



June 23, 2023

**VIA SERFF**

The Honorable Michael Humphreys  
Acting Insurance Commissioner  
Commonwealth of Pennsylvania  
Insurance Department  
1311 Strawberry Square  
Harrisburg, PA 17120

Attention: Mark Lersch, Director, Bureau of Property & Casualty Insurance  
Michael McKenney, Actuarial Supervisor, Bureau of Property & Casualty Insurance

**RE: PCRB Filing No. 340 – Experience Rating Plan Revisions Effective April 1, 2024**

Dear Commissioner Humphreys:

On behalf of the members of the Pennsylvania Compensation Rating Bureau (PCRB), we hereby submit a revised Experience Rating Plan (ERP) to be **effective 12:01 a.m., April 1, 2024**, with respect to new and renewal policies having Rating Effective Dates (RED) on or after that date.

Pertinent rating values consistent with the past approved filings are provided for Insurance Department review on the justification of the proposed ERP. These values are contained within the supporting information in the filing. Most importantly, this includes Table B, expected loss cost factors that underlie the ERP Table A values, and collectible premium ratios measuring the off-balance of the plan. The PCRB will provide updated values, as appropriate, with its annual loss cost filing, which is expected to be submitted later this year, with a proposed effective date of April 1, 2024. The PCRB hopes that the April 1, 2024, Loss Cost Filing can be prepared and submitted following a decision on this filing so that the structure of the April 1, 2024, ERP is a settled matter before submitting the annual loss cost filing.

An Actuarial Memorandum providing specific details supporting this filing and updated manual pages are included with this submission.

Thank you in advance for your prompt attention and review of this filing. The PCRB will be pleased to answer any questions or provide any available supplementary information that you or your staff may require. Please direct any questions to Brent Otto, Vice President of Actuarial Services and Chief Actuary.

Sincerely,

William V. Taylor  
President



To: The Honorable Michael Humphreys, Acting Insurance Commissioner

From: Brent Otto, FCAS, MAAA, Vice President of Actuarial Services and Chief Actuary

Date: June 23, 2023

Subject: PCRB Filing No. 340 – Experience Rating Plan Revisions  
Proposed Effective Date: April 1, 2024

This actuarial memorandum provides background, explanation, and impacts for the proposed changes to the Experience Rating Plan (ERP) to guide the Insurance Department's review of the filing.

### **Background**

As part of its annual loss cost filing in Pennsylvania, the Pennsylvania Compensation Rating Bureau (PCRB) prepares and submits exhibits showing the existing ERP's historical effectiveness for identifying risks deserving rating credits and debits. These exhibits also evaluate the consistency between the assigned credits/debits and the subsequent loss experience for those specific risks.

In the recent review, the PCRB recognized some deterioration in the performance and opportunities to enhance the plan. To improve the accuracy and performance of the plan to better incentivize workplace safety, the PCRB conducted a thorough multi-year research project and presented results at its annual Actuarial Research meetings over the past several years. This research and analysis aimed to identify areas where the current ERP could be refined and optimized to align it with the evolving dynamics and needs of the workers' compensation system.

The last major ERP revision was in 2004. The primary changes made then were moving from a variable split point plan to a single split point plan and implementing swing limits for capping to enhance year-to-year modification stability. In addition, updates were made to the credibility and expected loss ranges. However, our recent research and research performed in other states<sup>1</sup> generally indicated that the variable split point approach, coupled with higher levels of credibility, tends to yield better performance.

Through comprehensive research, the PCRB identified several opportunities for improvement in the ERP, which will result in the following benefits:

- Provides more accurate, fair, and predictive experience rating modifications
- Promotes and incentivizes workplace safety

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<sup>1</sup> New York Compensation Insurance Rating Board, *Technical Actuarial Support Memorandum*, [https://www.nycirb.org/officialdocs/exr/technical\\_actuarial\\_support\\_memorandum.pdf](https://www.nycirb.org/officialdocs/exr/technical_actuarial_support_memorandum.pdf)

Workers' Compensation Insurance Rating Bureau of California (March 2017) *Workers' Compensation Experience Rating California's 2017 Variable Split Plan*, [https://www.casact.org/sites/default/files/2021-02/education\\_underwriting\\_2017\\_presentations\\_cs20-2.pdf](https://www.casact.org/sites/default/files/2021-02/education_underwriting_2017_presentations_cs20-2.pdf)

National Council on Compensation Insurance, *Individual Risk Rating Working Group Minutes* (June 2021), *Experience Rating Plan Update-Performance Comparison*

- More accurately reflects the portion of primary loss and excess losses
- Mitigates the impact of isolated extreme claims on experience modification, especially for smaller risks
- Assigns more appropriate credibility that represents the level of confidence applied to a risk's claim experience
- Provides a better transition for smaller risks that may move between the ERP and the Merit Rating Plan
- Lowers the eligibility to bring more risks into the ERP, a better-performing plan, compared to the simplified Merit Rating Plan used for the smallest risks

Recognizing the potential for improvements to the ERP from this research, the PCRB is proposing several revisions to the current plan.

### **Description of the Current ERP**

The current ERP has been in use in substantially its current form for almost two decades and includes the following key components within its design:

**Experience Period:** The experience period for establishing an experience modification can generally be summarized as spanning no more than three (3) years, starting four (4) years prior to the target date and ending one (1) year prior to the target date.

**Eligibility:** A risk is eligible for experience rating under this Plan if the premium, determined by the audited payrolls or other exposures of the experience period, multiplied by the current PCRB loss costs, amounts to \$10,000 or more.

**Credibility:** The credibility in the experience rating modification calculation represents the weight assigned to actual losses. As the size of the employer increases, the credibility also increases. Under the current plan, the credibility ranges from about 28% to 94%.

**Expected Losses:** The expected loss rates are the average losses per \$100 of payroll by classification, which are used in the experience rating calculations for policies. The payroll in the experience period is multiplied by the Expected Loss Rates (ELRs) to calculate the total expected ratable losses for determining the experience modification factor (mod). These rates are the basis to which an employer's actual losses are compared within the Experience Rating Plan.

**Maximum Primary Loss Value (Split Point):** In the experience rating formula, an employer's primary component of actual losses and excess component of expected losses are used. The threshold amount that segregates losses into the primary component is the same at \$42,500 regardless of the size of the risk. All claims reported as part of a catastrophe event (e.g., COVID-19 claims) are excluded from the ERP.

**Formula:** An arithmetic formula is used to compute experience modifications. The current ERP formula is as follows:

$$\frac{A_p \times C + E \times C \times L + E(1.000 - C)}{E}$$

E

Where,

Ap = Actual primary losses as tabulated in accordance with rules of the ERP, including the applicable split point for limiting losses

E = Expected losses for the risk computed for the applicable experience period

C = Credibility factor obtained from Table B based on the expected losses calculated for the application experience period

L = Limit Charge ratio obtained from Table B. This is applied to the expected losses to determine what percentage of those expected losses are considered excess losses.

### **Formula Components Testing**

**Experience Period:** The experience period utilized in the current ERP aligns closely with industry standards observed in various jurisdictions nationwide. While the PCRB remains open to exploring the potential impact of alternative experience periods in the future, no specific testing or analysis of such alternatives was warranted at present.

**Eligibility:** Results of lowering the minimum qualifications for experience rating from the current and historical levels were tested. If a risk does not qualify for the ERP, they typically qualify for the Merit Rating Plan. Merit rating is designed to provide a pricing mechanism for the smallest risks. Under the Merit Rating Plan, small businesses can take advantage of incentives and premium savings by operating a safe workplace. In general, however, the ERP more adequately incentivizes safety and risk management by holding organizations more accountable for their loss experience. This creates a sense of responsibility, which is intended to drive risk management activities to maintain a safer work environment. The PCRB is proposing a change in the eligibility threshold, reducing it from \$10,000 to \$5,000. This change is estimated to shift 11% more risks from the Merit Rating Plan to the ERP as shown in Exhibit 9. Exhibit 10 displays the distribution of small risks with premiums ranging from \$5,000 to \$10,000. These risks are currently merit rated under the current plan, however, would be eligible for the Experience Rating Plan under the proposed eligibility. The analysis reveals that approximately 85% of these risks will receive a modification lower than 0.95 due to these risks being loss free and will experience a lower premium adjustment compared to the merit rating plan. Additionally, around 1,900 of these small risks are subject to the capping procedure as part of the experience rating calculation.

**Credibility:** The performance test of the current ERP reveals that the current plan insufficiently assigns credibility to a risk's individual experience. In the proposed plan, credibility starts at 69%, a significant increase compared to the current lowest level of 28.2% as shown in Exhibit 6. The primary reason for allowing a significant increase in the credibility for smaller risks is the concurrent implementation of significantly lower split points for smaller risks. The credibility levels for larger risks remain more similar to the current plan.

**Limit Charge:** The limit charge is calculated using the established excess loss factor calculation, utilizing empirical data from the experience period, and is updated on an annual basis. The proposed plan maintains the existing methodology for calculating the limit charge.

**Expected Losses:** The ranges of expected losses were optimized simultaneously with the other variables to improve plan performance with the results shown in Exhibit 2.<sup>2</sup> The overall range starts

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<sup>2</sup> Exhibit 2 shows the fitted expected losses that have been selected from the curve fit. These fitted values are later fine-tuned through the optimization process.

at a lower value due to the lowering of the eligibility threshold and the highest value is also lower compared to the current plan.

**Maximum Primary Loss Value (Split Point):** A variable split point plan, which varies based on the size of the risk, is proposed. As a risk's expected losses increase, the variable split point applied to individual claims also increases as shown in Exhibit 5. This effectively recognizes the fact that larger risks tend to have higher absolute losses compared to smaller employers due to the scale of their operations. It also provides a truer reflection of an employer's exposure to risk. By adjusting the split point, the plan considers the varying loss potentials associated with different-sized employers. This ensures that the experience modification factor represents the employer's true risk profile, enabling more precise premium calculations. The proposed split points range from \$10,000 to \$300,000.

**Formula:** The credibility assignments and split points proposed in this filing are applied using the current experience rating modification formula. The focus of the research was first to see if the current parameters could be optimized to achieve target plan performance while maintaining the current formula. The PCRB believes this result was achieved. While formulas in other jurisdictions were reviewed, the variable split point plans with higher credibility levels showed consistently stronger performance compared to others. As noted above, other independent research generally showed that additional benefits could be achieved with the use of a variable split point plan compared to a single split point plan. Further review of states with variable split point plans determined that our current formula would be identical to the ones in other states when credibility is set at 100%. This indirectly provides validation and support for the proposed changes that result in higher credibility values and for maintaining the current formula.

### **Determination of Credibility and Loss Limits**

Data was gathered for Policy Years 2015, 2016, 2017, and 2018. The optimization process was performed using the years 2015-2017, and 2018 was used as the "holdout" dataset for testing purposes. First, optimal credibility and split points needed to be found, so risks were grouped into cohorts based on the risk's expected losses in the experience period. Each cohort was then examined using an array of split points at a given credibility. The performance of each split point at a given credibility was tested using a test statistic defined as:

$$\frac{\textit{Variance in modified loss ratios}}{\textit{Variance in manual loss ratios}}$$

This test statistic is a widely used metric for evaluating the performance of ERPs. A lower test statistic indicates a better-performing result. It is derived to measure the maximum dispersion in the manual loss ratio (loss ratio before the application of the mod) and the minimum dispersion in the modified loss ratio (loss ratio after the application of the mod). The plan is deemed "optimized" when the test statistic reaches its lowest value. This optimization process was conducted across the three sets of experience periods (2015, 2016, and 2017).

Exhibit 1 presents heatmaps illustrating the test statistics for each cohort. These heatmaps consider various credibility levels and split points within each cohort. In each cohort, a total of 20 credibility levels and 39 split points were utilized resulting in the calculation of 780 test statistics. The combinations were considered optimized when the test statistic reached its lowest possible value. Within each cohort, the combinations highlighted in pink represent the 5% lowest test statistics. These highlighted combinations serve as the basis for identifying the optimal credibility and split points in the subsequent steps.

Second, the optimal credibility and split points needed to be determined. A curve fitting program was utilized, which fits curves to a set of optimal combinations identified in the previous step. Ultimately, the optimal credibility was calculated using the formula  $a + b \log(x) + c \log(x)^2 + d \log(x)^3 + e \log(x)^4 + f \log(x)^5$ , while the optimal split points were determined using the formula  $ax^5 + bx^4 + cx^3 + dx^2 + ex + f$ . Exhibits 2 and 3 display the final curves and the corresponding fitted values. These fitted values were further fine-tuned to attain the optimal result.<sup>3</sup>

Exhibits 4 and 5 in this filing present Table B credibility results and loss limits for the current and proposed plans, respectively. Exhibit 6 includes graphs comparing the final credibility curves between the two plans.

Similar to the current ERP, the proposed plan credibility assignments will continue to be determined based on expected losses attributed to each risk rated over the experience period. Through extensive testing of various credibility functions, the proposed ERP incorporates a credibility scale that has demonstrated superior or comparable performance in calculating experience modifications compared to other alternatives evaluated. Significant changes in credibility values can be observed for smaller experience rated risks, where the previous starting point of 28.3% has been increased to 69.0%. Credibility assignments increase with employer size in both the current and proposed ERPs. Under the proposed ERP, credibility values will reach a maximum of 97.4%, compared to 93.8% under the current plan. It was deemed that no individual risk would be considered fully credible.

The current ERP applies a single split point of \$42,500 across all sizes of employers. In the proposed ERP, variable split points were determined based on risk size ranging from \$10,000 to \$300,000.

By increasing the credibility starting point and varying the split point, the proposed ERP becomes more sensitive to the claim frequency for smaller employers compared to the current ERP. Therefore, this reduces the sensitivity to the claim severity for the smaller employers. For larger employers, the proposed ERP maintains a similar level of credibility, but adjusts the split point, resulting in enhanced responsiveness to claim severity.

### **Impact of Medical-Only Claims**

The experience rating modification is intended to predict an employer's future loss experience using its historical loss experience. For instance, an experience rating modification of 0.80 indicates an expectation that the employer's future loss experience will be 20% better than the average employer in the same classification. The experience rating modification aims to incorporate the employer's past loss experience to the extent that it is deemed predictive of future losses. To evaluate the influence of Medical-Only claims on the experience modification factors, performance testing was conducted by varying the Medical-Only claim amounts included in the calculation. The results, as shown in Exhibit 7, indicate that including 100% of Medical-Only claims resulted in the best performance (highest lift and lowest efficiency test). While the other scenarios did not necessarily result in poor performance, they did not improve the performance. Based on this, and the fact that the current plan includes 100% of the Medical-Only claims, there was not adequate statistical support to change the current approach. In addition, recent industry research showed that Medical-Only claims have significant predictive value.<sup>4</sup> Other states limit the amount of Medical-Only claims to incentivize the

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<sup>3</sup> Credibilities were also adjusted to meet the following three necessary criteria.

- a. Credibility must be greater than or equal to zero and less than or equal to 1.00.
- b. Credibility should increase as the size of expected losses underlying the actuarial estimate increases.
- c. Credibility should increase at a non-increasing rate.

<sup>4</sup> NCCI's Experience Rating Plan review revealed that scaling up medical-only losses in the current mod calculation increases the mod's predictive power. For further details regarding the impact of Medical-Only

reporting of these claims. The PCRB, however, could not find studies that support this argument and believes that such benefit, if any exists, is minimal.

### **Comparison of Performance for the Current and Proposed Plans**

In the evaluation of the experience rating plans, the commonly used quintile test was used to assess performance. This test involves dividing risks into five equal-sized groups, or quintiles, based on experience modification factors. The performance of the ERP is tested by examining the manual loss ratios and the modified loss ratios.

The ideal quintile test results in modified loss ratios for all quintiles equal to unity (or 100%), indicating that the experience modification factor appropriately accounts for all of the differences in loss experience among risks grouped within the same quintile. This achieves underwriting results that remain consistent regardless of the modification values assigned to different risks. Due to normal volatility within this type of dataset, the ideal result is rarely achieved. Therefore, a target performance goal was set such that all five quintiles would be within +/-5% of unity.

The current ERP performance (Exhibit 8) showed that the quintile test still yielded upward sloping modified loss ratios by quintile. For example, while both quintiles 1 and 5 moved towards unity, they did not move "far enough" to be within the target range of +/-5%. This outcome was considered undesirable as it suggests that the current rating plan does not adequately adjust premiums for all risks. Risks with high modification factors are generally too low, while risks with low modifications are generally too high.

The proposed variable split point plan, coupled with the revised credibility approach, results in a notable improvement in accuracy and predictive power. Analyzing the modified loss ratios across the five quintiles using the current \$10,000 eligibility requirement (Exhibit 11) and the proposed \$5,000 eligibility requirement (Exhibit 12) showed that, for the combined policy year periods, the quintile results were both within +/-3% deviation from unity. This is a key result since it demonstrates that lowering the eligibility did not change the performance testing and the reasonableness of the plan when used with smaller risks.

This outcome demonstrates the effectiveness of the variable split point plan by appropriately reflecting the variations in risk and loss experience among different experience groups. Achieving the target deviation ranges indicates that the modified loss ratios align closely with the expected levels, highlighting the plan's ability to fairly adjust premiums for all risks regardless of class or size.

### **Capping Rules**

Capping rule changes are being proposed to replace the current +/-25% swing limits and the secondary capping rule<sup>5</sup>. Given that the majority of observed volatility is from upward changes in modification factors, especially for small risks, the proposed capping rules introduce what is commonly referred to in other states as a maximum modification formula. In addition, the proposed plan will retain only an upward swing limit of +40% and no secondary capping. The formula for the maximum modification is shown in Exhibit 13 and is as follows:

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claims, refer to the NCCI's Individual Risk Rating Working Group Minutes (February 2019), titled "Experience Rating Plan Update: Exploration of Treatment of Small Claims."

<sup>5</sup> If the indicated modification is less than unity (1.000) and the capped modification is greater than unity (1.000), then the final modification shall be set equal to unity (1.000).

$$\text{Max Mod} = 1.10 + 0.0004 \times (E / G)$$

where E = Expected Loss, G = State Average Cost Per Claim / 1,000

The maximum modification sets the upper limit for the experience modification factor that can be assigned to a risk. The G value represents the state average cost per claim (in thousands of dollars) for losses used in experience rating. A value of 10 was calculated based on averaging data from the five policy years, as shown in Exhibit 14. Exhibit 15 presents a scatterplot illustrating individual indicated modifications along with a line representing the maximum modification factors. Analysis of Policy Years 2017 and 2018 data reveals that approximately 5% of risks are subject to the maximum modification limit. This approach brings added stability to small risks that will be capped by the maximum modification factor. Under the current plan, those risks might see increases as high as 100% over three years in some cases.

Exhibit 16 shows the distribution of risks by the size of expected losses. The number of risks within the circles represents the projected risks capped by the maximum modification, calculated using the formula above. This is the same formula used by the NCCI. Approximately 5% of the risks are capped by the maximum modification.

Furthermore, the proposed plan balances stability and responsiveness with the application of the capping rules. Since losses can never be below zero, but often can be very large, it makes sense that most of the volatility is seen in the upward movement of modifications. The maximum modification formula addresses this volatility for smaller risks, while the +40% swing limit will address any smaller levels of potential upward volatility, primarily on larger risks. This swing limit will be applied if the modification factor, after the application of the maximum modification, exceeds a +40% increase from the prior modification factor. This capping measure is estimated to impact about 3% of the risks (Exhibit 17) and acts as a safeguard by limiting the influence of a single large claim or a few adverse claims on a risk's premium and allows the modification factor to move to the indicated level over multiple years.

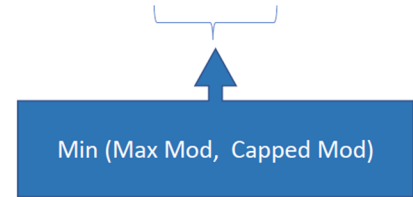
### **Transition Rules**

When this type of plan contains more significant changes beyond yearly updates, more dramatic movements in the indicated experience modifications are expected to be seen for some risks. To manage substantial changes (both upward and downward) in experience modifications resulting from the adoption of the proposed plan, a two-year transition rule will be implemented. The current capping rules, which include the +/-25% swing limits and secondary capping, will remain in effect, along with the use of the maximum modification formula throughout this two-year transition period. When the experience modification determined by the existing capping rule exceeds the maximum modification allowed, the lower of the two modifications will be selected as the final experience modification. This transitional approach ensures a smooth adjustment to the proposed plan and prevents extreme fluctuations in the modification factors during the initial phase and until all risks reach their indicated modification under the proposed plan. The examples below show how a risk would be capped both during the "Transition" period and, assuming the same scenario occurred, "After Transition" has ended in year three.



### Capping Examples

Scenario	Expected Loss	Prior Mod	Indicated	Capped Mod	Max Mod	Final Capped Mod YR 1	Final Capped Mod YR 2
Transition	\$10,000	1.02	1.60	1.28 (+25%)	1.50	1.28	1.50
After Transition	\$10,000	1.02	1.60	1.43 (+40%)	1.50	1.43	1.50



### Impacts Resulting from the Proposed ERP

Exhibit 18 presents a comparison of the distribution of indicated modifications between the current and proposed plans. An important observation from the analysis is that risks currently categorized as credit modification types have the potential to receive lower experience modifications with the implementation of the proposed plan. This is observed in the exhibit, which shows a significant 16 percent decrease in the number of risks within the modification range of 0.8 to 1.0. The majority of these risks shifted to lower modification ranges, indicating a more favorable assessment of their loss experience. The rest of the movement is explained by risks moving to higher modification ranges like the 1.2-1.4 group. Based on this, the modifications for risks will be more widely distributed across the range of values, reflecting the varying levels of risk and loss experience among different employers.

Exhibit 19 provides an overview of the distribution of policy counts and premium. Overall, the distribution of modification types is expected to remain stable following the proposed change. A noteworthy observation regarding the impact on policy counts and premium due to the transition, is that approximately 3% of the credit risks shifted to debit modifications, while the premium for credit risks increased by 3% compared to the current plan. This is due to small credit risks, whose experience is worse than the average, receiving higher credibility, which shifts them to debit modifications under the proposed plan. Conversely, larger debit risks with better experience than average will receive larger credit modifications under the proposed plan. These findings highlight the proposed plan's ability to accurately assess and differentiate the experience of individual risks, leading to more appropriate modification assignments based on actual claim experience.

Exhibit 20 shows the change in the modification types resulting from the transition to the proposed plan and focuses on the risks that would move from credits to debits. Analyzing Policy Year 2018 data observed that 69% of credit risks would remain as credits and 24% of debit risks would remain as debits. A small percentage of credit risks, specifically 3.8%, would transition from credit to debit risks. Upon further investigation of this group, it was determined that 98% of them experienced a modest change of less than 15% when switching between risk types. Therefore, only 2% of risks within this group had a change greater than 15%. These findings indicate that most risks maintained their original rating type, and among those that experienced a transition, the majority saw manageable changes showing stability within the plan.

Exhibit 21 demonstrates the impact on premiums for the proposed plan. For the credit risks that remain as credit modifications, there is a decrease in premium of \$157 million. On the other hand, for the debit risks that remain as debits, there is an increase in premium of \$64 million. Impacts on premium for other risk moving categories, such as the 3.8% that moved from credit to debit

modifications, have been displayed for completeness. Overall, the transition to the proposed plan is estimated to decrease premiums by \$112 million.

Exhibit 22 displays the impact on the distribution of policies subject to the proposed capping procedures. During the transition period, 9% more risks are estimated to be capped by the transition rules or 16% in total being capped. No risks will experience a mod change exceeding 25% during the transition period or above 40% under the proposed capping rules. Without the transition rules, 7% of risks were estimated to have changes above 40% and another 3% above 25%. The capping rules bring stability for risks both during and after the transition period. Once the transition is complete, annual year-to-year changes are expected to be more stable under the proposed plan.

Unlike the prior impacts above that show the changes from the current plan to the proposed plan, Exhibit 23 simulates the mod and premium changes between Policy Years 2017 and 2018 as if the new plan was being used historically. Approximately 32% of risks experience a modification change ranging from -25% to 0%, which corresponds to 40% of the total premium. Additionally, about 57% of risks have a projected modification change ranging from 0% to 25%, accounting for 45% of the total premium. This simulated year-to-year result shows stable annual changes with 89% of the risks receiving between +/-25% changes accounting for 85% of the premium.

### **Collectible Premium Ratios**

Virtually all ERPs result in at least a nominal “off-balance” when applied to dynamic groups of insureds over time. As part of the annual loss cost filing process and to address off-balance in the ERP, adjustments are made to the manual loss costs, so that the average loss cost after experience rating is in balance with the indicated loss costs in the filing. Any change in premium resulting from the introduction of a proposed ERP would be offset with corresponding off-balance factors in the loss cost filing to maintain a revenue neutral position due to the proposed ERP. By making these adjustments, the plan aims to provide a fair and balanced assessment of an employer's risk and appropriately reflect their past loss experience in predicting future losses. The PCRБ has assessed the impact on the collectible premium ratios based on the data analyzed throughout the research conducted for this proposed plan. Exhibits 24a and 24b illustrate the average total collectible premium ratios under the current plan (1.0318) and the proposed plan (1.0657), respectively, highlighting the impact of these adjustments in achieving balance and accuracy in premium assessments. The difference in these factors represents the three-year average reduction in premium expected with moving to the proposed plan and estimates the change in loss costs required to keep the overall premium revenue neutral.

When considering the introduction of a proposed ERP, thorough testing is done to assess its impact. This evaluation encompasses the ERP's ability to produce fair modifications over time and its overall effect on the collectible loss costs. Exhibit 24c and 24d present a calculation of the expected loss cost factors (ELCFs) based on the current (Exhibit 24a) and proposed (Exhibit 24b) collectible premium ratios. The ELCFs, when applied to approved classification loss costs, produced ERP Table A values for use in generating expected losses used in the rating process.

### **Basic Manual Revisions**

Sections of the manual impacted by this proposed ERP have been updated to reflect the changes discussed in this memorandum and have been included in this filing. Changes to other rating programs often tied to the ERP, such as the Merit Rating Plan, have also been reviewed. Regarding the Merit Rating Plan, no changes were necessary since the eligibility language in the plan does not explicitly reference a premium eligibility value, but states:

“A risk shall qualify for application of the Merit Rating Plan if BOTH of the following conditions are met:

- a) The risk does not qualify for experience rating, and
- b) The risk has exposure greater than zero during each year of the Merit Rating Plan experience period as defined herein.”

### **Closing Comments and Qualifications**

The PCRB has intentionally submitted this filing substantially before the proposed effective date to assure that all necessary review and discussion of this proposal can be concluded in advance of its implementation. The PCRB and the Insurance Department would both benefit if the final structure of a proposed ERP and its associated rating values could be determined before the PCRB prepares and submits its April 1, 2024 Loss Cost Filing given the adjustments required to keep the pricing plans in balance. In this scenario, the PCRB would submit, and the Insurance Department could review a single set of loss costs reflecting both the necessary changes based on experience analysis and the technical adjustments warranted upon implementing the proposed ERP. For this described efficiency to be realized, a determination on this filing would be needed by early October 2023. Toward that mutual purpose, the PCRB looks forward to assisting the Insurance Department in any possible way as it reviews and considers this proposal.

This filing has been developed by and under the direction of Brent Otto, FCAS, MAAA and Peter Yoon, ACAS, MAAA. They both meet the Qualification Standards of the American Academy of Actuaries to provide the actuarial opinion contained within this filing.

Please direct all questions to:

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# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 5,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.558	0.574	0.591	0.609	0.627	0.644	0.663	0.686	0.704	0.725	0.746	0.768	0.792	0.815	0.839	0.865	0.885	0.917	0.940	0.970
2,000	0.382	0.385	0.405	0.428	0.453	0.473	0.499	0.539	0.553	0.582	0.612	0.646	0.676	0.713	0.753	0.785	0.821	0.863	0.909	0.953
3,000	0.256	0.281	0.301	0.321	0.344	0.368	0.394	0.421	0.451	0.482	0.514	0.553	0.591	0.631	0.676	0.723	0.770	0.823	0.879	0.938
4,000	0.240	0.251	0.265	0.281	0.299	0.319	0.341	0.367	0.402	0.431	0.460	0.495	0.534	0.578	0.625	0.679	0.734	0.791	0.856	0.925
5,000	0.193	0.201	0.211	0.223	0.237	0.257	0.278	0.301	0.335	0.357	0.399	0.430	0.472	0.518	0.570	0.626	0.691	0.755	0.831	0.911
6,000	0.166	0.170	0.176	0.185	0.196	0.211	0.235	0.251	0.276	0.306	0.339	0.377	0.423	0.470	0.524	0.582	0.649	0.724	0.808	0.899
7,000	0.188	0.184	0.183	0.187	0.192	0.202	0.216	0.233	0.253	0.280	0.310	0.346	0.388	0.435	0.489	0.551	0.620	0.699	0.788	0.888
8,000	0.223	0.213	0.205	0.202	0.202	0.205	0.214	0.225	0.242	0.264	0.291	0.323	0.363	0.409	0.462	0.524	0.596	0.677	0.771	0.878
9,000	0.254	0.237	0.224	0.214	0.209	0.207	0.210	0.218	0.231	0.248	0.272	0.302	0.340	0.383	0.436	0.499	0.571	0.656	0.755	0.869
10,000	0.296	0.275	0.252	0.236	0.225	0.218	0.216	0.220	0.228	0.241	0.260	0.287	0.323	0.364	0.415	0.477	0.551	0.638	0.741	0.860
11,000	0.338	0.307	0.281	0.260	0.242	0.230	0.223	0.220	0.224	0.234	0.250	0.273	0.306	0.345	0.395	0.457	0.532	0.621	0.726	0.851
12,000	0.385	0.346	0.313	0.286	0.263	0.245	0.233	0.226	0.225	0.230	0.244	0.264	0.294	0.330	0.379	0.439	0.514	0.604	0.713	0.844
13,000	0.433	0.389	0.350	0.317	0.286	0.263	0.245	0.235	0.230	0.231	0.239	0.255	0.283	0.318	0.364	0.423	0.498	0.589	0.701	0.837
14,000	0.484	0.433	0.387	0.347	0.312	0.284	0.261	0.245	0.235	0.233	0.238	0.251	0.275	0.306	0.351	0.409	0.484	0.576	0.690	0.830
15,000	0.526	0.470	0.418	0.372	0.333	0.299	0.272	0.252	0.238	0.231	0.233	0.243	0.265	0.294	0.337	0.394	0.469	0.562	0.679	0.823
16,000	0.580	0.516	0.458	0.406	0.361	0.322	0.291	0.265	0.247	0.237	0.235	0.241	0.260	0.286	0.327	0.383	0.457	0.550	0.669	0.817
17,000	0.634	0.562	0.497	0.440	0.389	0.345	0.308	0.279	0.256	0.242	0.236	0.239	0.255	0.279	0.318	0.372	0.445	0.539	0.659	0.810
18,000	0.697	0.619	0.545	0.482	0.426	0.376	0.334	0.299	0.272	0.253	0.243	0.243	0.255	0.276	0.312	0.364	0.436	0.530	0.651	0.806
19,000	0.755	0.667	0.590	0.519	0.456	0.401	0.354	0.315	0.283	0.261	0.248	0.244	0.253	0.271	0.305	0.355	0.426	0.519	0.642	0.799
20,000	0.814	0.720	0.632	0.556	0.488	0.427	0.376	0.332	0.297	0.270	0.253	0.245	0.251	0.267	0.298	0.348	0.418	0.510	0.634	0.795
21,000	0.924	0.820	0.724	0.637	0.559	0.492	0.432	0.381	0.339	0.306	0.282	0.269	0.270	0.280	0.307	0.352	0.418	0.509	0.631	0.789
22,000	0.986	0.872	0.770	0.677	0.601	0.521	0.456	0.400	0.358	0.317	0.289	0.273	0.271	0.278	0.305	0.347	0.411	0.502	0.624	0.787
23,000	1.055	0.934	0.822	0.723	0.633	0.555	0.484	0.423	0.372	0.331	0.300	0.280	0.275	0.278	0.301	0.341	0.405	0.494	0.618	0.782
24,000	1.122	0.990	0.870	0.764	0.668	0.585	0.509	0.444	0.390	0.343	0.309	0.285	0.276	0.278	0.297	0.336	0.398	0.487	0.611	0.778
25,000	1.184	1.045	0.919	0.806	0.703	0.613	0.533	0.464	0.405	0.355	0.318	0.290	0.280	0.278	0.294	0.332	0.392	0.481	0.605	0.774
30,000	1.517	1.330	1.163	1.014	0.881	0.763	0.658	0.565	0.487	0.418	0.362	0.320	0.293	0.279	0.285	0.312	0.366	0.451	0.577	0.754
40,000	2.257	1.954	1.691	1.460	1.257	1.078	0.920	0.782	0.662	0.556	0.456	0.395	0.341	0.295	0.287	0.295	0.334	0.408	0.534	0.724
50,000	3.078	2.634	2.256	1.925	1.645	1.399	1.185	1.000	0.837	0.696	0.576	0.475	0.397	0.336	0.300	0.292	0.316	0.383	0.504	0.700
60,000	4.064	3.418	2.889	2.443	2.068	1.750	1.471	1.234	1.027	0.850	0.697	0.569	0.465	0.382	0.327	0.301	0.311	0.367	0.483	0.680
70,000	5.152	4.265	3.546	2.969	2.487	2.086	1.741	1.450	1.202	0.988	0.804	0.650	0.523	0.422	0.350	0.309	0.307	0.353	0.465	0.665
80,000	6.413	5.211	4.274	3.529	2.933	2.436	2.022	1.673	1.378	1.126	0.913	0.734	0.585	0.465	0.375	0.321	0.307	0.343	0.449	0.652
90,000	7.876	6.262	5.060	4.134	3.378	2.786	2.298	1.891	1.548	1.260	1.020	0.815	0.643	0.506	0.401	0.333	0.309	0.337	0.437	0.641
100,000	9.515	7.436	5.905	4.758	3.856	3.146	2.577	2.105	1.719	1.392	1.120	0.889	0.700	0.545	0.426	0.346	0.311	0.330	0.426	0.629
150,000	22.188	15.217	11.023	8.225	6.325	4.941	3.915	3.111	2.480	1.976	1.567	1.228	0.952	0.728	0.549	0.409	0.344	0.318	0.400	0.592
200,000	45.849	26.621	17.311	12.060	8.774	6.600	5.068	3.938	3.086	2.424	1.897	1.475	1.131	0.859	0.634	0.478	0.373	0.336	0.386	0.581
250,000	85.627	41.518	24.339	15.747	10.974	8.002	5.996	4.585	3.532	2.745	2.130	1.645	1.253	0.943	0.691	0.513	0.389	0.338	0.378	0.570
300,000	141.148	57.893	30.899	18.953	12.768	9.098	6.681	5.040	3.851	2.968	2.290	1.756	1.335	1.000	0.731	0.535	0.401	0.340	0.373	0.563
400,000	296.035	88.041	40.885	23.544	15.100	10.441	7.517	5.572	4.218	3.215	2.459	1.880	1.420	1.057	0.773	0.559	0.412	0.343	0.375	0.559
500,000	554.733	120.757	50.391	27.197	16.933	11.435	8.101	5.960	4.458	3.382	2.571	1.956	1.471	1.093	0.796	0.573	0.419	0.345	0.374	0.557

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 10,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.655	0.675	0.685	0.699	0.713	0.728	0.746	0.761	0.779	0.794	0.810	0.827	0.844	0.865	0.883	0.902	0.920	0.941	0.959	0.980
2,000	0.542	0.571	0.587	0.603	0.621	0.641	0.657	0.672	0.698	0.714	0.741	0.758	0.785	0.808	0.831	0.856	0.883	0.910	0.937	0.969
3,000	0.437	0.456	0.476	0.497	0.518	0.538	0.561	0.585	0.610	0.636	0.663	0.690	0.718	0.749	0.782	0.813	0.847	0.880	0.919	0.959
4,000	0.361	0.380	0.400	0.420	0.444	0.467	0.491	0.518	0.544	0.573	0.603	0.633	0.667	0.701	0.738	0.775	0.816	0.856	0.901	0.950
5,000	0.308	0.327	0.345	0.366	0.388	0.412	0.437	0.463	0.491	0.520	0.553	0.585	0.622	0.659	0.701	0.742	0.787	0.834	0.885	0.941
6,000	0.285	0.302	0.318	0.337	0.358	0.380	0.404	0.429	0.457	0.487	0.519	0.554	0.590	0.630	0.672	0.717	0.767	0.814	0.872	0.933
7,000	0.274	0.287	0.303	0.319	0.340	0.361	0.383	0.407	0.434	0.463	0.495	0.529	0.567	0.606	0.650	0.698	0.749	0.800	0.865	0.928
8,000	0.262	0.273	0.287	0.302	0.320	0.339	0.361	0.383	0.409	0.438	0.470	0.503	0.542	0.583	0.628	0.677	0.731	0.790	0.853	0.923
9,000	0.253	0.263	0.273	0.287	0.305	0.321	0.341	0.364	0.389	0.416	0.447	0.480	0.519	0.562	0.606	0.657	0.713	0.774	0.842	0.917
10,000	0.260	0.269	0.277	0.288	0.301	0.317	0.334	0.355	0.378	0.405	0.435	0.467	0.503	0.546	0.589	0.642	0.697	0.763	0.833	0.912
11,000	0.286	0.291	0.296	0.303	0.315	0.328	0.342	0.360	0.381	0.405	0.433	0.464	0.501	0.541	0.586	0.636	0.693	0.757	0.828	0.909
12,000	0.328	0.329	0.332	0.335	0.343	0.353	0.365	0.379	0.398	0.419	0.444	0.473	0.507	0.558	0.589	0.637	0.693	0.756	0.827	0.904
13,000	0.333	0.332	0.331	0.333	0.338	0.346	0.356	0.369	0.385	0.406	0.429	0.458	0.492	0.529	0.573	0.621	0.678	0.743	0.817	0.903
14,000	0.361	0.356	0.353	0.352	0.354	0.358	0.367	0.376	0.391	0.409	0.430	0.456	0.488	0.525	0.565	0.614	0.672	0.737	0.812	0.900
15,000	0.425	0.416	0.408	0.404	0.403	0.404	0.409	0.415	0.426	0.441	0.459	0.482	0.511	0.544	0.583	0.628	0.681	0.744	0.805	0.901
16,000	0.539	0.526	0.515	0.507	0.501	0.498	0.498	0.501	0.506	0.517	0.530	0.547	0.570	0.597	0.630	0.668	0.715	0.770	0.834	0.905
17,000	0.512	0.498	0.486	0.478	0.472	0.469	0.469	0.471	0.477	0.488	0.502	0.521	0.543	0.571	0.605	0.646	0.695	0.753	0.821	0.902
18,000	0.543	0.521	0.512	0.499	0.491	0.485	0.483	0.483	0.487	0.496	0.509	0.525	0.546	0.573	0.606	0.646	0.692	0.752	0.819	0.902
19,000	0.548	0.528	0.510	0.496	0.485	0.477	0.473	0.472	0.474	0.487	0.493	0.509	0.533	0.556	0.592	0.631	0.678	0.737	0.811	0.895
20,000	0.584	0.561	0.541	0.524	0.509	0.500	0.493	0.485	0.490	0.495	0.504	0.517	0.535	0.560	0.591	0.630	0.678	0.733	0.804	0.895
21,000	0.610	0.583	0.559	0.540	0.523	0.510	0.501	0.495	0.494	0.497	0.504	0.517	0.533	0.556	0.587	0.621	0.670	0.730	0.804	0.890
22,000	0.636	0.606	0.579	0.556	0.546	0.521	0.510	0.512	0.508	0.500	0.505	0.523	0.538	0.560	0.582	0.624	0.671	0.729	0.799	0.890
23,000	0.676	0.642	0.612	0.585	0.564	0.546	0.532	0.523	0.516	0.514	0.518	0.525	0.539	0.559	0.587	0.620	0.670	0.725	0.799	0.887
24,000	0.712	0.675	0.641	0.613	0.588	0.567	0.550	0.539	0.530	0.527	0.528	0.533	0.546	0.563	0.589	0.622	0.667	0.724	0.801	0.886
25,000	0.728	0.686	0.649	0.617	0.591	0.568	0.549	0.535	0.525	0.519	0.519	0.524	0.534	0.552	0.577	0.612	0.656	0.714	0.788	0.882
30,000	0.893	0.833	0.778	0.731	0.689	0.653	0.622	0.596	0.576	0.560	0.551	0.546	0.549	0.558	0.577	0.605	0.644	0.700	0.775	0.872
40,000	1.263	1.156	1.061	0.978	0.905	0.841	0.785	0.732	0.694	0.659	0.630	0.604	0.593	0.587	0.591	0.604	0.634	0.683	0.756	0.856
50,000	1.697	1.529	1.384	1.261	1.152	1.057	0.975	0.901	0.838	0.783	0.735	0.696	0.665	0.642	0.632	0.633	0.650	0.687	0.751	0.851
60,000	2.145	1.902	1.699	1.526	1.379	1.251	1.141	1.043	0.959	0.884	0.820	0.764	0.718	0.683	0.659	0.649	0.655	0.685	0.743	0.842
70,000	2.668	2.329	2.053	1.824	1.634	1.469	1.327	1.206	1.097	1.004	0.921	0.851	0.790	0.741	0.703	0.681	0.676	0.695	0.745	0.841
80,000	3.230	2.773	2.410	2.116	1.876	1.671	1.498	1.350	1.219	1.108	1.007	0.921	0.848	0.784	0.736	0.704	0.689	0.699	0.744	0.836
90,000	3.854	3.248	2.782	2.412	2.114	1.866	1.659	1.483	1.330	1.198	1.082	0.981	0.895	0.821	0.762	0.720	0.697	0.701	0.739	0.831
100,000	4.555	3.768	3.174	2.719	2.356	2.063	1.819	1.614	1.438	1.287	1.156	1.041	0.941	0.858	0.789	0.739	0.707	0.704	0.738	0.826
150,000	10.031	7.205	5.574	4.411	3.475	2.985	2.495	2.132	1.864	1.590	1.387	1.207	1.052	0.947	0.857	0.772	0.699	0.689	0.712	0.809
200,000	19.107	12.059	8.409	6.256	4.868	3.910	3.218	2.692	2.278	1.946	1.674	1.441	1.247	1.072	0.934	0.834	0.752	0.706	0.711	0.800
250,000	33.028	17.786	11.309	7.914	5.915	4.614	3.716	3.056	2.554	2.156	1.836	1.566	1.344	1.145	0.988	0.871	0.774	0.717	0.713	0.796
300,000	51.492	23.831	13.954	9.317	6.747	5.151	4.082	3.317	2.746	2.301	1.947	1.653	1.409	1.204	1.024	0.895	0.790	0.724	0.705	0.793
400,000	98.582	34.465	17.941	11.259	7.826	5.818	4.526	3.628	2.971	2.469	2.072	1.748	1.483	1.260	1.074	0.923	0.806	0.732	0.705	0.780
500,000	173.488	45.518	21.511	12.802	8.642	6.299	4.834	3.837	3.121	2.578	2.154	1.810	1.529	1.294	1.099	0.940	0.817	0.738	0.714	0.776

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 20,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.620	0.635	0.652	0.668	0.685	0.709	0.716	0.741	0.753	0.773	0.787	0.813	0.828	0.853	0.869	0.892	0.914	0.933	0.953	0.978
2,000	0.454	0.474	0.493	0.515	0.538	0.560	0.586	0.608	0.633	0.660	0.687	0.712	0.740	0.769	0.798	0.830	0.862	0.895	0.933	0.963
3,000	0.331	0.353	0.376	0.400	0.424	0.452	0.478	0.505	0.535	0.567	0.600	0.635	0.668	0.709	0.748	0.786	0.822	0.865	0.910	0.953
4,000	0.237	0.257	0.283	0.308	0.334	0.363	0.392	0.422	0.453	0.490	0.526	0.563	0.602	0.645	0.688	0.733	0.780	0.833	0.885	0.945
5,000	0.158	0.180	0.201	0.230	0.257	0.284	0.317	0.351	0.381	0.420	0.460	0.501	0.546	0.590	0.644	0.692	0.747	0.805	0.867	0.930
6,000	0.151	0.175	0.197	0.220	0.228	0.249	0.283	0.313	0.350	0.390	0.434	0.479	0.522	0.571	0.623	0.668	0.725	0.788	0.858	0.922
7,000	0.123	0.140	0.159	0.181	0.204	0.230	0.259	0.291	0.324	0.361	0.408	0.448	0.493	0.542	0.590	0.647	0.706	0.776	0.846	0.921
8,000	0.092	0.108	0.127	0.141	0.176	0.192	0.223	0.250	0.285	0.322	0.375	0.415	0.460	0.508	0.559	0.624	0.686	0.758	0.835	0.913
9,000	0.067	0.079	0.088	0.106	0.126	0.155	0.185	0.221	0.254	0.282	0.323	0.367	0.420	0.469	0.524	0.591	0.664	0.737	0.812	0.905
10,000	0.077	0.087	0.099	0.115	0.131	0.156	0.178	0.207	0.240	0.276	0.316	0.360	0.405	0.460	0.516	0.580	0.651	0.728	0.810	0.897
11,000	0.040	0.049	0.058	0.067	0.090	0.111	0.129	0.157	0.195	0.226	0.266	0.317	0.367	0.418	0.479	0.550	0.621	0.705	0.792	0.893
12,000	0.027	0.031	0.038	0.048	0.063	0.081	0.104	0.130	0.161	0.197	0.237	0.283	0.333	0.390	0.453	0.522	0.600	0.689	0.782	0.886
13,000	0.025	0.026	0.029	0.037	0.047	0.064	0.083	0.108	0.139	0.172	0.213	0.258	0.308	0.367	0.429	0.502	0.581	0.670	0.770	0.878
14,000	0.044	0.041	0.044	0.049	0.060	0.078	0.092	0.117	0.145	0.178	0.217	0.259	0.311	0.369	0.429	0.495	0.579	0.665	0.764	0.876
15,000	0.043	0.036	0.034	0.036	0.037	0.055	0.071	0.093	0.113	0.152	0.188	0.232	0.277	0.340	0.404	0.472	0.555	0.649	0.754	0.870
16,000	0.060	0.051	0.046	0.045	0.050	0.060	0.074	0.095	0.119	0.150	0.185	0.228	0.271	0.328	0.392	0.465	0.549	0.642	0.741	0.864
17,000	0.068	0.053	0.043	0.037	0.038	0.044	0.055	0.073	0.095	0.124	0.159	0.202	0.250	0.307	0.371	0.445	0.530	0.626	0.736	0.861
18,000	0.087	0.066	0.050	0.040	0.036	0.039	0.047	0.061	0.082	0.112	0.141	0.182	0.235	0.286	0.352	0.432	0.513	0.616	0.726	0.855
19,000	0.133	0.097	0.075	0.059	0.056	0.045	0.054	0.066	0.083	0.106	0.131	0.172	0.219	0.274	0.339	0.414	0.503	0.601	0.719	0.848
20,000	0.161	0.127	0.099	0.078	0.074	0.059	0.059	0.067	0.081	0.107	0.132	0.168	0.214	0.268	0.332	0.407	0.489	0.593	0.711	0.844
21,000	0.195	0.155	0.121	0.106	0.087	0.068	0.069	0.069	0.081	0.104	0.127	0.162	0.205	0.259	0.322	0.396	0.484	0.584	0.703	0.841
22,000	0.208	0.158	0.117	0.094	0.069	0.046	0.038	0.039	0.048	0.068	0.089	0.123	0.167	0.220	0.284	0.361	0.453	0.560	0.687	0.835
23,000	0.241	0.185	0.140	0.112	0.082	0.054	0.043	0.040	0.046	0.063	0.082	0.114	0.156	0.208	0.273	0.349	0.441	0.548	0.676	0.825
24,000	0.314	0.247	0.180	0.156	0.119	0.082	0.059	0.060	0.061	0.074	0.083	0.119	0.159	0.203	0.266	0.341	0.436	0.541	0.669	0.822
25,000	0.340	0.267	0.205	0.165	0.124	0.092	0.065	0.055	0.054	0.069	0.079	0.107	0.145	0.197	0.255	0.331	0.425	0.534	0.662	0.819
30,000	0.526	0.419	0.328	0.266	0.203	0.154	0.108	0.082	0.069	0.070	0.074	0.093	0.126	0.168	0.225	0.299	0.389	0.501	0.637	0.801
40,000	1.001	0.808	0.645	0.527	0.412	0.319	0.234	0.177	0.136	0.116	0.097	0.102	0.114	0.145	0.190	0.255	0.342	0.454	0.596	0.774
50,000	1.567	1.261	1.006	0.817	0.641	0.497	0.368	0.276	0.205	0.161	0.119	0.108	0.105	0.116	0.153	0.210	0.293	0.402	0.550	0.746
60,000	1.980	1.559	1.223	0.974	0.750	0.569	0.408	0.292	0.202	0.141	0.086	0.062	0.052	0.057	0.087	0.141	0.224	0.340	0.499	0.714
70,000	2.921	2.289	1.793	1.434	1.117	0.864	0.643	0.483	0.356	0.266	0.184	0.138	0.107	0.096	0.111	0.151	0.222	0.328	0.483	0.699
80,000	3.876	2.997	2.326	1.811	1.408	1.091	0.838	0.636	0.476	0.352	0.256	0.187	0.142	0.120	0.122	0.151	0.213	0.313	0.464	0.684
90,000	4.820	3.659	2.800	2.155	1.657	1.273	0.972	0.735	0.549	0.401	0.288	0.205	0.148	0.114	0.108	0.130	0.187	0.285	0.438	0.666
100,000	6.101	4.556	3.441	2.625	2.008	1.538	1.176	0.893	0.672	0.498	0.363	0.262	0.189	0.144	0.127	0.139	0.186	0.277	0.427	0.653
150,000	15.911	10.569	7.340	5.224	3.821	2.839	2.128	1.596	1.206	0.905	0.673	0.496	0.361	0.264	0.200	0.174	0.185	0.248	0.380	0.613
200,000	33.257	19.077	12.009	8.018	5.568	3.986	2.911	2.152	1.625	1.198	0.891	0.665	0.485	0.348	0.258	0.203	0.194	0.241	0.356	0.589
250,000	61.148	30.092	17.266	10.791	7.185	4.987	3.559	2.592	1.932	1.415	1.049	0.781	0.569	0.408	0.298	0.226	0.201	0.236	0.343	0.575
300,000	98.430	41.986	22.222	13.223	8.520	5.780	4.051	2.915	2.157	1.572	1.162	0.855	0.624	0.450	0.327	0.242	0.208	0.235	0.336	0.565
400,000	193.005	63.280	29.792	16.697	10.290	6.782	4.661	3.303	2.423	1.753	1.291	0.949	0.692	0.499	0.357	0.263	0.217	0.231	0.327	0.555
500,000	339.271	85.601	36.755	19.495	11.670	7.524	5.091	3.577	2.599	1.873	1.374	1.008	0.734	0.529	0.377	0.275	0.222	0.232	0.323	0.550

