68%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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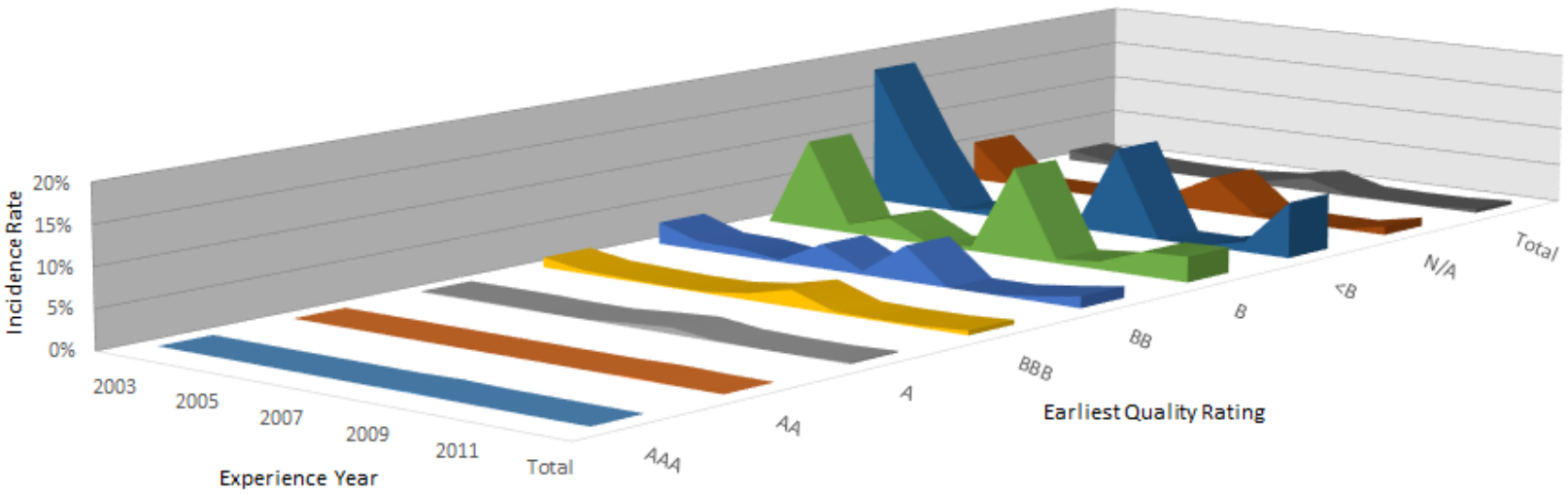

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	0.00%	0.00%	0.00%	0.02%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.00%	0.01%
A	0.13%	0.14%	0.15%	0.04%	0.07%	0.47%	0.80%	0.14%	0.00%	0.00%	0.20%
BBB	1.26%	0.44%	0.28%	0.13%	0.20%	0.87%	2.16%	0.30%	0.20%	0.27%	0.58%
BB	2.79%	1.07%	0.97%	0.31%	3.11%	0.50%	4.54%	0.00%	0.00%	0.67%	1.46%
B	0.00%	11.46%	1.12%	2.71%	0.00%	0.60%	11.55%	0.55%	1.04%	3.11%	3.26%
<B	18.00%	8.07%	0.15%	0.96%	0.00%	0.19%	11.31%	0.00%	0.00%	1.35%	7.24%
N/A	5.27%	0.00%	0.00%	0.00%	0.00%	1.86%	4.78%	0.28%	0.00%	0.00%	1.14%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0%	0%	0%	0%	0%	0%	-9%	0%	0%	0%	-9%
AA	0%	0%	0%	0%	0%	0%	0%	0%	100%	0%	100%
A	24%	52%	46%	14%	100%	72%	56%	79%	0%	0%	61%
BBB	48%	54%	38%	11%	27%	19%	3%	48%	20%	35%	21%
BB	21%	48%	59%	8%	11%	28%	20%	0%	0%	76%	25%
B	0%	79%	97%	43%	0%	52%	71%	86%	15%	27%	67%
<B	19%	41%	12%	100%	0%	76%	90%	0%	0%	78%	34%
N/A	18%	0%	0%	0%	0%	50%	6%	28%	0%	0%	18%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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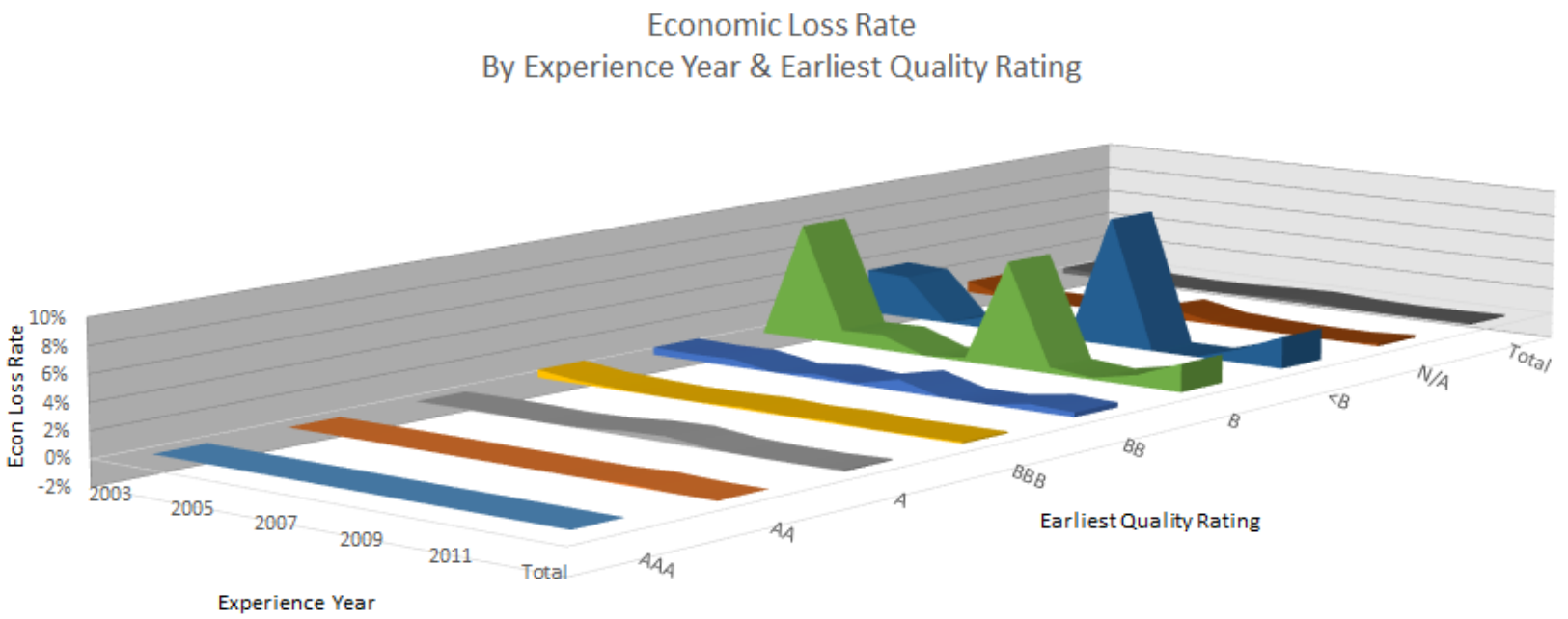

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
AAA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.01%	0.00%	0.00%	0.00%	0.00%
AA	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.13%	0.00%	0.01%
A	0.03%	0.07%	0.07%	0.01%	0.07%	0.34%	0.45%	0.11%	0.00%	0.00%	0.12%
BBB	0.60%	0.24%	0.11%	0.01%	0.05%	0.17%	0.06%	0.14%	0.04%	0.09%	0.12%
BB	0.58%	0.51%	0.57%	0.02%	0.35%	0.14%	0.90%	0.00%	0.00%	0.51%	0.37%
B	0.00%	9.02%	1.09%	1.16%	0.00%	0.31%	8.19%	0.47%	0.16%	0.85%	2.18%
<B	3.46%	3.32%	0.02%	0.96%	0.00%	0.14%	10.22%	0.00%	0.00%	1.05%	2.46%
N/A	0.94%	0.00%	0.00%	0.00%	0.00%	0.93%	0.27%	0.08%	0.00%	0.00%	0.21%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.E MOST RECENT NAIC RATING

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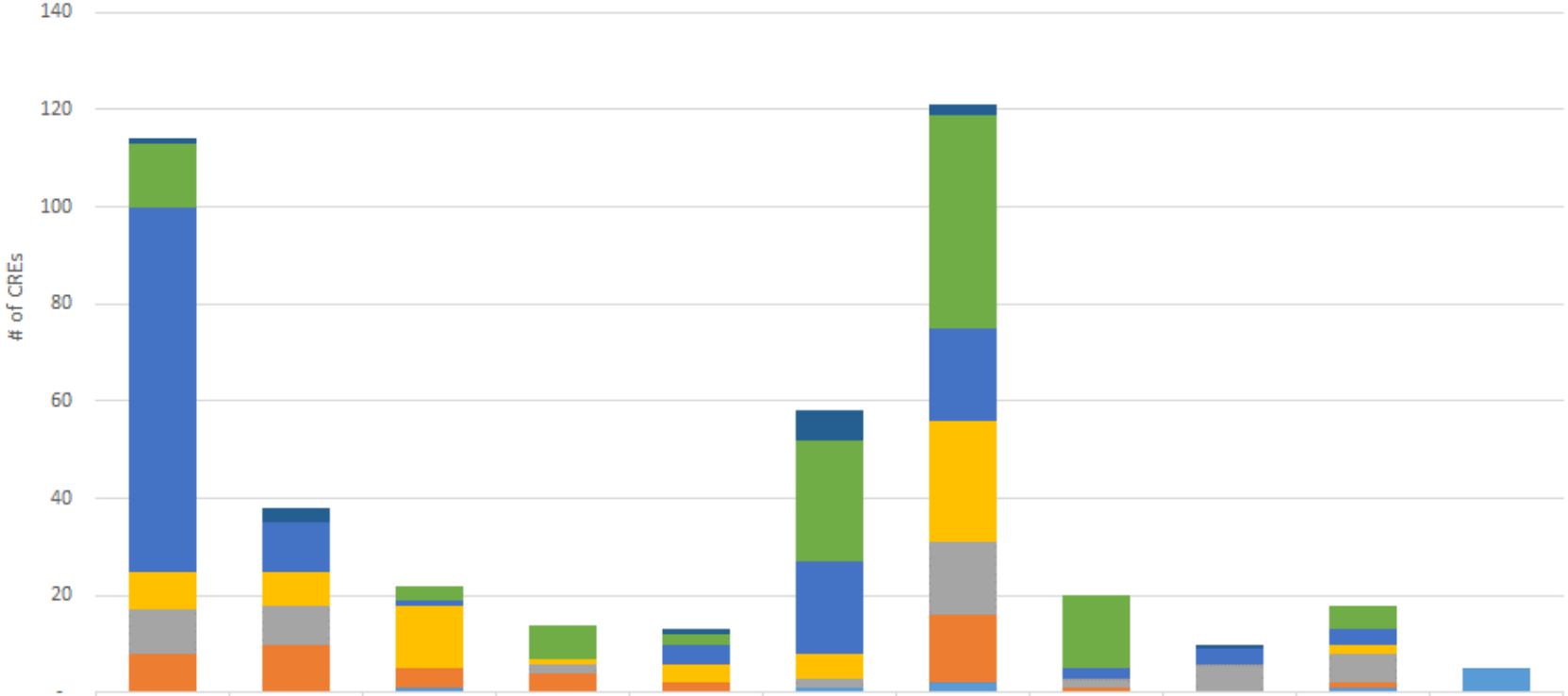

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	1	3	-	-	1	6	2	-	1	-	14
2	13	-	3	7	2	25	44	15	-	5	114
3	75	10	1	-	4	19	19	2	3	3	136
4	8	7	13	1	4	5	25	-	-	2	65
5	9	8	-	2	-	2	15	2	6	6	50
6	8	10	4	4	2	-	14	1	-	1	44
N/A	-	-	1	-	-	1	2	-	-	1	5
Total	114	38	22	14	13	58	121	20	10	18	428

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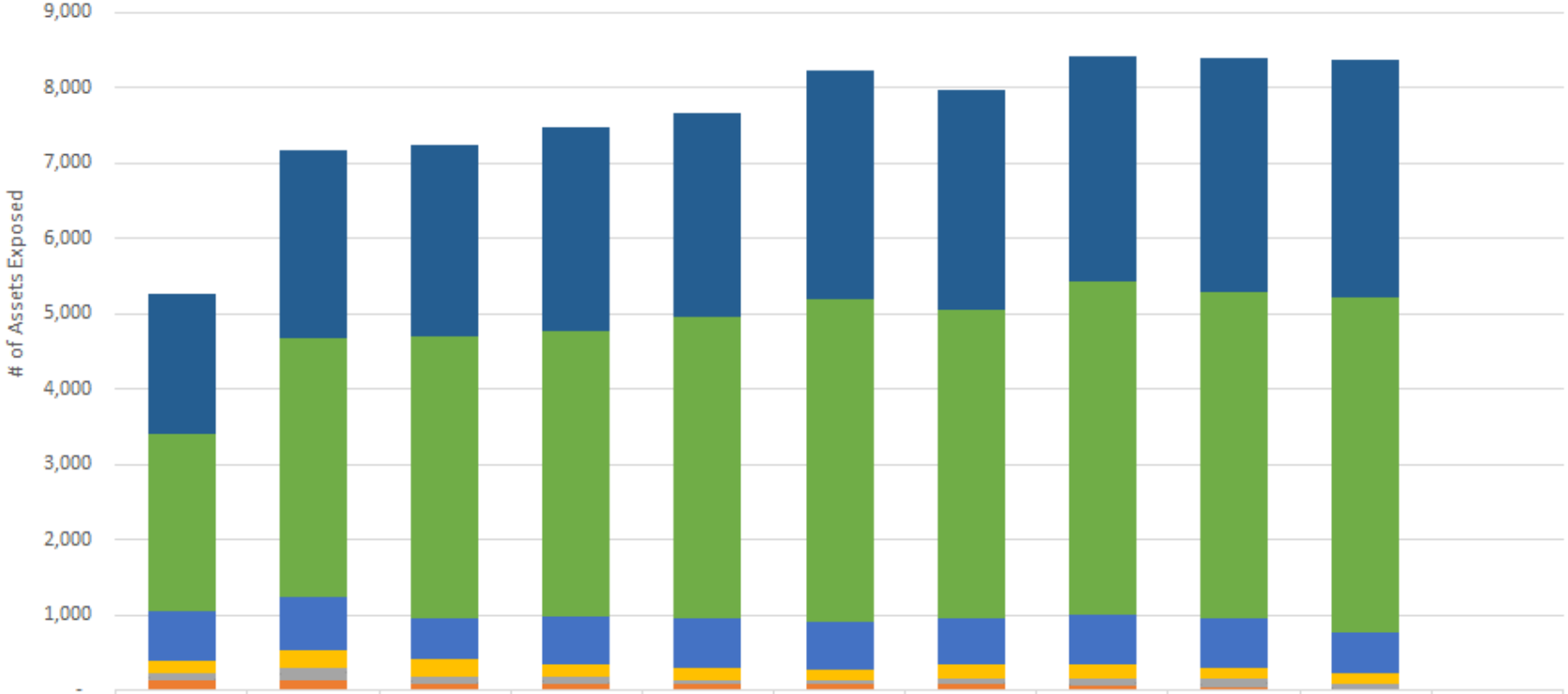

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	1,866	2,494	2,541	2,704	2,711	3,050	2,921	2,998	3,096	3,156	27,534
2	2,339	3,432	3,735	3,785	4,001	4,272	4,091	4,423	4,320	4,448	38,846
3	661	715	550	646	651	624	613	662	673	552	6,347
4	156	241	240	173	160	151	182	174	147	133	1,757
5	99	157	76	74	61	58	77	105	109	68	883
6	136	132	89	84	70	60	68	41	23	12	713
N/A	6	6	10	18	15	21	22	25	19	11	151
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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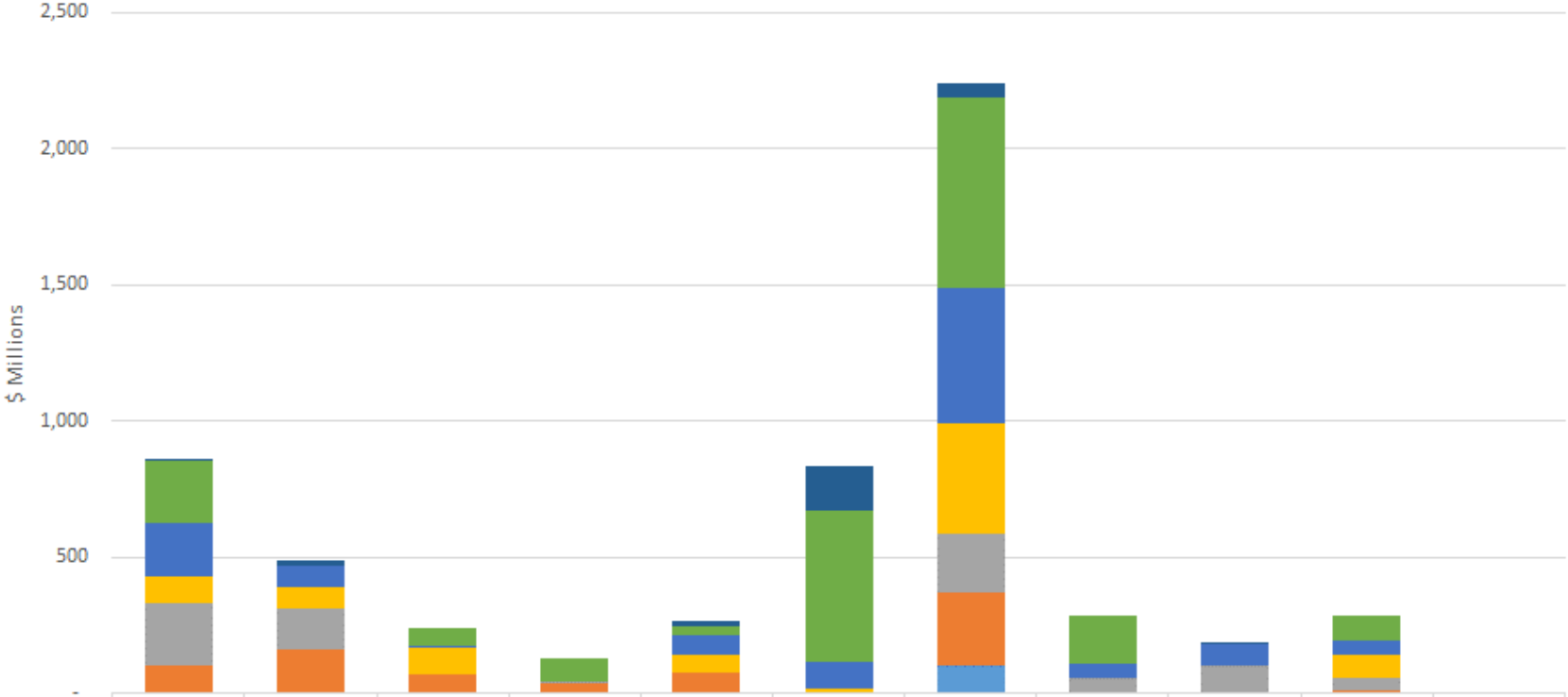

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	0	23	-	-	20	162	50	-	2	-	256
2	226	-	62	85	30	558	704	174	-	95	1,934
3	193	75	11	-	74	101	491	52	83	53	1,134
4	97	79	94	5	62	10	407	-	-	82	836
5	230	152	-	4	-	5	214	55	102	44	806
6	106	161	71	38	80	-	272	6	-	5	739
N/A	-	-	1	-	-	1	102	-	-	9	113
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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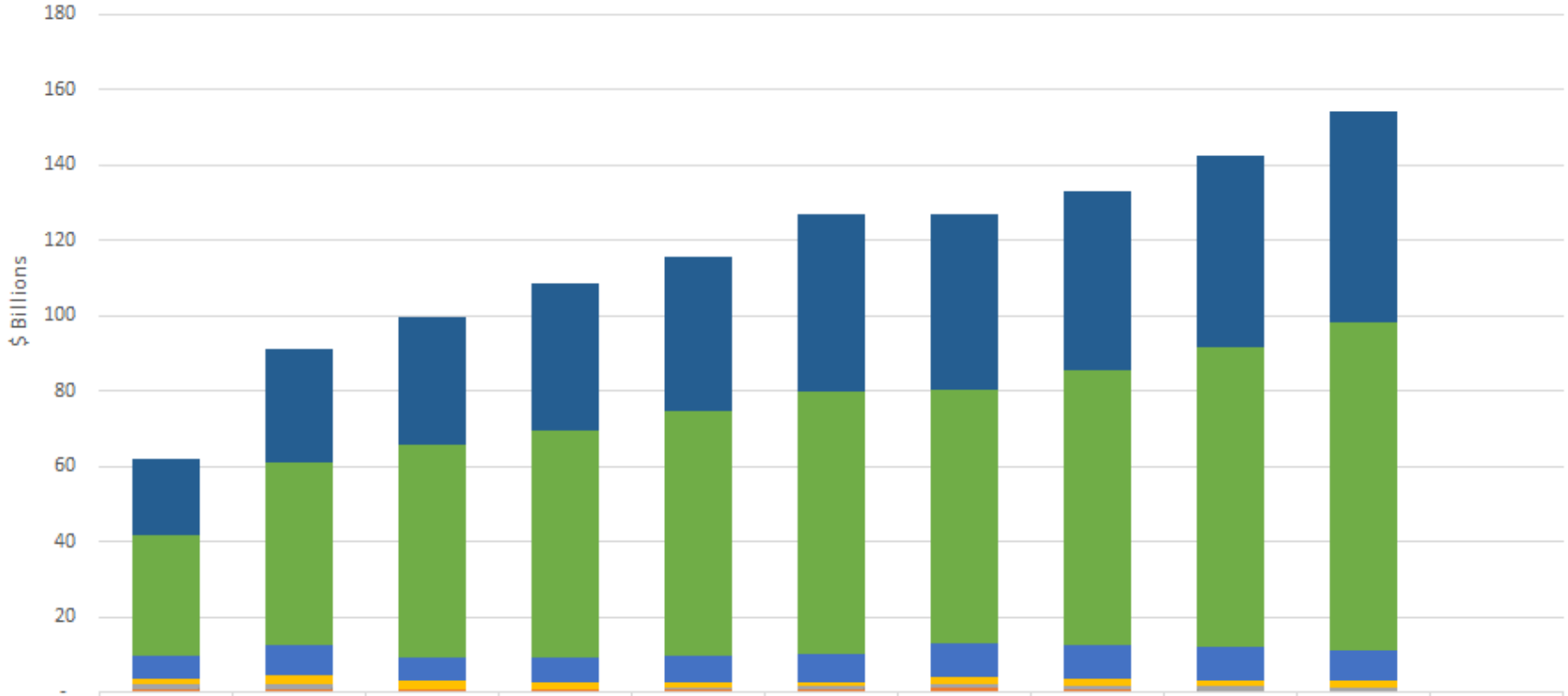

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	20.4	30.2	34.2	38.8	41.0	47.1	46.6	47.4	50.9	55.9	412.4
2	32.2	48.4	56.1	60.4	64.9	69.6	67.2	72.7	79.2	87.1	637.8
3	5.9	7.8	6.3	6.5	7.2	7.5	9.3	9.2	9.0	8.3	76.9
4	1.6	2.6	2.1	1.9	1.5	1.3	1.8	1.8	1.5	1.7	17.9
5	1.1	1.1	0.4	0.4	0.5	0.7	0.9	1.1	1.3	1.0	8.4
6	1.1	0.9	0.6	0.5	0.4	0.4	0.6	0.2	0.1	0.0	4.8
N/A	0.1	0.0	0.1	0.2	0.3	0.5	0.6	0.6	0.4	0.3	3.2
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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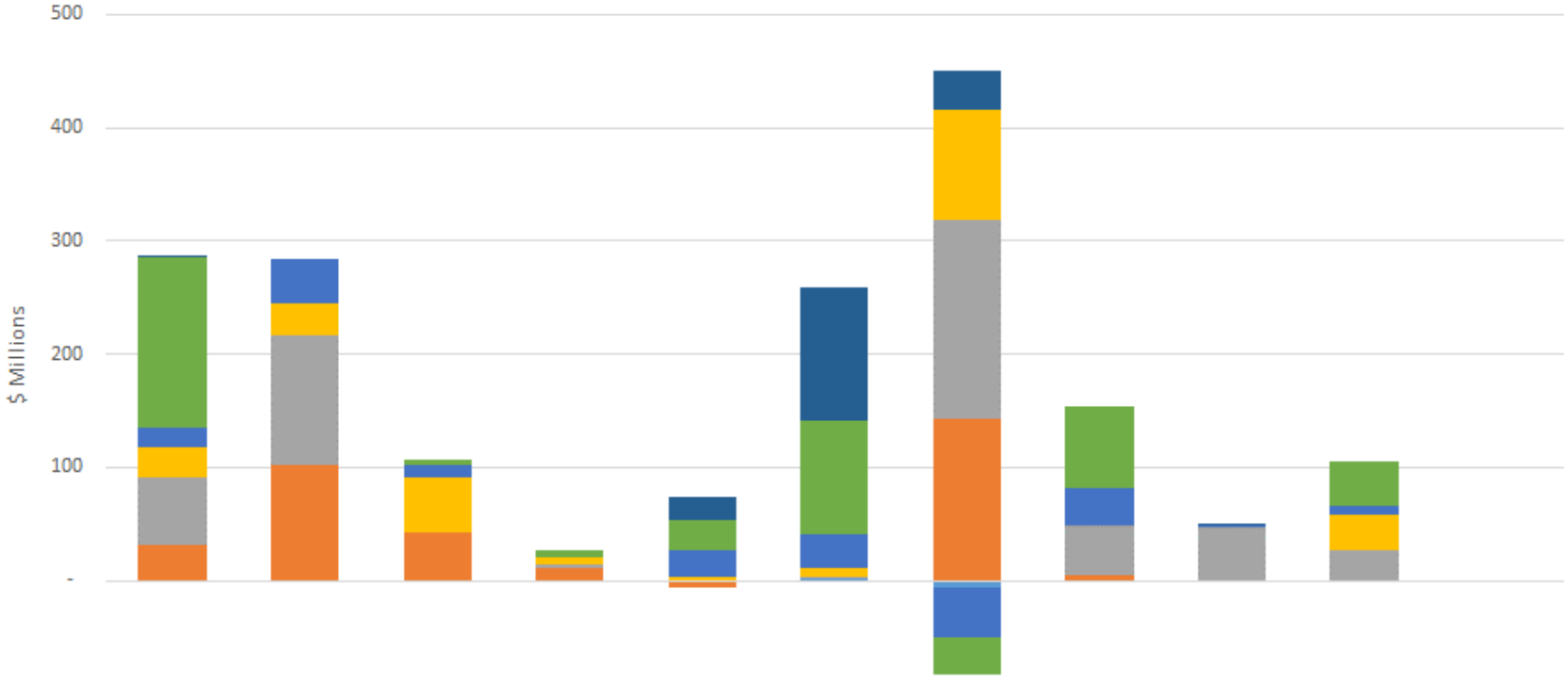

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	0	(2)	-	-	20	117	35	-	0	-	171
2	151	-	5	7	28	101	(34)	72	-	40	369
3	17	39	11	-	23	30	(43)	34	1	9	122
4	26	28	48	5	3	8	98	-	-	32	248
5	60	115	-	4	-	2	175	43	47	26	472
6	32	102	43	11	(6)	-	143	5	-	0	329
N/A	-	-	0	-	-	1	(7)	-	-	(0)	(5)
Total	286	283	107	27	68	259	367	154	49	106	1,706

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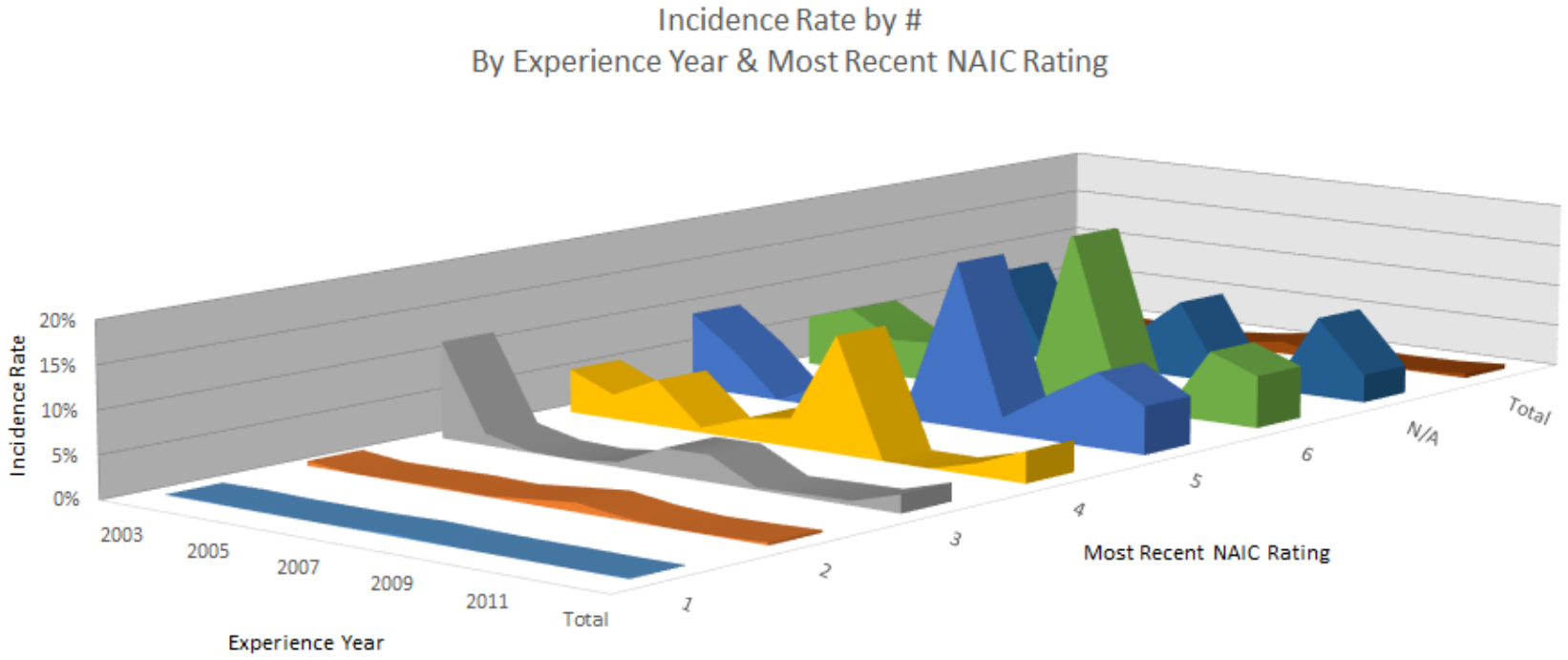

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	0.05%	0.12%	0.00%	0.00%	0.04%	0.20%	0.07%	0.00%	0.03%	0.00%	0.05%
2	0.56%	0.00%	0.08%	0.18%	0.05%	0.59%	1.08%	0.34%	0.00%	0.11%	0.29%
3	11.34%	1.40%	0.18%	0.00%	0.61%	3.04%	3.10%	0.30%	0.45%	0.54%	2.14%
4	5.14%	2.90%	5.42%	0.58%	2.50%	3.30%	13.74%	0.00%	0.00%	1.50%	3.70%
5	9.09%	5.10%	0.00%	2.72%	0.00%	3.45%	19.48%	1.91%	5.50%	8.82%	5.66%
6	5.88%	7.60%	4.49%	4.79%	2.86%	0.00%	20.74%	2.46%	0.00%	8.33%	6.17%
N/A	0.00%	0.00%	10.53%	0.00%	0.00%	4.76%	9.30%	0.00%	0.00%	9.52%	3.32%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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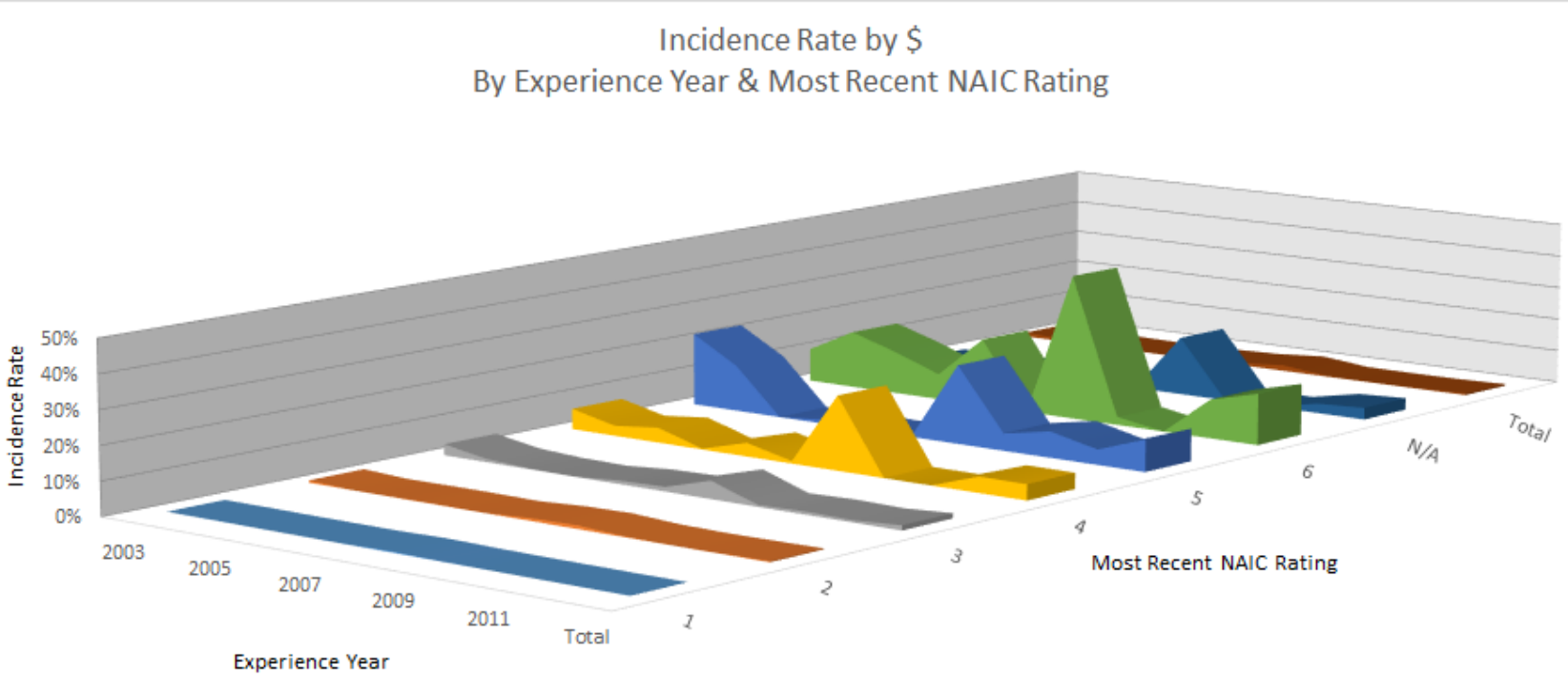

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	0.00%	0.07%	0.00%	0.00%	0.05%	0.34%	0.11%	0.00%	0.00%	0.00%	0.06%
2	0.70%	0.00%	0.11%	0.14%	0.05%	0.80%	1.05%	0.24%	0.00%	0.11%	0.30%
3	3.26%	0.96%	0.18%	0.00%	1.03%	1.35%	5.29%	0.56%	0.92%	0.64%	1.47%
4	6.17%	3.02%	4.46%	0.26%	4.07%	0.77%	22.05%	0.00%	0.00%	4.75%	4.67%
5	21.87%	13.82%	0.00%	1.21%	0.00%	0.67%	23.60%	5.19%	7.82%	4.55%	9.60%
6	10.04%	17.29%	12.91%	7.78%	20.50%	0.00%	43.63%	2.46%	0.00%	11.72%	15.40%
N/A	0.00%	0.00%	0.88%	0.00%	0.00%	0.25%	17.70%	0.00%	0.00%	2.91%	3.57%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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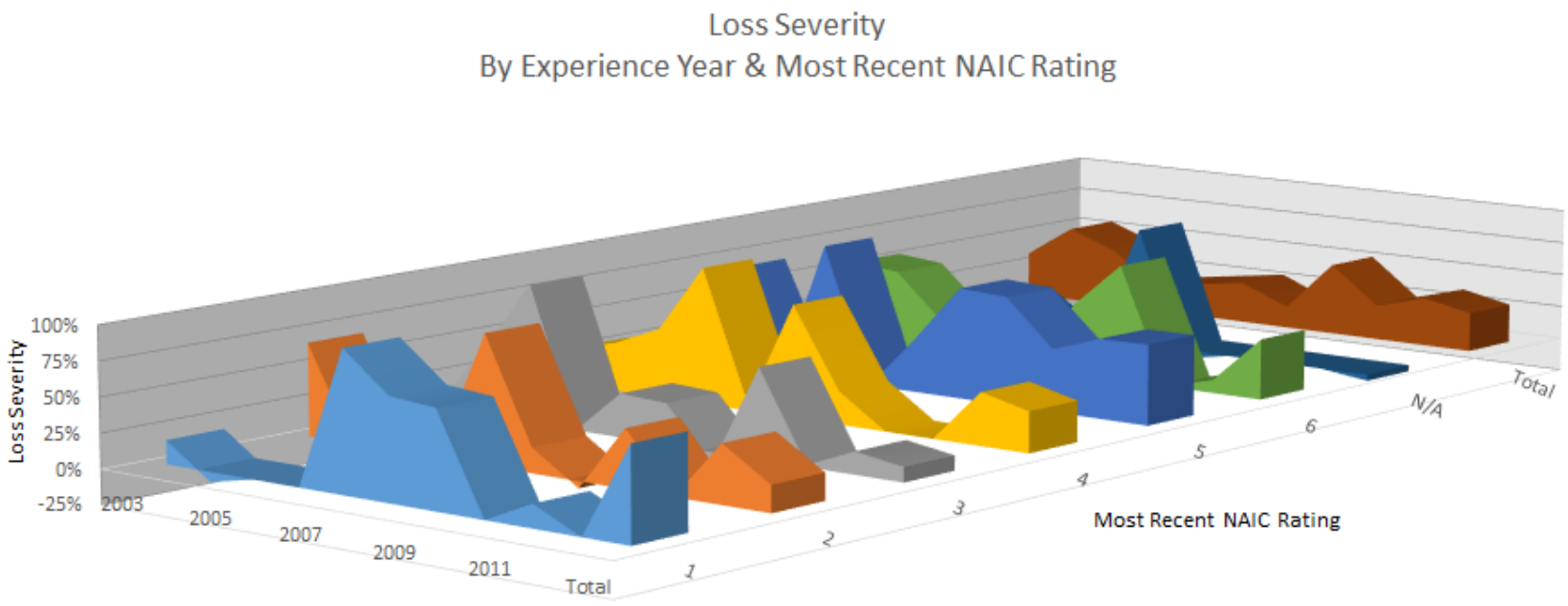

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	17%	-7%	0%	0%	100%	73%	69%	0%	17%	0%	67%
2	67%	0%	8%	8%	92%	18%	-5%	42%	0%	42%	19%
3	9%	52%	100%	0%	31%	30%	-9%	65%	1%	16%	11%
4	27%	36%	51%	100%	5%	82%	24%	0%	0%	38%	30%
5	26%	76%	0%	100%	0%	39%	81%	80%	46%	58%	59%
6	30%	63%	60%	27%	-7%	0%	53%	86%	0%	10%	45%
N/A	0%	0%	25%	0%	0%	89%	-7%	0%	0%	0%	-5%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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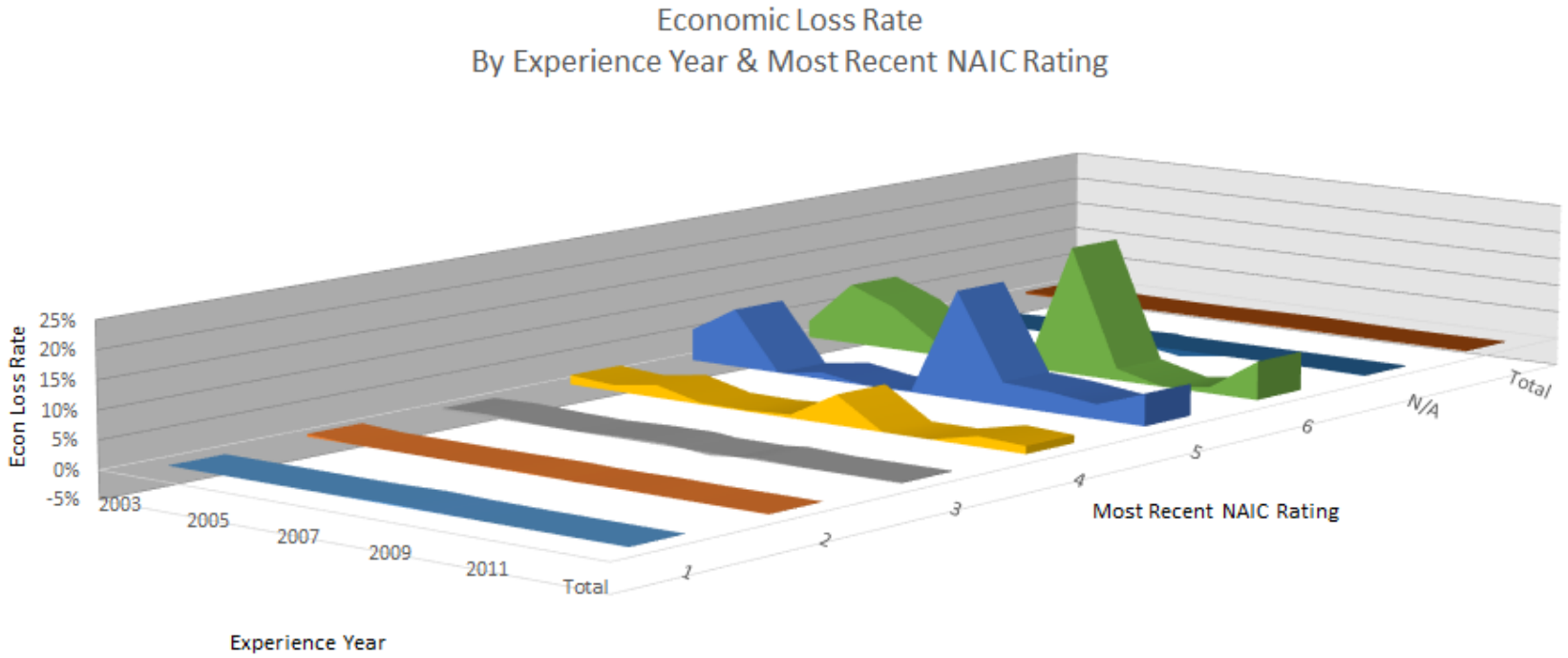

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
1	0.00%	-0.01%	0.00%	0.00%	0.05%	0.25%	0.07%	0.00%	0.00%	0.00%	0.04%
2	0.47%	0.00%	0.01%	0.01%	0.04%	0.14%	-0.05%	0.10%	0.00%	0.05%	0.06%
3	0.29%	0.50%	0.18%	0.00%	0.32%	0.40%	-0.46%	0.37%	0.01%	0.10%	0.16%
4	1.67%	1.08%	2.26%	0.26%	0.20%	0.63%	5.32%	0.00%	0.00%	1.82%	1.39%
5	5.67%	10.45%	0.00%	1.21%	0.00%	0.26%	19.23%	4.13%	3.62%	2.64%	5.62%
6	3.00%	10.93%	7.74%	2.13%	-1.52%	0.00%	22.98%	2.12%	0.00%	1.15%	6.87%
N/A	0.00%	0.00%	0.22%	0.00%	0.00%	0.22%	-1.16%	0.00%	0.00%	0.00%	-0.17%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.F COUPON RATE

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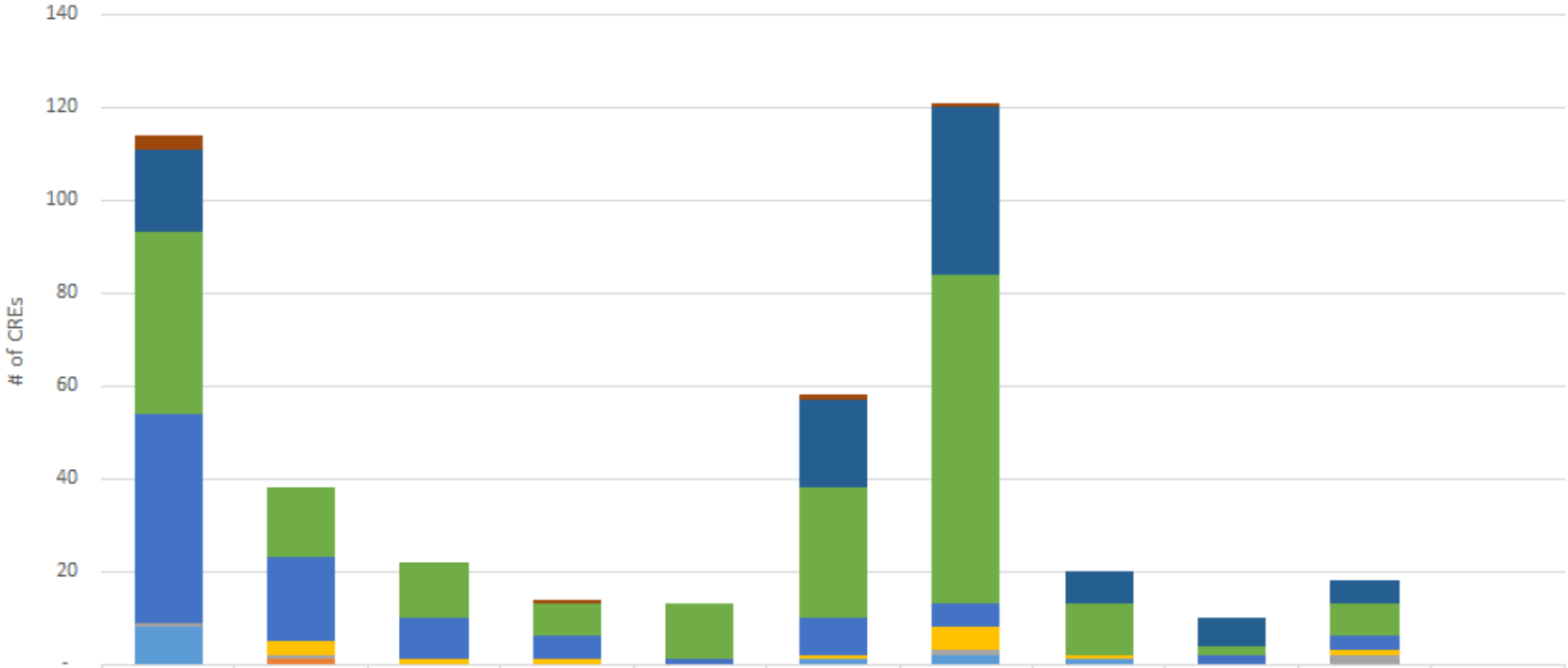

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	3	-	-	1	-	1	1	-	-	-	6
[3,6)	18	-	-	-	-	19	36	7	6	5	91
[6,9)	39	15	12	7	12	28	71	11	2	7	204
[9,12)	45	18	9	5	1	8	5	-	2	3	96
[12,15)	-	3	1	1	-	1	5	1	-	1	13
[15,18)	1	1	-	-	-	-	1	-	-	2	5
[18,21)	-	1	-	-	-	-	-	-	-	-	1
N/A	8	-	-	-	-	1	2	1	-	-	12
Total	114	38	22	14	13	58	121	20	10	18	428

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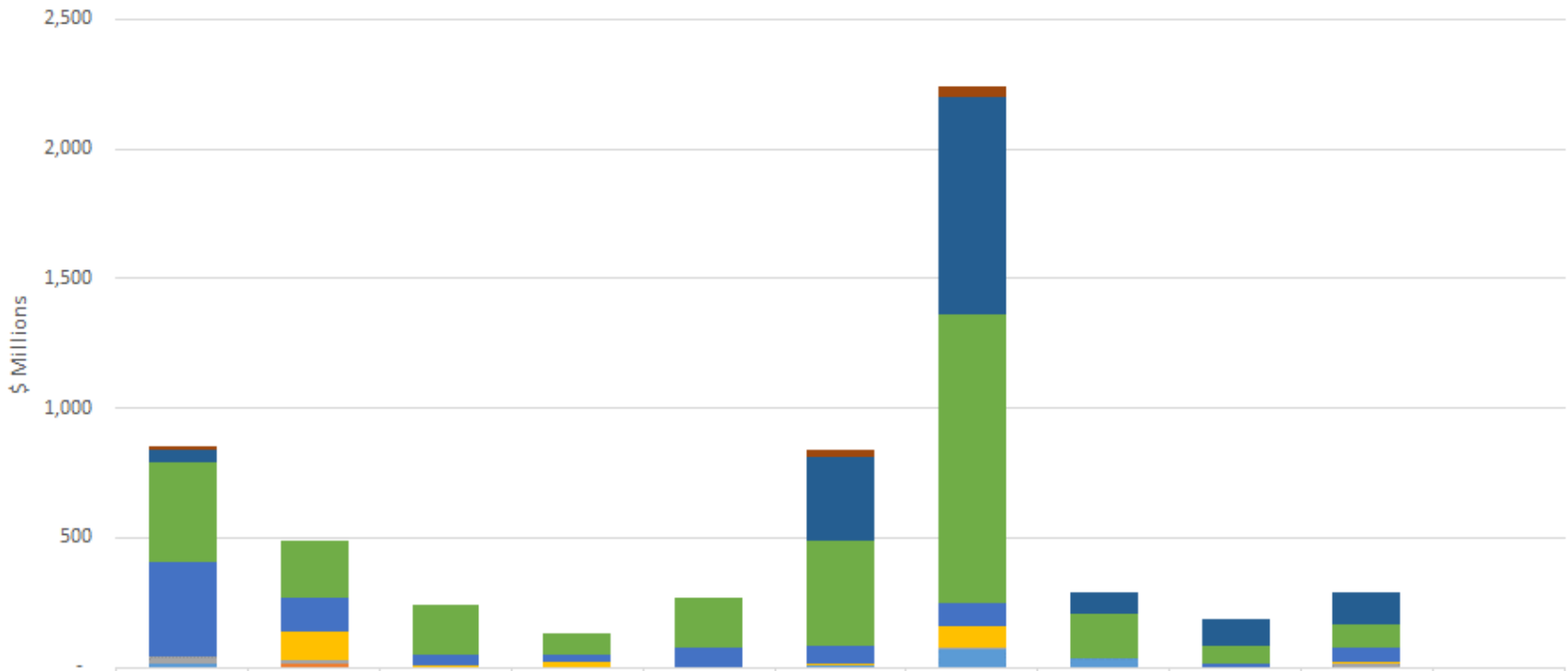

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	15	-	-	0	-	27	43	-	-	-	84
[3,6)	50	-	-	-	-	325	834	81	103	126	1,518
[6,9)	385	222	188	85	191	400	1,118	168	68	85	2,908
[9,12)	363	130	42	28	75	72	89	-	16	56	871
[12,15)	-	113	10	20	-	3	77	6	-	6	235
[15,18)	29	12	-	-	-	-	9	-	-	16	67
[18,21)	-	13	-	-	-	-	-	-	-	-	13
N/A	11	-	-	-	-	10	69	32	-	-	122
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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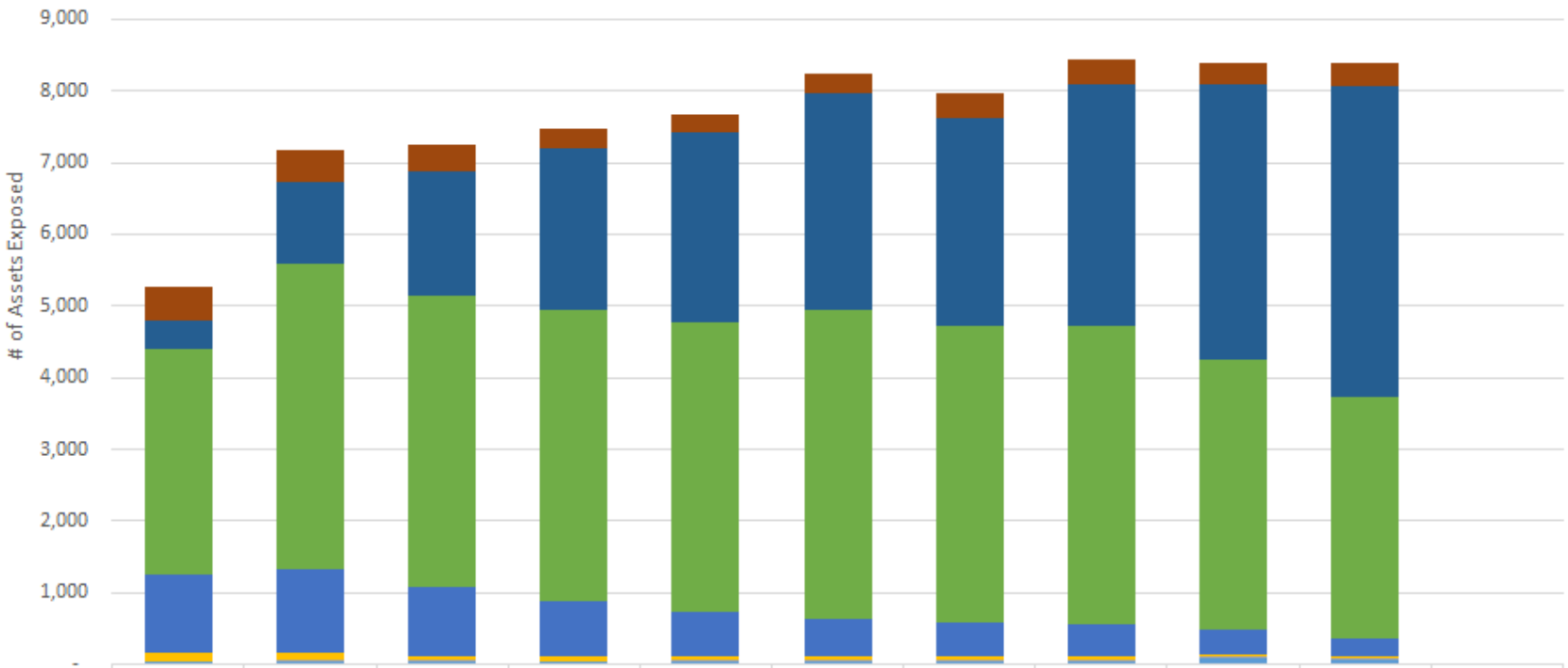

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	469	450	352	294	252	274	344	341	309	326	3,409
[3,6)	392	1,142	1,744	2,235	2,637	3,022	2,900	3,354	3,825	4,326	25,575
[6,9)	3,157	4,261	4,061	4,079	4,034	4,291	4,137	4,162	3,774	3,374	39,330
[9,12)	1,085	1,159	958	766	634	528	464	450	338	237	6,617
[12,15)	108	109	67	53	50	50	54	44	33	30	594
[15,18)	16	12	6	7	13	18	22	27	28	22	168
[18,21)	6	7	4	2	1	-	-	-	-	-	18
N/A	32	39	50	47	48	54	53	51	81	67	521
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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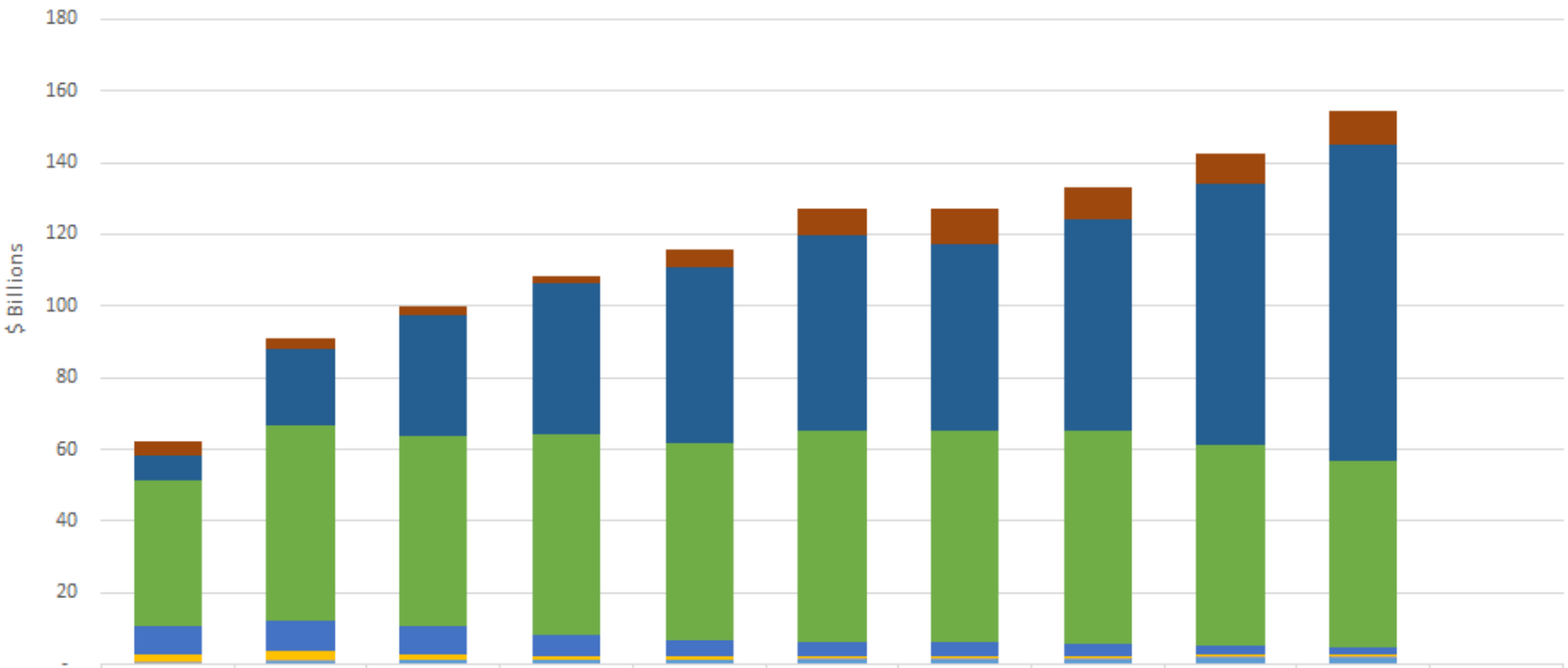

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	3.8	3.2	2.3	2.2	4.9	7.6	10.0	8.8	8.6	9.5	60.8
[3,6)	7.0	21.1	33.5	41.9	49.2	54.4	51.7	58.6	72.4	87.9	477.9
[6,9)	40.6	54.7	53.1	56.1	55.1	58.8	59.1	59.4	55.9	51.9	544.7
[9,12)	8.1	8.3	8.0	6.2	4.5	4.1	4.1	3.7	2.7	2.2	51.8
[12,15)	2.0	2.4	1.5	0.7	0.6	0.5	0.6	0.4	0.4	0.4	9.4
[15,18)	0.4	0.3	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.3	2.2
[18,21)	0.0	0.1	0.0	0.0	0.0	-	-	-	-	-	0.1
N/A	0.5	1.0	1.4	1.4	1.5	1.6	1.4	1.6	2.1	2.1	14.5
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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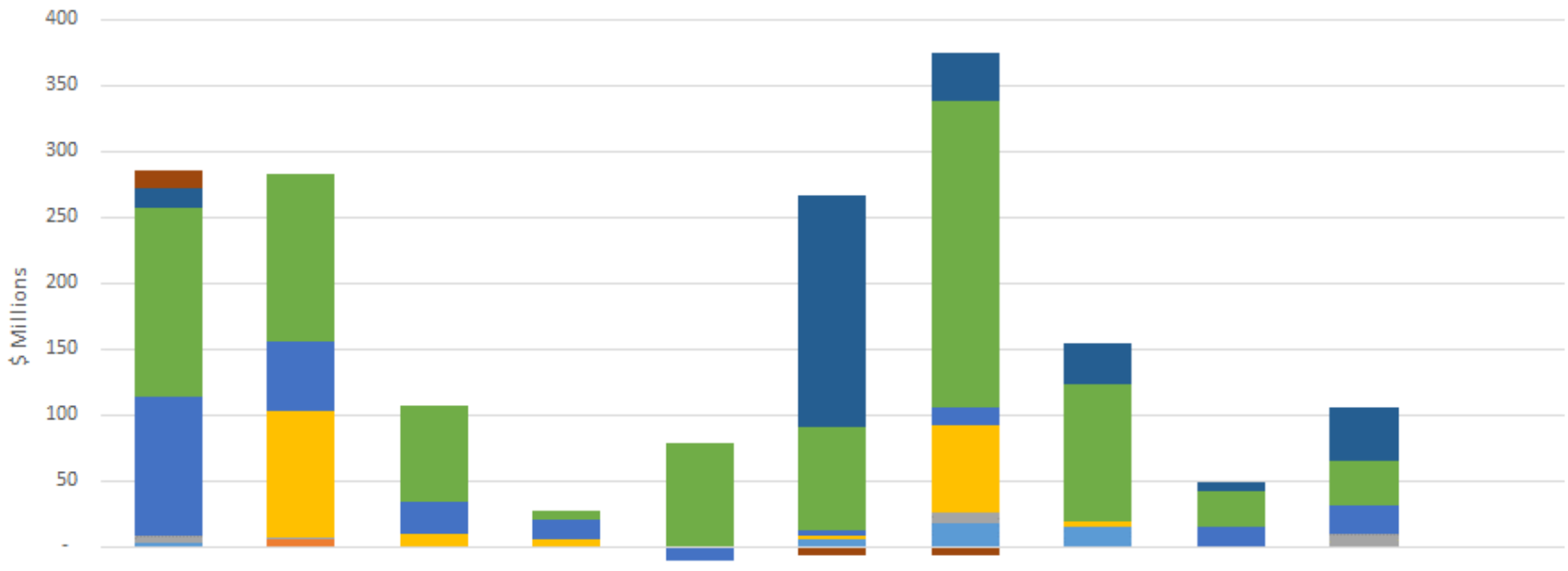

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	15	-	-	0	-	(7)	(7)	-	-	-	1
[3,6)	14	-	-	-	-	175	36	30	7	41	303
[6,9)	144	128	73	7	79	79	232	105	27	34	907
[9,12)	105	52	24	14	(11)	4	13	-	15	22	239
[12,15)	-	95	10	6	-	3	66	5	-	0	183
[15,18)	6	2	-	-	-	-	9	-	-	9	27
[18,21)	-	5	-	-	-	-	-	-	-	-	5
N/A	2	-	-	-	-	5	17	14	-	-	40
Total	286	283	107	27	68	259	367	154	49	106	1,706

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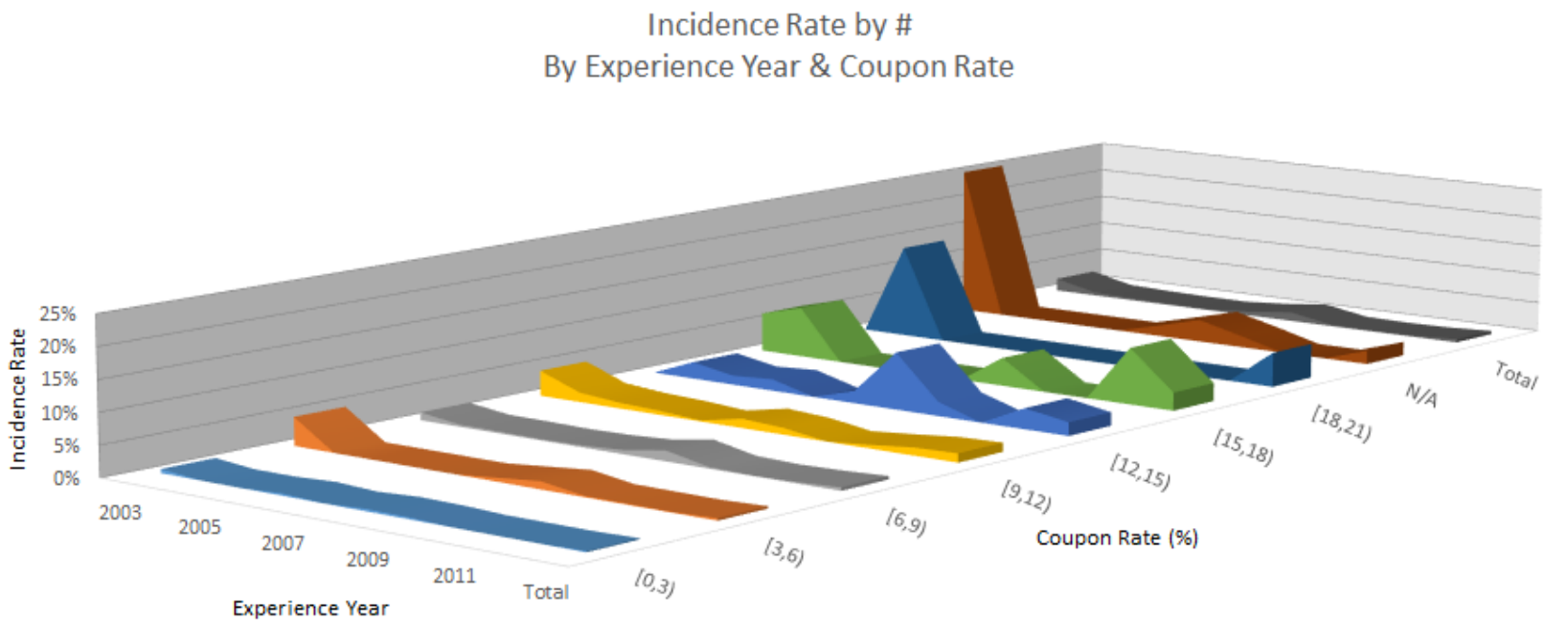

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	0.64%	0.00%	0.00%	0.34%	0.00%	0.36%	0.29%	0.00%	0.00%	0.00%	0.18%
[3,6)	4.59%	0.00%	0.00%	0.00%	0.00%	0.63%	1.24%	0.21%	0.16%	0.12%	0.36%
[6,9)	1.24%	0.35%	0.30%	0.17%	0.30%	0.65%	1.72%	0.26%	0.05%	0.21%	0.52%
[9,12)	4.15%	1.55%	0.94%	0.65%	0.16%	1.52%	1.08%	0.00%	0.59%	1.27%	1.45%
[12,15)	0.00%	2.76%	1.50%	1.90%	0.00%	2.02%	9.35%	2.30%	0.00%	3.39%	2.19%
[15,18)	6.45%	8.33%	0.00%	0.00%	0.00%	0.00%	4.65%	0.00%	0.00%	9.30%	2.98%
[18,21)	0.00%	15.38%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.71%
N/A	25.00%	0.00%	0.00%	0.00%	0.00%	1.85%	3.77%	1.96%	0.00%	0.00%	2.30%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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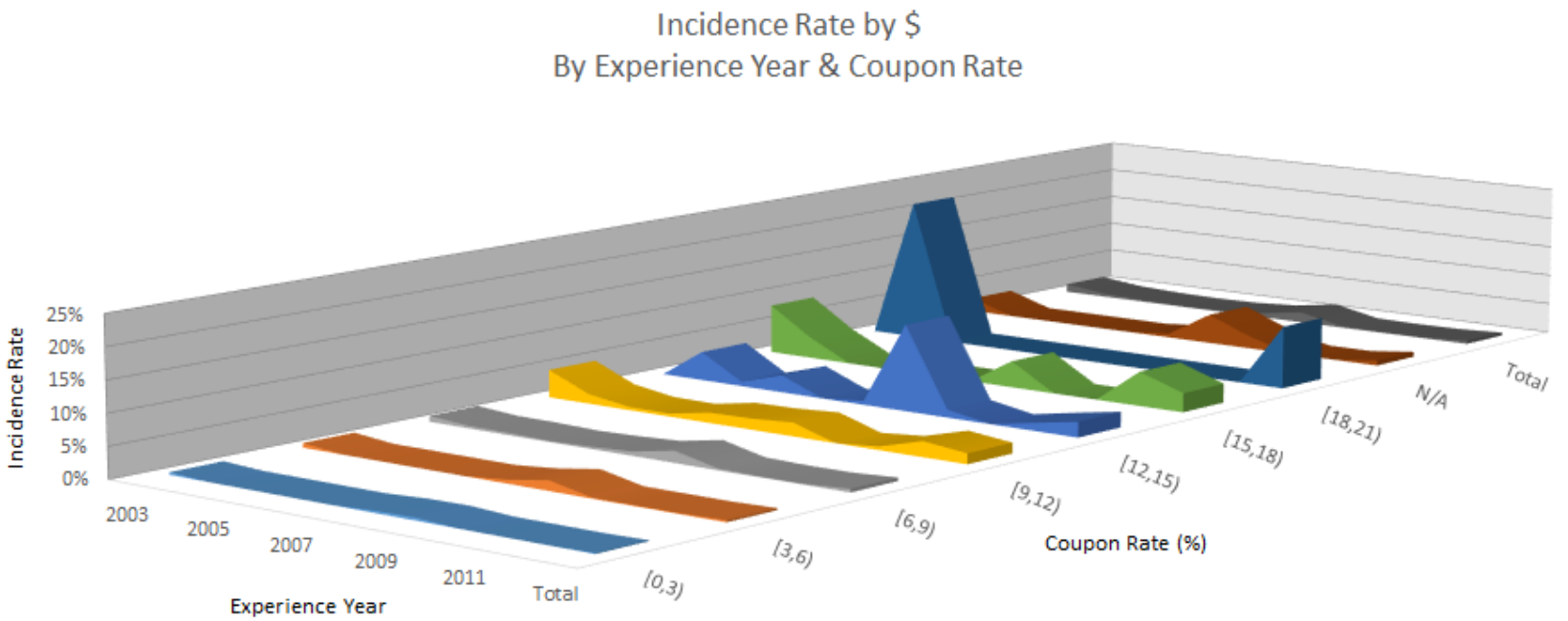

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	0.40%	0.00%	0.00%	0.00%	0.00%	0.35%	0.43%	0.00%	0.00%	0.00%	0.14%
[3,6)	0.71%	0.00%	0.00%	0.00%	0.00%	0.60%	1.61%	0.14%	0.14%	0.14%	0.32%
[6,9)	0.95%	0.40%	0.35%	0.15%	0.35%	0.68%	1.89%	0.28%	0.12%	0.16%	0.53%
[9,12)	4.49%	1.58%	0.53%	0.45%	1.66%	1.78%	2.19%	0.00%	0.58%	2.49%	1.68%
[12,15)	0.00%	4.70%	0.69%	2.81%	0.00%	0.64%	13.97%	1.25%	0.00%	1.29%	2.49%
[15,18)	7.99%	3.47%	0.00%	0.00%	0.00%	0.00%	4.32%	0.00%	0.00%	5.56%	3.08%
[18,21)	0.00%	23.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	10.21%
N/A	2.25%	0.00%	0.00%	0.00%	0.00%	0.63%	4.88%	2.01%	0.00%	0.00%	0.84%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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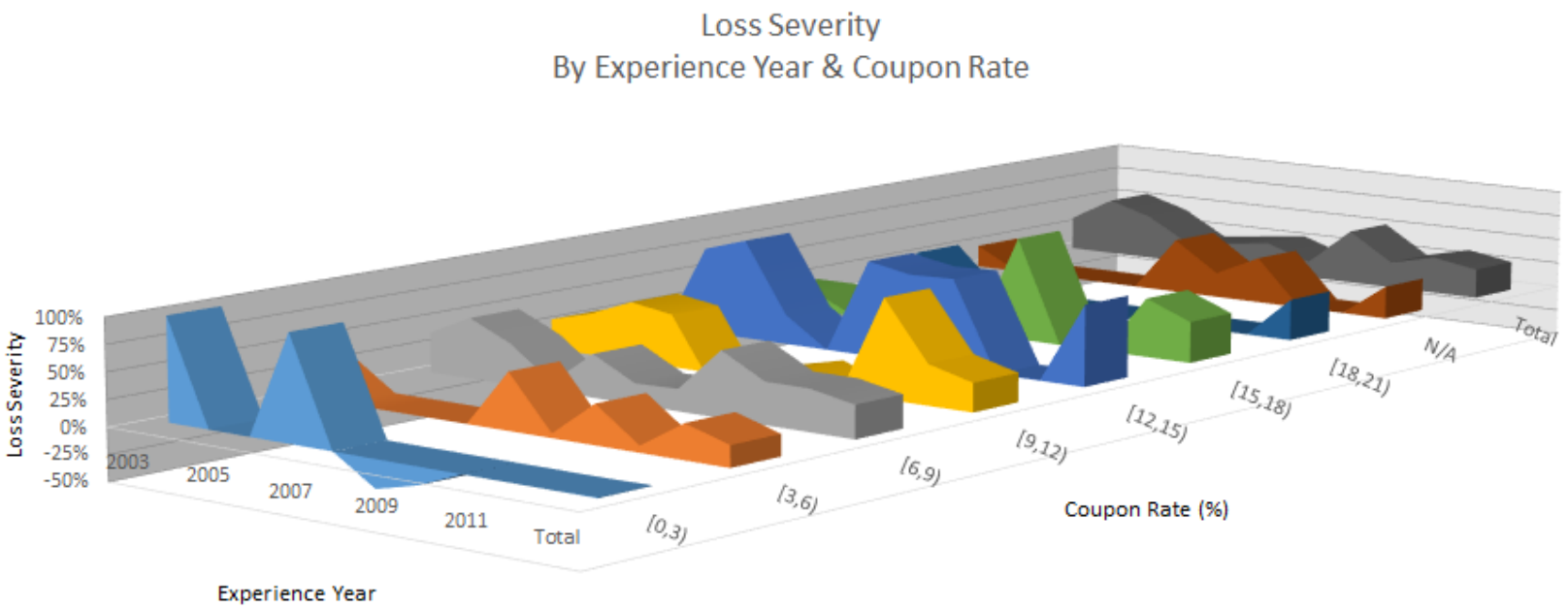