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 30,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.668	0.691	0.700	0.713	0.749	0.744	0.759	0.774	0.787	0.818	0.822	0.839	0.868	0.873	0.899	0.909	0.930	0.944	0.959	0.980
2,000	0.559	0.578	0.550	0.608	0.630	0.648	0.663	0.686	0.710	0.724	0.748	0.760	0.785	0.814	0.824	0.863	0.892	0.910	0.944	0.969
3,000	0.422	0.440	0.459	0.479	0.504	0.524	0.547	0.573	0.598	0.625	0.654	0.683	0.710	0.742	0.777	0.809	0.846	0.881	0.919	0.959
4,000	0.347	0.365	0.393	0.407	0.429	0.453	0.478	0.503	0.536	0.560	0.606	0.629	0.658	0.695	0.735	0.772	0.815	0.866	0.901	0.952
5,000	0.289	0.336	0.325	0.372	0.372	0.394	0.434	0.448	0.498	0.508	0.561	0.586	0.624	0.665	0.699	0.750	0.790	0.846	0.892	0.944
6,000	0.254	0.271	0.290	0.311	0.333	0.353	0.379	0.407	0.437	0.469	0.503	0.543	0.580	0.623	0.673	0.717	0.767	0.819	0.879	0.935
7,000	0.219	0.235	0.252	0.272	0.293	0.317	0.343	0.370	0.400	0.433	0.468	0.506	0.548	0.591	0.638	0.689	0.743	0.803	0.863	0.930
8,000	0.215	0.229	0.244	0.263	0.283	0.304	0.329	0.356	0.382	0.418	0.452	0.487	0.532	0.576	0.623	0.675	0.729	0.789	0.855	0.924
9,000	0.294	0.300	0.291	0.318	0.332	0.342	0.354	0.388	0.408	0.426	0.461	0.505	0.538	0.573	0.622	0.675	0.729	0.785	0.853	0.923
10,000	0.311	0.309	0.313	0.321	0.331	0.344	0.362	0.380	0.401	0.427	0.460	0.493	0.530	0.572	0.616	0.671	0.721	0.782	0.844	0.917
11,000	0.346	0.342	0.341	0.344	0.353	0.362	0.370	0.387	0.407	0.427	0.455	0.485	0.519	0.558	0.603	0.654	0.710	0.767	0.840	0.911
12,000	0.262	0.257	0.257	0.261	0.266	0.276	0.290	0.307	0.328	0.354	0.384	0.419	0.458	0.503	0.553	0.618	0.672	0.751	0.826	0.908
13,000	0.390	0.372	0.360	0.360	0.358	0.358	0.368	0.378	0.392	0.411	0.426	0.455	0.491	0.531	0.574	0.627	0.686	0.752	0.810	0.901
14,000	0.386	0.369	0.356	0.348	0.343	0.342	0.347	0.329	0.343	0.385	0.408	0.436	0.452	0.494	0.540	0.602	0.668	0.737	0.808	0.903
15,000	0.394	0.366	0.357	0.341	0.353	0.330	0.338	0.340	0.357	0.375	0.391	0.420	0.452	0.503	0.542	0.599	0.657	0.729	0.807	0.897
16,000	0.472	0.442	0.422	0.410	0.401	0.390	0.384	0.389	0.388	0.406	0.417	0.439	0.465	0.503	0.548	0.607	0.662	0.727	0.807	0.894
17,000	0.484	0.453	0.427	0.406	0.389	0.379	0.374	0.376	0.380	0.390	0.412	0.430	0.458	0.493	0.536	0.591	0.648	0.718	0.800	0.889
18,000	0.498	0.462	0.436	0.412	0.392	0.382	0.375	0.372	0.377	0.386	0.401	0.425	0.453	0.489	0.536	0.584	0.651	0.713	0.795	0.892
19,000	0.591	0.548	0.511	0.480	0.454	0.435	0.422	0.414	0.413	0.417	0.427	0.444	0.468	0.500	0.540	0.589	0.648	0.710	0.793	0.888
20,000	0.631	0.583	0.540	0.506	0.475	0.452	0.435	0.424	0.420	0.421	0.430	0.445	0.467	0.498	0.536	0.585	0.644	0.712	0.791	0.886
21,000	0.751	0.674	0.616	0.586	0.540	0.497	0.477	0.466	0.442	0.438	0.443	0.454	0.469	0.498	0.533	0.581	0.635	0.705	0.789	0.885
22,000	0.748	0.669	0.610	0.563	0.534	0.492	0.470	0.454	0.441	0.436	0.439	0.451	0.465	0.494	0.530	0.576	0.634	0.699	0.782	0.882
23,000	0.804	0.734	0.668	0.619	0.567	0.527	0.494	0.471	0.454	0.445	0.443	0.451	0.464	0.491	0.525	0.570	0.627	0.696	0.780	0.881
24,000	0.861	0.781	0.710	0.648	0.596	0.550	0.514	0.484	0.465	0.452	0.447	0.451	0.465	0.487	0.520	0.564	0.620	0.691	0.775	0.878
25,000	0.906	0.819	0.741	0.675	0.617	0.567	0.527	0.495	0.471	0.455	0.448	0.451	0.461	0.483	0.514	0.558	0.614	0.685	0.770	0.875
30,000	1.185	1.057	0.943	0.857	0.769	0.694	0.623	0.571	0.530	0.499	0.478	0.459	0.472	0.483	0.507	0.545	0.592	0.662	0.752	0.863
40,000	1.825	1.595	1.395	1.222	1.070	0.939	0.825	0.729	0.648	0.582	0.531	0.496	0.473	0.468	0.476	0.506	0.553	0.622	0.717	0.840
50,000	2.552	2.172	1.872	1.614	1.410	1.201	1.039	0.900	0.784	0.694	0.608	0.550	0.507	0.485	0.480	0.497	0.536	0.603	0.695	0.825
60,000	3.574	3.036	2.585	2.203	1.879	1.604	1.371	1.173	1.004	0.862	0.749	0.659	0.588	0.543	0.516	0.517	0.542	0.596	0.685	0.816
70,000	4.385	3.669	3.079	2.596	2.185	1.844	1.557	1.317	1.113	0.944	0.807	0.697	0.609	0.548	0.513	0.504	0.524	0.576	0.666	0.803
80,000	5.696	4.697	3.895	3.243	2.708	2.266	1.898	1.590	1.334	1.122	0.946	0.805	0.692	0.608	0.553	0.529	0.533	0.575	0.657	0.794
90,000	6.853	5.558	4.546	3.740	3.089	2.560	2.124	1.765	1.468	1.222	1.021	0.856	0.727	0.629	0.561	0.525	0.523	0.561	0.643	0.783
100,000	8.538	6.817	5.503	4.479	3.667	3.016	2.487	2.055	1.701	1.410	1.171	0.976	0.821	0.701	0.615	0.562	0.546	0.571	0.645	0.781
150,000	17.628	12.815	9.521	7.356	5.724	4.501	3.575	2.855	2.287	1.836	1.483	1.181	0.955	0.769	0.649	0.548	0.502	0.507	0.582	0.728
200,000	33.150	21.573	14.988	10.854	8.086	6.152	4.749	3.704	2.910	2.295	1.828	1.433	1.132	0.909	0.729	0.591	0.518	0.511	0.559	0.710
250,000	54.087	31.359	20.314	14.009	10.086	7.473	5.652	4.337	3.362	2.623	2.054	1.609	1.260	1.000	0.791	0.629	0.537	0.507	0.562	0.698
300,000	80.549	41.829	25.537	16.978	11.919	8.672	6.468	4.914	3.781	2.935	2.276	1.791	1.401	1.098	0.865	0.692	0.573	0.536	0.558	0.692
400,000	136.054	58.017	32.490	20.593	13.983	9.938	7.283	5.457	4.155	3.197	2.477	1.925	1.498	1.167	0.911	0.722	0.588	0.534	0.554	0.688
500,000	211.466	73.732	38.456	23.436	15.541	10.859	7.858	5.834	4.407	3.370	2.598	2.011	1.560	1.210	0.940	0.740	0.598	0.537	0.552	0.685

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 40,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.752	0.762	0.773	0.785	0.795	0.806	0.818	0.828	0.840	0.853	0.866	0.880	0.890	0.904	0.918	0.932	0.941	0.954	0.972	0.986
2,000	0.618	0.629	0.634	0.658	0.677	0.685	0.713	0.732	0.742	0.767	0.786	0.802	0.821	0.839	0.859	0.884	0.904	0.926	0.951	0.978
3,000	0.627	0.640	0.655	0.669	0.684	0.698	0.714	0.731	0.746	0.762	0.781	0.799	0.819	0.841	0.856	0.878	0.902	0.923	0.944	0.975
4,000	0.546	0.601	0.588	0.602	0.641	0.637	0.664	0.673	0.695	0.732	0.762	0.753	0.779	0.805	0.828	0.856	0.884	0.916	0.937	0.969
5,000	0.531	0.549	0.563	0.579	0.594	0.614	0.630	0.650	0.667	0.690	0.714	0.735	0.762	0.785	0.810	0.839	0.875	0.896	0.931	0.963
6,000	0.497	0.511	0.516	0.538	0.549	0.572	0.588	0.612	0.637	0.664	0.699	0.727	0.748	0.764	0.785	0.819	0.853	0.894	0.929	0.962
7,000	0.437	0.454	0.471	0.488	0.507	0.528	0.545	0.568	0.591	0.616	0.640	0.667	0.698	0.728	0.762	0.795	0.831	0.870	0.915	0.954
8,000	0.404	0.432	0.436	0.466	0.472	0.503	0.513	0.546	0.560	0.594	0.612	0.649	0.672	0.714	0.739	0.783	0.814	0.862	0.903	0.952
9,000	0.394	0.409	0.424	0.439	0.460	0.459	0.494	0.517	0.532	0.570	0.586	0.626	0.652	0.692	0.728	0.763	0.803	0.845	0.894	0.947
10,000	0.365	0.377	0.393	0.408	0.432	0.452	0.468	0.494	0.518	0.543	0.576	0.604	0.638	0.672	0.711	0.749	0.792	0.839	0.891	0.944
11,000	0.356	0.368	0.397	0.400	0.420	0.447	0.467	0.482	0.516	0.543	0.568	0.572	0.632	0.667	0.703	0.744	0.788	0.835	0.885	0.939
12,000	0.297	0.311	0.270	0.317	0.360	0.359	0.404	0.407	0.434	0.485	0.494	0.549	0.570	0.606	0.669	0.713	0.762	0.814	0.867	0.936
13,000	0.238	0.255	0.257	0.274	0.304	0.325	0.349	0.376	0.404	0.423	0.456	0.501	0.539	0.583	0.629	0.682	0.734	0.797	0.859	0.930
14,000	0.214	0.227	0.242	0.258	0.279	0.299	0.322	0.347	0.372	0.403	0.436	0.474	0.515	0.558	0.607	0.659	0.715	0.778	0.847	0.921
15,000	0.234	0.245	0.259	0.274	0.293	0.313	0.334	0.359	0.385	0.415	0.448	0.469	0.510	0.564	0.611	0.674	0.729	0.775	0.833	0.915
16,000	0.199	0.210	0.223	0.238	0.257	0.267	0.298	0.323	0.352	0.382	0.415	0.452	0.488	0.532	0.587	0.637	0.704	0.765	0.838	0.911
17,000	0.184	0.194	0.206	0.234	0.239	0.270	0.280	0.316	0.332	0.373	0.395	0.433	0.483	0.522	0.578	0.627	0.688	0.755	0.833	0.910
18,000	0.157	0.167	0.179	0.193	0.210	0.229	0.251	0.276	0.304	0.336	0.371	0.418	0.467	0.520	0.562	0.618	0.685	0.752	0.823	0.907
19,000	0.163	0.171	0.182	0.196	0.212	0.226	0.248	0.276	0.303	0.334	0.369	0.406	0.442	0.493	0.545	0.602	0.668	0.740	0.814	0.905
20,000	0.175	0.182	0.192	0.203	0.219	0.235	0.256	0.279	0.305	0.335	0.368	0.405	0.448	0.495	0.546	0.597	0.660	0.732	0.812	0.900
21,000	0.152	0.158	0.166	0.177	0.190	0.207	0.227	0.250	0.275	0.306	0.340	0.378	0.421	0.468	0.522	0.581	0.652	0.725	0.804	0.898
22,000	0.138	0.133	0.140	0.150	0.178	0.194	0.213	0.235	0.256	0.286	0.320	0.359	0.408	0.451	0.502	0.573	0.640	0.718	0.802	0.894
23,000	0.140	0.142	0.148	0.157	0.168	0.183	0.204	0.226	0.252	0.282	0.317	0.354	0.396	0.446	0.494	0.560	0.630	0.709	0.793	0.892
24,000	0.145	0.142	0.143	0.153	0.169	0.184	0.202	0.216	0.249	0.278	0.311	0.349	0.389	0.441	0.496	0.557	0.623	0.703	0.790	0.888
25,000	0.153	0.152	0.154	0.160	0.170	0.180	0.197	0.217	0.242	0.270	0.305	0.342	0.385	0.434	0.488	0.550	0.620	0.698	0.789	0.885
30,000	0.170	0.150	0.137	0.129	0.126	0.129	0.137	0.150	0.172	0.195	0.224	0.260	0.303	0.352	0.410	0.472	0.551	0.638	0.742	0.866
40,000	0.256	0.206	0.190	0.136	0.116	0.103	0.117	0.117	0.108	0.124	0.163	0.193	0.232	0.269	0.337	0.407	0.489	0.588	0.703	0.839
50,000	0.490	0.396	0.319	0.259	0.212	0.176	0.152	0.137	0.131	0.134	0.147	0.169	0.200	0.242	0.297	0.365	0.449	0.549	0.674	0.821
60,000	0.561	0.459	0.382	0.323	0.274	0.243	0.231	0.223	0.223	0.223	0.240	0.264	0.306	0.349	0.400	0.455	0.530	0.616	0.723	0.851
70,000	0.779	0.635	0.526	0.443	0.382	0.338	0.309	0.291	0.284	0.287	0.298	0.318	0.346	0.383	0.430	0.486	0.555	0.614	0.736	0.845
80,000	1.038	0.808	0.641	0.514	0.425	0.351	0.301	0.269	0.250	0.243	0.247	0.265	0.289	0.323	0.369	0.428	0.501	0.590	0.698	0.838
90,000	1.341	1.030	0.801	0.631	0.504	0.410	0.342	0.291	0.265	0.247	0.247	0.257	0.278	0.309	0.353	0.410	0.504	0.589	0.686	0.831
100,000	1.658	1.240	0.937	0.715	0.550	0.429	0.340	0.277	0.235	0.207	0.201	0.205	0.223	0.251	0.296	0.355	0.431	0.528	0.650	0.804
150,000	7.412	5.219	3.825	2.874	2.204	1.713	1.345	1.063	0.845	0.676	0.544	0.445	0.373	0.328	0.307	0.315	0.352	0.426	0.548	0.732
200,000	15.953	9.943	6.710	4.770	3.514	2.657	2.046	1.596	1.258	0.998	0.798	0.644	0.528	0.445	0.392	0.371	0.384	0.438	0.545	0.722
250,000	27.442	15.041	9.390	6.337	4.511	3.330	2.521	1.943	1.518	1.196	0.951	0.762	0.617	0.511	0.439	0.400	0.398	0.436	0.536	0.712
300,000	41.534	20.178	11.767	7.612	5.271	3.816	2.848	2.173	1.684	1.320	1.043	0.831	0.669	0.548	0.463	0.415	0.404	0.437	0.531	0.705
400,000	72.531	28.897	15.291	9.377	6.263	4.429	3.253	2.453	1.885	1.468	1.154	0.915	0.731	0.593	0.494	0.433	0.411	0.436	0.523	0.697
500,000	113.100	37.549	18.374	10.764	7.006	4.866	3.529	2.639	2.015	1.560	1.222	0.964	0.768	0.619	0.512	0.444	0.416	0.437	0.520	0.693

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 50,000																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.737	0.750	0.761	0.774	0.786	0.800	0.810	0.821	0.836	0.848	0.860	0.873	0.886	0.900	0.914	0.928	0.942	0.957	0.970	0.986
2,000	0.640	0.651	0.666	0.685	0.700	0.713	0.732	0.749	0.763	0.781	0.797	0.815	0.836	0.853	0.871	0.894	0.914	0.935	0.955	0.978
3,000	0.559	0.577	0.593	0.611	0.630	0.650	0.669	0.688	0.708	0.729	0.751	0.774	0.796	0.818	0.843	0.868	0.893	0.918	0.945	0.972
4,000	0.499	0.517	0.537	0.556	0.576	0.597	0.619	0.641	0.662	0.687	0.711	0.737	0.761	0.788	0.816	0.842	0.873	0.904	0.934	0.968
5,000	0.448	0.465	0.485	0.507	0.528	0.553	0.576	0.597	0.623	0.648	0.675	0.704	0.731	0.760	0.791	0.822	0.857	0.890	0.925	0.962
6,000	0.413	0.425	0.429	0.457	0.480	0.513	0.525	0.563	0.582	0.622	0.641	0.675	0.694	0.733	0.767	0.804	0.838	0.877	0.916	0.959
7,000	0.362	0.385	0.408	0.432	0.454	0.479	0.503	0.530	0.558	0.586	0.618	0.646	0.682	0.713	0.750	0.787	0.826	0.866	0.909	0.955
8,000	0.326	0.348	0.370	0.394	0.418	0.445	0.471	0.499	0.528	0.559	0.591	0.624	0.659	0.695	0.731	0.772	0.814	0.858	0.902	0.950
9,000	0.296	0.318	0.347	0.371	0.390	0.416	0.444	0.477	0.507	0.534	0.567	0.602	0.641	0.678	0.716	0.757	0.800	0.848	0.896	0.947
10,000	0.271	0.291	0.314	0.339	0.365	0.391	0.418	0.448	0.478	0.511	0.545	0.581	0.619	0.659	0.700	0.744	0.790	0.839	0.889	0.943
11,000	0.245	0.269	0.289	0.314	0.341	0.368	0.397	0.427	0.460	0.489	0.523	0.561	0.601	0.641	0.684	0.731	0.779	0.828	0.882	0.939
12,000	0.232	0.254	0.285	0.301	0.327	0.361	0.383	0.413	0.449	0.477	0.514	0.555	0.594	0.632	0.678	0.725	0.774	0.824	0.879	0.937
13,000	0.217	0.238	0.261	0.287	0.313	0.338	0.367	0.397	0.429	0.465	0.501	0.538	0.577	0.620	0.666	0.711	0.761	0.817	0.874	0.935
14,000	0.194	0.216	0.239	0.263	0.281	0.309	0.338	0.377	0.409	0.444	0.481	0.514	0.558	0.604	0.651	0.700	0.755	0.807	0.869	0.933
15,000	0.169	0.190	0.213	0.237	0.264	0.292	0.321	0.353	0.386	0.421	0.459	0.499	0.541	0.587	0.635	0.686	0.741	0.800	0.862	0.929
16,000	0.154	0.175	0.197	0.222	0.248	0.276	0.305	0.337	0.370	0.406	0.444	0.485	0.528	0.574	0.624	0.676	0.733	0.793	0.857	0.926
17,000	0.131	0.151	0.173	0.197	0.223	0.250	0.281	0.313	0.347	0.384	0.423	0.464	0.509	0.556	0.607	0.662	0.720	0.783	0.855	0.924
18,000	0.117	0.137	0.160	0.184	0.209	0.237	0.267	0.299	0.333	0.370	0.409	0.451	0.496	0.545	0.597	0.652	0.712	0.776	0.845	0.921
19,000	0.107	0.127	0.150	0.173	0.199	0.225	0.255	0.288	0.324	0.360	0.397	0.438	0.483	0.534	0.587	0.643	0.704	0.769	0.841	0.920
20,000	0.100	0.119	0.140	0.163	0.189	0.216	0.245	0.279	0.313	0.348	0.391	0.430	0.476	0.528	0.577	0.633	0.697	0.763	0.835	0.916
21,000	0.096	0.114	0.135	0.158	0.183	0.210	0.239	0.271	0.298	0.343	0.383	0.426	0.471	0.521	0.575	0.632	0.691	0.759	0.833	0.914
22,000	0.091	0.108	0.129	0.151	0.176	0.203	0.232	0.263	0.298	0.335	0.374	0.417	0.462	0.512	0.567	0.625	0.689	0.758	0.832	0.911
23,000	0.081	0.099	0.119	0.141	0.165	0.191	0.220	0.252	0.286	0.323	0.364	0.407	0.453	0.504	0.559	0.618	0.682	0.752	0.828	0.910
24,000	0.082	0.095	0.115	0.137	0.161	0.187	0.216	0.248	0.283	0.319	0.359	0.402	0.449	0.500	0.555	0.615	0.680	0.747	0.825	0.910
25,000	0.075	0.091	0.111	0.132	0.157	0.191	0.212	0.244	0.276	0.313	0.355	0.399	0.446	0.495	0.558	0.611	0.676	0.747	0.823	0.908
30,000	0.047	0.062	0.080	0.101	0.124	0.150	0.179	0.210	0.244	0.281	0.322	0.366	0.414	0.465	0.524	0.586	0.653	0.728	0.810	0.900
40,000	0.024	0.030	0.041	0.055	0.073	0.095	0.121	0.149	0.182	0.218	0.258	0.303	0.352	0.407	0.467	0.534	0.608	0.690	0.783	0.886
50,000	0.022	0.016	0.017	0.023	0.035	0.052	0.073	0.098	0.129	0.163	0.203	0.247	0.292	0.353	0.417	0.483	0.566	0.652	0.755	0.870
60,000	0.049	0.027	0.017	0.011	0.014	0.025	0.041	0.064	0.090	0.122	0.160	0.204	0.253	0.310	0.375	0.448	0.531	0.626	0.733	0.857
70,000	0.128	0.085	0.058	0.043	0.038	0.042	0.053	0.071	0.094	0.124	0.161	0.200	0.250	0.306	0.369	0.441	0.524	0.619	0.720	0.854
80,000	0.187	0.117	0.070	0.041	0.025	0.028	0.033	0.046	0.058	0.085	0.127	0.167	0.207	0.271	0.327	0.409	0.488	0.593	0.709	0.843
90,000	0.318	0.200	0.120	0.068	0.035	0.018	0.014	0.020	0.035	0.058	0.089	0.128	0.175	0.231	0.297	0.373	0.461	0.566	0.687	0.832
100,000	0.475	0.304	0.188	0.110	0.060	0.030	0.017	0.016	0.026	0.046	0.075	0.112	0.157	0.213	0.278	0.354	0.444	0.550	0.675	0.823
150,000	1.812	1.129	0.717	0.457	0.292	0.188	0.125	0.090	0.076	0.079	0.095	0.123	0.161	0.210	0.270	0.343	0.430	0.534	0.660	0.813
200,000	4.659	2.657	1.610	1.014	0.656	0.437	0.300	0.218	0.172	0.152	0.151	0.166	0.194	0.234	0.286	0.352	0.433	0.533	0.655	0.808
250,000	8.422	4.295	2.430	1.460	0.916	0.594	0.398	0.279	0.210	0.174	0.162	0.169	0.190	0.226	0.274	0.337	0.416	0.515	0.640	0.797
300,000	13.082	6.030	3.217	1.867	1.148	0.737	0.491	0.343	0.256	0.209	0.189	0.190	0.207	0.238	0.283	0.343	0.419	0.516	0.638	0.796
400,000	22.848	8.944	4.386	2.431	1.450	0.913	0.601	0.416	0.307	0.245	0.216	0.209	0.221	0.247	0.288	0.344	0.417	0.511	0.632	0.791
500,000	34.943	11.807	5.408	2.878	1.676	1.038	0.675	0.463	0.338	0.266	0.230	0.220	0.228	0.252	0.290	0.344	0.415	0.508	0.629	0.788

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 60,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.696	0.710	0.723	0.737	0.758	0.771	0.785	0.796	0.810	0.825	0.834	0.850	0.866	0.882	0.900	0.918	0.933	0.950	0.965	0.986
2,000	0.589	0.607	0.622	0.639	0.657	0.677	0.693	0.713	0.732	0.753	0.771	0.796	0.817	0.839	0.859	0.883	0.904	0.925	0.949	0.978
3,000	0.600	0.615	0.630	0.607	0.626	0.644	0.697	0.716	0.702	0.725	0.747	0.769	0.811	0.815	0.842	0.865	0.890	0.925	0.943	0.974
4,000	0.568	0.595	0.602	0.617	0.644	0.656	0.672	0.697	0.711	0.729	0.755	0.777	0.793	0.819	0.842	0.863	0.890	0.915	0.936	0.969
5,000	0.503	0.521	0.538	0.557	0.576	0.599	0.617	0.638	0.660	0.683	0.705	0.728	0.751	0.782	0.810	0.839	0.871	0.901	0.930	0.967
6,000	0.483	0.501	0.519	0.538	0.558	0.580	0.599	0.621	0.645	0.668	0.692	0.713	0.745	0.768	0.792	0.831	0.858	0.887	0.921	0.961
7,000	0.466	0.483	0.502	0.521	0.528	0.549	0.583	0.606	0.619	0.642	0.679	0.696	0.724	0.763	0.791	0.816	0.851	0.888	0.924	0.956
8,000	0.449	0.466	0.484	0.504	0.524	0.544	0.569	0.589	0.614	0.641	0.662	0.684	0.719	0.751	0.763	0.802	0.849	0.874	0.915	0.958
9,000	0.464	0.485	0.502	0.517	0.536	0.558	0.580	0.608	0.630	0.646	0.673	0.701	0.731	0.754	0.785	0.820	0.853	0.875	0.921	0.957
10,000	0.446	0.462	0.490	0.508	0.526	0.546	0.558	0.580	0.603	0.635	0.661	0.687	0.704	0.739	0.767	0.801	0.843	0.881	0.918	0.957
11,000	0.413	0.430	0.448	0.467	0.486	0.507	0.529	0.552	0.576	0.604	0.629	0.657	0.688	0.721	0.753	0.788	0.828	0.866	0.908	0.956
12,000	0.384	0.401	0.422	0.438	0.461	0.480	0.505	0.525	0.554	0.578	0.607	0.635	0.669	0.701	0.737	0.773	0.814	0.855	0.904	0.949
13,000	0.390	0.407	0.424	0.442	0.462	0.482	0.504	0.528	0.552	0.573	0.606	0.634	0.666	0.699	0.734	0.770	0.807	0.852	0.903	0.947
14,000	0.362	0.376	0.402	0.419	0.433	0.456	0.477	0.503	0.529	0.550	0.588	0.614	0.648	0.683	0.717	0.758	0.802	0.845	0.894	0.945
15,000	0.358	0.364	0.401	0.406	0.438	0.447	0.467	0.497	0.519	0.542	0.587	0.600	0.642	0.674	0.713	0.752	0.791	0.840	0.889	0.942
16,000	0.322	0.346	0.362	0.374	0.401	0.423	0.440	0.470	0.495	0.525	0.548	0.586	0.626	0.657	0.708	0.734	0.790	0.836	0.890	0.941
17,000	0.320	0.335	0.352	0.371	0.390	0.412	0.435	0.459	0.486	0.514	0.544	0.577	0.611	0.649	0.689	0.732	0.778	0.827	0.888	0.936
18,000	0.379	0.394	0.408	0.424	0.441	0.456	0.479	0.501	0.524	0.550	0.577	0.605	0.638	0.671	0.707	0.746	0.786	0.835	0.883	0.937
19,000	0.355	0.368	0.381	0.397	0.414	0.441	0.453	0.484	0.500	0.533	0.555	0.593	0.619	0.660	0.698	0.739	0.783	0.832	0.883	0.937
20,000	0.326	0.338	0.352	0.367	0.337	0.403	0.424	0.403	0.471	0.501	0.489	0.560	0.596	0.601	0.676	0.721	0.764	0.816	0.877	0.936
21,000	0.349	0.359	0.371	0.385	0.401	0.418	0.438	0.460	0.483	0.509	0.537	0.564	0.594	0.628	0.673	0.713	0.754	0.810	0.865	0.931
22,000	0.264	0.277	0.292	0.308	0.327	0.348	0.370	0.395	0.422	0.452	0.501	0.520	0.556	0.610	0.653	0.689	0.749	0.815	0.863	0.931
23,000	0.257	0.270	0.284	0.298	0.319	0.339	0.361	0.386	0.413	0.442	0.475	0.509	0.547	0.588	0.633	0.682	0.735	0.793	0.855	0.928
24,000	0.232	0.244	0.258	0.272	0.292	0.312	0.335	0.360	0.388	0.422	0.455	0.489	0.531	0.572	0.615	0.666	0.719	0.782	0.848	0.923
25,000	0.180	0.192	0.208	0.219	0.240	0.261	0.284	0.310	0.339	0.371	0.406	0.442	0.513	0.531	0.581	0.636	0.711	0.774	0.835	0.918
30,000	0.077	0.088	0.105	0.119	0.141	0.163	0.191	0.220	0.252	0.283	0.322	0.364	0.414	0.463	0.515	0.581	0.649	0.732	0.816	0.894
40,000	0.060	0.059	0.062	0.070	0.081	0.097	0.116	0.140	0.168	0.200	0.237	0.278	0.325	0.379	0.439	0.506	0.582	0.673	0.768	0.877
50,000	0.101	0.093	0.091	0.095	0.104	0.117	0.135	0.157	0.183	0.213	0.248	0.288	0.333	0.384	0.449	0.507	0.587	0.670	0.765	0.874
60,000	0.149	0.124	0.110	0.103	0.104	0.110	0.122	0.140	0.162	0.189	0.221	0.259	0.303	0.353	0.411	0.478	0.552	0.641	0.743	0.859
70,000	0.180	0.131	0.106	0.091	0.088	0.089	0.096	0.110	0.129	0.153	0.184	0.219	0.263	0.313	0.372	0.442	0.521	0.613	0.722	0.847
80,000	0.183	0.121	0.079	0.054	0.042	0.040	0.047	0.061	0.082	0.109	0.142	0.182	0.229	0.283	0.340	0.415	0.496	0.596	0.709	0.839
90,000	0.292	0.195	0.127	0.085	0.064	0.053	0.050	0.059	0.079	0.106	0.131	0.172	0.220	0.272	0.329	0.404	0.489	0.586	0.699	0.837
100,000	0.458	0.323	0.233	0.175	0.139	0.120	0.115	0.120	0.134	0.155	0.184	0.220	0.251	0.312	0.370	0.428	0.516	0.600	0.708	0.834
150,000	1.293	0.872	0.614	0.453	0.352	0.293	0.260	0.246	0.246	0.258	0.275	0.305	0.342	0.384	0.432	0.491	0.561	0.641	0.738	0.856
200,000	2.386	1.403	0.863	0.546	0.353	0.242	0.164	0.123	0.101	0.098	0.116	0.132	0.172	0.208	0.263	0.330	0.412	0.513	0.639	0.797
250,000	3.851	2.064	1.185	0.703	0.424	0.266	0.155	0.092	0.060	0.042	0.052	0.062	0.099	0.133	0.186	0.255	0.341	0.450	0.588	0.765
300,000	6.436	3.242	1.837	1.125	0.734	0.509	0.378	0.301	0.259	0.237	0.244	0.258	0.282	0.310	0.354	0.411	0.485	0.566	0.675	0.815
400,000	10.202	4.564	2.444	1.471	0.967	0.690	0.532	0.443	0.396	0.371	0.374	0.385	0.406	0.429	0.467	0.519	0.576	0.643	0.732	0.847
500,000	14.538	5.824	2.944	1.706	1.094	0.765	0.582	0.479	0.424	0.394	0.393	0.396	0.421	0.443	0.479	0.529	0.584	0.649	0.736	0.848

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 70,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.936	0.939	0.942	0.945	0.947	0.953	0.954	0.958	0.961	0.964	0.967	0.970	0.973	0.978	0.980	0.984	0.986	0.990	0.993	0.997
2,000	0.898	0.903	0.907	0.913	0.917	0.923	0.927	0.932	0.937	0.942	0.947	0.952	0.957	0.963	0.968	0.973	0.978	0.984	0.989	0.995
3,000	0.865	0.871	0.878	0.884	0.891	0.897	0.903	0.909	0.916	0.923	0.930	0.936	0.943	0.950	0.957	0.964	0.972	0.977	0.984	0.993
4,000	0.847	0.854	0.861	0.873	0.876	0.882	0.890	0.897	0.908	0.911	0.920	0.927	0.934	0.945	0.950	0.958	0.966	0.976	0.983	0.991
5,000	0.822	0.830	0.838	0.846	0.854	0.863	0.874	0.881	0.891	0.897	0.908	0.916	0.924	0.933	0.942	0.952	0.961	0.971	0.980	0.990
6,000	0.788	0.797	0.807	0.816	0.826	0.835	0.845	0.855	0.865	0.875	0.886	0.894	0.905	0.916	0.929	0.940	0.953	0.965	0.976	0.989
7,000	0.819	0.827	0.835	0.844	0.852	0.861	0.869	0.878	0.887	0.895	0.905	0.913	0.922	0.932	0.941	0.951	0.960	0.970	0.980	0.990
8,000	0.809	0.815	0.824	0.833	0.841	0.852	0.861	0.870	0.880	0.887	0.897	0.907	0.916	0.926	0.936	0.947	0.957	0.968	0.979	0.989
9,000	0.801	0.811	0.818	0.827	0.836	0.846	0.855	0.866	0.875	0.885	0.893	0.904	0.915	0.925	0.935	0.945	0.956	0.966	0.977	0.988
10,000	0.792	0.801	0.811	0.820	0.832	0.841	0.851	0.861	0.871	0.881	0.890	0.900	0.910	0.920	0.931	0.943	0.954	0.965	0.977	0.988
11,000	0.787	0.797	0.806	0.816	0.825	0.833	0.845	0.855	0.863	0.876	0.884	0.895	0.908	0.917	0.929	0.940	0.951	0.963	0.975	0.988
12,000	0.783	0.792	0.802	0.812	0.822	0.832	0.842	0.852	0.862	0.873	0.883	0.894	0.905	0.917	0.928	0.939	0.951	0.963	0.975	0.988
13,000	0.777	0.787	0.797	0.807	0.817	0.827	0.838	0.848	0.859	0.870	0.881	0.891	0.903	0.914	0.926	0.938	0.950	0.962	0.974	0.987
14,000	0.770	0.780	0.789	0.799	0.810	0.821	0.832	0.843	0.854	0.865	0.876	0.887	0.896	0.911	0.920	0.935	0.948	0.960	0.973	0.987
15,000	0.754	0.765	0.776	0.787	0.798	0.809	0.820	0.830	0.843	0.855	0.867	0.879	0.892	0.904	0.917	0.933	0.944	0.957	0.973	0.986
16,000	0.746	0.759	0.768	0.781	0.793	0.804	0.816	0.826	0.839	0.851	0.863	0.876	0.889	0.902	0.915	0.928	0.942	0.956	0.970	0.985
17,000	0.719	0.730	0.742	0.754	0.767	0.779	0.792	0.805	0.818	0.831	0.846	0.859	0.874	0.888	0.913	0.917	0.941	0.955	0.966	0.985
18,000	0.713	0.749	0.737	0.772	0.762	0.795	0.808	0.800	0.833	0.829	0.858	0.871	0.884	0.897	0.911	0.925	0.939	0.954	0.969	0.984
19,000	0.711	0.723	0.735	0.748	0.760	0.794	0.786	0.799	0.812	0.843	0.856	0.869	0.884	0.910	0.924	0.938	0.953	0.968	0.984	0.984
20,000	0.707	0.718	0.730	0.743	0.755	0.770	0.783	0.796	0.810	0.822	0.837	0.851	0.866	0.881	0.897	0.913	0.930	0.946	0.968	0.984
21,000	0.726	0.737	0.749	0.761	0.773	0.786	0.798	0.811	0.824	0.837	0.850	0.864	0.862	0.892	0.906	0.909	0.935	0.945	0.963	0.983
22,000	0.722	0.734	0.746	0.754	0.767	0.779	0.792	0.808	0.821	0.835	0.847	0.861	0.875	0.888	0.903	0.918	0.935	0.945	0.966	0.981
23,000	0.717	0.728	0.741	0.753	0.765	0.778	0.791	0.804	0.818	0.831	0.845	0.858	0.873	0.888	0.902	0.907	0.924	0.942	0.961	0.980
24,000	0.691	0.704	0.716	0.729	0.743	0.756	0.770	0.784	0.798	0.812	0.827	0.843	0.858	0.874	0.890	0.907	0.924	0.942	0.965	0.983
25,000	0.692	0.705	0.717	0.730	0.743	0.757	0.770	0.784	0.799	0.813	0.828	0.843	0.858	0.875	0.891	0.908	0.925	0.942	0.961	0.980
30,000	0.678	0.691	0.704	0.718	0.732	0.745	0.759	0.774	0.789	0.804	0.820	0.835	0.852	0.868	0.886	0.903	0.921	0.939	0.959	0.979
40,000	0.651	0.665	0.679	0.693	0.708	0.723	0.739	0.755	0.771	0.788	0.805	0.822	0.839	0.857	0.876	0.895	0.914	0.934	0.955	0.977
50,000	0.108	0.120	0.135	0.152	0.172	0.194	0.218	0.245	0.274	0.307	0.343	0.383	0.426	0.474	0.528	0.586	0.652	0.725	0.806	0.897
60,000	0.091	0.099	0.110	0.123	0.140	0.160	0.182	0.207	0.236	0.267	0.303	0.342	0.386	0.436	0.490	0.552	0.621	0.699	0.787	0.886
70,000	0.077	0.079	0.086	0.096	0.110	0.128	0.148	0.172	0.200	0.231	0.266	0.306	0.350	0.400	0.457	0.521	0.593	0.675	0.769	0.876
80,000	0.110	0.100	0.098	0.101	0.109	0.123	0.140	0.161	0.189	0.215	0.248	0.290	0.334	0.385	0.437	0.504	0.577	0.661	0.756	0.870
90,000	0.130	0.111	0.103	0.102	0.107	0.117	0.132	0.152	0.176	0.204	0.236	0.274	0.317	0.366	0.422	0.487	0.562	0.647	0.747	0.864
100,000	0.150	0.118	0.099	0.092	0.092	0.099	0.111	0.128	0.151	0.178	0.210	0.247	0.290	0.340	0.397	0.463	0.541	0.629	0.733	0.855
150,000	0.989	0.827	0.739	0.692	0.671	0.666	0.672	0.683	0.699	0.718	0.739	0.761	0.784	0.807	0.832	0.857	0.882	0.909	0.937	0.967
200,000	1.521	1.092	0.874	0.762	0.705	0.681	0.675	0.681	0.695	0.712	0.733	0.756	0.779	0.804	0.829	0.855	0.881	0.908	0.936	0.966
250,000	2.225	1.409	1.034	0.849	0.757	0.715	0.700	0.702	0.712	0.729	0.749	0.771	0.794	0.818	0.842	0.867	0.892	0.917	0.943	0.970
300,000	3.118	1.771	1.201	0.934	0.804	0.743	0.718	0.714	0.722	0.736	0.755	0.777	0.799	0.823	0.847	0.871	0.895	0.919	0.945	0.971
400,000	4.726	2.333	1.444	1.058	0.876	0.791	0.754	0.743	0.747	0.760	0.777	0.797	0.819	0.840	0.863	0.885	0.907	0.929	0.951	0.974
500,000	6.574	2.898	1.672	1.167	0.939	0.831	0.784	0.767	0.768	0.779	0.795	0.813	0.833	0.854	0.874	0.895	0.915	0.935	0.955	0.976

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 80,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.697	0.710	0.724	0.755	0.766	0.793	0.791	0.803	0.812	0.826	0.851	0.873	0.873	0.890	0.901	0.914	0.931	0.956	0.970	0.985
2,000	0.610	0.627	0.641	0.663	0.685	0.699	0.719	0.727	0.750	0.771	0.794	0.809	0.827	0.840	0.868	0.884	0.909	0.934	0.955	0.977
3,000	0.553	0.575	0.593	0.611	0.629	0.648	0.667	0.688	0.706	0.730	0.756	0.775	0.797	0.820	0.842	0.865	0.891	0.918	0.945	0.972
4,000	0.503	0.524	0.542	0.560	0.582	0.603	0.619	0.644	0.668	0.688	0.714	0.734	0.764	0.791	0.819	0.845	0.876	0.906	0.936	0.966
5,000	0.450	0.478	0.484	0.511	0.539	0.551	0.578	0.610	0.622	0.651	0.685	0.703	0.731	0.767	0.792	0.825	0.861	0.894	0.926	0.963
6,000	0.426	0.444	0.464	0.487	0.509	0.532	0.556	0.578	0.606	0.632	0.660	0.689	0.717	0.747	0.781	0.813	0.851	0.886	0.921	0.959
7,000	0.381	0.403	0.424	0.444	0.469	0.493	0.516	0.544	0.569	0.597	0.628	0.658	0.691	0.724	0.758	0.794	0.832	0.871	0.912	0.956
8,000	0.359	0.380	0.400	0.422	0.445	0.471	0.496	0.521	0.549	0.572	0.609	0.641	0.668	0.703	0.746	0.784	0.819	0.864	0.907	0.951
9,000	0.329	0.349	0.370	0.393	0.416	0.441	0.466	0.494	0.523	0.553	0.584	0.618	0.653	0.691	0.727	0.767	0.811	0.855	0.900	0.949
10,000	0.303	0.324	0.345	0.370	0.391	0.416	0.445	0.473	0.500	0.533	0.565	0.598	0.636	0.673	0.713	0.754	0.799	0.845	0.894	0.945
11,000	0.272	0.292	0.314	0.340	0.361	0.387	0.414	0.445	0.473	0.505	0.539	0.577	0.613	0.652	0.694	0.740	0.785	0.835	0.888	0.943
12,000	0.255	0.278	0.297	0.319	0.346	0.369	0.396	0.428	0.456	0.488	0.525	0.559	0.598	0.639	0.682	0.729	0.776	0.828	0.881	0.939
13,000	0.244	0.264	0.285	0.307	0.331	0.357	0.384	0.413	0.444	0.477	0.512	0.549	0.588	0.630	0.673	0.720	0.768	0.822	0.876	0.936
14,000	0.224	0.244	0.265	0.287	0.311	0.337	0.364	0.393	0.425	0.458	0.495	0.532	0.573	0.616	0.661	0.709	0.760	0.816	0.872	0.934
15,000	0.215	0.233	0.254	0.276	0.300	0.325	0.353	0.382	0.414	0.447	0.482	0.521	0.562	0.605	0.651	0.700	0.753	0.808	0.868	0.932
16,000	0.193	0.212	0.232	0.254	0.278	0.303	0.331	0.355	0.387	0.422	0.469	0.503	0.549	0.585	0.633	0.689	0.746	0.803	0.863	0.930
17,000	0.167	0.185	0.205	0.228	0.253	0.279	0.307	0.338	0.371	0.405	0.443	0.484	0.527	0.573	0.622	0.675	0.731	0.792	0.857	0.928
18,000	0.156	0.174	0.195	0.217	0.241	0.267	0.295	0.326	0.359	0.394	0.432	0.473	0.516	0.563	0.613	0.667	0.724	0.786	0.853	0.924
19,000	0.144	0.162	0.181	0.205	0.227	0.253	0.283	0.312	0.345	0.382	0.419	0.462	0.506	0.552	0.604	0.659	0.717	0.781	0.849	0.922
20,000	0.141	0.152	0.178	0.193	0.223	0.242	0.276	0.301	0.339	0.370	0.408	0.450	0.495	0.543	0.595	0.651	0.711	0.775	0.845	0.919
21,000	0.139	0.155	0.173	0.193	0.216	0.243	0.268	0.298	0.330	0.366	0.406	0.448	0.490	0.538	0.586	0.646	0.704	0.773	0.842	0.917
22,000	0.124	0.140	0.157	0.177	0.200	0.225	0.252	0.282	0.315	0.351	0.389	0.431	0.477	0.526	0.578	0.636	0.702	0.765	0.837	0.916
23,000	0.119	0.134	0.151	0.169	0.191	0.216	0.244	0.273	0.306	0.342	0.380	0.422	0.468	0.518	0.571	0.629	0.692	0.760	0.833	0.915
24,000	0.119	0.133	0.149	0.167	0.188	0.212	0.238	0.268	0.300	0.335	0.374	0.416	0.462	0.511	0.565	0.624	0.686	0.755	0.830	0.913
25,000	0.117	0.130	0.145	0.162	0.181	0.206	0.232	0.260	0.292	0.328	0.367	0.408	0.454	0.504	0.558	0.618	0.682	0.751	0.827	0.910
30,000	0.132	0.138	0.148	0.161	0.177	0.196	0.219	0.246	0.276	0.309	0.346	0.387	0.432	0.482	0.537	0.594	0.661	0.736	0.816	0.902
40,000	0.117	0.108	0.105	0.107	0.115	0.128	0.146	0.168	0.195	0.227	0.264	0.306	0.353	0.406	0.466	0.533	0.607	0.690	0.783	0.886
50,000	0.128	0.104	0.090	0.083	0.084	0.091	0.105	0.124	0.148	0.179	0.215	0.257	0.305	0.360	0.422	0.502	0.580	0.660	0.760	0.875
60,000	0.197	0.143	0.106	0.081	0.067	0.062	0.066	0.078	0.097	0.124	0.157	0.198	0.246	0.302	0.366	0.441	0.525	0.622	0.732	0.860
70,000	0.328	0.222	0.144	0.089	0.051	0.029	0.020	0.022	0.034	0.055	0.085	0.124	0.173	0.230	0.298	0.378	0.469	0.575	0.697	0.835
80,000	0.560	0.387	0.259	0.165	0.098	0.054	0.026	0.014	0.015	0.028	0.052	0.086	0.131	0.187	0.255	0.335	0.430	0.544	0.671	0.826
90,000	1.229	0.887	0.622	0.453	0.306	0.222	0.145	0.102	0.090	0.075	0.094	0.108	0.153	0.197	0.256	0.333	0.418	0.533	0.664	0.816
100,000	1.684	1.206	0.859	0.606	0.420	0.286	0.190	0.126	0.086	0.067	0.066	0.082	0.112	0.158	0.219	0.295	0.389	0.503	0.640	0.810
150,000	4.903	3.260	2.192	1.489	1.012	0.682	0.455	0.299	0.194	0.129	0.096	0.088	0.101	0.134	0.185	0.257	0.349	0.465	0.609	0.785
200,000	9.321	5.648	3.587	2.341	1.551	1.037	0.694	0.464	0.313	0.217	0.162	0.139	0.142	0.168	0.213	0.279	0.366	0.476	0.614	0.787
250,000	15.929	8.826	5.275	3.287	2.106	1.365	0.884	0.568	0.359	0.225	0.144	0.104	0.095	0.113	0.161	0.220	0.316	0.426	0.579	0.765
300,000	22.824	11.702	6.648	4.008	2.508	1.594	1.014	0.638	0.392	0.233	0.135	0.083	0.066	0.079	0.123	0.181	0.278	0.392	0.551	0.749
400,000	36.638	16.780	8.958	5.221	3.196	2.012	1.279	0.809	0.504	0.304	0.179	0.106	0.073	0.073	0.103	0.160	0.252	0.364	0.527	0.727
500,000	51.597	21.419	10.865	6.143	3.698	2.306	1.461	0.928	0.583	0.359	0.215	0.130	0.087	0.080	0.102	0.154	0.243	0.352	0.514	0.722

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 90,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.763	0.681	0.799	0.797	0.802	0.808	0.819	0.837	0.857	0.865	0.880	0.882	0.890	0.911	0.921	0.936	0.954	0.959	0.964	0.977
2,000	0.563	0.565	0.581	0.656	0.631	0.646	0.668	0.674	0.737	0.750	0.769	0.755	0.786	0.833	0.858	0.880	0.912	0.919	0.940	0.969
3,000	0.465	0.455	0.475	0.520	0.516	0.560	0.578	0.582	0.626	0.651	0.663	0.703	0.727	0.739	0.790	0.816	0.845	0.885	0.920	0.962
4,000	0.449	0.465	0.487	0.505	0.524	0.545	0.566	0.581	0.610	0.635	0.659	0.689	0.716	0.746	0.779	0.820	0.844	0.882	0.921	0.954
5,000	0.314	0.333	0.354	0.376	0.400	0.425	0.451	0.479	0.538	0.539	0.571	0.606	0.641	0.679	0.720	0.761	0.817	0.852	0.904	0.954
6,000	0.282	0.299	0.319	0.341	0.363	0.388	0.424	0.441	0.480	0.502	0.544	0.579	0.609	0.655	0.690	0.741	0.787	0.836	0.886	0.947
7,000	0.230	0.250	0.271	0.294	0.319	0.345	0.373	0.402	0.436	0.468	0.503	0.541	0.583	0.624	0.669	0.717	0.768	0.821	0.874	0.935
8,000	0.204	0.234	0.239	0.261	0.289	0.315	0.350	0.380	0.412	0.438	0.473	0.513	0.560	0.606	0.650	0.706	0.757	0.808	0.870	0.935
9,000	0.191	0.184	0.229	0.251	0.274	0.329	0.328	0.357	0.412	0.423	0.460	0.517	0.542	0.587	0.647	0.697	0.749	0.796	0.860	0.930
10,000	0.229	0.240	0.255	0.273	0.293	0.315	0.339	0.366	0.395	0.427	0.462	0.499	0.540	0.583	0.631	0.681	0.736	0.787	0.854	0.923
11,000	0.191	0.203	0.250	0.235	0.255	0.307	0.301	0.357	0.359	0.393	0.452	0.468	0.529	0.571	0.621	0.670	0.718	0.787	0.852	0.921
12,000	0.180	0.191	0.204	0.220	0.239	0.260	0.284	0.310	0.340	0.373	0.409	0.449	0.492	0.539	0.590	0.645	0.706	0.783	0.847	0.921
13,000	0.198	0.208	0.219	0.234	0.251	0.271	0.293	0.318	0.347	0.379	0.411	0.452	0.494	0.540	0.590	0.644	0.705	0.773	0.834	0.915
14,000	0.239	0.245	0.254	0.266	0.333	0.348	0.365	0.386	0.365	0.395	0.427	0.464	0.504	0.548	0.597	0.671	0.708	0.766	0.836	0.915
15,000	0.247	0.251	0.367	0.373	0.381	0.303	0.321	0.339	0.364	0.392	0.422	0.458	0.497	0.542	0.638	0.646	0.704	0.758	0.831	0.918
16,000	0.454	0.404	0.406	0.411	0.418	0.428	0.440	0.456	0.474	0.495	0.520	0.548	0.606	0.639	0.655	0.699	0.748	0.801	0.836	0.915
17,000	0.343	0.342	0.344	0.348	0.359	0.366	0.379	0.396	0.416	0.443	0.470	0.497	0.532	0.575	0.639	0.666	0.719	0.791	0.859	0.920
18,000	0.301	0.301	0.303	0.308	0.316	0.327	0.342	0.360	0.381	0.406	0.475	0.468	0.505	0.547	0.620	0.667	0.721	0.759	0.832	0.920
19,000	0.299	0.297	0.295	0.299	0.308	0.319	0.333	0.351	0.373	0.394	0.423	0.458	0.495	0.537	0.584	0.637	0.715	0.761	0.833	0.911
20,000	0.208	0.206	0.208	0.213	0.222	0.234	0.340	0.270	0.374	0.322	0.354	0.456	0.433	0.534	0.533	0.633	0.689	0.757	0.828	0.901
21,000	0.164	0.163	0.166	0.172	0.182	0.196	0.213	0.231	0.257	0.286	0.321	0.360	0.407	0.456	0.552	0.573	0.670	0.718	0.826	0.895
22,000	0.146	0.138	0.137	0.139	0.146	0.159	0.173	0.194	0.219	0.247	0.282	0.321	0.368	0.445	0.481	0.563	0.650	0.712	0.813	0.894
23,000	0.147	0.139	0.139	0.136	0.142	0.155	0.164	0.185	0.212	0.241	0.271	0.307	0.360	0.413	0.466	0.532	0.610	0.684	0.799	0.889
24,000	0.150	0.141	0.136	0.135	0.141	0.150	0.164	0.183	0.205	0.232	0.265	0.308	0.353	0.401	0.459	0.526	0.600	0.688	0.779	0.887
25,000	0.159	0.145	0.137	0.134	0.136	0.143	0.154	0.171	0.192	0.220	0.252	0.309	0.354	0.387	0.446	0.528	0.603	0.681	0.770	0.879
30,000	0.124	0.102	0.087	0.078	0.075	0.078	0.086	0.101	0.122	0.148	0.181	0.221	0.269	0.323	0.387	0.459	0.542	0.637	0.743	0.862
40,000	0.258	0.191	0.155	0.121	0.096	0.080	0.073	0.074	0.084	0.094	0.127	0.155	0.198	0.258	0.316	0.396	0.484	0.586	0.706	0.840
50,000	0.377	0.288	0.217	0.161	0.118	0.087	0.068	0.058	0.059	0.068	0.088	0.118	0.158	0.209	0.272	0.348	0.440	0.548	0.675	0.825
60,000	0.577	0.450	0.348	0.266	0.203	0.155	0.120	0.098	0.087	0.088	0.099	0.121	0.155	0.201	0.260	0.333	0.423	0.531	0.667	0.816
70,000	0.844	0.642	0.483	0.356	0.258	0.182	0.126	0.087	0.063	0.053	0.056	0.073	0.102	0.145	0.205	0.280	0.373	0.488	0.628	0.797
80,000	1.137	0.878	0.675	0.517	0.393	0.297	0.224	0.171	0.135	0.114	0.108	0.115	0.137	0.173	0.225	0.293	0.356	0.472	0.627	0.787
90,000	1.526	1.146	0.855	0.631	0.457	0.324	0.223	0.148	0.095	0.062	0.047	0.048	0.066	0.101	0.152	0.223	0.317	0.432	0.584	0.770
100,000	2.163	1.606	1.189	0.873	0.632	0.446	0.306	0.201	0.124	0.073	0.043	0.033	0.043	0.071	0.120	0.190	0.283	0.405	0.560	0.755
150,000	6.550	4.640	3.367	2.481	1.849	1.386	1.042	0.783	0.588	0.441	0.334	0.259	0.213	0.194	0.201	0.235	0.300	0.399	0.541	0.736
200,000	17.110	11.128	7.584	5.334	3.837	2.796	2.050	1.505	1.099	0.796	0.568	0.400	0.283	0.207	0.172	0.176	0.205	0.298	0.464	0.693
250,000	27.524	16.463	10.591	7.145	4.982	3.549	2.559	1.856	1.344	0.967	0.688	0.482	0.336	0.239	0.188	0.179	0.215	0.303	0.450	0.681
300,000	36.186	20.119	12.357	8.071	5.499	3.851	2.741	1.966	1.410	1.003	0.704	0.485	0.329	0.225	0.167	0.155	0.189	0.276	0.427	0.665
400,000	54.721	27.467	15.824	9.933	6.579	4.517	3.173	2.257	1.610	1.144	0.803	0.554	0.376	0.255	0.185	0.162	0.188	0.269	0.417	0.642
500,000	74.096	34.149	18.732	11.382	7.385	4.997	3.475	2.453	1.741	1.234	0.865	0.597	0.405	0.274	0.195	0.166	0.187	0.265	0.411	0.637