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	98%	0%	0%	100%	0%	-27%	-16%	0%	0%	0%	1%
[3,6)	27%	0%	0%	0%	0%	54%	4%	37%	7%	33%	20%
[6,9)	38%	58%	39%	8%	41%	20%	21%	62%	40%	40%	31%
[9,12)	29%	40%	57%	51%	-14%	5%	15%	0%	95%	39%	27%
[12,15)	0%	84%	97%	29%	0%	92%	85%	86%	0%	1%	78%
[15,18)	19%	19%	0%	0%	0%	0%	100%	0%	0%	57%	40%
[18,21)	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	40%
N/A	22%	0%	0%	0%	0%	54%	25%	46%	0%	0%	32%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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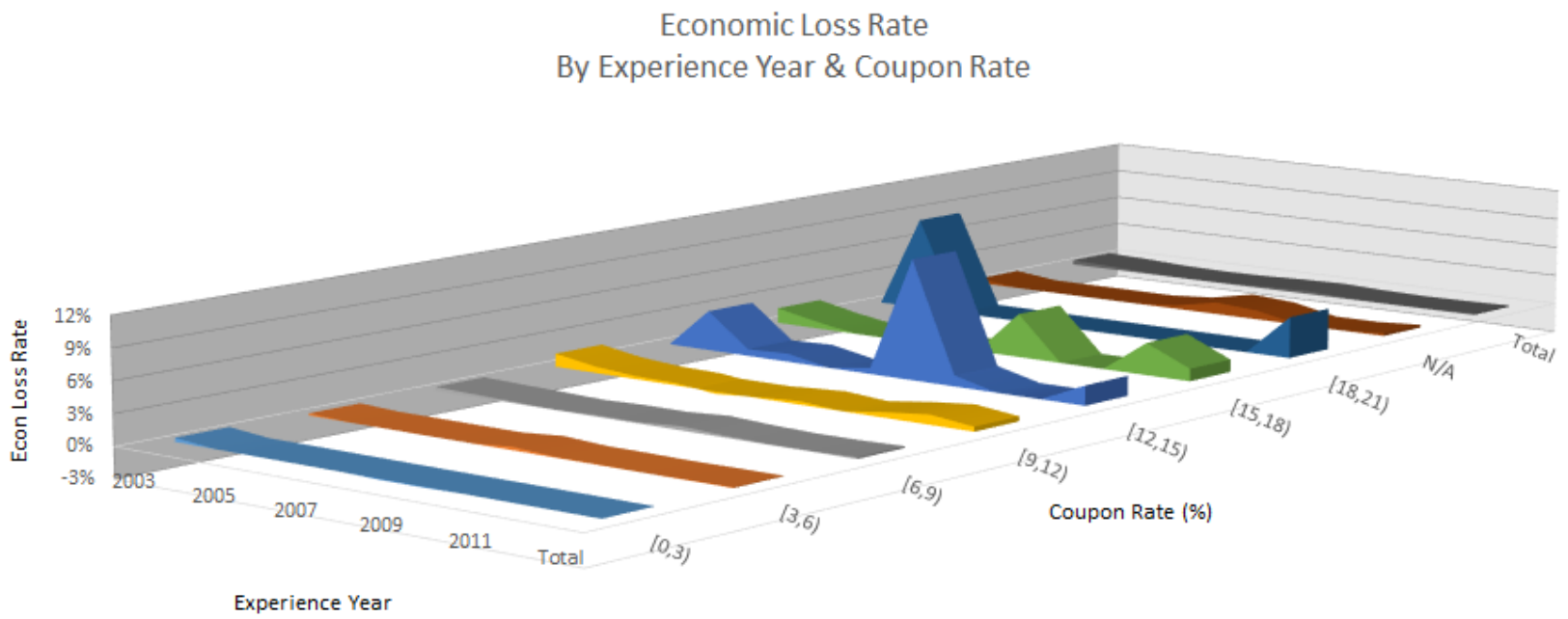

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
[0,3)	0.39%	0.00%	0.00%	0.00%	0.00%	-0.09%	-0.07%	0.00%	0.00%	0.00%	0.00%
[3,6)	0.20%	0.00%	0.00%	0.00%	0.00%	0.32%	0.07%	0.05%	0.01%	0.05%	0.06%
[6,9)	0.36%	0.23%	0.14%	0.01%	0.14%	0.13%	0.39%	0.18%	0.05%	0.06%	0.17%
[9,12)	1.30%	0.63%	0.30%	0.23%	-0.23%	0.10%	0.33%	0.00%	0.55%	0.97%	0.46%
[12,15)	0.00%	3.93%	0.67%	0.81%	0.00%	0.59%	11.83%	1.08%	0.00%	0.01%	1.95%
[15,18)	1.53%	0.67%	0.00%	0.00%	0.00%	0.00%	4.32%	0.00%	0.00%	3.17%	1.23%
[18,21)	0.00%	9.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.10%
N/A	0.50%	0.00%	0.00%	0.00%	0.00%	0.34%	1.21%	0.91%	0.00%	0.00%	0.27%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.G FUNDING YEAR

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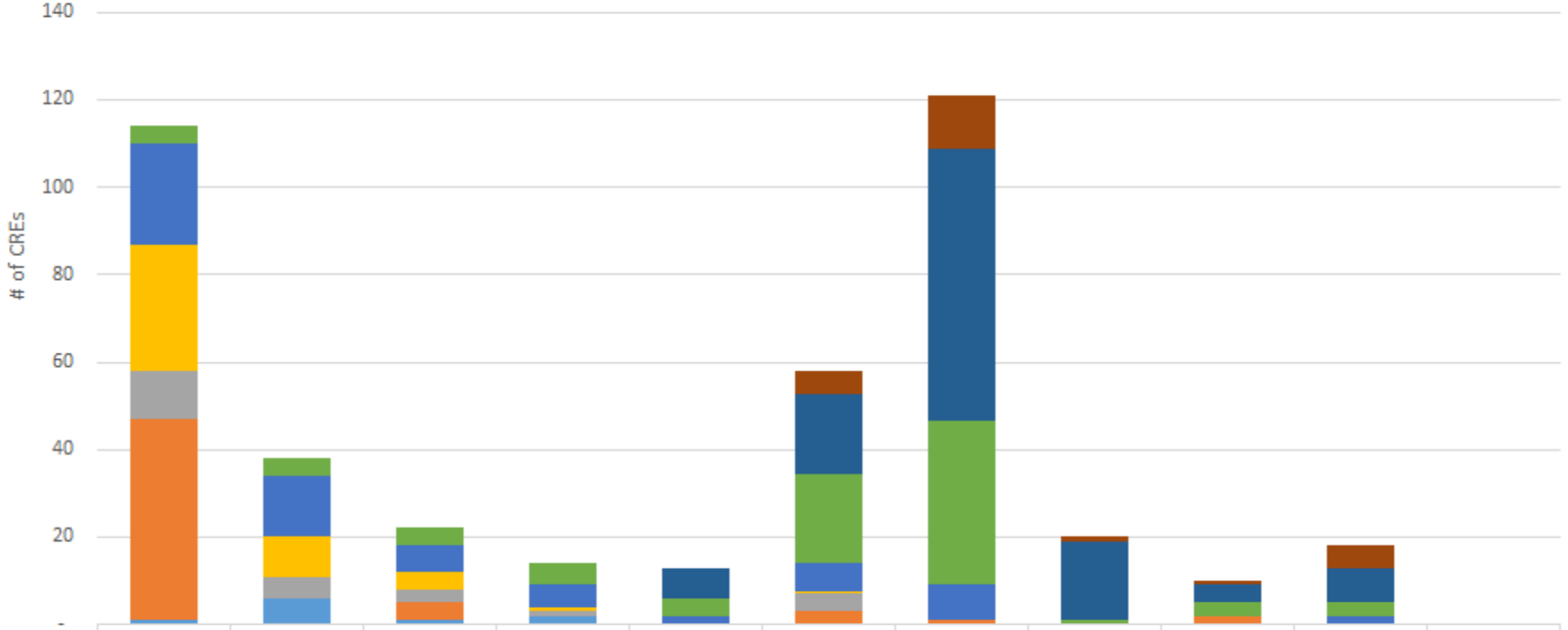

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
11+	-	-	-	-	-	-	-	-	-	-	-
08-10	-	-	-	-	-	5	12	1	1	5	24
05-07	-	-	-	-	7	18	62	18	4	8	117
02-04	4	4	4	5	4	21	38	1	3	3	86
99-01	23	14	6	5	2	6	8	-	-	2	66
96-98	29	9	4	1	-	1	-	-	-	-	44
93-95	11	5	3	1	-	4	-	-	-	-	24
90-92	46	-	4	-	-	3	1	-	2	-	56
<90	1	6	1	2	-	-	-	-	-	-	10
Total	114	38	22	14	13	58	121	20	10	18	428

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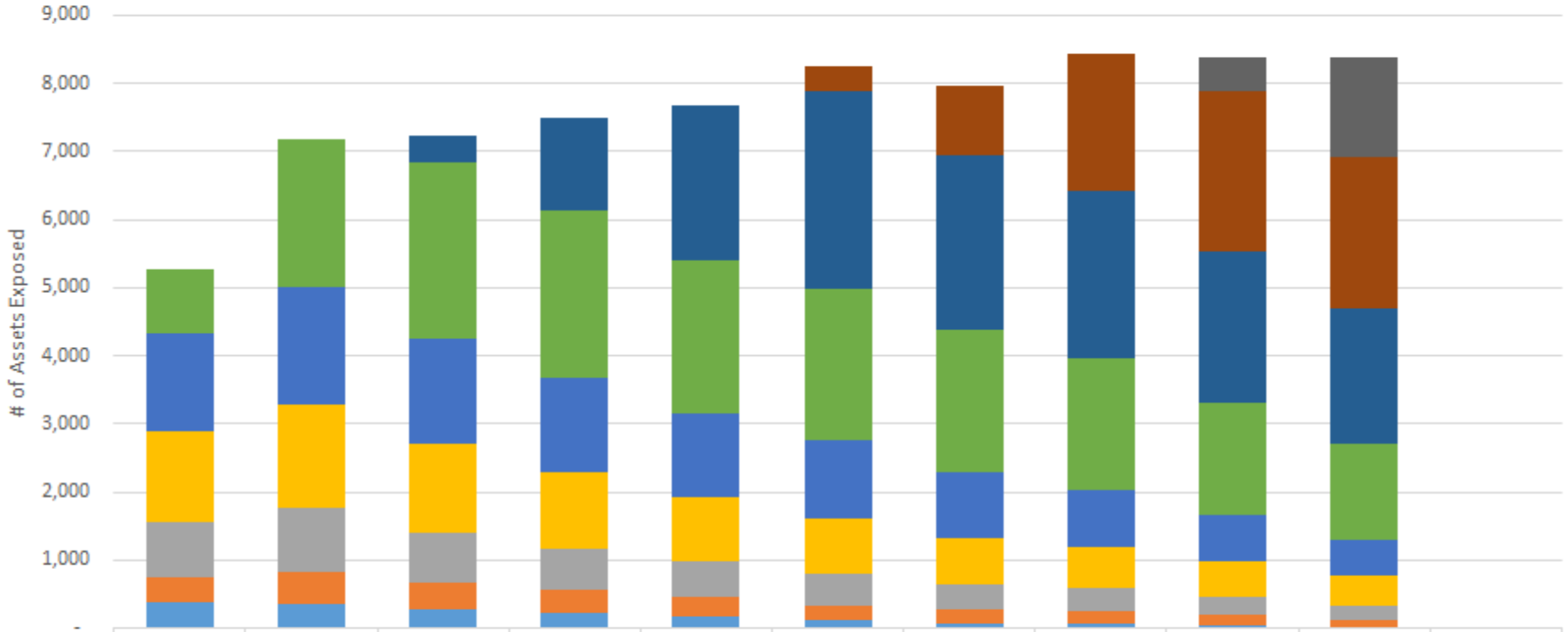

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
11+	-	-	-	-	-	-	-	-	500	1,468	1,968
08-10	-	-	-	-	-	363	1,032	1,999	2,365	2,218	7,975
05-07	-	-	414	1,339	2,269	2,892	2,566	2,474	2,217	1,995	16,165
02-04	929	2,178	2,585	2,477	2,253	2,225	2,077	1,919	1,653	1,390	19,686
99-01	1,448	1,724	1,542	1,386	1,232	1,157	986	843	678	542	11,537
96-98	1,335	1,521	1,310	1,121	944	806	661	604	523	448	9,273
93-95	805	919	715	587	513	460	386	340	259	194	5,179
90-92	361	468	393	343	288	225	190	184	145	102	2,698
<90	384	367	281	228	170	109	74	65	48	24	1,749
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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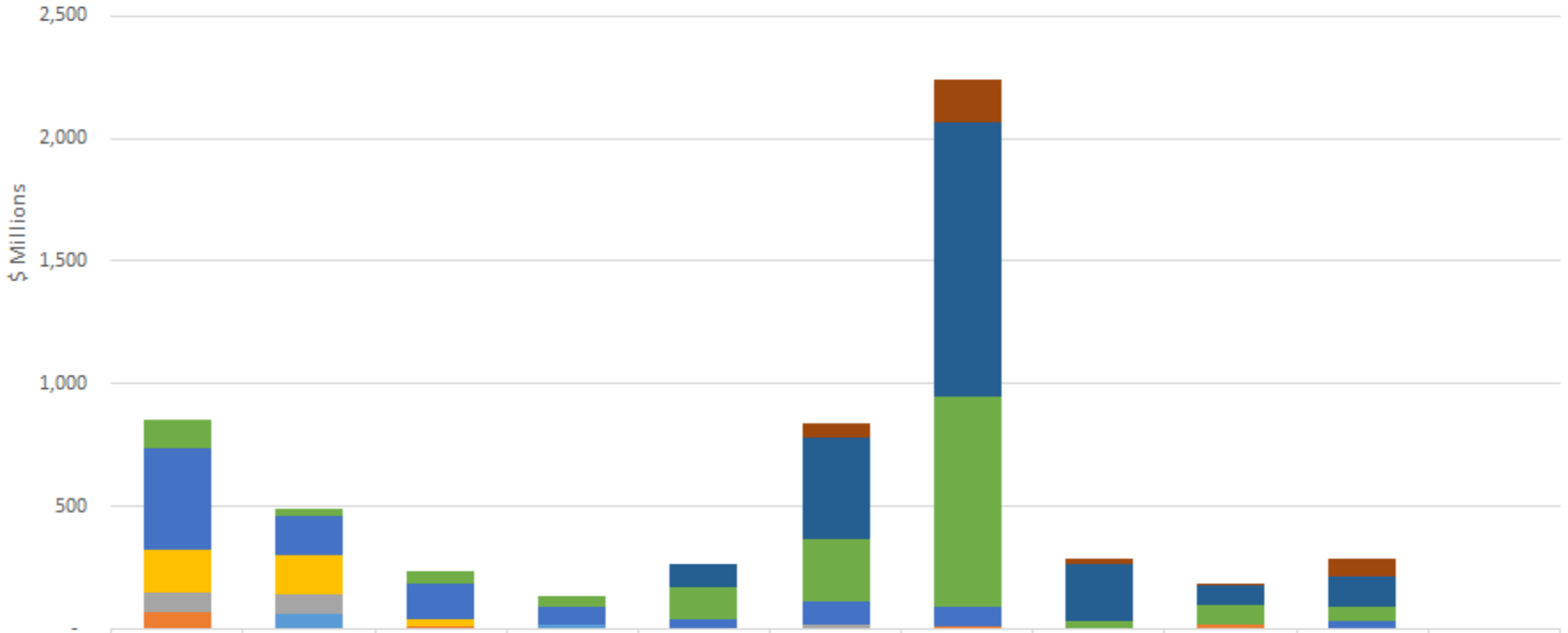

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
11+	-	-	-	-	-	-	-	-	-	-	-
08-10	-	-	-	-	-	58	176	20	9	77	339
05-07	-	-	-	-	95	410	1,112	234	80	123	2,054
02-04	111	26	54	39	132	255	857	32	83	55	1,644
99-01	417	163	144	75	39	96	83	-	-	33	1,050
96-98	173	160	28	0	-	1	-	-	-	-	362
93-95	82	80	3	1	-	10	-	-	-	-	176
90-92	64	-	10	-	-	8	12	-	16	-	110
<90	5	62	0	18	-	-	-	-	-	-	84
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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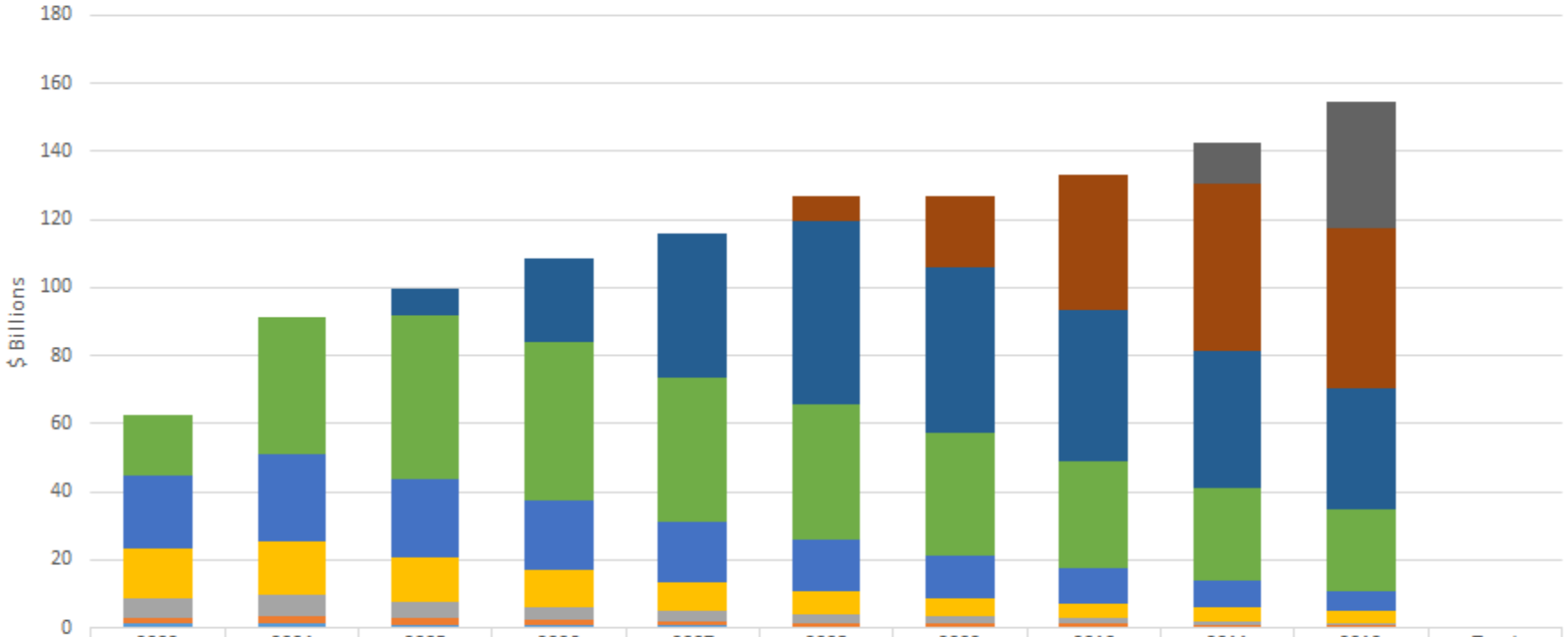

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
11+	-	-	-	-	-	-	-	-	12.2	37.0	49.2
08-10	-	-	-	-	-	7.5	21.2	39.4	49.0	46.8	164.0
05-07	-	-	7.9	24.6	42.4	53.9	48.5	44.4	39.9	35.8	297.4
02-04	17.6	40.1	48.0	46.3	42.3	39.7	36.1	31.6	27.5	23.7	353.0
99-01	21.6	25.8	23.2	20.7	17.7	15.3	12.7	10.3	7.8	6.2	161.4
96-98	14.3	15.5	13.0	10.8	8.6	6.6	5.2	4.5	3.8	3.3	85.6
93-95	5.7	6.1	4.6	3.7	3.0	2.5	2.0	1.6	1.2	0.9	31.2
90-92	1.8	2.4	2.1	1.7	1.3	1.1	0.9	0.8	0.7	0.5	13.3
<90	1.4	1.2	0.9	0.7	0.6	0.5	0.4	0.3	0.2	0.2	6.5
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

Experience Year

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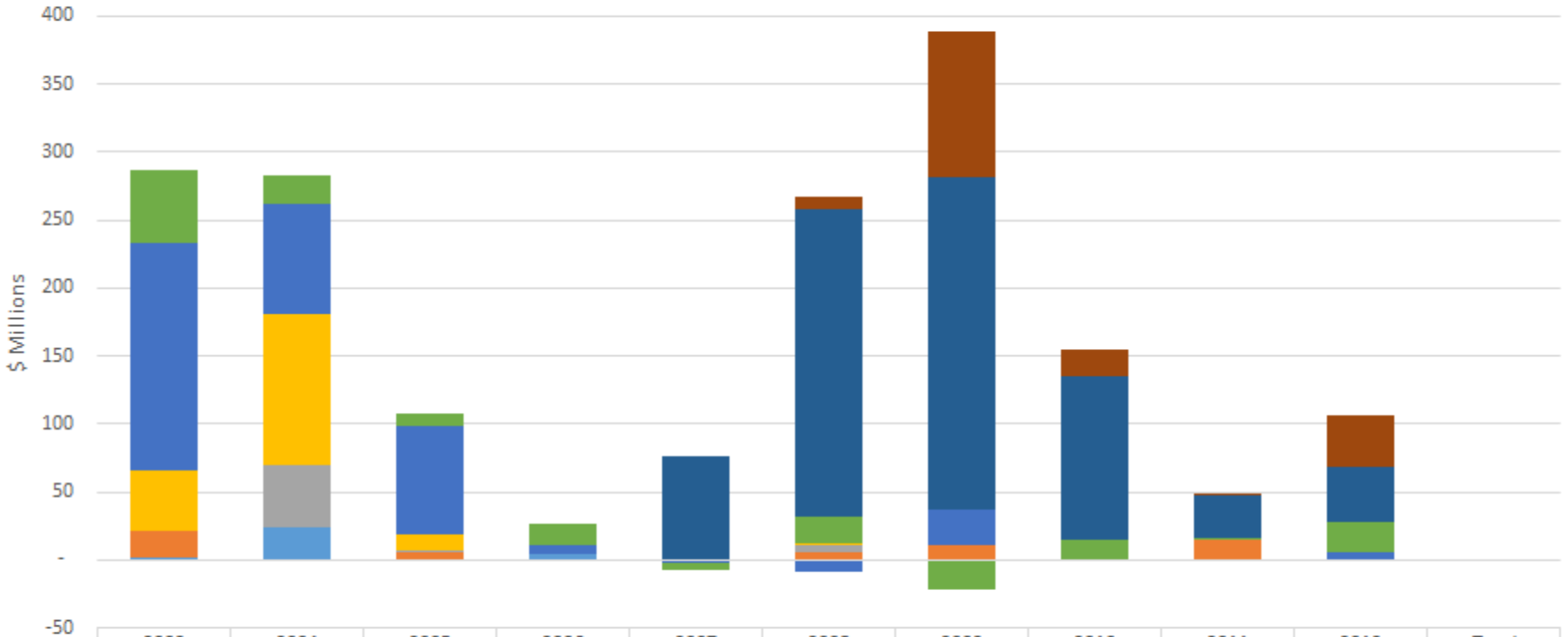

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
11+	-	-	-	-	-	-	-	-	-	-	-
08-10	-	-	-	-	-	9	107	19	1	37	174
05-07	-	-	-	-	76	226	244	120	31	41	739
02-04	53	21	8	16	-5	21	-22	14	1	23	130
99-01	168	81	80	6	-3	-8	26	-	-	5	355
96-98	44	111	12	0	-	1	-	-	-	-	167
93-95	0	47	2	0	-	5	-	-	-	-	54
90-92	19	-	6	-	-	6	11	-	15	-	57
<90	2	23	0	4	-	-	-	-	-	-	30
Total	286	283	107	27	68	259	367	154	49	106	1,706

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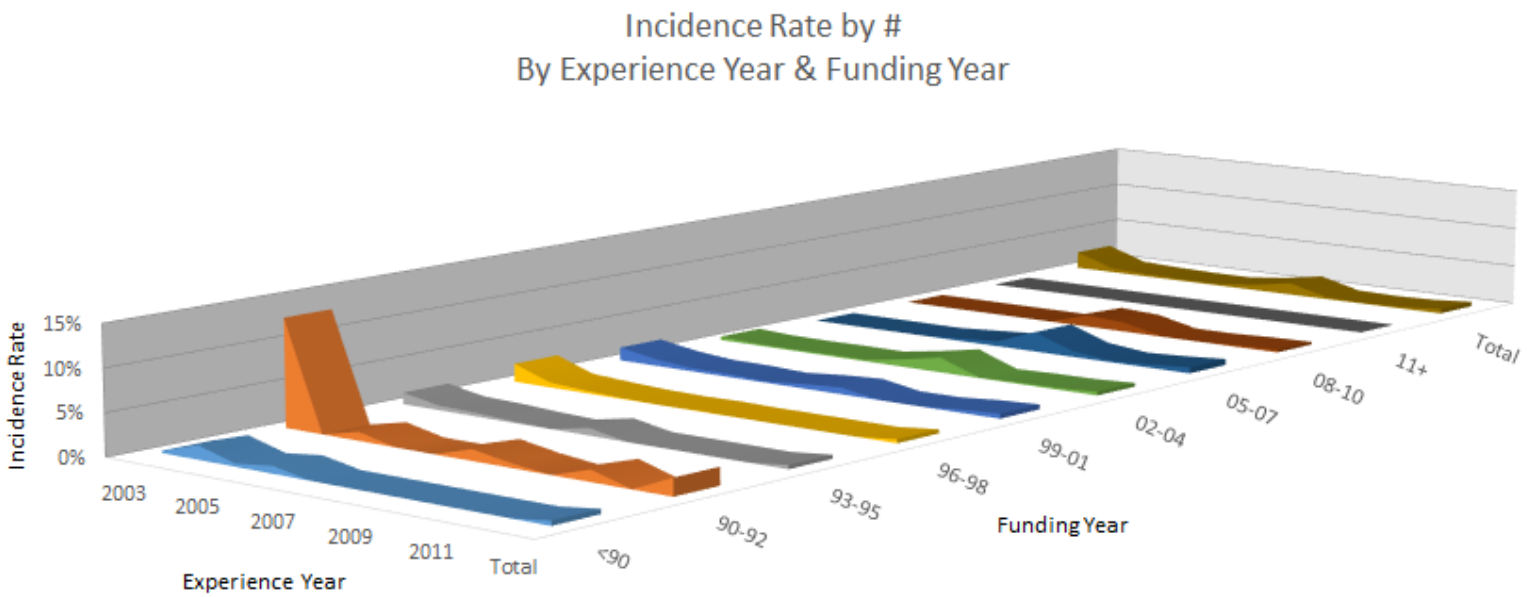

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<90	0.26%	1.64%	0.36%	0.88%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.57%
90-92	12.73%	0.00%	1.02%	0.00%	0.00%	1.33%	0.53%	0.00%	1.38%	0.00%	2.08%
93-95	1.37%	0.54%	0.42%	0.17%	0.00%	0.87%	0.00%	0.00%	0.00%	0.00%	0.46%
96-98	2.17%	0.59%	0.31%	0.09%	0.00%	0.06%	0.00%	0.00%	0.00%	0.00%	0.47%
99-01	1.59%	0.81%	0.39%	0.36%	0.16%	0.56%	0.81%	0.00%	0.00%	0.37%	0.58%
02-04	0.43%	0.18%	0.15%	0.20%	0.18%	0.93%	1.81%	0.05%	0.18%	0.22%	0.44%
05-07	0.00%	0.00%	0.00%	0.00%	0.31%	0.63%	2.42%	0.73%	0.18%	0.40%	0.73%
08-10	0.00%	0.00%	0.00%	0.00%	0.00%	1.45%	1.17%	0.05%	0.04%	0.23%	0.31%
11+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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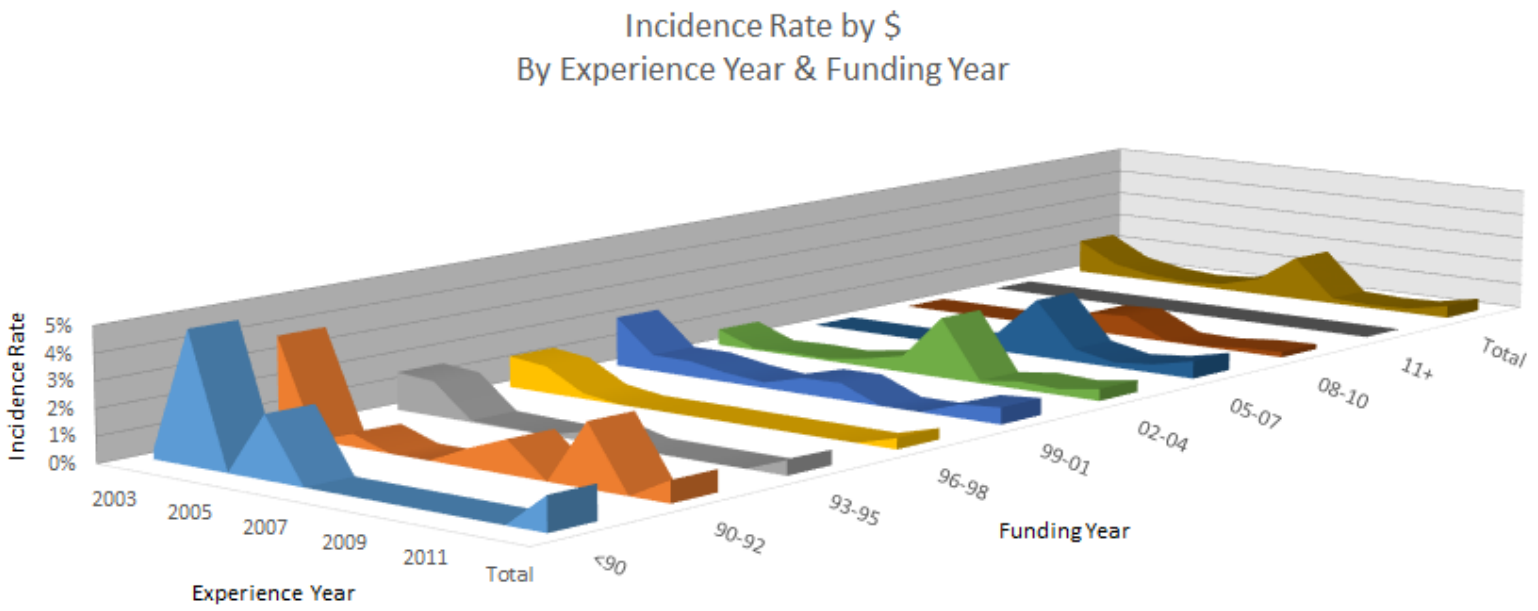

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<90	0.36%	4.96%	0.02%	2.37%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.30%
90-92	3.67%	0.00%	0.49%	0.00%	0.00%	0.69%	1.27%	0.00%	2.40%	0.00%	0.83%
93-95	1.45%	1.32%	0.07%	0.03%	0.00%	0.38%	0.00%	0.00%	0.00%	0.00%	0.56%
96-98	1.21%	1.03%	0.21%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.42%
99-01	1.93%	0.63%	0.62%	0.36%	0.22%	0.63%	0.65%	0.00%	0.00%	0.54%	0.65%
02-04	0.63%	0.06%	0.11%	0.08%	0.31%	0.64%	2.37%	0.10%	0.30%	0.23%	0.47%
05-07	0.00%	0.00%	0.00%	0.00%	0.22%	0.76%	2.29%	0.53%	0.20%	0.34%	0.69%
08-10	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%	0.83%	0.05%	0.02%	0.16%	0.21%
11+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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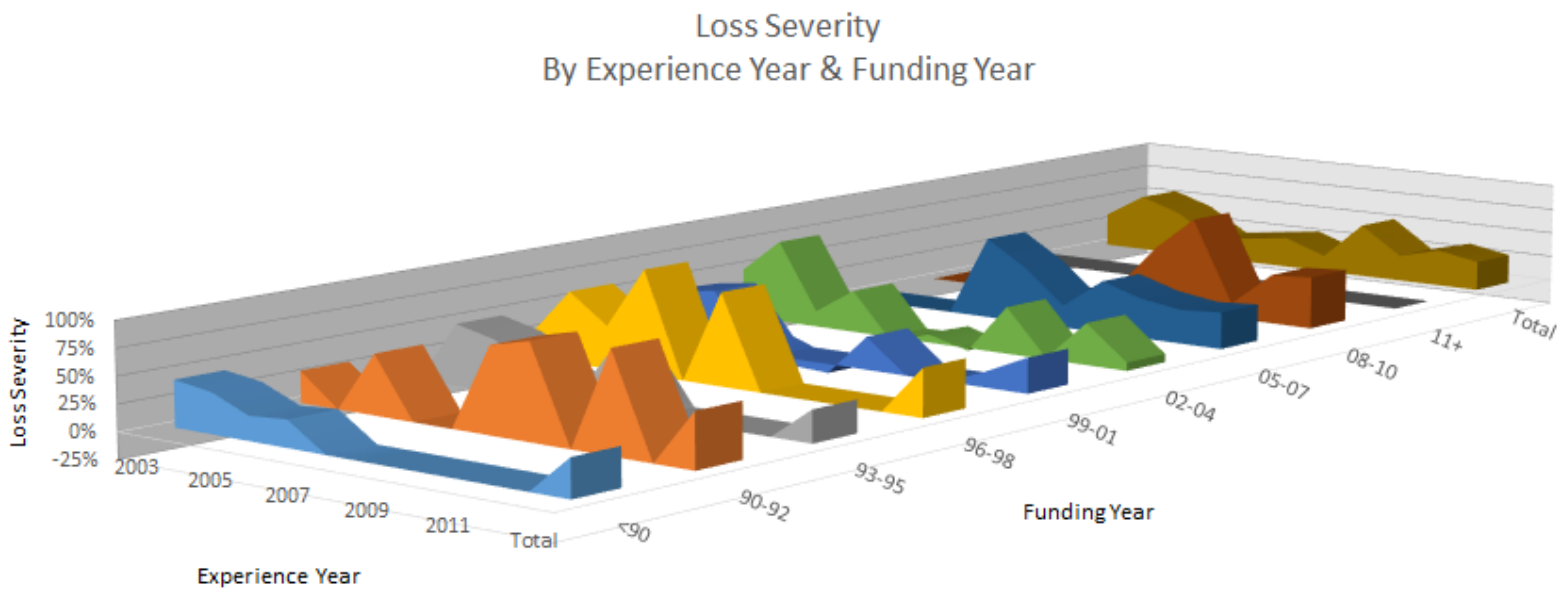

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<90	43%	38%	23%	26%	0%	0%	0%	0%	0%	0%	36%
90-92	30%	0%	57%	0%	0%	81%	90%	0%	95%	0%	52%
93-95	0%	58%	49%	33%	0%	52%	0%	0%	0%	0%	30%
96-98	25%	69%	41%	100%	0%	89%	0%	0%	0%	0%	46%
99-01	40%	50%	55%	8%	-7%	-9%	32%	0%	0%	16%	34%
02-04	48%	80%	16%	41%	-4%	8%	-3%	46%	1%	41%	8%
05-07	0%	0%	0%	0%	80%	55%	22%	51%	39%	33%	36%
08-10	0%	0%	0%	0%	0%	15%	61%	95%	15%	49%	51%
11+	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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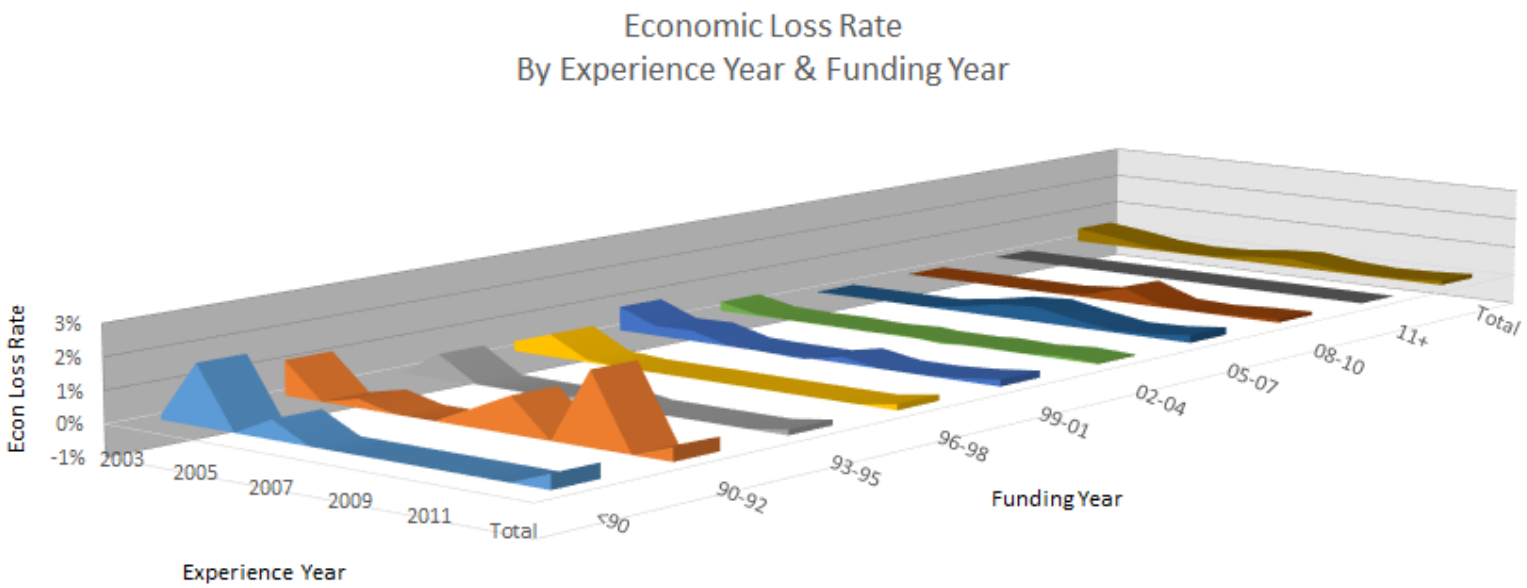