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 100,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.748	0.759	0.770	0.782	0.793	0.804	0.816	0.828	0.839	0.852	0.864	0.877	0.892	0.905	0.916	0.930	0.946	0.960	0.972	0.986
2,000	0.653	0.662	0.676	0.691	0.706	0.724	0.741	0.753	0.770	0.787	0.805	0.823	0.844	0.858	0.879	0.895	0.918	0.937	0.960	0.978
3,000	0.636	0.649	0.663	0.678	0.693	0.708	0.726	0.741	0.757	0.771	0.768	0.810	0.829	0.832	0.854	0.888	0.900	0.921	0.950	0.973
4,000	0.586	0.601	0.616	0.632	0.648	0.665	0.682	0.700	0.719	0.738	0.758	0.779	0.800	0.822	0.845	0.869	0.895	0.919	0.945	0.972
5,000	0.545	0.560	0.576	0.598	0.611	0.629	0.648	0.671	0.686	0.708	0.730	0.751	0.775	0.800	0.826	0.856	0.884	0.910	0.937	0.969
6,000	0.516	0.534	0.551	0.570	0.588	0.604	0.622	0.643	0.665	0.684	0.709	0.733	0.756	0.786	0.812	0.840	0.870	0.899	0.931	0.966
7,000	0.471	0.489	0.506	0.526	0.545	0.566	0.586	0.609	0.632	0.656	0.681	0.684	0.734	0.743	0.794	0.809	0.856	0.881	0.924	0.959
8,000	0.447	0.465	0.483	0.503	0.523	0.544	0.565	0.588	0.612	0.637	0.663	0.690	0.718	0.748	0.779	0.812	0.846	0.881	0.920	0.956
9,000	0.425	0.443	0.462	0.482	0.502	0.524	0.546	0.569	0.594	0.620	0.646	0.675	0.704	0.735	0.767	0.801	0.837	0.875	0.914	0.953
10,000	0.381	0.400	0.420	0.441	0.463	0.485	0.509	0.534	0.560	0.588	0.616	0.671	0.700	0.731	0.757	0.793	0.830	0.869	0.910	0.954
11,000	0.362	0.381	0.401	0.422	0.444	0.467	0.491	0.517	0.544	0.572	0.602	0.632	0.665	0.696	0.736	0.770	0.814	0.856	0.900	0.950
12,000	0.348	0.368	0.388	0.409	0.431	0.455	0.479	0.505	0.532	0.561	0.591	0.622	0.655	0.688	0.726	0.767	0.808	0.852	0.898	0.947
13,000	0.330	0.355	0.374	0.396	0.418	0.438	0.466	0.489	0.520	0.549	0.579	0.611	0.645	0.681	0.719	0.759	0.802	0.846	0.895	0.945
14,000	0.326	0.351	0.365	0.387	0.414	0.433	0.462	0.484	0.515	0.544	0.574	0.606	0.638	0.676	0.707	0.755	0.798	0.840	0.890	0.944
15,000	0.319	0.338	0.349	0.375	0.398	0.425	0.450	0.469	0.501	0.531	0.559	0.597	0.631	0.665	0.704	0.746	0.789	0.839	0.889	0.941
16,000	0.300	0.319	0.340	0.361	0.391	0.415	0.439	0.466	0.494	0.523	0.555	0.582	0.618	0.655	0.696	0.738	0.782	0.834	0.885	0.940
17,000	0.287	0.306	0.329	0.348	0.370	0.397	0.422	0.447	0.477	0.507	0.537	0.573	0.609	0.647	0.688	0.735	0.779	0.831	0.883	0.938
18,000	0.274	0.293	0.313	0.335	0.358	0.383	0.408	0.435	0.464	0.495	0.528	0.562	0.599	0.637	0.680	0.724	0.772	0.823	0.879	0.937
19,000	0.267	0.287	0.308	0.330	0.354	0.378	0.405	0.432	0.462	0.492	0.525	0.560	0.597	0.637	0.679	0.724	0.771	0.823	0.875	0.935
20,000	0.325	0.344	0.365	0.386	0.408	0.432	0.457	0.483	0.510	0.539	0.569	0.601	0.635	0.671	0.709	0.750	0.794	0.840	0.875	0.934
21,000	0.323	0.342	0.361	0.383	0.405	0.428	0.453	0.479	0.506	0.534	0.565	0.597	0.631	0.665	0.704	0.745	0.789	0.836	0.887	0.941
22,000	0.314	0.334	0.354	0.375	0.397	0.421	0.445	0.471	0.499	0.527	0.558	0.591	0.625	0.662	0.701	0.742	0.787	0.834	0.886	0.940
23,000	0.306	0.325	0.345	0.366	0.389	0.412	0.437	0.463	0.491	0.520	0.551	0.584	0.619	0.656	0.696	0.738	0.783	0.831	0.884	0.939
24,000	0.303	0.321	0.341	0.361	0.397	0.420	0.431	0.457	0.484	0.513	0.544	0.586	0.620	0.656	0.695	0.737	0.778	0.828	0.881	0.938
25,000	0.295	0.314	0.333	0.354	0.376	0.399	0.424	0.449	0.477	0.506	0.537	0.571	0.606	0.644	0.684	0.728	0.774	0.824	0.878	0.937
30,000	0.271	0.289	0.308	0.328	0.350	0.373	0.397	0.423	0.451	0.480	0.512	0.546	0.583	0.622	0.664	0.709	0.758	0.811	0.871	0.932
40,000	0.171	0.190	0.210	0.232	0.255	0.280	0.307	0.336	0.366	0.399	0.434	0.472	0.513	0.557	0.605	0.657	0.713	0.773	0.844	0.918
50,000	0.132	0.150	0.169	0.190	0.213	0.238	0.265	0.294	0.325	0.358	0.395	0.434	0.476	0.522	0.572	0.627	0.687	0.754	0.827	0.909
60,000	0.131	0.147	0.165	0.185	0.207	0.230	0.255	0.282	0.311	0.343	0.378	0.415	0.456	0.502	0.552	0.607	0.669	0.736	0.814	0.896
70,000	0.119	0.132	0.148	0.167	0.187	0.210	0.234	0.261	0.290	0.321	0.356	0.394	0.468	0.481	0.559	0.588	0.654	0.723	0.815	0.889
80,000	0.120	0.129	0.142	0.158	0.176	0.197	0.220	0.246	0.274	0.305	0.338	0.381	0.417	0.462	0.518	0.571	0.636	0.712	0.795	0.890
90,000	0.286	0.281	0.282	0.286	0.294	0.305	0.319	0.335	0.354	0.376	0.400	0.429	0.462	0.500	0.544	0.594	0.652	0.721	0.804	0.895
100,000	0.295	0.284	0.280	0.281	0.288	0.297	0.310	0.325	0.343	0.365	0.390	0.418	0.451	0.489	0.533	0.583	0.642	0.711	0.788	0.887
150,000	0.531	0.442	0.392	0.364	0.351	0.344	0.346	0.351	0.361	0.376	0.393	0.416	0.444	0.477	0.518	0.566	0.623	0.693	0.776	0.877
200,000	1.040	0.767	0.624	0.545	0.498	0.471	0.455	0.448	0.447	0.451	0.460	0.474	0.493	0.518	0.550	0.590	0.641	0.703	0.782	0.879
250,000	1.644	1.074	0.806	0.665	0.585	0.537	0.507	0.489	0.479	0.476	0.478	0.486	0.501	0.522	0.550	0.587	0.635	0.697	0.775	0.874
300,000	2.301	1.357	0.954	0.754	0.645	0.581	0.541	0.515	0.500	0.492	0.491	0.496	0.507	0.526	0.552	0.588	0.635	0.696	0.773	0.873
400,000	3.674	1.880	1.213	0.914	0.758	0.669	0.614	0.579	0.556	0.542	0.535	0.534	0.541	0.555	0.576	0.608	0.650	0.706	0.780	0.876
500,000	5.130	2.334	1.410	1.020	0.827	0.720	0.654	0.612	0.584	0.566	0.556	0.553	0.556	0.567	0.587	0.616	0.656	0.710	0.782	0.877

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 200,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.714	0.725	0.738	0.751	0.764	0.784	0.787	0.802	0.815	0.830	0.846	0.859	0.875	0.890	0.907	0.923	0.939	0.953	0.970	0.984
2,000	0.605	0.618	0.635	0.651	0.669	0.686	0.704	0.723	0.742	0.761	0.780	0.800	0.819	0.842	0.862	0.885	0.903	0.927	0.952	0.976
3,000	0.527	0.543	0.573	0.590	0.614	0.619	0.642	0.663	0.686	0.718	0.740	0.751	0.775	0.801	0.830	0.855	0.887	0.911	0.940	0.969
4,000	0.486	0.504	0.523	0.546	0.562	0.586	0.614	0.633	0.658	0.677	0.704	0.731	0.758	0.783	0.806	0.842	0.873	0.903	0.930	0.965
5,000	0.436	0.457	0.478	0.500	0.523	0.547	0.573	0.599	0.625	0.651	0.679	0.709	0.735	0.764	0.795	0.826	0.858	0.893	0.926	0.963
6,000	0.384	0.405	0.430	0.453	0.476	0.498	0.528	0.555	0.580	0.611	0.644	0.669	0.704	0.736	0.771	0.804	0.845	0.879	0.919	0.958
7,000	0.341	0.362	0.392	0.417	0.442	0.467	0.489	0.519	0.547	0.578	0.610	0.643	0.676	0.712	0.750	0.786	0.824	0.868	0.912	0.955
8,000	0.320	0.343	0.367	0.392	0.417	0.444	0.472	0.501	0.531	0.562	0.595	0.628	0.663	0.700	0.738	0.776	0.816	0.860	0.905	0.952
9,000	0.291	0.314	0.337	0.364	0.390	0.418	0.446	0.476	0.506	0.540	0.574	0.609	0.646	0.683	0.723	0.765	0.807	0.852	0.899	0.948
10,000	0.261	0.284	0.308	0.337	0.361	0.389	0.420	0.452	0.482	0.515	0.552	0.587	0.625	0.666	0.709	0.750	0.796	0.844	0.893	0.946
11,000	0.234	0.257	0.281	0.307	0.336	0.364	0.393	0.425	0.459	0.493	0.531	0.567	0.610	0.649	0.693	0.740	0.785	0.838	0.889	0.943
12,000	0.217	0.237	0.262	0.287	0.314	0.343	0.376	0.410	0.439	0.475	0.512	0.551	0.594	0.633	0.681	0.730	0.779	0.832	0.884	0.939
13,000	0.198	0.221	0.246	0.271	0.299	0.328	0.359	0.395	0.425	0.460	0.498	0.537	0.579	0.623	0.670	0.721	0.770	0.821	0.878	0.937
14,000	0.186	0.209	0.233	0.259	0.287	0.316	0.343	0.379	0.413	0.449	0.487	0.524	0.566	0.612	0.659	0.709	0.762	0.817	0.875	0.935
15,000	0.163	0.192	0.216	0.236	0.269	0.298	0.324	0.363	0.396	0.429	0.472	0.512	0.555	0.599	0.649	0.699	0.754	0.808	0.870	0.934
16,000	0.130	0.152	0.177	0.203	0.230	0.259	0.292	0.326	0.361	0.398	0.440	0.481	0.540	0.575	0.637	0.680	0.744	0.796	0.865	0.928
17,000	0.118	0.140	0.164	0.189	0.217	0.245	0.278	0.312	0.347	0.387	0.426	0.469	0.517	0.564	0.616	0.671	0.729	0.791	0.857	0.926
18,000	0.102	0.123	0.147	0.172	0.199	0.229	0.261	0.295	0.332	0.370	0.412	0.456	0.504	0.554	0.606	0.662	0.722	0.785	0.853	0.924
19,000	0.089	0.109	0.132	0.157	0.184	0.214	0.246	0.280	0.317	0.356	0.398	0.443	0.490	0.541	0.595	0.653	0.714	0.779	0.848	0.922
20,000	0.081	0.100	0.122	0.147	0.174	0.203	0.234	0.269	0.306	0.345	0.387	0.432	0.481	0.532	0.586	0.646	0.708	0.773	0.843	0.920
21,000	0.073	0.092	0.114	0.138	0.164	0.193	0.225	0.259	0.296	0.334	0.379	0.423	0.471	0.520	0.577	0.637	0.702	0.769	0.840	0.918
22,000	0.063	0.083	0.104	0.127	0.151	0.181	0.213	0.247	0.282	0.322	0.366	0.409	0.459	0.512	0.570	0.630	0.694	0.762	0.837	0.916
23,000	0.057	0.074	0.094	0.117	0.143	0.171	0.202	0.236	0.272	0.312	0.355	0.402	0.452	0.504	0.562	0.623	0.688	0.756	0.833	0.914
24,000	0.053	0.070	0.090	0.112	0.138	0.163	0.197	0.226	0.268	0.307	0.347	0.396	0.445	0.500	0.557	0.619	0.682	0.753	0.830	0.912
25,000	0.045	0.058	0.081	0.100	0.129	0.156	0.183	0.221	0.257	0.298	0.341	0.385	0.437	0.492	0.549	0.612	0.679	0.750	0.828	0.911
30,000	0.022	0.034	0.050	0.069	0.091	0.118	0.147	0.181	0.218	0.258	0.300	0.347	0.400	0.456	0.518	0.582	0.654	0.730	0.813	0.902
40,000	0.011	0.018	0.028	0.044	0.063	0.087	0.115	0.146	0.181	0.220	0.264	0.312	0.364	0.421	0.484	0.552	0.627	0.707	0.797	0.895
50,000	0.011	0.007	0.009	0.018	0.032	0.051	0.076	0.105	0.138	0.177	0.218	0.267	0.322	0.383	0.445	0.515	0.596	0.683	0.777	0.883
60,000	0.043	0.021	0.008	0.006	0.013	0.025	0.043	0.068	0.098	0.136	0.176	0.224	0.280	0.340	0.406	0.481	0.565	0.656	0.760	0.872
70,000	0.098	0.067	0.049	0.041	0.042	0.050	0.065	0.086	0.113	0.145	0.184	0.228	0.279	0.336	0.402	0.466	0.557	0.643	0.752	0.868
80,000	0.200	0.131	0.080	0.048	0.031	0.024	0.029	0.044	0.064	0.094	0.130	0.175	0.226	0.285	0.379	0.431	0.519	0.631	0.740	0.861
90,000	0.327	0.224	0.152	0.104	0.073	0.057	0.050	0.057	0.074	0.100	0.134	0.175	0.221	0.282	0.345	0.424	0.509	0.612	0.725	0.853
100,000	0.443	0.307	0.211	0.145	0.096	0.072	0.066	0.069	0.082	0.100	0.128	0.169	0.221	0.276	0.343	0.418	0.505	0.602	0.720	0.850
150,000	1.640	1.104	0.727	0.499	0.336	0.228	0.156	0.114	0.099	0.097	0.112	0.135	0.175	0.226	0.294	0.363	0.454	0.562	0.687	0.830
200,000	3.214	2.026	1.311	0.849	0.550	0.351	0.229	0.150	0.108	0.090	0.094	0.115	0.152	0.198	0.260	0.342	0.429	0.542	0.669	0.818
250,000	5.544	3.339	2.089	1.340	0.874	0.575	0.385	0.262	0.187	0.147	0.134	0.141	0.168	0.206	0.262	0.333	0.421	0.534	0.658	0.815
300,000	8.039	4.642	2.842	1.806	1.176	0.784	0.532	0.372	0.273	0.213	0.186	0.181	0.198	0.231	0.281	0.355	0.440	0.530	0.659	0.815
400,000	12.513	6.805	4.012	2.496	1.609	1.066	0.722	0.502	0.361	0.275	0.227	0.209	0.213	0.238	0.281	0.342	0.409	0.523	0.642	0.807
500,000	16.255	8.385	4.782	2.908	1.848	1.212	0.815	0.563	0.403	0.303	0.247	0.223	0.223	0.244	0.284	0.343	0.422	0.522	0.648	0.806

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 300,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.768	0.778	0.789	0.799	0.811	0.822	0.832	0.844	0.855	0.866	0.878	0.889	0.902	0.913	0.924	0.937	0.949	0.962	0.976	0.988
2,000	0.673	0.687	0.701	0.715	0.729	0.745	0.760	0.775	0.791	0.806	0.822	0.839	0.855	0.873	0.889	0.908	0.926	0.944	0.963	0.981
3,000	0.613	0.629	0.644	0.661	0.677	0.694	0.714	0.733	0.751	0.767	0.786	0.805	0.825	0.842	0.864	0.885	0.907	0.931	0.953	0.976
4,000	0.566	0.581	0.597	0.615	0.634	0.655	0.672	0.694	0.714	0.734	0.756	0.777	0.800	0.823	0.845	0.870	0.893	0.920	0.947	0.973
5,000	0.535	0.553	0.571	0.590	0.609	0.629	0.650	0.671	0.692	0.713	0.736	0.759	0.783	0.807	0.828	0.859	0.884	0.910	0.942	0.969
6,000	0.506	0.524	0.543	0.562	0.580	0.601	0.622	0.644	0.667	0.690	0.714	0.739	0.765	0.791	0.818	0.847	0.875	0.904	0.935	0.967
7,000	0.494	0.509	0.529	0.553	0.574	0.586	0.611	0.634	0.661	0.682	0.705	0.730	0.756	0.786	0.810	0.839	0.870	0.901	0.931	0.964
8,000	0.472	0.493	0.514	0.533	0.554	0.575	0.597	0.621	0.643	0.668	0.693	0.714	0.746	0.773	0.801	0.833	0.865	0.893	0.928	0.962
9,000	0.451	0.470	0.490	0.511	0.532	0.554	0.577	0.600	0.625	0.650	0.676	0.703	0.732	0.761	0.791	0.823	0.855	0.889	0.925	0.961
10,000	0.444	0.470	0.489	0.510	0.525	0.544	0.575	0.598	0.618	0.641	0.674	0.697	0.726	0.750	0.789	0.819	0.848	0.884	0.924	0.959
11,000	0.421	0.440	0.461	0.482	0.504	0.527	0.551	0.575	0.601	0.627	0.655	0.683	0.714	0.744	0.777	0.810	0.845	0.880	0.920	0.957
12,000	0.404	0.429	0.450	0.471	0.493	0.512	0.534	0.560	0.586	0.618	0.646	0.672	0.702	0.733	0.767	0.802	0.838	0.877	0.916	0.956
13,000	0.392	0.412	0.433	0.455	0.477	0.501	0.525	0.551	0.573	0.605	0.634	0.660	0.695	0.725	0.759	0.794	0.833	0.871	0.912	0.954
14,000	0.365	0.383	0.405	0.431	0.450	0.476	0.502	0.527	0.556	0.586	0.614	0.646	0.682	0.711	0.749	0.785	0.826	0.866	0.908	0.952
15,000	0.338	0.360	0.382	0.405	0.429	0.454	0.480	0.507	0.536	0.565	0.596	0.629	0.663	0.704	0.735	0.777	0.816	0.857	0.905	0.950
16,000	0.327	0.348	0.373	0.396	0.420	0.445	0.471	0.497	0.528	0.559	0.591	0.620	0.656	0.693	0.731	0.770	0.812	0.853	0.900	0.948
17,000	0.312	0.334	0.356	0.380	0.403	0.428	0.455	0.483	0.515	0.545	0.577	0.610	0.644	0.682	0.720	0.760	0.805	0.850	0.896	0.947
18,000	0.307	0.329	0.351	0.374	0.390	0.424	0.451	0.481	0.508	0.541	0.573	0.597	0.632	0.670	0.713	0.760	0.802	0.844	0.894	0.946
19,000	0.299	0.321	0.343	0.367	0.391	0.417	0.444	0.472	0.501	0.532	0.565	0.596	0.635	0.670	0.712	0.752	0.797	0.843	0.893	0.943
20,000	0.288	0.310	0.333	0.356	0.381	0.407	0.434	0.463	0.492	0.524	0.556	0.591	0.625	0.664	0.705	0.747	0.793	0.840	0.891	0.943
21,000	0.283	0.305	0.327	0.351	0.376	0.402	0.429	0.458	0.487	0.519	0.552	0.586	0.623	0.661	0.700	0.743	0.788	0.836	0.887	0.942
22,000	0.272	0.293	0.316	0.339	0.363	0.389	0.420	0.448	0.478	0.509	0.543	0.578	0.614	0.654	0.694	0.738	0.784	0.833	0.886	0.941
23,000	0.263	0.288	0.311	0.333	0.357	0.383	0.408	0.438	0.467	0.499	0.533	0.569	0.606	0.646	0.689	0.732	0.780	0.830	0.883	0.940
24,000	0.248	0.275	0.292	0.316	0.345	0.367	0.395	0.427	0.458	0.488	0.524	0.559	0.596	0.638	0.680	0.725	0.773	0.824	0.881	0.939
25,000	0.215	0.237	0.261	0.285	0.311	0.337	0.366	0.396	0.427	0.461	0.508	0.534	0.585	0.616	0.662	0.717	0.760	0.820	0.875	0.936
30,000	0.170	0.192	0.214	0.238	0.264	0.291	0.320	0.351	0.384	0.419	0.466	0.495	0.537	0.582	0.630	0.681	0.736	0.795	0.861	0.928
40,000	0.114	0.134	0.155	0.178	0.182	0.210	0.239	0.271	0.323	0.358	0.397	0.438	0.483	0.531	0.583	0.629	0.697	0.764	0.837	0.914
50,000	0.049	0.070	0.084	0.106	0.135	0.161	0.185	0.219	0.255	0.288	0.332	0.376	0.420	0.475	0.530	0.590	0.660	0.733	0.812	0.903
60,000	0.066	0.079	0.095	0.113	0.134	0.158	0.184	0.213	0.245	0.280	0.319	0.361	0.407	0.454	0.514	0.565	0.637	0.719	0.802	0.897
70,000	0.041	0.052	0.066	0.083	0.103	0.126	0.151	0.180	0.202	0.238	0.278	0.322	0.369	0.423	0.482	0.546	0.618	0.700	0.789	0.890
80,000	0.046	0.052	0.063	0.077	0.094	0.115	0.139	0.167	0.198	0.232	0.270	0.313	0.360	0.413	0.471	0.536	0.609	0.690	0.781	0.884
90,000	0.087	0.089	0.096	0.107	0.121	0.139	0.159	0.184	0.211	0.243	0.278	0.318	0.363	0.417	0.473	0.533	0.605	0.678	0.779	0.879
100,000	0.104	0.103	0.106	0.114	0.126	0.142	0.161	0.183	0.210	0.240	0.274	0.313	0.357	0.407	0.462	0.526	0.598	0.679	0.772	0.877
150,000	0.189	0.138	0.107	0.091	0.086	0.089	0.100	0.117	0.141	0.167	0.200	0.240	0.283	0.335	0.395	0.463	0.542	0.631	0.734	0.861
200,000	0.404	0.308	0.246	0.169	0.183	0.172	0.170	0.175	0.187	0.198	0.230	0.259	0.299	0.345	0.399	0.462	0.537	0.629	0.729	0.856
250,000	0.593	0.427	0.323	0.258	0.217	0.193	0.182	0.181	0.188	0.202	0.223	0.252	0.287	0.331	0.383	0.446	0.521	0.611	0.718	0.846
300,000	0.744	0.512	0.374	0.290	0.239	0.210	0.197	0.195	0.202	0.217	0.239	0.268	0.304	0.347	0.399	0.458	0.532	0.622	0.726	0.849
400,000	0.963	0.613	0.414	0.296	0.225	0.184	0.163	0.156	0.159	0.172	0.192	0.220	0.256	0.300	0.353	0.417	0.494	0.587	0.699	0.834
500,000	1.230	0.765	0.508	0.358	0.267	0.214	0.184	0.170	0.169	0.177	0.194	0.220	0.253	0.295	0.346	0.409	0.486	0.578	0.691	0.829

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 400,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.820	0.828	0.836	0.845	0.852	0.860	0.869	0.878	0.887	0.895	0.904	0.913	0.923	0.933	0.941	0.951	0.961	0.971	0.979	0.990
2,000	0.742	0.753	0.764	0.775	0.787	0.799	0.811	0.824	0.836	0.849	0.861	0.874	0.889	0.902	0.914	0.928	0.941	0.955	0.970	0.985
3,000	0.680	0.693	0.707	0.721	0.735	0.749	0.763	0.778	0.793	0.809	0.825	0.843	0.856	0.873	0.890	0.908	0.926	0.944	0.964	0.981
4,000	0.652	0.666	0.680	0.695	0.710	0.725	0.741	0.757	0.773	0.790	0.807	0.824	0.842	0.860	0.879	0.898	0.917	0.935	0.957	0.978
5,000	0.608	0.623	0.643	0.655	0.672	0.689	0.706	0.724	0.742	0.768	0.787	0.806	0.824	0.844	0.863	0.883	0.905	0.930	0.953	0.975
6,000	0.584	0.600	0.617	0.634	0.651	0.669	0.687	0.706	0.725	0.745	0.765	0.786	0.808	0.829	0.853	0.874	0.899	0.925	0.950	0.974
7,000	0.562	0.579	0.591	0.608	0.631	0.650	0.665	0.688	0.708	0.729	0.747	0.772	0.795	0.816	0.839	0.865	0.891	0.917	0.945	0.971
8,000	0.539	0.556	0.583	0.601	0.619	0.630	0.649	0.677	0.698	0.719	0.741	0.758	0.781	0.813	0.832	0.862	0.887	0.912	0.939	0.969
9,000	0.529	0.547	0.565	0.583	0.602	0.622	0.642	0.663	0.684	0.706	0.729	0.752	0.776	0.801	0.827	0.853	0.881	0.909	0.938	0.968
10,000	0.510	0.528	0.546	0.565	0.585	0.605	0.625	0.647	0.669	0.692	0.715	0.739	0.765	0.791	0.818	0.845	0.874	0.905	0.935	0.967
11,000	0.485	0.504	0.523	0.543	0.563	0.584	0.606	0.630	0.652	0.674	0.702	0.725	0.753	0.779	0.807	0.837	0.867	0.899	0.932	0.965
12,000	0.473	0.491	0.511	0.531	0.551	0.573	0.595	0.617	0.641	0.665	0.690	0.716	0.744	0.771	0.800	0.830	0.861	0.894	0.929	0.963
13,000	0.458	0.477	0.497	0.517	0.538	0.560	0.582	0.606	0.630	0.655	0.680	0.707	0.735	0.763	0.793	0.825	0.857	0.890	0.926	0.962
14,000	0.445	0.464	0.484	0.505	0.526	0.548	0.571	0.595	0.619	0.645	0.671	0.698	0.727	0.756	0.787	0.819	0.852	0.887	0.923	0.961
15,000	0.429	0.451	0.471	0.492	0.514	0.536	0.559	0.583	0.609	0.634	0.661	0.689	0.718	0.749	0.780	0.813	0.847	0.883	0.920	0.959
16,000	0.418	0.438	0.459	0.480	0.502	0.525	0.548	0.573	0.598	0.624	0.651	0.681	0.711	0.743	0.774	0.808	0.843	0.880	0.918	0.958
17,000	0.401	0.421	0.441	0.464	0.486	0.508	0.533	0.557	0.584	0.611	0.639	0.670	0.700	0.732	0.769	0.800	0.837	0.875	0.916	0.957
18,000	0.386	0.407	0.429	0.452	0.474	0.497	0.522	0.547	0.575	0.603	0.631	0.661	0.693	0.726	0.760	0.796	0.833	0.872	0.914	0.955
19,000	0.374	0.395	0.417	0.439	0.462	0.486	0.512	0.538	0.565	0.593	0.622	0.653	0.685	0.718	0.753	0.790	0.828	0.869	0.910	0.954
20,000	0.374	0.395	0.416	0.438	0.461	0.484	0.510	0.536	0.563	0.591	0.621	0.648	0.680	0.714	0.749	0.786	0.825	0.865	0.908	0.953
21,000	0.366	0.386	0.408	0.430	0.454	0.478	0.503	0.529	0.556	0.585	0.614	0.645	0.678	0.712	0.747	0.784	0.821	0.864	0.907	0.952
22,000	0.356	0.377	0.399	0.421	0.445	0.469	0.495	0.521	0.549	0.577	0.608	0.639	0.672	0.706	0.742	0.780	0.820	0.861	0.905	0.951
23,000	0.347	0.368	0.390	0.413	0.437	0.461	0.487	0.513	0.541	0.570	0.601	0.633	0.666	0.701	0.737	0.776	0.816	0.859	0.903	0.950
24,000	0.331	0.360	0.382	0.398	0.422	0.448	0.479	0.506	0.534	0.563	0.590	0.623	0.660	0.695	0.733	0.772	0.813	0.854	0.901	0.949
25,000	0.324	0.346	0.368	0.392	0.416	0.441	0.467	0.495	0.523	0.554	0.585	0.617	0.652	0.691	0.726	0.768	0.809	0.852	0.900	0.948
30,000	0.292	0.313	0.335	0.359	0.384	0.409	0.436	0.464	0.494	0.525	0.557	0.591	0.627	0.665	0.705	0.748	0.792	0.840	0.890	0.944
40,000	0.203	0.226	0.251	0.276	0.303	0.330	0.360	0.391	0.423	0.457	0.493	0.531	0.571	0.614	0.660	0.707	0.754	0.813	0.871	0.934
50,000	0.154	0.177	0.202	0.228	0.255	0.284	0.314	0.346	0.379	0.415	0.453	0.493	0.535	0.580	0.628	0.680	0.735	0.794	0.858	0.926
60,000	0.111	0.134	0.158	0.184	0.212	0.241	0.272	0.301	0.339	0.373	0.413	0.455	0.502	0.549	0.600	0.655	0.713	0.776	0.846	0.919
70,000	0.068	0.086	0.108	0.132	0.159	0.188	0.219	0.253	0.289	0.327	0.368	0.413	0.460	0.514	0.569	0.634	0.696	0.763	0.832	0.915
80,000	0.059	0.078	0.101	0.127	0.154	0.185	0.217	0.251	0.288	0.327	0.369	0.413	0.461	0.512	0.566	0.625	0.688	0.757	0.830	0.911
90,000	0.043	0.060	0.081	0.106	0.133	0.163	0.195	0.230	0.267	0.307	0.349	0.394	0.441	0.493	0.549	0.611	0.676	0.747	0.823	0.908
100,000	0.033	0.047	0.066	0.089	0.115	0.145	0.177	0.212	0.250	0.290	0.333	0.379	0.428	0.481	0.538	0.599	0.666	0.739	0.819	0.905
150,000	0.085	0.063	0.060	0.070	0.089	0.114	0.144	0.178	0.216	0.256	0.300	0.348	0.399	0.453	0.512	0.576	0.646	0.722	0.804	0.899
200,000	0.256	0.133	0.098	0.078	0.076	0.072	0.115	0.142	0.177	0.219	0.263	0.309	0.362	0.419	0.479	0.557	0.631	0.710	0.797	0.893
250,000	0.522	0.292	0.173	0.115	0.092	0.091	0.105	0.129	0.160	0.197	0.240	0.287	0.340	0.398	0.461	0.530	0.606	0.684	0.781	0.883
300,000	0.781	0.417	0.234	0.141	0.100	0.088	0.095	0.115	0.144	0.180	0.222	0.269	0.322	0.380	0.444	0.515	0.593	0.679	0.773	0.880
400,000	1.169	0.570	0.284	0.143	0.077	0.054	0.056	0.074	0.103	0.140	0.184	0.234	0.289	0.351	0.424	0.492	0.578	0.663	0.762	0.878
500,000	1.632	0.780	0.388	0.198	0.108	0.071	0.066	0.080	0.107	0.143	0.186	0.236	0.291	0.352	0.419	0.493	0.574	0.664	0.763	0.879

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 500,000																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.771	0.781	0.791	0.801	0.812	0.822	0.833	0.844	0.855	0.865	0.877	0.888	0.900	0.912	0.924	0.936	0.948	0.966	0.977	0.987
2,000	0.701	0.714	0.726	0.739	0.752	0.765	0.778	0.792	0.806	0.820	0.835	0.850	0.865	0.881	0.897	0.913	0.931	0.950	0.966	0.983
3,000	0.610	0.624	0.640	0.656	0.673	0.689	0.707	0.725	0.742	0.761	0.780	0.800	0.820	0.841	0.862	0.883	0.905	0.934	0.958	0.969
4,000	0.582	0.598	0.614	0.631	0.648	0.667	0.685	0.703	0.723	0.743	0.785	0.784	0.805	0.844	0.864	0.861	0.905	0.901	0.952	0.966
5,000	0.546	0.563	0.581	0.599	0.617	0.636	0.656	0.676	0.697	0.718	0.740	0.763	0.786	0.811	0.835	0.860	0.887	0.914	0.942	0.964
6,000	0.513	0.531	0.549	0.567	0.587	0.607	0.627	0.649	0.671	0.693	0.717	0.741	0.766	0.792	0.819	0.847	0.875	0.905	0.935	0.967
7,000	0.488	0.506	0.524	0.544	0.562	0.583	0.604	0.627	0.650	0.673	0.698	0.724	0.751	0.778	0.807	0.835	0.866	0.898	0.931	0.965
8,000	0.465	0.483	0.502	0.522	0.542	0.563	0.585	0.608	0.632	0.657	0.682	0.708	0.736	0.765	0.795	0.825	0.858	0.891	0.926	0.962
9,000	0.451	0.470	0.489	0.508	0.529	0.550	0.572	0.595	0.619	0.645	0.671	0.698	0.726	0.756	0.787	0.819	0.853	0.886	0.923	0.960
10,000	0.433	0.452	0.471	0.491	0.512	0.534	0.557	0.583	0.605	0.631	0.658	0.686	0.717	0.746	0.777	0.810	0.846	0.881	0.919	0.958
11,000	0.387	0.407	0.428	0.449	0.471	0.495	0.519	0.544	0.571	0.599	0.627	0.658	0.683	0.722	0.757	0.793	0.839	0.877	0.911	0.956
12,000	0.377	0.396	0.417	0.438	0.458	0.481	0.506	0.532	0.561	0.589	0.619	0.649	0.681	0.715	0.750	0.786	0.822	0.866	0.908	0.952
13,000	0.362	0.381	0.402	0.423	0.446	0.469	0.494	0.521	0.548	0.576	0.606	0.638	0.671	0.705	0.741	0.780	0.819	0.861	0.905	0.951
14,000	0.326	0.347	0.369	0.391	0.415	0.440	0.467	0.494	0.523	0.553	0.585	0.618	0.653	0.689	0.727	0.767	0.814	0.854	0.900	0.950
15,000	0.312	0.333	0.355	0.378	0.402	0.427	0.454	0.482	0.511	0.542	0.574	0.608	0.643	0.680	0.719	0.761	0.804	0.849	0.897	0.947
16,000	0.300	0.321	0.343	0.366	0.390	0.415	0.442	0.470	0.500	0.531	0.564	0.598	0.634	0.672	0.712	0.754	0.798	0.845	0.894	0.946
17,000	0.316	0.334	0.354	0.375	0.398	0.421	0.447	0.473	0.502	0.532	0.564	0.597	0.632	0.670	0.705	0.747	0.793	0.841	0.891	0.944
18,000	0.306	0.325	0.344	0.365	0.388	0.412	0.437	0.464	0.493	0.523	0.555	0.589	0.624	0.663	0.703	0.746	0.791	0.839	0.890	0.942
19,000	0.287	0.305	0.325	0.346	0.369	0.393	0.419	0.446	0.476	0.507	0.539	0.580	0.611	0.655	0.692	0.740	0.786	0.835	0.887	0.942
20,000	0.254	0.273	0.294	0.316	0.339	0.364	0.391	0.419	0.450	0.482	0.516	0.553	0.591	0.632	0.686	0.722	0.776	0.831	0.883	0.940
21,000	0.246	0.264	0.285	0.307	0.330	0.355	0.382	0.411	0.441	0.473	0.508	0.545	0.584	0.625	0.670	0.717	0.766	0.822	0.879	0.939
22,000	0.238	0.256	0.276	0.298	0.321	0.347	0.373	0.402	0.433	0.465	0.500	0.537	0.577	0.619	0.663	0.711	0.762	0.816	0.874	0.938
23,000	0.231	0.249	0.269	0.290	0.314	0.339	0.365	0.394	0.425	0.458	0.493	0.530	0.570	0.612	0.658	0.706	0.758	0.812	0.871	0.933
24,000	0.223	0.242	0.261	0.283	0.306	0.331	0.358	0.386	0.417	0.450	0.486	0.523	0.563	0.606	0.652	0.701	0.753	0.809	0.869	0.932
25,000	0.216	0.234	0.253	0.274	0.297	0.322	0.349	0.378	0.409	0.442	0.477	0.515	0.556	0.599	0.646	0.695	0.748	0.805	0.866	0.931
30,000	0.274	0.288	0.303	0.321	0.340	0.361	0.385	0.410	0.437	0.467	0.499	0.534	0.572	0.613	0.657	0.704	0.754	0.809	0.868	0.925
40,000	0.185	0.199	0.191	0.233	0.254	0.277	0.302	0.329	0.360	0.393	0.428	0.467	0.509	0.555	0.604	0.667	0.724	0.785	0.851	0.922
50,000	0.104	0.121	0.141	0.163	0.187	0.214	0.243	0.274	0.307	0.344	0.383	0.426	0.471	0.521	0.574	0.632	0.694	0.761	0.834	0.914
60,000	0.027	0.049	0.068	0.090	0.108	0.144	0.175	0.200	0.245	0.285	0.328	0.427	0.424	0.523	0.535	0.632	0.695	0.761	0.833	0.911
70,000	0.174	0.187	0.203	0.222	0.243	0.268	0.294	0.323	0.355	0.389	0.425	0.464	0.507	0.553	0.602	0.656	0.713	0.780	0.849	0.923
80,000	0.173	0.179	0.191	0.207	0.226	0.248	0.273	0.302	0.333	0.366	0.403	0.443	0.487	0.533	0.584	0.639	0.700	0.768	0.838	0.915
90,000	0.186	0.185	0.195	0.214	0.228	0.249	0.274	0.302	0.337	0.367	0.403	0.446	0.486	0.533	0.583	0.638	0.700	0.764	0.830	0.911
100,000	0.190	0.188	0.194	0.205	0.222	0.242	0.266	0.293	0.323	0.357	0.393	0.433	0.476	0.523	0.575	0.630	0.691	0.758	0.831	0.911
150,000	0.236	0.180	0.149	0.137	0.138	0.149	0.169	0.194	0.225	0.261	0.302	0.346	0.395	0.449	0.508	0.572	0.642	0.719	0.803	0.897
200,000	0.399	0.268	0.190	0.147	0.127	0.125	0.136	0.156	0.183	0.217	0.257	0.302	0.352	0.408	0.469	0.537	0.611	0.694	0.785	0.887
250,000	0.600	0.382	0.251	0.176	0.136	0.121	0.122	0.136	0.160	0.191	0.229	0.273	0.324	0.380	0.443	0.513	0.590	0.676	0.772	0.879
300,000	0.830	0.525	0.348	0.246	0.190	0.164	0.159	0.168	0.188	0.216	0.252	0.294	0.343	0.397	0.458	0.525	0.600	0.684	0.777	0.882
400,000	1.218	0.730	0.453	0.295	0.205	0.160	0.143	0.144	0.160	0.187	0.222	0.264	0.313	0.369	0.432	0.502	0.580	0.668	0.768	0.876
500,000	1.345	0.803	0.504	0.335	0.241	0.193	0.173	0.174	0.188	0.213	0.246	0.286	0.333	0.387	0.448	0.515	0.591	0.674	0.770	0.878

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = 1M																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.809	0.818	0.827	0.836	0.844	0.854	0.862	0.872	0.881	0.891	0.900	0.909	0.918	0.932	0.938	0.949	0.958	0.969	0.978	0.989
2,000	0.718	0.731	0.743	0.756	0.769	0.781	0.795	0.806	0.821	0.834	0.848	0.864	0.876	0.892	0.906	0.921	0.937	0.953	0.968	0.984
3,000	0.652	0.680	0.695	0.709	0.724	0.728	0.755	0.770	0.786	0.802	0.819	0.828	0.846	0.864	0.883	0.901	0.924	0.941	0.960	0.980
4,000	0.634	0.649	0.664	0.680	0.696	0.713	0.729	0.746	0.763	0.781	0.799	0.817	0.836	0.855	0.874	0.892	0.912	0.934	0.955	0.977
5,000	0.592	0.613	0.631	0.644	0.664	0.681	0.697	0.718	0.737	0.751	0.773	0.794	0.815	0.841	0.860	0.883	0.904	0.927	0.951	0.975
6,000	0.561	0.578	0.595	0.614	0.633	0.650	0.671	0.690	0.712	0.731	0.753	0.775	0.798	0.821	0.844	0.868	0.894	0.919	0.945	0.972
7,000	0.525	0.546	0.564	0.583	0.601	0.623	0.644	0.664	0.686	0.709	0.732	0.755	0.779	0.803	0.829	0.855	0.884	0.912	0.941	0.971
8,000	0.498	0.517	0.538	0.558	0.578	0.599	0.621	0.644	0.667	0.690	0.714	0.739	0.765	0.792	0.819	0.847	0.876	0.905	0.936	0.968
9,000	0.471	0.491	0.512	0.533	0.556	0.576	0.599	0.623	0.647	0.673	0.698	0.724	0.750	0.778	0.808	0.838	0.868	0.899	0.932	0.966
10,000	0.450	0.470	0.491	0.513	0.535	0.558	0.582	0.606	0.631	0.656	0.683	0.710	0.739	0.767	0.799	0.829	0.861	0.894	0.928	0.963
11,000	0.431	0.452	0.473	0.495	0.518	0.542	0.566	0.590	0.616	0.642	0.670	0.698	0.723	0.757	0.792	0.818	0.857	0.887	0.925	0.961
12,000	0.414	0.435	0.457	0.479	0.499	0.526	0.551	0.576	0.602	0.630	0.657	0.685	0.717	0.750	0.780	0.813	0.850	0.883	0.919	0.959
13,000	0.397	0.419	0.438	0.461	0.484	0.509	0.534	0.563	0.590	0.617	0.644	0.676	0.707	0.739	0.771	0.805	0.842	0.879	0.918	0.958
14,000	0.374	0.396	0.418	0.442	0.466	0.491	0.517	0.544	0.571	0.600	0.630	0.661	0.693	0.727	0.761	0.798	0.835	0.873	0.914	0.957
15,000	0.359	0.381	0.404	0.427	0.452	0.477	0.504	0.531	0.559	0.589	0.619	0.651	0.684	0.718	0.754	0.791	0.830	0.869	0.911	0.956
16,000	0.347	0.368	0.391	0.415	0.440	0.466	0.493	0.521	0.550	0.579	0.610	0.642	0.677	0.714	0.747	0.785	0.824	0.866	0.908	0.953
17,000	0.329	0.351	0.375	0.399	0.424	0.450	0.478	0.506	0.536	0.566	0.601	0.634	0.668	0.703	0.741	0.778	0.818	0.862	0.907	0.952
18,000	0.310	0.333	0.357	0.387	0.413	0.440	0.462	0.491	0.521	0.552	0.585	0.619	0.654	0.691	0.730	0.772	0.814	0.858	0.903	0.951
19,000	0.299	0.322	0.346	0.370	0.397	0.424	0.452	0.474	0.505	0.537	0.571	0.606	0.642	0.683	0.723	0.768	0.809	0.855	0.901	0.949
20,000	0.279	0.302	0.327	0.352	0.378	0.406	0.435	0.464	0.496	0.528	0.563	0.598	0.635	0.674	0.718	0.760	0.806	0.851	0.898	0.948
21,000	0.268	0.291	0.328	0.341	0.368	0.395	0.424	0.455	0.486	0.527	0.553	0.589	0.633	0.667	0.708	0.751	0.796	0.845	0.896	0.947
22,000	0.285	0.308	0.332	0.356	0.382	0.409	0.427	0.467	0.489	0.529	0.555	0.598	0.635	0.673	0.708	0.750	0.791	0.842	0.892	0.947
23,000	0.278	0.301	0.325	0.350	0.375	0.394	0.422	0.452	0.484	0.516	0.542	0.586	0.624	0.663	0.699	0.748	0.789	0.843	0.892	0.945
24,000	0.269	0.292	0.316	0.341	0.367	0.394	0.422	0.452	0.483	0.516	0.550	0.586	0.623	0.662	0.704	0.747	0.789	0.838	0.889	0.944
25,000	0.259	0.282	0.306	0.331	0.357	0.384	0.413	0.443	0.474	0.507	0.542	0.578	0.616	0.656	0.698	0.742	0.788	0.837	0.886	0.944
30,000	0.218	0.241	0.270	0.291	0.318	0.346	0.379	0.406	0.439	0.473	0.512	0.548	0.588	0.630	0.676	0.721	0.770	0.823	0.879	0.937
40,000	0.173	0.203	0.226	0.256	0.279	0.305	0.335	0.360	0.392	0.429	0.469	0.509	0.564	0.594	0.647	0.696	0.755	0.807	0.861	0.930
50,000	0.123	0.143	0.165	0.188	0.214	0.243	0.273	0.305	0.340	0.377	0.417	0.459	0.504	0.551	0.604	0.659	0.717	0.780	0.849	0.923
60,000	0.082	0.098	0.130	0.140	0.165	0.193	0.235	0.256	0.292	0.330	0.381	0.416	0.463	0.514	0.576	0.628	0.691	0.768	0.836	0.915
70,000	0.065	0.080	0.095	0.119	0.141	0.171	0.199	0.235	0.268	0.309	0.351	0.396	0.445	0.497	0.553	0.614	0.679	0.750	0.826	0.910
80,000	0.055	0.066	0.082	0.101	0.124	0.151	0.181	0.209	0.249	0.288	0.326	0.375	0.426	0.475	0.536	0.597	0.662	0.736	0.819	0.904
90,000	0.076	0.075	0.081	0.093	0.110	0.133	0.159	0.189	0.224	0.262	0.304	0.349	0.399	0.454	0.513	0.577	0.648	0.724	0.808	0.899
100,000	0.088	0.079	0.080	0.088	0.102	0.122	0.147	0.177	0.211	0.248	0.290	0.336	0.386	0.441	0.501	0.567	0.638	0.716	0.802	0.896
150,000	0.234	0.162	0.118	0.095	0.087	0.091	0.104	0.125	0.153	0.187	0.227	0.273	0.324	0.382	0.445	0.515	0.596	0.679	0.775	0.881
200,000	0.439	0.282	0.184	0.125	0.093	0.080	0.082	0.096	0.119	0.149	0.187	0.232	0.284	0.342	0.407	0.480	0.564	0.655	0.757	0.873
250,000	0.786	0.498	0.265	0.164	0.105	0.095	0.079	0.070	0.087	0.115	0.151	0.198	0.248	0.306	0.374	0.449	0.535	0.630	0.739	0.862
300,000	1.015	0.661	0.415	0.262	0.168	0.114	0.080	0.082	0.091	0.113	0.145	0.186	0.235	0.293	0.361	0.437	0.523	0.620	0.731	0.857
400,000	1.422	0.869	0.536	0.333	0.207	0.134	0.095	0.080	0.084	0.102	0.131	0.171	0.220	0.278	0.345	0.422	0.510	0.610	0.723	0.852
500,000	1.828	1.095	0.667	0.406	0.248	0.154	0.101	0.078	0.076	0.091	0.119	0.157	0.206	0.264	0.332	0.410	0.499	0.601	0.717	0.849

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2015

Exhibit 1

Split Point	Cohort = > 1M																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.884	0.889	0.894	0.900	0.906	0.911	0.917	0.922	0.928	0.934	0.940	0.946	0.951	0.957	0.963	0.969	0.976	0.975	0.984	0.993
2,000	0.788	0.805	0.814	0.824	0.823	0.837	0.852	0.857	0.872	0.882	0.882	0.902	0.912	0.921	0.933	0.943	0.955	0.965	0.977	0.989
3,000	0.754	0.765	0.776	0.787	0.799	0.810	0.822	0.834	0.846	0.857	0.869	0.882	0.894	0.907	0.914	0.927	0.944	0.957	0.971	0.986
4,000	0.716	0.728	0.742	0.754	0.768	0.781	0.797	0.810	0.824	0.837	0.850	0.864	0.878	0.893	0.908	0.916	0.938	0.949	0.966	0.983
5,000	0.681	0.695	0.709	0.723	0.738	0.753	0.768	0.783	0.798	0.814	0.830	0.846	0.862	0.879	0.895	0.913	0.931	0.947	0.965	0.982
6,000	0.651	0.666	0.681	0.696	0.712	0.728	0.744	0.761	0.778	0.795	0.812	0.830	0.848	0.863	0.884	0.904	0.920	0.939	0.961	0.980
7,000	0.623	0.639	0.655	0.672	0.689	0.706	0.723	0.741	0.759	0.777	0.796	0.815	0.834	0.854	0.876	0.893	0.915	0.934	0.957	0.979
8,000	0.603	0.620	0.637	0.654	0.673	0.690	0.708	0.727	0.746	0.765	0.785	0.805	0.825	0.846	0.867	0.886	0.909	0.932	0.955	0.977
9,000	0.579	0.589	0.598	0.633	0.645	0.658	0.690	0.709	0.725	0.750	0.776	0.792	0.814	0.835	0.857	0.879	0.903	0.928	0.951	0.976
10,000	0.552	0.571	0.590	0.600	0.629	0.641	0.669	0.684	0.712	0.728	0.756	0.774	0.804	0.821	0.850	0.870	0.898	0.921	0.948	0.974
11,000	0.521	0.541	0.561	0.583	0.604	0.634	0.647	0.670	0.699	0.716	0.740	0.768	0.788	0.817	0.839	0.864	0.892	0.917	0.944	0.972
12,000	0.505	0.524	0.545	0.568	0.588	0.611	0.634	0.657	0.682	0.705	0.729	0.754	0.779	0.809	0.835	0.859	0.886	0.914	0.943	0.971
13,000	0.475	0.497	0.519	0.542	0.565	0.603	0.612	0.635	0.674	0.687	0.711	0.748	0.766	0.792	0.827	0.855	0.883	0.911	0.941	0.969
14,000	0.460	0.482	0.504	0.527	0.553	0.575	0.600	0.624	0.653	0.676	0.703	0.730	0.760	0.787	0.814	0.846	0.874	0.904	0.938	0.967
15,000	0.448	0.471	0.494	0.518	0.543	0.568	0.593	0.611	0.644	0.671	0.694	0.726	0.754	0.779	0.808	0.844	0.870	0.901	0.934	0.967
16,000	0.434	0.457	0.481	0.506	0.531	0.556	0.581	0.608	0.634	0.662	0.690	0.718	0.747	0.777	0.807	0.837	0.869	0.898	0.931	0.965
17,000	0.420	0.444	0.468	0.493	0.518	0.544	0.571	0.597	0.625	0.653	0.681	0.710	0.740	0.770	0.801	0.832	0.865	0.898	0.931	0.964
18,000	0.407	0.431	0.456	0.481	0.507	0.533	0.560	0.588	0.615	0.644	0.673	0.703	0.734	0.764	0.796	0.828	0.860	0.894	0.929	0.964
19,000	0.394	0.419	0.444	0.469	0.496	0.522	0.550	0.578	0.603	0.632	0.662	0.693	0.724	0.758	0.791	0.823	0.857	0.892	0.927	0.963
20,000	0.378	0.402	0.428	0.453	0.481	0.508	0.536	0.565	0.594	0.624	0.654	0.685	0.717	0.750	0.783	0.819	0.854	0.889	0.925	0.961
21,000	0.365	0.391	0.417	0.442	0.469	0.498	0.526	0.555	0.584	0.615	0.646	0.678	0.711	0.743	0.778	0.813	0.849	0.885	0.923	0.960
22,000	0.349	0.374	0.400	0.427	0.455	0.483	0.512	0.542	0.572	0.603	0.638	0.667	0.701	0.738	0.774	0.806	0.845	0.883	0.921	0.960
23,000	0.354	0.379	0.407	0.431	0.460	0.474	0.515	0.544	0.565	0.605	0.636	0.661	0.703	0.730	0.765	0.802	0.841	0.880	0.918	0.959
24,000	0.344	0.369	0.397	0.422	0.451	0.477	0.506	0.536	0.567	0.598	0.629	0.663	0.697	0.724	0.767	0.798	0.840	0.876	0.916	0.958
25,000	0.336	0.359	0.387	0.413	0.442	0.469	0.498	0.529	0.559	0.591	0.623	0.658	0.692	0.726	0.762	0.799	0.837	0.876	0.917	0.956
30,000	0.300	0.325	0.356	0.381	0.411	0.440	0.473	0.502	0.535	0.568	0.605	0.638	0.674	0.710	0.750	0.787	0.825	0.867	0.912	0.952
40,000	0.345	0.367	0.389	0.413	0.437	0.463	0.489	0.517	0.546	0.576	0.607	0.640	0.674	0.709	0.746	0.784	0.823	0.865	0.917	0.958
50,000	0.311	0.332	0.358	0.382	0.407	0.430	0.458	0.487	0.517	0.548	0.581	0.616	0.651	0.688	0.728	0.768	0.810	0.854	0.901	0.949
60,000	0.274	0.297	0.321	0.347	0.374	0.402	0.431	0.462	0.494	0.527	0.561	0.597	0.635	0.674	0.714	0.757	0.801	0.845	0.894	0.946
70,000	0.269	0.290	0.313	0.337	0.363	0.390	0.419	0.449	0.481	0.509	0.545	0.581	0.620	0.660	0.702	0.746	0.792	0.840	0.891	0.944
80,000	0.251	0.271	0.294	0.318	0.344	0.371	0.400	0.430	0.462	0.496	0.532	0.569	0.608	0.648	0.691	0.736	0.784	0.834	0.886	0.942
90,000	0.231	0.252	0.274	0.299	0.326	0.355	0.383	0.416	0.447	0.484	0.517	0.558	0.595	0.640	0.681	0.730	0.776	0.829	0.882	0.940
100,000	0.200	0.222	0.246	0.272	0.300	0.330	0.362	0.395	0.429	0.471	0.508	0.543	0.585	0.628	0.675	0.723	0.773	0.824	0.879	0.938
150,000	0.157	0.173	0.195	0.221	0.250	0.281	0.314	0.349	0.386	0.425	0.465	0.508	0.552	0.599	0.647	0.699	0.753	0.809	0.870	0.933
200,000	0.137	0.145	0.162	0.186	0.215	0.247	0.282	0.320	0.359	0.400	0.443	0.488	0.534	0.583	0.634	0.684	0.741	0.802	0.864	0.929
250,000	0.133	0.125	0.135	0.155	0.183	0.215	0.251	0.290	0.331	0.374	0.419	0.466	0.515	0.566	0.619	0.675	0.733	0.795	0.859	0.928
300,000	0.135	0.096	0.089	0.101	0.124	0.156	0.193	0.234	0.279	0.325	0.374	0.425	0.478	0.533	0.591	0.651	0.714	0.780	0.848	0.922
400,000	0.168	0.100	0.077	0.081	0.101	0.131	0.168	0.209	0.255	0.302	0.352	0.405	0.459	0.516	0.576	0.638	0.703	0.771	0.845	0.920
500,000	0.214	0.116	0.077	0.069	0.089	0.117	0.154	0.196	0.240	0.289	0.340	0.396	0.451	0.508	0.567	0.630	0.697	0.767	0.840	0.918