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
<90	0.15%	1.89%	0.00%	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
90-92	1.09%	0.00%	0.28%	0.00%	0.00%	0.56%	1.15%	0.00%	2.28%	0.00%	0.43%
93-95	0.00%	0.77%	0.03%	0.01%	0.00%	0.20%	0.00%	0.00%	0.00%	0.00%	0.17%
96-98	0.31%	0.71%	0.09%	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.19%
99-01	0.78%	0.31%	0.34%	0.03%	-0.01%	-0.05%	0.21%	0.00%	0.00%	0.08%	0.22%
02-04	0.30%	0.05%	0.02%	0.03%	-0.01%	0.05%	-0.06%	0.05%	0.00%	0.10%	0.04%
05-07	0.00%	0.00%	0.00%	0.00%	0.18%	0.42%	0.50%	0.27%	0.08%	0.11%	0.25%
08-10	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	0.51%	0.05%	0.00%	0.08%	0.11%
11+	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.H YEARS SINCE FUNDING

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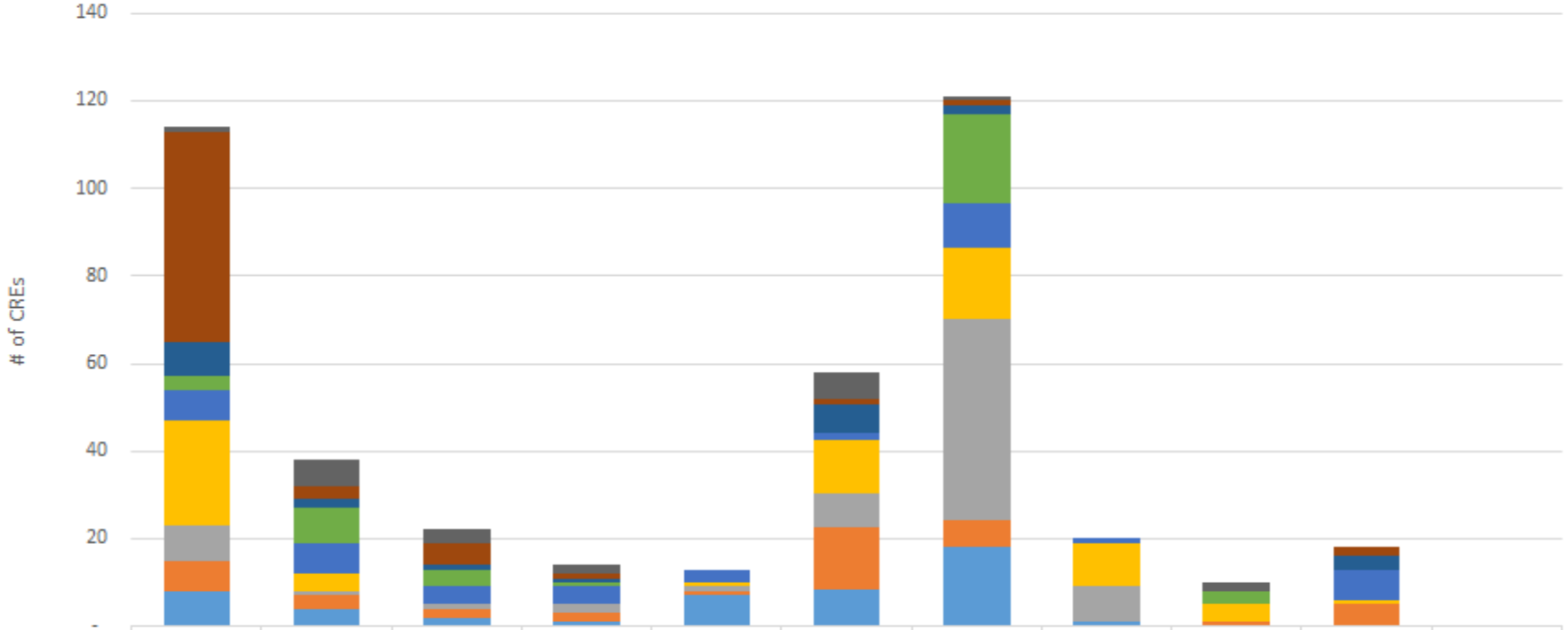

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
13+ Yrs	1	6	3	2	-	6	1	-	2	-	21
10-13 Yrs	48	3	5	1	-	2	1	-	-	2	62
8-10 Yrs	8	2	1	1	-	6	2	-	-	3	23
6-8 Yrs	3	8	4	1	-	-	20	-	3	-	39
5-6 Yrs	7	7	4	4	3	1	10	1	-	7	45
4-5 Yrs	24	4	-	-	1	12	16	10	4	1	73
3-4 Yrs	8	1	1	2	1	8	46	8	-	-	75
2-3 Yrs	7	3	2	2	1	14	6	-	1	5	41
0-2 Yrs	8	4	2	1	7	8	18	1	-	-	49
Total	114	38	22	14	13	58	121	20	10	18	428

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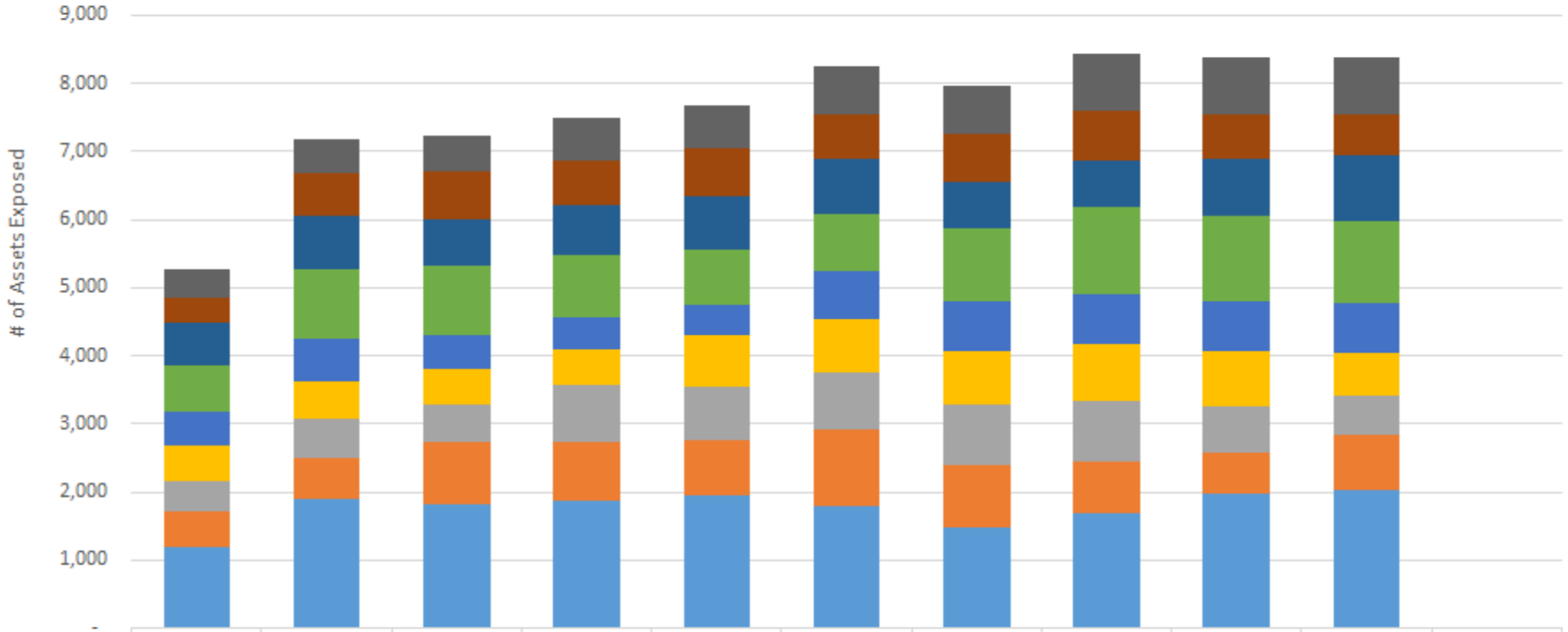

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
13+ Yrs	413	488	526	620	631	695	715	842	836	838	6,604
10-13 Yrs	377	638	715	646	695	662	715	711	667	612	6,438
8-10 Yrs	615	792	677	732	779	793	673	692	832	950	7,535
6-8 Yrs	670	1,018	1,026	932	805	839	1,071	1,266	1,255	1,204	10,086
5-6 Yrs	501	615	482	469	450	707	738	743	725	727	6,155
4-5 Yrs	530	553	527	523	751	799	779	833	810	638	6,744
3-4 Yrs	446	570	564	824	787	812	879	903	687	564	7,036
2-3 Yrs	515	607	893	861	824	1,126	925	751	601	813	7,916
0-2 Yrs	1,196	1,895	1,832	1,873	1,946	1,803	1,477	1,686	1,975	2,033	17,716
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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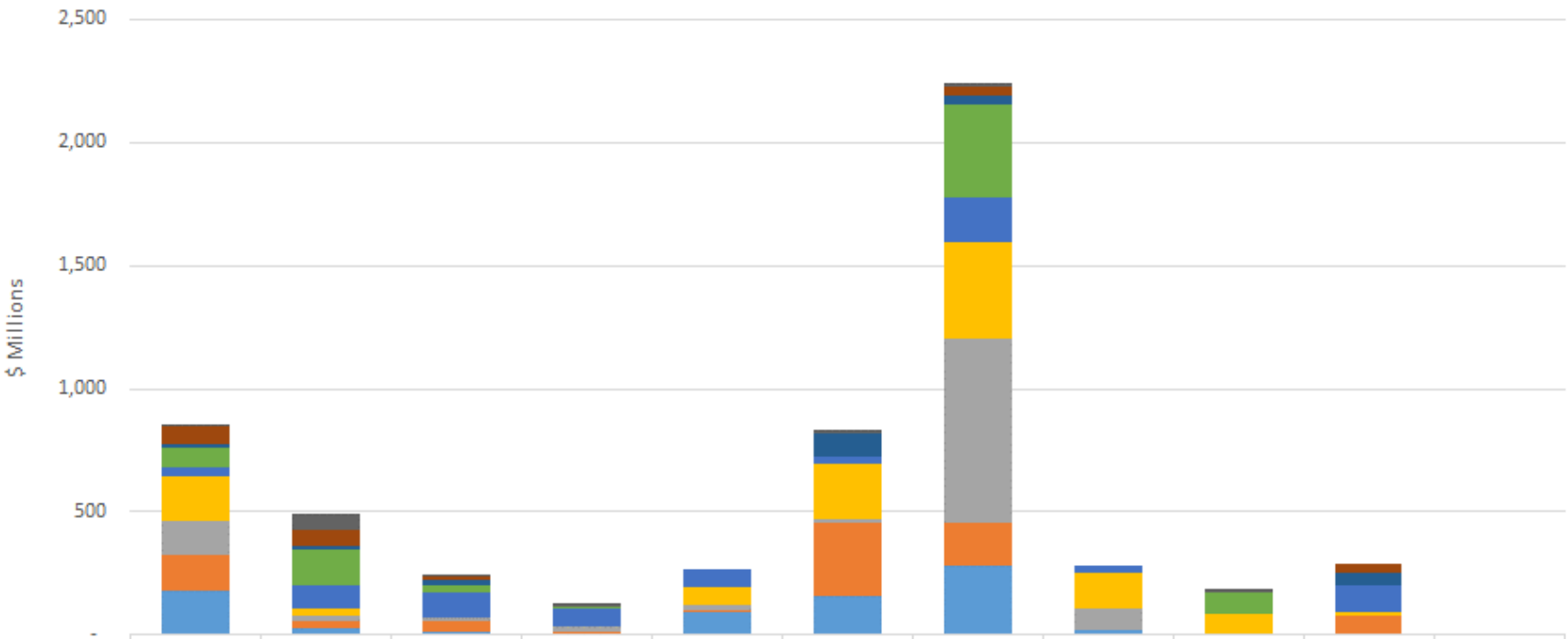

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
13+ Yrs	5	62	3	18	-	14	12	-	16	-	129
10-13 Yrs	75	68	11	1	-	4	35	-	-	33	226
8-10 Yrs	11	12	26	0	-	96	40	-	-	55	241
6-8 Yrs	79	149	26	5	-	-	380	-	83	-	722
5-6 Yrs	37	91	101	70	70	25	180	32	-	103	709
4-5 Yrs	183	28	-	-	75	229	387	143	80	20	1,144
3-4 Yrs	134	20	19	24	18	11	750	91	-	-	1,068
2-3 Yrs	147	34	43	10	8	302	177	-	9	77	807
0-2 Yrs	181	26	11	5	95	156	279	20	-	-	773
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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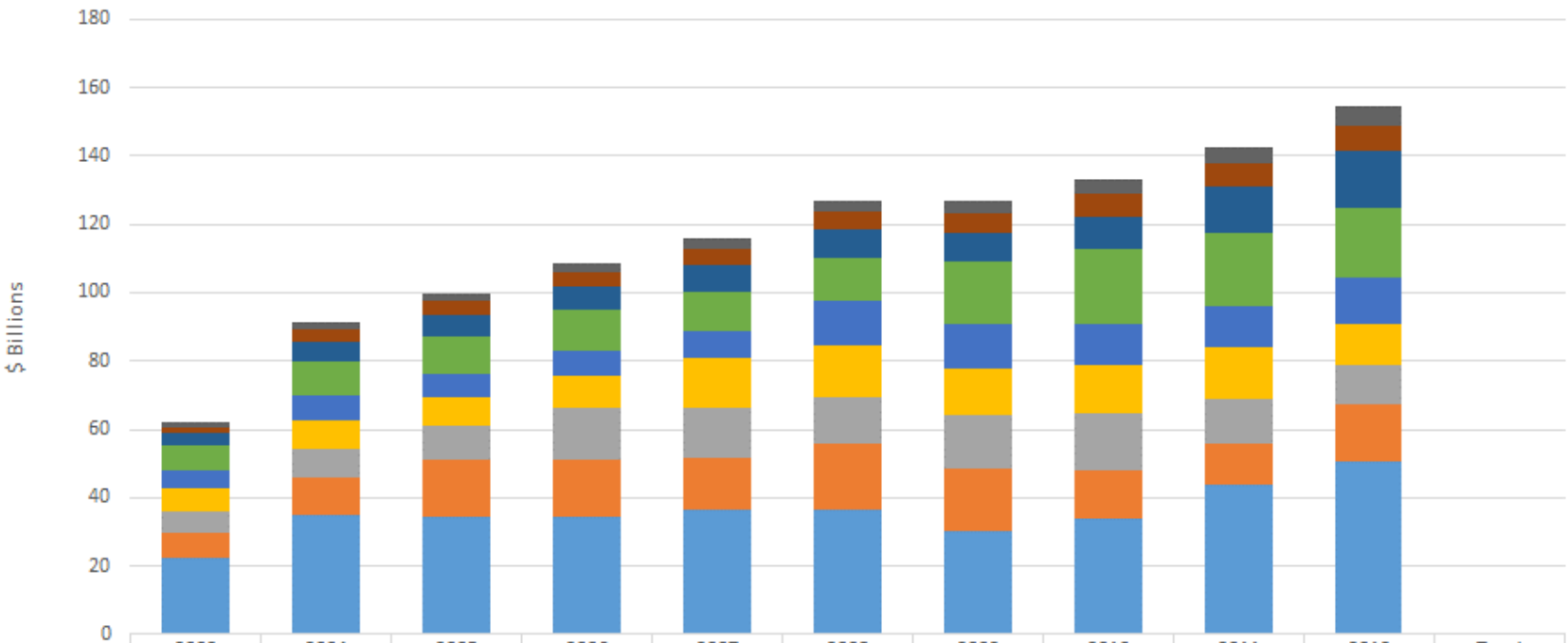

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
13+ Yrs	1.5	1.9	2.1	2.8	3.0	3.5	3.7	4.1	4.4	5.4	32.3
10-13 Yrs	1.9	3.4	4.2	4.2	4.7	4.8	6.0	6.8	7.1	7.3	50.5
8-10 Yrs	3.7	6.1	6.2	6.7	7.9	8.8	8.4	9.4	13.6	17.1	88.0
6-8 Yrs	7.2	9.6	11.1	11.7	11.4	12.4	18.1	21.8	21.4	20.2	144.8
5-6 Yrs	4.9	7.6	6.7	7.2	7.9	13.2	13.3	12.2	11.7	13.8	98.4
4-5 Yrs	6.9	8.1	8.3	9.3	14.6	14.8	13.4	13.7	15.4	11.8	116.3
3-4 Yrs	6.3	8.7	10.1	15.6	15.0	14.1	15.7	16.9	12.9	11.6	127.0
2-3 Yrs	7.4	10.9	16.7	16.5	15.0	19.3	18.0	14.3	12.1	16.6	146.9
0-2 Yrs	22.3	34.9	34.4	34.4	36.5	36.3	30.4	33.7	43.9	50.6	357.3
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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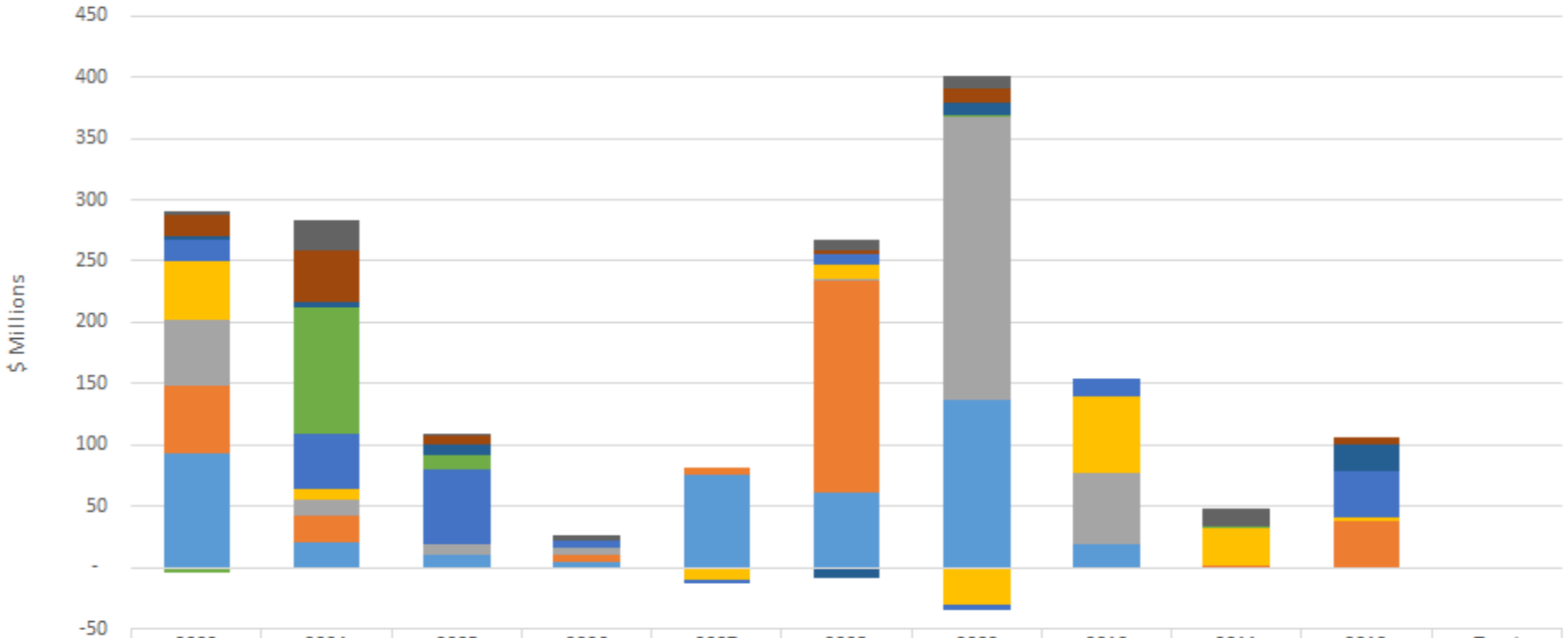

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
13+ Yrs	2	23	0	4	-	9	11	-	15	-	66
10-13 Yrs	18	42	7	0	-	2	11	-	-	5	86
8-10 Yrs	2	5	10	0	-	-8	9	-	-	23	40
6-8 Yrs	-4	104	11	1	-	-	3	-	1	-	115
5-6 Yrs	17	44	61	5	-3	8	-4	14	-	37	181
4-5 Yrs	48	9	-	-	-11	12	-30	62	31	4	126
3-4 Yrs	54	13	9	6	-0	1	230	59	-	-	372
2-3 Yrs	56	21	-1	5	6	173	-0	-	1	37	298
0-2 Yrs	93	21	10	5	76	61	137	19	-	-	422
Total	286	283	107	27	68	259	367	154	49	106	1,706

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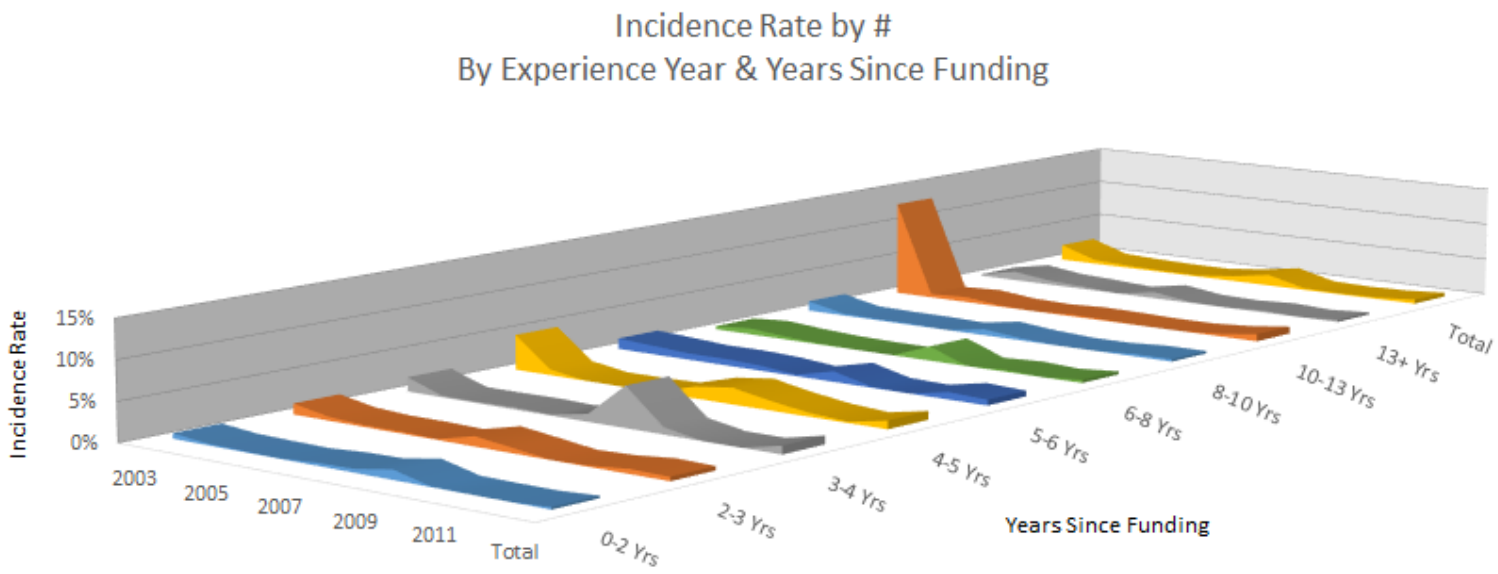

Experience Year

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-2 Yrs	0.67%	0.21%	0.11%	0.05%	0.36%	0.46%	1.23%	0.06%	0.00%	0.00%	0.28%
2-3 Yrs	1.36%	0.49%	0.22%	0.23%	0.12%	1.26%	0.65%	0.00%	0.17%	0.62%	0.52%
3-4 Yrs	1.80%	0.18%	0.18%	0.24%	0.13%	0.98%	5.23%	0.89%	0.00%	0.00%	1.07%
4-5 Yrs	4.53%	0.72%	0.00%	0.00%	0.13%	1.51%	2.12%	1.20%	0.49%	0.16%	1.08%
5-6 Yrs	1.40%	1.14%	0.83%	0.85%	0.67%	0.21%	1.38%	0.13%	0.00%	0.96%	0.73%
6-8 Yrs	0.45%	0.79%	0.39%	0.11%	0.00%	0.00%	1.89%	0.00%	0.24%	0.00%	0.39%
8-10 Yrs	1.30%	0.25%	0.15%	0.14%	0.00%	0.82%	0.30%	0.00%	0.00%	0.32%	0.31%
10-13 Yrs	12.73%	0.47%	0.70%	0.15%	0.00%	0.23%	0.14%	0.00%	0.00%	0.33%	0.96%
13+ Yrs	0.24%	1.23%	0.57%	0.32%	0.00%	0.86%	0.14%	0.00%	0.24%	0.00%	0.32%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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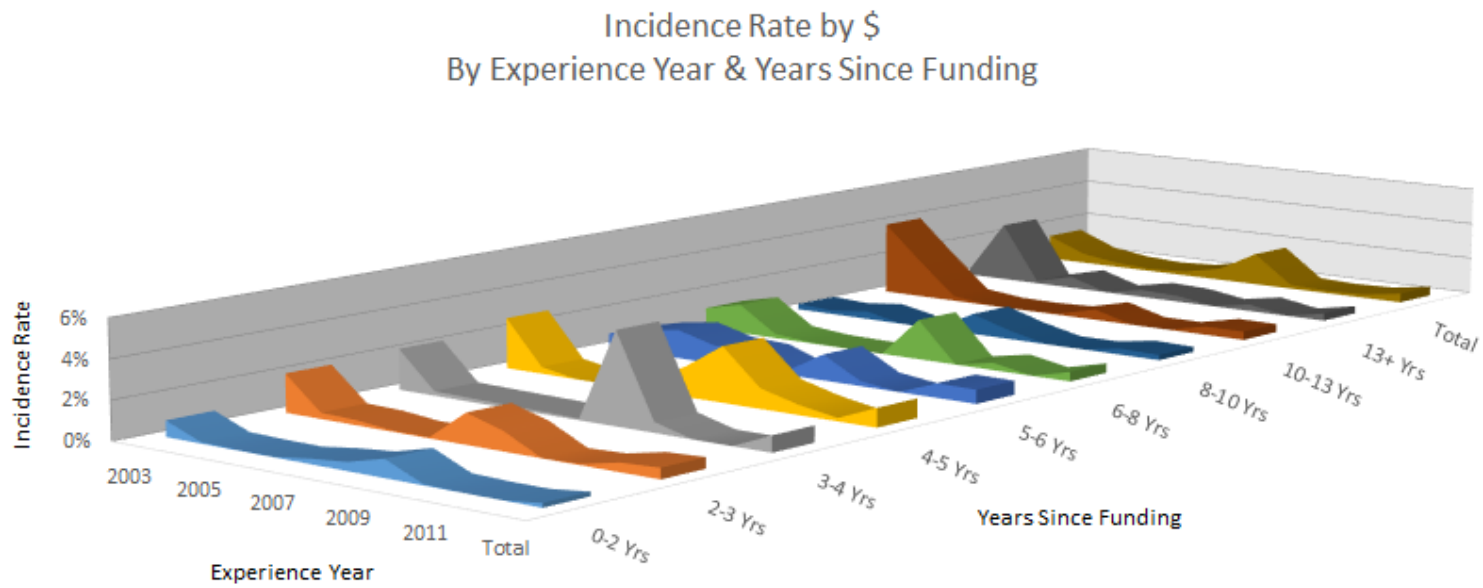

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-2 Yrs	0.81%	0.07%	0.03%	0.01%	0.26%	0.43%	0.92%	0.06%	0.00%	0.00%	0.22%
2-3 Yrs	1.98%	0.31%	0.26%	0.06%	0.05%	1.57%	0.99%	0.00%	0.07%	0.46%	0.55%
3-4 Yrs	2.12%	0.23%	0.19%	0.15%	0.12%	0.08%	4.77%	0.54%	0.00%	0.00%	0.84%
4-5 Yrs	2.64%	0.35%	0.00%	0.00%	0.51%	1.55%	2.88%	1.04%	0.52%	0.17%	0.98%
5-6 Yrs	0.75%	1.21%	1.50%	0.98%	0.89%	0.19%	1.36%	0.26%	0.00%	0.75%	0.72%
6-8 Yrs	1.09%	1.56%	0.24%	0.04%	0.00%	0.00%	2.10%	0.00%	0.39%	0.00%	0.50%
8-10 Yrs	0.30%	0.20%	0.42%	0.00%	0.00%	1.09%	0.47%	0.00%	0.00%	0.32%	0.27%
10-13 Yrs	3.90%	2.02%	0.26%	0.03%	0.00%	0.07%	0.58%	0.00%	0.00%	0.45%	0.45%
13+ Yrs	0.33%	3.17%	0.13%	0.64%	0.00%	0.40%	0.33%	0.00%	0.36%	0.00%	0.40%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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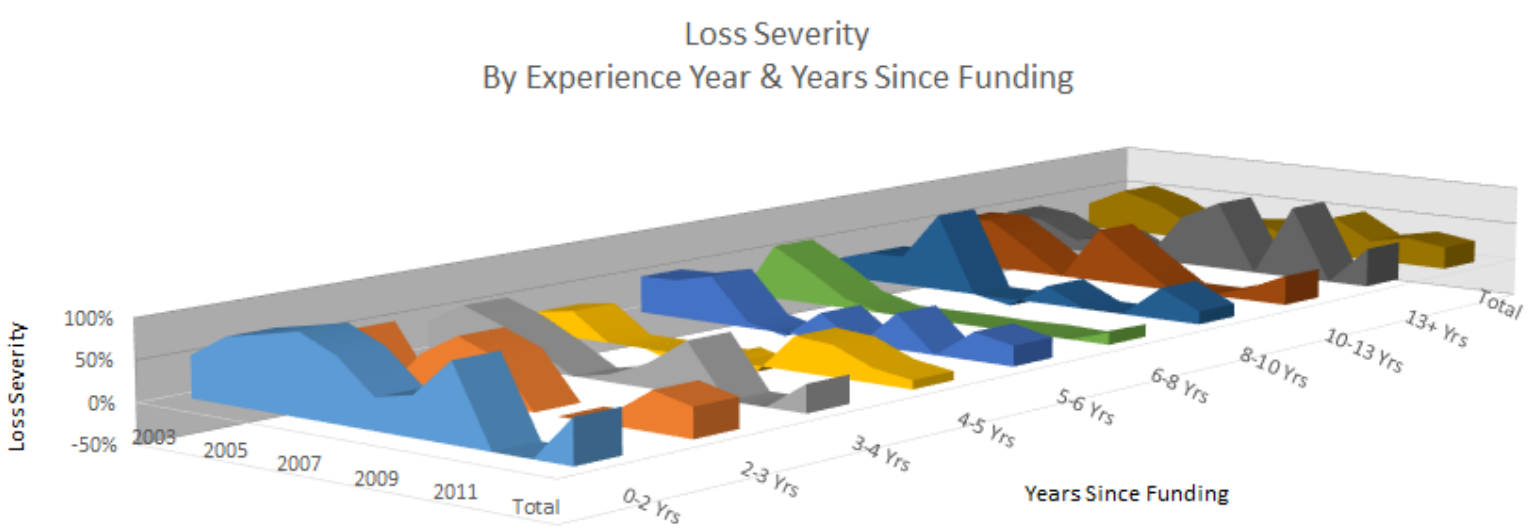

Experience Year

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-2 Yrs	51%	80%	90%	100%	80%	39%	49%	95%	0%	0%	55%
2-3 Yrs	38%	62%	-3%	47%	76%	57%	0%	0%	15%	49%	37%
3-4 Yrs	40%	66%	50%	26%	-1%	10%	31%	64%	0%	0%	35%
4-5 Yrs	26%	34%	0%	0%	-14%	5%	-8%	43%	39%	19%	11%
5-6 Yrs	47%	49%	60%	8%	-4%	33%	-2%	46%	0%	36%	26%
6-8 Yrs	-5%	69%	43%	12%	0%	0%	1%	0%	1%	0%	16%
8-10 Yrs	22%	37%	38%	100%	0%	-9%	24%	0%	0%	41%	17%
10-13 Yrs	24%	62%	64%	33%	0%	69%	33%	0%	0%	16%	38%
13+ Yrs	43%	38%	15%	26%	0%	65%	90%	0%	95%	0%	51%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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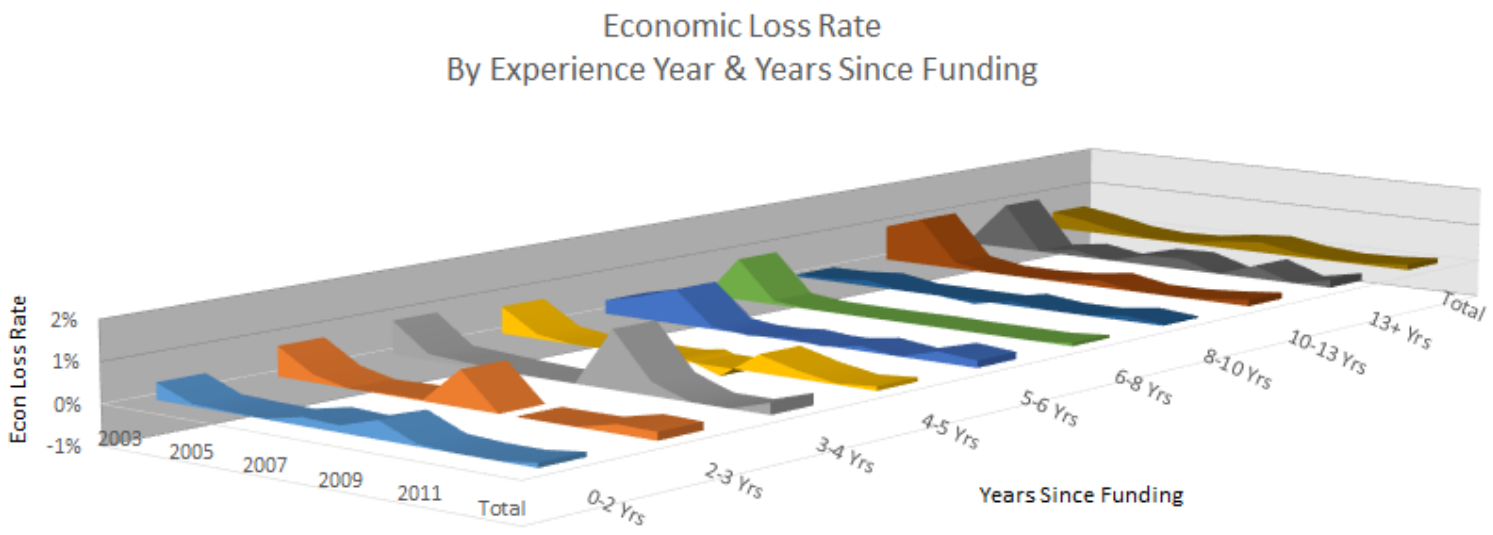

Experience Year

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-2 Yrs	0.42%	0.06%	0.03%	0.01%	0.21%	0.17%	0.45%	0.06%	0.00%	0.00%	0.12%
2-3 Yrs	0.75%	0.19%	-0.01%	0.03%	0.04%	0.90%	0.00%	0.00%	0.01%	0.23%	0.20%
3-4 Yrs	0.85%	0.15%	0.09%	0.04%	0.00%	0.01%	1.46%	0.35%	0.00%	0.00%	0.29%
4-5 Yrs	0.69%	0.12%	0.00%	0.00%	-0.07%	0.08%	-0.22%	0.45%	0.20%	0.03%	0.11%
5-6 Yrs	0.35%	0.59%	0.90%	0.08%	-0.03%	0.06%	-0.03%	0.12%	0.00%	0.27%	0.18%
6-8 Yrs	-0.06%	1.08%	0.10%	0.01%	0.00%	0.00%	0.01%	0.00%	0.01%	0.00%	0.08%
8-10 Yrs	0.07%	0.07%	0.16%	0.00%	0.00%	-0.09%	0.11%	0.00%	0.00%	0.13%	0.05%
10-13 Yrs	0.94%	1.25%	0.17%	0.01%	0.00%	0.05%	0.19%	0.00%	0.00%	0.07%	0.17%
13+ Yrs	0.14%	1.21%	0.02%	0.16%	0.00%	0.26%	0.29%	0.00%	0.34%	0.00%	0.20%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.I YEARS TO MATURITY