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 5,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.588	0.603	0.620	0.637	0.654	0.679	0.691	0.710	0.729	0.748	0.768	0.794	0.811	0.832	0.854	0.877	0.901	0.927	0.949	0.976
2,000	0.413	0.432	0.452	0.473	0.495	0.518	0.542	0.566	0.592	0.619	0.647	0.677	0.706	0.738	0.771	0.806	0.841	0.879	0.917	0.958
3,000	0.308	0.325	0.346	0.368	0.392	0.416	0.442	0.471	0.498	0.529	0.562	0.597	0.632	0.670	0.710	0.753	0.797	0.843	0.894	0.945
4,000	0.236	0.255	0.275	0.295	0.318	0.342	0.368	0.397	0.427	0.459	0.494	0.530	0.570	0.613	0.657	0.705	0.756	0.811	0.870	0.934
5,000	0.228	0.240	0.256	0.274	0.293	0.314	0.337	0.363	0.391	0.421	0.456	0.492	0.531	0.575	0.621	0.671	0.727	0.787	0.853	0.925
6,000	0.286	0.285	0.301	0.304	0.318	0.339	0.351	0.377	0.395	0.422	0.456	0.485	0.525	0.563	0.612	0.658	0.714	0.777	0.844	0.918
7,000	0.307	0.308	0.311	0.318	0.325	0.337	0.351	0.367	0.387	0.422	0.437	0.468	0.503	0.543	0.595	0.639	0.696	0.755	0.828	0.909
8,000	0.299	0.296	0.296	0.298	0.303	0.308	0.322	0.336	0.353	0.376	0.400	0.432	0.467	0.508	0.554	0.607	0.668	0.735	0.813	0.900
9,000	0.308	0.302	0.295	0.292	0.297	0.300	0.308	0.318	0.333	0.357	0.377	0.407	0.441	0.482	0.528	0.584	0.646	0.716	0.798	0.893
10,000	0.324	0.311	0.303	0.296	0.296	0.294	0.301	0.308	0.321	0.340	0.360	0.386	0.419	0.459	0.504	0.560	0.625	0.699	0.785	0.884
11,000	0.302	0.287	0.275	0.267	0.265	0.261	0.264	0.272	0.282	0.302	0.319	0.348	0.382	0.423	0.480	0.537	0.604	0.685	0.774	0.878
12,000	0.327	0.307	0.291	0.278	0.272	0.265	0.264	0.267	0.276	0.291	0.309	0.335	0.367	0.406	0.454	0.511	0.580	0.661	0.757	0.868
13,000	0.357	0.332	0.311	0.294	0.284	0.272	0.268	0.268	0.274	0.284	0.300	0.325	0.353	0.393	0.438	0.495	0.564	0.648	0.746	0.862
14,000	0.387	0.357	0.332	0.311	0.294	0.281	0.274	0.270	0.273	0.280	0.293	0.315	0.342	0.378	0.424	0.481	0.550	0.635	0.735	0.857
15,000	0.420	0.385	0.355	0.329	0.308	0.292	0.280	0.274	0.273	0.277	0.289	0.306	0.333	0.367	0.412	0.468	0.538	0.624	0.726	0.850
16,000	0.454	0.414	0.380	0.350	0.325	0.305	0.289	0.280	0.275	0.277	0.285	0.301	0.325	0.357	0.401	0.457	0.526	0.613	0.717	0.846
17,000	0.508	0.462	0.423	0.388	0.346	0.322	0.303	0.299	0.282	0.280	0.286	0.299	0.324	0.349	0.393	0.448	0.519	0.603	0.709	0.839
18,000	0.548	0.497	0.452	0.412	0.378	0.349	0.325	0.308	0.296	0.291	0.292	0.303	0.320	0.348	0.390	0.442	0.509	0.596	0.703	0.836
19,000	0.577	0.521	0.472	0.428	0.389	0.358	0.331	0.311	0.296	0.288	0.287	0.296	0.311	0.338	0.378	0.431	0.499	0.584	0.694	0.830
20,000	0.612	0.550	0.496	0.448	0.405	0.370	0.340	0.316	0.299	0.289	0.285	0.292	0.306	0.331	0.369	0.421	0.488	0.575	0.686	0.826
21,000	0.653	0.586	0.527	0.474	0.428	0.387	0.354	0.328	0.307	0.294	0.287	0.292	0.302	0.326	0.363	0.413	0.480	0.568	0.680	0.821
22,000	0.695	0.622	0.557	0.501	0.449	0.405	0.368	0.338	0.315	0.298	0.289	0.291	0.301	0.322	0.357	0.406	0.473	0.560	0.673	0.817
23,000	0.737	0.659	0.588	0.526	0.471	0.423	0.383	0.349	0.323	0.303	0.292	0.291	0.298	0.317	0.351	0.399	0.465	0.552	0.666	0.813
24,000	0.781	0.696	0.621	0.554	0.495	0.442	0.398	0.361	0.331	0.309	0.296	0.293	0.297	0.315	0.346	0.393	0.457	0.546	0.660	0.809
25,000	0.825	0.735	0.655	0.582	0.519	0.463	0.414	0.374	0.341	0.316	0.300	0.295	0.297	0.312	0.342	0.389	0.451	0.539	0.654	0.805
30,000	1.056	0.937	0.827	0.729	0.644	0.567	0.500	0.442	0.394	0.355	0.326	0.307	0.300	0.306	0.327	0.367	0.426	0.512	0.629	0.788
40,000	1.361	1.181	1.024	0.881	0.757	0.649	0.556	0.475	0.406	0.348	0.303	0.272	0.255	0.251	0.264	0.299	0.355	0.446	0.573	0.752
50,000	1.885	1.611	1.376	1.175	1.002	0.849	0.721	0.607	0.512	0.431	0.363	0.311	0.273	0.256	0.256	0.276	0.329	0.414	0.541	0.730
60,000	2.488	2.097	1.770	1.491	1.261	1.060	0.883	0.737	0.618	0.512	0.426	0.356	0.301	0.270	0.257	0.266	0.308	0.389	0.517	0.712
70,000	3.163	2.622	2.186	1.823	1.522	1.270	1.059	0.876	0.724	0.593	0.486	0.401	0.333	0.281	0.258	0.258	0.295	0.370	0.497	0.696
80,000	3.917	3.203	2.638	2.174	1.801	1.489	1.230	1.013	0.832	0.675	0.549	0.441	0.365	0.299	0.265	0.256	0.286	0.349	0.476	0.679
90,000	4.807	3.854	3.123	2.549	2.089	1.714	1.407	1.153	0.940	0.759	0.611	0.489	0.392	0.320	0.273	0.258	0.279	0.337	0.459	0.667
100,000	5.797	4.567	3.651	2.946	2.393	1.920	1.586	1.291	1.024	0.843	0.674	0.515	0.425	0.340	0.285	0.259	0.274	0.315	0.448	0.656
150,000	13.098	9.195	6.775	5.119	3.947	3.085	2.429	1.922	1.520	1.196	0.934	0.723	0.552	0.420	0.342	0.265	0.249	0.286	0.406	0.620
200,000	25.747	15.829	10.574	7.485	5.506	4.153	3.183	2.464	1.914	1.488	1.149	0.878	0.662	0.495	0.369	0.287	0.252	0.274	0.386	0.600
250,000	45.639	23.841	14.646	9.765	6.894	5.048	3.797	2.888	2.214	1.699	1.302	0.987	0.738	0.547	0.402	0.304	0.256	0.269	0.375	0.588
300,000	73.550	32.963	18.525	11.767	8.051	5.766	4.253	3.198	2.429	1.849	1.407	1.062	0.790	0.581	0.424	0.315	0.260	0.267	0.369	0.582
400,000	140.372	49.130	24.645	14.595	9.613	6.711	4.848	3.601	2.710	2.025	1.553	1.170	0.850	0.621	0.467	0.347	0.264	0.264	0.362	0.575
500,000	250.921	66.600	29.946	16.926	10.796	7.383	5.278	3.877	2.895	2.177	1.644	1.236	0.910	0.667	0.489	0.356	0.289	0.286	0.363	0.571

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 10,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.651	0.666	0.681	0.696	0.712	0.726	0.743	0.759	0.775	0.792	0.809	0.826	0.844	0.862	0.881	0.900	0.919	0.938	0.959	0.980
2,000	0.503	0.523	0.540	0.560	0.581	0.604	0.624	0.645	0.669	0.693	0.717	0.741	0.767	0.793	0.820	0.848	0.876	0.906	0.936	0.967
3,000	0.391	0.412	0.432	0.454	0.483	0.508	0.531	0.553	0.585	0.613	0.638	0.668	0.701	0.733	0.766	0.804	0.839	0.877	0.916	0.958
4,000	0.308	0.326	0.353	0.376	0.401	0.427	0.454	0.480	0.513	0.543	0.574	0.608	0.645	0.681	0.720	0.763	0.806	0.851	0.898	0.948
5,000	0.243	0.265	0.288	0.312	0.338	0.364	0.393	0.422	0.454	0.487	0.520	0.559	0.599	0.637	0.682	0.728	0.776	0.828	0.881	0.940
6,000	0.200	0.221	0.243	0.267	0.292	0.319	0.347	0.378	0.409	0.444	0.479	0.518	0.560	0.601	0.648	0.700	0.752	0.807	0.867	0.931
7,000	0.161	0.180	0.201	0.224	0.249	0.276	0.306	0.333	0.368	0.402	0.439	0.480	0.523	0.567	0.617	0.671	0.727	0.788	0.853	0.924
8,000	0.132	0.149	0.170	0.192	0.215	0.241	0.270	0.299	0.332	0.368	0.405	0.447	0.491	0.536	0.591	0.645	0.705	0.770	0.841	0.916
9,000	0.102	0.118	0.137	0.159	0.182	0.206	0.234	0.264	0.297	0.333	0.370	0.413	0.459	0.505	0.560	0.620	0.683	0.752	0.830	0.912
10,000	0.092	0.108	0.125	0.145	0.166	0.190	0.215	0.245	0.277	0.313	0.350	0.393	0.438	0.488	0.542	0.601	0.667	0.739	0.818	0.904
11,000	0.087	0.100	0.115	0.133	0.153	0.176	0.201	0.228	0.260	0.293	0.331	0.372	0.418	0.468	0.523	0.584	0.652	0.726	0.808	0.898
12,000	0.077	0.086	0.100	0.115	0.134	0.155	0.179	0.206	0.237	0.270	0.309	0.350	0.395	0.446	0.502	0.564	0.634	0.711	0.797	0.893
13,000	0.075	0.084	0.096	0.110	0.127	0.147	0.169	0.195	0.224	0.257	0.293	0.334	0.380	0.430	0.487	0.550	0.621	0.700	0.788	0.886
14,000	0.072	0.079	0.089	0.101	0.117	0.136	0.157	0.181	0.209	0.241	0.276	0.317	0.362	0.412	0.470	0.534	0.606	0.687	0.779	0.882
15,000	0.074	0.079	0.088	0.097	0.110	0.127	0.147	0.170	0.198	0.229	0.262	0.302	0.351	0.401	0.455	0.520	0.594	0.676	0.772	0.877
16,000	0.069	0.070	0.078	0.086	0.098	0.115	0.132	0.154	0.181	0.210	0.244	0.284	0.328	0.380	0.437	0.503	0.578	0.663	0.761	0.873
17,000	0.070	0.072	0.076	0.084	0.094	0.108	0.124	0.145	0.170	0.199	0.232	0.271	0.315	0.365	0.423	0.490	0.566	0.653	0.752	0.867
18,000	0.090	0.089	0.090	0.095	0.103	0.115	0.130	0.149	0.172	0.199	0.231	0.268	0.311	0.360	0.417	0.483	0.558	0.647	0.745	0.863
19,000	0.079	0.076	0.076	0.080	0.087	0.097	0.112	0.129	0.152	0.178	0.210	0.247	0.290	0.340	0.397	0.464	0.543	0.632	0.736	0.857
20,000	0.093	0.087	0.085	0.087	0.092	0.100	0.113	0.129	0.149	0.175	0.205	0.241	0.283	0.332	0.389	0.456	0.534	0.624	0.730	0.854
21,000	0.105	0.096	0.092	0.092	0.095	0.101	0.112	0.127	0.146	0.170	0.199	0.234	0.274	0.323	0.380	0.447	0.525	0.616	0.724	0.850
22,000	0.114	0.104	0.096	0.093	0.095	0.101	0.109	0.123	0.141	0.163	0.191	0.224	0.265	0.313	0.369	0.436	0.515	0.607	0.716	0.846
23,000	0.123	0.110	0.102	0.097	0.096	0.100	0.108	0.119	0.138	0.160	0.187	0.217	0.258	0.303	0.362	0.426	0.505	0.598	0.710	0.842
24,000	0.143	0.127	0.116	0.109	0.106	0.107	0.113	0.124	0.138	0.158	0.183	0.214	0.253	0.299	0.355	0.420	0.499	0.593	0.705	0.838
25,000	0.158	0.139	0.126	0.117	0.112	0.112	0.116	0.124	0.138	0.156	0.180	0.210	0.248	0.293	0.348	0.413	0.491	0.586	0.698	0.835
30,000	0.158	0.130	0.107	0.090	0.079	0.072	0.071	0.074	0.083	0.098	0.119	0.147	0.183	0.228	0.284	0.351	0.434	0.536	0.659	0.812
40,000	0.320	0.260	0.212	0.173	0.142	0.118	0.102	0.092	0.087	0.090	0.101	0.118	0.146	0.182	0.231	0.295	0.375	0.480	0.612	0.781
50,000	0.517	0.420	0.341	0.276	0.226	0.183	0.149	0.126	0.109	0.100	0.101	0.111	0.129	0.156	0.199	0.258	0.335	0.439	0.576	0.757
60,000	0.758	0.611	0.494	0.397	0.322	0.260	0.211	0.173	0.144	0.125	0.113	0.113	0.123	0.143	0.178	0.231	0.305	0.408	0.547	0.737
70,000	1.036	0.825	0.660	0.530	0.425	0.342	0.276	0.223	0.182	0.152	0.132	0.122	0.124	0.137	0.166	0.213	0.283	0.382	0.523	0.720
80,000	1.352	1.066	0.844	0.671	0.535	0.429	0.344	0.275	0.222	0.181	0.152	0.134	0.128	0.135	0.158	0.199	0.265	0.363	0.504	0.706
90,000	1.732	1.336	1.043	0.822	0.651	0.518	0.421	0.329	0.263	0.212	0.174	0.146	0.135	0.134	0.151	0.190	0.251	0.346	0.487	0.694
100,000	2.178	1.654	1.262	0.984	0.773	0.622	0.493	0.383	0.313	0.244	0.201	0.169	0.144	0.137	0.149	0.182	0.239	0.336	0.471	0.683
150,000	5.592	3.778	2.688	1.970	1.488	1.141	0.887	0.693	0.543	0.429	0.337	0.269	0.218	0.185	0.166	0.181	0.220	0.297	0.427	0.645
200,000	11.649	6.834	4.387	3.004	2.150	1.590	1.201	0.920	0.710	0.551	0.427	0.332	0.262	0.211	0.184	0.181	0.207	0.276	0.402	0.624
250,000	21.359	10.667	6.258	4.015	2.751	1.972	1.459	1.099	0.838	0.643	0.494	0.380	0.295	0.233	0.195	0.183	0.202	0.266	0.388	0.611
300,000	34.846	15.039	8.076	4.914	3.258	2.282	1.658	1.236	0.934	0.712	0.545	0.416	0.319	0.248	0.204	0.186	0.200	0.259	0.379	0.603
400,000	67.790	22.664	10.802	6.168	3.894	2.660	1.885	1.385	1.038	0.794	0.594	0.450	0.350	0.271	0.209	0.185	0.198	0.252	0.368	0.593
500,000	122.807	31.174	13.395	7.216	4.428	2.947	2.067	1.503	1.117	0.838	0.634	0.479	0.364	0.277	0.219	0.191	0.194	0.244	0.363	0.588

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 20,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.608	0.625	0.644	0.661	0.678	0.689	0.711	0.726	0.749	0.763	0.784	0.807	0.825	0.845	0.868	0.886	0.910	0.936	0.952	0.977
2,000	0.422	0.440	0.463	0.487	0.508	0.525	0.551	0.577	0.606	0.639	0.659	0.696	0.724	0.753	0.786	0.817	0.852	0.888	0.926	0.962
3,000	0.322	0.345	0.371	0.395	0.418	0.437	0.464	0.495	0.527	0.558	0.590	0.623	0.663	0.701	0.739	0.777	0.817	0.857	0.906	0.952
4,000	0.265	0.287	0.311	0.335	0.361	0.383	0.418	0.433	0.480	0.512	0.534	0.584	0.618	0.656	0.708	0.740	0.794	0.840	0.892	0.944
5,000	0.213	0.235	0.260	0.283	0.310	0.338	0.367	0.398	0.430	0.466	0.504	0.541	0.583	0.627	0.674	0.721	0.769	0.823	0.882	0.938
6,000	0.156	0.176	0.201	0.220	0.249	0.280	0.311	0.342	0.377	0.411	0.446	0.492	0.538	0.584	0.638	0.685	0.743	0.801	0.864	0.930
7,000	0.123	0.142	0.163	0.186	0.208	0.235	0.268	0.302	0.336	0.372	0.410	0.453	0.501	0.546	0.605	0.656	0.714	0.780	0.850	0.921
8,000	0.083	0.101	0.124	0.140	0.160	0.189	0.218	0.248	0.284	0.318	0.362	0.406	0.453	0.505	0.564	0.619	0.687	0.755	0.833	0.913
9,000	0.066	0.091	0.101	0.118	0.131	0.164	0.185	0.222	0.247	0.292	0.333	0.380	0.424	0.477	0.535	0.597	0.664	0.739	0.822	0.907
10,000	0.055	0.071	0.083	0.090	0.115	0.130	0.155	0.184	0.223	0.253	0.293	0.344	0.386	0.443	0.502	0.566	0.637	0.718	0.806	0.898
11,000	0.060	0.072	0.080	0.083	0.105	0.115	0.140	0.173	0.203	0.231	0.269	0.321	0.363	0.417	0.479	0.545	0.621	0.702	0.793	0.892
12,000	0.082	0.081	0.082	0.082	0.098	0.103	0.124	0.155	0.183	0.209	0.245	0.297	0.337	0.399	0.460	0.524	0.600	0.685	0.782	0.886
13,000	0.083	0.078	0.077	0.079	0.087	0.102	0.110	0.137	0.166	0.195	0.224	0.274	0.316	0.376	0.438	0.508	0.582	0.673	0.771	0.879
14,000	0.097	0.086	0.081	0.080	0.085	0.093	0.107	0.125	0.150	0.179	0.208	0.257	0.298	0.361	0.421	0.491	0.566	0.659	0.761	0.874
15,000	0.130	0.101	0.103	0.096	0.094	0.098	0.110	0.127	0.145	0.172	0.206	0.244	0.284	0.349	0.409	0.475	0.555	0.648	0.752	0.870
16,000	0.162	0.147	0.136	0.130	0.129	0.130	0.138	0.157	0.172	0.201	0.230	0.268	0.310	0.363	0.418	0.490	0.562	0.656	0.755	0.868
17,000	0.187	0.167	0.165	0.142	0.137	0.136	0.152	0.164	0.169	0.194	0.232	0.260	0.297	0.352	0.418	0.477	0.551	0.646	0.752	0.868
18,000	0.221	0.197	0.178	0.162	0.155	0.148	0.153	0.164	0.175	0.198	0.219	0.255	0.292	0.349	0.403	0.466	0.545	0.641	0.743	0.863
19,000	0.250	0.217	0.193	0.172	0.160	0.149	0.148	0.157	0.164	0.184	0.206	0.241	0.277	0.329	0.386	0.451	0.529	0.630	0.732	0.858
20,000	0.287	0.245	0.212	0.184	0.165	0.150	0.143	0.148	0.151	0.173	0.194	0.223	0.254	0.307	0.367	0.435	0.516	0.611	0.720	0.850
21,000	0.334	0.282	0.240	0.207	0.182	0.160	0.148	0.148	0.146	0.157	0.175	0.208	0.239	0.290	0.348	0.412	0.495	0.600	0.708	0.847
22,000	0.301	0.247	0.203	0.168	0.141	0.120	0.109	0.105	0.107	0.120	0.138	0.168	0.206	0.257	0.317	0.385	0.471	0.576	0.699	0.839
23,000	0.343	0.287	0.230	0.189	0.158	0.132	0.115	0.109	0.107	0.116	0.133	0.160	0.196	0.246	0.305	0.373	0.459	0.565	0.686	0.834
24,000	0.390	0.321	0.263	0.215	0.176	0.145	0.123	0.113	0.110	0.115	0.129	0.154	0.189	0.238	0.295	0.362	0.449	0.556	0.679	0.826
25,000	0.424	0.348	0.286	0.234	0.191	0.158	0.134	0.118	0.113	0.115	0.127	0.151	0.184	0.228	0.285	0.355	0.442	0.550	0.673	0.823
30,000	0.719	0.584	0.481	0.407	0.331	0.270	0.220	0.183	0.151	0.137	0.138	0.146	0.167	0.202	0.251	0.315	0.400	0.511	0.641	0.803
40,000	1.211	0.999	0.821	0.670	0.541	0.434	0.344	0.272	0.215	0.173	0.146	0.134	0.137	0.157	0.196	0.255	0.334	0.445	0.587	0.769
50,000	1.829	1.541	1.232	1.040	0.811	0.677	0.516	0.424	0.310	0.257	0.189	0.168	0.148	0.152	0.176	0.222	0.295	0.400	0.546	0.741
60,000	2.415	1.961	1.596	1.292	1.038	0.829	0.655	0.512	0.395	0.301	0.229	0.177	0.147	0.138	0.151	0.189	0.258	0.363	0.512	0.718
70,000	3.423	2.757	2.223	1.794	1.442	1.154	0.916	0.720	0.560	0.430	0.327	0.249	0.194	0.164	0.162	0.184	0.241	0.336	0.485	0.697
80,000	4.553	3.621	2.895	2.318	1.867	1.491	1.180	0.933	0.729	0.564	0.431	0.327	0.251	0.201	0.179	0.186	0.233	0.321	0.465	0.682
90,000	5.834	4.534	3.602	2.858	2.274	1.810	1.431	1.132	0.888	0.685	0.522	0.394	0.301	0.234	0.195	0.193	0.226	0.305	0.445	0.667
100,000	7.141	5.492	4.277	3.355	2.647	2.090	1.652	1.298	1.015	0.783	0.598	0.459	0.341	0.259	0.205	0.194	0.219	0.294	0.429	0.654
150,000	17.473	12.064	8.703	6.430	4.845	3.668	2.859	2.211	1.695	1.318	1.010	0.762	0.558	0.406	0.305	0.246	0.225	0.264	0.377	0.609
200,000	34.608	21.085	13.882	9.633	6.929	5.121	3.849	2.923	2.233	1.706	1.296	0.975	0.722	0.526	0.379	0.280	0.234	0.250	0.354	0.581
250,000	60.511	32.033	19.436	12.724	8.796	6.313	4.646	3.472	2.620	1.984	1.499	1.123	0.829	0.601	0.429	0.309	0.246	0.248	0.342	0.567
300,000	95.075	43.969	24.720	15.442	10.288	7.257	5.255	3.878	2.904	2.179	1.640	1.228	0.903	0.655	0.465	0.331	0.256	0.248	0.335	0.558
400,000	172.394	63.902	32.517	19.121	12.249	8.394	5.980	4.337	3.262	2.411	1.839	1.347	0.991	0.719	0.512	0.361	0.273	0.254	0.327	0.547
500,000	298.400	86.536	40.003	22.384	14.025	9.377	6.575	4.736	3.496	2.607	1.950	1.456	1.077	0.783	0.559	0.391	0.292	0.263	0.328	0.544

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 30,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.707	0.718	0.733	0.745	0.755	0.764	0.786	0.799	0.812	0.827	0.843	0.855	0.866	0.885	0.899	0.915	0.933	0.949	0.967	0.983
2,000	0.589	0.608	0.625	0.640	0.660	0.675	0.692	0.712	0.729	0.751	0.769	0.786	0.811	0.829	0.847	0.874	0.897	0.924	0.948	0.974
3,000	0.478	0.515	0.533	0.556	0.573	0.579	0.621	0.639	0.661	0.673	0.698	0.725	0.765	0.785	0.811	0.837	0.869	0.904	0.933	0.965
4,000	0.408	0.428	0.449	0.473	0.494	0.519	0.543	0.569	0.596	0.623	0.651	0.680	0.712	0.744	0.777	0.808	0.843	0.881	0.919	0.961
5,000	0.348	0.373	0.396	0.416	0.442	0.464	0.491	0.520	0.547	0.577	0.609	0.643	0.676	0.710	0.745	0.791	0.828	0.865	0.909	0.954
6,000	0.324	0.344	0.361	0.381	0.405	0.437	0.464	0.487	0.517	0.553	0.584	0.614	0.649	0.686	0.727	0.767	0.811	0.852	0.900	0.947
7,000	0.301	0.318	0.340	0.366	0.396	0.415	0.438	0.470	0.498	0.531	0.562	0.594	0.631	0.670	0.711	0.754	0.797	0.844	0.892	0.945
8,000	0.223	0.244	0.268	0.291	0.316	0.344	0.369	0.399	0.430	0.465	0.501	0.539	0.579	0.624	0.669	0.715	0.766	0.820	0.876	0.941
9,000	0.184	0.205	0.227	0.250	0.276	0.304	0.331	0.361	0.395	0.430	0.467	0.507	0.550	0.597	0.644	0.695	0.749	0.804	0.866	0.931
10,000	0.147	0.167	0.192	0.214	0.238	0.267	0.293	0.324	0.355	0.393	0.434	0.474	0.520	0.568	0.618	0.669	0.724	0.787	0.854	0.926
11,000	0.148	0.164	0.184	0.206	0.226	0.254	0.284	0.309	0.346	0.377	0.418	0.455	0.505	0.549	0.602	0.655	0.714	0.775	0.844	0.919
12,000	0.132	0.147	0.167	0.186	0.205	0.232	0.256	0.288	0.318	0.353	0.392	0.435	0.482	0.528	0.581	0.639	0.702	0.767	0.836	0.919
13,000	0.116	0.128	0.146	0.164	0.182	0.208	0.230	0.261	0.297	0.327	0.368	0.408	0.460	0.506	0.560	0.621	0.686	0.752	0.828	0.911
14,000	0.119	0.139	0.143	0.158	0.175	0.200	0.221	0.252	0.279	0.319	0.352	0.392	0.440	0.490	0.542	0.605	0.671	0.738	0.819	0.907
15,000	0.088	0.102	0.112	0.127	0.140	0.167	0.188	0.222	0.245	0.287	0.324	0.361	0.410	0.468	0.522	0.592	0.654	0.726	0.810	0.902
16,000	0.097	0.103	0.115	0.110	0.142	0.160	0.180	0.208	0.227	0.272	0.308	0.346	0.397	0.446	0.507	0.566	0.639	0.715	0.804	0.896
17,000	0.093	0.092	0.102	0.112	0.126	0.143	0.165	0.189	0.219	0.251	0.289	0.331	0.378	0.431	0.490	0.552	0.624	0.704	0.792	0.891
18,000	0.087	0.081	0.089	0.095	0.106	0.122	0.141	0.164	0.192	0.224	0.261	0.303	0.352	0.405	0.465	0.532	0.606	0.690	0.783	0.886
19,000	0.088	0.085	0.086	0.091	0.100	0.114	0.132	0.154	0.181	0.212	0.249	0.291	0.339	0.393	0.452	0.521	0.596	0.681	0.775	0.882
20,000	0.093	0.053	0.055	0.089	0.096	0.089	0.109	0.145	0.171	0.194	0.232	0.279	0.326	0.380	0.441	0.510	0.587	0.673	0.770	0.878
21,000	0.061	0.056	0.056	0.061	0.070	0.083	0.101	0.124	0.151	0.183	0.220	0.262	0.311	0.366	0.428	0.498	0.576	0.665	0.764	0.876
22,000	0.079	0.066	0.062	0.064	0.070	0.081	0.097	0.117	0.142	0.173	0.209	0.251	0.299	0.354	0.415	0.486	0.567	0.657	0.757	0.872
23,000	0.082	0.071	0.065	0.064	0.069	0.078	0.092	0.111	0.135	0.164	0.200	0.242	0.288	0.343	0.406	0.477	0.557	0.647	0.751	0.868
24,000	0.092	0.076	0.069	0.065	0.067	0.075	0.086	0.104	0.127	0.155	0.190	0.231	0.277	0.333	0.396	0.468	0.547	0.640	0.745	0.865
25,000	0.099	0.084	0.069	0.067	0.065	0.072	0.082	0.098	0.120	0.148	0.180	0.222	0.267	0.322	0.386	0.456	0.539	0.632	0.739	0.862
30,000	0.175	0.136	0.110	0.090	0.078	0.073	0.074	0.083	0.096	0.117	0.146	0.183	0.226	0.279	0.343	0.414	0.500	0.598	0.713	0.846
40,000	0.597	0.501	0.412	0.343	0.293	0.244	0.210	0.192	0.174	0.170	0.181	0.192	0.217	0.261	0.308	0.372	0.448	0.553	0.674	0.821
50,000	0.996	0.827	0.681	0.570	0.472	0.392	0.330	0.279	0.238	0.219	0.206	0.207	0.214	0.247	0.283	0.340	0.418	0.517	0.643	0.802
60,000	1.425	1.169	0.958	0.785	0.641	0.524	0.429	0.353	0.289	0.250	0.219	0.208	0.208	0.225	0.265	0.305	0.388	0.483	0.616	0.782
70,000	2.146	1.740	1.414	1.150	0.935	0.760	0.618	0.502	0.410	0.339	0.290	0.251	0.235	0.238	0.258	0.292	0.358	0.460	0.591	0.764
80,000	2.811	2.247	1.806	1.454	1.173	0.946	0.762	0.614	0.495	0.401	0.330	0.280	0.250	0.240	0.250	0.279	0.345	0.438	0.572	0.750
90,000	3.756	2.961	2.362	1.896	1.526	1.225	0.994	0.802	0.639	0.525	0.423	0.357	0.299	0.281	0.277	0.299	0.339	0.433	0.559	0.741
100,000	4.915	3.830	3.020	2.403	1.924	1.547	1.247	1.007	0.814	0.668	0.546	0.444	0.376	0.341	0.315	0.323	0.362	0.443	0.562	0.739
150,000	12.169	8.634	6.362	4.772	3.679	2.877	2.274	1.810	1.449	1.161	0.934	0.755	0.614	0.509	0.436	0.397	0.394	0.442	0.539	0.711
200,000	23.596	14.896	10.120	7.226	5.340	4.021	3.125	2.430	1.927	1.529	1.219	0.974	0.781	0.632	0.522	0.453	0.421	0.440	0.526	0.692
250,000	39.839	22.118	13.935	9.440	6.729	4.934	3.760	2.880	2.258	1.776	1.405	1.114	0.886	0.708	0.574	0.484	0.435	0.439	0.515	0.679
300,000	60.275	29.561	17.367	11.280	7.816	5.655	4.218	3.216	2.502	1.956	1.539	1.214	0.962	0.764	0.614	0.510	0.449	0.443	0.512	0.673
400,000	105.128	42.147	22.523	13.848	9.268	6.554	4.808	3.625	2.784	2.162	1.694	1.331	1.013	0.832	0.663	0.542	0.466	0.448	0.507	0.664
500,000	173.842	55.674	27.171	15.860	10.239	7.089	5.121	3.807	2.893	2.231	1.800	1.367	1.077	0.846	0.672	0.553	0.470	0.452	0.505	0.659

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 40,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.736	0.747	0.760	0.772	0.778	0.789	0.803	0.812	0.833	0.843	0.857	0.869	0.886	0.896	0.910	0.923	0.941	0.956	0.969	0.983
2,000	0.623	0.641	0.655	0.668	0.685	0.702	0.720	0.736	0.749	0.773	0.789	0.804	0.829	0.849	0.867	0.886	0.912	0.934	0.954	0.976
3,000	0.540	0.547	0.568	0.591	0.604	0.624	0.652	0.664	0.686	0.715	0.730	0.756	0.778	0.804	0.827	0.855	0.889	0.910	0.939	0.971
4,000	0.433	0.462	0.482	0.500	0.522	0.551	0.574	0.595	0.613	0.645	0.675	0.697	0.726	0.761	0.791	0.819	0.852	0.890	0.925	0.963
5,000	0.368	0.387	0.409	0.432	0.455	0.479	0.505	0.532	0.559	0.588	0.619	0.649	0.682	0.716	0.753	0.786	0.827	0.867	0.912	0.956
6,000	0.308	0.331	0.352	0.378	0.405	0.427	0.457	0.482	0.514	0.542	0.577	0.609	0.647	0.681	0.724	0.762	0.807	0.850	0.900	0.948
7,000	0.263	0.280	0.304	0.328	0.353	0.383	0.407	0.431	0.463	0.499	0.535	0.572	0.609	0.648	0.695	0.739	0.783	0.833	0.886	0.942
8,000	0.234	0.262	0.286	0.309	0.338	0.360	0.383	0.409	0.440	0.479	0.515	0.555	0.591	0.630	0.675	0.723	0.767	0.824	0.878	0.936
9,000	0.192	0.213	0.235	0.259	0.283	0.314	0.343	0.373	0.403	0.437	0.474	0.513	0.554	0.598	0.647	0.697	0.750	0.806	0.868	0.932
10,000	0.161	0.182	0.204	0.226	0.252	0.279	0.308	0.339	0.372	0.407	0.445	0.485	0.528	0.575	0.624	0.676	0.733	0.792	0.857	0.926
11,000	0.138	0.158	0.179	0.205	0.230	0.257	0.286	0.316	0.350	0.385	0.421	0.462	0.507	0.554	0.605	0.659	0.719	0.782	0.849	0.922
12,000	0.127	0.145	0.165	0.187	0.210	0.237	0.259	0.290	0.323	0.359	0.402	0.444	0.488	0.538	0.590	0.646	0.707	0.773	0.841	0.917
13,000	0.127	0.152	0.165	0.182	0.215	0.230	0.261	0.296	0.326	0.357	0.399	0.440	0.480	0.531	0.579	0.637	0.698	0.768	0.834	0.914
14,000	0.102	0.121	0.136	0.155	0.178	0.202	0.230	0.259	0.294	0.325	0.369	0.411	0.450	0.505	0.560	0.616	0.682	0.753	0.827	0.911
15,000	0.084	0.099	0.116	0.135	0.156	0.181	0.207	0.237	0.269	0.306	0.344	0.387	0.433	0.485	0.539	0.597	0.666	0.740	0.817	0.906
16,000	0.074	0.088	0.104	0.122	0.143	0.167	0.193	0.223	0.255	0.291	0.330	0.372	0.419	0.471	0.527	0.589	0.655	0.733	0.812	0.901
17,000	0.069	0.081	0.096	0.116	0.132	0.155	0.181	0.212	0.243	0.276	0.316	0.361	0.408	0.458	0.515	0.579	0.647	0.723	0.806	0.897
18,000	0.054	0.066	0.081	0.098	0.118	0.140	0.166	0.194	0.226	0.261	0.300	0.344	0.391	0.444	0.502	0.566	0.636	0.716	0.801	0.895
19,000	0.045	0.056	0.068	0.085	0.103	0.124	0.149	0.178	0.209	0.244	0.284	0.327	0.375	0.429	0.487	0.554	0.625	0.705	0.793	0.892
20,000	0.044	0.052	0.064	0.078	0.096	0.116	0.140	0.167	0.198	0.233	0.272	0.316	0.364	0.417	0.476	0.542	0.616	0.698	0.788	0.889
21,000	0.047	0.058	0.067	0.079	0.094	0.113	0.133	0.159	0.189	0.223	0.261	0.304	0.352	0.406	0.464	0.532	0.607	0.690	0.782	0.886
22,000	0.045	0.050	0.058	0.069	0.084	0.102	0.124	0.149	0.179	0.212	0.250	0.293	0.341	0.395	0.456	0.523	0.598	0.682	0.777	0.882
23,000	0.046	0.045	0.053	0.062	0.075	0.092	0.111	0.136	0.164	0.197	0.235	0.278	0.326	0.380	0.441	0.511	0.586	0.674	0.771	0.878
24,000	0.047	0.048	0.052	0.060	0.072	0.088	0.108	0.131	0.158	0.190	0.228	0.270	0.318	0.372	0.433	0.502	0.580	0.667	0.765	0.875
25,000	0.059	0.057	0.058	0.074	0.074	0.088	0.106	0.128	0.154	0.185	0.221	0.263	0.310	0.364	0.425	0.494	0.572	0.660	0.764	0.873
30,000	0.047	0.038	0.034	0.035	0.040	0.050	0.065	0.085	0.109	0.139	0.175	0.216	0.265	0.324	0.387	0.455	0.537	0.631	0.741	0.860
40,000	0.137	0.100	0.073	0.054	0.043	0.038	0.041	0.050	0.063	0.087	0.114	0.150	0.198	0.249	0.312	0.389	0.474	0.576	0.696	0.835
50,000	0.283	0.212	0.156	0.113	0.081	0.060	0.047	0.044	0.049	0.063	0.084	0.114	0.154	0.204	0.265	0.340	0.429	0.536	0.664	0.817
60,000	0.541	0.413	0.312	0.233	0.171	0.124	0.091	0.070	0.060	0.060	0.071	0.093	0.125	0.170	0.226	0.300	0.389	0.499	0.634	0.799
70,000	0.799	0.609	0.461	0.344	0.252	0.183	0.132	0.095	0.073	0.063	0.066	0.080	0.107	0.148	0.201	0.273	0.362	0.473	0.612	0.785
80,000	1.162	0.886	0.667	0.500	0.371	0.271	0.180	0.140	0.101	0.079	0.071	0.060	0.096	0.130	0.180	0.248	0.338	0.446	0.590	0.770
90,000	1.600	1.193	0.892	0.659	0.485	0.348	0.247	0.169	0.115	0.097	0.079	0.058	0.088	0.115	0.161	0.230	0.312	0.429	0.571	0.761
100,000	1.926	1.422	1.051	0.773	0.564	0.403	0.282	0.195	0.127	0.078	0.074	0.055	0.057	0.101	0.145	0.193	0.295	0.408	0.556	0.749
150,000	6.298	4.327	3.062	2.203	1.604	1.172	0.857	0.624	0.451	0.325	0.234	0.174	0.140	0.130	0.143	0.182	0.254	0.354	0.513	0.709
200,000	12.742	7.881	5.188	3.556	2.502	1.790	1.293	0.937	0.679	0.491	0.355	0.260	0.197	0.165	0.159	0.182	0.241	0.335	0.487	0.690
250,000	22.206	12.238	7.519	4.919	3.357	2.354	1.682	1.213	0.880	0.637	0.468	0.345	0.262	0.212	0.192	0.204	0.252	0.334	0.482	0.684
300,000	33.643	16.583	9.551	6.005	3.990	2.746	1.934	1.382	0.996	0.717	0.525	0.385	0.290	0.230	0.202	0.208	0.251	0.328	0.475	0.678
400,000	54.249	22.688	12.074	7.536	4.750	3.223	2.239	1.589	1.148	0.832	0.594	0.434	0.347	0.249	0.238	0.213	0.266	0.323	0.468	0.672
500,000	84.773	29.771	14.728	8.509	5.374	3.586	2.474	1.748	1.255	0.909	0.666	0.493	0.370	0.291	0.249	0.240	0.267	0.338	0.465	0.669

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 50,000																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.772	0.784	0.783	0.793	0.792	0.821	0.832	0.842	0.837	0.850	0.862	0.886	0.900	0.911	0.914	0.926	0.940	0.960	0.973	0.983
2,000	0.673	0.682	0.700	0.720	0.722	0.737	0.757	0.770	0.782	0.803	0.807	0.831	0.849	0.863	0.879	0.899	0.921	0.941	0.959	0.980
3,000	0.646	0.659	0.670	0.684	0.699	0.713	0.729	0.744	0.758	0.771	0.794	0.811	0.829	0.850	0.861	0.880	0.906	0.931	0.954	0.975
4,000	0.586	0.595	0.614	0.626	0.641	0.682	0.693	0.714	0.726	0.745	0.750	0.786	0.799	0.812	0.845	0.877	0.897	0.923	0.947	0.971
5,000	0.552	0.565	0.571	0.597	0.604	0.622	0.648	0.660	0.687	0.701	0.736	0.762	0.778	0.808	0.828	0.857	0.885	0.909	0.939	0.970
6,000	0.469	0.480	0.498	0.522	0.557	0.562	0.582	0.617	0.623	0.648	0.676	0.710	0.729	0.758	0.791	0.818	0.853	0.889	0.924	0.963
7,000	0.437	0.454	0.472	0.475	0.510	0.531	0.552	0.575	0.603	0.624	0.665	0.678	0.707	0.749	0.770	0.813	0.839	0.878	0.915	0.960
8,000	0.391	0.432	0.428	0.468	0.484	0.486	0.527	0.554	0.562	0.604	0.617	0.645	0.688	0.711	0.747	0.782	0.822	0.864	0.911	0.955
9,000	0.384	0.401	0.418	0.437	0.458	0.483	0.501	0.525	0.551	0.581	0.606	0.636	0.668	0.702	0.737	0.776	0.810	0.858	0.902	0.948
10,000	0.302	0.319	0.339	0.359	0.382	0.406	0.432	0.474	0.487	0.517	0.549	0.595	0.632	0.658	0.699	0.748	0.805	0.843	0.887	0.946
11,000	0.205	0.225	0.247	0.272	0.295	0.323	0.350	0.380	0.412	0.446	0.483	0.566	0.562	0.606	0.688	0.729	0.754	0.827	0.881	0.941
12,000	0.206	0.225	0.246	0.267	0.291	0.318	0.344	0.373	0.406	0.437	0.474	0.512	0.552	0.602	0.645	0.696	0.748	0.805	0.866	0.938
13,000	0.157	0.176	0.197	0.219	0.244	0.270	0.298	0.329	0.362	0.407	0.435	0.484	0.520	0.574	0.622	0.675	0.730	0.791	0.858	0.928
14,000	0.134	0.151	0.172	0.194	0.219	0.246	0.274	0.306	0.339	0.375	0.414	0.455	0.500	0.548	0.599	0.654	0.712	0.778	0.849	0.921
15,000	0.131	0.151	0.171	0.193	0.217	0.243	0.271	0.301	0.335	0.370	0.408	0.449	0.494	0.542	0.590	0.648	0.709	0.772	0.844	0.919
16,000	0.124	0.141	0.154	0.180	0.201	0.229	0.254	0.287	0.318	0.356	0.392	0.436	0.479	0.529	0.580	0.639	0.699	0.767	0.838	0.916
17,000	0.126	0.142	0.160	0.181	0.203	0.228	0.250	0.285	0.317	0.352	0.391	0.422	0.467	0.517	0.570	0.634	0.696	0.759	0.841	0.913
18,000	0.137	0.152	0.172	0.192	0.216	0.241	0.267	0.297	0.329	0.364	0.400	0.446	0.487	0.532	0.584	0.645	0.704	0.767	0.834	0.912
19,000	0.093	0.108	0.125	0.145	0.168	0.192	0.220	0.250	0.282	0.318	0.357	0.398	0.444	0.495	0.549	0.609	0.675	0.745	0.834	0.908
20,000	0.077	0.091	0.108	0.126	0.149	0.173	0.200	0.229	0.263	0.300	0.339	0.382	0.429	0.481	0.536	0.598	0.665	0.738	0.818	0.905
21,000	0.078	0.092	0.107	0.127	0.148	0.172	0.198	0.227	0.257	0.296	0.334	0.378	0.425	0.475	0.532	0.594	0.659	0.732	0.813	0.902
22,000	0.079	0.092	0.108	0.126	0.137	0.161	0.197	0.222	0.258	0.294	0.329	0.372	0.418	0.466	0.523	0.589	0.655	0.729	0.810	0.900
23,000	0.059	0.071	0.086	0.103	0.127	0.146	0.176	0.201	0.237	0.269	0.311	0.352	0.402	0.452	0.512	0.574	0.645	0.720	0.805	0.897
24,000	0.058	0.069	0.083	0.099	0.119	0.144	0.169	0.198	0.230	0.262	0.302	0.345	0.393	0.445	0.503	0.570	0.638	0.715	0.802	0.896
25,000	0.052	0.059	0.075	0.087	0.105	0.128	0.152	0.184	0.214	0.251	0.287	0.331	0.382	0.436	0.494	0.557	0.630	0.707	0.797	0.893
30,000	0.029	0.034	0.041	0.051	0.065	0.084	0.106	0.132	0.162	0.196	0.236	0.279	0.328	0.384	0.446	0.515	0.591	0.677	0.773	0.880
40,000	0.073	0.057	0.048	0.047	0.049	0.057	0.071	0.089	0.113	0.142	0.177	0.217	0.265	0.320	0.382	0.454	0.536	0.632	0.737	0.860
50,000	0.157	0.119	0.091	0.073	0.062	0.059	0.062	0.072	0.088	0.111	0.141	0.177	0.222	0.274	0.336	0.409	0.490	0.592	0.705	0.841
60,000	0.295	0.219	0.166	0.122	0.095	0.076	0.066	0.064	0.069	0.086	0.107	0.140	0.180	0.230	0.290	0.363	0.448	0.554	0.676	0.824
70,000	0.477	0.360	0.269	0.203	0.152	0.115	0.091	0.077	0.074	0.079	0.099	0.124	0.158	0.203	0.259	0.330	0.418	0.526	0.650	0.809
80,000	0.733	0.571	0.446	0.344	0.278	0.223	0.177	0.157	0.142	0.129	0.135	0.160	0.182	0.220	0.268	0.340	0.416	0.523	0.644	0.802
90,000	1.028	0.780	0.593	0.451	0.343	0.261	0.200	0.157	0.129	0.114	0.111	0.122	0.143	0.179	0.228	0.292	0.378	0.482	0.616	0.787
100,000	1.289	0.971	0.736	0.559	0.426	0.328	0.252	0.195	0.156	0.134	0.123	0.129	0.143	0.173	0.222	0.281	0.364	0.471	0.602	0.779
150,000	3.632	2.519	1.796	1.300	0.950	0.696	0.509	0.370	0.268	0.195	0.146	0.118	0.109	0.119	0.149	0.201	0.287	0.387	0.535	0.733
200,000	7.735	4.864	3.239	2.237	1.579	1.130	0.811	0.581	0.412	0.290	0.203	0.145	0.113	0.104	0.119	0.160	0.230	0.336	0.488	0.702
250,000	13.612	7.695	4.796	3.163	2.165	1.514	1.070	0.756	0.531	0.368	0.252	0.172	0.122	0.099	0.103	0.141	0.200	0.307	0.460	0.681
300,000	20.406	10.465	6.165	3.930	2.636	1.821	1.279	0.904	0.621	0.445	0.294	0.210	0.137	0.114	0.102	0.133	0.187	0.291	0.443	0.669
400,000	36.172	15.940	8.646	5.256	3.410	2.311	1.603	1.132	0.792	0.554	0.388	0.266	0.184	0.131	0.117	0.129	0.179	0.273	0.424	0.654
500,000	54.415	20.711	10.488	6.127	3.888	2.587	1.775	1.243	0.867	0.610	0.422	0.289	0.198	0.140	0.119	0.127	0.176	0.267	0.417	0.648

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 60,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.770	0.776	0.793	0.803	0.813	0.823	0.843	0.843	0.854	0.868	0.878	0.889	0.906	0.918	0.930	0.942	0.948	0.962	0.978	0.988
2,000	0.706	0.715	0.728	0.741	0.755	0.770	0.780	0.794	0.811	0.822	0.835	0.852	0.868	0.882	0.896	0.916	0.932	0.947	0.965	0.983
3,000	0.664	0.677	0.690	0.704	0.718	0.733	0.747	0.764	0.780	0.794	0.814	0.831	0.848	0.863	0.881	0.899	0.919	0.938	0.960	0.977
4,000	0.643	0.656	0.670	0.686	0.702	0.719	0.731	0.754	0.765	0.782	0.787	0.821	0.834	0.849	0.870	0.888	0.910	0.927	0.954	0.978
5,000	0.612	0.626	0.640	0.647	0.671	0.681	0.703	0.720	0.730	0.756	0.770	0.788	0.810	0.830	0.855	0.874	0.897	0.923	0.946	0.974
6,000	0.639	0.653	0.665	0.678	0.693	0.707	0.723	0.737	0.755	0.745	0.765	0.786	0.806	0.827	0.850	0.874	0.897	0.921	0.946	0.973
7,000	0.623	0.635	0.648	0.661	0.674	0.689	0.702	0.718	0.735	0.752	0.771	0.786	0.807	0.828	0.852	0.877	0.895	0.921	0.941	0.973
8,000	0.588	0.592	0.603	0.620	0.628	0.652	0.662	0.688	0.684	0.729	0.728	0.764	0.769	0.810	0.834	0.860	0.877	0.910	0.939	0.969
9,000	0.497	0.513	0.529	0.546	0.564	0.583	0.602	0.623	0.645	0.671	0.692	0.717	0.742	0.769	0.798	0.827	0.860	0.893	0.926	0.967
10,000	0.461	0.516	0.531	0.547	0.533	0.582	0.600	0.621	0.625	0.663	0.687	0.693	0.725	0.753	0.793	0.811	0.846	0.882	0.924	0.962
11,000	0.532	0.559	0.566	0.571	0.599	0.609	0.621	0.647	0.652	0.677	0.705	0.723	0.745	0.776	0.800	0.830	0.853	0.878	0.923	0.956
12,000	0.401	0.418	0.436	0.455	0.474	0.496	0.518	0.537	0.562	0.589	0.617	0.646	0.677	0.764	0.792	0.821	0.821	0.862	0.920	0.958
13,000	0.376	0.416	0.411	0.452	0.451	0.494	0.496	0.520	0.564	0.573	0.618	0.632	0.678	0.698	0.735	0.773	0.816	0.855	0.899	0.949
14,000	0.389	0.405	0.423	0.441	0.461	0.482	0.504	0.527	0.552	0.579	0.611	0.640	0.671	0.704	0.739	0.774	0.813	0.854	0.899	0.950
15,000	0.397	0.421	0.429	0.446	0.467	0.485	0.506	0.534	0.556	0.585	0.608	0.639	0.664	0.703	0.732	0.772	0.814	0.850	0.898	0.949
16,000	0.369	0.394	0.401	0.434	0.436	0.467	0.477	0.511	0.530	0.561	0.585	0.617	0.657	0.687	0.716	0.768	0.804	0.852	0.898	0.945
17,000	0.331	0.346	0.363	0.381	0.401	0.422	0.444	0.468	0.494	0.522	0.552	0.584	0.619	0.656	0.696	0.742	0.784	0.835	0.888	0.945
18,000	0.316	0.331	0.347	0.365	0.384	0.405	0.428	0.461	0.487	0.507	0.537	0.570	0.611	0.648	0.688	0.731	0.777	0.824	0.880	0.939
19,000	0.315	0.329	0.344	0.361	0.380	0.400	0.422	0.446	0.472	0.499	0.530	0.562	0.598	0.636	0.676	0.721	0.768	0.819	0.875	0.938
20,000	0.306	0.319	0.332	0.348	0.366	0.386	0.407	0.431	0.457	0.486	0.516	0.549	0.585	0.624	0.667	0.710	0.761	0.813	0.871	0.932
21,000	0.290	0.302	0.322	0.333	0.351	0.375	0.392	0.416	0.442	0.471	0.505	0.535	0.571	0.614	0.654	0.700	0.752	0.806	0.866	0.930
22,000	0.285	0.297	0.311	0.327	0.340	0.360	0.386	0.410	0.436	0.461	0.492	0.526	0.566	0.605	0.646	0.694	0.746	0.803	0.862	0.928
23,000	0.285	0.296	0.309	0.324	0.341	0.359	0.381	0.404	0.429	0.457	0.488	0.522	0.559	0.599	0.642	0.690	0.742	0.798	0.859	0.927
24,000	0.268	0.280	0.294	0.310	0.328	0.347	0.369	0.393	0.420	0.449	0.480	0.514	0.552	0.592	0.641	0.691	0.740	0.795	0.857	0.924
25,000	0.270	0.281	0.293	0.308	0.325	0.344	0.365	0.388	0.414	0.442	0.473	0.509	0.544	0.585	0.631	0.675	0.735	0.791	0.856	0.922
30,000	0.288	0.291	0.297	0.302	0.316	0.327	0.346	0.365	0.385	0.413	0.440	0.473	0.510	0.551	0.597	0.647	0.706	0.766	0.837	0.914
40,000	0.446	0.425	0.406	0.395	0.389	0.386	0.388	0.396	0.406	0.419	0.439	0.463	0.493	0.529	0.571	0.620	0.677	0.738	0.816	0.900
50,000	0.581	0.536	0.499	0.470	0.448	0.432	0.422	0.418	0.419	0.426	0.439	0.455	0.481	0.515	0.554	0.601	0.658	0.723	0.802	0.893
60,000	0.730	0.656	0.596	0.547	0.508	0.478	0.445	0.432	0.426	0.427	0.434	0.448	0.470	0.499	0.536	0.585	0.643	0.710	0.792	0.885
70,000	1.118	0.998	0.901	0.821	0.756	0.703	0.661	0.629	0.606	0.538	0.532	0.533	0.542	0.560	0.628	0.660	0.701	0.729	0.801	0.889
80,000	1.403	1.229	1.088	0.973	0.879	0.803	0.741	0.692	0.654	0.627	0.609	0.599	0.599	0.608	0.626	0.654	0.692	0.745	0.811	0.894
90,000	1.709	1.501	1.308	1.130	1.025	0.907	0.825	0.770	0.709	0.671	0.648	0.626	0.619	0.622	0.635	0.659	0.694	0.744	0.808	0.892
100,000	2.202	1.866	1.601	1.390	1.218	1.080	0.966	0.874	0.800	0.742	0.697	0.666	0.646	0.638	0.637	0.659	0.686	0.736	0.798	0.887
150,000	4.686	3.674	2.954	2.419	2.011	1.693	1.440	1.238	1.076	0.946	0.843	0.763	0.704	0.663	0.641	0.638	0.656	0.696	0.762	0.877
200,000	7.887	5.771	4.399	3.460	2.759	2.255	1.885	1.579	1.337	1.120	0.990	0.868	0.757	0.691	0.662	0.634	0.634	0.667	0.740	0.841
250,000	11.493	7.680	5.562	4.220	3.303	2.641	2.147	1.767	1.471	1.237	1.052	0.907	0.794	0.711	0.654	0.624	0.622	0.651	0.713	0.826
300,000	15.724	9.687	6.712	4.955	3.804	2.998	2.409	1.964	1.620	1.352	1.139	0.973	0.843	0.745	0.677	0.637	0.627	0.649	0.711	0.823
400,000	23.698	12.790	8.311	5.912	4.430	3.431	2.720	2.193	1.792	1.482	1.239	1.047	0.898	0.785	0.703	0.652	0.633	0.648	0.706	0.817
500,000	33.089	15.636	9.616	6.639	4.882	3.732	2.929	2.343	1.902	1.563	1.299	1.092	0.931	0.808	0.718	0.661	0.636	0.648	0.704	0.814

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 70,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.834	0.839	0.846	0.854	0.863	0.870	0.878	0.886	0.891	0.898	0.901	0.919	0.923	0.930	0.936	0.947	0.959	0.970	0.978	0.989
2,000	0.746	0.756	0.765	0.775	0.791	0.804	0.812	0.824	0.833	0.841	0.856	0.872	0.878	0.889	0.904	0.922	0.933	0.950	0.964	0.981
3,000	0.737	0.742	0.772	0.764	0.775	0.784	0.799	0.816	0.822	0.833	0.847	0.865	0.880	0.866	0.887	0.903	0.926	0.944	0.958	0.979
4,000	0.709	0.718	0.711	0.722	0.745	0.771	0.768	0.781	0.786	0.812	0.815	0.836	0.852	0.868	0.888	0.900	0.925	0.942	0.958	0.979
5,000	0.628	0.637	0.650	0.662	0.675	0.692	0.705	0.722	0.736	0.754	0.772	0.793	0.810	0.832	0.850	0.875	0.896	0.921	0.950	0.973
6,000	0.593	0.615	0.623	0.637	0.646	0.656	0.678	0.695	0.711	0.728	0.749	0.774	0.790	0.815	0.834	0.861	0.884	0.911	0.945	0.970
7,000	0.430	0.458	0.465	0.489	0.515	0.530	0.552	0.573	0.597	0.625	0.687	0.680	0.709	0.766	0.796	0.815	0.864	0.891	0.929	0.968
8,000	0.440	0.454	0.473	0.495	0.516	0.534	0.552	0.572	0.600	0.626	0.653	0.679	0.705	0.724	0.771	0.802	0.840	0.876	0.915	0.960
9,000	0.420	0.435	0.452	0.470	0.489	0.510	0.531	0.551	0.578	0.603	0.630	0.657	0.689	0.718	0.754	0.788	0.828	0.867	0.908	0.954
10,000	0.414	0.428	0.445	0.463	0.474	0.500	0.522	0.539	0.542	0.564	0.589	0.648	0.683	0.709	0.745	0.784	0.807	0.861	0.905	0.951
11,000	0.379	0.398	0.411	0.431	0.446	0.468	0.490	0.514	0.538	0.565	0.595	0.623	0.657	0.696	0.728	0.766	0.811	0.853	0.893	0.948
12,000	0.306	0.323	0.342	0.361	0.383	0.406	0.430	0.457	0.485	0.515	0.546	0.580	0.621	0.657	0.697	0.742	0.783	0.839	0.890	0.945
13,000	0.299	0.316	0.338	0.354	0.379	0.389	0.423	0.449	0.477	0.506	0.530	0.573	0.609	0.646	0.692	0.732	0.779	0.825	0.889	0.938
14,000	0.325	0.341	0.356	0.377	0.398	0.419	0.441	0.468	0.494	0.532	0.552	0.593	0.621	0.664	0.702	0.744	0.784	0.836	0.882	0.937
15,000	0.303	0.312	0.335	0.354	0.375	0.390	0.420	0.446	0.468	0.495	0.534	0.565	0.600	0.636	0.683	0.723	0.771	0.822	0.881	0.938
16,000	0.274	0.242	0.305	0.278	0.344	0.322	0.390	0.406	0.444	0.436	0.506	0.523	0.595	0.591	0.662	0.708	0.759	0.812	0.870	0.932
17,000	0.212	0.226	0.239	0.257	0.282	0.304	0.329	0.352	0.382	0.416	0.451	0.490	0.531	0.572	0.622	0.672	0.728	0.789	0.851	0.931
18,000	0.203	0.217	0.232	0.250	0.269	0.291	0.316	0.342	0.372	0.404	0.439	0.477	0.518	0.563	0.611	0.664	0.716	0.780	0.850	0.921
19,000	0.190	0.201	0.215	0.233	0.253	0.275	0.297	0.324	0.354	0.386	0.422	0.471	0.501	0.548	0.597	0.658	0.710	0.775	0.846	0.920
20,000	0.228	0.238	0.255	0.266	0.288	0.303	0.325	0.354	0.378	0.411	0.448	0.478	0.523	0.561	0.613	0.665	0.715	0.782	0.844	0.919
21,000	0.215	0.224	0.236	0.250	0.266	0.285	0.307	0.332	0.361	0.391	0.425	0.462	0.509	0.545	0.601	0.654	0.707	0.775	0.843	0.918
22,000	0.211	0.219	0.229	0.242	0.258	0.276	0.297	0.321	0.348	0.379	0.414	0.451	0.491	0.535	0.583	0.647	0.699	0.769	0.838	0.917
23,000	0.195	0.201	0.211	0.223	0.229	0.256	0.277	0.292	0.327	0.357	0.386	0.424	0.472	0.512	0.572	0.636	0.685	0.758	0.831	0.914
24,000	0.218	0.216	0.231	0.241	0.249	0.271	0.290	0.312	0.332	0.366	0.400	0.432	0.476	0.522	0.567	0.626	0.679	0.748	0.827	0.908
25,000	0.219	0.221	0.227	0.236	0.248	0.264	0.282	0.303	0.309	0.356	0.389	0.425	0.466	0.499	0.553	0.618	0.680	0.748	0.820	0.908
30,000	0.311	0.306	0.312	0.311	0.323	0.333	0.343	0.359	0.369	0.400	0.427	0.461	0.494	0.534	0.579	0.631	0.684	0.757	0.822	0.898
40,000	0.412	0.383	0.360	0.342	0.331	0.326	0.327	0.332	0.341	0.353	0.373	0.400	0.432	0.470	0.516	0.571	0.635	0.705	0.790	0.886
50,000	0.750	0.664	0.591	0.531	0.482	0.442	0.411	0.389	0.376	0.370	0.373	0.385	0.404	0.434	0.473	0.524	0.592	0.667	0.757	0.876
60,000	1.086	0.945	0.827	0.728	0.645	0.576	0.520	0.476	0.443	0.420	0.407	0.405	0.414	0.434	0.466	0.511	0.571	0.647	0.742	0.859
70,000	1.391	1.190	1.024	0.885	0.769	0.674	0.595	0.532	0.482	0.446	0.422	0.410	0.410	0.423	0.450	0.492	0.550	0.627	0.725	0.845
80,000	1.824	1.547	1.320	1.133	0.979	0.852	0.746	0.661	0.591	0.537	0.498	0.472	0.460	0.462	0.479	0.491	0.544	0.618	0.716	0.838
90,000	2.275	1.909	1.617	1.380	1.185	1.026	0.893	0.785	0.697	0.626	0.572	0.534	0.510	0.508	0.508	0.533	0.576	0.640	0.729	0.834
100,000	2.909	2.403	2.006	1.689	1.432	1.222	1.049	0.908	0.792	0.699	0.625	0.571	0.533	0.514	0.512	0.529	0.566	0.632	0.717	0.842
150,000	7.625	5.765	4.472	3.530	2.824	2.282	1.859	1.523	1.255	1.041	0.871	0.739	0.638	0.567	0.525	0.512	0.528	0.578	0.669	0.806
200,000	13.040	9.116	6.696	5.086	3.953	3.122	2.496	2.011	1.631	1.330	1.091	0.902	0.755	0.647	0.572	0.532	0.528	0.563	0.646	0.781
250,000	19.129	12.294	8.565	6.266	4.743	3.669	2.884	2.291	1.834	1.476	1.194	0.972	0.800	0.671	0.580	0.527	0.513	0.543	0.624	0.771
300,000	23.980	14.263	9.492	6.745	5.002	3.811	2.958	2.325	1.844	1.472	1.180	0.952	0.776	0.644	0.552	0.498	0.486	0.517	0.603	0.756
400,000	37.246	19.635	12.244	8.363	6.041	4.521	3.463	2.695	2.120	1.679	1.338	1.070	0.862	0.705	0.592	0.521	0.493	0.514	0.593	0.746
500,000	56.573	26.610	15.679	10.373	7.351	5.428	4.123	3.190	2.499	1.974	1.569	1.252	1.005	0.816	0.675	0.581	0.534	0.538	0.604	0.748

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 80,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.699	0.678	0.704	0.718	0.733	0.764	0.779	0.773	0.788	0.809	0.825	0.844	0.858	0.869	0.887	0.916	0.926	0.948	0.964	0.985
2,000	0.589	0.602	0.619	0.637	0.653	0.671	0.692	0.710	0.727	0.751	0.773	0.807	0.822	0.834	0.856	0.877	0.900	0.924	0.948	0.978
3,000	0.576	0.591	0.608	0.624	0.641	0.661	0.677	0.690	0.710	0.736	0.757	0.778	0.800	0.819	0.843	0.877	0.890	0.919	0.946	0.978
4,000	0.556	0.571	0.589	0.605	0.624	0.641	0.660	0.672	0.792	0.709	0.827	0.754	0.852	0.816	0.885	0.861	0.921	0.914	0.937	0.970
5,000	0.602	0.615	0.627	0.644	0.659	0.675	0.690	0.709	0.728	0.745	0.766	0.784	0.806	0.826	0.848	0.871	0.895	0.920	0.945	0.966
6,000	0.590	0.604	0.620	0.633	0.648	0.666	0.681	0.700	0.717	0.741	0.746	0.775	0.797	0.819	0.836	0.860	0.890	0.917	0.941	0.962
7,000	0.574	0.592	0.599	0.622	0.638	0.650	0.671	0.683	0.706	0.727	0.745	0.768	0.788	0.812	0.831	0.861	0.886	0.912	0.939	0.967
8,000	0.520	0.536	0.552	0.569	0.587	0.606	0.625	0.645	0.666	0.688	0.711	0.734	0.759	0.790	0.816	0.844	0.875	0.901	0.934	0.967
9,000	0.466	0.483	0.501	0.510	0.541	0.558	0.582	0.594	0.626	0.648	0.673	0.700	0.727	0.758	0.786	0.813	0.851	0.887	0.923	0.960
10,000	0.454	0.470	0.488	0.501	0.520	0.544	0.565	0.587	0.610	0.634	0.660	0.687	0.717	0.742	0.776	0.809	0.844	0.879	0.915	0.958
11,000	0.436	0.452	0.464	0.482	0.505	0.525	0.546	0.568	0.593	0.617	0.642	0.670	0.701	0.732	0.763	0.797	0.834	0.872	0.913	0.955
12,000	0.429	0.445	0.461	0.479	0.492	0.512	0.534	0.556	0.584	0.609	0.635	0.663	0.692	0.724	0.757	0.791	0.828	0.868	0.908	0.954
13,000	0.412	0.419	0.436	0.455	0.474	0.509	0.524	0.547	0.581	0.595	0.622	0.650	0.687	0.722	0.750	0.788	0.824	0.862	0.907	0.951
14,000	0.323	0.342	0.413	0.382	0.405	0.428	0.453	0.520	0.546	0.573	0.568	0.601	0.636	0.697	0.733	0.774	0.812	0.844	0.901	0.950
15,000	0.210	0.231	0.254	0.278	0.304	0.331	0.360	0.391	0.423	0.457	0.566	0.532	0.573	0.663	0.703	0.710	0.790	0.838	0.888	0.947
16,000	0.194	0.216	0.238	0.263	0.288	0.316	0.345	0.375	0.409	0.444	0.481	0.519	0.563	0.605	0.652	0.711	0.754	0.810	0.877	0.944
17,000	0.214	0.235	0.256	0.274	0.302	0.328	0.353	0.383	0.419	0.449	0.485	0.527	0.567	0.610	0.653	0.705	0.749	0.812	0.866	0.945
18,000	0.177	0.197	0.219	0.242	0.268	0.295	0.324	0.355	0.388	0.423	0.461	0.501	0.543	0.588	0.636	0.697	0.742	0.806	0.866	0.933
19,000	0.212	0.232	0.253	0.277	0.301	0.328	0.356	0.370	0.418	0.451	0.487	0.512	0.554	0.609	0.655	0.695	0.748	0.805	0.870	0.933
20,000	0.190	0.209	0.231	0.254	0.279	0.305	0.333	0.364	0.396	0.431	0.468	0.518	0.548	0.593	0.640	0.691	0.745	0.806	0.866	0.931
21,000	0.161	0.171	0.206	0.229	0.244	0.295	0.324	0.334	0.388	0.424	0.453	0.492	0.543	0.582	0.632	0.684	0.742	0.800	0.861	0.928
22,000	0.135	0.155	0.344	0.200	0.226	0.402	0.296	0.311	0.361	0.396	0.551	0.480	0.511	0.654	0.609	0.668	0.727	0.795	0.851	0.922
23,000	0.158	0.355	0.382	0.241	0.265	0.437	0.448	0.329	0.362	0.523	0.553	0.476	0.608	0.568	0.687	0.730	0.727	0.830	0.853	0.922
24,000	0.131	0.149	0.169	0.363	0.382	0.402	0.425	0.449	0.474	0.503	0.533	0.565	0.600	0.638	0.679	0.727	0.712	0.817	0.874	0.919
25,000	0.231	0.247	0.261	0.284	0.306	0.329	0.351	0.381	0.411	0.440	0.474	0.513	0.550	0.593	0.638	0.689	0.707	0.816	0.856	0.933
30,000	0.173	0.185	0.199	0.216	0.234	0.255	0.279	0.306	0.333	0.367	0.402	0.440	0.482	0.529	0.579	0.633	0.695	0.761	0.833	0.914
40,000	0.111	0.119	0.129	0.142	0.159	0.181	0.205	0.232	0.262	0.215	0.331	0.372	0.350	0.467	0.522	0.583	0.650	0.735	0.814	0.884
50,000	0.129	0.117	0.123	0.133	0.147	0.176	0.196	0.223	0.251	0.283	0.319	0.352	0.396	0.453	0.499	0.568	0.636	0.669	0.798	0.894
60,000	0.129	0.120	0.119	0.123	0.133	0.148	0.167	0.190	0.217	0.249	0.284	0.324	0.369	0.420	0.476	0.539	0.609	0.689	0.780	0.879
70,000	0.194	0.167	0.152	0.145	0.147	0.148	0.167	0.186	0.209	0.236	0.271	0.309	0.353	0.402	0.458	0.522	0.593	0.668	0.762	0.878
80,000	0.274	0.226	0.194	0.176	0.167	0.167	0.174	0.188	0.207	0.232	0.263	0.299	0.340	0.389	0.444	0.507	0.580	0.663	0.759	0.871
90,000	0.412	0.321	0.257	0.214	0.186	0.170	0.165	0.168	0.179	0.197	0.222	0.253	0.292	0.339	0.394	0.462	0.537	0.624	0.729	0.860
100,000	0.685	0.532	0.422	0.342	0.284	0.244	0.219	0.205	0.202	0.208	0.222	0.246	0.278	0.319	0.371	0.434	0.509	0.601	0.710	0.842
150,000	1.896	1.362	1.009	0.766	0.595	0.475	0.390	0.331	0.294	0.273	0.266	0.273	0.291	0.321	0.364	0.423	0.491	0.583	0.693	0.825
200,000	3.487	2.298	1.594	1.146	0.849	0.645	0.504	0.406	0.340	0.298	0.276	0.271	0.280	0.304	0.341	0.394	0.464	0.555	0.669	0.822
250,000	6.233	3.856	2.499	1.734	1.248	0.924	0.700	0.543	0.456	0.357	0.308	0.282	0.274	0.283	0.310	0.355	0.421	0.511	0.632	0.797
300,000	9.223	5.209	3.287	2.224	1.575	1.155	0.869	0.670	0.530	0.433	0.367	0.326	0.306	0.306	0.325	0.363	0.423	0.509	0.627	0.791
400,000	14.203	7.176	4.249	2.762	1.906	1.370	1.015	0.771	0.599	0.479	0.395	0.341	0.311	0.302	0.313	0.346	0.402	0.486	0.606	0.771
500,000	20.330	9.253	5.199	3.283	2.229	1.587	1.171	0.888	0.690	0.551	0.454	0.388	0.349	0.332	0.337	0.363	0.413	0.492	0.607	0.770

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 90,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.712	0.723	0.737	0.750	0.762	0.775	0.789	0.799	0.817	0.831	0.845	0.856	0.872	0.885	0.906	0.921	0.929	0.947	0.967	0.985
2,000	0.613	0.627	0.646	0.662	0.679	0.696	0.706	0.730	0.748	0.764	0.786	0.805	0.824	0.841	0.864	0.885	0.908	0.932	0.952	0.977
3,000	0.535	0.553	0.571	0.589	0.597	0.618	0.638	0.660	0.682	0.712	0.735	0.758	0.782	0.807	0.832	0.854	0.882	0.911	0.940	0.970
4,000	0.472	0.490	0.510	0.531	0.552	0.573	0.596	0.620	0.643	0.668	0.694	0.720	0.748	0.775	0.805	0.833	0.865	0.898	0.928	0.964
5,000	0.421	0.441	0.460	0.482	0.504	0.527	0.552	0.577	0.603	0.629	0.658	0.687	0.715	0.747	0.781	0.814	0.847	0.884	0.922	0.960
6,000	0.393	0.418	0.439	0.462	0.486	0.507	0.529	0.555	0.585	0.609	0.638	0.670	0.702	0.732	0.766	0.802	0.837	0.875	0.914	0.957
7,000	0.362	0.383	0.407	0.428	0.451	0.476	0.501	0.528	0.555	0.585	0.617	0.648	0.681	0.715	0.749	0.785	0.824	0.866	0.908	0.953
8,000	0.343	0.363	0.373	0.408	0.434	0.457	0.484	0.510	0.538	0.568	0.598	0.631	0.664	0.700	0.737	0.774	0.814	0.858	0.903	0.950
9,000	0.326	0.347	0.369	0.392	0.417	0.442	0.468	0.496	0.525	0.555	0.586	0.602	0.637	0.691	0.715	0.756	0.810	0.846	0.896	0.946
10,000	0.302	0.377	0.346	0.363	0.394	0.469	0.441	0.475	0.543	0.536	0.564	0.602	0.638	0.676	0.715	0.777	0.817	0.846	0.889	0.946
11,000	0.340	0.360	0.380	0.401	0.425	0.449	0.473	0.500	0.527	0.556	0.587	0.619	0.653	0.689	0.726	0.765	0.808	0.839	0.890	0.944
12,000	0.397	0.414	0.436	0.454	0.474	0.495	0.518	0.541	0.566	0.592	0.619	0.648	0.679	0.711	0.745	0.782	0.798	0.863	0.884	0.951
13,000	0.389	0.406	0.418	0.438	0.459	0.480	0.504	0.529	0.554	0.578	0.605	0.636	0.668	0.700	0.737	0.776	0.814	0.855	0.902	0.949
14,000	0.369	0.380	0.398	0.418	0.444	0.465	0.483	0.507	0.533	0.565	0.589	0.620	0.653	0.690	0.724	0.764	0.806	0.849	0.899	0.948
15,000	0.356	0.373	0.391	0.411	0.431	0.452	0.475	0.501	0.527	0.554	0.583	0.608	0.645	0.680	0.721	0.757	0.800	0.844	0.894	0.945
16,000	0.336	0.353	0.371	0.391	0.412	0.434	0.463	0.487	0.513	0.541	0.570	0.602	0.635	0.671	0.709	0.749	0.793	0.839	0.890	0.943
17,000	0.322	0.339	0.358	0.378	0.402	0.422	0.445	0.474	0.501	0.526	0.556	0.589	0.623	0.660	0.698	0.740	0.786	0.835	0.884	0.941
18,000	0.307	0.325	0.344	0.363	0.385	0.407	0.432	0.457	0.485	0.513	0.545	0.577	0.615	0.650	0.693	0.735	0.782	0.829	0.882	0.938
19,000	0.299	0.316	0.335	0.355	0.376	0.399	0.423	0.449	0.476	0.506	0.537	0.570	0.606	0.638	0.684	0.728	0.771	0.824	0.879	0.937
20,000	0.297	0.307	0.326	0.352	0.366	0.388	0.419	0.438	0.472	0.501	0.524	0.565	0.599	0.633	0.679	0.724	0.770	0.822	0.876	0.935
21,000	0.279	0.297	0.315	0.335	0.356	0.379	0.403	0.429	0.456	0.486	0.517	0.551	0.587	0.627	0.669	0.717	0.762	0.815	0.872	0.933
22,000	0.267	0.284	0.303	0.323	0.344	0.367	0.391	0.417	0.445	0.475	0.507	0.542	0.579	0.619	0.662	0.707	0.757	0.809	0.869	0.932
23,000	0.264	0.281	0.299	0.319	0.340	0.363	0.387	0.413	0.441	0.470	0.502	0.537	0.574	0.614	0.657	0.703	0.754	0.808	0.866	0.930
24,000	0.257	0.274	0.292	0.311	0.332	0.355	0.379	0.405	0.428	0.463	0.495	0.530	0.561	0.603	0.652	0.698	0.749	0.800	0.864	0.929
25,000	0.254	0.270	0.288	0.307	0.326	0.347	0.372	0.397	0.424	0.453	0.486	0.520	0.557	0.598	0.642	0.689	0.741	0.798	0.860	0.928
30,000	0.195	0.212	0.231	0.251	0.272	0.296	0.321	0.348	0.377	0.409	0.443	0.480	0.521	0.564	0.611	0.663	0.719	0.780	0.845	0.922
40,000	0.177	0.205	0.220	0.237	0.255	0.265	0.298	0.323	0.350	0.372	0.413	0.449	0.488	0.524	0.580	0.634	0.687	0.758	0.830	0.906
50,000	0.126	0.133	0.142	0.155	0.170	0.189	0.210	0.234	0.261	0.292	0.326	0.365	0.408	0.455	0.509	0.569	0.637	0.711	0.797	0.890
60,000	0.079	0.082	0.089	0.100	0.114	0.131	0.152	0.177	0.204	0.236	0.272	0.312	0.357	0.407	0.464	0.528	0.600	0.689	0.778	0.885
70,000	0.085	0.078	0.077	0.081	0.090	0.103	0.120	0.141	0.167	0.197	0.231	0.270	0.315	0.367	0.425	0.492	0.568	0.654	0.754	0.870
80,000	0.056	0.050	0.052	0.059	0.072	0.088	0.109	0.134	0.162	0.194	0.231	0.272	0.318	0.370	0.429	0.496	0.571	0.657	0.755	0.863
90,000	0.078	0.062	0.057	0.059	0.068	0.082	0.101	0.124	0.151	0.181	0.202	0.257	0.288	0.355	0.399	0.481	0.565	0.644	0.751	0.863
100,000	0.117	0.086	0.073	0.062	0.064	0.076	0.091	0.107	0.130	0.160	0.195	0.233	0.277	0.329	0.389	0.455	0.534	0.627	0.732	0.856
150,000	0.782	0.574	0.446	0.366	0.316	0.286	0.270	0.266	0.270	0.281	0.298	0.323	0.353	0.391	0.437	0.493	0.559	0.640	0.737	0.855
200,000	1.862	1.300	0.979	0.785	0.662	0.582	0.530	0.496	0.475	0.464	0.462	0.468	0.481	0.502	0.531	0.570	0.620	0.684	0.766	0.869
250,000	2.905	1.824	1.295	0.957	0.767	0.647	0.569	0.518	0.485	0.465	0.470	0.456	0.477	0.483	0.519	0.548	0.599	0.665	0.752	0.859
300,000	3.951	2.271	1.476	1.053	0.807	0.656	0.558	0.494	0.453	0.428	0.415	0.413	0.421	0.439	0.467	0.507	0.561	0.632	0.725	0.845
400,000	6.243	3.241	1.984	1.363	1.019	0.813	0.682	0.595	0.537	0.498	0.474	0.462	0.461	0.470	0.491	0.524	0.572	0.637	0.726	0.843
500,000	8.705	4.112	2.384	1.583	1.159	0.911	0.756	0.654	0.585	0.539	0.509	0.492	0.486	0.491	0.508	0.538	0.582	0.644	0.729	0.845

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 100,000																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.772	0.782	0.791	0.793	0.806	0.823	0.835	0.846	0.850	0.860	0.875	0.891	0.904	0.911	0.922	0.937	0.950	0.962	0.973	0.987
2,000	0.703	0.712	0.725	0.740	0.755	0.769	0.781	0.794	0.805	0.822	0.837	0.855	0.866	0.883	0.899	0.914	0.932	0.949	0.964	0.982
3,000	0.639	0.656	0.669	0.684	0.700	0.716	0.733	0.749	0.767	0.784	0.803	0.821	0.838	0.858	0.877	0.896	0.915	0.936	0.958	0.978
4,000	0.581	0.598	0.617	0.642	0.650	0.671	0.689	0.706	0.731	0.748	0.768	0.788	0.810	0.835	0.854	0.877	0.901	0.925	0.950	0.975
5,000	0.534	0.551	0.569	0.588	0.607	0.627	0.643	0.668	0.690	0.712	0.735	0.751	0.782	0.801	0.832	0.854	0.883	0.911	0.940	0.971
6,000	0.508	0.526	0.545	0.564	0.584	0.604	0.625	0.647	0.669	0.700	0.717	0.741	0.766	0.793	0.820	0.848	0.877	0.903	0.934	0.967
7,000	0.474	0.492	0.515	0.531	0.556	0.577	0.596	0.622	0.642	0.677	0.683	0.719	0.749	0.766	0.798	0.836	0.864	0.897	0.929	0.965
8,000	0.422	0.442	0.463	0.485	0.507	0.531	0.556	0.580	0.606	0.634	0.662	0.693	0.722	0.752	0.785	0.819	0.851	0.889	0.927	0.960
9,000	0.407	0.427	0.448	0.462	0.492	0.516	0.534	0.566	0.592	0.615	0.648	0.678	0.712	0.748	0.773	0.807	0.848	0.884	0.921	0.958
10,000	0.357	0.378	0.400	0.423	0.447	0.473	0.499	0.526	0.555	0.584	0.615	0.648	0.681	0.722	0.753	0.789	0.828	0.869	0.912	0.955
11,000	0.333	0.349	0.386	0.401	0.433	0.447	0.492	0.503	0.548	0.568	0.603	0.633	0.675	0.701	0.742	0.780	0.824	0.863	0.906	0.952
12,000	0.322	0.343	0.365	0.387	0.411	0.439	0.466	0.494	0.524	0.555	0.588	0.622	0.657	0.694	0.732	0.772	0.813	0.856	0.904	0.950
13,000	0.316	0.336	0.358	0.381	0.405	0.431	0.458	0.486	0.516	0.547	0.580	0.614	0.649	0.687	0.725	0.767	0.809	0.854	0.899	0.946
14,000	0.270	0.319	0.314	0.337	0.363	0.410	0.418	0.448	0.494	0.512	0.547	0.583	0.621	0.661	0.703	0.753	0.792	0.841	0.897	0.946
15,000	0.286	0.304	0.324	0.346	0.369	0.394	0.421	0.449	0.480	0.511	0.545	0.581	0.619	0.659	0.700	0.744	0.790	0.839	0.887	0.945
16,000	0.303	0.320	0.339	0.360	0.382	0.406	0.432	0.460	0.489	0.520	0.553	0.588	0.625	0.664	0.705	0.748	0.793	0.841	0.883	0.945
17,000	0.291	0.307	0.326	0.346	0.368	0.392	0.418	0.446	0.476	0.507	0.541	0.577	0.614	0.654	0.696	0.740	0.787	0.836	0.883	0.943
18,000	0.268	0.284	0.302	0.322	0.344	0.368	0.395	0.423	0.453	0.485	0.520	0.556	0.595	0.636	0.680	0.733	0.773	0.831	0.884	0.938
19,000	0.264	0.280	0.297	0.317	0.339	0.363	0.388	0.417	0.447	0.479	0.521	0.550	0.590	0.631	0.675	0.722	0.769	0.822	0.879	0.938
20,000	0.246	0.261	0.279	0.299	0.321	0.345	0.371	0.400	0.431	0.464	0.499	0.537	0.577	0.620	0.665	0.714	0.761	0.818	0.876	0.935
21,000	0.238	0.253	0.270	0.289	0.311	0.335	0.361	0.390	0.421	0.454	0.490	0.528	0.569	0.612	0.658	0.707	0.759	0.814	0.869	0.935
22,000	0.229	0.242	0.258	0.277	0.298	0.322	0.348	0.377	0.408	0.441	0.477	0.516	0.557	0.602	0.649	0.699	0.752	0.810	0.869	0.932
23,000	0.243	0.255	0.277	0.288	0.308	0.331	0.357	0.384	0.415	0.449	0.483	0.522	0.562	0.606	0.652	0.700	0.754	0.810	0.866	0.933
24,000	0.215	0.226	0.242	0.259	0.280	0.304	0.329	0.358	0.413	0.445	0.460	0.499	0.541	0.587	0.635	0.687	0.752	0.808	0.866	0.932
25,000	0.217	0.222	0.237	0.260	0.280	0.303	0.328	0.353	0.388	0.421	0.458	0.491	0.532	0.580	0.629	0.679	0.736	0.796	0.860	0.931
30,000	0.181	0.188	0.199	0.214	0.234	0.255	0.280	0.309	0.341	0.377	0.415	0.454	0.499	0.547	0.603	0.658	0.716	0.779	0.849	0.922
40,000	0.303	0.279	0.264	0.257	0.258	0.264	0.277	0.295	0.318	0.347	0.380	0.418	0.461	0.509	0.562	0.620	0.682	0.757	0.828	0.909
50,000	0.381	0.315	0.267	0.233	0.212	0.202	0.202	0.211	0.228	0.252	0.284	0.322	0.368	0.420	0.479	0.546	0.623	0.702	0.786	0.887
60,000	0.614	0.494	0.403	0.334	0.286	0.254	0.236	0.230	0.236	0.251	0.276	0.309	0.349	0.398	0.457	0.523	0.599	0.683	0.781	0.886
70,000	0.821	0.640	0.503	0.400	0.324	0.272	0.239	0.200	0.216	0.224	0.230	0.275	0.314	0.354	0.423	0.491	0.571	0.660	0.760	0.874
80,000	1.172	0.894	0.683	0.560	0.406	0.321	0.262	0.225	0.206	0.203	0.215	0.250	0.285	0.324	0.384	0.466	0.547	0.625	0.744	0.859
90,000	1.369	1.033	0.784	0.597	0.459	0.359	0.289	0.244	0.219	0.212	0.219	0.250	0.282	0.321	0.379	0.453	0.534	0.628	0.735	0.860
100,000	1.860	1.378	1.024	0.763	0.571	0.430	0.330	0.262	0.221	0.201	0.200	0.215	0.246	0.290	0.347	0.419	0.507	0.605	0.718	0.853
150,000	5.847	4.031	2.826	1.997	1.416	1.002	0.707	0.499	0.353	0.257	0.199	0.174	0.176	0.201	0.249	0.317	0.406	0.517	0.652	0.814
200,000	12.242	7.849	5.251	3.607	2.525	1.788	1.276	0.913	0.657	0.479	0.359	0.285	0.248	0.243	0.266	0.317	0.393	0.497	0.630	0.799
250,000	19.746	11.689	7.423	4.916	3.361	2.344	1.658	1.183	0.851	0.619	0.462	0.359	0.301	0.280	0.290	0.331	0.400	0.499	0.599	0.796
300,000	26.361	14.536	8.804	5.652	3.778	2.593	1.812	1.283	0.917	0.666	0.495	0.383	0.319	0.293	0.300	0.338	0.405	0.502	0.631	0.796
400,000	40.838	20.250	11.506	7.081	4.595	3.086	2.118	1.477	1.079	0.772	0.562	0.424	0.325	0.288	0.288	0.320	0.384	0.481	0.613	0.785
500,000	59.408	26.431	14.548	8.682	5.405	3.644	2.430	1.705	1.176	0.832	0.598	0.442	0.321	0.296	0.274	0.313	0.373	0.468	0.598	0.776

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 200,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.663	0.681	0.694	0.711	0.722	0.738	0.772	0.784	0.788	0.803	0.829	0.845	0.864	0.878	0.893	0.914	0.933	0.952	0.966	0.987
2,000	0.579	0.594	0.605	0.628	0.642	0.665	0.678	0.702	0.719	0.742	0.762	0.785	0.798	0.829	0.849	0.875	0.897	0.924	0.948	0.980
3,000	0.492	0.511	0.529	0.552	0.567	0.589	0.610	0.641	0.663	0.687	0.711	0.735	0.760	0.788	0.817	0.844	0.875	0.905	0.937	0.975
4,000	0.447	0.465	0.483	0.507	0.525	0.551	0.574	0.596	0.621	0.648	0.674	0.702	0.731	0.760	0.792	0.820	0.856	0.891	0.926	0.964
5,000	0.404	0.423	0.450	0.464	0.488	0.510	0.534	0.561	0.586	0.612	0.641	0.669	0.700	0.731	0.763	0.800	0.837	0.877	0.915	0.959
6,000	0.360	0.378	0.409	0.420	0.452	0.478	0.501	0.528	0.551	0.581	0.612	0.637	0.667	0.713	0.749	0.786	0.827	0.864	0.907	0.954
7,000	0.314	0.335	0.357	0.379	0.404	0.429	0.456	0.485	0.514	0.543	0.576	0.611	0.648	0.689	0.726	0.767	0.811	0.855	0.903	0.950
8,000	0.301	0.321	0.349	0.365	0.387	0.419	0.438	0.465	0.506	0.527	0.568	0.594	0.630	0.682	0.709	0.755	0.798	0.846	0.893	0.946
9,000	0.301	0.317	0.328	0.356	0.382	0.405	0.429	0.459	0.488	0.514	0.551	0.590	0.627	0.668	0.711	0.746	0.793	0.839	0.891	0.944
10,000	0.304	0.320	0.341	0.361	0.381	0.405	0.430	0.457	0.484	0.517	0.551	0.585	0.619	0.652	0.702	0.744	0.786	0.838	0.890	0.941
11,000	0.284	0.303	0.317	0.342	0.360	0.387	0.408	0.438	0.465	0.501	0.532	0.568	0.603	0.644	0.685	0.729	0.780	0.831	0.883	0.938
12,000	0.282	0.300	0.315	0.334	0.355	0.377	0.400	0.426	0.455	0.486	0.520	0.553	0.594	0.636	0.680	0.724	0.771	0.824	0.881	0.937
13,000	0.277	0.291	0.312	0.327	0.342	0.364	0.392	0.418	0.446	0.476	0.507	0.546	0.585	0.622	0.666	0.715	0.767	0.820	0.875	0.935
14,000	0.272	0.280	0.297	0.310	0.332	0.354	0.375	0.399	0.434	0.458	0.497	0.528	0.569	0.615	0.651	0.708	0.755	0.813	0.871	0.934
15,000	0.290	0.299	0.309	0.327	0.345	0.363	0.385	0.413	0.432	0.470	0.502	0.534	0.575	0.614	0.656	0.709	0.753	0.816	0.865	0.935
16,000	0.285	0.293	0.303	0.317	0.334	0.353	0.374	0.398	0.428	0.455	0.487	0.522	0.562	0.605	0.649	0.694	0.749	0.806	0.865	0.931
17,000	0.270	0.277	0.288	0.312	0.318	0.337	0.357	0.382	0.408	0.438	0.471	0.509	0.551	0.592	0.641	0.688	0.743	0.799	0.861	0.929
18,000	0.275	0.272	0.292	0.306	0.315	0.332	0.352	0.378	0.406	0.431	0.465	0.501	0.542	0.585	0.631	0.680	0.734	0.793	0.860	0.927
19,000	0.264	0.268	0.275	0.284	0.299	0.316	0.336	0.358	0.387	0.416	0.449	0.485	0.525	0.570	0.617	0.669	0.726	0.786	0.853	0.923
20,000	0.267	0.272	0.275	0.284	0.298	0.312	0.333	0.353	0.379	0.409	0.441	0.477	0.517	0.560	0.611	0.661	0.720	0.778	0.848	0.920
21,000	0.272	0.276	0.276	0.287	0.295	0.313	0.328	0.353	0.374	0.406	0.435	0.474	0.512	0.558	0.603	0.659	0.714	0.779	0.844	0.920
22,000	0.283	0.281	0.283	0.291	0.299	0.313	0.330	0.350	0.375	0.403	0.432	0.470	0.509	0.554	0.601	0.653	0.712	0.773	0.843	0.918
23,000	0.274	0.266	0.267	0.272	0.285	0.298	0.310	0.335	0.359	0.388	0.414	0.452	0.496	0.543	0.587	0.646	0.707	0.769	0.839	0.916
24,000	0.276	0.269	0.217	0.272	0.280	0.282	0.307	0.327	0.367	0.379	0.411	0.442	0.487	0.532	0.583	0.664	0.695	0.762	0.835	0.915
25,000	0.177	0.197	0.211	0.230	0.256	0.275	0.305	0.329	0.360	0.394	0.429	0.469	0.511	0.557	0.606	0.659	0.717	0.779	0.833	0.919
30,000	0.203	0.211	0.224	0.239	0.257	0.275	0.298	0.323	0.351	0.383	0.415	0.453	0.494	0.542	0.588	0.644	0.704	0.768	0.838	0.916
40,000	0.249	0.253	0.256	0.263	0.274	0.289	0.304	0.324	0.348	0.374	0.404	0.439	0.478	0.521	0.569	0.624	0.683	0.749	0.823	0.906
50,000	0.282	0.276	0.272	0.274	0.275	0.278	0.289	0.304	0.333	0.354	0.390	0.408	0.451	0.487	0.541	0.594	0.659	0.727	0.813	0.897
60,000	0.335	0.309	0.294	0.283	0.278	0.277	0.280	0.291	0.305	0.325	0.349	0.380	0.414	0.457	0.507	0.569	0.629	0.704	0.790	0.891
70,000	0.420	0.379	0.348	0.325	0.308	0.300	0.297	0.299	0.308	0.324	0.343	0.370	0.404	0.444	0.492	0.549	0.614	0.687	0.777	0.883
80,000	0.499	0.437	0.411	0.350	0.324	0.307	0.298	0.295	0.300	0.311	0.329	0.353	0.390	0.422	0.472	0.529	0.596	0.675	0.766	0.876
90,000	0.573	0.482	0.412	0.359	0.321	0.293	0.276	0.261	0.267	0.275	0.290	0.313	0.344	0.384	0.431	0.492	0.564	0.653	0.744	0.868
100,000	0.729	0.613	0.524	0.456	0.404	0.365	0.338	0.321	0.313	0.314	0.333	0.348	0.372	0.408	0.445	0.502	0.568	0.653	0.747	0.862
150,000	1.932	1.533	1.242	1.025	0.859	0.731	0.632	0.556	0.498	0.457	0.430	0.417	0.417	0.430	0.456	0.497	0.555	0.632	0.728	0.849
200,000	3.387	2.517	1.941	1.538	1.246	1.027	0.861	0.733	0.636	0.563	0.510	0.475	0.458	0.456	0.470	0.501	0.546	0.619	0.718	0.840
250,000	5.337	3.743	2.777	2.140	1.697	1.359	1.135	0.953	0.802	0.707	0.627	0.569	0.525	0.515	0.510	0.531	0.565	0.634	0.724	0.839
300,000	7.231	4.821	3.456	2.602	2.027	1.605	1.307	1.094	0.912	0.790	0.690	0.617	0.567	0.538	0.529	0.538	0.565	0.631	0.711	0.831
400,000	10.285	6.350	4.332	3.149	2.389	1.868	1.492	1.214	1.004	0.827	0.707	0.626	0.564	0.518	0.520	0.519	0.550	0.610	0.700	0.824
500,000	8.430	4.375	2.602	1.712	1.223	0.935	0.758	0.646	0.575	0.530	0.504	0.492	0.492	0.503	0.524	0.557	0.604	0.667	0.753	0.858

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 300,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.775	0.785	0.791	0.801	0.812	0.822	0.833	0.845	0.855	0.869	0.880	0.890	0.900	0.912	0.924	0.937	0.949	0.961	0.973	0.986
2,000	0.642	0.655	0.675	0.689	0.703	0.719	0.735	0.752	0.769	0.788	0.804	0.822	0.841	0.859	0.879	0.895	0.916	0.937	0.956	0.980
3,000	0.560	0.577	0.597	0.615	0.633	0.652	0.673	0.692	0.712	0.733	0.754	0.776	0.798	0.824	0.846	0.872	0.892	0.919	0.946	0.974
4,000	0.504	0.523	0.542	0.563	0.581	0.602	0.625	0.647	0.670	0.693	0.717	0.742	0.764	0.796	0.820	0.848	0.877	0.904	0.936	0.969
5,000	0.482	0.501	0.521	0.541	0.562	0.583	0.615	0.638	0.646	0.670	0.696	0.734	0.760	0.787	0.810	0.839	0.867	0.895	0.927	0.965
6,000	0.456	0.479	0.489	0.510	0.530	0.563	0.583	0.606	0.633	0.653	0.677	0.710	0.738	0.768	0.795	0.827	0.860	0.891	0.927	0.962
7,000	0.423	0.443	0.464	0.485	0.508	0.531	0.555	0.580	0.605	0.632	0.660	0.689	0.718	0.746	0.779	0.816	0.850	0.884	0.922	0.959
8,000	0.407	0.426	0.447	0.469	0.492	0.516	0.540	0.565	0.586	0.618	0.646	0.672	0.709	0.741	0.768	0.806	0.840	0.878	0.916	0.957
9,000	0.388	0.409	0.430	0.453	0.476	0.499	0.522	0.548	0.575	0.603	0.632	0.663	0.694	0.726	0.761	0.797	0.835	0.873	0.914	0.955
10,000	0.368	0.389	0.410	0.433	0.456	0.480	0.506	0.532	0.560	0.588	0.618	0.649	0.682	0.716	0.751	0.788	0.826	0.866	0.911	0.953
11,000	0.371	0.369	0.391	0.435	0.438	0.463	0.488	0.534	0.544	0.573	0.604	0.650	0.669	0.703	0.741	0.779	0.820	0.862	0.906	0.952
12,000	0.357	0.377	0.396	0.418	0.442	0.466	0.492	0.518	0.546	0.575	0.604	0.637	0.668	0.694	0.732	0.772	0.819	0.862	0.902	0.950
13,000	0.327	0.368	0.396	0.412	0.416	0.445	0.471	0.518	0.527	0.569	0.603	0.632	0.666	0.700	0.739	0.771	0.812	0.860	0.902	0.951
14,000	0.327	0.348	0.380	0.392	0.426	0.440	0.466	0.498	0.521	0.560	0.583	0.616	0.654	0.687	0.730	0.766	0.806	0.851	0.901	0.951
15,000	0.309	0.331	0.358	0.381	0.404	0.429	0.456	0.483	0.506	0.544	0.576	0.610	0.645	0.681	0.719	0.759	0.799	0.847	0.894	0.948
16,000	0.290	0.312	0.334	0.357	0.381	0.407	0.434	0.462	0.492	0.523	0.556	0.591	0.627	0.666	0.706	0.748	0.795	0.843	0.893	0.945
17,000	0.263	0.285	0.306	0.331	0.355	0.383	0.422	0.438	0.470	0.511	0.536	0.581	0.618	0.649	0.703	0.747	0.782	0.834	0.888	0.943
18,000	0.257	0.271	0.302	0.324	0.349	0.384	0.402	0.427	0.455	0.491	0.529	0.561	0.603	0.640	0.683	0.730	0.777	0.828	0.882	0.939
19,000	0.244	0.264	0.285	0.307	0.332	0.357	0.384	0.413	0.444	0.477	0.511	0.548	0.587	0.628	0.672	0.723	0.767	0.819	0.879	0.937
20,000	0.236	0.257	0.278	0.301	0.326	0.352	0.380	0.404	0.436	0.468	0.504	0.541	0.580	0.622	0.666	0.718	0.763	0.818	0.872	0.934
21,000	0.221	0.242	0.264	0.288	0.318	0.339	0.373	0.397	0.427	0.467	0.498	0.538	0.571	0.619	0.663	0.715	0.758	0.814	0.873	0.934
22,000	0.212	0.231	0.253	0.282	0.307	0.328	0.360	0.390	0.418	0.457	0.489	0.526	0.567	0.612	0.655	0.705	0.758	0.813	0.871	0.933
23,000	0.193	0.213	0.248	0.271	0.296	0.322	0.351	0.380	0.412	0.446	0.482	0.518	0.561	0.605	0.650	0.699	0.752	0.809	0.868	0.932
24,000	0.192	0.216	0.238	0.267	0.288	0.314	0.342	0.375	0.407	0.437	0.471	0.511	0.552	0.590	0.644	0.696	0.747	0.800	0.865	0.930
25,000	0.205	0.225	0.243	0.263	0.290	0.312	0.344	0.366	0.390	0.431	0.460	0.509	0.541	0.593	0.636	0.695	0.736	0.803	0.862	0.929
30,000	0.193	0.211	0.230	0.251	0.274	0.299	0.325	0.354	0.387	0.417	0.456	0.494	0.534	0.580	0.626	0.677	0.733	0.790	0.851	0.924
40,000	0.117	0.134	0.152	0.173	0.195	0.222	0.244	0.275	0.307	0.346	0.384	0.426	0.467	0.516	0.569	0.627	0.689	0.759	0.835	0.911
50,000	0.114	0.126	0.142	0.160	0.143	0.204	0.230	0.221	0.290	0.324	0.328	0.371	0.447	0.469	0.525	0.609	0.654	0.734	0.814	0.907
60,000	0.059	0.066	0.077	0.092	0.110	0.131	0.156	0.185	0.216	0.252	0.291	0.330	0.378	0.435	0.499	0.555	0.631	0.706	0.795	0.891
70,000	0.054	0.052	0.058	0.067	0.081	0.099	0.117	0.144	0.174	0.209	0.244	0.292	0.342	0.397	0.457	0.524	0.599	0.681	0.778	0.882
80,000	0.047	0.039	0.038	0.044	0.055	0.071	0.092	0.117	0.147	0.182	0.222	0.266	0.316	0.372	0.435	0.505	0.583	0.670	0.765	0.877
90,000	0.096	0.074	0.062	0.058	0.061	0.071	0.087	0.108	0.134	0.166	0.203	0.246	0.295	0.350	0.413	0.484	0.563	0.653	0.755	0.870
100,000	0.105	0.073	0.056	0.047	0.048	0.056	0.071	0.091	0.118	0.149	0.186	0.232	0.279	0.338	0.399	0.473	0.554	0.646	0.748	0.867
150,000	0.438	0.281	0.174	0.103	0.059	0.034	0.025	0.029	0.044	0.068	0.100	0.141	0.191	0.249	0.317	0.395	0.484	0.587	0.705	0.841
200,000	1.072	0.700	0.456	0.296	0.191	0.126	0.089	0.073	0.074	0.088	0.114	0.151	0.197	0.252	0.318	0.394	0.483	0.589	0.703	0.843
250,000	1.590	1.001	0.630	0.394	0.239	0.141	0.081	0.050	0.039	0.046	0.066	0.099	0.143	0.199	0.265	0.345	0.438	0.547	0.674	0.824
300,000	2.348	1.455	0.911	0.568	0.348	0.208	0.119	0.068	0.044	0.041	0.054	0.082	0.122	0.176	0.241	0.321	0.415	0.527	0.658	0.815
400,000	3.548	2.144	1.327	0.826	0.510	0.307	0.178	0.099	0.055	0.038	0.041	0.061	0.097	0.147	0.212	0.291	0.387	0.502	0.640	0.803
500,000	4.478	2.776	1.684	1.035	0.634	0.381	0.220	0.120	0.068	0.046	0.046	0.066	0.100	0.150	0.207	0.287	0.389	0.504	0.641	0.803

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 400,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.779	0.789	0.799	0.809	0.819	0.831	0.842	0.852	0.879	0.884	0.888	0.899	0.909	0.920	0.931	0.941	0.957	0.966	0.978	0.989
2,000	0.720	0.731	0.744	0.756	0.768	0.781	0.794	0.807	0.820	0.834	0.848	0.862	0.876	0.890	0.906	0.921	0.936	0.952	0.967	0.985
3,000	0.678	0.691	0.704	0.718	0.731	0.741	0.760	0.775	0.788	0.805	0.816	0.837	0.849	0.867	0.887	0.901	0.922	0.938	0.959	0.980
4,000	0.596	0.612	0.628	0.645	0.662	0.680	0.697	0.719	0.735	0.754	0.776	0.796	0.815	0.838	0.862	0.880	0.905	0.928	0.952	0.976
5,000	0.564	0.582	0.599	0.616	0.634	0.653	0.673	0.692	0.712	0.732	0.754	0.776	0.798	0.819	0.843	0.868	0.893	0.919	0.945	0.974
6,000	0.529	0.547	0.565	0.584	0.603	0.623	0.643	0.664	0.686	0.708	0.731	0.754	0.778	0.803	0.829	0.855	0.882	0.910	0.939	0.968
7,000	0.492	0.511	0.530	0.550	0.580	0.600	0.622	0.643	0.658	0.682	0.706	0.733	0.758	0.785	0.814	0.845	0.872	0.903	0.934	0.966
8,000	0.493	0.511	0.530	0.549	0.569	0.590	0.611	0.633	0.656	0.679	0.696	0.729	0.755	0.777	0.805	0.839	0.865	0.895	0.931	0.964
9,000	0.469	0.488	0.507	0.527	0.548	0.569	0.591	0.614	0.637	0.662	0.687	0.714	0.740	0.769	0.792	0.828	0.860	0.890	0.925	0.961
10,000	0.433	0.453	0.473	0.494	0.516	0.538	0.562	0.586	0.611	0.637	0.664	0.692	0.721	0.751	0.778	0.815	0.853	0.882	0.921	0.959
11,000	0.412	0.432	0.453	0.474	0.496	0.519	0.543	0.568	0.594	0.621	0.649	0.678	0.708	0.739	0.772	0.806	0.842	0.876	0.918	0.958
12,000	0.411	0.423	0.444	0.466	0.488	0.511	0.536	0.562	0.587	0.617	0.643	0.671	0.703	0.733	0.768	0.800	0.838	0.870	0.914	0.955
13,000	0.387	0.402	0.436	0.458	0.480	0.493	0.521	0.547	0.573	0.598	0.635	0.661	0.691	0.724	0.758	0.795	0.832	0.868	0.911	0.953
14,000	0.362	0.383	0.417	0.439	0.462	0.485	0.511	0.526	0.554	0.582	0.620	0.651	0.682	0.716	0.751	0.788	0.824	0.863	0.908	0.951
15,000	0.348	0.368	0.391	0.426	0.436	0.462	0.487	0.512	0.542	0.569	0.611	0.633	0.672	0.707	0.737	0.781	0.817	0.859	0.903	0.950
16,000	0.330	0.351	0.373	0.396	0.420	0.445	0.470	0.498	0.526	0.556	0.587	0.620	0.654	0.688	0.728	0.768	0.807	0.854	0.900	0.948
17,000	0.315	0.336	0.358	0.381	0.405	0.430	0.456	0.484	0.513	0.543	0.575	0.608	0.644	0.680	0.719	0.760	0.803	0.848	0.896	0.946
18,000	0.322	0.343	0.364	0.387	0.410	0.435	0.461	0.488	0.516	0.546	0.577	0.610	0.644	0.681	0.719	0.759	0.802	0.845	0.894	0.945
19,000	0.311	0.331	0.353	0.376	0.399	0.424	0.450	0.477	0.506	0.536	0.568	0.601	0.636	0.673	0.712	0.754	0.797	0.844	0.893	0.944
20,000	0.289	0.310	0.332	0.355	0.379	0.405	0.431	0.459	0.496	0.520	0.552	0.586	0.623	0.661	0.701	0.744	0.792	0.840	0.890	0.942
21,000	0.278	0.299	0.321	0.345	0.369	0.394	0.421	0.449	0.479	0.510	0.543	0.578	0.615	0.654	0.695	0.738	0.785	0.833	0.886	0.942
22,000	0.268	0.289	0.311	0.335	0.359	0.385	0.412	0.440	0.470	0.501	0.535	0.570	0.607	0.647	0.689	0.733	0.780	0.830	0.883	0.940
23,000	0.259	0.280	0.302	0.325	0.349	0.375	0.402	0.431	0.461	0.493	0.527	0.562	0.600	0.640	0.682	0.727	0.775	0.826	0.880	0.938
24,000	0.248	0.269	0.291	0.315	0.339	0.365	0.393	0.421	0.452	0.484	0.518	0.554	0.592	0.633	0.676	0.721	0.770	0.822	0.878	0.937
25,000	0.239	0.261	0.283	0.306	0.331	0.357	0.384	0.413	0.444	0.476	0.511	0.547	0.586	0.627	0.670	0.717	0.766	0.819	0.875	0.936
30,000	0.194	0.216	0.239	0.263	0.288	0.315	0.344	0.374	0.406	0.442	0.476	0.514	0.556	0.605	0.649	0.695	0.751	0.807	0.866	0.929
40,000	0.131	0.157	0.180	0.198	0.229	0.256	0.280	0.315	0.344	0.379	0.421	0.458	0.501	0.551	0.598	0.652	0.711	0.778	0.846	0.919
50,000	0.099	0.118	0.139	0.161	0.185	0.211	0.239	0.270	0.303	0.338	0.376	0.418	0.463	0.511	0.564	0.621	0.684	0.752	0.827	0.910
60,000	0.069	0.087	0.106	0.128	0.151	0.177	0.205	0.236	0.269	0.305	0.344	0.386	0.431	0.482	0.537	0.596	0.662	0.735	0.814	0.903
70,000	0.048	0.064	0.082	0.103	0.126	0.151	0.178	0.208	0.241	0.277	0.316	0.359	0.406	0.457	0.513	0.575	0.643	0.718	0.802	0.897
80,000	0.036	0.049	0.064	0.084	0.104	0.130	0.157	0.184	0.219	0.255	0.291	0.337	0.384	0.433	0.493	0.557	0.627	0.705	0.792	0.891
90,000	0.028	0.038	0.052	0.069	0.089	0.112	0.138	0.167	0.199	0.234	0.273	0.316	0.368	0.416	0.474	0.539	0.609	0.694	0.782	0.886
100,000	0.027	0.034	0.047	0.062	0.081	0.103	0.129	0.157	0.188	0.223	0.263	0.306	0.354	0.406	0.465	0.531	0.598	0.686	0.778	0.880
150,000	0.086	0.058	0.045	0.043	0.049	0.062	0.081	0.105	0.134	0.167	0.206	0.249	0.297	0.352	0.414	0.483	0.561	0.647	0.748	0.865
200,000	0.157	0.097	0.064	0.048	0.045	0.051	0.065	0.085	0.111	0.142	0.179	0.221	0.269	0.324	0.386	0.457	0.538	0.630	0.736	0.858
250,000	0.213	0.133	0.088	0.065	0.057	0.060	0.072	0.090	0.114	0.143	0.178	0.219	0.266	0.320	0.381	0.452	0.532	0.624	0.730	0.855
300,000	0.266	0.162	0.105	0.075	0.064	0.065	0.075	0.092	0.115	0.144	0.179	0.219	0.266	0.319	0.380	0.450	0.530	0.623	0.729	0.854
400,000	0.386	0.217	0.127	0.079	0.057	0.053	0.060	0.075	0.098	0.127	0.162	0.203	0.250	0.305	0.367	0.438	0.520	0.614	0.724	0.851
500,000	0.538	0.310	0.188	0.123	0.090	0.077	0.079	0.091	0.111	0.137	0.170	0.210	0.256	0.309	0.371	0.441	0.522	0.616	0.725	0.851