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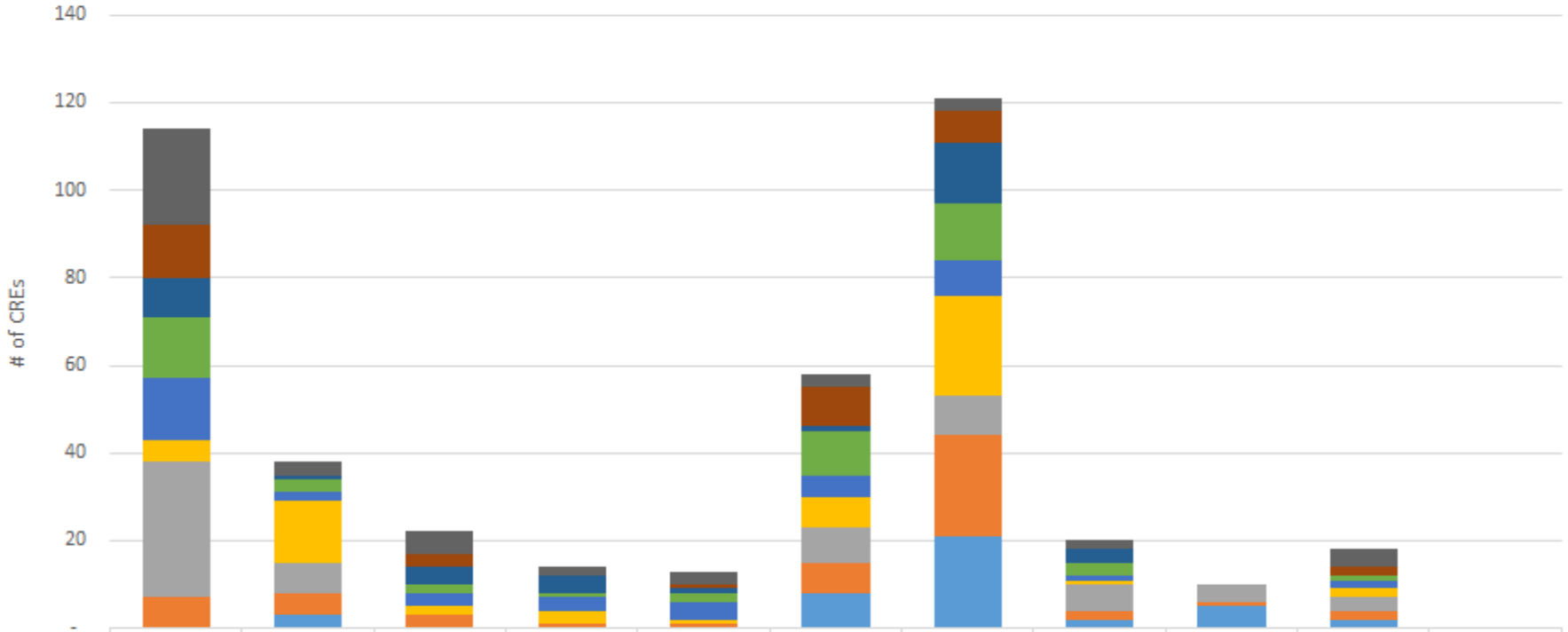

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
9+ Yrs	22	3	5	2	3	3	3	2	-	4	47
7-9 Yrs	12	-	3	-	1	9	7	-	-	2	34
6-7 Yrs	9	1	4	4	1	1	14	3	-	-	37
5-6 Yrs	14	3	2	1	2	10	13	3	-	1	49
4-5 Yrs	14	2	3	3	4	5	8	1	-	2	42
3-4 Yrs	5	14	2	3	1	7	23	1	-	2	58
2-3 Yrs	31	7	-	-	-	8	9	6	4	3	68
1-2 Yrs	7	5	3	1	1	7	23	2	1	2	52
0-1 Yrs	-	3	-	-	-	8	21	2	5	2	41
Total	114	38	22	14	13	58	121	20	10	18	428

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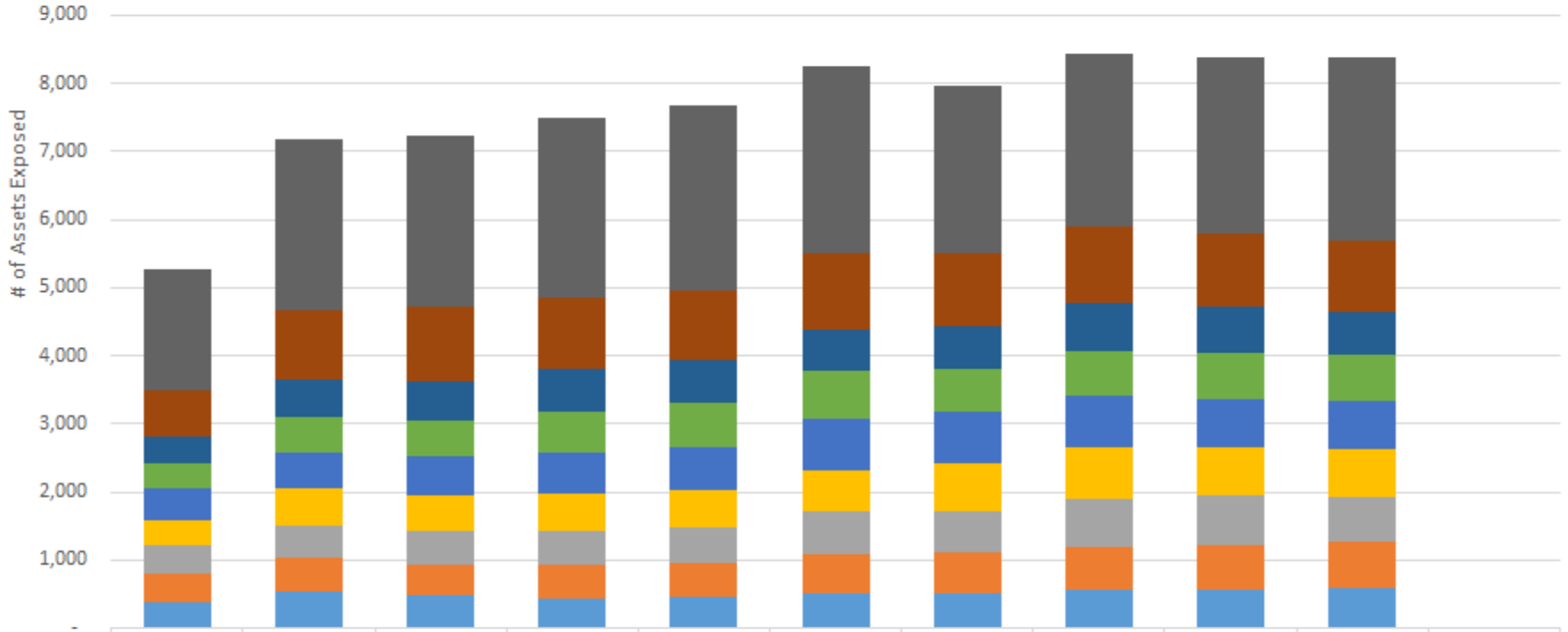

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
9+ Yrs	1,775	2,517	2,529	2,639	2,717	2,720	2,456	2,528	2,585	2,693	25,159
7-9 Yrs	681	1,012	1,084	1,042	1,006	1,132	1,090	1,127	1,073	1,045	10,291
6-7 Yrs	384	536	568	625	645	596	615	697	684	626	5,977
5-6 Yrs	368	522	529	600	651	723	630	662	677	691	6,054
4-5 Yrs	463	527	578	589	609	736	756	749	718	703	6,427
3-4 Yrs	380	559	527	547	565	611	714	765	704	685	6,058
2-3 Yrs	421	467	506	515	530	635	606	708	729	663	5,779
1-2 Yrs	399	504	428	488	496	567	603	619	652	680	5,438
0-1 Yrs	392	533	492	436	449	515	503	571	564	593	5,048
Total	5,263	7,177	7,241	7,481	7,668	8,236	7,972	8,426	8,387	8,380	76,230

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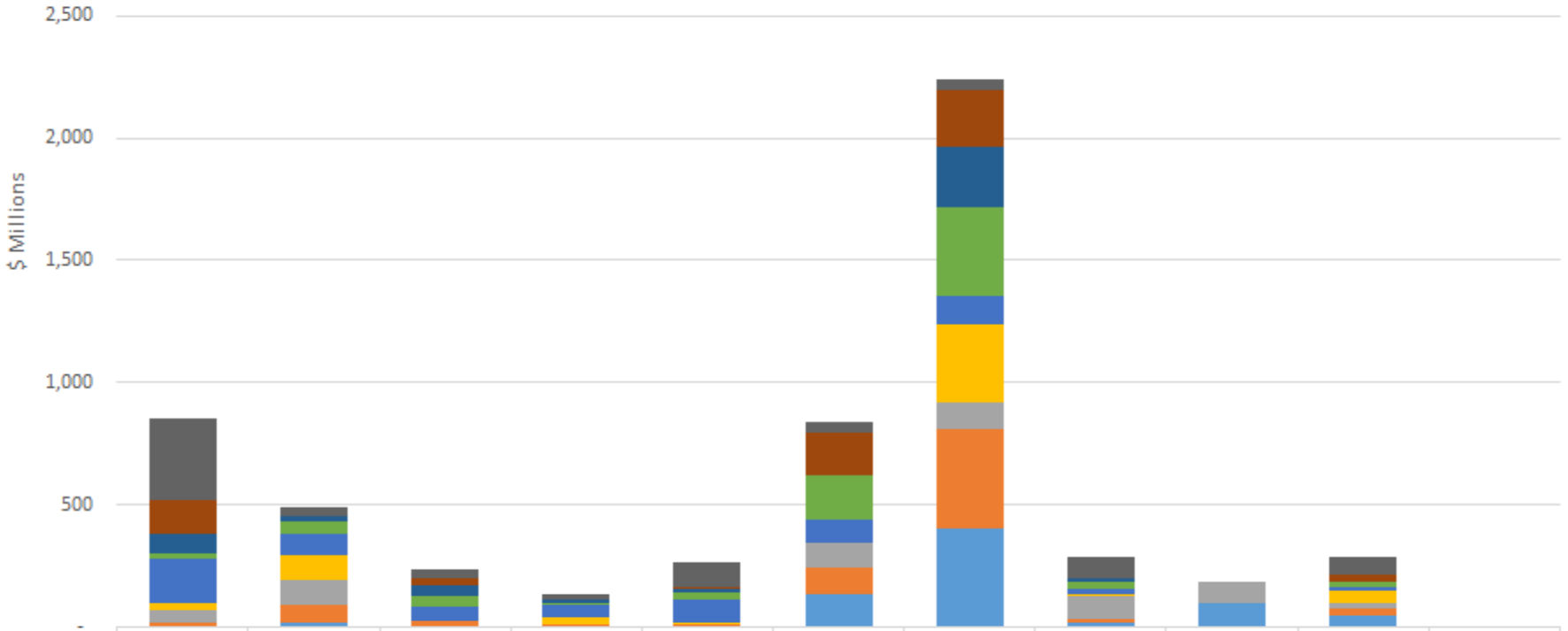

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
9+ Yrs	330	36	36	16	103	38	46	82	-	70	757
7-9 Yrs	144	-	32	-	5	176	227	-	-	33	617
6-7 Yrs	76	20	41	19	18	1	246	16	-	-	438
5-6 Yrs	22	49	43	4	25	185	366	35	-	20	749
4-5 Yrs	183	93	59	55	95	93	115	20	-	15	727
3-4 Yrs	28	101	1	28	5	2	321	6	-	49	540
2-3 Yrs	53	99	-	-	-	98	111	95	87	26	568
1-2 Yrs	16	74	28	11	15	105	408	15	0	26	698
0-1 Yrs	-	19	-	-	-	139	401	18	100	49	725
Total	853	491	240	133	266	837	2,240	286	187	288	5,819

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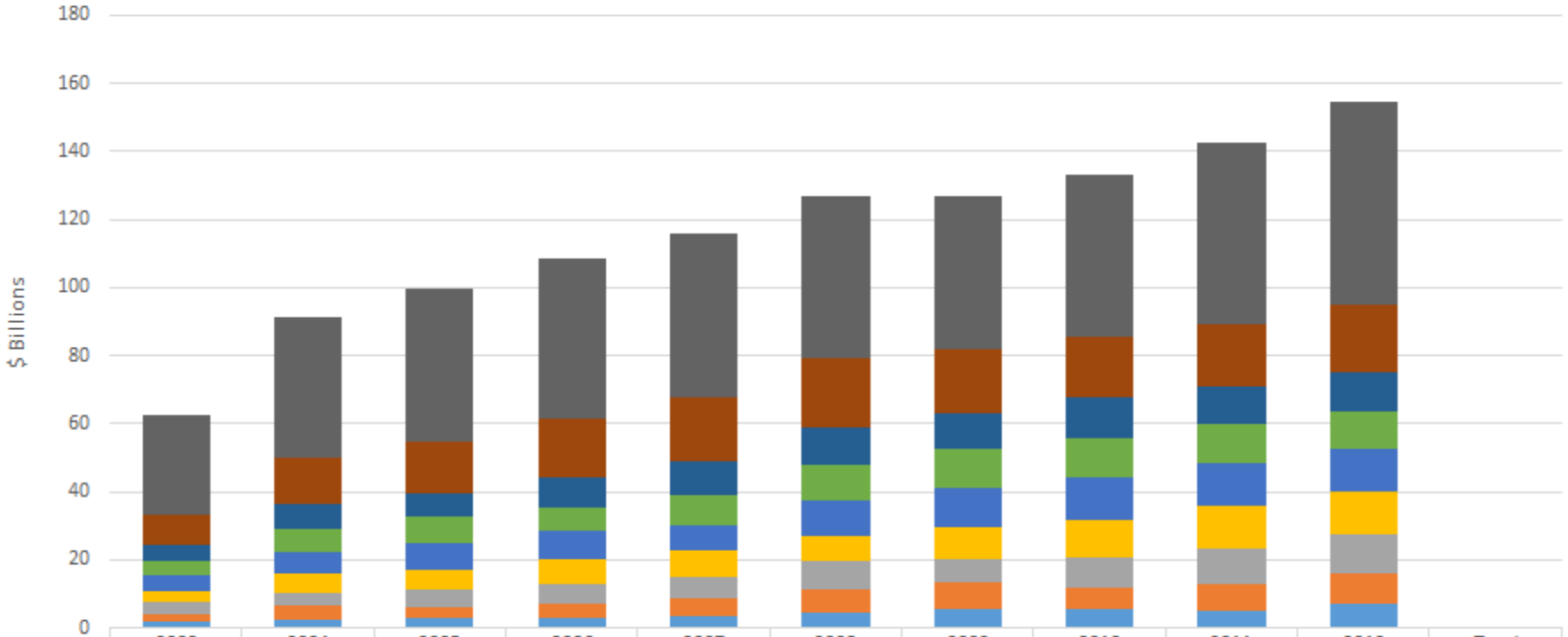

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
9+ Yrs	29.0	41.4	45.2	47.0	48.0	47.7	45.3	47.3	53.1	59.3	463.4
7-9 Yrs	8.8	13.4	15.4	17.4	19.1	20.7	18.5	17.8	18.6	20.0	169.6
6-7 Yrs	4.8	7.2	6.7	8.5	9.8	10.9	10.9	12.0	10.7	11.6	93.2
5-6 Yrs	4.0	7.0	7.5	7.0	8.7	10.4	11.4	11.3	11.8	11.0	90.0
4-5 Yrs	4.7	6.3	7.8	8.6	7.3	10.5	11.3	12.6	12.6	12.6	94.4
3-4 Yrs	3.6	5.5	6.1	7.0	7.9	7.0	9.7	11.1	12.4	12.3	82.5
2-3 Yrs	3.4	3.9	5.0	5.8	6.6	8.7	6.6	9.0	10.4	11.8	71.2
1-2 Yrs	2.2	3.8	3.2	4.5	5.2	6.7	8.0	6.1	8.0	8.9	56.6
0-1 Yrs	1.8	2.6	3.0	2.8	3.3	4.4	5.4	5.5	4.8	6.9	40.4
Total	62.3	91.2	99.8	108.5	115.9	127.1	127.0	132.9	142.4	154.4	1,161.4

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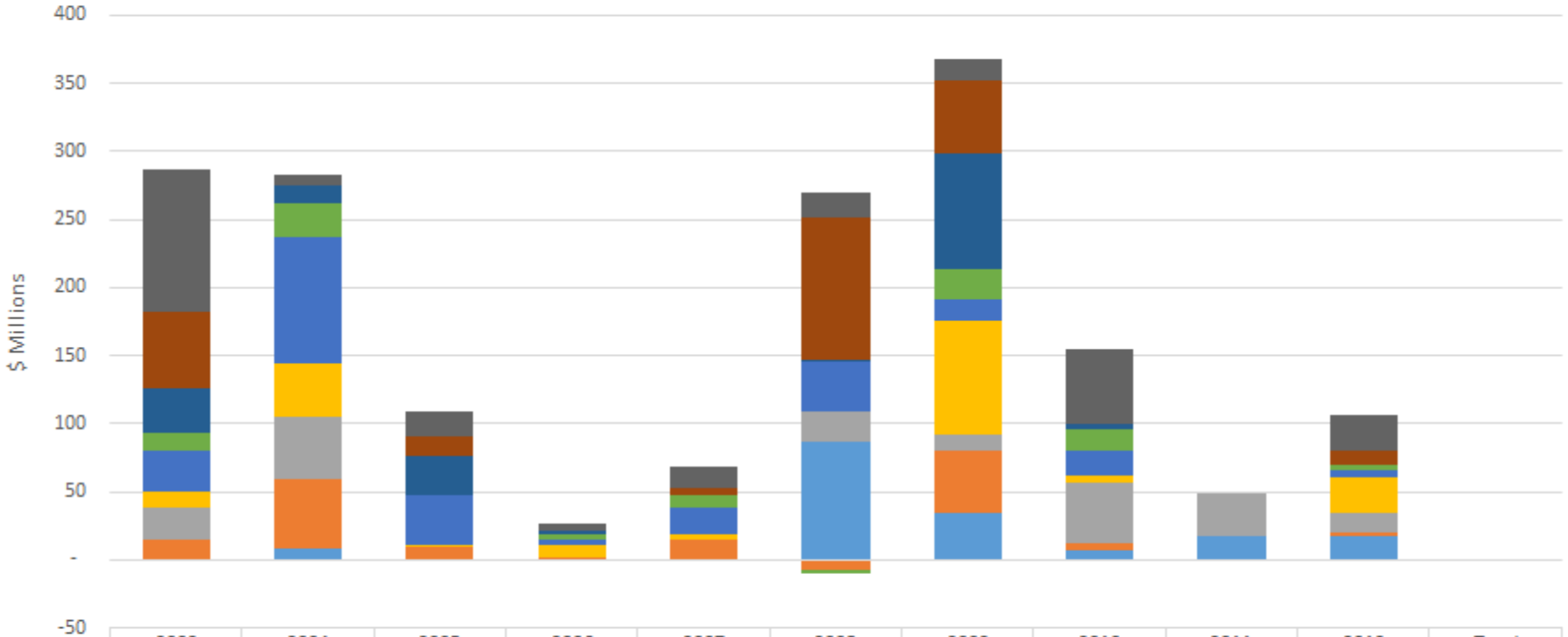

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
9+ Yrs	103	8	18	6	15	18	15	54	-	26	262
7-9 Yrs	56	-	15	-	5	105	54	-	-	11	247
6-7 Yrs	33	13	28	2	-0	1	85	5	-	-	166
5-6 Yrs	13	25	-1	4	9	-3	23	15	-	4	89
4-5 Yrs	29	92	38	4	20	37	15	19	-	5	260
3-4 Yrs	12	40	0	9	5	0	83	5	-	25	179
2-3 Yrs	24	45	-	-	-	22	13	44	32	14	193
1-2 Yrs	14	51	10	1	14	-8	46	6	-0	4	139
0-1 Yrs	-	8	-	-	-	87	34	7	17	17	170
Total	286	283	107	27	68	259	367	154	49	106	1,706

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-1 Yrs	0.00%	0.56%	0.00%	0.00%	0.00%	1.55%	4.17%	0.35%	0.89%	0.34%	0.81%
1-2 Yrs	1.75%	0.99%	0.70%	0.20%	0.20%	1.23%	3.81%	0.32%	0.15%	0.29%	0.96%
2-3 Yrs	7.36%	1.50%	0.00%	0.00%	0.00%	1.26%	1.49%	0.85%	0.55%	0.45%	1.18%
3-4 Yrs	1.31%	2.50%	0.38%	0.55%	0.18%	1.15%	3.22%	0.13%	0.00%	0.29%	0.96%
4-5 Yrs	3.03%	0.38%	0.52%	0.51%	0.66%	0.68%	1.06%	0.13%	0.00%	0.28%	0.65%
5-6 Yrs	3.80%	0.58%	0.38%	0.17%	0.31%	1.38%	2.06%	0.45%	0.00%	0.14%	0.81%
6-7 Yrs	2.34%	0.19%	0.70%	0.64%	0.16%	0.17%	2.28%	0.43%	0.00%	0.00%	0.62%
7-9 Yrs	1.76%	0.00%	0.28%	0.00%	0.10%	0.80%	0.64%	0.00%	0.00%	0.19%	0.33%
9+ Yrs	1.24%	0.12%	0.20%	0.08%	0.11%	0.11%	0.12%	0.08%	0.00%	0.15%	0.19%
Total	2.17%	0.53%	0.30%	0.19%	0.17%	0.70%	1.52%	0.24%	0.12%	0.21%	0.56%

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-1 Yrs	0.00%	0.73%	0.00%	0.00%	0.00%	3.12%	7.48%	0.33%	2.07%	0.71%	1.79%
1-2 Yrs	0.76%	1.94%	0.88%	0.24%	0.29%	1.58%	5.09%	0.24%	0.01%	0.29%	1.23%
2-3 Yrs	1.55%	2.51%	0.00%	0.00%	0.00%	1.12%	1.68%	1.05%	0.83%	0.22%	0.80%
3-4 Yrs	0.79%	1.83%	0.02%	0.40%	0.06%	0.02%	3.30%	0.05%	0.00%	0.40%	0.65%
4-5 Yrs	3.87%	1.48%	0.75%	0.63%	1.31%	0.88%	1.01%	0.16%	0.00%	0.12%	0.77%
5-6 Yrs	0.55%	0.69%	0.58%	0.06%	0.29%	1.78%	3.22%	0.30%	0.00%	0.18%	0.83%
6-7 Yrs	1.59%	0.28%	0.61%	0.23%	0.18%	0.01%	2.27%	0.13%	0.00%	0.00%	0.47%
7-9 Yrs	1.64%	0.00%	0.21%	0.00%	0.03%	0.85%	1.23%	0.00%	0.00%	0.17%	0.36%
9+ Yrs	1.14%	0.09%	0.08%	0.04%	0.21%	0.08%	0.10%	0.17%	0.00%	0.12%	0.16%
Total	1.37%	0.54%	0.24%	0.12%	0.23%	0.66%	1.76%	0.22%	0.13%	0.19%	0.50%

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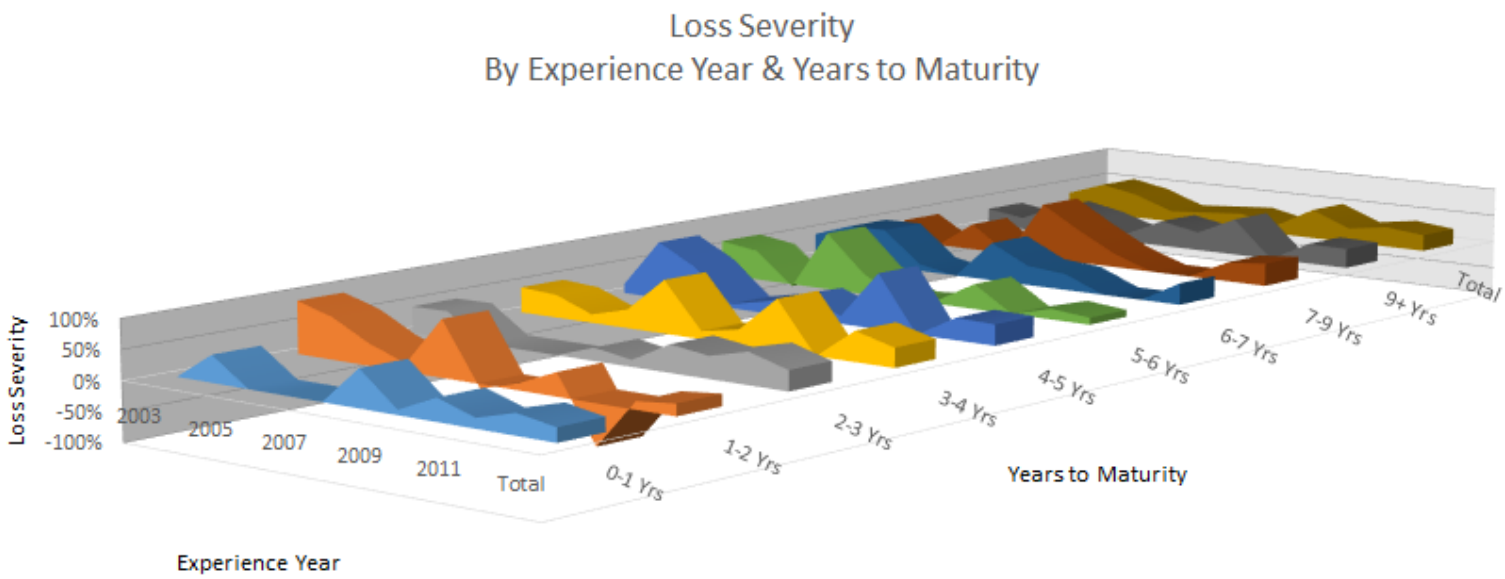

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-1 Yrs	0%	45%	0%	0%	0%	63%	8%	38%	17%	35%	23%
1-2 Yrs	88%	70%	37%	14%	95%	-7%	11%	39%	-68%	14%	20%
2-3 Yrs	44%	45%	0%	0%	0%	22%	11%	47%	37%	54%	34%
3-4 Yrs	43%	39%	14%	33%	91%	14%	26%	86%	0%	52%	33%
4-5 Yrs	16%	99%	64%	7%	21%	40%	13%	95%	0%	38%	36%
5-6 Yrs	61%	52%	-3%	100%	37%	-1%	6%	44%	0%	19%	12%
6-7 Yrs	44%	66%	67%	12%	-1%	68%	34%	28%	0%	0%	38%
7-9 Yrs	39%	0%	47%	0%	100%	60%	24%	0%	0%	34%	40%
9+ Yrs	31%	21%	50%	36%	15%	47%	33%	66%	0%	36%	35%
Total	34%	58%	45%	20%	26%	31%	16%	54%	26%	37%	29%

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	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
0-1 Yrs	0.00%	0.33%	0.00%	0.00%	0.00%	1.96%	0.63%	0.12%	0.35%	0.25%	0.42%
1-2 Yrs	0.67%	1.35%	0.32%	0.03%	0.28%	-0.11%	0.57%	0.10%	0.00%	0.04%	0.25%
2-3 Yrs	0.69%	1.14%	0.00%	0.00%	0.00%	0.25%	0.19%	0.49%	0.31%	0.12%	0.27%
3-4 Yrs	0.34%	0.72%	0.00%	0.13%	0.06%	0.00%	0.85%	0.04%	0.00%	0.21%	0.22%
4-5 Yrs	0.62%	1.47%	0.48%	0.04%	0.27%	0.35%	0.14%	0.15%	0.00%	0.04%	0.28%
5-6 Yrs	0.34%	0.36%	-0.02%	0.06%	0.11%	-0.03%	0.20%	0.13%	0.00%	0.03%	0.10%
6-7 Yrs	0.70%	0.18%	0.41%	0.03%	0.00%	0.01%	0.78%	0.04%	0.00%	0.00%	0.18%
7-9 Yrs	0.64%	0.00%	0.10%	0.00%	0.03%	0.51%	0.29%	0.00%	0.00%	0.06%	0.15%
9+ Yrs	0.36%	0.02%	0.04%	0.01%	0.03%	0.04%	0.03%	0.11%	0.00%	0.04%	0.06%
Total	0.46%	0.31%	0.11%	0.02%	0.06%	0.20%	0.29%	0.12%	0.03%	0.07%	0.15%

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4.J CROSS TABULATION: COUPON RATE BY EARLIEST QUALITY RATING

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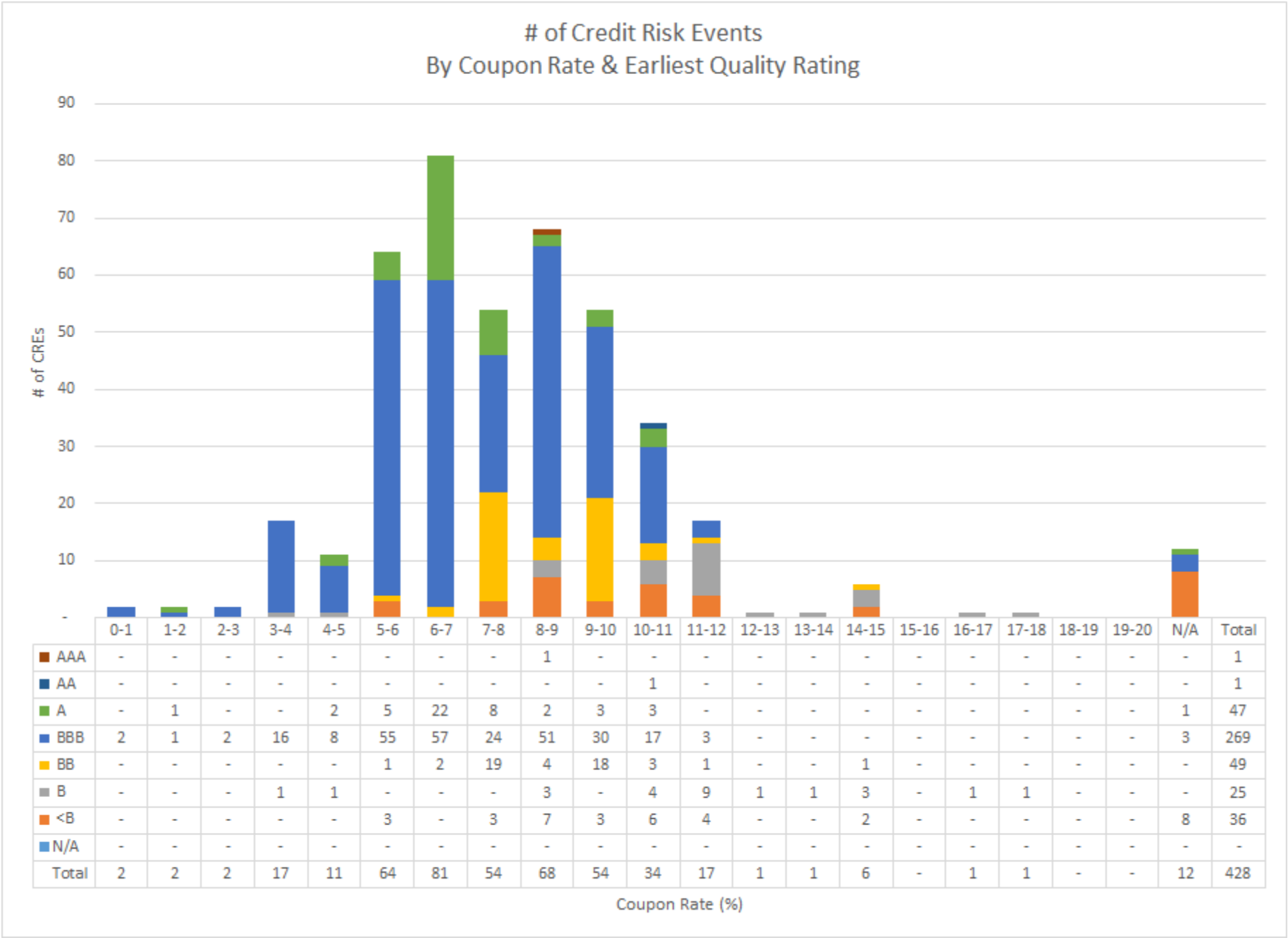

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	N/A	Total
AAA	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
AA	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
A	-	1	-	-	2	5	22	8	2	3	3	-	-	-	-	-	-	-	-	-	1	47
BBB	2	1	2	16	8	55	57	24	51	30	17	3	-	-	-	-	-	-	-	-	3	269
BB	-	-	-	-	-	1	2	19	4	18	3	1	-	-	1	-	-	-	-	-	-	49
B	-	-	-	1	1	-	-	-	3	-	4	9	1	1	3	-	1	1	-	-	-	25
<B	-	-	-	-	-	3	-	3	7	3	6	4	-	-	2	-	-	-	-	-	8	36
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	2	2	2	17	11	64	81	54	68	54	34	17	1	1	6	-	1	1	-	-	12	428

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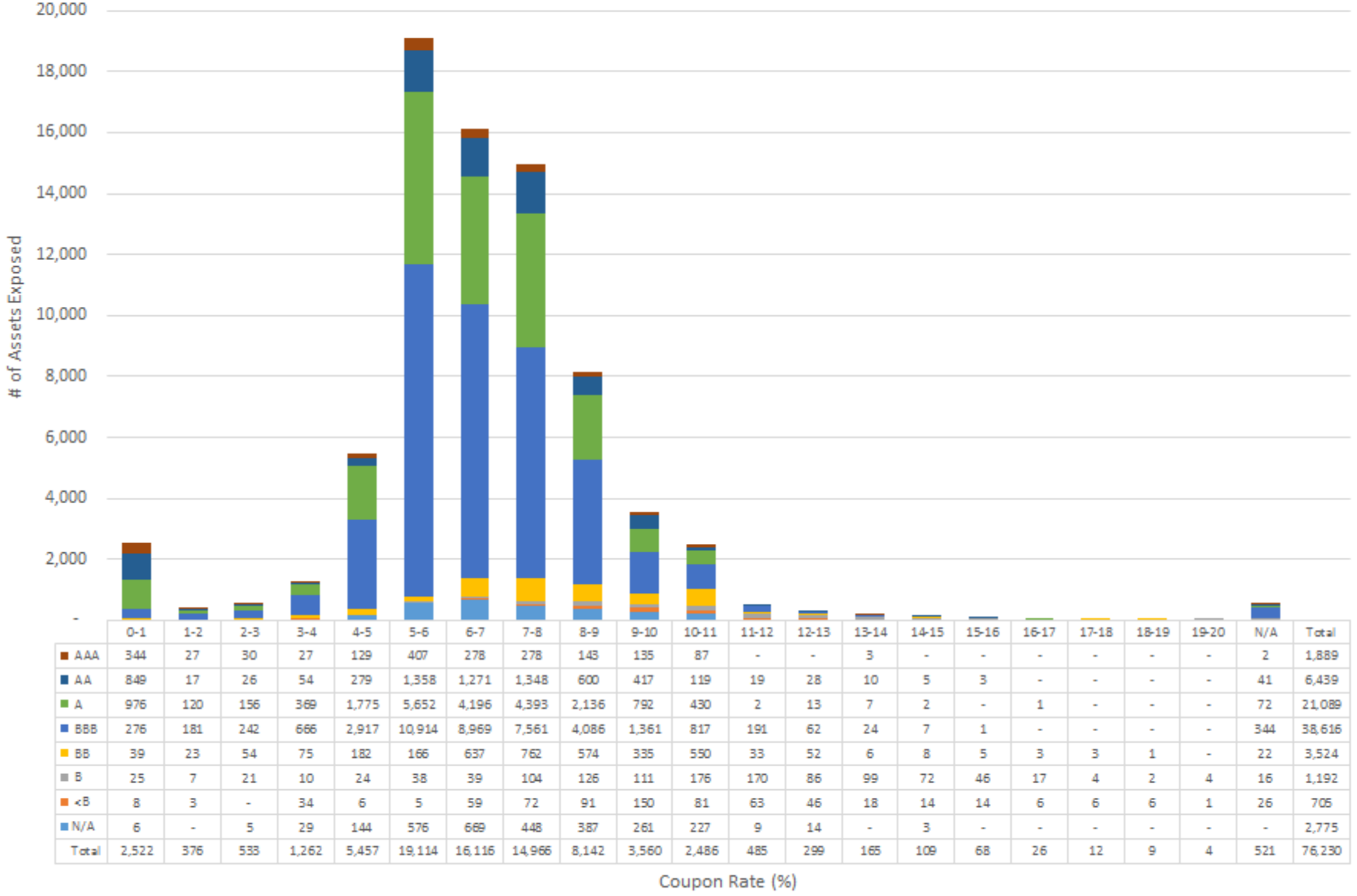

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	N/A	Total
AAA	344	27	30	27	129	407	278	278	143	135	87	-	-	3	-	-	-	-	-	-	2	1,889
AA	849	17	26	54	279	1,358	1,271	1,348	600	417	119	19	28	10	5	3	-	-	-	-	41	6,439
A	976	120	156	369	1,775	5,652	4,196	4,393	2,136	792	430	2	13	7	2	-	1	-	-	-	72	21,089
BBB	276	181	242	666	2,917	10,914	8,969	7,561	4,086	1,361	817	191	62	24	7	1	-	-	-	-	344	38,616
BB	39	23	54	75	182	166	637	762	574	335	550	33	52	6	8	5	3	3	1	-	22	3,524
B	25	7	21	10	24	38	39	104	126	111	176	170	86	99	72	46	17	4	2	4	16	1,192
<B	8	3	-	34	6	5	59	72	91	150	81	63	46	18	14	14	6	6	6	1	26	705
N/A	6	-	5	29	144	576	669	448	387	261	227	9	14	-	3	-	-	-	-	-	-	2,775
Total	2,522	376	533	1,262	5,457	19,114	16,116	14,966	8,142	3,560	2,486	485	299	165	109	68	26	12	9	4	521	76,230