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 500,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.817	0.825	0.833	0.841	0.850	0.858	0.867	0.876	0.885	0.892	0.902	0.911	0.921	0.930	0.940	0.947	0.959	0.969	0.981	0.990
2,000	0.749	0.760	0.771	0.782	0.793	0.804	0.816	0.828	0.839	0.851	0.863	0.877	0.889	0.902	0.915	0.929	0.943	0.957	0.971	0.987
3,000	0.695	0.708	0.720	0.733	0.747	0.760	0.774	0.788	0.802	0.817	0.832	0.847	0.863	0.879	0.890	0.912	0.929	0.944	0.962	0.983
4,000	0.638	0.652	0.667	0.698	0.698	0.714	0.743	0.748	0.764	0.791	0.798	0.827	0.844	0.855	0.880	0.899	0.914	0.936	0.958	0.980
5,000	0.591	0.607	0.623	0.640	0.657	0.675	0.693	0.711	0.730	0.750	0.770	0.790	0.811	0.832	0.854	0.877	0.904	0.931	0.953	0.977
6,000	0.580	0.579	0.596	0.614	0.647	0.651	0.670	0.689	0.709	0.730	0.751	0.782	0.796	0.819	0.847	0.870	0.890	0.916	0.947	0.973
7,000	0.555	0.572	0.589	0.607	0.625	0.643	0.662	0.682	0.702	0.723	0.744	0.767	0.781	0.813	0.838	0.857	0.888	0.911	0.944	0.972
8,000	0.502	0.520	0.539	0.559	0.579	0.600	0.644	0.664	0.686	0.689	0.713	0.737	0.777	0.802	0.827	0.853	0.881	0.904	0.936	0.970
9,000	0.461	0.479	0.500	0.521	0.541	0.565	0.587	0.611	0.634	0.660	0.686	0.713	0.755	0.769	0.799	0.839	0.861	0.894	0.935	0.969
10,000	0.445	0.465	0.486	0.507	0.528	0.551	0.574	0.598	0.619	0.649	0.672	0.703	0.728	0.761	0.789	0.833	0.854	0.890	0.931	0.965
11,000	0.428	0.440	0.469	0.490	0.512	0.535	0.559	0.584	0.609	0.636	0.663	0.692	0.721	0.751	0.783	0.826	0.850	0.885	0.926	0.964
12,000	0.401	0.421	0.443	0.465	0.488	0.514	0.536	0.564	0.588	0.617	0.644	0.675	0.706	0.738	0.772	0.805	0.841	0.879	0.919	0.960
13,000	0.452	0.471	0.490	0.509	0.530	0.551	0.573	0.596	0.620	0.645	0.636	0.666	0.697	0.730	0.764	0.797	0.836	0.873	0.916	0.958
14,000	0.439	0.458	0.477	0.497	0.518	0.539	0.562	0.585	0.610	0.635	0.661	0.689	0.718	0.748	0.779	0.812	0.846	0.882	0.920	0.957
15,000	0.413	0.446	0.452	0.485	0.494	0.528	0.551	0.564	0.600	0.616	0.652	0.681	0.710	0.741	0.768	0.807	0.842	0.878	0.917	0.957
16,000	0.404	0.423	0.443	0.464	0.485	0.508	0.531	0.556	0.581	0.608	0.635	0.665	0.696	0.728	0.761	0.797	0.833	0.872	0.915	0.955
17,000	0.394	0.413	0.433	0.453	0.475	0.498	0.521	0.546	0.572	0.599	0.628	0.658	0.689	0.721	0.756	0.791	0.829	0.868	0.910	0.954
18,000	0.390	0.409	0.429	0.450	0.472	0.495	0.518	0.543	0.569	0.596	0.625	0.655	0.686	0.719	0.753	0.790	0.828	0.865	0.908	0.953
19,000	0.381	0.400	0.420	0.441	0.463	0.486	0.510	0.535	0.561	0.589	0.618	0.648	0.680	0.713	0.748	0.785	0.824	0.864	0.907	0.952
20,000	0.371	0.390	0.410	0.431	0.453	0.504	0.501	0.526	0.553	0.581	0.610	0.659	0.673	0.708	0.743	0.781	0.820	0.868	0.905	0.952
21,000	0.398	0.416	0.434	0.454	0.475	0.497	0.519	0.544	0.569	0.595	0.623	0.652	0.683	0.716	0.751	0.787	0.816	0.865	0.903	0.950
22,000	0.390	0.408	0.427	0.447	0.468	0.489	0.512	0.537	0.562	0.589	0.617	0.647	0.678	0.711	0.746	0.782	0.813	0.862	0.906	0.949
23,000	0.383	0.401	0.420	0.440	0.460	0.482	0.506	0.530	0.556	0.583	0.611	0.641	0.673	0.706	0.742	0.779	0.818	0.860	0.904	0.951
24,000	0.376	0.394	0.412	0.432	0.453	0.475	0.499	0.523	0.549	0.576	0.605	0.636	0.667	0.701	0.737	0.775	0.815	0.857	0.902	0.950
25,000	0.369	0.387	0.406	0.426	0.447	0.469	0.493	0.517	0.543	0.571	0.600	0.630	0.663	0.697	0.733	0.771	0.812	0.855	0.900	0.949
30,000	0.359	0.377	0.396	0.417	0.438	0.460	0.484	0.509	0.535	0.563	0.592	0.623	0.655	0.690	0.727	0.757	0.800	0.851	0.897	0.945
40,000	0.313	0.329	0.347	0.367	0.387	0.409	0.433	0.458	0.485	0.514	0.544	0.577	0.612	0.650	0.690	0.739	0.779	0.833	0.885	0.939
50,000	0.162	0.183	0.205	0.230	0.255	0.283	0.312	0.343	0.377	0.412	0.450	0.489	0.532	0.577	0.626	0.678	0.734	0.793	0.861	0.927
60,000	0.179	0.202	0.226	0.251	0.278	0.306	0.335	0.367	0.400	0.434	0.471	0.510	0.551	0.595	0.642	0.692	0.745	0.796	0.863	0.926
70,000	0.143	0.165	0.189	0.215	0.242	0.271	0.301	0.333	0.367	0.403	0.441	0.482	0.525	0.571	0.619	0.672	0.728	0.789	0.854	0.925
80,000	0.125	0.147	0.170	0.196	0.223	0.252	0.282	0.315	0.349	0.386	0.425	0.466	0.510	0.557	0.607	0.661	0.719	0.781	0.848	0.919
90,000	0.082	0.101	0.125	0.150	0.177	0.207	0.239	0.273	0.309	0.348	0.390	0.433	0.480	0.529	0.583	0.640	0.701	0.779	0.839	0.923
100,000	0.109	0.127	0.149	0.172	0.199	0.227	0.257	0.290	0.325	0.362	0.401	0.444	0.489	0.537	0.571	0.644	0.705	0.761	0.834	0.918
150,000	0.074	0.076	0.087	0.104	0.127	0.153	0.183	0.216	0.252	0.291	0.334	0.379	0.428	0.481	0.537	0.599	0.666	0.738	0.818	0.904
200,000	0.169	0.166	0.173	0.188	0.208	0.231	0.258	0.288	0.320	0.356	0.393	0.434	0.478	0.525	0.576	0.632	0.693	0.759	0.832	0.911
250,000	0.192	0.144	0.126	0.125	0.137	0.157	0.183	0.213	0.248	0.286	0.328	0.373	0.422	0.475	0.531	0.593	0.660	0.734	0.814	0.902
300,000	0.242	0.168	0.137	0.131	0.142	0.163	0.191	0.224	0.261	0.301	0.344	0.390	0.439	0.492	0.548	0.609	0.675	0.744	0.822	0.907
400,000	0.368	0.242	0.182	0.160	0.161	0.175	0.199	0.229	0.264	0.302	0.344	0.389	0.437	0.490	0.545	0.606	0.681	0.751	0.826	0.909
500,000	0.461	0.285	0.201	0.167	0.161	0.172	0.194	0.224	0.258	0.297	0.339	0.384	0.433	0.486	0.542	0.603	0.669	0.741	0.819	0.905

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = 1M																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.819	0.829	0.837	0.844	0.847	0.862	0.869	0.878	0.889	0.896	0.905	0.914	0.925	0.931	0.942	0.953	0.961	0.970	0.983	0.991
2,000	0.712	0.723	0.767	0.750	0.763	0.801	0.789	0.804	0.838	0.850	0.862	0.875	0.888	0.902	0.915	0.929	0.943	0.957	0.972	0.986
3,000	0.709	0.721	0.734	0.746	0.759	0.772	0.785	0.799	0.813	0.827	0.841	0.856	0.872	0.886	0.901	0.918	0.929	0.950	0.966	0.983
4,000	0.682	0.695	0.714	0.729	0.742	0.756	0.765	0.778	0.793	0.812	0.829	0.845	0.856	0.873	0.889	0.906	0.923	0.945	0.962	0.980
5,000	0.646	0.660	0.674	0.689	0.708	0.724	0.739	0.751	0.767	0.785	0.802	0.822	0.841	0.858	0.878	0.893	0.917	0.938	0.957	0.978
6,000	0.615	0.630	0.646	0.661	0.678	0.694	0.711	0.729	0.746	0.765	0.785	0.804	0.823	0.839	0.862	0.883	0.904	0.929	0.952	0.976
7,000	0.588	0.604	0.624	0.636	0.657	0.675	0.692	0.707	0.726	0.749	0.768	0.786	0.809	0.829	0.851	0.876	0.898	0.922	0.948	0.973
8,000	0.571	0.593	0.609	0.621	0.645	0.661	0.677	0.700	0.718	0.735	0.752	0.780	0.801	0.818	0.842	0.870	0.892	0.917	0.945	0.971
9,000	0.566	0.583	0.598	0.617	0.633	0.652	0.670	0.690	0.701	0.722	0.744	0.767	0.789	0.813	0.836	0.862	0.887	0.914	0.941	0.970
10,000	0.562	0.578	0.594	0.611	0.632	0.647	0.668	0.684	0.701	0.726	0.745	0.769	0.786	0.814	0.837	0.856	0.885	0.912	0.941	0.968
11,000	0.557	0.569	0.591	0.603	0.620	0.638	0.657	0.679	0.696	0.717	0.738	0.760	0.783	0.807	0.833	0.854	0.884	0.909	0.939	0.968
12,000	0.524	0.541	0.559	0.577	0.596	0.615	0.635	0.655	0.676	0.699	0.721	0.745	0.769	0.794	0.821	0.848	0.879	0.907	0.934	0.968
13,000	0.518	0.535	0.552	0.571	0.589	0.626	0.645	0.665	0.685	0.707	0.728	0.751	0.775	0.799	0.817	0.844	0.873	0.903	0.933	0.967
14,000	0.524	0.541	0.558	0.576	0.594	0.590	0.638	0.653	0.674	0.682	0.718	0.741	0.755	0.778	0.820	0.843	0.865	0.898	0.935	0.966
15,000	0.508	0.525	0.542	0.561	0.579	0.604	0.619	0.645	0.665	0.683	0.711	0.735	0.756	0.785	0.812	0.839	0.869	0.900	0.932	0.965
16,000	0.486	0.504	0.522	0.540	0.560	0.580	0.601	0.622	0.644	0.668	0.692	0.717	0.743	0.771	0.803	0.829	0.860	0.895	0.930	0.964
17,000	0.476	0.494	0.512	0.531	0.550	0.570	0.591	0.613	0.636	0.659	0.684	0.709	0.736	0.764	0.793	0.824	0.856	0.892	0.925	0.962
18,000	0.454	0.460	0.479	0.499	0.519	0.563	0.584	0.596	0.609	0.635	0.661	0.704	0.731	0.760	0.789	0.820	0.844	0.886	0.922	0.960
19,000	0.444	0.462	0.481	0.500	0.521	0.542	0.564	0.587	0.611	0.635	0.661	0.688	0.717	0.747	0.778	0.810	0.844	0.877	0.918	0.959
20,000	0.418	0.437	0.456	0.476	0.497	0.519	0.542	0.565	0.590	0.616	0.643	0.672	0.701	0.732	0.765	0.799	0.835	0.873	0.913	0.956
21,000	0.415	0.433	0.452	0.472	0.493	0.515	0.538	0.561	0.586	0.612	0.639	0.667	0.697	0.729	0.761	0.796	0.833	0.871	0.912	0.953
22,000	0.406	0.425	0.444	0.464	0.485	0.507	0.529	0.554	0.579	0.605	0.632	0.661	0.691	0.723	0.756	0.792	0.829	0.868	0.910	0.953
23,000	0.394	0.421	0.432	0.453	0.474	0.496	0.520	0.546	0.578	0.596	0.629	0.655	0.685	0.716	0.751	0.787	0.825	0.865	0.907	0.951
24,000	0.405	0.423	0.442	0.462	0.483	0.504	0.527	0.545	0.575	0.602	0.623	0.657	0.683	0.720	0.746	0.782	0.824	0.864	0.905	0.952
25,000	0.398	0.416	0.459	0.455	0.476	0.519	0.520	0.544	0.569	0.595	0.623	0.652	0.682	0.715	0.749	0.794	0.823	0.861	0.905	0.951
30,000	0.376	0.396	0.415	0.434	0.455	0.473	0.501	0.520	0.550	0.574	0.606	0.631	0.666	0.697	0.733	0.770	0.809	0.854	0.898	0.948
40,000	0.290	0.307	0.325	0.346	0.366	0.388	0.413	0.437	0.465	0.495	0.525	0.558	0.594	0.632	0.674	0.718	0.766	0.818	0.874	0.934
50,000	0.242	0.258	0.276	0.295	0.315	0.338	0.361	0.387	0.415	0.445	0.478	0.513	0.551	0.592	0.637	0.685	0.738	0.795	0.859	0.926
60,000	0.218	0.234	0.251	0.270	0.290	0.313	0.336	0.362	0.390	0.421	0.454	0.489	0.528	0.570	0.616	0.666	0.721	0.781	0.845	0.919
70,000	0.132	0.149	0.168	0.189	0.211	0.236	0.262	0.291	0.322	0.356	0.392	0.431	0.474	0.521	0.572	0.630	0.690	0.756	0.830	0.913
80,000	0.123	0.138	0.156	0.174	0.196	0.220	0.246	0.275	0.304	0.338	0.375	0.415	0.458	0.504	0.557	0.614	0.676	0.745	0.821	0.906
90,000	0.112	0.125	0.141	0.159	0.180	0.203	0.228	0.256	0.286	0.320	0.356	0.396	0.441	0.489	0.541	0.599	0.663	0.734	0.813	0.902
100,000	0.096	0.109	0.126	0.145	0.166	0.190	0.217	0.245	0.277	0.311	0.348	0.388	0.432	0.481	0.534	0.593	0.658	0.730	0.810	0.897
150,000	0.082	0.065	0.061	0.067	0.079	0.098	0.120	0.147	0.178	0.213	0.252	0.295	0.343	0.397	0.456	0.522	0.596	0.687	0.773	0.882
200,000	0.155	0.082	0.054	0.042	0.051	0.065	0.071	0.109	0.142	0.178	0.215	0.262	0.312	0.365	0.426	0.497	0.572	0.659	0.750	0.871
250,000	0.332	0.184	0.102	0.059	0.041	0.039	0.050	0.069	0.095	0.128	0.166	0.211	0.261	0.318	0.382	0.454	0.536	0.630	0.747	0.865
300,000	0.452	0.249	0.137	0.077	0.048	0.041	0.047	0.063	0.087	0.118	0.156	0.199	0.249	0.306	0.370	0.443	0.526	0.621	0.730	0.855
400,000	0.825	0.470	0.274	0.162	0.101	0.071	0.061	0.066	0.082	0.106	0.139	0.175	0.228	0.284	0.348	0.422	0.507	0.605	0.718	0.848
500,000	1.153	0.638	0.363	0.212	0.129	0.087	0.070	0.072	0.086	0.110	0.143	0.183	0.231	0.287	0.351	0.425	0.509	0.606	0.719	0.848

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2016

Exhibit 1

Split Point	Cohort = > 1M																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.933	0.936	0.938	0.941	0.945	0.948	0.951	0.954	0.953	0.958	0.964	0.966	0.971	0.976	0.977	0.982	0.987	0.989	0.994	0.996
2,000	0.888	0.892	0.897	0.902	0.906	0.912	0.917	0.922	0.921	0.927	0.932	0.939	0.950	0.955	0.961	0.968	0.974	0.983	0.988	0.995
3,000	0.869	0.874	0.880	0.885	0.891	0.896	0.902	0.908	0.914	0.921	0.927	0.933	0.940	0.946	0.953	0.961	0.969	0.975	0.984	0.992
4,000	0.857	0.847	0.868	0.874	0.876	0.885	0.892	0.896	0.905	0.912	0.919	0.924	0.933	0.941	0.948	0.957	0.964	0.970	0.982	0.991
5,000	0.836	0.844	0.849	0.855	0.863	0.869	0.876	0.884	0.892	0.899	0.907	0.915	0.924	0.932	0.935	0.951	0.961	0.969	0.979	0.990
6,000	0.822	0.829	0.836	0.843	0.850	0.857	0.865	0.873	0.881	0.890	0.898	0.907	0.917	0.926	0.936	0.946	0.955	0.967	0.977	0.989
7,000	0.811	0.818	0.825	0.832	0.840	0.848	0.856	0.865	0.873	0.883	0.892	0.901	0.910	0.921	0.931	0.942	0.953	0.964	0.976	0.988
8,000	0.801	0.808	0.815	0.823	0.831	0.839	0.848	0.856	0.866	0.875	0.885	0.895	0.905	0.916	0.927	0.938	0.950	0.962	0.974	0.987
9,000	0.729	0.739	0.750	0.761	0.753	0.767	0.791	0.804	0.817	0.831	0.845	0.888	0.899	0.890	0.905	0.915	0.934	0.960	0.973	0.986
10,000	0.687	0.700	0.713	0.727	0.747	0.761	0.775	0.789	0.799	0.814	0.829	0.845	0.860	0.877	0.893	0.913	0.928	0.945	0.965	0.985
11,000	0.676	0.690	0.704	0.718	0.732	0.747	0.761	0.776	0.792	0.808	0.824	0.835	0.852	0.873	0.890	0.909	0.923	0.943	0.962	0.985
12,000	0.667	0.678	0.691	0.706	0.721	0.736	0.752	0.770	0.783	0.800	0.816	0.820	0.850	0.868	0.885	0.903	0.920	0.940	0.960	0.979
13,000	0.624	0.634	0.650	0.666	0.682	0.705	0.717	0.739	0.757	0.771	0.793	0.809	0.831	0.851	0.869	0.891	0.914	0.939	0.954	0.979
14,000	0.605	0.622	0.638	0.654	0.672	0.689	0.707	0.725	0.744	0.763	0.783	0.802	0.825	0.843	0.864	0.887	0.907	0.931	0.953	0.976
15,000	0.594	0.610	0.627	0.645	0.662	0.680	0.698	0.717	0.736	0.755	0.775	0.796	0.816	0.838	0.859	0.884	0.905	0.929	0.951	0.976
16,000	0.582	0.595	0.616	0.633	0.649	0.671	0.685	0.711	0.728	0.746	0.768	0.790	0.809	0.833	0.855	0.878	0.901	0.926	0.950	0.975
17,000	0.566	0.584	0.602	0.620	0.639	0.658	0.677	0.697	0.718	0.738	0.759	0.781	0.803	0.826	0.850	0.873	0.898	0.923	0.948	0.974
18,000	0.553	0.571	0.589	0.608	0.627	0.647	0.667	0.687	0.709	0.730	0.752	0.775	0.797	0.820	0.846	0.869	0.895	0.920	0.946	0.973
19,000	0.544	0.561	0.581	0.600	0.619	0.639	0.660	0.681	0.702	0.723	0.746	0.769	0.792	0.816	0.841	0.866	0.892	0.918	0.944	0.972
20,000	0.535	0.553	0.572	0.592	0.611	0.632	0.652	0.673	0.696	0.718	0.740	0.764	0.788	0.812	0.844	0.863	0.889	0.916	0.943	0.971
21,000	0.502	0.521	0.541	0.562	0.583	0.604	0.626	0.649	0.672	0.696	0.720	0.745	0.771	0.797	0.833	0.860	0.887	0.914	0.942	0.970
22,000	0.494	0.513	0.566	0.554	0.570	0.597	0.619	0.642	0.662	0.690	0.715	0.740	0.766	0.791	0.820	0.848	0.877	0.908	0.937	0.970
23,000	0.522	0.539	0.556	0.575	0.594	0.613	0.634	0.655	0.677	0.701	0.722	0.747	0.759	0.797	0.823	0.852	0.875	0.904	0.938	0.969
24,000	0.515	0.532	0.549	0.568	0.587	0.607	0.628	0.649	0.671	0.694	0.718	0.742	0.767	0.782	0.820	0.849	0.877	0.906	0.936	0.966
25,000	0.454	0.469	0.497	0.520	0.537	0.567	0.593	0.612	0.643	0.668	0.690	0.722	0.750	0.778	0.817	0.845	0.874	0.904	0.935	0.966
30,000	0.409	0.432	0.455	0.479	0.503	0.529	0.555	0.574	0.609	0.637	0.660	0.696	0.726	0.757	0.789	0.820	0.855	0.890	0.926	0.963
40,000	0.350	0.370	0.394	0.423	0.446	0.473	0.504	0.530	0.563	0.593	0.623	0.658	0.692	0.724	0.762	0.799	0.836	0.872	0.915	0.952
50,000	0.272	0.295	0.320	0.346	0.374	0.402	0.432	0.463	0.496	0.530	0.565	0.601	0.639	0.678	0.721	0.763	0.806	0.853	0.900	0.949
60,000	0.243	0.266	0.291	0.317	0.345	0.374	0.405	0.437	0.470	0.505	0.541	0.579	0.618	0.659	0.698	0.747	0.793	0.839	0.891	0.944
70,000	0.206	0.229	0.253	0.280	0.308	0.338	0.370	0.403	0.438	0.475	0.513	0.553	0.594	0.638	0.682	0.730	0.779	0.831	0.884	0.942
80,000	0.184	0.206	0.231	0.258	0.287	0.317	0.349	0.384	0.420	0.457	0.493	0.537	0.577	0.622	0.671	0.718	0.771	0.823	0.879	0.938
90,000	0.157	0.177	0.201	0.228	0.257	0.287	0.320	0.355	0.392	0.430	0.471	0.514	0.558	0.604	0.653	0.704	0.758	0.813	0.872	0.934
100,000	0.148	0.167	0.190	0.215	0.243	0.274	0.307	0.341	0.378	0.417	0.458	0.501	0.546	0.594	0.643	0.696	0.750	0.808	0.869	0.933
150,000	0.081	0.089	0.105	0.127	0.154	0.185	0.219	0.257	0.297	0.339	0.385	0.433	0.483	0.536	0.593	0.652	0.714	0.780	0.849	0.923
200,000	0.103	0.107	0.123	0.146	0.176	0.209	0.246	0.286	0.328	0.372	0.418	0.466	0.515	0.567	0.621	0.677	0.735	0.797	0.861	0.929
250,000	0.101	0.096	0.106	0.127	0.156	0.190	0.227	0.268	0.312	0.358	0.405	0.454	0.505	0.558	0.614	0.671	0.730	0.793	0.859	0.928
300,000	0.077	0.056	0.057	0.074	0.101	0.136	0.176	0.220	0.267	0.316	0.367	0.421	0.476	0.533	0.592	0.653	0.716	0.783	0.852	0.926
400,000	0.128	0.084	0.091	0.113	0.139	0.180	0.221	0.256	0.302	0.350	0.412	0.452	0.505	0.560	0.625	0.674	0.734	0.797	0.868	0.929
500,000	0.103	0.061	0.058	0.086	0.115	0.141	0.183	0.223	0.288	0.329	0.381	0.443	0.482	0.553	0.605	0.659	0.731	0.787	0.864	0.926

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 5,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.533	0.551	0.569	0.588	0.607	0.627	0.648	0.669	0.691	0.713	0.735	0.759	0.783	0.809	0.834	0.860	0.886	0.913	0.945	0.971
2,000	0.377	0.389	0.411	0.439	0.463	0.480	0.507	0.537	0.565	0.588	0.620	0.650	0.682	0.721	0.757	0.793	0.831	0.869	0.913	0.955
3,000	0.258	0.279	0.299	0.320	0.345	0.369	0.398	0.425	0.456	0.490	0.521	0.561	0.600	0.641	0.682	0.728	0.777	0.829	0.883	0.940
4,000	0.190	0.206	0.225	0.245	0.267	0.291	0.317	0.348	0.379	0.413	0.448	0.487	0.529	0.576	0.625	0.677	0.733	0.793	0.857	0.926
5,000	0.156	0.167	0.179	0.195	0.218	0.239	0.258	0.289	0.314	0.349	0.388	0.428	0.472	0.521	0.573	0.630	0.689	0.760	0.833	0.914
6,000	0.144	0.150	0.158	0.169	0.183	0.200	0.220	0.244	0.270	0.302	0.342	0.377	0.425	0.476	0.531	0.591	0.655	0.729	0.812	0.903
7,000	0.156	0.156	0.160	0.166	0.176	0.189	0.206	0.226	0.251	0.279	0.319	0.351	0.394	0.443	0.505	0.566	0.631	0.703	0.796	0.892
8,000	0.169	0.163	0.161	0.162	0.168	0.176	0.189	0.206	0.227	0.253	0.284	0.320	0.368	0.412	0.473	0.532	0.604	0.686	0.779	0.883
9,000	0.201	0.189	0.180	0.176	0.175	0.161	0.186	0.198	0.215	0.237	0.255	0.299	0.332	0.386	0.442	0.507	0.581	0.666	0.763	0.875
10,000	0.202	0.185	0.173	0.164	0.161	0.161	0.166	0.176	0.190	0.210	0.237	0.270	0.310	0.357	0.414	0.479	0.556	0.645	0.747	0.865
11,000	0.228	0.206	0.191	0.175	0.166	0.164	0.163	0.170	0.180	0.196	0.222	0.251	0.290	0.336	0.392	0.457	0.536	0.627	0.733	0.857
12,000	0.269	0.240	0.216	0.197	0.182	0.173	0.169	0.171	0.177	0.190	0.211	0.238	0.274	0.318	0.372	0.439	0.518	0.611	0.721	0.850
13,000	0.307	0.273	0.243	0.215	0.198	0.184	0.173	0.173	0.174	0.184	0.202	0.226	0.259	0.303	0.356	0.422	0.500	0.596	0.709	0.842
14,000	0.346	0.305	0.269	0.239	0.215	0.196	0.183	0.175	0.174	0.181	0.195	0.216	0.247	0.288	0.341	0.406	0.485	0.581	0.697	0.835
15,000	0.387	0.339	0.299	0.262	0.232	0.209	0.192	0.181	0.176	0.179	0.190	0.208	0.237	0.276	0.327	0.391	0.470	0.568	0.687	0.829
16,000	0.430	0.376	0.328	0.287	0.252	0.224	0.202	0.187	0.178	0.178	0.186	0.201	0.227	0.264	0.314	0.378	0.457	0.555	0.676	0.823
17,000	0.471	0.412	0.359	0.312	0.273	0.240	0.213	0.194	0.182	0.177	0.182	0.196	0.219	0.254	0.302	0.365	0.444	0.544	0.667	0.817
18,000	0.514	0.447	0.388	0.336	0.291	0.254	0.223	0.200	0.185	0.177	0.178	0.190	0.211	0.244	0.291	0.352	0.431	0.532	0.657	0.811
19,000	0.570	0.495	0.429	0.370	0.320	0.278	0.242	0.215	0.195	0.183	0.181	0.189	0.207	0.238	0.282	0.343	0.421	0.522	0.648	0.805
20,000	0.619	0.537	0.467	0.402	0.346	0.298	0.259	0.228	0.204	0.189	0.183	0.187	0.203	0.231	0.274	0.333	0.411	0.512	0.640	0.800
21,000	0.672	0.581	0.503	0.434	0.373	0.319	0.275	0.239	0.212	0.194	0.184	0.186	0.199	0.225	0.266	0.324	0.401	0.502	0.632	0.795
22,000	0.723	0.627	0.543	0.466	0.399	0.342	0.293	0.252	0.221	0.199	0.187	0.186	0.196	0.220	0.259	0.316	0.392	0.493	0.624	0.790
23,000	0.778	0.674	0.582	0.501	0.428	0.365	0.311	0.266	0.231	0.205	0.191	0.186	0.194	0.216	0.253	0.308	0.384	0.486	0.617	0.785
24,000	0.844	0.734	0.635	0.544	0.466	0.396	0.338	0.288	0.249	0.219	0.200	0.192	0.196	0.215	0.250	0.303	0.377	0.478	0.610	0.781
25,000	0.902	0.782	0.674	0.580	0.496	0.421	0.358	0.304	0.261	0.227	0.204	0.194	0.195	0.212	0.245	0.296	0.370	0.470	0.603	0.777
30,000	1.185	1.021	0.880	0.751	0.637	0.539	0.453	0.380	0.316	0.268	0.229	0.205	0.195	0.200	0.224	0.268	0.337	0.437	0.573	0.756
40,000	1.786	1.529	1.307	1.105	0.934	0.781	0.651	0.536	0.439	0.356	0.291	0.240	0.208	0.193	0.199	0.230	0.288	0.384	0.525	0.723
50,000	2.517	2.129	1.797	1.513	1.273	1.061	0.877	0.719	0.584	0.469	0.374	0.307	0.243	0.209	0.197	0.212	0.261	0.348	0.489	0.698
60,000	3.342	2.787	2.344	1.956	1.519	1.352	1.116	0.912	0.739	0.585	0.413	0.370	0.284	0.231	0.203	0.204	0.248	0.322	0.461	0.676
70,000	4.054	3.325	2.736	2.255	1.863	1.530	1.249	1.012	0.811	0.645	0.504	0.386	0.289	0.233	0.199	0.193	0.221	0.293	0.434	0.657
80,000	5.063	4.098	3.336	2.716	2.222	1.817	1.474	1.190	0.950	0.751	0.586	0.445	0.334	0.261	0.210	0.193	0.212	0.283	0.420	0.644
90,000	6.248	4.954	3.967	3.211	2.597	2.102	1.697	1.363	1.088	0.856	0.664	0.507	0.381	0.287	0.223	0.195	0.205	0.269	0.403	0.630
100,000	7.564	5.895	4.656	3.713	2.979	2.395	1.924	1.539	1.222	0.959	0.742	0.565	0.423	0.312	0.237	0.198	0.200	0.259	0.390	0.619
150,000	17.391	12.167	8.817	6.584	5.016	3.873	3.025	2.360	1.837	1.421	1.086	0.816	0.602	0.432	0.307	0.227	0.195	0.230	0.344	0.578
200,000	34.394	20.852	13.878	9.705	7.046	5.248	3.988	3.045	2.332	1.780	1.352	1.008	0.736	0.523	0.364	0.256	0.204	0.217	0.320	0.555
250,000	61.160	31.783	19.196	12.735	8.871	6.411	4.764	3.575	2.711	2.049	1.538	1.143	0.830	0.586	0.404	0.276	0.210	0.212	0.308	0.542
300,000	97.222	43.731	24.400	15.336	10.423	7.367	5.363	3.978	2.980	2.238	1.673	1.239	0.897	0.632	0.432	0.292	0.214	0.209	0.300	0.533
400,000	184.566	65.596	32.684	19.238	12.481	8.542	6.107	4.471	3.317	2.474	1.840	1.349	0.975	0.685	0.466	0.311	0.222	0.206	0.291	0.524
500,000	325.787	89.996	40.059	22.355	14.035	9.529	6.700	4.820	3.546	2.627	1.943	1.419	1.026	0.719	0.487	0.323	0.226	0.198	0.286	0.518

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 10,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.781	0.790	0.802	0.806	0.818	0.828	0.836	0.851	0.855	0.870	0.879	0.891	0.905	0.916	0.926	0.938	0.949	0.963	0.974	0.987
2,000	0.694	0.707	0.724	0.731	0.744	0.754	0.768	0.784	0.801	0.817	0.827	0.841	0.855	0.874	0.892	0.908	0.927	0.943	0.962	0.980
3,000	0.594	0.608	0.609	0.624	0.654	0.671	0.675	0.693	0.713	0.743	0.752	0.773	0.795	0.817	0.840	0.865	0.891	0.915	0.943	0.972
4,000	0.322	0.343	0.366	0.389	0.413	0.439	0.465	0.494	0.524	0.552	0.586	0.619	0.653	0.691	0.728	0.768	0.811	0.855	0.902	0.950
5,000	0.270	0.291	0.314	0.338	0.363	0.390	0.417	0.445	0.476	0.507	0.541	0.577	0.615	0.655	0.696	0.740	0.786	0.836	0.887	0.942
6,000	0.218	0.237	0.259	0.284	0.309	0.336	0.363	0.394	0.426	0.459	0.495	0.533	0.573	0.616	0.661	0.709	0.760	0.816	0.872	0.934
7,000	0.173	0.191	0.214	0.237	0.263	0.289	0.316	0.348	0.380	0.414	0.451	0.491	0.534	0.579	0.627	0.680	0.736	0.795	0.858	0.927
8,000	0.141	0.158	0.179	0.201	0.226	0.251	0.280	0.310	0.345	0.379	0.417	0.457	0.502	0.549	0.600	0.655	0.714	0.777	0.846	0.920
9,000	0.110	0.127	0.146	0.168	0.193	0.217	0.245	0.276	0.309	0.344	0.383	0.424	0.470	0.519	0.572	0.630	0.693	0.759	0.833	0.913
10,000	0.086	0.103	0.121	0.141	0.166	0.189	0.216	0.246	0.279	0.315	0.354	0.395	0.443	0.493	0.548	0.608	0.673	0.743	0.822	0.906
11,000	0.067	0.083	0.101	0.120	0.143	0.166	0.191	0.222	0.254	0.288	0.329	0.371	0.419	0.470	0.525	0.586	0.655	0.729	0.811	0.901
12,000	0.053	0.068	0.085	0.102	0.122	0.146	0.171	0.200	0.232	0.266	0.307	0.349	0.396	0.448	0.506	0.568	0.638	0.716	0.801	0.895
13,000	0.043	0.055	0.071	0.086	0.106	0.128	0.152	0.181	0.212	0.246	0.287	0.329	0.376	0.429	0.487	0.551	0.623	0.704	0.791	0.890
14,000	0.035	0.045	0.060	0.074	0.092	0.114	0.137	0.164	0.196	0.229	0.268	0.311	0.359	0.412	0.471	0.536	0.610	0.692	0.783	0.885
15,000	0.026	0.036	0.048	0.062	0.077	0.099	0.120	0.147	0.177	0.211	0.249	0.292	0.339	0.393	0.453	0.519	0.594	0.679	0.773	0.880
16,000	0.021	0.029	0.040	0.052	0.066	0.087	0.107	0.133	0.162	0.195	0.232	0.276	0.323	0.377	0.437	0.504	0.581	0.667	0.765	0.874
17,000	0.017	0.024	0.031	0.043	0.055	0.075	0.094	0.119	0.147	0.180	0.217	0.259	0.306	0.361	0.421	0.489	0.567	0.656	0.756	0.870
18,000	0.016	0.021	0.026	0.036	0.046	0.065	0.082	0.106	0.133	0.165	0.201	0.243	0.290	0.344	0.405	0.473	0.552	0.644	0.747	0.865
19,000	0.018	0.020	0.023	0.032	0.040	0.057	0.073	0.096	0.122	0.152	0.188	0.230	0.276	0.330	0.391	0.460	0.541	0.633	0.738	0.860
20,000	0.015	0.016	0.018	0.025	0.034	0.049	0.065	0.087	0.113	0.143	0.178	0.219	0.266	0.319	0.380	0.451	0.532	0.625	0.732	0.856
21,000	0.017	0.016	0.017	0.022	0.029	0.042	0.057	0.078	0.103	0.131	0.166	0.207	0.252	0.305	0.366	0.438	0.520	0.615	0.725	0.852
22,000	0.020	0.017	0.016	0.019	0.025	0.036	0.051	0.070	0.094	0.121	0.156	0.196	0.241	0.294	0.355	0.427	0.510	0.606	0.717	0.847
23,000	0.025	0.018	0.016	0.017	0.022	0.032	0.045	0.063	0.087	0.112	0.146	0.186	0.230	0.283	0.343	0.415	0.499	0.597	0.710	0.843
24,000	0.029	0.021	0.017	0.016	0.020	0.028	0.040	0.057	0.080	0.104	0.137	0.176	0.219	0.272	0.333	0.405	0.489	0.588	0.703	0.839
25,000	0.036	0.025	0.018	0.017	0.019	0.026	0.037	0.052	0.073	0.097	0.129	0.167	0.209	0.262	0.323	0.395	0.480	0.580	0.696	0.835
30,000	0.077	0.055	0.041	0.027	0.022	0.021	0.025	0.035	0.049	0.069	0.097	0.130	0.170	0.220	0.280	0.351	0.438	0.542	0.666	0.817
40,000	0.200	0.151	0.110	0.079	0.057	0.040	0.033	0.029	0.034	0.042	0.062	0.087	0.119	0.164	0.218	0.288	0.376	0.485	0.619	0.787
50,000	0.359	0.277	0.208	0.155	0.114	0.082	0.059	0.044	0.038	0.040	0.049	0.063	0.090	0.130	0.178	0.245	0.331	0.441	0.581	0.763
60,000	0.560	0.429	0.328	0.248	0.185	0.135	0.098	0.071	0.054	0.045	0.045	0.053	0.073	0.105	0.151	0.212	0.297	0.406	0.551	0.743
70,000	0.815	0.627	0.481	0.367	0.278	0.207	0.153	0.113	0.083	0.064	0.055	0.058	0.069	0.094	0.134	0.190	0.271	0.380	0.527	0.726
80,000	1.088	0.830	0.634	0.482	0.366	0.275	0.204	0.150	0.109	0.081	0.065	0.060	0.066	0.085	0.120	0.174	0.251	0.359	0.506	0.712
90,000	1.391	1.040	0.776	0.592	0.441	0.332	0.245	0.176	0.129	0.090	0.067	0.058	0.059	0.075	0.106	0.157	0.231	0.339	0.488	0.699
100,000	1.734	1.275	0.947	0.708	0.529	0.393	0.289	0.210	0.150	0.105	0.076	0.060	0.057	0.068	0.096	0.143	0.216	0.322	0.473	0.688
150,000	4.566	3.019	2.071	1.461	1.049	0.762	0.556	0.402	0.287	0.202	0.140	0.097	0.072	0.064	0.075	0.108	0.169	0.268	0.418	0.648
200,000	9.708	5.571	3.500	2.313	1.590	1.117	0.799	0.572	0.407	0.286	0.198	0.134	0.092	0.071	0.071	0.094	0.147	0.240	0.389	0.625
250,000	17.987	8.863	5.058	3.166	2.087	1.426	1.001	0.707	0.501	0.351	0.242	0.163	0.110	0.079	0.071	0.088	0.135	0.224	0.372	0.611
300,000	29.315	12.545	6.610	3.915	2.513	1.680	1.158	0.810	0.570	0.399	0.274	0.185	0.123	0.086	0.072	0.084	0.128	0.214	0.361	0.602
400,000	56.850	19.389	9.122	5.038	3.090	2.007	1.357	0.942	0.659	0.460	0.316	0.213	0.141	0.095	0.075	0.081	0.120	0.202	0.347	0.591
500,000	99.434	26.686	11.365	5.954	3.528	2.254	1.500	1.031	0.716	0.501	0.345	0.233	0.153	0.102	0.077	0.080	0.114	0.194	0.338	0.583

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 20,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.751	0.764	0.773	0.783	0.796	0.807	0.819	0.830	0.844	0.854	0.867	0.878	0.892	0.901	0.916	0.932	0.940	0.961	0.973	0.987
2,000	0.664	0.678	0.692	0.705	0.721	0.736	0.751	0.765	0.782	0.797	0.815	0.831	0.849	0.865	0.885	0.902	0.918	0.940	0.960	0.978
3,000	0.566	0.583	0.600	0.617	0.634	0.654	0.671	0.691	0.711	0.730	0.752	0.774	0.795	0.819	0.842	0.866	0.893	0.918	0.945	0.971
4,000	0.534	0.555	0.570	0.590	0.606	0.625	0.649	0.666	0.690	0.705	0.731	0.754	0.777	0.804	0.824	0.854	0.880	0.906	0.937	0.969
5,000	0.515	0.531	0.550	0.566	0.587	0.605	0.627	0.646	0.665	0.686	0.710	0.735	0.761	0.787	0.813	0.841	0.874	0.902	0.935	0.963
6,000	0.467	0.495	0.503	0.531	0.542	0.572	0.593	0.614	0.636	0.664	0.684	0.712	0.737	0.768	0.795	0.827	0.858	0.892	0.925	0.961
7,000	0.498	0.516	0.533	0.550	0.569	0.589	0.609	0.630	0.651	0.673	0.698	0.721	0.746	0.775	0.799	0.829	0.862	0.886	0.928	0.957
8,000	0.476	0.491	0.510	0.529	0.546	0.568	0.587	0.610	0.632	0.654	0.680	0.703	0.729	0.758	0.788	0.819	0.855	0.889	0.923	0.961
9,000	0.437	0.454	0.471	0.490	0.511	0.530	0.548	0.575	0.598	0.623	0.654	0.676	0.705	0.740	0.771	0.800	0.839	0.879	0.914	0.956
10,000	0.373	0.391	0.412	0.430	0.450	0.472	0.496	0.518	0.545	0.574	0.602	0.630	0.677	0.695	0.733	0.780	0.820	0.863	0.900	0.952
11,000	0.366	0.383	0.398	0.417	0.438	0.459	0.487	0.507	0.535	0.560	0.589	0.618	0.654	0.687	0.721	0.761	0.802	0.847	0.896	0.946
12,000	0.329	0.346	0.364	0.384	0.404	0.426	0.450	0.475	0.501	0.530	0.560	0.592	0.625	0.662	0.701	0.742	0.787	0.836	0.889	0.942
13,000	0.348	0.363	0.381	0.399	0.420	0.441	0.463	0.487	0.514	0.540	0.570	0.601	0.634	0.669	0.703	0.744	0.788	0.835	0.887	0.941
14,000	0.328	0.342	0.360	0.377	0.397	0.418	0.439	0.464	0.488	0.516	0.547	0.577	0.614	0.644	0.689	0.728	0.777	0.825	0.882	0.939
15,000	0.313	0.328	0.343	0.360	0.379	0.398	0.420	0.443	0.468	0.496	0.526	0.557	0.594	0.631	0.671	0.716	0.762	0.815	0.873	0.932
16,000	0.471	0.469	0.466	0.467	0.470	0.475	0.483	0.494	0.505	0.524	0.543	0.565	0.593	0.622	0.660	0.700	0.747	0.799	0.857	0.924
17,000	0.468	0.461	0.456	0.452	0.454	0.461	0.466	0.478	0.497	0.513	0.523	0.550	0.576	0.608	0.643	0.689	0.735	0.790	0.851	0.920
18,000	0.481	0.471	0.465	0.461	0.462	0.463	0.469	0.477	0.488	0.503	0.521	0.544	0.570	0.600	0.635	0.678	0.727	0.781	0.845	0.917
19,000	0.487	0.475	0.465	0.460	0.457	0.457	0.461	0.467	0.477	0.491	0.508	0.527	0.552	0.588	0.622	0.664	0.713	0.773	0.837	0.914
20,000	0.500	0.486	0.473	0.466	0.462	0.460	0.462	0.468	0.476	0.489	0.505	0.527	0.552	0.582	0.618	0.661	0.711	0.768	0.835	0.910
21,000	0.494	0.477	0.463	0.453	0.446	0.444	0.444	0.450	0.458	0.470	0.486	0.505	0.530	0.564	0.611	0.654	0.694	0.755	0.825	0.906
22,000	0.501	0.480	0.463	0.451	0.443	0.438	0.436	0.446	0.446	0.462	0.477	0.492	0.521	0.552	0.586	0.633	0.683	0.746	0.818	0.901
23,000	0.523	0.500	0.481	0.466	0.455	0.449	0.446	0.447	0.453	0.462	0.476	0.495	0.524	0.550	0.586	0.636	0.682	0.746	0.816	0.901
24,000	0.539	0.512	0.489	0.472	0.459	0.450	0.445	0.444	0.447	0.462	0.475	0.493	0.516	0.545	0.580	0.624	0.676	0.739	0.812	0.899
25,000	0.538	0.508	0.483	0.462	0.447	0.435	0.427	0.427	0.427	0.435	0.447	0.466	0.489	0.519	0.555	0.601	0.657	0.721	0.801	0.891
30,000	0.614	0.569	0.529	0.497	0.471	0.449	0.434	0.424	0.419	0.419	0.427	0.439	0.460	0.487	0.523	0.560	0.623	0.692	0.772	0.875
40,000	0.934	0.842	0.762	0.695	0.637	0.588	0.548	0.516	0.496	0.473	0.463	0.462	0.471	0.483	0.508	0.547	0.598	0.663	0.750	0.859
50,000	1.264	1.115	0.986	0.879	0.786	0.706	0.640	0.582	0.540	0.505	0.479	0.463	0.454	0.459	0.476	0.506	0.556	0.622	0.713	0.837
60,000	1.637	1.417	1.234	1.083	0.952	0.838	0.750	0.672	0.601	0.553	0.513	0.483	0.464	0.458	0.468	0.488	0.531	0.596	0.690	0.819
70,000	2.086	1.779	1.526	1.320	1.149	0.998	0.882	0.775	0.688	0.615	0.566	0.517	0.489	0.471	0.468	0.482	0.519	0.579	0.671	0.809
80,000	2.629	2.212	1.878	1.606	1.382	1.197	1.043	0.913	0.804	0.713	0.644	0.583	0.540	0.508	0.495	0.526	0.578	0.666	0.800	
90,000	3.178	2.635	2.215	1.873	1.589	1.363	1.184	1.020	0.895	0.788	0.702	0.628	0.573	0.526	0.507	0.499	0.522	0.566	0.654	0.790
100,000	3.821	3.118	2.578	2.156	1.821	1.551	1.329	1.144	0.991	0.865	0.762	0.676	0.610	0.557	0.525	0.509	0.525	0.564	0.646	0.782
150,000	8.090	5.985	4.596	3.628	2.924	2.395	1.985	1.660	1.401	1.190	1.014	0.874	0.757	0.665	0.596	0.548	0.536	0.552	0.619	0.756
200,000	14.731	9.684	6.879	5.132	3.970	3.142	2.537	2.077	1.721	1.436	1.207	1.021	0.870	0.748	0.652	0.583	0.552	0.552	0.607	0.741
250,000	24.411	13.996	9.226	6.530	4.876	3.762	2.974	2.396	1.957	1.616	1.345	1.125	0.949	0.807	0.693	0.609	0.564	0.554	0.601	0.733
300,000	36.741	18.590	11.387	7.718	5.611	4.241	3.301	2.630	2.127	1.741	1.440	1.197	1.002	0.846	0.722	0.627	0.574	0.556	0.598	0.728
400,000	64.954	26.513	14.675	9.407	6.578	4.843	3.700	2.907	2.325	1.886	1.546	1.279	1.063	0.891	0.753	0.647	0.584	0.560	0.596	0.723
500,000	106.852	34.358	17.427	10.762	7.280	5.274	3.985	3.096	2.459	1.984	1.619	1.330	1.101	0.918	0.774	0.659	0.591	0.562	0.597	0.721

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 30,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.784	0.792	0.802	0.815	0.826	0.838	0.847	0.855	0.863	0.876	0.882	0.891	0.913	0.921	0.929	0.947	0.947	0.963	0.976	0.986
2,000	0.665	0.677	0.691	0.705	0.721	0.731	0.746	0.762	0.779	0.792	0.810	0.827	0.844	0.863	0.881	0.900	0.919	0.938	0.958	0.981
3,000	0.578	0.585	0.607	0.617	0.639	0.652	0.671	0.697	0.707	0.734	0.755	0.776	0.794	0.814	0.852	0.872	0.892	0.919	0.946	0.971
4,000	0.472	0.490	0.510	0.521	0.542	0.564	0.593	0.616	0.639	0.663	0.689	0.710	0.733	0.764	0.800	0.828	0.861	0.894	0.929	0.967
5,000	0.443	0.461	0.480	0.501	0.522	0.543	0.562	0.588	0.605	0.638	0.664	0.693	0.720	0.751	0.781	0.814	0.845	0.883	0.916	0.959
6,000	0.395	0.416	0.432	0.456	0.476	0.498	0.524	0.545	0.573	0.599	0.631	0.658	0.689	0.722	0.756	0.794	0.831	0.869	0.913	0.955
7,000	0.378	0.384	0.399	0.426	0.447	0.466	0.502	0.524	0.547	0.564	0.604	0.634	0.668	0.704	0.737	0.773	0.816	0.858	0.901	0.949
8,000	0.180	0.199	0.222	0.250	0.273	0.297	0.334	0.430	0.395	0.433	0.527	0.510	0.554	0.642	0.683	0.697	0.778	0.839	0.881	0.942
9,000	0.146	0.166	0.189	0.204	0.239	0.315	0.350	0.329	0.355	0.399	0.435	0.520	0.564	0.568	0.621	0.672	0.731	0.810	0.862	0.936
10,000	0.116	0.124	0.158	0.170	0.203	0.221	0.262	0.292	0.319	0.363	0.396	0.443	0.492	0.534	0.592	0.648	0.713	0.775	0.845	0.926
11,000	0.093	0.102	0.131	0.144	0.177	0.196	0.234	0.265	0.292	0.338	0.371	0.421	0.462	0.513	0.571	0.627	0.695	0.762	0.836	0.922
12,000	0.077	0.084	0.112	0.124	0.157	0.173	0.210	0.233	0.270	0.313	0.347	0.400	0.443	0.493	0.552	0.612	0.680	0.752	0.826	0.917
13,000	0.066	0.072	0.098	0.107	0.140	0.155	0.192	0.214	0.249	0.294	0.328	0.379	0.419	0.474	0.534	0.596	0.666	0.740	0.823	0.914
14,000	0.059	0.069	0.083	0.100	0.131	0.143	0.171	0.198	0.233	0.271	0.310	0.361	0.401	0.456	0.512	0.575	0.648	0.728	0.808	0.908
15,000	0.045	0.049	0.062	0.079	0.108	0.123	0.148	0.178	0.212	0.253	0.289	0.341	0.379	0.436	0.498	0.562	0.635	0.716	0.801	0.900
16,000	0.044	0.048	0.060	0.075	0.101	0.114	0.140	0.168	0.201	0.243	0.276	0.321	0.372	0.425	0.487	0.552	0.628	0.708	0.794	0.896
17,000	0.021	0.030	0.041	0.056	0.083	0.097	0.122	0.151	0.184	0.221	0.263	0.309	0.359	0.414	0.475	0.548	0.620	0.705	0.788	0.892
18,000	0.017	0.023	0.034	0.049	0.073	0.088	0.111	0.141	0.174	0.208	0.251	0.296	0.348	0.404	0.465	0.534	0.612	0.695	0.786	0.888
19,000	0.018	0.023	0.032	0.044	0.069	0.081	0.105	0.132	0.164	0.201	0.241	0.284	0.338	0.391	0.457	0.523	0.601	0.688	0.779	0.885
20,000	0.022	0.026	0.033	0.044	0.068	0.079	0.102	0.129	0.160	0.196	0.236	0.281	0.328	0.387	0.451	0.516	0.599	0.680	0.775	0.882
21,000	0.013	0.014	0.019	0.029	0.051	0.062	0.082	0.108	0.139	0.174	0.216	0.260	0.312	0.369	0.431	0.504	0.588	0.675	0.769	0.880
22,000	0.037	0.033	0.033	0.038	0.059	0.062	0.081	0.104	0.132	0.166	0.204	0.248	0.298	0.356	0.420	0.490	0.576	0.662	0.762	0.875
23,000	0.037	0.054	0.054	0.058	0.078	0.081	0.099	0.122	0.150	0.183	0.219	0.263	0.312	0.368	0.430	0.501	0.580	0.668	0.767	0.877
24,000	0.069	0.061	0.059	0.060	0.078	0.081	0.097	0.120	0.145	0.176	0.214	0.257	0.304	0.361	0.422	0.493	0.576	0.664	0.760	0.873
25,000	0.080	0.070	0.064	0.065	0.081	0.081	0.097	0.117	0.152	0.173	0.209	0.249	0.300	0.355	0.416	0.488	0.570	0.659	0.755	0.872
30,000	0.126	0.085	0.059	0.054	0.043	0.027	0.030	0.047	0.070	0.082	0.113	0.163	0.199	0.255	0.321	0.397	0.490	0.593	0.706	0.845
40,000	0.464	0.350	0.289	0.223	0.164	0.115	0.093	0.077	0.077	0.066	0.080	0.119	0.153	0.194	0.244	0.319	0.417	0.529	0.655	0.814
50,000	0.982	0.794	0.630	0.505	0.392	0.306	0.238	0.172	0.137	0.125	0.116	0.130	0.148	0.174	0.214	0.280	0.373	0.487	0.616	0.792
60,000	1.649	1.374	1.070	0.854	0.717	0.548	0.434	0.365	0.276	0.228	0.206	0.179	0.180	0.197	0.223	0.286	0.364	0.472	0.599	0.778
70,000	2.360	1.891	1.517	1.216	0.973	0.777	0.617	0.490	0.389	0.312	0.256	0.220	0.203	0.205	0.226	0.273	0.342	0.443	0.574	0.760
80,000	3.204	2.359	1.867	1.480	1.178	0.928	0.729	0.573	0.444	0.345	0.275	0.223	0.194	0.186	0.200	0.241	0.308	0.408	0.552	0.739
90,000	4.050	3.169	2.496	1.977	1.569	1.245	0.988	0.781	0.618	0.489	0.391	0.318	0.271	0.246	0.247	0.273	0.329	0.419	0.556	0.739
100,000	5.219	4.030	3.149	2.481	1.966	1.564	1.249	0.997	0.798	0.640	0.518	0.427	0.362	0.322	0.309	0.322	0.365	0.443	0.566	0.744
150,000	12.642	9.029	6.529	4.972	3.783	2.964	2.358	1.913	1.544	1.270	1.056	0.892	0.760	0.664	0.597	0.559	0.552	0.578	0.650	0.781
200,000	23.998	15.275	10.198	7.347	5.360	4.080	3.178	2.543	2.034	1.664	1.379	1.162	0.986	0.854	0.754	0.685	0.648	0.646	0.690	0.797
250,000	40.577	22.755	14.030	9.597	6.735	4.984	3.800	2.993	2.364	1.915	1.575	1.317	1.108	0.951	0.829	0.741	0.687	0.669	0.700	0.798
300,000	61.893	30.743	17.697	11.577	7.893	5.709	4.283	3.331	2.606	2.095	1.712	1.423	1.190	1.014	0.878	0.776	0.710	0.682	0.704	0.796
400,000	109.265	44.519	23.296	14.341	9.409	6.618	4.864	3.730	2.883	2.298	1.863	1.541	1.281	1.084	0.931	0.816	0.736	0.698	0.710	0.796
500,000	176.991	58.730	28.308	16.606	10.689	7.295	5.272	3.964	3.060	2.423	1.952	1.606	1.330	1.120	0.958	0.835	0.750	0.705	0.713	0.796

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 40,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.783	0.794	0.804	0.811	0.821	0.832	0.842	0.851	0.859	0.872	0.883	0.891	0.902	0.914	0.929	0.939	0.950	0.961	0.975	0.986
2,000	0.692	0.701	0.714	0.728	0.741	0.755	0.769	0.787	0.798	0.814	0.828	0.845	0.861	0.877	0.893	0.911	0.927	0.945	0.962	0.979
3,000	0.625	0.639	0.652	0.673	0.688	0.702	0.718	0.734	0.756	0.774	0.787	0.807	0.828	0.847	0.868	0.886	0.908	0.931	0.954	0.976
4,000	0.577	0.592	0.607	0.625	0.642	0.659	0.676	0.696	0.716	0.736	0.756	0.778	0.800	0.820	0.846	0.867	0.893	0.917	0.944	0.972
5,000	0.519	0.537	0.554	0.574	0.592	0.613	0.633	0.654	0.674	0.694	0.717	0.743	0.767	0.793	0.820	0.846	0.875	0.906	0.935	0.967
6,000	0.481	0.499	0.517	0.536	0.556	0.576	0.598	0.620	0.642	0.666	0.691	0.716	0.743	0.771	0.800	0.830	0.861	0.894	0.928	0.963
7,000	0.448	0.466	0.485	0.505	0.525	0.546	0.569	0.592	0.616	0.641	0.667	0.694	0.722	0.752	0.783	0.815	0.849	0.884	0.921	0.960
8,000	0.418	0.435	0.456	0.476	0.495	0.519	0.541	0.564	0.590	0.616	0.643	0.672	0.702	0.733	0.766	0.800	0.837	0.875	0.914	0.956
9,000	0.391	0.412	0.429	0.450	0.472	0.493	0.517	0.542	0.568	0.594	0.623	0.653	0.684	0.717	0.751	0.787	0.826	0.866	0.908	0.953
10,000	0.373	0.391	0.411	0.431	0.452	0.475	0.498	0.523	0.550	0.577	0.606	0.637	0.669	0.702	0.738	0.776	0.815	0.858	0.902	0.950
11,000	0.353	0.371	0.392	0.413	0.433	0.455	0.480	0.505	0.531	0.560	0.590	0.620	0.654	0.689	0.726	0.764	0.806	0.850	0.897	0.947
12,000	0.351	0.369	0.388	0.408	0.429	0.451	0.475	0.499	0.526	0.554	0.584	0.615	0.648	0.681	0.720	0.760	0.802	0.848	0.896	0.946
13,000	0.327	0.348	0.368	0.386	0.406	0.427	0.451	0.480	0.507	0.536	0.566	0.596	0.631	0.669	0.707	0.749	0.790	0.840	0.890	0.943
14,000	0.303	0.322	0.341	0.362	0.384	0.406	0.431	0.457	0.485	0.513	0.545	0.578	0.615	0.653	0.693	0.736	0.782	0.832	0.883	0.941
15,000	0.292	0.310	0.329	0.351	0.372	0.395	0.420	0.447	0.474	0.504	0.536	0.570	0.603	0.643	0.685	0.728	0.774	0.824	0.879	0.937
16,000	0.277	0.295	0.314	0.335	0.357	0.380	0.405	0.430	0.459	0.490	0.521	0.555	0.593	0.631	0.674	0.719	0.767	0.819	0.875	0.935
17,000	0.271	0.288	0.306	0.326	0.348	0.371	0.395	0.422	0.450	0.480	0.512	0.547	0.584	0.623	0.666	0.711	0.760	0.815	0.872	0.933
18,000	0.270	0.285	0.303	0.322	0.343	0.366	0.390	0.416	0.443	0.473	0.505	0.539	0.577	0.616	0.659	0.706	0.755	0.809	0.867	0.931
19,000	0.265	0.275	0.293	0.316	0.337	0.359	0.379	0.403	0.435	0.464	0.494	0.528	0.566	0.608	0.650	0.696	0.747	0.804	0.864	0.929
20,000	0.236	0.252	0.270	0.289	0.310	0.332	0.356	0.383	0.411	0.443	0.476	0.510	0.548	0.590	0.636	0.687	0.740	0.796	0.859	0.926
21,000	0.223	0.239	0.256	0.275	0.296	0.318	0.342	0.368	0.397	0.428	0.461	0.497	0.536	0.578	0.624	0.674	0.729	0.787	0.853	0.924
22,000	0.212	0.228	0.245	0.264	0.284	0.307	0.332	0.358	0.386	0.417	0.451	0.487	0.527	0.569	0.616	0.667	0.722	0.782	0.849	0.922
23,000	0.211	0.226	0.243	0.262	0.282	0.304	0.327	0.354	0.382	0.413	0.446	0.483	0.518	0.565	0.609	0.663	0.719	0.777	0.846	0.920
24,000	0.204	0.219	0.235	0.253	0.272	0.294	0.318	0.344	0.372	0.402	0.436	0.472	0.512	0.555	0.603	0.654	0.711	0.775	0.842	0.917
25,000	0.202	0.215	0.232	0.249	0.268	0.289	0.313	0.338	0.366	0.397	0.430	0.466	0.506	0.549	0.597	0.649	0.706	0.769	0.839	0.915
30,000	0.203	0.214	0.226	0.241	0.257	0.276	0.298	0.325	0.352	0.378	0.409	0.446	0.487	0.531	0.579	0.632	0.691	0.754	0.828	0.910
40,000	0.286	0.281	0.280	0.282	0.287	0.294	0.305	0.319	0.337	0.358	0.385	0.414	0.449	0.488	0.536	0.588	0.647	0.719	0.796	0.891
50,000	0.315	0.305	0.285	0.280	0.277	0.283	0.284	0.291	0.306	0.325	0.344	0.373	0.405	0.444	0.492	0.546	0.608	0.685	0.772	0.878
60,000	0.430	0.395	0.367	0.347	0.332	0.322	0.318	0.318	0.324	0.334	0.350	0.372	0.400	0.435	0.478	0.530	0.590	0.668	0.757	0.868
70,000	0.605	0.543	0.493	0.452	0.417	0.394	0.378	0.368	0.365	0.364	0.374	0.386	0.407	0.440	0.478	0.526	0.582	0.659	0.748	0.862
80,000	0.791	0.695	0.617	0.556	0.501	0.466	0.434	0.414	0.400	0.392	0.391	0.399	0.414	0.439	0.470	0.518	0.573	0.649	0.737	0.853
90,000	0.961	0.831	0.727	0.635	0.571	0.524	0.480	0.450	0.427	0.411	0.404	0.406	0.415	0.438	0.464	0.506	0.561	0.634	0.727	0.846
100,000	1.221	1.067	0.929	0.804	0.714	0.645	0.586	0.542	0.505	0.476	0.461	0.452	0.453	0.468	0.487	0.521	0.571	0.639	0.724	0.844
150,000	2.734	2.165	1.762	1.464	1.238	1.061	0.921	0.810	0.721	0.650	0.595	0.555	0.527	0.513	0.514	0.529	0.564	0.620	0.701	0.827
200,000	4.618	3.369	2.588	2.060	1.682	1.401	1.185	1.016	0.883	0.778	0.694	0.629	0.582	0.550	0.535	0.537	0.560	0.609	0.686	0.814
250,000	6.923	4.618	3.367	2.583	2.053	1.673	1.391	1.175	1.006	0.874	0.769	0.686	0.624	0.580	0.554	0.547	0.562	0.604	0.677	0.806
300,000	9.492	5.799	4.032	2.998	2.336	1.875	1.539	1.286	1.088	0.939	0.818	0.724	0.651	0.599	0.565	0.552	0.560	0.599	0.673	0.799
400,000	14.420	7.557	5.039	3.630	2.759	2.176	1.760	1.455	1.224	1.045	0.903	0.793	0.706	0.643	0.599	0.575	0.574	0.605	0.673	0.796
500,000	20.889	9.307	5.836	3.958	2.956	2.312	1.858	1.549	1.285	1.101	0.946	0.825	0.731	0.658	0.610	0.581	0.576	0.602	0.668	0.791

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 50,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.600	0.645	0.675	0.676	0.657	0.679	0.696	0.737	0.770	0.780	0.781	0.797	0.847	0.859	0.879	0.889	0.916	0.923	0.948	0.979
2,000	0.535	0.552	0.597	0.579	0.600	0.597	0.660	0.678	0.650	0.716	0.716	0.742	0.793	0.780	0.800	0.850	0.865	0.901	0.936	0.943
3,000	0.340	0.393	0.287	0.304	0.455	0.444	0.499	0.430	0.456	0.584	0.586	0.652	0.649	0.690	0.749	0.784	0.817	0.875	0.896	0.955
4,000	0.320	0.257	0.330	0.349	0.322	0.342	0.375	0.447	0.436	0.475	0.522	0.538	0.596	0.644	0.713	0.715	0.767	0.830	0.895	0.938
5,000	0.347	0.370	0.484	0.498	0.525	0.535	0.553	0.571	0.604	0.615	0.640	0.672	0.697	0.689	0.697	0.764	0.809	0.828	0.894	0.931
6,000	0.372	0.386	0.387	0.407	0.435	0.457	0.473	0.492	0.526	0.556	0.580	0.573	0.641	0.684	0.719	0.746	0.823	0.835	0.905	0.946
7,000	0.327	0.332	0.332	0.379	0.408	0.427	0.448	0.440	0.465	0.505	0.531	0.569	0.598	0.636	0.695	0.745	0.780	0.830	0.870	0.935
8,000	0.325	0.332	0.345	0.359	0.377	0.396	0.418	0.439	0.449	0.494	0.534	0.558	0.600	0.632	0.682	0.721	0.767	0.817	0.873	0.938
9,000	0.315	0.322	0.329	0.341	0.355	0.374	0.389	0.415	0.438	0.469	0.496	0.534	0.566	0.612	0.651	0.702	0.756	0.806	0.873	0.933
10,000	0.313	0.322	0.331	0.319	0.359	0.353	0.394	0.418	0.443	0.470	0.459	0.515	0.532	0.597	0.623	0.691	0.730	0.807	0.855	0.929
11,000	0.274	0.260	0.264	0.272	0.293	0.326	0.321	0.366	0.390	0.417	0.452	0.486	0.508	0.572	0.601	0.662	0.730	0.785	0.851	0.924
12,000	0.223	0.218	0.269	0.221	0.277	0.302	0.274	0.324	0.301	0.374	0.398	0.413	0.486	0.540	0.560	0.640	0.671	0.776	0.841	0.922
13,000	0.196	0.188	0.183	0.183	0.189	0.198	0.212	0.231	0.256	0.285	0.319	0.359	0.399	0.459	0.515	0.579	0.650	0.728	0.831	0.914
14,000	0.401	0.377	0.353	0.340	0.331	0.325	0.327	0.461	0.345	0.363	0.491	0.410	0.540	0.493	0.539	0.657	0.662	0.713	0.805	0.894
15,000	0.420	0.388	0.361	0.341	0.345	0.318	0.315	0.319	0.328	0.345	0.367	0.397	0.432	0.474	0.523	0.580	0.646	0.714	0.796	0.896
16,000	0.487	0.443	0.407	0.379	0.356	0.341	0.332	0.330	0.335	0.346	0.365	0.390	0.423	0.464	0.512	0.569	0.635	0.715	0.789	0.893
17,000	0.577	0.524	0.454	0.441	0.389	0.388	0.352	0.363	0.345	0.368	0.367	0.403	0.420	0.470	0.506	0.571	0.613	0.711	0.794	0.891
18,000	0.542	0.466	0.421	0.403	0.372	0.329	0.334	0.326	0.312	0.320	0.345	0.371	0.392	0.439	0.490	0.540	0.629	0.693	0.787	0.888
19,000	0.590	0.531	0.480	0.438	0.404	0.377	0.359	0.347	0.344	0.349	0.361	0.381	0.410	0.447	0.494	0.551	0.613	0.690	0.780	0.890
20,000	0.643	0.580	0.526	0.479	0.441	0.462	0.390	0.376	0.370	0.372	0.382	0.400	0.426	0.461	0.505	0.579	0.623	0.699	0.784	0.883
21,000	0.803	0.727	0.649	0.594	0.548	0.511	0.475	0.461	0.446	0.438	0.435	0.448	0.468	0.500	0.535	0.584	0.645	0.704	0.785	0.885
22,000	0.958	0.843	0.759	0.697	0.633	0.582	0.549	0.513	0.495	0.477	0.476	0.480	0.494	0.515	0.546	0.592	0.646	0.713	0.804	0.883
23,000	0.945	0.839	0.748	0.675	0.608	0.542	0.506	0.470	0.433	0.429	0.463	0.427	0.444	0.499	0.541	0.550	0.633	0.710	0.794	0.888
24,000	1.004	0.893	0.795	0.710	0.619	0.573	0.522	0.482	0.455	0.420	0.424	0.414	0.438	0.453	0.489	0.538	0.608	0.682	0.784	0.880
25,000	0.683	0.592	0.514	0.448	0.394	0.350	0.317	0.293	0.281	0.455	0.442	0.440	0.449	0.468	0.502	0.547	0.605	0.684	0.768	0.876
30,000	0.956	0.829	0.720	0.627	0.549	0.486	0.433	0.393	0.365	0.347	0.342	0.344	0.364	0.388	0.434	0.487	0.554	0.643	0.742	0.857
40,000	1.388	1.121	0.942	0.820	0.685	0.555	0.467	0.405	0.345	0.307	0.285	0.272	0.285	0.308	0.347	0.403	0.478	0.572	0.711	0.831
50,000	2.514	2.059	1.693	1.378	1.113	0.891	0.706	0.555	0.433	0.338	0.271	0.223	0.201	0.202	0.228	0.280	0.356	0.465	0.575	0.781
60,000	3.879	3.139	2.542	2.026	1.613	1.264	0.975	0.739	0.550	0.379	0.284	0.196	0.145	0.125	0.139	0.188	0.271	0.384	0.538	0.742
70,000	3.146	2.520	2.023	1.627	1.300	1.042	0.833	0.668	0.539	0.441	0.370	0.326	0.302	0.303	0.317	0.369	0.438	0.525	0.647	0.803
80,000	3.973	3.147	2.499	1.986	1.581	1.258	1.000	0.796	0.637	0.515	0.426	0.365	0.328	0.321	0.335	0.368	0.436	0.517	0.646	0.798
90,000	5.304	4.127	3.227	2.533	1.987	1.557	1.217	0.949	0.739	0.577	0.456	0.371	0.317	0.292	0.296	0.328	0.389	0.480	0.610	0.780
100,000	6.515	5.079	3.868	3.009	2.346	1.829	1.425	1.119	0.867	0.670	0.527	0.423	0.349	0.312	0.305	0.329	0.384	0.479	0.601	0.772
150,000	19.062	13.417	9.694	7.127	5.293	3.948	2.943	2.177	1.588	1.134	0.786	0.523	0.330	0.199	0.124	0.104	0.138	0.267	0.397	0.644
200,000	18.890	12.067	8.176	5.737	4.121	3.001	2.200	1.610	1.169	0.839	0.591	0.407	0.277	0.194	0.145	0.153	0.186	0.292	0.435	0.665
250,000	32.951	18.896	11.956	8.026	5.579	3.964	2.855	2.060	1.481	1.051	0.732	0.496	0.327	0.213	0.150	0.134	0.167	0.256	0.410	0.648
300,000	49.903	25.874	15.435	9.967	6.766	4.722	3.352	2.396	1.710	1.208	0.836	0.564	0.367	0.232	0.152	0.124	0.150	0.234	0.387	0.632
400,000	83.125	36.818	20.220	12.416	8.147	5.554	3.880	2.743	1.942	1.364	0.941	0.632	0.408	0.254	0.160	0.121	0.138	0.216	0.369	0.618
500,000	125.546	47.952	24.377	14.389	9.200	6.172	4.260	2.982	2.097	1.466	1.008	0.675	0.435	0.269	0.165	0.120	0.132	0.208	0.361	0.611

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 60,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.692	0.704	0.717	0.732	0.747	0.760	0.774	0.789	0.805	0.820	0.834	0.852	0.868	0.883	0.898	0.914	0.931	0.946	0.966	0.984
2,000	0.578	0.596	0.612	0.630	0.649	0.667	0.686	0.706	0.726	0.746	0.768	0.788	0.810	0.832	0.854	0.876	0.898	0.923	0.950	0.973
3,000	0.533	0.549	0.568	0.586	0.621	0.641	0.648	0.670	0.691	0.714	0.736	0.761	0.784	0.809	0.833	0.860	0.882	0.910	0.938	0.969
4,000	0.476	0.496	0.516	0.538	0.559	0.583	0.604	0.627	0.651	0.679	0.701	0.733	0.757	0.781	0.815	0.840	0.870	0.903	0.933	0.966
5,000	0.433	0.454	0.473	0.495	0.518	0.540	0.565	0.589	0.616	0.641	0.669	0.697	0.725	0.756	0.788	0.820	0.856	0.889	0.925	0.962
6,000	0.424	0.444	0.465	0.487	0.509	0.531	0.555	0.580	0.606	0.633	0.661	0.689	0.719	0.748	0.780	0.813	0.849	0.880	0.921	0.958
7,000	0.386	0.407	0.434	0.459	0.480	0.504	0.524	0.549	0.581	0.609	0.641	0.669	0.696	0.732	0.764	0.801	0.837	0.878	0.915	0.956
8,000	0.374	0.394	0.412	0.434	0.461	0.486	0.510	0.537	0.564	0.593	0.620	0.654	0.679	0.714	0.751	0.792	0.830	0.870	0.911	0.954
9,000	0.347	0.368	0.391	0.413	0.435	0.460	0.483	0.514	0.541	0.571	0.599	0.634	0.668	0.702	0.738	0.779	0.813	0.860	0.904	0.950
10,000	0.294	0.318	0.340	0.364	0.384	0.415	0.436	0.470	0.496	0.533	0.563	0.601	0.635	0.676	0.714	0.759	0.799	0.852	0.900	0.949
11,000	0.271	0.293	0.316	0.340	0.365	0.392	0.420	0.449	0.480	0.513	0.547	0.587	0.625	0.660	0.701	0.748	0.796	0.839	0.890	0.945
12,000	0.226	0.248	0.271	0.296	0.322	0.360	0.379	0.410	0.449	0.490	0.526	0.563	0.595	0.638	0.686	0.732	0.780	0.831	0.884	0.941
13,000	0.216	0.237	0.269	0.284	0.310	0.337	0.367	0.396	0.438	0.464	0.500	0.546	0.585	0.623	0.661	0.720	0.767	0.821	0.876	0.937
14,000	0.231	0.250	0.272	0.295	0.320	0.347	0.375	0.404	0.436	0.469	0.505	0.543	0.582	0.625	0.670	0.716	0.761	0.821	0.870	0.937
15,000	0.185	0.204	0.225	0.248	0.273	0.299	0.328	0.360	0.392	0.428	0.469	0.504	0.546	0.592	0.644	0.711	0.763	0.801	0.863	0.933
16,000	0.173	0.192	0.214	0.236	0.262	0.288	0.317	0.349	0.381	0.416	0.455	0.495	0.534	0.583	0.630	0.682	0.736	0.797	0.859	0.933
17,000	0.186	0.203	0.222	0.243	0.257	0.291	0.310	0.347	0.379	0.407	0.450	0.485	0.533	0.565	0.627	0.672	0.731	0.790	0.858	0.926
18,000	0.170	0.185	0.203	0.224	0.247	0.271	0.298	0.328	0.359	0.395	0.433	0.473	0.514	0.562	0.613	0.665	0.726	0.789	0.852	0.924
19,000	0.180	0.195	0.212	0.232	0.253	0.277	0.304	0.333	0.363	0.398	0.434	0.474	0.516	0.563	0.613	0.667	0.724	0.785	0.852	0.923
20,000	0.194	0.207	0.222	0.218	0.237	0.260	0.306	0.333	0.362	0.397	0.419	0.459	0.502	0.546	0.599	0.655	0.720	0.778	0.847	0.920
21,000	0.256	0.265	0.276	0.288	0.305	0.326	0.317	0.357	0.371	0.406	0.425	0.480	0.508	0.569	0.611	0.669	0.721	0.778	0.842	0.923
22,000	0.225	0.236	0.243	0.256	0.272	0.291	0.313	0.337	0.365	0.398	0.430	0.476	0.518	0.561	0.609	0.657	0.715	0.771	0.846	0.919
23,000	0.197	0.204	0.215	0.228	0.244	0.263	0.286	0.311	0.339	0.371	0.406	0.455	0.507	0.550	0.592	0.640	0.700	0.771	0.842	0.915
24,000	0.184	0.190	0.192	0.205	0.220	0.247	0.269	0.295	0.323	0.353	0.384	0.430	0.476	0.528	0.577	0.628	0.694	0.751	0.834	0.913
25,000	0.126	0.133	0.142	0.186	0.200	0.188	0.211	0.237	0.267	0.301	0.338	0.380	0.427	0.477	0.534	0.619	0.683	0.747	0.828	0.911
30,000	0.066	0.066	0.071	0.080	0.094	0.111	0.134	0.160	0.189	0.224	0.264	0.310	0.359	0.414	0.476	0.543	0.618	0.700	0.793	0.890
40,000	0.187	0.152	0.124	0.110	0.099	0.100	0.106	0.117	0.138	0.162	0.195	0.236	0.284	0.337	0.400	0.472	0.555	0.648	0.757	0.868
50,000	0.414	0.324	0.253	0.198	0.158	0.130	0.114	0.108	0.112	0.125	0.148	0.181	0.223	0.275	0.338	0.412	0.498	0.599	0.714	0.848
60,000	0.809	0.647	0.515	0.410	0.327	0.264	0.216	0.184	0.164	0.119	0.134	0.185	0.215	0.257	0.315	0.376	0.463	0.570	0.691	0.837
70,000	1.259	0.984	0.776	0.593	0.472	0.379	0.301	0.239	0.202	0.181	0.173	0.184	0.207	0.240	0.290	0.364	0.443	0.552	0.672	0.820
80,000	1.890	1.517	1.221	0.986	0.797	0.647	0.527	0.434	0.363	0.312	0.280	0.265	0.267	0.286	0.322	0.376	0.450	0.546	0.666	0.816
90,000	2.409	1.893	1.494	1.182	0.936	0.741	0.587	0.466	0.375	0.307	0.263	0.238	0.233	0.247	0.280	0.334	0.411	0.512	0.640	0.804
100,000	2.921	2.277	1.788	1.410	1.115	0.882	0.699	0.556	0.445	0.362	0.305	0.269	0.254	0.261	0.287	0.336	0.408	0.506	0.633	0.796
150,000	7.818	5.682	4.238	3.219	2.475	1.918	1.493	1.164	0.908	0.710	0.559	0.448	0.371	0.326	0.312	0.329	0.378	0.463	0.590	0.763
200,000	16.747	11.101	7.772	5.635	4.181	3.151	2.396	1.829	1.398	1.067	0.813	0.621	0.481	0.387	0.334	0.321	0.350	0.424	0.550	0.737
250,000	27.165	16.422	10.846	7.582	5.489	4.068	3.061	2.322	1.769	1.347	1.025	0.780	0.598	0.469	0.387	0.352	0.363	0.423	0.541	0.727
300,000	40.242	22.258	13.946	9.421	6.675	4.871	3.625	2.729	2.067	1.568	1.189	0.901	0.685	0.529	0.426	0.373	0.371	0.420	0.532	0.719
400,000	65.373	31.646	18.454	11.944	8.241	5.916	4.361	3.267	2.471	1.877	1.427	1.084	0.825	0.634	0.502	0.425	0.403	0.436	0.536	0.716
500,000	94.035	40.077	21.930	13.686	9.220	6.516	4.748	3.526	2.648	2.000	1.513	1.144	0.866	0.661	0.519	0.434	0.406	0.435	0.532	0.713

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 70,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.738	0.736	0.702	0.708	0.727	0.785	0.809	0.775	0.789	0.807	0.832	0.863	0.876	0.895	0.895	0.910	0.934	0.954	0.967	0.982
2,000	0.573	0.589	0.607	0.621	0.643	0.665	0.680	0.697	0.716	0.739	0.760	0.786	0.804	0.820	0.849	0.874	0.894	0.926	0.944	0.975
3,000	0.535	0.523	0.569	0.564	0.602	0.604	0.645	0.647	0.687	0.692	0.732	0.741	0.779	0.792	0.830	0.849	0.885	0.905	0.929	0.969
4,000	0.468	0.486	0.506	0.528	0.548	0.570	0.592	0.612	0.635	0.660	0.694	0.719	0.748	0.768	0.797	0.829	0.859	0.894	0.931	0.967
5,000	0.453	0.470	0.487	0.508	0.528	0.549	0.572	0.595	0.618	0.642	0.668	0.695	0.724	0.753	0.781	0.816	0.844	0.885	0.920	0.962
6,000	0.475	0.451	0.508	0.504	0.529	0.544	0.572	0.608	0.612	0.642	0.663	0.650	0.719	0.724	0.784	0.793	0.835	0.866	0.911	0.956
7,000	0.415	0.432	0.447	0.469	0.489	0.508	0.533	0.556	0.581	0.607	0.638	0.649	0.697	0.729	0.759	0.799	0.829	0.865	0.907	0.955
8,000	0.376	0.393	0.411	0.429	0.456	0.471	0.501	0.524	0.554	0.570	0.615	0.631	0.669	0.685	0.730	0.775	0.819	0.854	0.903	0.951
9,000	0.264	0.282	0.341	0.361	0.382	0.405	0.430	0.422	0.452	0.484	0.515	0.549	0.593	0.668	0.697	0.760	0.785	0.848	0.894	0.941
10,000	0.258	0.283	0.301	0.321	0.343	0.366	0.392	0.419	0.449	0.481	0.517	0.550	0.588	0.633	0.675	0.719	0.769	0.822	0.881	0.941
11,000	0.246	0.260	0.277	0.303	0.346	0.370	0.394	0.420	0.448	0.478	0.511	0.546	0.580	0.607	0.652	0.711	0.760	0.798	0.873	0.940
12,000	0.210	0.222	0.238	0.255	0.275	0.297	0.322	0.349	0.379	0.411	0.450	0.485	0.527	0.577	0.620	0.679	0.730	0.793	0.863	0.927
13,000	0.215	0.226	0.239	0.255	0.274	0.294	0.322	0.344	0.373	0.405	0.440	0.478	0.519	0.565	0.613	0.666	0.723	0.783	0.851	0.928
14,000	0.171	0.183	0.198	0.228	0.235	0.257	0.294	0.310	0.340	0.386	0.411	0.462	0.508	0.542	0.601	0.664	0.717	0.789	0.844	0.926
15,000	0.235	0.231	0.243	0.259	0.288	0.307	0.315	0.341	0.384	0.415	0.435	0.473	0.514	0.569	0.606	0.660	0.717	0.778	0.851	0.924
16,000	0.244	0.249	0.258	0.270	0.285	0.303	0.323	0.333	0.360	0.391	0.424	0.471	0.511	0.555	0.593	0.647	0.714	0.774	0.842	0.919
17,000	0.251	0.256	0.263	0.273	0.283	0.303	0.321	0.340	0.369	0.398	0.427	0.463	0.492	0.534	0.599	0.649	0.698	0.765	0.838	0.917
18,000	0.224	0.227	0.233	0.241	0.253	0.267	0.288	0.310	0.335	0.364	0.398	0.435	0.476	0.521	0.572	0.625	0.689	0.756	0.838	0.915
19,000	0.259	0.260	0.264	0.272	0.288	0.296	0.313	0.339	0.358	0.385	0.421	0.457	0.492	0.539	0.599	0.638	0.682	0.760	0.835	0.914
20,000	0.280	0.275	0.273	0.275	0.281	0.290	0.304	0.321	0.342	0.367	0.430	0.463	0.470	0.514	0.563	0.618	0.680	0.763	0.830	0.913
21,000	0.341	0.284	0.280	0.321	0.282	0.290	0.302	0.355	0.337	0.361	0.391	0.451	0.465	0.508	0.555	0.612	0.672	0.745	0.832	0.904
22,000	0.302	0.290	0.283	0.280	0.282	0.286	0.296	0.311	0.330	0.354	0.382	0.414	0.453	0.503	0.548	0.607	0.669	0.741	0.817	0.903
23,000	0.307	0.292	0.282	0.277	0.280	0.285	0.289	0.302	0.326	0.348	0.370	0.402	0.443	0.490	0.535	0.594	0.663	0.734	0.810	0.901
24,000	0.344	0.326	0.313	0.305	0.319	0.304	0.321	0.316	0.351	0.357	0.395	0.414	0.460	0.493	0.545	0.597	0.658	0.728	0.805	0.901
25,000	0.331	0.307	0.290	0.279	0.272	0.271	0.275	0.285	0.299	0.319	0.345	0.376	0.422	0.450	0.507	0.570	0.635	0.717	0.803	0.899
30,000	0.556	0.371	0.465	0.433	0.358	0.388	0.275	0.370	0.332	0.342	0.393	0.348	0.441	0.462	0.521	0.570	0.628	0.710	0.796	0.887
40,000	0.967	0.794	0.721	0.659	0.609	0.568	0.536	0.502	0.498	0.466	0.489	0.464	0.512	0.500	0.533	0.577	0.622	0.712	0.783	0.888
50,000	1.291	1.135	1.004	0.895	0.804	0.729	0.667	0.618	0.580	0.553	0.536	0.529	0.532	0.545	0.568	0.603	0.645	0.708	0.789	0.898
60,000	1.287	1.106	0.962	0.845	0.752	0.677	0.619	0.574	0.541	0.519	0.507	0.505	0.512	0.538	0.556	0.601	0.681	0.736	0.791	0.891
70,000	1.671	1.370	1.166	1.032	0.867	0.763	0.679	0.611	0.560	0.541	0.499	0.487	0.488	0.498	0.521	0.558	0.635	0.675	0.767	0.870
80,000	2.313	1.907	1.591	1.342	1.145	0.987	0.861	0.761	0.683	0.622	0.578	0.550	0.531	0.524	0.546	0.590	0.612	0.672	0.759	0.868
90,000	3.096	2.555	2.143	1.825	1.574	1.374	1.213	1.084	0.979	0.896	0.830	0.780	0.738	0.721	0.712	0.716	0.735	0.767	0.819	0.896
100,000	3.854	3.153	2.630	2.230	1.918	1.730	1.473	1.312	1.181	1.088	0.988	0.918	0.862	0.825	0.800	0.788	0.792	0.813	0.822	0.888
150,000	8.479	6.260	4.811	3.817	3.109	2.585	2.189	1.881	1.637	1.443	1.287	1.160	1.064	0.978	0.918	0.876	0.853	0.858	0.870	0.920
200,000	15.516	10.285	7.341	5.519	4.317	3.480	2.874	2.420	2.069	1.793	1.573	1.395	1.250	1.134	1.042	0.972	0.924	0.899	0.900	0.931
250,000	27.469	16.232	10.140	7.225	5.418	4.223	3.388	2.778	2.319	1.964	1.684	1.461	1.281	1.144	1.025	0.941	0.885	0.857	0.862	0.907
300,000	40.068	21.369	12.575	9.078	6.578	4.766	3.753	3.029	2.492	2.081	1.804	1.487	1.303	1.128	1.015	0.921	0.859	0.829	0.837	0.890
400,000	66.340	30.171	17.191	11.122	7.815	5.505	4.471	3.401	2.879	2.299	1.983	1.643	1.412	1.238	1.085	0.973	0.896	0.854	0.851	0.895
500,000	98.945	38.831	20.544	12.760	8.727	6.041	4.850	3.815	3.072	2.518	2.094	1.760	1.497	1.287	1.121	0.998	0.912	0.863	0.855	0.895

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 80,000																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.809	0.820	0.830	0.838	0.844	0.857	0.864	0.872	0.881	0.891	0.899	0.912	0.921	0.930	0.939	0.950	0.958	0.965	0.979	0.989
2,000	0.721	0.733	0.745	0.758	0.771	0.783	0.798	0.808	0.824	0.838	0.849	0.865	0.879	0.893	0.909	0.924	0.940	0.954	0.970	0.984
3,000	0.647	0.668	0.683	0.698	0.720	0.729	0.743	0.760	0.777	0.794	0.823	0.828	0.855	0.875	0.882	0.907	0.920	0.944	0.962	0.981
4,000	0.613	0.629	0.646	0.664	0.678	0.696	0.712	0.735	0.748	0.769	0.786	0.808	0.826	0.847	0.868	0.889	0.910	0.932	0.954	0.976
5,000	0.538	0.556	0.574	0.594	0.611	0.631	0.651	0.673	0.696	0.724	0.747	0.769	0.787	0.819	0.835	0.868	0.895	0.918	0.949	0.972
6,000	0.498	0.518	0.541	0.554	0.578	0.603	0.618	0.647	0.668	0.690	0.715	0.740	0.767	0.792	0.818	0.847	0.875	0.907	0.936	0.969
7,000	0.478	0.493	0.512	0.538	0.555	0.576	0.602	0.623	0.646	0.675	0.698	0.720	0.748	0.778	0.805	0.839	0.869	0.899	0.933	0.965
8,000	0.451	0.473	0.487	0.518	0.535	0.559	0.577	0.601	0.629	0.655	0.683	0.707	0.740	0.767	0.795	0.830	0.863	0.892	0.927	0.963
9,000	0.415	0.436	0.468	0.483	0.504	0.537	0.561	0.574	0.607	0.638	0.666	0.692	0.721	0.761	0.787	0.819	0.851	0.890	0.925	0.961
10,000	0.386	0.407	0.430	0.453	0.477	0.503	0.528	0.555	0.583	0.615	0.644	0.678	0.703	0.739	0.773	0.808	0.847	0.882	0.920	0.958
11,000	0.376	0.397	0.419	0.443	0.466	0.491	0.517	0.544	0.571	0.600	0.624	0.656	0.689	0.723	0.762	0.798	0.835	0.872	0.914	0.956
12,000	0.338	0.361	0.384	0.409	0.434	0.460	0.487	0.515	0.557	0.579	0.613	0.645	0.674	0.716	0.749	0.789	0.826	0.867	0.910	0.954
13,000	0.328	0.351	0.374	0.398	0.424	0.450	0.477	0.506	0.536	0.567	0.599	0.632	0.667	0.703	0.737	0.780	0.818	0.860	0.906	0.953
14,000	0.302	0.324	0.348	0.372	0.398	0.425	0.453	0.483	0.513	0.545	0.579	0.613	0.650	0.687	0.727	0.768	0.811	0.849	0.902	0.950
15,000	0.278	0.301	0.326	0.352	0.379	0.406	0.436	0.466	0.498	0.531	0.565	0.601	0.639	0.677	0.718	0.760	0.803	0.846	0.898	0.948
16,000	0.251	0.275	0.300	0.326	0.354	0.383	0.413	0.444	0.477	0.511	0.546	0.589	0.627	0.662	0.704	0.752	0.797	0.845	0.893	0.945
17,000	0.238	0.260	0.283	0.308	0.335	0.363	0.392	0.423	0.456	0.491	0.527	0.565	0.604	0.646	0.693	0.736	0.786	0.834	0.888	0.943
18,000	0.242	0.248	0.271	0.311	0.323	0.351	0.393	0.425	0.445	0.490	0.526	0.561	0.594	0.644	0.686	0.728	0.785	0.831	0.884	0.943
19,000	0.200	0.221	0.244	0.270	0.296	0.325	0.355	0.395	0.421	0.466	0.503	0.541	0.582	0.620	0.673	0.727	0.770	0.823	0.880	0.941
20,000	0.193	0.215	0.238	0.263	0.288	0.316	0.348	0.380	0.414	0.449	0.488	0.528	0.571	0.615	0.662	0.711	0.762	0.818	0.876	0.937
21,000	0.182	0.202	0.225	0.249	0.275	0.304	0.334	0.366	0.401	0.437	0.475	0.516	0.559	0.604	0.653	0.703	0.756	0.812	0.871	0.935
22,000	0.178	0.198	0.219	0.242	0.268	0.296	0.326	0.358	0.392	0.428	0.467	0.508	0.550	0.595	0.644	0.695	0.750	0.808	0.867	0.934
23,000	0.178	0.184	0.218	0.228	0.266	0.293	0.312	0.355	0.381	0.425	0.464	0.496	0.548	0.588	0.642	0.690	0.745	0.807	0.865	0.932
24,000	0.158	0.176	0.196	0.219	0.244	0.271	0.301	0.334	0.368	0.405	0.445	0.494	0.530	0.579	0.634	0.684	0.738	0.802	0.862	0.930
25,000	0.156	0.172	0.191	0.213	0.237	0.264	0.293	0.325	0.360	0.397	0.436	0.478	0.523	0.571	0.621	0.676	0.733	0.798	0.858	0.928
30,000	0.166	0.224	0.240	0.210	0.232	0.303	0.284	0.314	0.390	0.423	0.422	0.464	0.541	0.557	0.609	0.685	0.722	0.791	0.854	0.928
40,000	0.182	0.185	0.193	0.206	0.222	0.242	0.266	0.293	0.324	0.357	0.395	0.436	0.480	0.529	0.581	0.638	0.699	0.764	0.837	0.915
50,000	0.153	0.142	0.139	0.142	0.152	0.168	0.188	0.214	0.244	0.278	0.317	0.359	0.408	0.460	0.518	0.582	0.651	0.727	0.809	0.902
60,000	0.192	0.162	0.140	0.133	0.131	0.141	0.155	0.175	0.203	0.234	0.273	0.315	0.364	0.418	0.476	0.544	0.617	0.700	0.789	0.890
70,000	0.268	0.207	0.165	0.140	0.128	0.126	0.133	0.148	0.170	0.199	0.235	0.277	0.325	0.380	0.441	0.511	0.588	0.675	0.771	0.880
80,000	0.365	0.265	0.195	0.149	0.121	0.108	0.107	0.116	0.134	0.161	0.194	0.236	0.284	0.340	0.404	0.476	0.558	0.649	0.752	0.869
90,000	0.532	0.366	0.251	0.173	0.122	0.092	0.079	0.080	0.092	0.114	0.146	0.186	0.251	0.292	0.358	0.434	0.520	0.627	0.736	0.860
100,000	0.768	0.493	0.330	0.218	0.144	0.097	0.072	0.064	0.073	0.089	0.116	0.153	0.221	0.257	0.340	0.404	0.505	0.597	0.719	0.846
150,000	2.548	1.633	1.058	0.683	0.436	0.271	0.164	0.096	0.059	0.046	0.051	0.073	0.109	0.160	0.225	0.304	0.400	0.514	0.649	0.809
200,000	5.223	3.099	1.928	1.228	0.790	0.507	0.323	0.202	0.127	0.085	0.069	0.074	0.096	0.136	0.192	0.266	0.359	0.474	0.615	0.788
250,000	18.214	9.788	5.714	3.528	2.253	1.459	0.955	0.624	0.409	0.270	0.181	0.138	0.127	0.142	0.180	0.246	0.332	0.440	0.584	0.765
300,000	28.250	13.857	7.697	4.598	2.876	1.846	1.201	0.787	0.516	0.340	0.230	0.168	0.141	0.145	0.174	0.229	0.310	0.420	0.570	0.755
400,000	47.903	20.457	10.524	6.007	3.653	2.305	1.491	0.978	0.647	0.431	0.293	0.210	0.167	0.158	0.177	0.223	0.297	0.403	0.547	0.742
500,000	71.976	26.971	12.991	7.134	4.234	2.638	1.691	1.104	0.729	0.487	0.331	0.235	0.184	0.168	0.181	0.223	0.293	0.396	0.540	0.736

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 90,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.769	0.779	0.790	0.801	0.811	0.824	0.834	0.845	0.856	0.867	0.879	0.890	0.902	0.913	0.925	0.937	0.950	0.962	0.975	0.987
2,000	0.693	0.706	0.715	0.728	0.745	0.759	0.774	0.787	0.803	0.814	0.830	0.847	0.862	0.878	0.896	0.912	0.929	0.945	0.964	0.982
3,000	0.623	0.638	0.655	0.671	0.687	0.703	0.721	0.738	0.756	0.778	0.796	0.811	0.831	0.851	0.869	0.890	0.911	0.934	0.957	0.978
4,000	0.579	0.596	0.613	0.630	0.647	0.666	0.684	0.703	0.723	0.743	0.763	0.784	0.805	0.831	0.851	0.874	0.897	0.922	0.948	0.974
5,000	0.540	0.557	0.575	0.595	0.614	0.634	0.653	0.672	0.693	0.712	0.736	0.761	0.784	0.809	0.834	0.860	0.886	0.913	0.940	0.970
6,000	0.495	0.514	0.533	0.553	0.573	0.595	0.616	0.638	0.656	0.685	0.705	0.734	0.760	0.784	0.814	0.842	0.870	0.901	0.934	0.966
7,000	0.460	0.480	0.496	0.519	0.540	0.562	0.584	0.607	0.632	0.658	0.683	0.710	0.740	0.768	0.798	0.829	0.861	0.894	0.927	0.963
8,000	0.428	0.448	0.469	0.490	0.513	0.536	0.560	0.584	0.610	0.636	0.664	0.694	0.721	0.754	0.784	0.818	0.851	0.886	0.922	0.961
9,000	0.403	0.426	0.447	0.469	0.492	0.516	0.540	0.566	0.592	0.620	0.648	0.677	0.708	0.740	0.773	0.807	0.842	0.880	0.917	0.958
10,000	0.379	0.400	0.422	0.445	0.468	0.493	0.518	0.544	0.572	0.600	0.629	0.660	0.692	0.725	0.760	0.796	0.836	0.875	0.913	0.955
11,000	0.378	0.398	0.419	0.441	0.464	0.488	0.512	0.538	0.565	0.590	0.620	0.651	0.683	0.717	0.752	0.788	0.827	0.867	0.908	0.953
12,000	0.337	0.359	0.380	0.403	0.428	0.452	0.492	0.506	0.546	0.564	0.593	0.637	0.662	0.712	0.735	0.782	0.820	0.862	0.905	0.951
13,000	0.320	0.341	0.363	0.387	0.411	0.436	0.463	0.490	0.514	0.545	0.577	0.611	0.646	0.687	0.725	0.765	0.808	0.852	0.899	0.950
14,000	0.295	0.316	0.339	0.362	0.387	0.413	0.440	0.468	0.498	0.530	0.563	0.597	0.633	0.671	0.712	0.754	0.798	0.844	0.894	0.945
15,000	0.284	0.305	0.328	0.351	0.376	0.402	0.429	0.458	0.488	0.519	0.553	0.588	0.624	0.663	0.704	0.747	0.792	0.839	0.890	0.943
16,000	0.250	0.271	0.293	0.317	0.342	0.369	0.397	0.427	0.458	0.491	0.526	0.562	0.601	0.642	0.685	0.730	0.779	0.829	0.888	0.942
17,000	0.247	0.268	0.296	0.312	0.339	0.362	0.392	0.427	0.451	0.482	0.518	0.557	0.595	0.635	0.678	0.724	0.773	0.826	0.879	0.940
18,000	0.244	0.274	0.286	0.308	0.333	0.359	0.386	0.416	0.447	0.480	0.514	0.551	0.591	0.632	0.676	0.722	0.771	0.823	0.877	0.939
19,000	0.260	0.278	0.299	0.320	0.343	0.369	0.396	0.424	0.454	0.486	0.520	0.557	0.595	0.635	0.678	0.724	0.765	0.819	0.874	0.938
20,000	0.245	0.264	0.284	0.306	0.327	0.352	0.379	0.407	0.440	0.475	0.509	0.544	0.583	0.624	0.670	0.715	0.767	0.819	0.876	0.933
21,000	0.235	0.264	0.284	0.302	0.325	0.345	0.382	0.406	0.433	0.470	0.504	0.545	0.580	0.619	0.669	0.712	0.762	0.817	0.875	0.934
22,000	0.242	0.261	0.282	0.289	0.327	0.353	0.366	0.408	0.438	0.459	0.505	0.531	0.571	0.622	0.659	0.704	0.764	0.810	0.869	0.932
23,000	0.234	0.266	0.273	0.295	0.319	0.344	0.381	0.399	0.430	0.463	0.497	0.541	0.573	0.614	0.659	0.707	0.757	0.813	0.868	0.931
24,000	0.236	0.254	0.274	0.295	0.318	0.342	0.367	0.396	0.427	0.459	0.496	0.531	0.572	0.612	0.658	0.704	0.755	0.811	0.869	0.929
25,000	0.205	0.239	0.244	0.266	0.290	0.315	0.343	0.372	0.414	0.437	0.473	0.511	0.561	0.595	0.642	0.698	0.750	0.806	0.864	0.931
30,000	0.130	0.152	0.172	0.190	0.217	0.240	0.274	0.299	0.335	0.373	0.408	0.452	0.494	0.541	0.595	0.650	0.708	0.774	0.843	0.919
40,000	0.052	0.064	0.080	0.099	0.121	0.146	0.175	0.206	0.240	0.278	0.319	0.364	0.413	0.466	0.524	0.587	0.655	0.732	0.812	0.903
50,000	0.030	0.033	0.042	0.054	0.071	0.092	0.117	0.145	0.178	0.214	0.255	0.300	0.351	0.406	0.464	0.535	0.609	0.693	0.785	0.888
60,000	0.021	0.015	0.015	0.022	0.034	0.051	0.073	0.100	0.131	0.166	0.207	0.254	0.305	0.362	0.426	0.497	0.575	0.665	0.764	0.875
70,000	0.043	0.025	0.018	0.018	0.026	0.040	0.059	0.083	0.113	0.147	0.186	0.232	0.282	0.340	0.404	0.477	0.559	0.650	0.752	0.869
80,000	0.108	0.072	0.051	0.040	0.039	0.045	0.058	0.078	0.103	0.134	0.170	0.213	0.263	0.318	0.382	0.455	0.537	0.631	0.737	0.860
90,000	0.165	0.107	0.070	0.048	0.037	0.037	0.045	0.060	0.083	0.111	0.146	0.188	0.236	0.292	0.379	0.430	0.515	0.612	0.723	0.852
100,000	0.233	0.146	0.089	0.052	0.076	0.065	0.065	0.037	0.056	0.083	0.116	0.157	0.206	0.282	0.345	0.417	0.490	0.591	0.707	0.844
150,000	1.020	0.664	0.432	0.280	0.180	0.115	0.075	0.055	0.050	0.058	0.077	0.107	0.147	0.198	0.260	0.335	0.425	0.533	0.661	0.821
200,000	2.381	1.454	0.910	0.574	0.360	0.221	0.133	0.079	0.051	0.041	0.048	0.069	0.103	0.150	0.211	0.286	0.378	0.491	0.628	0.795
250,000	4.119	2.345	1.405	0.863	0.533	0.326	0.195	0.113	0.066	0.044	0.042	0.056	0.085	0.129	0.188	0.262	0.355	0.470	0.611	0.785
300,000	5.222	2.793	1.612	0.966	0.589	0.358	0.214	0.126	0.074	0.049	0.045	0.058	0.086	0.128	0.186	0.259	0.352	0.466	0.607	0.782
400,000	8.220	4.007	2.194	1.275	0.764	0.461	0.276	0.162	0.094	0.058	0.045	0.052	0.076	0.115	0.170	0.242	0.334	0.449	0.593	0.773
500,000	12.340	5.542	2.894	1.634	0.960	0.573	0.339	0.195	0.108	0.060	0.040	0.041	0.061	0.097	0.150	0.222	0.314	0.431	0.578	0.764

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 100,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.934	0.936	0.939	0.943	0.944	0.947	0.950	0.953	0.957	0.960	0.956	0.960	0.971	0.974	0.978	0.981	0.982	0.985	0.984	0.991
2,000	0.947	0.952	0.954	0.952	0.956	0.960	0.960	0.962	0.966	0.968	0.969	0.973	0.975	0.976	0.980	0.983	0.985	0.990	0.991	0.993
3,000	0.871	0.875	0.866	0.871	0.877	0.894	0.899	0.905	0.911	0.917	0.923	0.929	0.935	0.943	0.946	0.958	0.968	0.973	0.984	0.991
4,000	0.765	0.773	0.779	0.789	0.797	0.807	0.816	0.826	0.823	0.847	0.858	0.870	0.882	0.908	0.907	0.932	0.925	0.957	0.969	0.982
5,000	0.670	0.681	0.692	0.703	0.715	0.728	0.741	0.754	0.750	0.784	0.799	0.816	0.833	0.839	0.869	0.882	0.902	0.941	0.959	0.978
6,000	0.669	0.679	0.690	0.701	0.739	0.725	0.738	0.751	0.765	0.780	0.796	0.812	0.829	0.863	0.880	0.898	0.924	0.942	0.958	0.973
7,000	0.676	0.621	0.701	0.714	0.728	0.683	0.700	0.770	0.785	0.748	0.773	0.792	0.848	0.865	0.855	0.871	0.923	0.941	0.957	0.975
8,000	0.644	0.657	0.670	0.685	0.699	0.714	0.729	0.744	0.761	0.777	0.794	0.812	0.830	0.849	0.867	0.888	0.908	0.932	0.953	0.981
9,000	0.650	0.663	0.680	0.690	0.705	0.713	0.729	0.744	0.738	0.781	0.799	0.815	0.833	0.852	0.871	0.888	0.904	0.927	0.950	0.975
10,000	0.639	0.652	0.666	0.680	0.695	0.710	0.725	0.741	0.757	0.774	0.791	0.811	0.829	0.846	0.866	0.878	0.907	0.924	0.952	0.973
11,000	0.652	0.661	0.674	0.692	0.706	0.720	0.732	0.747	0.766	0.782	0.799	0.816	0.831	0.854	0.873	0.892	0.912	0.933	0.954	0.976
12,000	0.637	0.651	0.673	0.687	0.701	0.715	0.723	0.745	0.761	0.778	0.800	0.812	0.830	0.852	0.871	0.887	0.908	0.928	0.952	0.976
13,000	0.647	0.660	0.673	0.687	0.701	0.715	0.730	0.745	0.761	0.777	0.794	0.811	0.829	0.848	0.867	0.883	0.905	0.927	0.950	0.974
14,000	0.638	0.651	0.665	0.678	0.692	0.708	0.723	0.738	0.754	0.771	0.788	0.805	0.824	0.843	0.863	0.883	0.904	0.927	0.950	0.974
15,000	0.644	0.657	0.672	0.686	0.698	0.713	0.728	0.744	0.760	0.776	0.792	0.810	0.828	0.847	0.864	0.885	0.906	0.928	0.951	0.973
16,000	0.636	0.650	0.663	0.677	0.691	0.706	0.721	0.737	0.753	0.769	0.787	0.804	0.823	0.842	0.862	0.882	0.904	0.926	0.950	0.973
17,000	0.622	0.635	0.649	0.663	0.678	0.694	0.709	0.725	0.743	0.759	0.777	0.796	0.815	0.834	0.856	0.879	0.899	0.924	0.948	0.973
18,000	0.621	0.635	0.649	0.663	0.678	0.693	0.709	0.725	0.741	0.758	0.776	0.794	0.814	0.833	0.854	0.876	0.898	0.922	0.945	0.973
19,000	0.609	0.622	0.636	0.653	0.670	0.688	0.701	0.720	0.736	0.754	0.771	0.791	0.810	0.829	0.851	0.872	0.896	0.920	0.945	0.972
20,000	0.609	0.622	0.636	0.651	0.665	0.681	0.697	0.713	0.730	0.746	0.766	0.784	0.805	0.826	0.846	0.867	0.892	0.919	0.945	0.971
21,000	0.597	0.611	0.625	0.640	0.655	0.670	0.687	0.704	0.721	0.739	0.758	0.777	0.798	0.819	0.841	0.864	0.889	0.914	0.941	0.971
22,000	0.595	0.607	0.621	0.636	0.651	0.667	0.683	0.700	0.718	0.735	0.755	0.775	0.794	0.816	0.839	0.862	0.886	0.913	0.940	0.970
23,000	0.572	0.613	0.600	0.616	0.631	0.647	0.664	0.682	0.700	0.740	0.757	0.782	0.802	0.822	0.828	0.853	0.879	0.912	0.939	0.968
24,000	0.565	0.579	0.593	0.608	0.624	0.641	0.658	0.676	0.694	0.713	0.734	0.754	0.776	0.801	0.825	0.850	0.877	0.905	0.935	0.968
25,000	0.554	0.568	0.583	0.598	0.614	0.631	0.648	0.666	0.685	0.705	0.725	0.747	0.769	0.793	0.818	0.844	0.873	0.901	0.932	0.966
30,000	0.126	0.145	0.166	0.189	0.213	0.240	0.268	0.298	0.331	0.366	0.404	0.444	0.488	0.535	0.586	0.641	0.859	0.763	0.925	0.915
40,000	0.103	0.119	0.137	0.156	0.178	0.202	0.228	0.256	0.287	0.321	0.358	0.398	0.442	0.490	0.543	0.601	0.665	0.736	0.813	0.901
50,000	0.041	0.112	0.064	0.140	0.086	0.121	0.136	0.177	0.192	0.239	0.323	0.320	0.367	0.419	0.480	0.544	0.615	0.695	0.789	0.889
60,000	0.028	0.032	0.040	0.054	0.078	0.091	0.113	0.142	0.172	0.203	0.237	0.287	0.360	0.411	0.464	0.508	0.588	0.668	0.777	0.889
70,000	0.063	0.056	0.056	0.062	0.072	0.088	0.107	0.131	0.158	0.190	0.226	0.267	0.314	0.366	0.425	0.492	0.568	0.655	0.754	0.868
80,000	0.091	0.071	0.061	0.060	0.065	0.076	0.092	0.112	0.138	0.168	0.202	0.242	0.288	0.340	0.400	0.468	0.546	0.636	0.739	0.861
90,000	0.120	0.095	0.084	0.081	0.087	0.099	0.116	0.137	0.164	0.194	0.230	0.270	0.313	0.366	0.422	0.487	0.565	0.649	0.748	0.865
100,000	0.146	0.101	0.075	0.062	0.059	0.064	0.076	0.094	0.117	0.146	0.180	0.219	0.264	0.317	0.376	0.445	0.525	0.617	0.724	0.853
150,000	0.597	0.390	0.259	0.176	0.124	0.095	0.081	0.080	0.089	0.107	0.132	0.165	0.205	0.254	0.313	0.383	0.465	0.564	0.683	0.826
200,000	1.184	0.712	0.436	0.268	0.164	0.100	0.064	0.046	0.044	0.053	0.072	0.101	0.139	0.187	0.246	0.318	0.406	0.512	0.642	0.802
250,000	1.985	1.133	0.673	0.407	0.247	0.148	0.090	0.057	0.044	0.045	0.059	0.083	0.118	0.163	0.221	0.292	0.381	0.489	0.623	0.790
300,000	2.980	1.632	0.956	0.580	0.359	0.223	0.141	0.091	0.065	0.057	0.063	0.081	0.110	0.152	0.206	0.275	0.362	0.471	0.607	0.781
400,000	4.418	2.250	1.265	0.752	0.461	0.287	0.180	0.115	0.078	0.061	0.060	0.072	0.097	0.134	0.186	0.253	0.338	0.448	0.588	0.768
500,000	6.046	2.871	1.553	0.904	0.548	0.339	0.213	0.135	0.090	0.067	0.061	0.071	0.093	0.128	0.177	0.243	0.328	0.438	0.579	0.762