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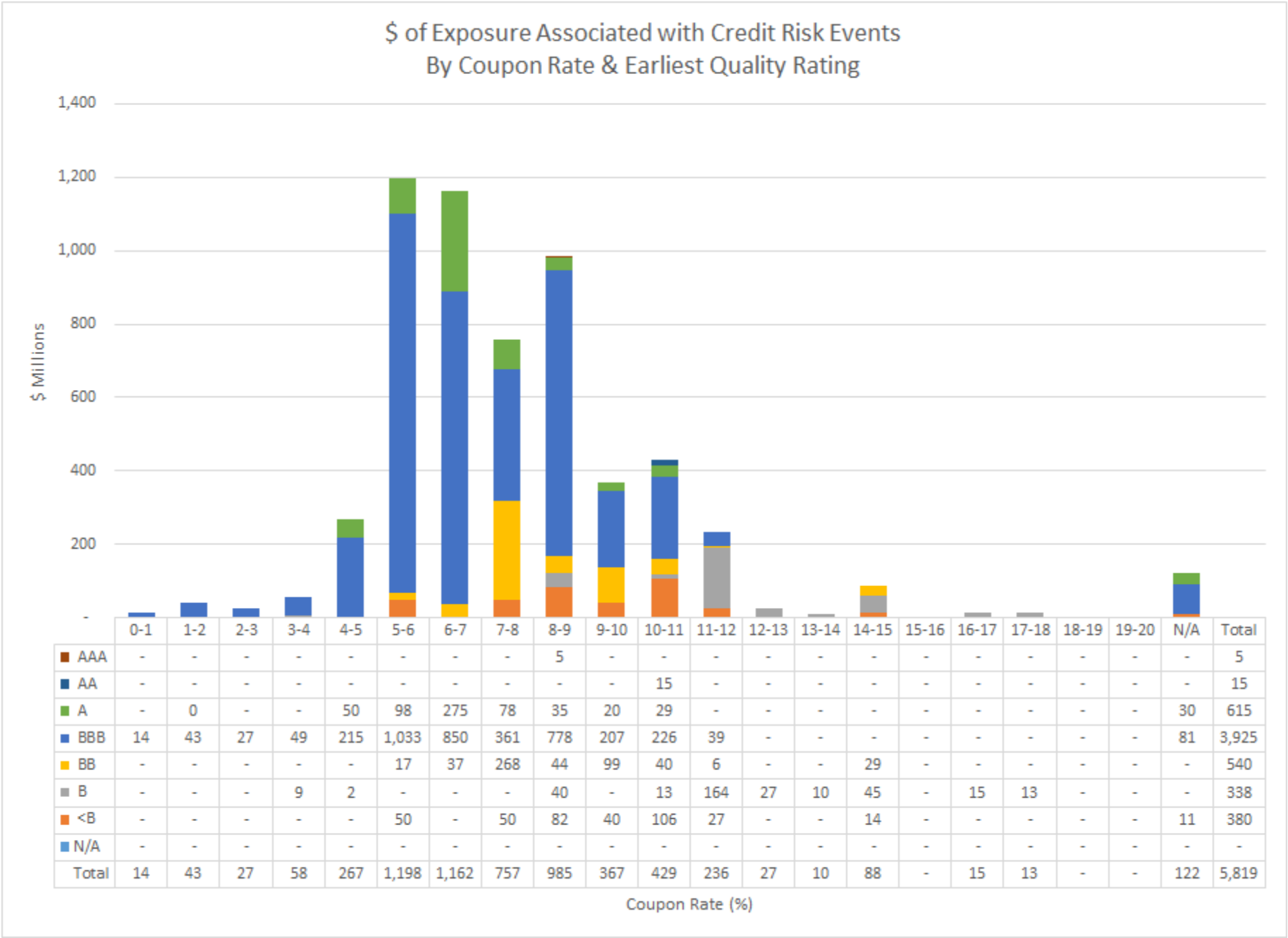

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	N/A	Total
AAA	-	-	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	5
AA	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15
A	-	0	-	-	50	98	275	78	35	20	29	-	-	-	-	-	-	-	-	-	30	615
BBB	14	43	27	49	215	1,033	850	361	778	207	226	39	-	-	-	-	-	-	-	-	81	3,925
BB	-	-	-	-	-	17	37	268	44	99	40	6	-	-	29	-	-	-	-	-	-	540
B	-	-	-	9	2	-	-	-	40	-	13	164	27	10	45	-	15	13	-	-	-	338
<B	-	-	-	-	-	50	-	50	82	40	106	27	-	-	14	-	-	-	-	-	11	380
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	43	27	58	267	1,198	1,162	757	985	367	429	236	27	10	88	-	15	13	-	-	122	5,819

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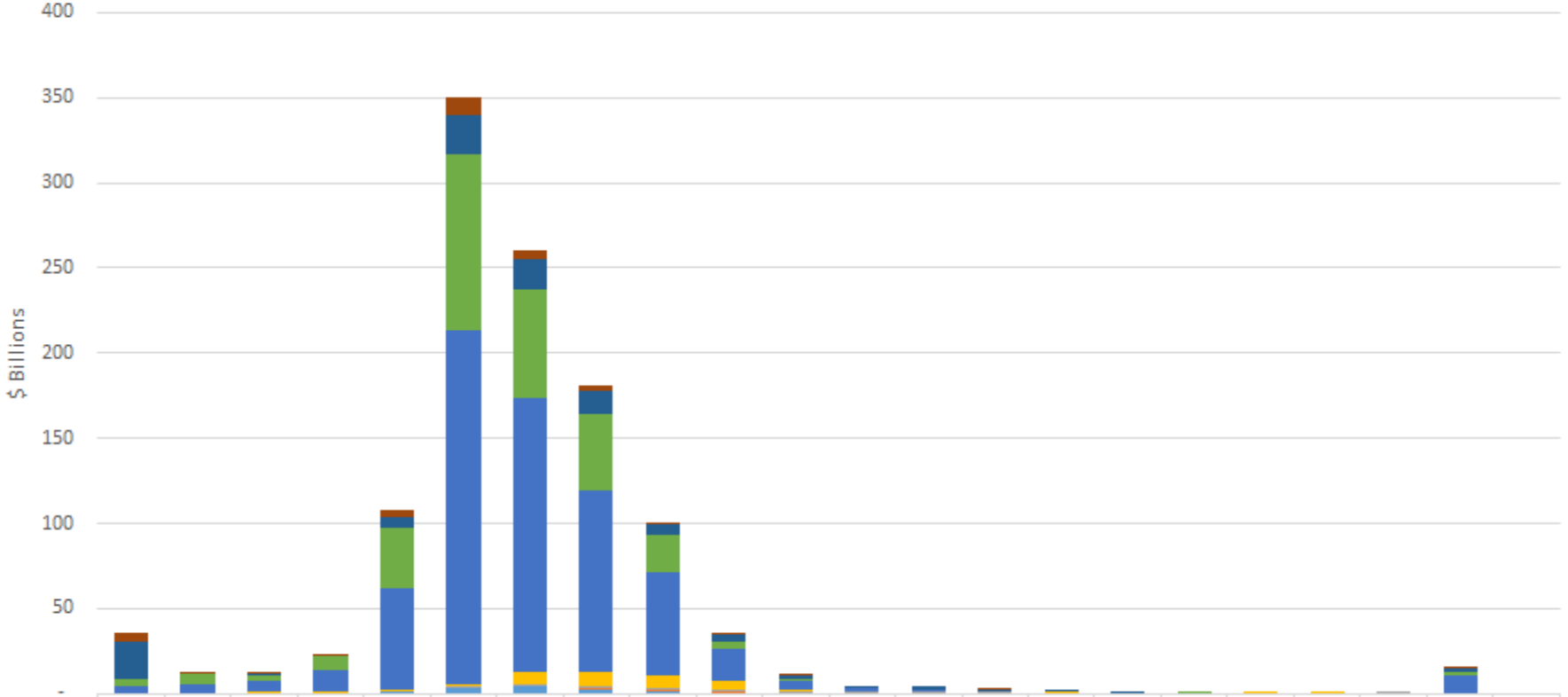

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	N/A	Total
AAA	5.1	0.7	0.9	1.1	4.3	10.5	5.6	2.9	1.1	0.9	0.3	-	-	0.2	-	-	-	-	-	-	0.1	33.7
AA	21.6	0.7	0.5	0.8	6.5	23.0	18.0	13.5	6.0	4.3	2.1	1.0	1.6	1.0	0.6	0.5	-	-	-	-	1.2	103.0
A	4.6	6.2	4.1	7.5	35.7	103.4	63.6	45.5	21.4	4.1	1.2	0.0	0.1	0.1	0.0	-	0.0	-	-	-	2.5	299.9
BBB	4.2	4.9	6.1	12.9	59.5	207.5	161.0	105.6	61.3	18.8	5.0	1.2	1.1	0.0	0.8	0.0	-	-	-	-	10.0	660.0
BB	0.2	0.1	0.9	0.6	1.0	1.7	6.9	9.0	6.8	4.8	1.8	0.2	0.2	0.1	0.2	0.1	0.0	0.1	0.0	-	0.2	34.9
B	0.1	0.1	0.1	0.1	0.1	0.5	0.8	0.9	1.4	1.5	0.2	0.9	0.8	1.1	0.6	0.4	0.4	0.0	0.0	0.0	0.3	10.4
<B	0.0	0.0	-	0.3	0.0	0.1	0.2	1.0	0.9	0.8	0.5	0.6	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.3	5.2
N/A	0.0	-	0.0	0.3	1.2	3.6	4.6	2.5	1.3	0.4	0.3	0.0	0.1	-	0.0	-	-	-	-	-	-	14.3
Total	35.8	12.8	12.6	23.7	108.4	350.2	260.6	180.8	100.3	35.7	11.3	4.0	4.2	2.6	2.3	1.0	0.5	0.1	0.0	0.0	14.5	1,161.

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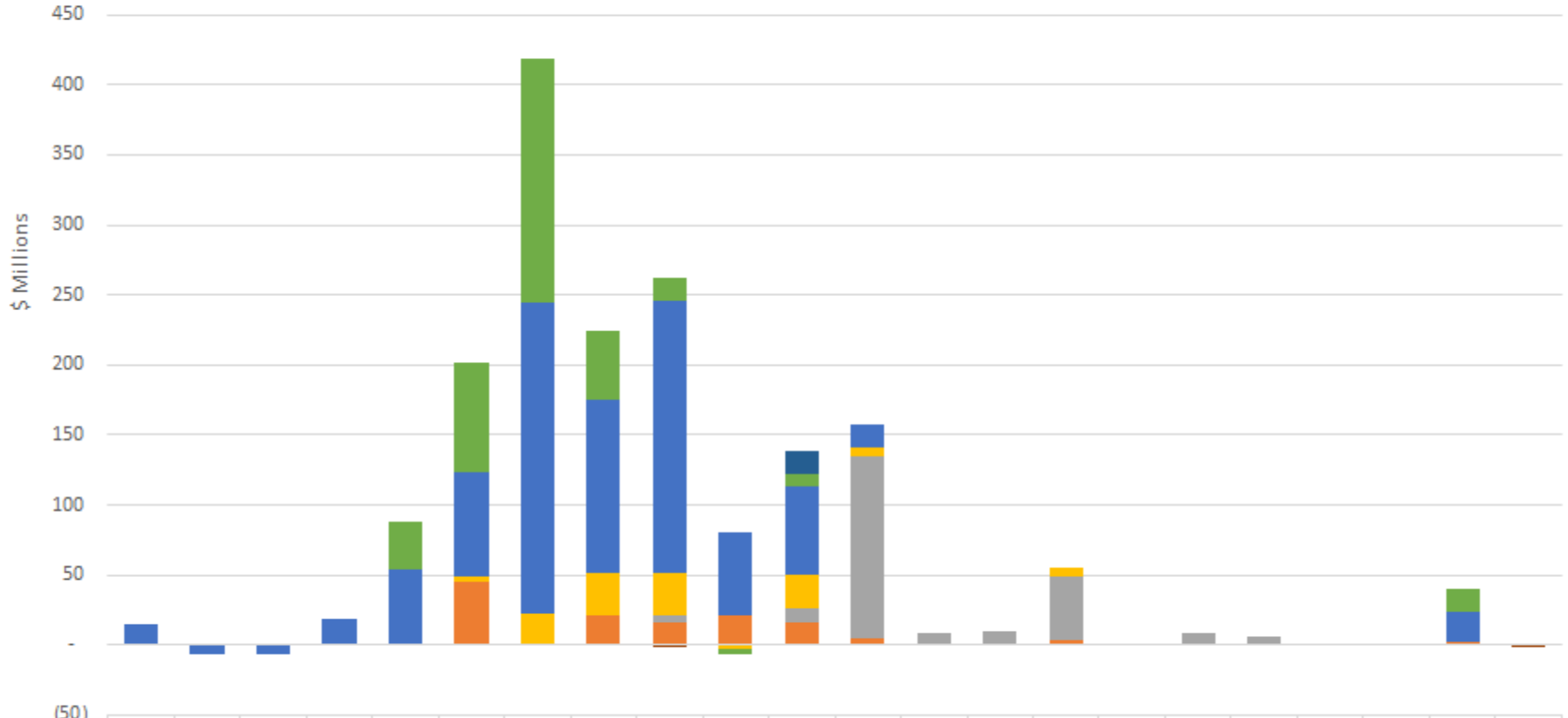

	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	N/A	Total
AAA	-	-	-	-	-	-	-	-	(0)	-	-	-	-	-	-	-	-	-	-	-	-	(0)
AA	-	-	-	-	-	-	-	-	-	-	15	-	-	-	-	-	-	-	-	-	-	15
A	-	0	-	-	35	78	174	48	16	(4)	9	-	-	-	-	-	-	-	-	-	16	372
BBB	14	(7)	(7)	17	53	74	222	124	194	59	64	16	-	-	-	-	-	-	-	-	21	844
BB	-	-	-	-	-	4	22	30	31	(3)	24	6	-	-	6	-	-	-	-	-	-	120
B	-	-	-	1	0	-	-	-	5	-	11	131	9	10	45	-	8	5	-	-	-	226
<B	-	-	-	-	-	46	-	21	16	21	15	4	-	-	4	-	-	-	-	-	2	129
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	14	(7)	(7)	18	88	201	418	224	261	73	138	157	9	10	55	-	8	5	-	-	40	1,706

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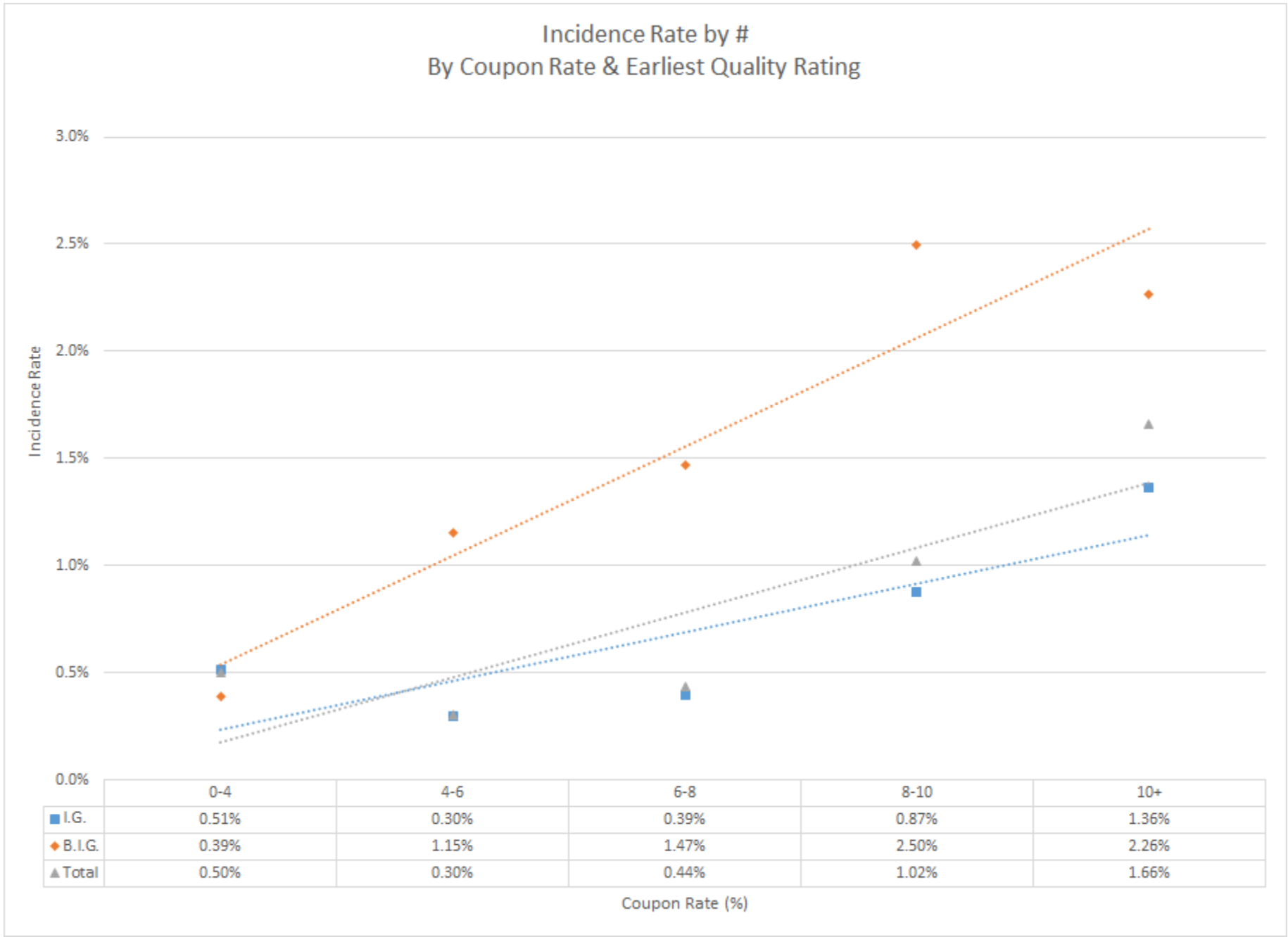

	0-4	4-6	6-8	8-10	10+
I.G.	0.51%	0.30%	0.39%	0.87%	1.36%
B.I.G.	0.39%	1.15%	1.47%	2.50%	2.26%
Total	0.50%	0.30%	0.44%	1.02%	1.66%

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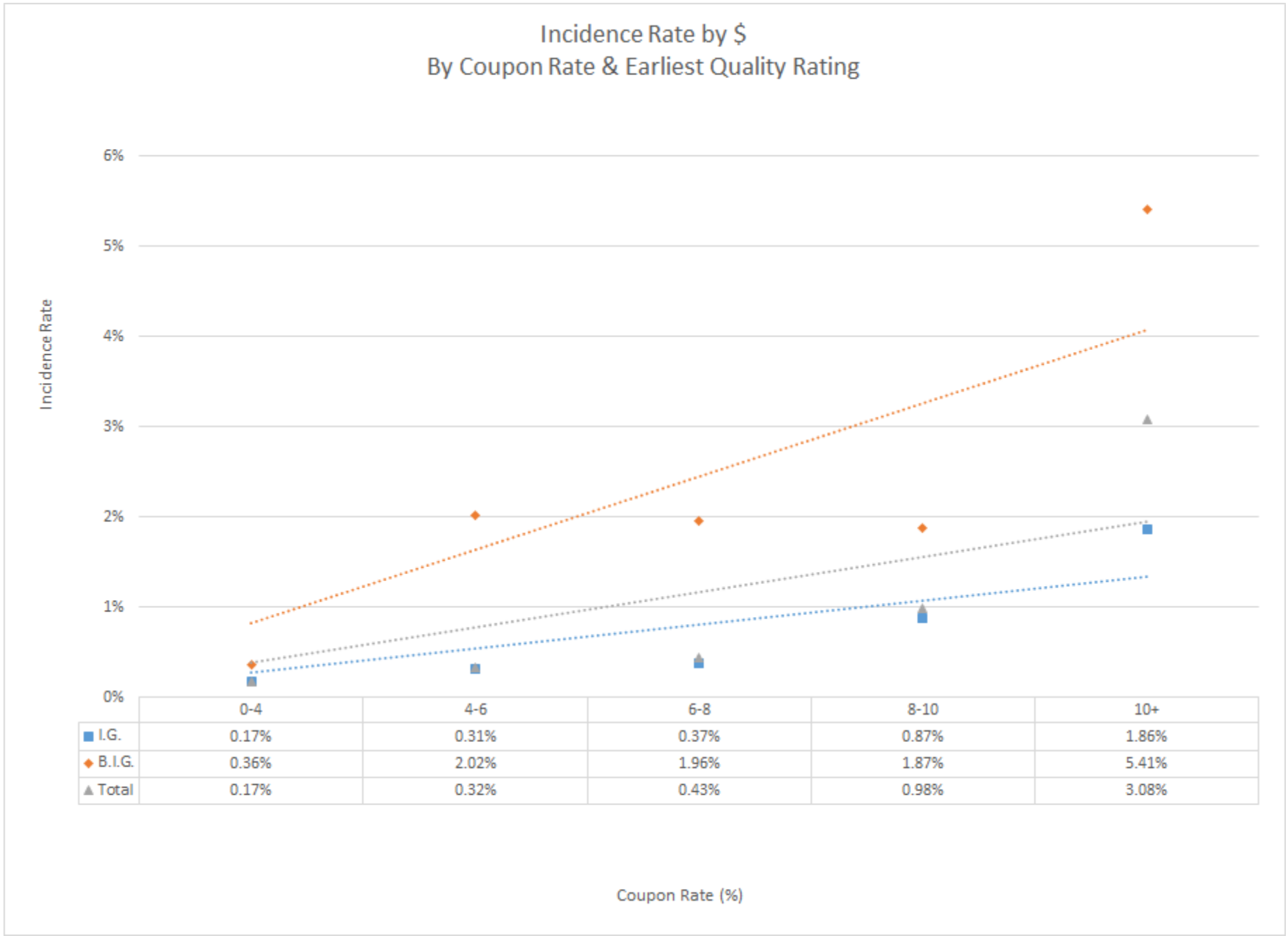

	0-4	4-6	6-8	8-10	10+
I.G.	0.17%	0.31%	0.37%	0.87%	1.86%
B.I.G.	0.36%	2.02%	1.96%	1.87%	5.41%
Total	0.17%	0.32%	0.43%	0.98%	3.08%

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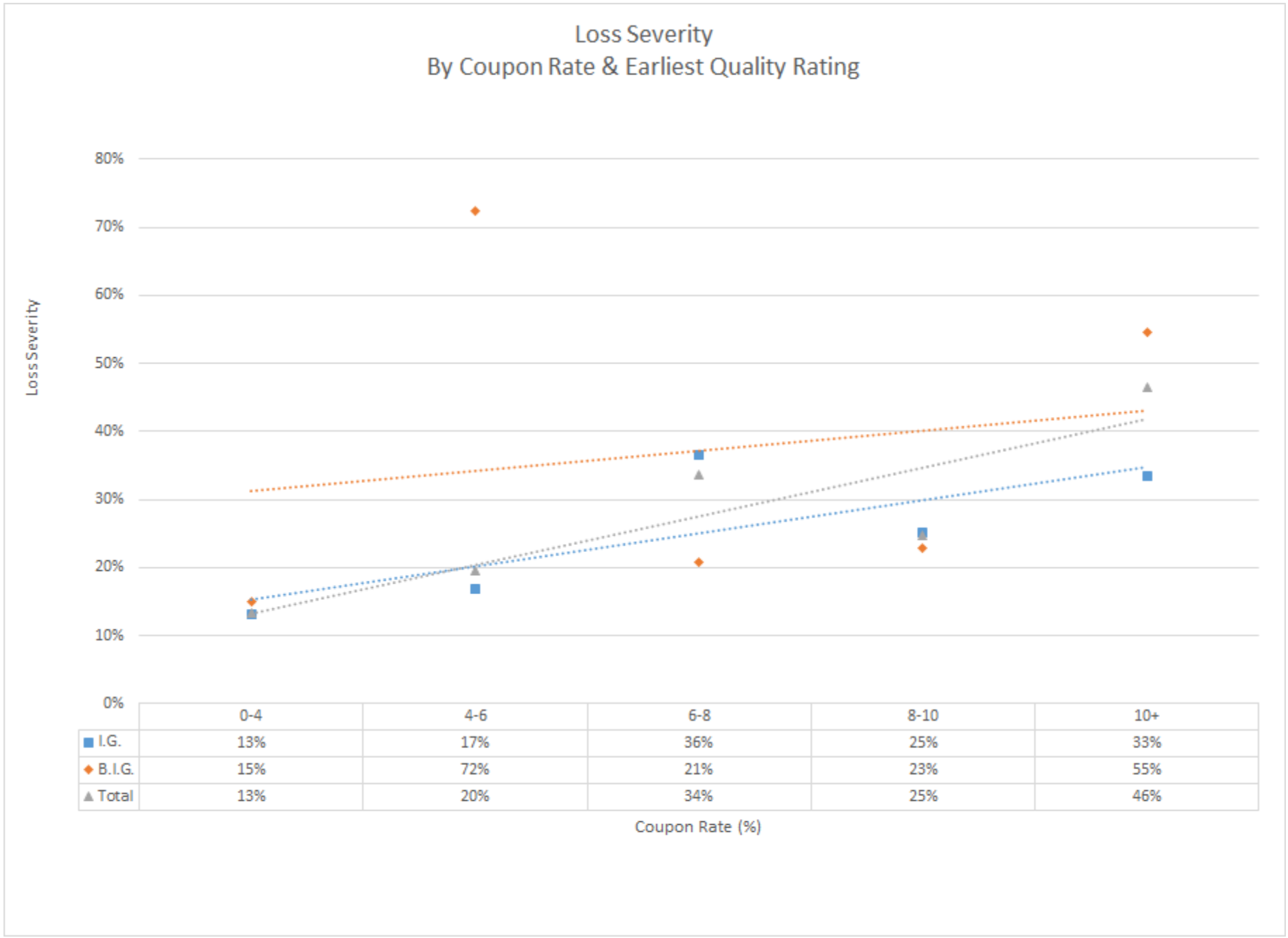

	0-4	4-6	6-8	8-10	10+
I.G.	13%	17%	36%	25%	33%
B.I.G.	15%	72%	21%	23%	55%
Total	13%	20%	34%	25%	46%

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	0-4	4-6	6-8	8-10	10+
I.G.	0.02%	0.05%	0.14%	0.22%	0.62%
B.I.G.	0.05%	1.46%	0.41%	0.43%	2.95%
Total	0.02%	0.06%	0.15%	0.24%	1.43%

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4.K CROSS TABULATION: NUMBER OF YEARS SINCE FUNDING BY EARLIEST QUALITY RATING

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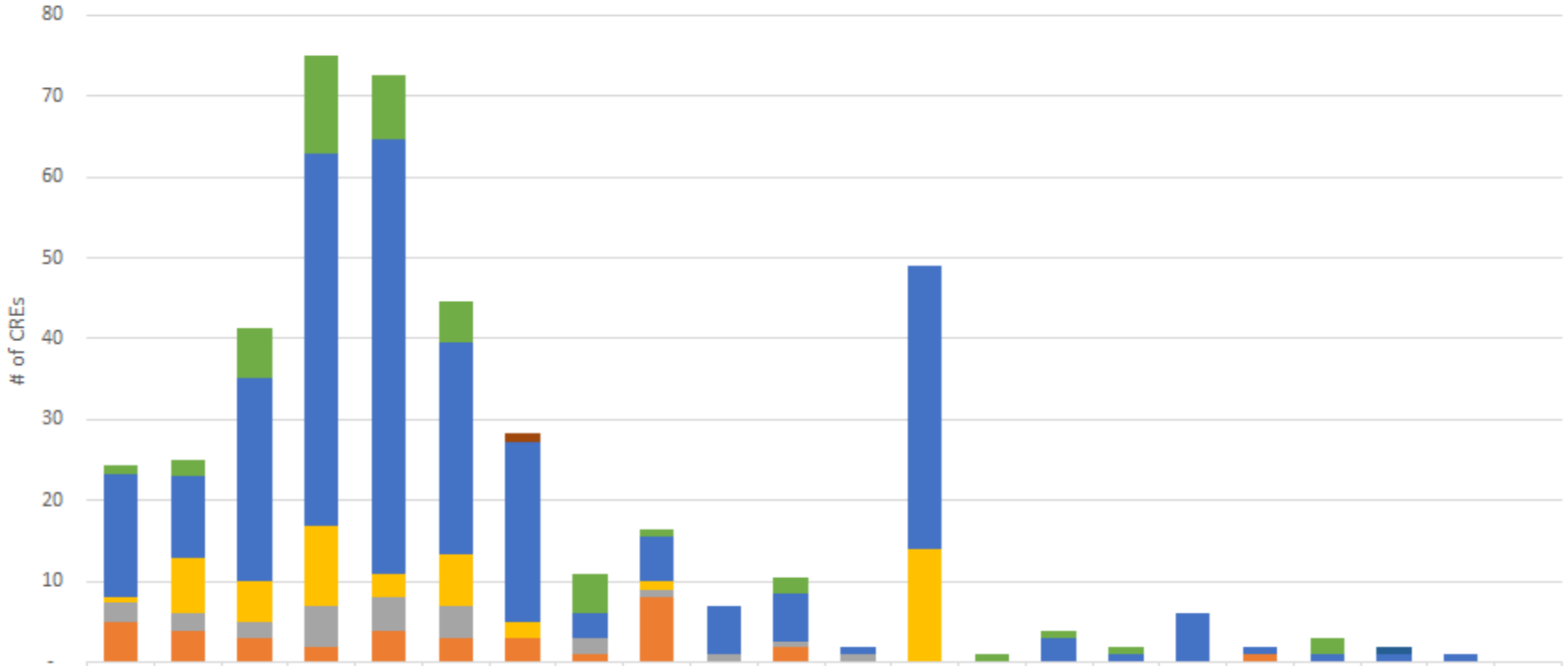

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
AA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1
A	1	2	6	12	8	5	-	5	1	-	2	-	-	1	1	1	-	-	2	-	-	47
BBB	15	10	25	46	54	26	22	3	5	6	6	1	35	-	3	1	6	1	1	1	1	269
BB	1	7	5	10	3	6	2	-	1	-	-	-	14	-	-	-	-	-	-	-	-	49
B	3	2	2	5	4	4	-	2	1	1	1	1	-	-	-	-	-	-	-	-	-	25
<B	5	4	3	2	4	3	3	1	8	-	2	-	-	-	-	-	-	1	-	-	-	36
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	24	25	41	75	73	45	28	11	16	7	11	2	49	1	4	2	6	2	3	2	1	428

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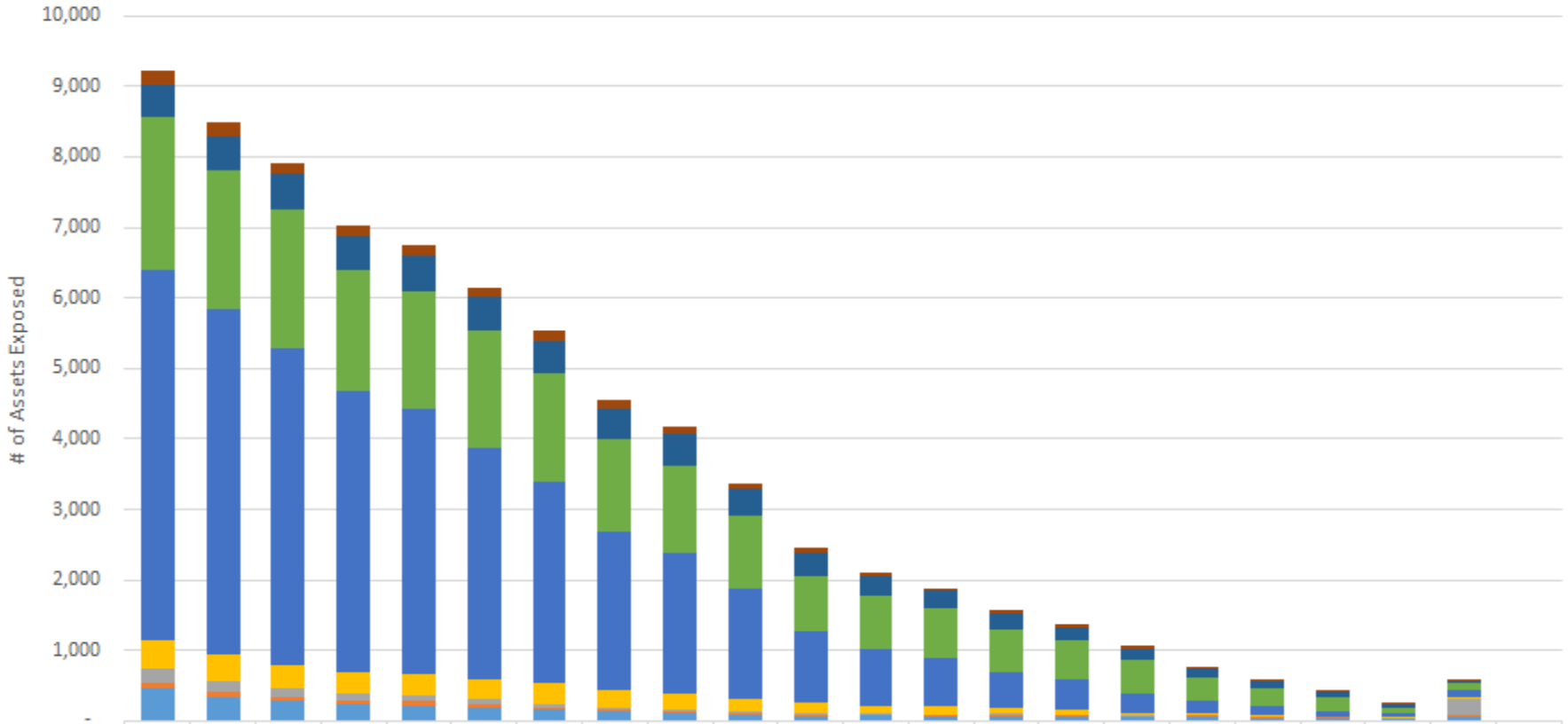

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA	206	199	169	158	159	149	136	127	109	81	67	50	48	39	36	38	28	24	20	20	29	1,889
AA	450	480	500	473	495	482	465	441	437	375	325	290	250	218	193	161	131	114	77	44	40	6,439
A	2,183	1,965	1,967	1,722	1,662	1,644	1,544	1,316	1,243	1,025	793	740	705	618	556	470	323	252	184	89	88	21,089
BBB	5,249	4,900	4,484	4,000	3,764	3,293	2,847	2,242	1,995	1,575	1,004	806	681	510	428	276	184	128	82	51	114	38,616
BB	398	380	327	287	292	282	293	241	223	167	151	115	112	78	64	38	26	11	11	7	24	3,524
B	208	162	140	111	88	72	44	38	27	23	19	15	12	8	4	4	2	4	2	2	214	1,192
<B	82	60	50	58	68	55	41	34	40	28	21	15	12	22	21	19	23	15	12	11	22	705
N/A	456	344	278	227	217	180	155	123	97	90	67	74	67	68	62	51	53	42	34	28	63	2,775
Total	9,227	8,490	7,916	7,036	6,744	6,155	5,524	4,562	4,170	3,365	2,447	2,104	1,887	1,561	1,364	1,056	770	589	420	251	595	76,230

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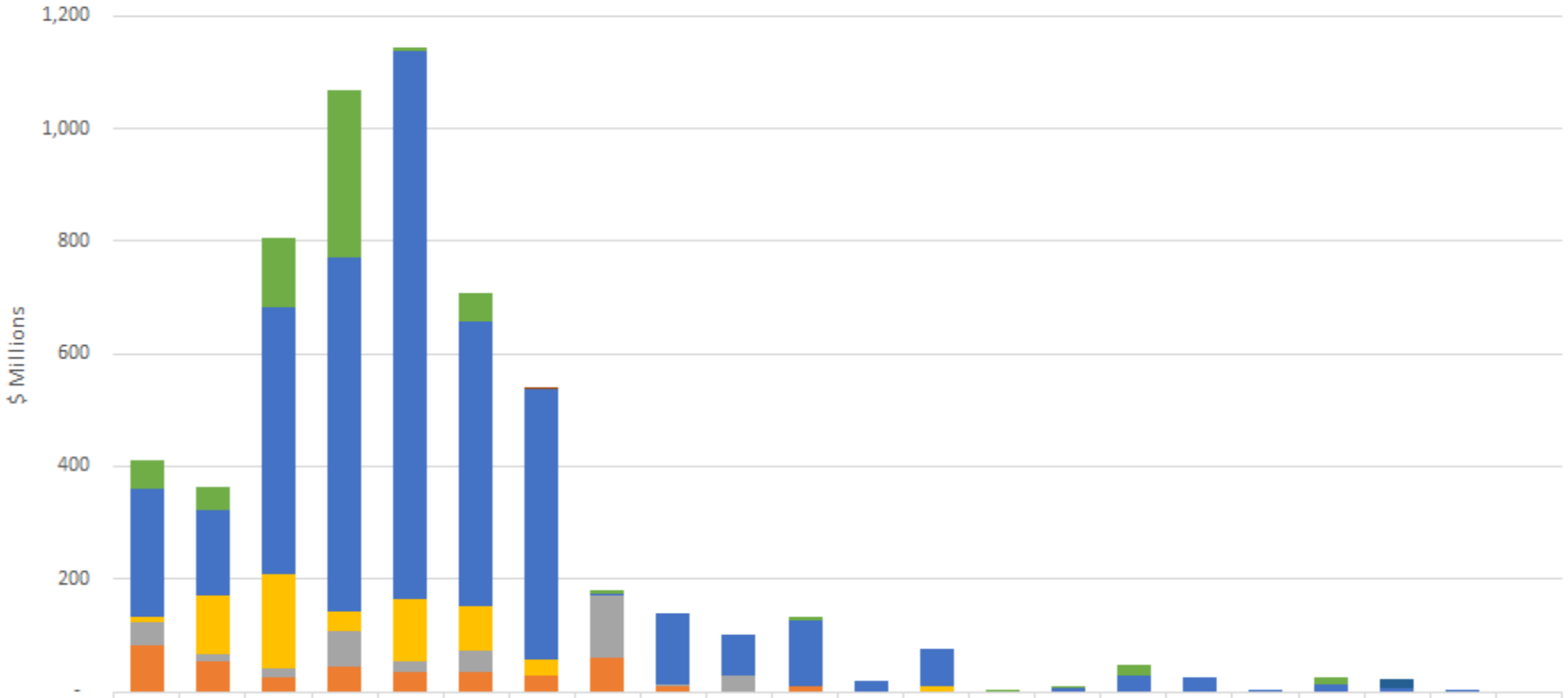

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
AA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	15
A	49	40	125	298	7	53	-	8	0	-	5	-	-	2	1	16	-	-	12	-	-	615
BBB	229	153	475	628	974	503	481	2	126	72	118	18	65	-	7	30	26	0	12	7	0	3,925
BB	9	103	164	34	110	81	28	-	2	-	-	-	10	-	-	-	-	-	-	-	-	540
B	42	15	17	63	20	39	-	111	1	30	1	1	-	-	-	-	-	-	-	-	-	338
<B	81	53	26	45	34	34	27	60	11	-	8	-	-	-	-	-	-	1	-	-	-	380
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	409	364	807	1,068	1,144	709	541	181	139	102	132	19	75	2	8	46	26	1	24	22	0	5,819

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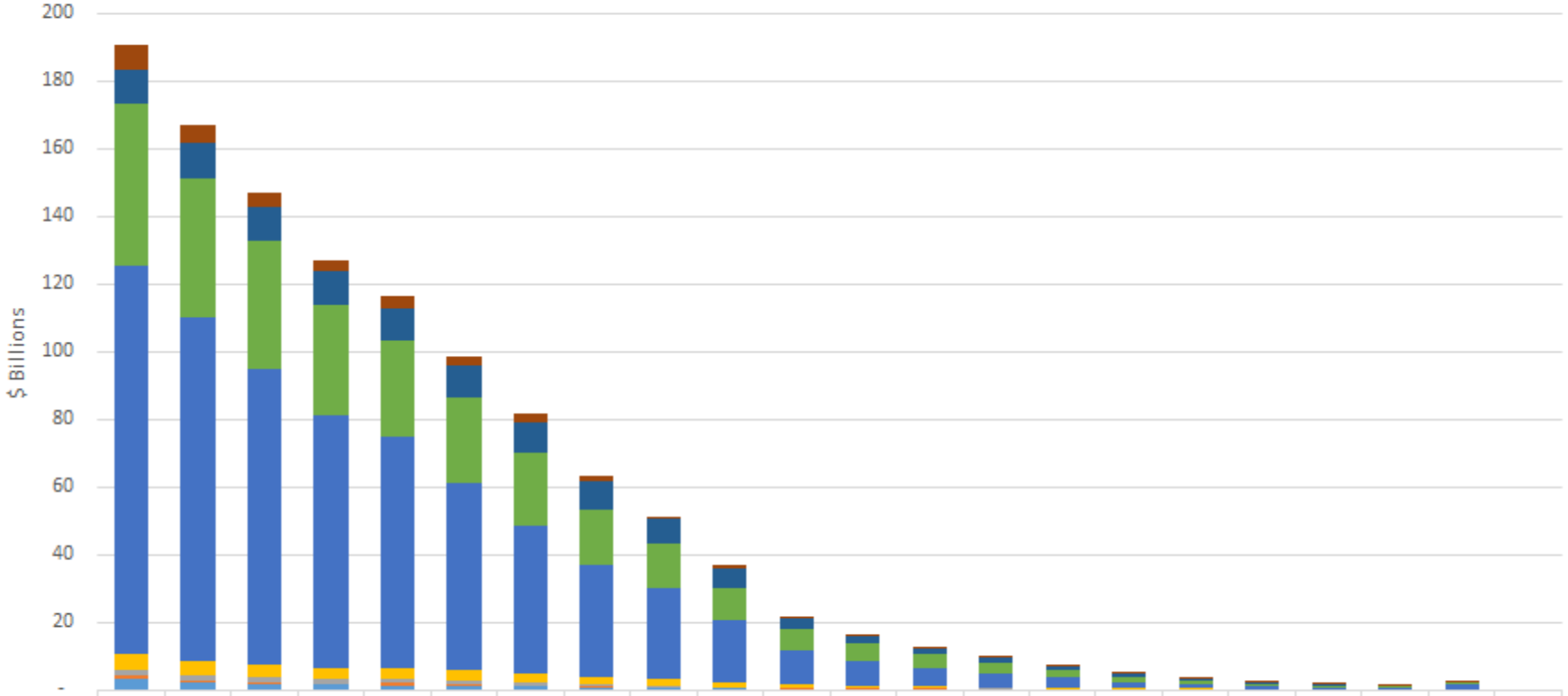

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA	7.0	5.1	4.0	3.4	3.3	2.7	2.5	1.7	0.9	0.8	0.5	0.4	0.4	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	33.7
AA	10.1	10.5	10.3	9.6	9.6	9.2	9.2	8.4	7.1	5.6	3.4	2.3	1.9	1.6	1.1	0.8	0.7	0.6	0.5	0.3	0.1	103.0
A	48.0	41.4	37.8	32.9	28.6	25.4	21.3	16.3	13.4	9.7	6.1	5.1	3.9	3.1	2.3	1.5	1.0	0.7	0.5	0.2	0.7	299.9
BBB	114.6	101.5	87.4	74.8	68.2	55.3	43.7	33.0	27.0	18.5	10.2	7.2	5.4	3.9	3.0	1.9	1.3	0.8	0.6	0.5	1.2	660.0
BB	4.7	4.4	3.8	3.2	3.6	3.2	3.0	2.4	2.1	1.4	1.1	0.7	0.6	0.4	0.2	0.1	0.1	0.0	0.0	0.0	0.0	34.9
B	2.0	1.5	1.4	1.2	1.0	0.9	0.7	0.5	0.3	0.3	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	10.4
<B	0.8	0.4	0.3	0.5	0.7	0.4	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	5.2
N/A	3.1	2.2	1.8	1.4	1.2	1.2	0.8	0.6	0.5	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	14.3
Total	190.4	166.9	146.9	127.0	116.3	98.4	81.6	63.3	51.3	36.6	21.7	16.2	12.6	9.6	7.1	4.7	3.4	2.4	1.7	1.2	2.2	1,161

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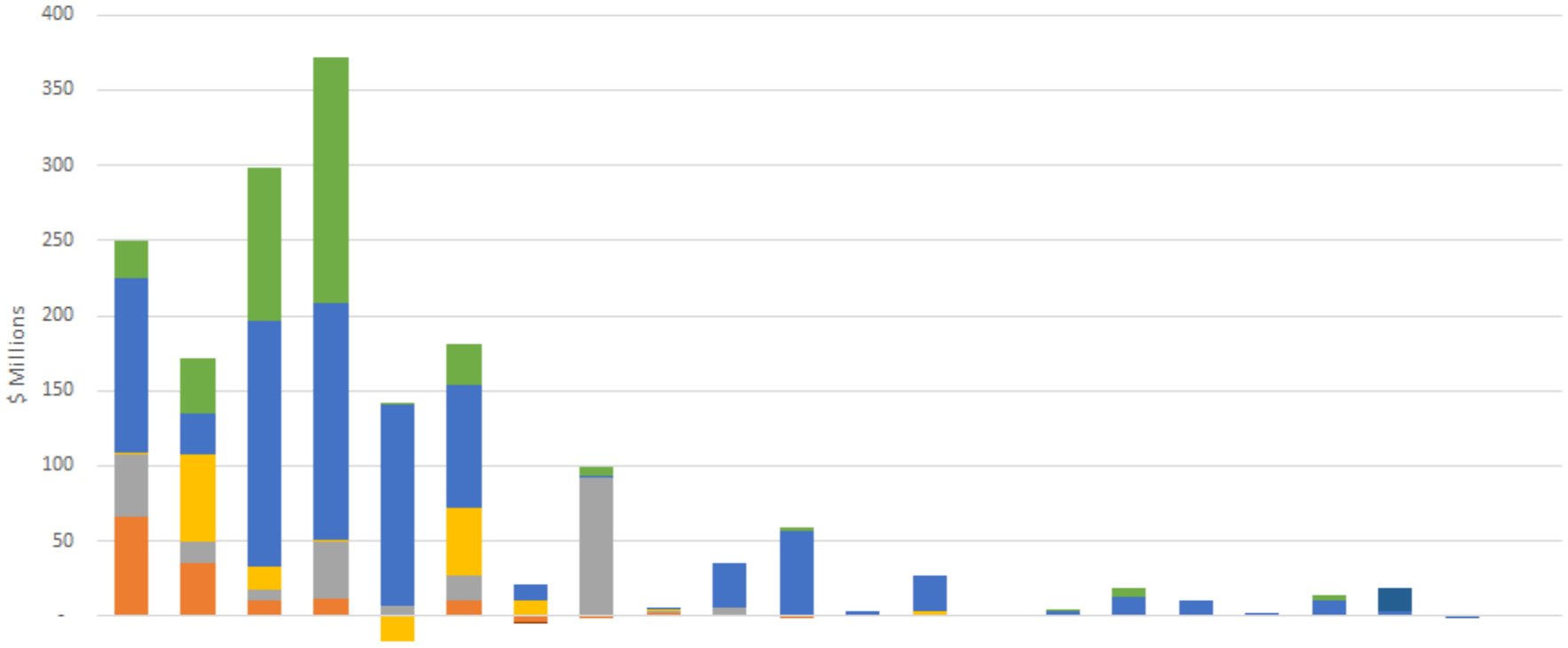

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
AAA	-	-	-	-	-	-	(0)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(0)
AA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15	-	15
A	26	36	101	164	1	28	-	5	0	-	2	-	-	0	0	6	-	-	3	-	-	372
BBB	115	28	163	157	134	82	11	2	1	29	56	3	23	-	3	13	10	0	11	3	(0)	844
BB	2	58	16	1	(16)	45	11	-	1	-	-	-	3	-	-	-	-	-	-	-	-	120
B	41	15	7	38	7	17	-	92	1	6	1	0	-	-	-	-	-	-	-	-	-	226
<B	66	35	10	11	(0)	10	(4)	(1)	2	-	(2)	-	-	-	-	-	-	1	-	-	-	129
N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	250	171	298	372	126	181	17	98	6	35	57	3	26	0	3	19	10	1	14	18	(0)	1,706

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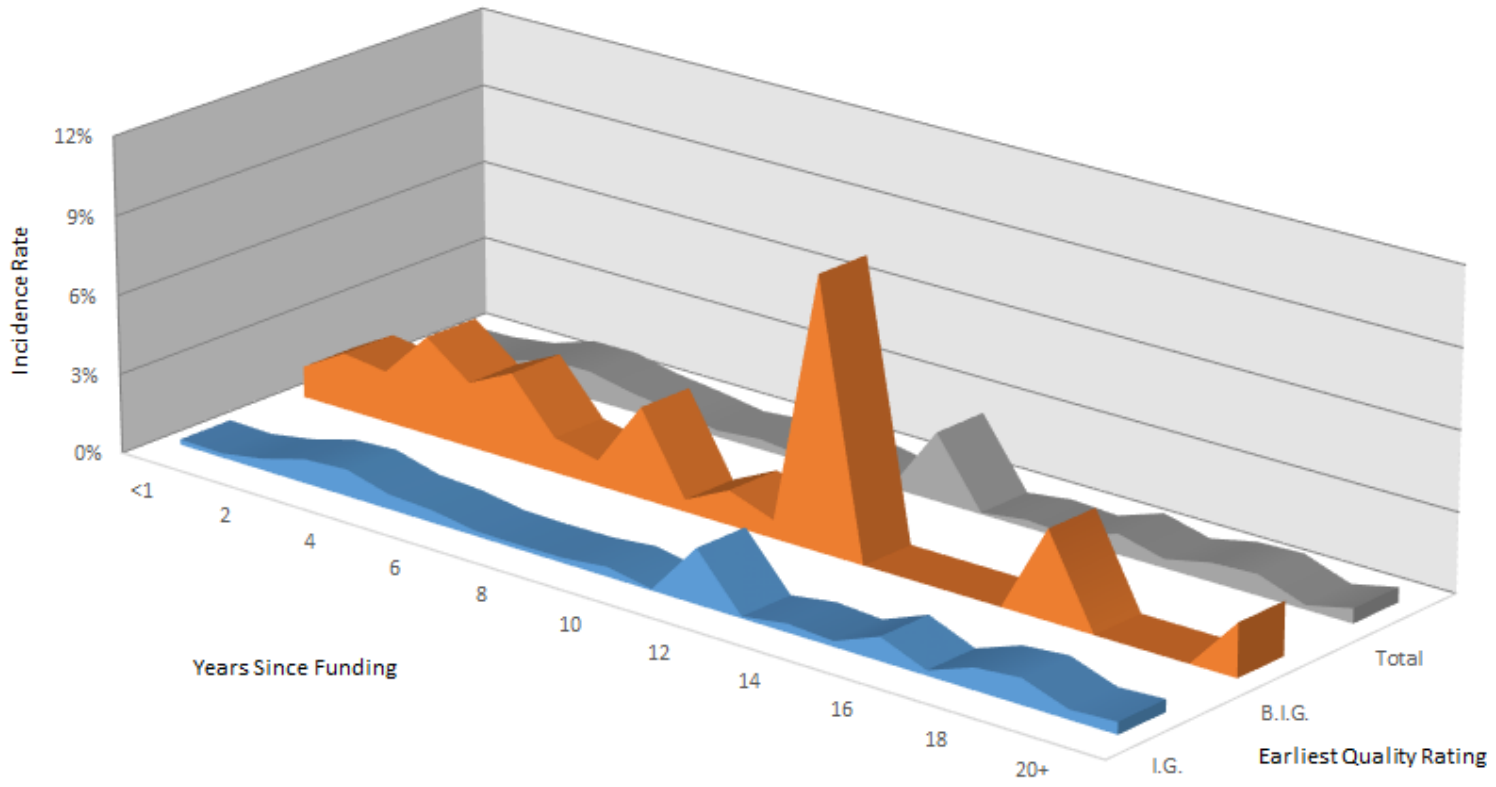

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
I.G.	0.20%	0.16%	0.44%	0.91%	1.01%	0.56%	0.47%	0.19%	0.17%	0.20%	0.37%	0.05%	2.08%	0.07%	0.33%	0.21%	0.90%	0.19%	0.83%	0.98%	0.37%	0.47%
B.I.G.	1.17%	2.16%	1.94%	3.74%	2.46%	3.30%	1.32%	0.96%	3.45%	0.46%	1.31%	0.69%	10.29	0.00%	0.00%	0.00%	0.00%	3.39%	0.00%	0.00%	0.00%	2.03%
Total	0.26%	0.29%	0.52%	1.07%	1.08%	0.73%	0.51%	0.24%	0.39%	0.21%	0.43%	0.10%	2.60%	0.06%	0.29%	0.19%	0.78%	0.34%	0.71%	0.80%	0.17%	0.56%

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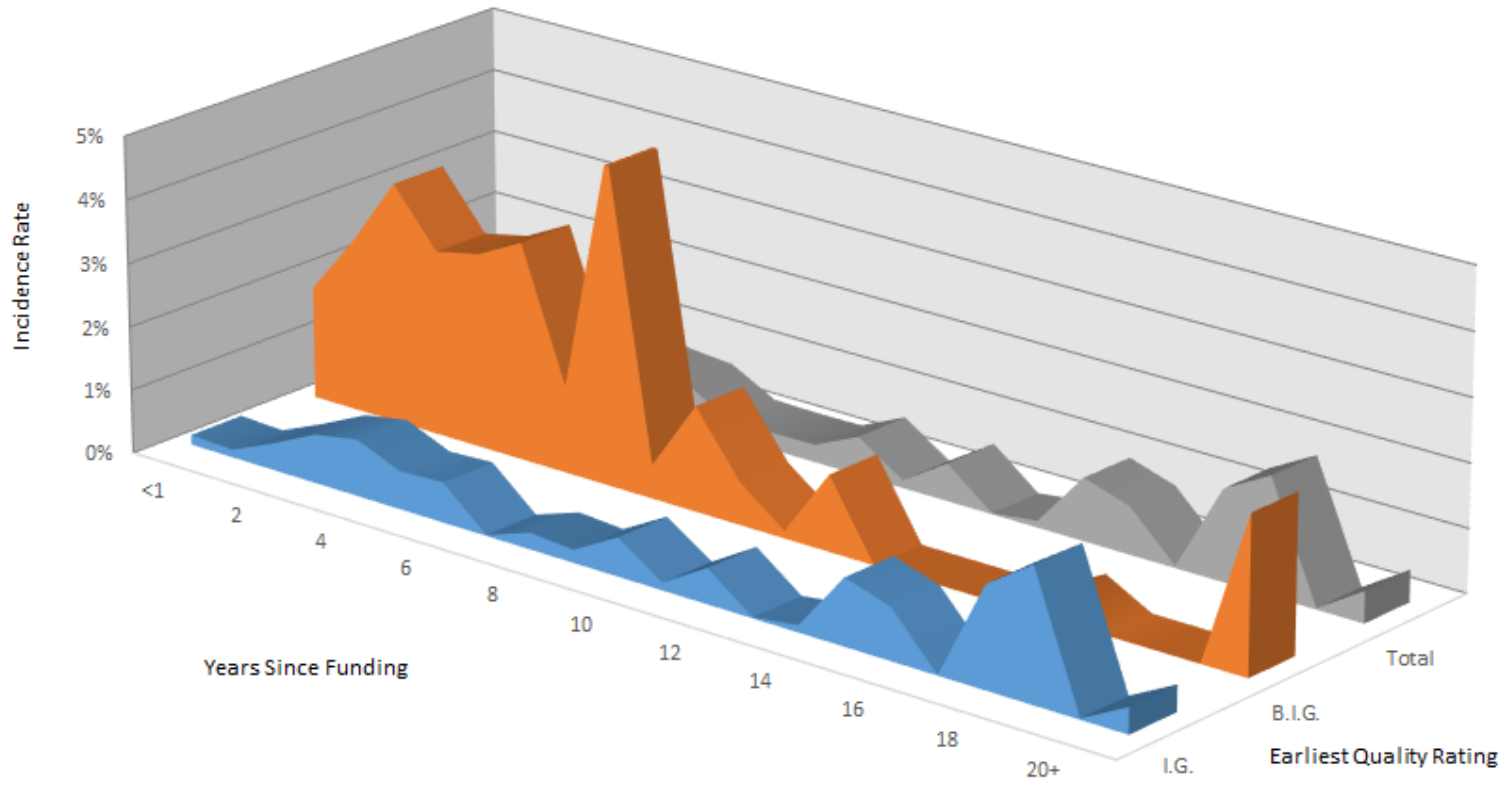

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
I.G.	0.15%	0.12%	0.43%	0.77%	0.89%	0.60%	0.63%	0.02%	0.26%	0.21%	0.61%	0.12%	0.56%	0.02%	0.11%	1.06%	0.82%	0.01%	1.59%	2.10%	0.02%	0.42%
B.I.G.	1.76%	2.71%	3.80%	2.91%	3.06%	3.43%	1.37%	5.24%	0.53%	1.66%	0.67%	0.12%	1.20%	0.00%	0.00%	0.00%	0.00%	0.40%	0.00%	0.00%	0.00%	2.49%
Total	0.22%	0.22%	0.55%	0.84%	0.98%	0.72%	0.66%	0.29%	0.27%	0.28%	0.61%	0.12%	0.59%	0.02%	0.11%	0.99%	0.75%	0.04%	1.44%	1.85%	0.02%	0.50%

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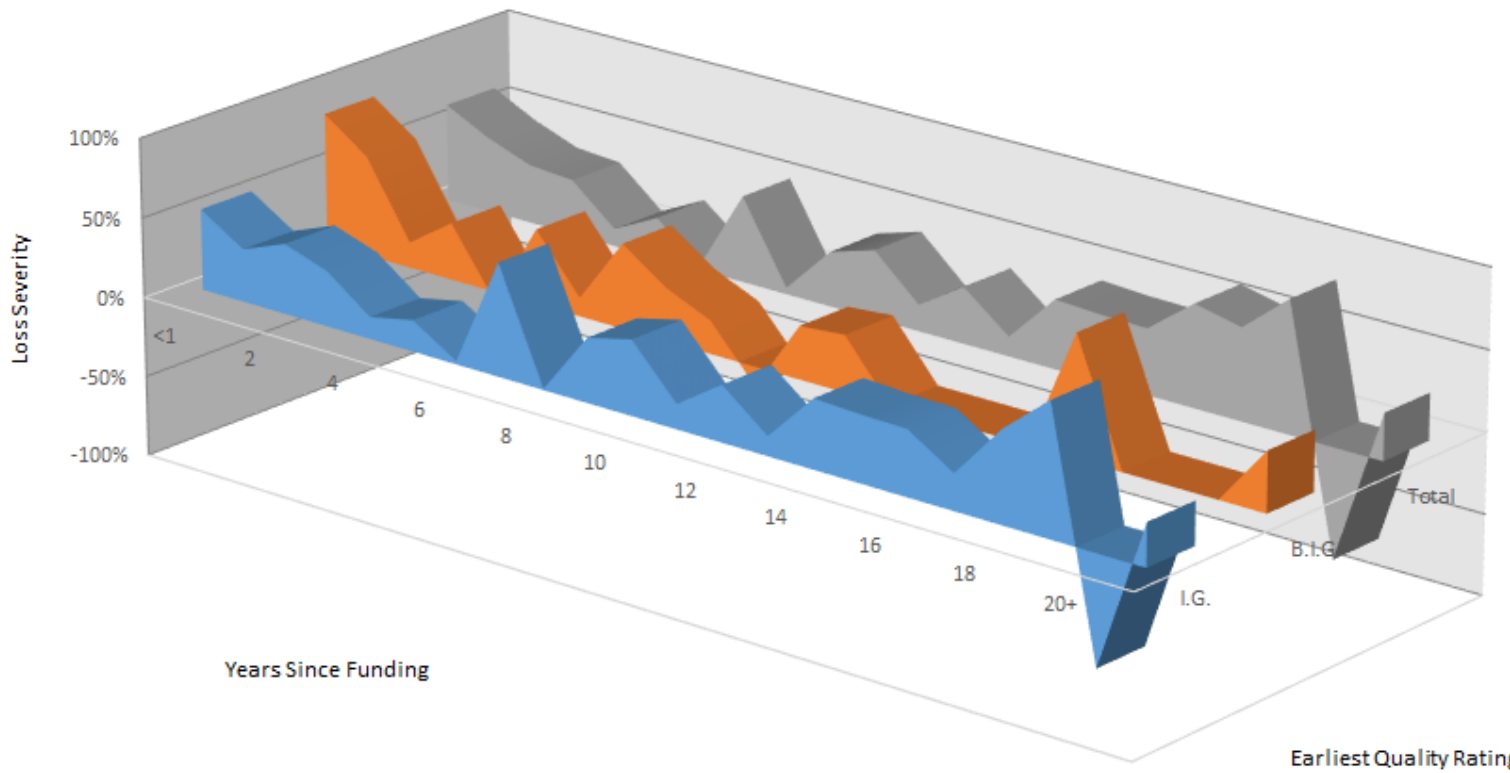

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
I.G.	51%	33%	44%	35%	14%	20%	2%	71%	1%	40%	47%	16%	35%	12%	43%	41%	41%	23%	57%	82%	-68%	27%
B.I.G.	83%	63%	16%	36%	-6%	47%	12%	53%	33%	21%	-12%	33%	35%	0%	0%	0%	0%	76%	0%	0%	0%	38%
Total	61%	47%	37%	35%	11%	26%	3%	54%	4%	34%	43%	17%	35%	12%	43%	41%	41%	64%	57%	82%	-68%	29%

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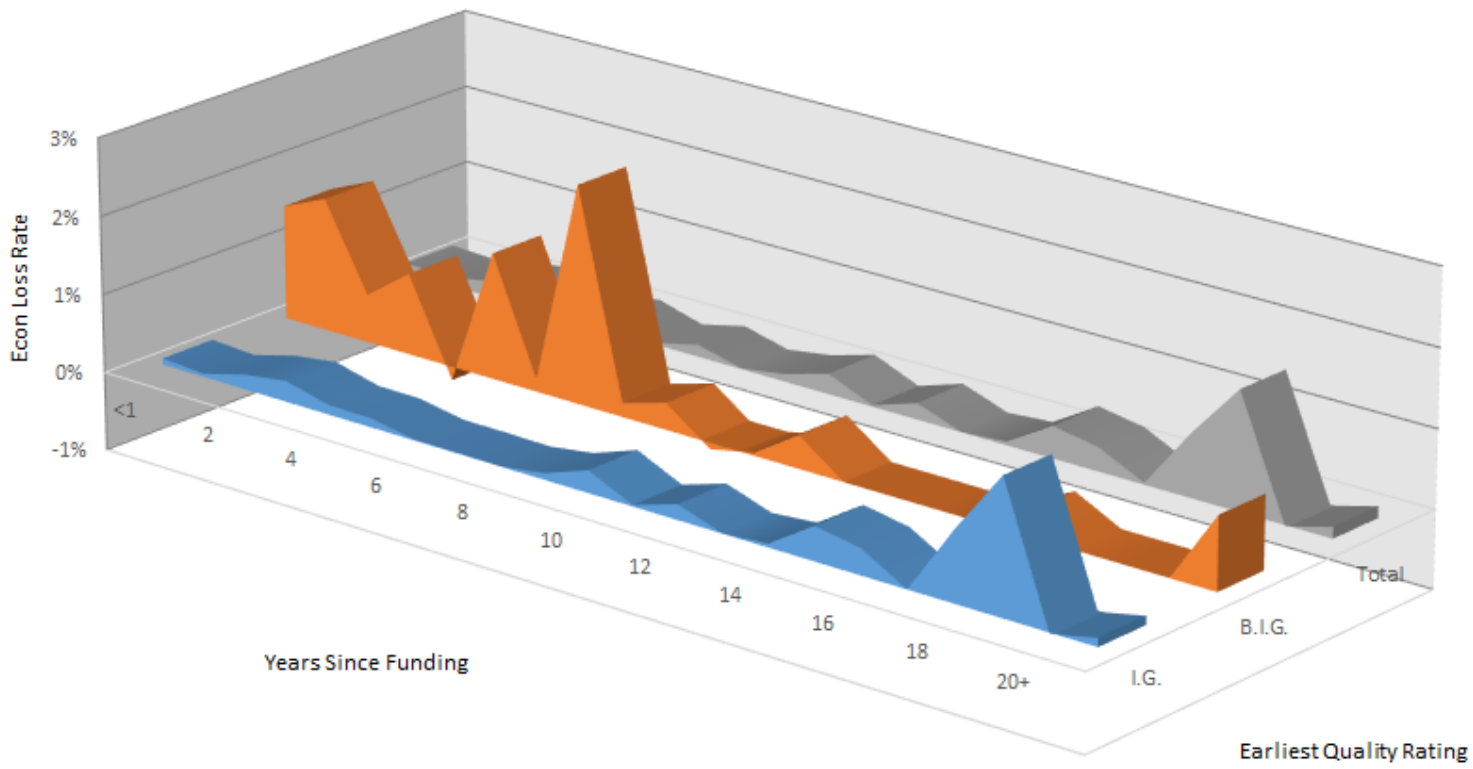

	<1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	Total
I.G.	0.08%	0.04%	0.19%	0.27%	0.12%	0.12%	0.01%	0.01%	0.00%	0.08%	0.29%	0.02%	0.20%	0.00%	0.05%	0.44%	0.34%	0.00%	0.91%	1.72%	-0.02	0.11%
B.I.G.	1.46%	1.70%	0.61%	1.04%	-0.17	1.61%	0.16%	2.78%	0.18%	0.34%	-0.08	0.04%	0.43%	0.00%	0.00%	0.00%	0.00%	0.30%	0.00%	0.00%	0.00%	0.94%
Total	0.13%	0.10%	0.20%	0.29%	0.11%	0.18%	0.02%	0.15%	0.01%	0.10%	0.26%	0.02%	0.21%	0.00%	0.05%	0.41%	0.31%	0.02%	0.82%	1.52%	-0.01	0.15%

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4.L CROSS TABULATION: FUNDING YEAR BY EXPERIENCE YEAR

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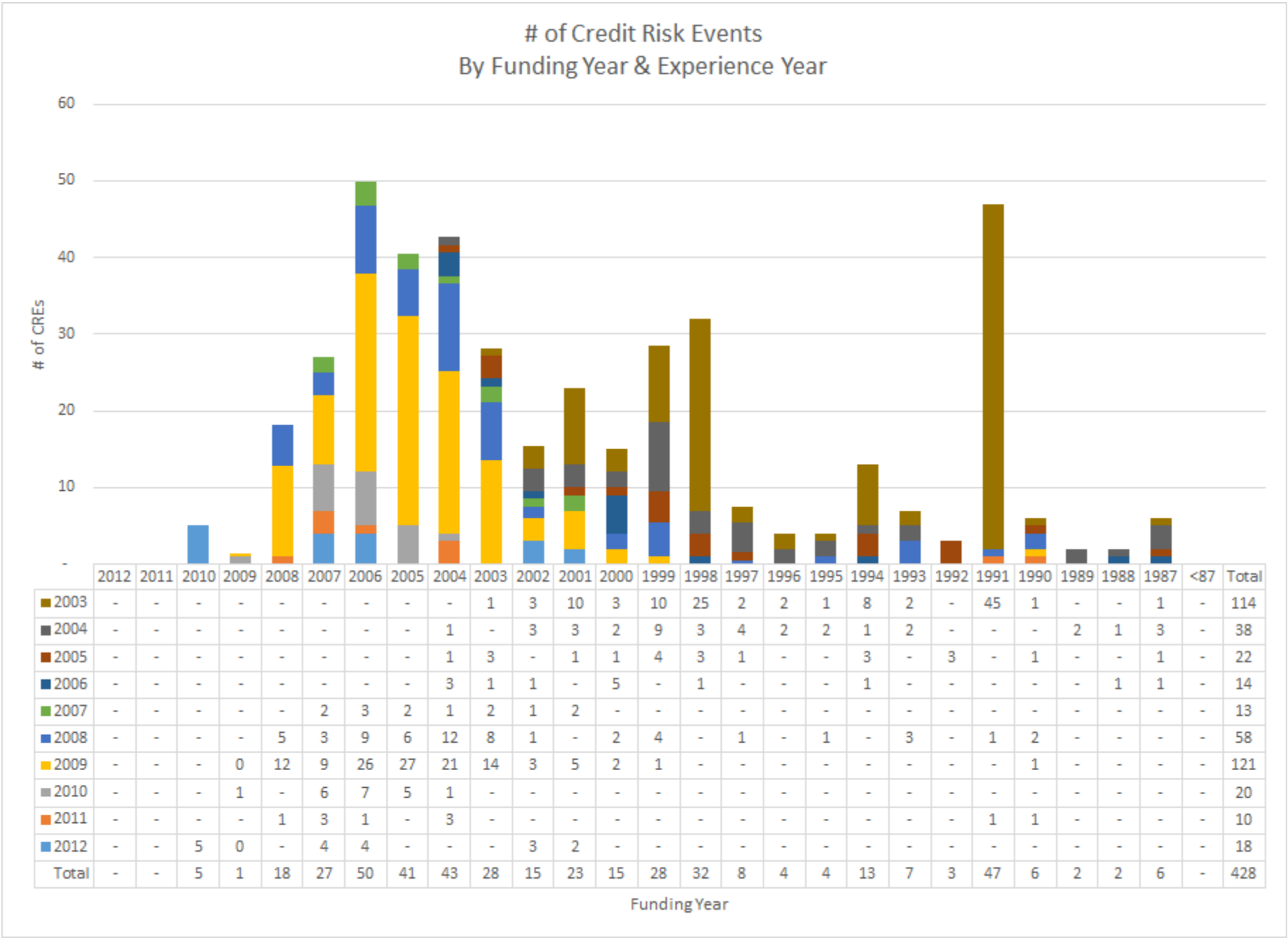

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	<87	Total
2003	-	-	-	-	-	-	-	-	-	1	3	10	3	10	25	2	2	1	8	2	-	45	1	-	-	1	-	114
2004	-	-	-	-	-	-	-	-	1	-	3	3	2	9	3	4	2	2	1	2	-	-	-	2	1	3	-	38
2005	-	-	-	-	-	-	-	-	1	3	-	1	1	4	3	1	-	-	3	-	3	-	1	-	-	1	-	22
2006	-	-	-	-	-	-	-	-	3	1	1	-	5	-	1	-	-	-	1	-	-	-	-	-	1	1	-	14
2007	-	-	-	-	-	2	3	2	1	2	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
2008	-	-	-	-	5	3	9	6	12	8	1	-	2	4	-	1	-	1	-	3	-	1	2	-	-	-	-	58
2009	-	-	-	0	12	9	26	27	21	14	3	5	2	1	-	-	-	-	-	-	-	-	1	-	-	-	-	121
2010	-	-	-	1	-	6	7	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
2011	-	-	-	-	1	3	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	10
2012	-	-	5	0	-	4	4	-	-	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Total	-	-	5	1	18	27	50	41	43	28	15	23	15	28	32	8	4	4	13	7	3	47	6	2	2	6	-	428

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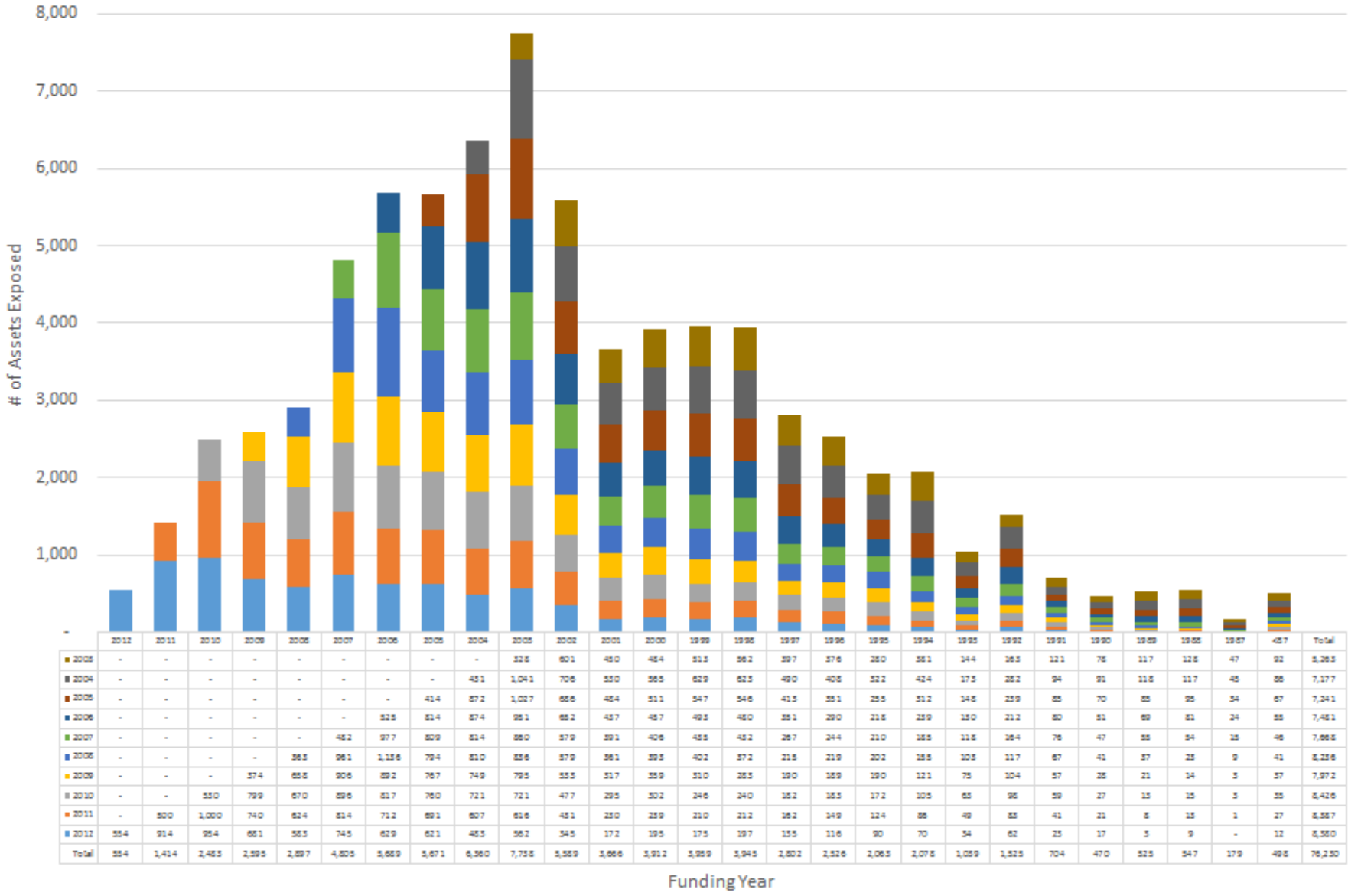

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	457	Total
2005	-	-	-	-	-	-	-	-	-	526	601	460	464	515	562	597	576	260	561	144	165	121	76	117	128	47	92	5,265
2004	-	-	-	-	-	-	-	-	451	1,041	706	550	565	629	625	490	406	322	424	173	282	94	91	118	117	45	88	7,177
2005	-	-	-	-	-	-	-	414	872	1,027	686	464	511	547	546	415	551	255	512	148	239	88	70	88	96	34	67	7,241
2006	-	-	-	-	-	-	525	814	874	951	652	457	457	493	480	551	290	216	259	150	212	80	51	69	81	24	55	7,461
2007	-	-	-	-	-	462	977	809	814	860	579	391	406	455	452	267	244	210	165	118	164	76	47	55	54	15	46	7,665
2008	-	-	-	-	565	961	1,136	794	610	836	579	361	393	402	372	215	219	202	155	105	117	67	41	37	25	9	41	8,256
2009	-	-	-	574	655	906	892	767	749	795	553	317	359	310	265	190	169	190	121	75	104	57	28	21	14	5	37	7,972
2010	-	-	530	799	670	896	817	760	721	721	477	295	302	246	240	182	165	172	105	65	98	59	27	15	15	5	38	8,426
2011	-	500	1,000	740	624	814	712	691	607	616	451	250	259	210	212	162	149	124	86	49	83	41	21	8	15	1	27	8,387
2012	554	914	964	661	583	745	629	621	485	562	345	172	195	175	197	155	116	90	70	54	62	25	17	5	9	-	12	8,380
Total	554	1,414	2,493	2,995	2,897	4,805	5,669	5,671	6,560	7,758	5,569	3,666	3,912	3,959	3,945	2,802	2,526	2,063	2,076	1,059	1,525	704	470	525	547	179	498	76,250

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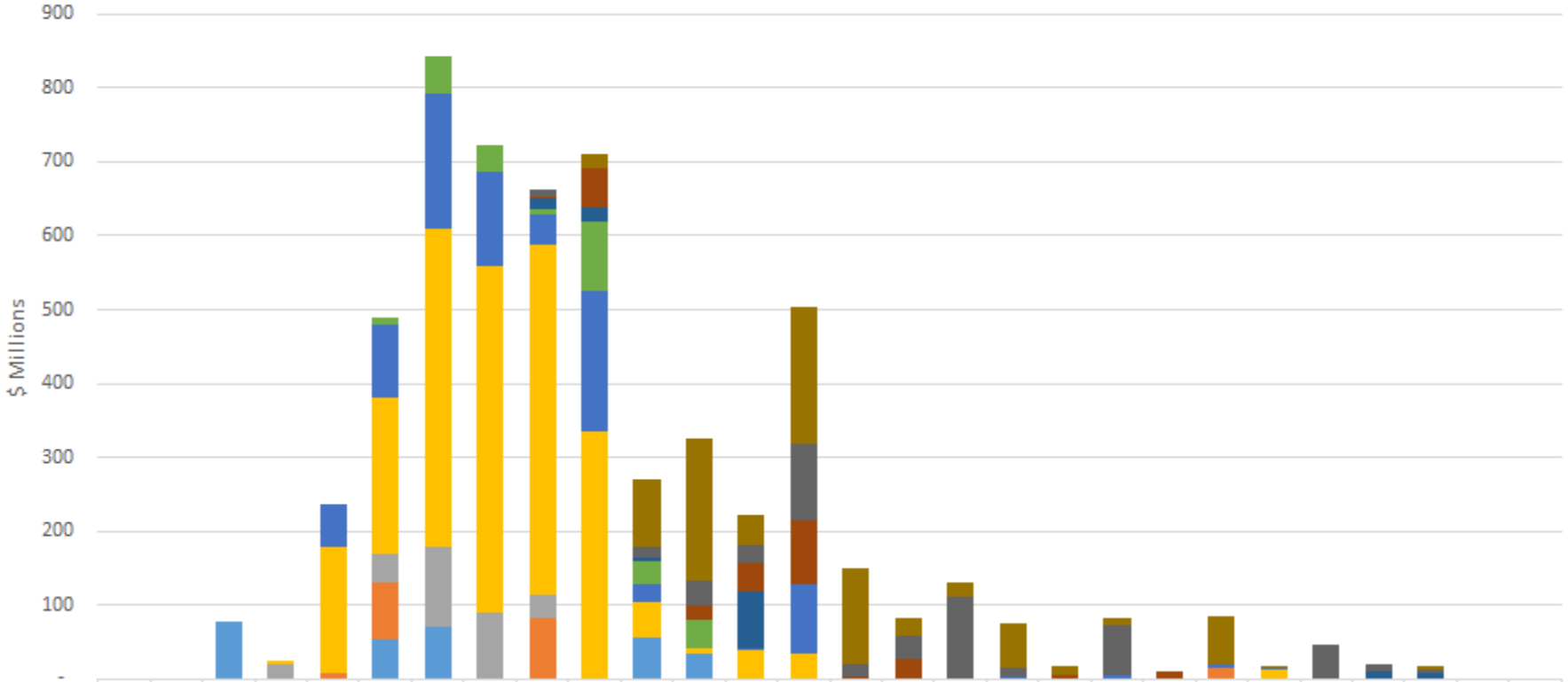

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	<87	Total
2003	-	-	-	-	-	-	-	-	-	20	91	191	40	186	130	24	19	60	11	11	-	64	0	-	-	5	-	853
2004	-	-	-	-	-	-	-	-	11	-	15	34	24	105	18	32	111	12	2	66	-	-	-	46	9	6	-	491
2005	-	-	-	-	-	-	-	-	1	53	-	19	39	86	2	26	-	-	3	-	9	-	1	-	-	0	-	240
2006	-	-	-	-	-	-	-	-	15	20	4	-	75	-	0	-	-	-	1	-	-	-	-	-	11	7	-	133
2007	-	-	-	-	-	10	50	35	8	98	31	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	266
2008	-	-	-	-	58	99	183	129	40	190	25	-	2	94	-	1	-	3	-	7	-	5	2	-	-	-	-	837
2009	-	-	-	6	171	213	432	468	473	335	49	8	40	35	-	-	-	-	-	-	-	-	12	-	-	-	-	2,240
2010	-	-	-	20	-	37	108	90	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	286
2011	-	-	-	-	9	78	2	-	83	-	-	-	-	-	-	-	-	-	-	-	-	15	0	-	-	-	-	187
2012	-	-	77	0	-	53	69	-	-	-	55	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	288
Total	-	-	77	26	237	489	843	721	663	711	270	324	221	504	150	82	130	75	17	83	9	84	16	46	20	18	-	5,819

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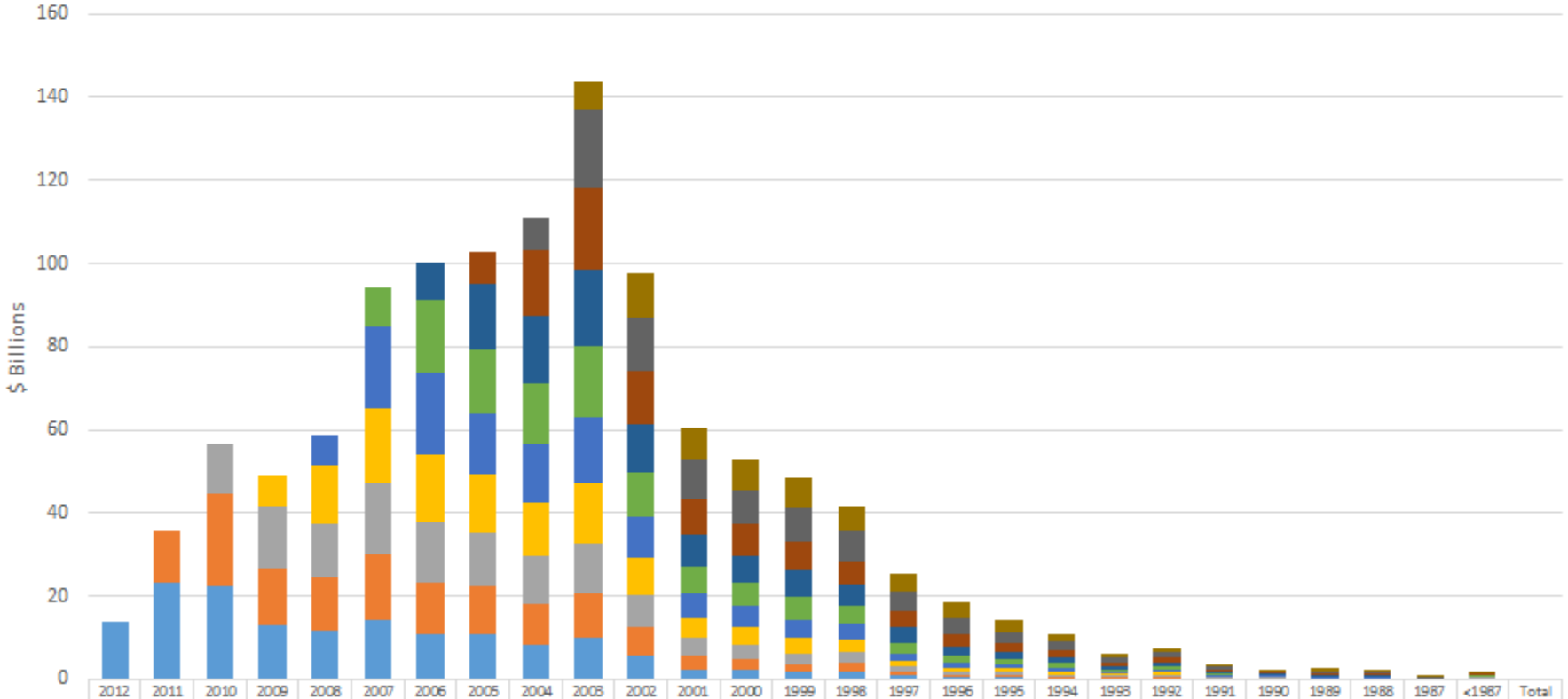

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	<1987	Total
2003	-	-	-	-	-	-	-	-	-	7	11	8	7	7	6	4	4	3	2	1	1	1	0	1	0	0	0	62
2004	-	-	-	-	-	-	-	-	8	19	13	9	8	8	7	5	4	3	2	1	1	1	0	1	0	0	0	91
2005	-	-	-	-	-	-	-	8	16	19	13	9	8	7	6	4	3	2	2	1	1	1	0	0	0	0	0	100
2006	-	-	-	-	-	-	9	16	16	19	12	8	7	6	5	4	2	1	1	1	1	0	0	0	0	0	0	109
2007	-	-	-	-	-	10	17	15	15	17	11	7	6	5	4	3	2	1	1	1	1	0	0	0	0	0	0	116
2008	-	-	-	-	8	19	20	15	14	16	10	6	5	5	4	2	1	1	1	1	1	0	0	0	0	0	0	127
2009	-	-	-	7	14	18	16	14	13	14	9	5	4	3	3	1	1	1	1	0	1	0	0	0	0	0	0	127
2010	-	-	12	15	13	17	14	13	12	12	8	4	3	3	3	1	1	1	0	0	0	0	0	0	0	0	0	133
2011	-	12	23	14	13	16	12	12	10	11	7	3	3	2	2	1	1	1	0	0	0	0	0	0	0	0	0	142
2012	14	23	22	13	12	14	11	11	8	10	6	2	2	2	2	1	0	0	0	0	0	0	0	0	0	-	0	154
Total	14	35	56	49	59	94	100	103	111	144	98	60	53	48	42	25	19	14	11	6	7	4	2	2	2	0	2	1,161

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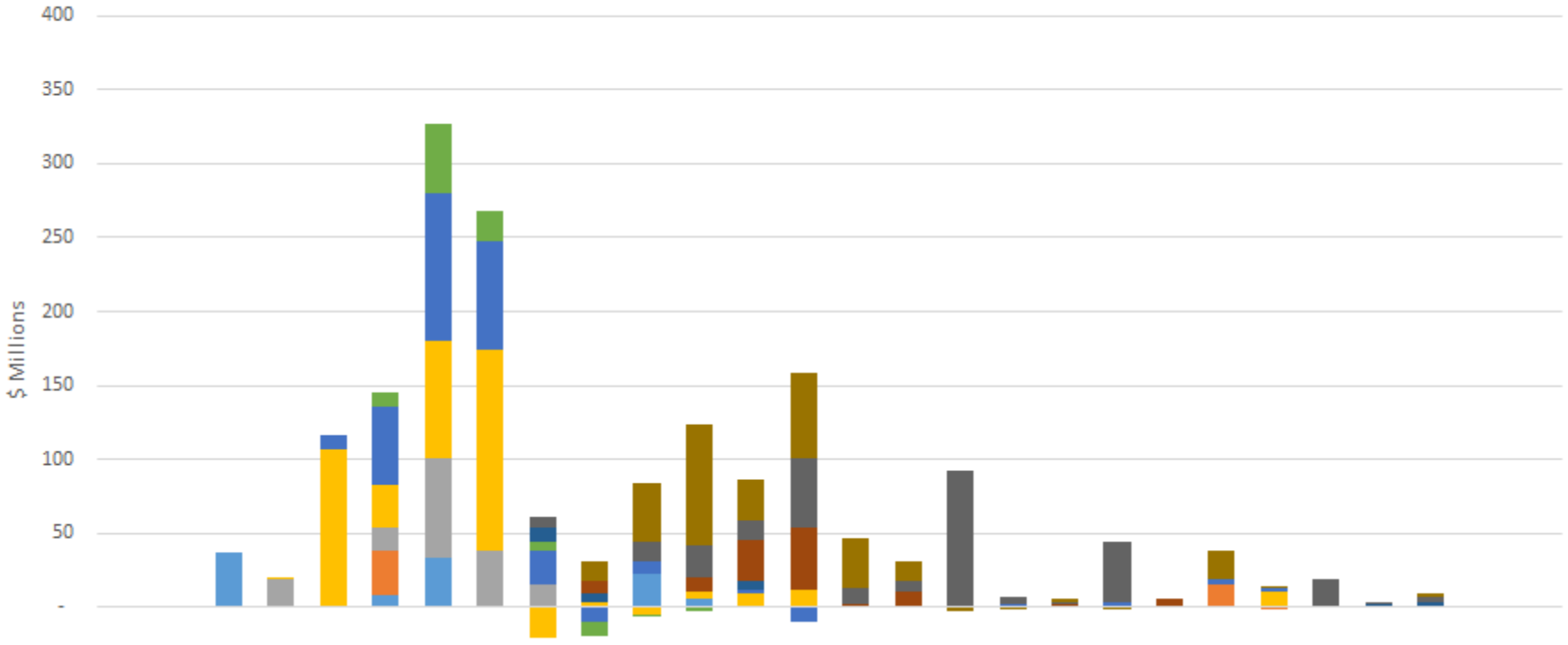

	2012	2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997	1996	1995	1994	1993	1992	1991	1990	1989	1988	1987	<87	Total
2003	-	-	-	-	-	-	-	-	-	13	40	83	27	58	33	14	(3)	(1)	2	(1)	-	19	0	-	-	2	-	286
2004	-	-	-	-	-	-	-	-	8	-	13	21	14	46	11	7	92	5	1	41	-	-	-	19	0	4	-	283
2005	-	-	-	-	-	-	-	-	0	8	-	9	28	43	2	10	-	-	2	-	6	-	0	-	-	0	-	107
2006	-	-	-	-	-	-	-	-	10	6	1	-	6	-	0	-	-	-	0	-	-	-	-	-	1	3	-	27
2007	-	-	-	-	-	10	46	20	6	(11)	(0)	(3)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68
2008	-	-	-	-	9	52	100	74	22	(10)	8	-	2	(10)	-	1	-	2	-	3	-	4	2	-	-	-	-	259
2009	-	-	-	2	106	29	79	136	(20)	3	(5)	5	9	11	-	-	-	-	-	-	-	-	11	-	-	-	-	367
2010	-	-	-	19	-	15	67	38	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	154
2011	-	-	-	-	1	31	0	-	1	-	-	-	-	-	-	-	-	-	-	-	-	15	(0)	-	-	-	-	49
2012	-	-	37	0	-	8	33	-	-	-	23	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	106
Total	-	-	37	21	116	145	326	268	41	10	79	121	86	148	46	31	89	5	6	43	6	38	13	19	2	9	-	1,706

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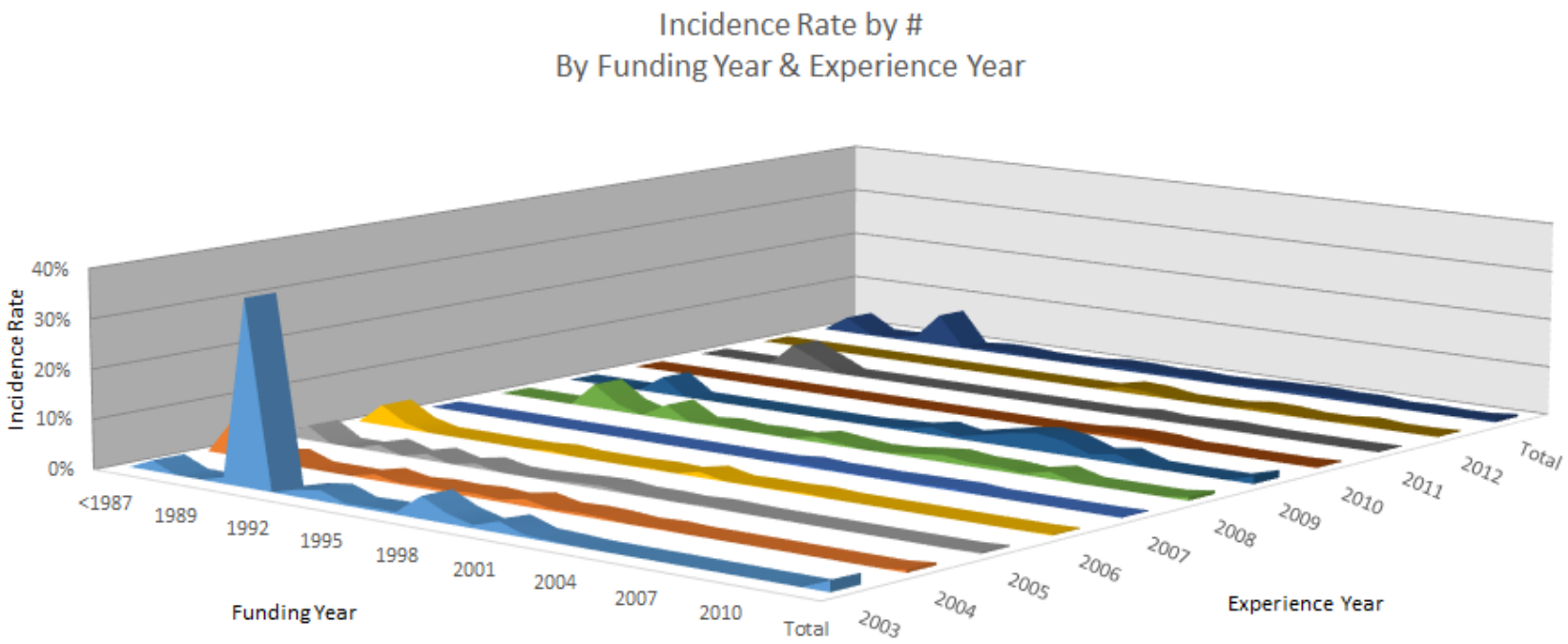

	<1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
2003	0.00%	2.13%	0.00%	0.00%	1.29%	37.22	0.00%	1.39%	2.10%	0.36%	0.53%	0.50%	4.45%	1.95%	0.62%	2.22%	0.50%	0.30%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.17%
2004	0.00%	6.65%	0.85%	1.69%	0.00%	0.00%	0.00%	1.15%	0.24%	0.62%	0.49%	0.82%	0.48%	1.43%	0.35%	0.57%	0.42%	0.00%	0.23%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.53%
2005	0.00%	2.94%	0.00%	0.00%	1.44%	0.00%	1.25%	0.00%	0.96%	0.00%	0.00%	0.24%	0.55%	0.73%	0.20%	0.21%	0.00%	0.29%	0.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.30%
2006	0.00%	4.17%	1.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%	0.00%	0.00%	0.00%	0.21%	0.00%	1.09%	0.00%	0.15%	0.11%	0.34%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.19%
2007	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.17%	0.23%	0.12%	0.25%	0.31%	0.41%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%
2008	0.00%	0.00%	0.00%	0.00%	4.90%	1.48%	0.00%	2.90%	0.00%	0.50%	0.00%	0.23%	0.00%	1.11%	0.51%	0.00%	0.26%	0.91%	1.42%	0.78%	0.79%	0.31%	1.45%	0.00%	0.00%	0.00%	0.00%	0.70%
2009	0.00%	0.00%	0.00%	0.00%	3.52%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.32%	0.56%	1.58%	0.56%	1.71%	2.82%	3.57%	2.89%	0.99%	1.80%	0.07%	0.00%	0.00%	0.00%	1.52%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.14%	0.66%	0.86%	0.67%	0.00%	0.13%	0.00%	0.00%	0.00%	0.24%
2011	0.00%	0.00%	0.00%	0.00%	4.76%	2.47%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.49%	0.00%	0.14%	0.37%	0.16%	0.00%	0.00%	0.00%	0.00%	0.12%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.16%	0.87%	0.00%	0.00%	0.00%	0.64%	0.53%	0.00%	0.00%	0.52%	0.00%	0.00%	0.21%
Total	0.00%	3.35%	0.37%	0.38%	1.28%	6.68%	0.20%	0.67%	0.63%	0.19%	0.16%	0.27%	0.81%	0.72%	0.38%	0.63%	0.28%	0.36%	0.67%	0.71%	0.88%	0.56%	0.62%	0.05%	0.20%	0.00%	0.00%	0.56%

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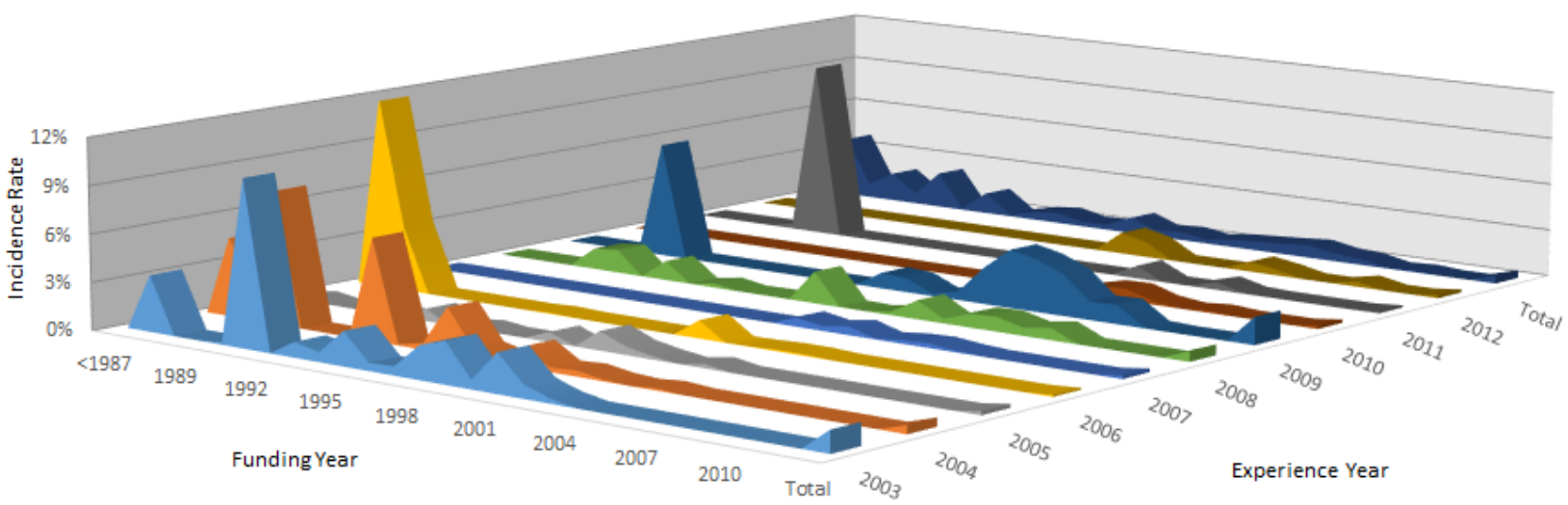

	<1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
2003	0.00%	3.53%	0.00%	0.00%	0.16%	10.44	0.00%	0.98%	0.62%	2.15%	0.49%	0.58%	2.10%	2.64%	0.58%	2.49%	0.85%	0.29%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.37%
2004	0.00%	4.93%	2.34%	8.37%	0.00%	0.00%	0.00%	6.39%	0.09%	0.43%	2.89%	0.66%	0.26%	1.28%	0.28%	0.37%	0.11%	0.00%	0.14%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.54%
2005	0.00%	0.25%	0.00%	0.00%	0.28%	0.00%	0.78%	0.00%	0.18%	0.00%	0.00%	0.63%	0.04%	1.21%	0.52%	0.22%	0.00%	0.27%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.24%
2006	0.00%	12.17	4.05%	0.00%	0.00%	0.00%	0.00%	0.00%	0.08%	0.00%	0.00%	0.00%	0.00%	0.00%	1.14%	0.00%	0.04%	0.11%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%
2007	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.58%	0.30%	0.55%	0.05%	0.23%	0.29%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.23%
2008	0.00%	0.00%	0.00%	0.00%	1.33%	1.49%	0.00%	1.24%	0.00%	0.27%	0.00%	0.04%	0.00%	2.02%	0.05%	0.00%	0.25%	1.20%	0.29%	0.88%	0.92%	0.51%	0.77%	0.00%	0.00%	0.00%	0.00%	0.66%
2009	0.00%	0.00%	0.00%	0.00%	7.35%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.00%	0.90%	0.17%	0.54%	2.32%	3.70%	3.33%	2.65%	1.17%	1.23%	0.08%	0.00%	0.00%	0.00%	1.76%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.27%	0.70%	0.74%	0.21%	0.00%	0.14%	0.00%	0.00%	0.00%	0.22%
2011	0.00%	0.00%	0.00%	0.00%	0.33%	11.22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.01%	0.50%	0.07%	0.00%	0.00%	0.00%	0.00%	0.13%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.37%	0.97%	0.00%	0.00%	0.00%	0.64%	0.37%	0.00%	0.00%	0.35%	0.00%	0.00%	0.19%
Total	0.00%	3.91%	0.97%	1.87%	0.71%	2.32%	0.13%	1.36%	0.16%	0.53%	0.70%	0.32%	0.36%	1.04%	0.42%	0.54%	0.28%	0.49%	0.60%	0.70%	0.84%	0.52%	0.40%	0.05%	0.14%	0.00%	0.00%	0.50%

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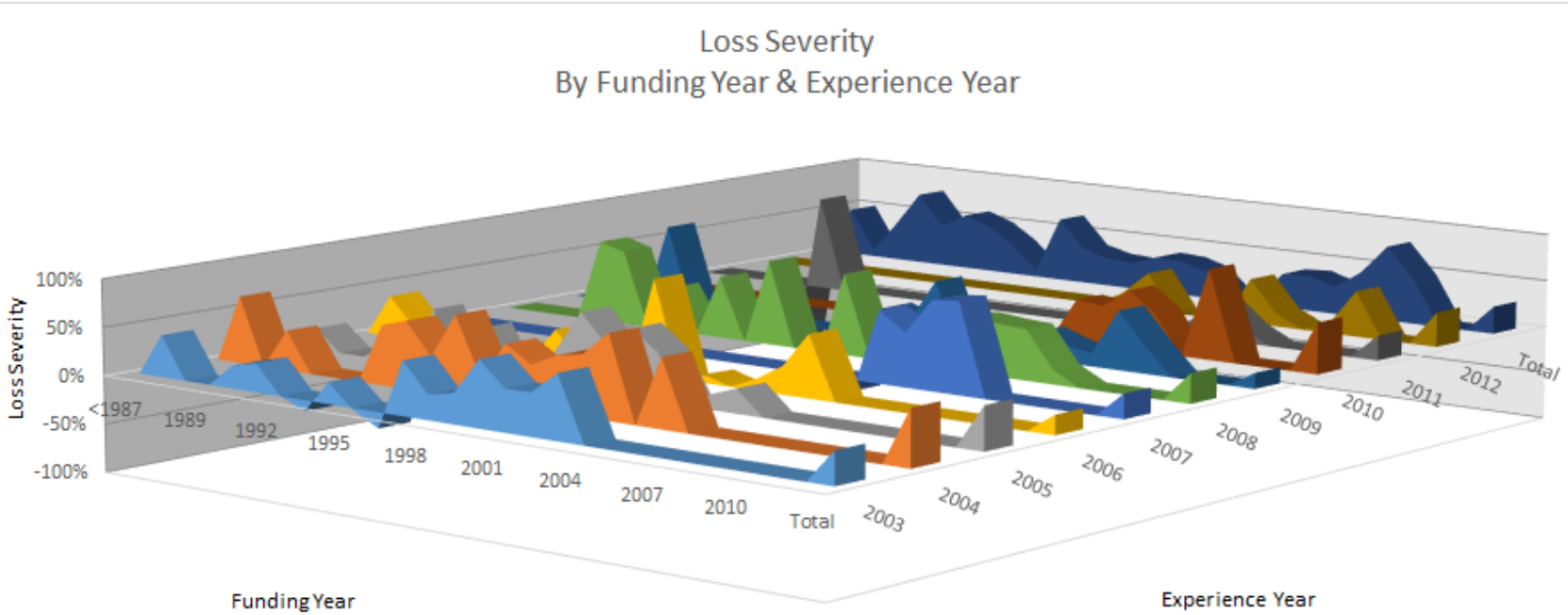

	<1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
2003	0%	43%	0%	0%	23%	30%	0%	-11%	22%	-2%	-16%	56%	26%	31%	68%	43%	44%	66%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34%
2004	0%	70%	1%	41%	0%	0%	0%	62%	70%	37%	83%	23%	61%	44%	57%	62%	87%	0%	71%	0%	0%	0%	0%	0%	0%	0%	0%	58%
2005	0%	23%	0%	0%	17%	0%	61%	0%	49%	0%	0%	38%	79%	50%	70%	50%	0%	15%	25%	0%	0%	0%	0%	0%	0%	0%	0%	45%
2006	0%	43%	14%	0%	0%	0%	0%	0%	33%	0%	0%	0%	100%	0%	8%	0%	12%	29%	65%	0%	0%	0%	0%	0%	0%	0%	0%	20%
2007	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	-1%	-11%	76%	56%	93%	96%	0%	0%	0%	0%	0%	26%
2008	0%	0%	0%	0%	86%	78%	0%	47%	0%	65%	0%	89%	0%	-11%	85%	0%	33%	-5%	55%	58%	55%	53%	15%	0%	0%	0%	0%	31%
2009	0%	0%	0%	0%	90%	0%	0%	0%	0%	0%	0%	0%	0%	33%	24%	68%	-10%	1%	-4%	29%	18%	14%	62%	29%	0%	0%	0%	16%
2010	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	46%	42%	62%	42%	0%	95%	0%	0%	0%	54%
2011	0%	0%	0%	0%	-68%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	17%	40%	15%	0%	0%	0%	0%	26%
2012	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	16%	41%	0%	0%	0%	48%	14%	0%	10%	49%	0%	0%	37%
Total	0%	52%	8%	41%	79%	46%	61%	51%	33%	7%	69%	38%	31%	29%	39%	37%	29%	1%	6%	37%	39%	30%	49%	81%	49%	0%	0%	29%

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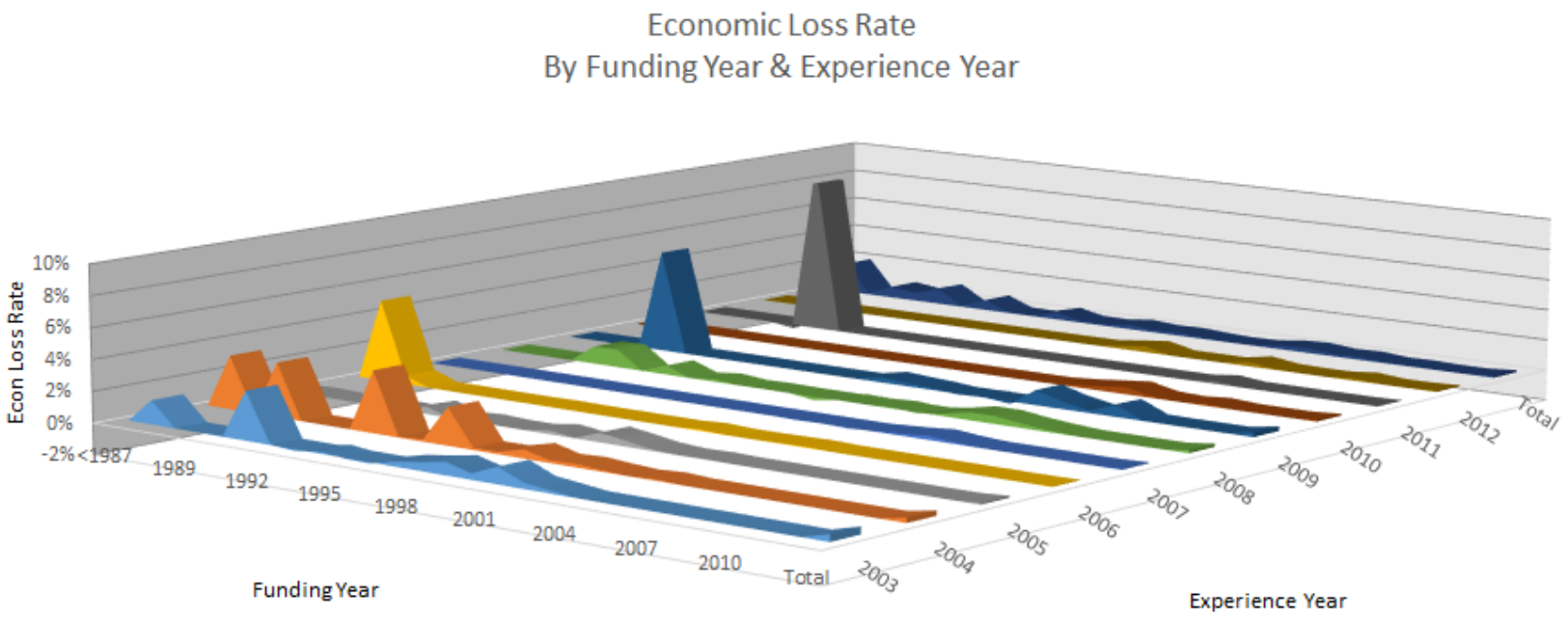

	<1987	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
2003	0.00%	1.53%	0.00%	0.00%	0.04%	3.11%	0.00%	-0.11	0.14%	-0.04	-0.08	0.32%	0.54%	0.82%	0.40%	1.07%	0.37%	0.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
2004	0.00%	3.43%	0.01%	3.47%	0.00%	0.00%	0.00%	3.94%	0.06%	0.16%	2.40%	0.15%	0.16%	0.57%	0.16%	0.23%	0.10%	0.00%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.31%
2005	0.00%	0.06%	0.00%	0.00%	0.05%	0.00%	0.47%	0.00%	0.09%	0.00%	0.00%	0.24%	0.03%	0.60%	0.37%	0.11%	0.00%	0.04%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.11%
2006	0.00%	5.23%	0.56%	0.00%	0.00%	0.00%	0.00%	0.00%	0.03%	0.00%	0.00%	0.00%	0.00%	0.00%	0.09%	0.00%	0.00%	0.03%	0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%
2007	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	-0.04	0.00%	-0.06	0.04%	0.13%	0.27%	0.10%	0.00%	0.00%	0.00%	0.00%	0.00%	0.06%
2008	0.00%	0.00%	0.00%	0.00%	1.15%	1.17%	0.00%	0.58%	0.00%	0.18%	0.00%	0.03%	0.00%	-0.22	0.04%	0.00%	0.08%	-0.06	0.16%	0.51%	0.50%	0.27%	0.12%	0.00%	0.00%	0.00%	0.00%	0.20%
2009	0.00%	0.00%	0.00%	0.00%	6.62%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%	0.21%	0.11%	-0.05	0.02%	-0.16	0.97%	0.49%	0.16%	0.76%	0.02%	0.00%	0.00%	0.00%	0.29%
2010	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.12%	0.30%	0.46%	0.09%	0.00%	0.13%	0.00%	0.00%	0.00%	0.12%
2011	0.00%	0.00%	0.00%	0.00%	-0.23	11.22	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.00%	0.00%	0.20%	0.01%	0.00%	0.00%	0.00%	0.00%	0.03%
2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%	0.39%	0.00%	0.00%	0.00%	0.31%	0.05%	0.00%	0.00%	0.17%	0.00%	0.00%	0.07%
Total	0.00%	2.02%	0.07%	0.77%	0.56%	1.06%	0.08%	0.70%	0.05%	0.04%	0.48%	0.12%	0.11%	0.31%	0.16%	0.20%	0.08%	0.01%	0.04%	0.26%	0.33%	0.15%	0.20%	0.04%	0.07%	0.00%	0.00%	0.15%

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Appendix V—Committee Members

The Committee and Society of Actuaries staff would like to extend a special thanks to all of the participating companies for their patience and hard work in making this report possible. Without their support, such research projects would not be possible. Their contributions led to the development of these analyses, which provide important experience for valuation, pricing and evaluation. A list of the participating companies is shown in Section 1 of this report.

We would also like to thank Brian Roelke, Shai Vichness and others from the insurance industry for their participation and private placement expertise.

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