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 200,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.746	0.757	0.769	0.781	0.792	0.803	0.815	0.827	0.840	0.851	0.864	0.877	0.890	0.903	0.916	0.930	0.946	0.959	0.974	0.987
2,000	0.655	0.678	0.692	0.705	0.720	0.735	0.750	0.767	0.777	0.793	0.811	0.829	0.846	0.864	0.881	0.900	0.919	0.940	0.960	0.980
3,000	0.578	0.595	0.615	0.630	0.648	0.668	0.688	0.705	0.724	0.746	0.765	0.784	0.809	0.831	0.855	0.876	0.900	0.924	0.949	0.976
4,000	0.534	0.555	0.571	0.586	0.607	0.630	0.652	0.671	0.691	0.714	0.736	0.762	0.784	0.808	0.833	0.860	0.889	0.914	0.942	0.970
5,000	0.495	0.513	0.533	0.553	0.573	0.596	0.618	0.636	0.662	0.686	0.708	0.737	0.762	0.788	0.814	0.844	0.873	0.904	0.934	0.967
6,000	0.438	0.465	0.479	0.507	0.523	0.552	0.570	0.600	0.620	0.651	0.679	0.706	0.731	0.764	0.800	0.825	0.861	0.892	0.929	0.964
7,000	0.405	0.426	0.448	0.471	0.494	0.519	0.544	0.570	0.597	0.624	0.652	0.682	0.712	0.745	0.776	0.810	0.846	0.883	0.922	0.960
8,000	0.365	0.386	0.409	0.433	0.460	0.482	0.509	0.537	0.564	0.595	0.629	0.656	0.693	0.727	0.758	0.797	0.833	0.874	0.916	0.957
9,000	0.346	0.368	0.391	0.416	0.441	0.466	0.493	0.520	0.550	0.580	0.611	0.643	0.677	0.712	0.748	0.785	0.826	0.865	0.910	0.954
10,000	0.331	0.349	0.373	0.398	0.422	0.450	0.477	0.504	0.534	0.567	0.598	0.630	0.664	0.700	0.738	0.778	0.818	0.860	0.905	0.951
11,000	0.302	0.325	0.348	0.374	0.399	0.425	0.453	0.483	0.514	0.544	0.578	0.611	0.649	0.686	0.728	0.766	0.810	0.852	0.901	0.948
12,000	0.282	0.306	0.330	0.353	0.382	0.406	0.439	0.466	0.495	0.528	0.561	0.596	0.633	0.671	0.712	0.756	0.799	0.846	0.894	0.946
13,000	0.259	0.282	0.315	0.333	0.357	0.394	0.417	0.445	0.483	0.512	0.546	0.584	0.623	0.659	0.704	0.749	0.793	0.841	0.891	0.944
14,000	0.244	0.267	0.291	0.316	0.343	0.371	0.401	0.432	0.464	0.497	0.533	0.570	0.610	0.649	0.693	0.737	0.785	0.834	0.887	0.942
15,000	0.228	0.249	0.271	0.299	0.326	0.355	0.378	0.411	0.444	0.477	0.517	0.555	0.595	0.640	0.683	0.729	0.779	0.828	0.881	0.940
16,000	0.214	0.237	0.260	0.288	0.315	0.343	0.372	0.401	0.433	0.471	0.509	0.547	0.585	0.625	0.670	0.718	0.771	0.826	0.879	0.938
17,000	0.193	0.219	0.243	0.271	0.297	0.326	0.356	0.384	0.418	0.456	0.492	0.530	0.579	0.622	0.664	0.713	0.763	0.818	0.877	0.936
18,000	0.178	0.201	0.225	0.251	0.278	0.307	0.338	0.371	0.404	0.442	0.480	0.519	0.562	0.606	0.654	0.704	0.757	0.812	0.872	0.934
19,000	0.166	0.188	0.215	0.238	0.266	0.295	0.327	0.360	0.393	0.430	0.469	0.509	0.554	0.597	0.646	0.697	0.749	0.808	0.868	0.933
20,000	0.154	0.174	0.198	0.226	0.253	0.281	0.313	0.346	0.380	0.417	0.457	0.500	0.541	0.587	0.638	0.687	0.743	0.802	0.864	0.930
21,000	0.141	0.166	0.186	0.212	0.243	0.268	0.299	0.335	0.367	0.404	0.446	0.489	0.530	0.579	0.628	0.679	0.738	0.796	0.861	0.928
22,000	0.145	0.167	0.190	0.216	0.243	0.271	0.302	0.335	0.369	0.406	0.435	0.477	0.522	0.571	0.618	0.674	0.734	0.791	0.858	0.926
23,000	0.140	0.163	0.187	0.213	0.239	0.269	0.299	0.333	0.368	0.404	0.443	0.484	0.529	0.576	0.626	0.679	0.725	0.794	0.859	0.925
24,000	0.126	0.148	0.173	0.197	0.226	0.256	0.288	0.320	0.355	0.393	0.432	0.474	0.521	0.569	0.618	0.672	0.729	0.790	0.856	0.924
25,000	0.115	0.136	0.160	0.185	0.212	0.241	0.272	0.306	0.340	0.379	0.418	0.461	0.507	0.556	0.607	0.663	0.722	0.784	0.852	0.921
30,000	0.085	0.104	0.126	0.151	0.178	0.207	0.238	0.271	0.307	0.345	0.386	0.430	0.476	0.527	0.579	0.638	0.700	0.764	0.838	0.916
40,000	0.029	0.044	0.061	0.082	0.106	0.133	0.162	0.195	0.232	0.269	0.312	0.359	0.408	0.463	0.521	0.587	0.654	0.730	0.812	0.902
50,000	0.016	0.020	0.035	0.051	0.068	0.092	0.123	0.154	0.184	0.226	0.268	0.314	0.368	0.425	0.486	0.550	0.624	0.705	0.794	0.892
60,000	0.017	0.015	0.019	0.029	0.047	0.068	0.093	0.122	0.155	0.191	0.237	0.281	0.335	0.390	0.455	0.526	0.602	0.688	0.781	0.885
70,000	0.031	0.016	0.008	0.013	0.024	0.039	0.060	0.087	0.120	0.157	0.198	0.245	0.298	0.359	0.422	0.495	0.575	0.663	0.763	0.876
80,000	0.073	0.035	0.014	0.004	0.004	0.012	0.028	0.050	0.080	0.115	0.155	0.202	0.255	0.314	0.380	0.457	0.541	0.636	0.742	0.864
90,000	0.120	0.064	0.029	0.009	0.001	0.005	0.017	0.036	0.062	0.096	0.135	0.183	0.234	0.294	0.364	0.440	0.527	0.624	0.734	0.858
100,000	0.209	0.124	0.066	0.029	0.009	0.002	0.007	0.021	0.043	0.072	0.110	0.154	0.206	0.266	0.335	0.413	0.502	0.603	0.719	0.850
150,000	0.849	0.534	0.329	0.194	0.107	0.054	0.025	0.015	0.019	0.036	0.064	0.101	0.148	0.205	0.274	0.352	0.445	0.554	0.680	0.827
200,000	1.907	1.167	0.717	0.421	0.254	0.139	0.070	0.028	0.015	0.020	0.038	0.070	0.114	0.167	0.234	0.315	0.410	0.525	0.653	0.813
250,000	3.674	2.247	1.387	0.874	0.551	0.344	0.213	0.129	0.080	0.058	0.056	0.072	0.102	0.147	0.207	0.283	0.375	0.489	0.628	0.797
300,000	5.356	3.079	1.866	1.166	0.737	0.470	0.297	0.188	0.121	0.085	0.074	0.081	0.106	0.146	0.203	0.273	0.364	0.481	0.618	0.790
400,000	8.184	4.404	2.561	1.560	0.974	0.614	0.388	0.244	0.154	0.103	0.081	0.081	0.100	0.136	0.190	0.261	0.353	0.467	0.608	0.783
500,000	10.928	5.553	3.117	1.853	1.139	0.711	0.444	0.277	0.173	0.113	0.084	0.079	0.095	0.130	0.182	0.253	0.344	0.459	0.602	0.779

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 300,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.752	0.758	0.769	0.787	0.795	0.806	0.815	0.829	0.840	0.854	0.863	0.877	0.890	0.904	0.917	0.932	0.944	0.959	0.972	0.985
2,000	0.669	0.682	0.696	0.710	0.725	0.739	0.753	0.764	0.780	0.796	0.811	0.828	0.846	0.865	0.881	0.900	0.918	0.938	0.958	0.979
3,000	0.608	0.621	0.637	0.651	0.670	0.688	0.705	0.721	0.738	0.761	0.781	0.801	0.819	0.838	0.860	0.882	0.903	0.928	0.950	0.975
4,000	0.545	0.551	0.578	0.586	0.610	0.626	0.642	0.670	0.693	0.710	0.732	0.755	0.779	0.809	0.829	0.856	0.885	0.912	0.941	0.971
5,000	0.504	0.521	0.539	0.554	0.576	0.598	0.618	0.636	0.660	0.686	0.709	0.731	0.760	0.791	0.813	0.843	0.870	0.902	0.934	0.966
6,000	0.482	0.500	0.522	0.543	0.558	0.578	0.603	0.625	0.650	0.668	0.696	0.722	0.747	0.775	0.802	0.835	0.863	0.895	0.928	0.964
7,000	0.452	0.469	0.487	0.508	0.528	0.550	0.572	0.596	0.621	0.646	0.674	0.699	0.729	0.757	0.789	0.819	0.855	0.887	0.924	0.960
8,000	0.416	0.431	0.448	0.476	0.498	0.516	0.539	0.566	0.590	0.616	0.644	0.676	0.703	0.740	0.768	0.804	0.839	0.877	0.916	0.958
9,000	0.396	0.415	0.435	0.456	0.478	0.501	0.525	0.549	0.575	0.603	0.631	0.661	0.692	0.724	0.758	0.796	0.831	0.869	0.910	0.955
10,000	0.376	0.411	0.431	0.438	0.474	0.496	0.519	0.532	0.571	0.597	0.626	0.656	0.688	0.714	0.754	0.792	0.826	0.865	0.910	0.951
11,000	0.388	0.411	0.418	0.459	0.469	0.486	0.517	0.540	0.568	0.565	0.624	0.658	0.687	0.703	0.746	0.789	0.815	0.858	0.908	0.953
12,000	0.376	0.395	0.414	0.441	0.455	0.473	0.503	0.528	0.558	0.580	0.606	0.641	0.670	0.710	0.742	0.784	0.823	0.860	0.907	0.952
13,000	0.338	0.343	0.363	0.398	0.420	0.431	0.457	0.494	0.521	0.550	0.572	0.613	0.647	0.683	0.715	0.755	0.803	0.849	0.901	0.947
14,000	0.301	0.340	0.360	0.363	0.404	0.429	0.454	0.464	0.505	0.535	0.553	0.586	0.634	0.667	0.703	0.754	0.789	0.836	0.888	0.945
15,000	0.318	0.337	0.357	0.382	0.405	0.428	0.453	0.477	0.505	0.534	0.565	0.598	0.633	0.668	0.707	0.746	0.786	0.836	0.885	0.943
16,000	0.315	0.341	0.353	0.374	0.403	0.420	0.444	0.477	0.499	0.528	0.559	0.593	0.628	0.665	0.695	0.741	0.785	0.839	0.885	0.943
17,000	0.303	0.321	0.347	0.369	0.383	0.413	0.439	0.459	0.492	0.523	0.548	0.582	0.622	0.661	0.691	0.743	0.788	0.837	0.885	0.943
18,000	0.280	0.297	0.318	0.339	0.361	0.385	0.410	0.438	0.466	0.497	0.529	0.562	0.613	0.650	0.692	0.735	0.776	0.824	0.880	0.942
19,000	0.261	0.262	0.297	0.305	0.342	0.352	0.392	0.409	0.451	0.471	0.514	0.542	0.587	0.624	0.672	0.711	0.768	0.816	0.871	0.938
20,000	0.242	0.261	0.281	0.302	0.325	0.350	0.376	0.404	0.434	0.466	0.500	0.536	0.575	0.617	0.660	0.708	0.753	0.810	0.873	0.932
21,000	0.245	0.263	0.282	0.303	0.326	0.350	0.376	0.404	0.433	0.465	0.500	0.535	0.573	0.609	0.659	0.706	0.753	0.808	0.867	0.930
22,000	0.220	0.235	0.258	0.279	0.302	0.326	0.353	0.381	0.411	0.444	0.479	0.516	0.559	0.601	0.646	0.695	0.747	0.805	0.864	0.928
23,000	0.203	0.221	0.241	0.262	0.286	0.309	0.338	0.367	0.398	0.431	0.469	0.507	0.545	0.588	0.635	0.685	0.741	0.800	0.861	0.926
24,000	0.191	0.209	0.229	0.251	0.275	0.300	0.327	0.357	0.387	0.421	0.456	0.495	0.537	0.580	0.628	0.679	0.734	0.793	0.857	0.926
25,000	0.185	0.203	0.223	0.244	0.268	0.293	0.320	0.349	0.380	0.413	0.449	0.488	0.529	0.574	0.622	0.673	0.729	0.789	0.854	0.924
30,000	0.125	0.141	0.160	0.181	0.204	0.229	0.263	0.286	0.319	0.354	0.391	0.433	0.483	0.531	0.582	0.638	0.696	0.760	0.836	0.913
40,000	0.044	0.054	0.068	0.085	0.105	0.128	0.155	0.184	0.217	0.260	0.294	0.339	0.388	0.450	0.500	0.571	0.647	0.723	0.804	0.899
50,000	0.031	0.032	0.039	0.050	0.065	0.084	0.108	0.135	0.166	0.202	0.242	0.287	0.336	0.392	0.453	0.520	0.596	0.682	0.776	0.882
60,000	0.056	0.046	0.043	0.046	0.055	0.069	0.088	0.112	0.141	0.174	0.213	0.256	0.303	0.362	0.424	0.495	0.573	0.661	0.760	0.869
70,000	0.088	0.061	0.044	0.036	0.036	0.044	0.057	0.077	0.103	0.134	0.171	0.214	0.264	0.321	0.385	0.459	0.542	0.635	0.739	0.862
80,000	0.127	0.085	0.057	0.040	0.033	0.035	0.044	0.060	0.083	0.112	0.148	0.190	0.239	0.296	0.361	0.435	0.520	0.617	0.727	0.854
90,000	0.178	0.111	0.063	0.032	0.013	0.006	0.008	0.019	0.037	0.063	0.097	0.139	0.188	0.247	0.314	0.390	0.480	0.585	0.703	0.841
100,000	0.204	0.164	0.136	0.119	0.111	0.110	0.115	0.127	0.144	0.168	0.198	0.233	0.275	0.326	0.384	0.452	0.531	0.568	0.691	0.855
150,000	0.750	0.527	0.374	0.266	0.194	0.142	0.109	0.089	0.084	0.092	0.108	0.135	0.170	0.218	0.277	0.348	0.435	0.540	0.665	0.809
200,000	1.879	1.300	0.911	0.642	0.454	0.322	0.229	0.166	0.126	0.106	0.101	0.111	0.135	0.173	0.224	0.295	0.383	0.491	0.622	0.793
250,000	3.337	2.261	1.578	1.123	0.811	0.592	0.437	0.327	0.252	0.203	0.176	0.167	0.176	0.195	0.237	0.303	0.379	0.484	0.618	0.785
300,000	4.421	2.965	2.073	1.497	1.106	0.832	0.636	0.495	0.393	0.321	0.274	0.247	0.240	0.217	0.280	0.329	0.374	0.475	0.623	0.779
400,000	6.076	3.912	2.669	1.897	1.389	1.041	0.794	0.616	0.486	0.393	0.329	0.289	0.270	0.271	0.292	0.334	0.400	0.492	0.618	0.783
500,000	8.588	5.423	3.575	2.518	1.840	1.382	1.078	0.844	0.673	0.538	0.449	0.389	0.353	0.339	0.351	0.380	0.434	0.514	0.632	0.792

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 400,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.804	0.815	0.823	0.833	0.840	0.851	0.860	0.870	0.877	0.886	0.898	0.908	0.917	0.927	0.937	0.948	0.959	0.968	0.979	0.990
2,000	0.742	0.753	0.765	0.777	0.788	0.800	0.811	0.824	0.837	0.849	0.862	0.875	0.878	0.892	0.915	0.929	0.938	0.957	0.971	0.986
3,000	0.694	0.707	0.720	0.733	0.747	0.761	0.775	0.789	0.804	0.819	0.834	0.849	0.865	0.881	0.897	0.913	0.930	0.948	0.963	0.982
4,000	0.659	0.670	0.687	0.699	0.717	0.729	0.748	0.761	0.777	0.794	0.811	0.828	0.846	0.862	0.882	0.899	0.920	0.938	0.959	0.979
5,000	0.617	0.632	0.648	0.664	0.681	0.698	0.715	0.733	0.751	0.769	0.788	0.807	0.826	0.846	0.867	0.887	0.909	0.932	0.953	0.976
6,000	0.589	0.607	0.622	0.639	0.656	0.675	0.693	0.711	0.730	0.750	0.770	0.790	0.811	0.833	0.853	0.878	0.902	0.924	0.949	0.974
7,000	0.557	0.574	0.592	0.610	0.629	0.648	0.667	0.688	0.708	0.729	0.750	0.773	0.793	0.818	0.840	0.867	0.892	0.918	0.944	0.972
8,000	0.526	0.544	0.563	0.582	0.602	0.622	0.643	0.664	0.686	0.708	0.734	0.757	0.779	0.806	0.831	0.856	0.884	0.912	0.940	0.970
9,000	0.499	0.518	0.538	0.557	0.578	0.599	0.621	0.643	0.666	0.689	0.713	0.738	0.764	0.790	0.818	0.846	0.875	0.905	0.936	0.967
10,000	0.479	0.499	0.517	0.539	0.558	0.582	0.602	0.627	0.649	0.674	0.700	0.725	0.752	0.780	0.808	0.838	0.868	0.899	0.931	0.965
11,000	0.459	0.479	0.500	0.519	0.541	0.563	0.587	0.611	0.635	0.660	0.686	0.713	0.741	0.769	0.799	0.830	0.861	0.894	0.928	0.964
12,000	0.446	0.466	0.487	0.508	0.530	0.553	0.576	0.600	0.626	0.652	0.677	0.705	0.733	0.763	0.793	0.825	0.857	0.891	0.926	0.962
13,000	0.436	0.457	0.477	0.499	0.521	0.540	0.564	0.592	0.614	0.643	0.670	0.695	0.724	0.757	0.788	0.818	0.852	0.887	0.923	0.961
14,000	0.420	0.441	0.462	0.484	0.506	0.529	0.554	0.579	0.605	0.631	0.659	0.687	0.717	0.748	0.781	0.813	0.848	0.882	0.920	0.959
15,000	0.405	0.426	0.447	0.469	0.492	0.516	0.541	0.566	0.592	0.620	0.648	0.677	0.708	0.739	0.772	0.807	0.842	0.879	0.918	0.957
16,000	0.388	0.410	0.431	0.454	0.477	0.502	0.527	0.553	0.579	0.607	0.636	0.667	0.698	0.730	0.764	0.799	0.837	0.875	0.915	0.956
17,000	0.369	0.390	0.412	0.436	0.459	0.484	0.510	0.536	0.564	0.593	0.623	0.654	0.685	0.720	0.755	0.793	0.829	0.871	0.912	0.955
18,000	0.354	0.371	0.399	0.422	0.441	0.471	0.497	0.520	0.552	0.582	0.609	0.644	0.676	0.711	0.747	0.785	0.824	0.865	0.909	0.953
19,000	0.333	0.359	0.382	0.405	0.430	0.455	0.479	0.510	0.538	0.568	0.599	0.632	0.666	0.701	0.738	0.777	0.817	0.860	0.905	0.951
20,000	0.316	0.339	0.362	0.386	0.411	0.437	0.464	0.493	0.528	0.558	0.590	0.623	0.657	0.694	0.731	0.771	0.813	0.856	0.902	0.950
21,000	0.306	0.328	0.351	0.376	0.401	0.427	0.455	0.483	0.513	0.544	0.577	0.610	0.648	0.685	0.725	0.763	0.806	0.850	0.899	0.948
22,000	0.294	0.316	0.339	0.364	0.390	0.416	0.443	0.473	0.503	0.534	0.567	0.602	0.638	0.678	0.715	0.757	0.801	0.847	0.895	0.946
23,000	0.283	0.306	0.329	0.354	0.380	0.406	0.434	0.463	0.494	0.526	0.559	0.594	0.631	0.669	0.710	0.752	0.796	0.843	0.893	0.945
24,000	0.273	0.296	0.319	0.344	0.370	0.397	0.425	0.454	0.485	0.517	0.551	0.586	0.621	0.662	0.703	0.745	0.792	0.839	0.890	0.943
25,000	0.293	0.315	0.338	0.361	0.386	0.412	0.439	0.467	0.497	0.528	0.560	0.595	0.631	0.669	0.709	0.751	0.795	0.843	0.887	0.945
30,000	0.255	0.276	0.300	0.324	0.349	0.376	0.402	0.432	0.462	0.495	0.527	0.564	0.603	0.642	0.684	0.732	0.777	0.829	0.882	0.939
40,000	0.187	0.208	0.231	0.257	0.280	0.309	0.336	0.367	0.400	0.433	0.469	0.508	0.548	0.592	0.639	0.689	0.743	0.800	0.862	0.929
50,000	0.148	0.166	0.191	0.212	0.239	0.264	0.295	0.324	0.358	0.391	0.430	0.468	0.511	0.559	0.608	0.662	0.718	0.779	0.847	0.920
60,000	0.113	0.132	0.152	0.173	0.197	0.223	0.250	0.280	0.313	0.347	0.385	0.426	0.470	0.518	0.570	0.628	0.688	0.760	0.833	0.912
70,000	0.109	0.126	0.144	0.164	0.186	0.209	0.235	0.264	0.295	0.330	0.368	0.407	0.452	0.501	0.554	0.611	0.675	0.749	0.824	0.907
80,000	0.099	0.113	0.129	0.147	0.168	0.191	0.217	0.245	0.276	0.311	0.348	0.387	0.432	0.480	0.538	0.596	0.658	0.731	0.813	0.900
90,000	0.096	0.107	0.121	0.138	0.157	0.179	0.203	0.230	0.261	0.294	0.331	0.371	0.416	0.465	0.520	0.580	0.647	0.721	0.804	0.896
100,000	0.020	0.018	0.023	0.034	0.049	0.069	0.094	0.122	0.155	0.192	0.233	0.278	0.329	0.385	0.448	0.517	0.594	0.680	0.774	0.892
150,000	0.121	0.072	0.042	0.027	0.025	0.031	0.046	0.067	0.095	0.128	0.167	0.213	0.264	0.322	0.387	0.461	0.544	0.637	0.740	0.863
200,000	0.296	0.181	0.109	0.065	0.042	0.034	0.038	0.052	0.074	0.104	0.140	0.183	0.233	0.291	0.356	0.431	0.518	0.615	0.726	0.853
250,000	0.512	0.325	0.208	0.134	0.091	0.069	0.063	0.069	0.085	0.109	0.141	0.181	0.229	0.284	0.348	0.422	0.507	0.605	0.713	0.846
300,000	1.039	0.658	0.417	0.264	0.167	0.108	0.076	0.064	0.068	0.084	0.111	0.148	0.194	0.250	0.316	0.394	0.482	0.583	0.702	0.839
400,000	1.472	0.917	0.577	0.365	0.232	0.150	0.104	0.082	0.079	0.091	0.115	0.150	0.194	0.249	0.314	0.389	0.478	0.580	0.699	0.838
500,000	1.873	1.143	0.708	0.441	0.274	0.172	0.112	0.082	0.073	0.081	0.102	0.136	0.179	0.234	0.299	0.376	0.466	0.570	0.692	0.834

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 500,000																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.737	0.748	0.761	0.773	0.784	0.797	0.809	0.821	0.834	0.847	0.872	0.874	0.887	0.909	0.914	0.920	0.942	0.962	0.973	0.988
2,000	0.645	0.652	0.667	0.690	0.699	0.715	0.738	0.742	0.775	0.788	0.805	0.823	0.841	0.860	0.879	0.900	0.915	0.943	0.952	0.985
3,000	0.568	0.589	0.603	0.625	0.642	0.660	0.681	0.700	0.721	0.740	0.770	0.782	0.812	0.828	0.858	0.874	0.898	0.922	0.950	0.976
4,000	0.552	0.569	0.587	0.605	0.623	0.642	0.662	0.682	0.702	0.724	0.746	0.763	0.787	0.815	0.839	0.862	0.887	0.914	0.944	0.970
5,000	0.473	0.493	0.513	0.534	0.557	0.596	0.602	0.624	0.648	0.687	0.711	0.734	0.752	0.780	0.817	0.846	0.874	0.904	0.942	0.968
6,000	0.463	0.484	0.504	0.504	0.547	0.550	0.593	0.617	0.625	0.666	0.678	0.706	0.735	0.765	0.805	0.827	0.858	0.890	0.932	0.966
7,000	0.452	0.472	0.493	0.514	0.536	0.559	0.586	0.607	0.632	0.660	0.684	0.714	0.737	0.769	0.800	0.824	0.861	0.884	0.931	0.963
8,000	0.409	0.430	0.452	0.475	0.498	0.522	0.547	0.573	0.600	0.627	0.655	0.685	0.715	0.747	0.779	0.816	0.852	0.883	0.921	0.963
9,000	0.382	0.405	0.427	0.449	0.473	0.500	0.525	0.552	0.578	0.608	0.638	0.668	0.700	0.732	0.767	0.802	0.839	0.877	0.917	0.960
10,000	0.361	0.383	0.405	0.429	0.454	0.479	0.505	0.533	0.561	0.591	0.621	0.653	0.686	0.719	0.756	0.793	0.831	0.871	0.912	0.958
11,000	0.320	0.343	0.367	0.391	0.417	0.444	0.471	0.500	0.530	0.561	0.594	0.627	0.662	0.699	0.745	0.776	0.818	0.865	0.908	0.956
12,000	0.299	0.322	0.346	0.371	0.397	0.424	0.452	0.482	0.512	0.544	0.578	0.613	0.649	0.694	0.725	0.772	0.810	0.857	0.904	0.951
13,000	0.302	0.324	0.352	0.372	0.402	0.425	0.456	0.485	0.512	0.547	0.577	0.614	0.648	0.687	0.726	0.767	0.810	0.852	0.899	0.949
14,000	0.294	0.308	0.340	0.364	0.382	0.409	0.445	0.467	0.498	0.540	0.564	0.602	0.641	0.675	0.717	0.759	0.802	0.849	0.897	0.947
15,000	0.279	0.301	0.325	0.349	0.375	0.402	0.431	0.461	0.492	0.527	0.558	0.594	0.631	0.670	0.711	0.755	0.795	0.843	0.894	0.945
16,000	0.265	0.287	0.311	0.335	0.385	0.412	0.418	0.463	0.480	0.512	0.564	0.599	0.621	0.661	0.702	0.748	0.793	0.847	0.891	0.944
17,000	0.299	0.320	0.343	0.366	0.391	0.417	0.444	0.472	0.502	0.534	0.554	0.601	0.626	0.676	0.716	0.750	0.801	0.842	0.888	0.942
18,000	0.287	0.308	0.331	0.354	0.379	0.405	0.433	0.462	0.492	0.524	0.557	0.592	0.629	0.668	0.708	0.751	0.796	0.843	0.888	0.941
19,000	0.276	0.297	0.319	0.343	0.368	0.394	0.422	0.451	0.482	0.514	0.548	0.584	0.621	0.660	0.702	0.745	0.791	0.839	0.890	0.939
20,000	0.227	0.249	0.272	0.296	0.323	0.350	0.380	0.410	0.443	0.477	0.513	0.551	0.591	0.634	0.678	0.725	0.774	0.826	0.888	0.935
21,000	0.217	0.239	0.261	0.286	0.312	0.340	0.369	0.400	0.433	0.468	0.504	0.543	0.584	0.626	0.671	0.719	0.769	0.822	0.878	0.936
22,000	0.207	0.229	0.252	0.276	0.302	0.330	0.359	0.391	0.424	0.459	0.496	0.535	0.576	0.619	0.665	0.713	0.764	0.818	0.876	0.934
23,000	0.198	0.219	0.242	0.266	0.292	0.320	0.350	0.382	0.415	0.450	0.487	0.527	0.568	0.612	0.659	0.708	0.760	0.815	0.873	0.935
24,000	0.190	0.211	0.233	0.258	0.284	0.312	0.341	0.373	0.406	0.442	0.479	0.519	0.561	0.606	0.653	0.702	0.755	0.811	0.871	0.933
25,000	0.176	0.196	0.219	0.243	0.269	0.313	0.342	0.374	0.407	0.443	0.480	0.520	0.555	0.598	0.641	0.704	0.754	0.812	0.868	0.933
30,000	0.143	0.162	0.183	0.206	0.231	0.259	0.289	0.321	0.356	0.393	0.432	0.474	0.519	0.567	0.617	0.671	0.729	0.790	0.855	0.925
40,000	0.092	0.101	0.115	0.132	0.153	0.177	0.205	0.236	0.270	0.308	0.347	0.392	0.442	0.494	0.550	0.611	0.676	0.748	0.825	0.909
50,000	0.073	0.075	0.083	0.096	0.114	0.135	0.161	0.191	0.224	0.262	0.304	0.349	0.400	0.464	0.514	0.579	0.648	0.726	0.810	0.901
60,000	0.101	0.097	0.099	0.107	0.111	0.130	0.153	0.180	0.212	0.248	0.289	0.334	0.391	0.445	0.504	0.563	0.634	0.714	0.801	0.896
70,000	0.042	0.042	0.049	0.061	0.078	0.100	0.125	0.155	0.189	0.238	0.276	0.319	0.368	0.422	0.482	0.543	0.624	0.706	0.795	0.891
80,000	0.059	0.049	0.047	0.053	0.065	0.082	0.105	0.132	0.164	0.201	0.243	0.289	0.341	0.398	0.461	0.533	0.610	0.693	0.786	0.887
90,000	0.078	0.059	0.050	0.050	0.072	0.089	0.112	0.139	0.149	0.185	0.226	0.273	0.324	0.382	0.446	0.531	0.594	0.681	0.778	0.882
100,000	0.094	0.063	0.047	0.040	0.045	0.057	0.075	0.102	0.130	0.166	0.208	0.254	0.307	0.366	0.431	0.503	0.583	0.672	0.770	0.879
150,000	0.265	0.161	0.094	0.054	0.048	0.028	0.034	0.068	0.093	0.110	0.150	0.212	0.265	0.325	0.381	0.468	0.552	0.646	0.747	0.869
200,000	0.706	0.443	0.479	0.160	0.184	0.050	0.032	0.031	0.044	0.063	0.104	0.148	0.201	0.263	0.314	0.415	0.506	0.610	0.724	0.854
250,000	1.818	1.159	0.735	0.458	0.277	0.160	0.089	0.051	0.039	0.046	0.069	0.106	0.156	0.217	0.289	0.373	0.469	0.578	0.702	0.842
300,000	2.582	1.641	1.051	0.668	0.417	0.253	0.149	0.087	0.058	0.052	0.066	0.097	0.142	0.200	0.271	0.355	0.452	0.563	0.690	0.835
400,000	3.427	2.156	1.390	0.901	0.586	0.379	0.245	0.162	0.116	0.097	0.101	0.123	0.161	0.213	0.279	0.359	0.453	0.562	0.688	0.833
500,000	3.934	2.366	1.459	0.908	0.562	0.343	0.206	0.125	0.083	0.070	0.078	0.105	0.147	0.204	0.273	0.355	0.451	0.562	0.689	0.832

Bottom 5%

# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = 1M																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.882	0.888	0.894	0.900	0.905	0.910	0.917	0.923	0.928	0.934	0.940	0.945	0.953	0.957	0.964	0.970	0.973	0.982	0.989	0.993
2,000	0.828	0.835	0.844	0.851	0.859	0.867	0.876	0.883	0.896	0.901	0.912	0.918	0.928	0.936	0.946	0.956	0.962	0.972	0.981	0.990
3,000	0.739	0.750	0.761	0.776	0.785	0.799	0.809	0.821	0.830	0.851	0.860	0.874	0.887	0.898	0.914	0.927	0.941	0.956	0.976	0.985
4,000	0.705	0.717	0.740	0.753	0.765	0.778	0.791	0.804	0.809	0.828	0.838	0.855	0.869	0.885	0.904	0.919	0.931	0.949	0.965	0.983
5,000	0.665	0.698	0.688	0.711	0.735	0.743	0.758	0.775	0.785	0.802	0.824	0.837	0.849	0.869	0.885	0.906	0.921	0.941	0.961	0.980
6,000	0.646	0.660	0.674	0.698	0.695	0.720	0.743	0.753	0.764	0.791	0.808	0.821	0.839	0.858	0.879	0.892	0.914	0.934	0.957	0.977
7,000	0.619	0.634	0.649	0.666	0.681	0.697	0.714	0.732	0.749	0.767	0.786	0.805	0.825	0.848	0.868	0.882	0.908	0.930	0.954	0.975
8,000	0.596	0.611	0.627	0.645	0.661	0.678	0.696	0.715	0.733	0.752	0.771	0.792	0.813	0.834	0.859	0.878	0.899	0.924	0.951	0.974
9,000	0.565	0.581	0.598	0.616	0.634	0.652	0.671	0.691	0.711	0.731	0.752	0.774	0.796	0.819	0.843	0.867	0.891	0.917	0.945	0.972
10,000	0.544	0.561	0.579	0.597	0.616	0.635	0.654	0.674	0.695	0.717	0.739	0.762	0.785	0.809	0.834	0.859	0.886	0.913	0.941	0.970
11,000	0.529	0.571	0.565	0.583	0.602	0.622	0.642	0.663	0.700	0.706	0.742	0.752	0.776	0.801	0.827	0.852	0.880	0.908	0.938	0.968
12,000	0.538	0.555	0.572	0.590	0.609	0.627	0.647	0.667	0.686	0.710	0.731	0.742	0.778	0.801	0.828	0.854	0.880	0.905	0.936	0.967
13,000	0.496	0.514	0.532	0.552	0.571	0.592	0.612	0.634	0.657	0.680	0.704	0.729	0.756	0.782	0.809	0.839	0.875	0.905	0.932	0.965
14,000	0.474	0.492	0.511	0.530	0.551	0.573	0.600	0.617	0.640	0.669	0.690	0.719	0.746	0.771	0.802	0.832	0.861	0.895	0.929	0.964
15,000	0.457	0.476	0.495	0.515	0.536	0.558	0.580	0.603	0.627	0.653	0.678	0.705	0.733	0.761	0.791	0.822	0.854	0.892	0.927	0.962
16,000	0.444	0.462	0.483	0.502	0.524	0.546	0.569	0.592	0.617	0.642	0.668	0.699	0.724	0.754	0.785	0.817	0.851	0.885	0.922	0.961
17,000	0.436	0.456	0.470	0.496	0.512	0.539	0.557	0.586	0.606	0.636	0.662	0.690	0.716	0.749	0.778	0.813	0.846	0.883	0.920	0.959
18,000	0.426	0.445	0.465	0.486	0.507	0.529	0.553	0.577	0.602	0.628	0.655	0.683	0.712	0.743	0.775	0.807	0.841	0.879	0.918	0.958
19,000	0.413	0.433	0.453	0.474	0.495	0.518	0.541	0.566	0.591	0.618	0.645	0.674	0.706	0.736	0.769	0.803	0.839	0.876	0.915	0.957
20,000	0.405	0.424	0.444	0.465	0.487	0.510	0.533	0.558	0.584	0.611	0.638	0.667	0.698	0.730	0.763	0.798	0.835	0.873	0.913	0.955
21,000	0.394	0.414	0.434	0.455	0.477	0.497	0.524	0.549	0.575	0.602	0.631	0.661	0.692	0.723	0.758	0.794	0.830	0.870	0.911	0.954
22,000	0.380	0.400	0.420	0.442	0.464	0.488	0.512	0.537	0.564	0.592	0.620	0.653	0.684	0.717	0.750	0.787	0.825	0.866	0.909	0.953
23,000	0.371	0.392	0.412	0.431	0.454	0.480	0.505	0.530	0.555	0.585	0.614	0.645	0.677	0.709	0.746	0.783	0.822	0.863	0.906	0.952
24,000	0.334	0.355	0.377	0.400	0.424	0.452	0.478	0.505	0.530	0.560	0.591	0.623	0.657	0.693	0.730	0.778	0.812	0.860	0.904	0.951
25,000	0.326	0.347	0.368	0.392	0.416	0.442	0.467	0.494	0.523	0.554	0.584	0.617	0.651	0.687	0.725	0.765	0.808	0.852	0.899	0.950
30,000	0.286	0.308	0.330	0.354	0.378	0.404	0.431	0.459	0.489	0.520	0.552	0.587	0.623	0.661	0.701	0.744	0.789	0.837	0.888	0.943
40,000	0.196	0.218	0.242	0.266	0.292	0.319	0.348	0.379	0.411	0.445	0.481	0.519	0.560	0.605	0.649	0.705	0.750	0.811	0.869	0.932
50,000	0.157	0.177	0.199	0.222	0.247	0.274	0.303	0.327	0.365	0.400	0.437	0.472	0.515	0.564	0.613	0.663	0.721	0.782	0.852	0.922
60,000	0.117	0.138	0.161	0.185	0.211	0.239	0.268	0.300	0.333	0.369	0.407	0.448	0.498	0.540	0.595	0.649	0.705	0.772	0.841	0.918
70,000	0.088	0.108	0.131	0.155	0.181	0.209	0.239	0.271	0.310	0.342	0.381	0.423	0.468	0.520	0.572	0.629	0.690	0.757	0.831	0.913
80,000	0.072	0.092	0.113	0.137	0.162	0.190	0.219	0.251	0.285	0.321	0.361	0.403	0.449	0.498	0.552	0.611	0.675	0.745	0.822	0.908
90,000	0.061	0.097	0.100	0.123	0.165	0.176	0.206	0.251	0.264	0.308	0.348	0.391	0.437	0.487	0.531	0.592	0.658	0.737	0.812	0.901
100,000	0.060	0.077	0.097	0.119	0.144	0.170	0.199	0.231	0.264	0.300	0.339	0.381	0.430	0.479	0.535	0.595	0.658	0.731	0.812	0.901
150,000	0.021	0.022	0.033	0.049	0.071	0.096	0.124	0.156	0.191	0.229	0.279	0.315	0.371	0.425	0.468	0.540	0.614	0.698	0.784	0.885
200,000	0.062	0.029	0.019	0.023	0.036	0.057	0.083	0.113	0.148	0.186	0.228	0.275	0.326	0.381	0.439	0.511	0.586	0.673	0.767	0.874
250,000	0.188	0.098	0.053	0.035	0.035	0.047	0.067	0.093	0.125	0.162	0.203	0.249	0.300	0.357	0.420	0.490	0.568	0.657	0.759	0.871
300,000	0.337	0.187	0.106	0.068	0.054	0.057	0.070	0.093	0.122	0.156	0.196	0.241	0.291	0.348	0.411	0.481	0.560	0.650	0.752	0.867
400,000	0.528	0.292	0.167	0.103	0.074	0.067	0.076	0.094	0.121	0.154	0.193	0.239	0.288	0.345	0.407	0.478	0.558	0.647	0.749	0.866
500,000	0.701	0.385	0.218	0.131	0.089	0.075	0.078	0.094	0.118	0.150	0.188	0.232	0.281	0.338	0.400	0.471	0.552	0.642	0.746	0.865

Bottom 5%



# Optimal Split Point by Size of Risk – PY 2017

Exhibit 1

Split Point	Cohort = > 1M																			
	Credibility																			
	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%	45%	40%	35%	30%	25%	20%	15%	10%	5%
1,000	0.855	0.868	0.868	0.875	0.888	0.889	0.902	0.908	0.920	0.918	0.930	0.936	0.943	0.940	0.957	0.956	0.975	0.977	0.988	0.991
2,000	0.816	0.825	0.833	0.841	0.851	0.860	0.868	0.877	0.886	0.895	0.904	0.914	0.923	0.932	0.942	0.945	0.961	0.970	0.981	0.986
3,000	0.743	0.755	0.767	0.779	0.791	0.803	0.815	0.827	0.840	0.852	0.865	0.878	0.891	0.904	0.917	0.931	0.944	0.958	0.975	0.985
4,000	0.704	0.717	0.730	0.744	0.758	0.772	0.786	0.800	0.814	0.829	0.843	0.859	0.873	0.888	0.904	0.920	0.935	0.951	0.967	0.983
5,000	0.673	0.688	0.702	0.717	0.732	0.747	0.763	0.779	0.794	0.810	0.826	0.843	0.860	0.877	0.893	0.911	0.928	0.946	0.964	0.982
6,000	0.621	0.637	0.654	0.671	0.689	0.707	0.724	0.742	0.761	0.779	0.798	0.817	0.836	0.859	0.875	0.898	0.916	0.939	0.960	0.980
7,000	0.604	0.621	0.639	0.657	0.675	0.694	0.712	0.731	0.750	0.769	0.789	0.809	0.829	0.849	0.870	0.891	0.912	0.940	0.955	0.979
8,000	0.619	0.636	0.653	0.671	0.689	0.700	0.725	0.744	0.756	0.775	0.799	0.819	0.833	0.838	0.877	0.894	0.909	0.931	0.957	0.977
9,000	0.618	0.636	0.653	0.672	0.690	0.708	0.726	0.744	0.766	0.782	0.801	0.822	0.839	0.850	0.880	0.898	0.911	0.932	0.954	0.975
10,000	0.592	0.611	0.629	0.648	0.668	0.687	0.706	0.726	0.746	0.766	0.786	0.807	0.827	0.848	0.869	0.890	0.912	0.931	0.956	0.975
11,000	0.565	0.584	0.604	0.624	0.698	0.665	0.734	0.707	0.769	0.750	0.771	0.793	0.815	0.837	0.860	0.883	0.905	0.929	0.954	0.975
12,000	0.586	0.604	0.624	0.643	0.686	0.682	0.702	0.721	0.741	0.778	0.762	0.803	0.824	0.845	0.854	0.877	0.902	0.932	0.950	0.974
13,000	0.570	0.590	0.609	0.629	0.649	0.670	0.689	0.710	0.731	0.752	0.774	0.795	0.817	0.839	0.871	0.884	0.906	0.930	0.948	0.974
14,000	0.547	0.567	0.588	0.602	0.630	0.651	0.672	0.694	0.716	0.743	0.761	0.788	0.806	0.833	0.853	0.879	0.903	0.927	0.946	0.975
15,000	0.531	0.552	0.574	0.595	0.616	0.638	0.661	0.683	0.706	0.729	0.752	0.775	0.796	0.823	0.845	0.872	0.895	0.922	0.951	0.974
16,000	0.516	0.538	0.560	0.582	0.604	0.627	0.650	0.673	0.696	0.720	0.744	0.768	0.792	0.817	0.843	0.868	0.894	0.920	0.945	0.974
17,000	0.504	0.526	0.548	0.571	0.593	0.616	0.640	0.663	0.687	0.712	0.736	0.761	0.787	0.812	0.838	0.864	0.890	0.917	0.944	0.972
18,000	0.487	0.509	0.532	0.556	0.579	0.603	0.627	0.652	0.676	0.701	0.727	0.752	0.778	0.805	0.833	0.860	0.887	0.914	0.943	0.972
19,000	0.474	0.498	0.521	0.545	0.569	0.593	0.618	0.643	0.668	0.694	0.720	0.746	0.773	0.800	0.827	0.855	0.883	0.911	0.941	0.971
20,000	0.464	0.488	0.512	0.535	0.559	0.585	0.610	0.635	0.660	0.686	0.713	0.740	0.768	0.795	0.823	0.852	0.880	0.910	0.939	0.970
21,000	0.457	0.481	0.505	0.530	0.554	0.579	0.605	0.631	0.657	0.680	0.710	0.737	0.762	0.793	0.819	0.848	0.878	0.908	0.937	0.969
22,000	0.449	0.473	0.498	0.522	0.548	0.573	0.599	0.626	0.652	0.679	0.706	0.734	0.762	0.790	0.819	0.846	0.876	0.907	0.938	0.968
23,000	0.438	0.463	0.488	0.513	0.539	0.565	0.591	0.618	0.645	0.672	0.700	0.728	0.756	0.786	0.815	0.845	0.875	0.905	0.937	0.967
24,000	0.419	0.444	0.470	0.496	0.522	0.549	0.576	0.604	0.632	0.660	0.688	0.718	0.747	0.777	0.807	0.842	0.872	0.904	0.935	0.966
25,000	0.414	0.436	0.462	0.492	0.518	0.545	0.572	0.598	0.628	0.654	0.683	0.712	0.741	0.775	0.805	0.837	0.868	0.902	0.934	0.966
30,000	0.326	0.354	0.383	0.413	0.443	0.474	0.534	0.564	0.569	0.600	0.657	0.688	0.721	0.738	0.787	0.821	0.855	0.890	0.931	0.963
40,000	0.252	0.283	0.314	0.346	0.378	0.412	0.446	0.481	0.516	0.553	0.590	0.627	0.666	0.705	0.745	0.785	0.826	0.869	0.912	0.955
50,000	0.194	0.225	0.257	0.290	0.325	0.360	0.396	0.433	0.471	0.510	0.550	0.591	0.632	0.669	0.713	0.758	0.804	0.854	0.900	0.949
60,000	0.147	0.176	0.207	0.240	0.274	0.309	0.346	0.383	0.423	0.463	0.505	0.547	0.591	0.637	0.684	0.729	0.783	0.837	0.888	0.947
70,000	0.093	0.122	0.154	0.187	0.222	0.260	0.298	0.339	0.381	0.424	0.468	0.514	0.562	0.611	0.661	0.714	0.767	0.827	0.881	0.939
80,000	0.077	0.103	0.133	0.165	0.200	0.237	0.276	0.317	0.359	0.403	0.449	0.496	0.545	0.595	0.647	0.701	0.757	0.815	0.874	0.937
90,000	0.099	0.129	0.162	0.196	0.232	0.270	0.309	0.349	0.391	0.434	0.478	0.523	0.570	0.618	0.667	0.718	0.768	0.826	0.881	0.939
100,000	0.080	0.110	0.142	0.177	0.214	0.252	0.292	0.333	0.376	0.420	0.465	0.511	0.560	0.608	0.659	0.711	0.765	0.821	0.878	0.938
150,000	0.050	0.041	0.046	0.064	0.090	0.123	0.162	0.205	0.249	0.300	0.352	0.404	0.461	0.523	0.584	0.645	0.711	0.778	0.851	0.923
200,000	0.118	0.069	0.049	0.050	0.065	0.091	0.126	0.166	0.212	0.262	0.316	0.369	0.432	0.494	0.553	0.625	0.690	0.765	0.840	0.918
250,000	0.231	0.129	0.076	0.055	0.057	0.075	0.105	0.144	0.190	0.240	0.295	0.353	0.414	0.478	0.545	0.613	0.685	0.759	0.837	0.915
300,000	0.194	0.105	0.063	0.053	0.065	0.091	0.126	0.170	0.218	0.270	0.325	0.383	0.443	0.505	0.559	0.637	0.701	0.766	0.841	0.919
400,000	0.203	0.111	0.071	0.064	0.078	0.106	0.144	0.188	0.236	0.289	0.343	0.400	0.458	0.519	0.581	0.645	0.711	0.779	0.850	0.922
500,000	0.238	0.114	0.055	0.038	0.046	0.071	0.107	0.151	0.200	0.253	0.309	0.368	0.429	0.492	0.557	0.624	0.698	0.767	0.843	0.920

Bottom 5%



# Optimal Expected Losses

Exhibit 2

Starting Values for Fitting	
Credibility (X)	Expected Loss (Y)
0.700	8,910
0.727	101,588
0.749	205,876
0.770	313,868
0.797	512,257
0.851	1,062,638
0.911	2,078,960
0.943	2,958,200
0.981	5,192,388
0.997	6,000,000
1.000	7,000,000

Fitted Curve
$Y = a + b \cdot \log(x) + c \cdot \log(x)^2 + d \cdot \log(x)^3 + e \cdot \log(x)^4 + f \cdot \log(x)^5$

Credibility (X)	Exp Loss (Y)
0.700	4,174
0.701	11,097
0.702	17,683
0.703	23,953
0.704	29,924
0.705	35,614
0.706	41,041
0.709	55,902
0.712	68,958
0.715	80,590
0.718	91,141
0.721	100,920
0.724	110,201
0.727	119,228
0.730	128,218
0.733	137,358
0.736	146,813
0.739	156,724
0.742	167,212
0.745	178,379
0.748	190,306
0.751	203,062
0.754	216,698
0.757	231,254
0.760	246,756
0.763	263,220
0.766	280,654
0.769	299,053
0.772	318,410
0.775	338,707
0.778	359,924
0.781	382,034

Credibility (X)	Exp Loss (Y)
0.784	405,008
0.787	428,814
0.790	453,416
0.793	478,780
0.796	504,867
0.799	531,643
0.802	559,072
0.805	587,119
0.808	615,751
0.811	644,938
0.814	674,652
0.817	704,871
0.820	735,573
0.823	766,742
0.826	798,366
0.829	830,440
0.832	862,961
0.835	895,933
0.838	929,367
0.841	963,278
0.844	997,690
0.847	1,032,631
0.850	1,068,138
0.853	1,104,253
0.856	1,141,026
0.859	1,178,516
0.862	1,216,788
0.865	1,255,914
0.868	1,295,976
0.871	1,337,061
0.874	1,379,268
0.877	1,422,700

Credibility (X)	Exp Loss (Y)
0.880	1,467,472
0.883	1,513,704
0.886	1,561,526
0.889	1,611,076
0.892	1,662,502
0.895	1,715,957
0.898	1,771,606
0.901	1,829,621
0.904	1,890,183
0.907	1,953,479
0.910	2,019,709
0.913	2,089,078
0.916	2,161,801
0.919	2,238,101
0.922	2,318,210
0.925	2,402,367
0.928	2,490,821
0.931	2,583,829
0.934	2,681,655
0.937	2,784,572
0.940	2,892,863
0.943	3,006,815
0.946	3,126,727
0.949	3,252,905
0.952	3,385,661
0.955	3,525,316
0.958	3,672,201
0.961	3,826,650
0.964	3,989,009
0.967	4,159,630
0.970	4,338,871
0.973	4,527,100

# Optimal Split Points

Exhibit 3

Starting Values for Fitting	
Credibility (X)	Split Point (Y)
0.700	10,000
0.727	27,000
0.749	41,000
0.770	58,000
0.797	82,000
0.851	150,000
0.911	290,000
0.943	380,000
1.000	500,000

Fitted Curve
$Y = a*x^5 + b*x^4 + c*x^3 + d*x^2 + e*x + f$

Credibility (X)	Fitted Split Point (Y)
0.700	10,000
0.701	11,000
0.702	13,000
0.703	15,000
0.704	17,000
0.705	19,000
0.706	21,000
0.709	23,000
0.712	25,000
0.715	27,000
0.718	29,000
0.721	31,000
0.724	33,000
0.727	35,000
0.730	37,000
0.733	39,000
0.736	41,000
0.739	43,000
0.742	45,000
0.745	47,000
0.748	49,000
0.751	51,000
0.754	53,000
0.757	55,000
0.760	57,000
0.763	59,000
0.766	61,000
0.769	63,000
0.772	65,000
0.775	67,000
0.778	69,000
0.781	71,000

Credibility (X)	Fitted Split Point (Y)
0.784	73,000
0.787	75,000
0.790	77,000
0.793	79,000
0.796	83,000
0.799	87,000
0.802	91,000
0.805	95,000
0.808	99,000
0.811	102,000
0.814	106,000
0.817	110,000
0.820	114,000
0.823	118,000
0.826	122,000
0.829	126,000
0.832	130,000
0.835	134,000
0.838	138,000
0.841	142,000
0.844	146,000
0.847	150,000
0.850	154,000
0.853	158,000
0.856	162,000
0.859	166,000
0.862	170,000
0.865	174,000
0.868	178,000
0.871	180,000
0.874	185,000
0.877	190,000

Credibility (X)	Fitted Split Point (Y)
0.880	195,000
0.883	200,000
0.886	205,000
0.889	210,000
0.892	215,000
0.895	220,000
0.898	225,000
0.901	230,000
0.904	235,000
0.907	240,000
0.910	245,000
0.913	250,000
0.916	255,000
0.919	260,000
0.922	265,000
0.925	270,000
0.928	275,000
0.931	280,000
0.934	285,000
0.937	290,000
0.940	295,000
0.943	300,000
0.946	305,000
0.949	310,000
0.952	315,000
0.955	320,000
0.958	325,000
0.961	330,000
0.964	335,000
0.967	340,000
0.970	345,000
0.973	350,000

**Effective: April 1, 2023**  
**Current Table B**  
**CURRENT PENNSYLVANIA EXPERIENCE RATING PLAN**

Expected Losses	Credibility "C"	Maximum Value of one Accident	Limit Charge "L"	Weighted Maximum Value Charge "L" * "C"
(1)	(2)	(3)	(4)	(5)
-	10,706	42,500	0.5381	0.152
10,707	11,784	42,500	0.5381	0.154
11,785	12,909	42,500	0.5381	0.157
12,910	14,085	42,500	0.5381	0.159
14,086	15,318	42,500	0.5381	0.161
15,319	16,612	42,500	0.5381	0.163
16,613	17,971	42,500	0.5381	0.165
17,972	19,399	42,500	0.5381	0.167
19,400	20,901	42,500	0.5381	0.170
20,902	22,481	42,500	0.5381	0.172
22,482	24,144	42,500	0.5381	0.174
24,145	25,894	42,500	0.5381	0.179
25,895	27,737	42,500	0.5381	0.183
27,738	29,678	42,500	0.5381	0.187
29,679	31,723	42,500	0.5381	0.192
31,724	33,877	42,500	0.5381	0.196
33,878	36,147	42,500	0.5381	0.200
36,148	38,539	42,500	0.5381	0.204
38,540	41,061	42,500	0.5381	0.209
41,062	43,719	42,500	0.5381	0.213
43,720	46,522	42,500	0.5381	0.217
46,523	49,479	42,500	0.5381	0.221
49,480	52,598	42,500	0.5381	0.225
52,599	55,889	42,500	0.5381	0.229
55,890	59,363	42,500	0.5381	0.233
59,364	63,030	42,500	0.5381	0.237
63,031	66,902	42,500	0.5381	0.241
66,903	70,993	42,500	0.5381	0.245
70,994	75,315	42,500	0.5381	0.249
75,316	79,884	42,500	0.5381	0.258
79,885	84,715	42,500	0.5381	0.266
84,716	89,825	42,500	0.5381	0.275
89,826	95,232	42,500	0.5381	0.284
95,233	100,956	42,500	0.5381	0.292
100,957	107,018	42,500	0.5381	0.301
107,019	113,442	42,500	0.5381	0.309
113,443	120,250	42,500	0.5381	0.318
120,251	127,472	42,500	0.5381	0.327
127,473	135,135	42,500	0.5381	0.335
135,136	143,271	42,500	0.5381	0.344

**Effective: April 1, 2023**  
**Current Table B**  
**CURRENT PENNSYLVANIA EXPERIENCE RATING PLAN**

Expected Losses		Credibility "C"	Maximum Value of one Accident	Limit Charge "L"	Weighted Maximum Value Charge "L" * "C"
(1)	(2)	(3)	(4)	(5)	
143,272	151,914	0.647	42,500	0.5381	0.348
151,915	161,102	0.654	42,500	0.5381	0.352
161,103	170,875	0.661	42,500	0.5381	0.356
170,876	181,277	0.668	42,500	0.5381	0.359
181,278	192,356	0.674	42,500	0.5381	0.363
192,357	204,166	0.681	42,500	0.5381	0.366
204,167	216,764	0.688	42,500	0.5381	0.370
216,765	230,212	0.694	42,500	0.5381	0.373
230,213	244,582	0.701	42,500	0.5381	0.377
244,583	259,948	0.708	42,500	0.5381	0.381
259,949	276,396	0.714	42,500	0.5381	0.384
276,397	294,018	0.721	42,500	0.5381	0.388
294,019	312,918	0.727	42,500	0.5381	0.391
312,919	333,209	0.734	42,500	0.5381	0.395
333,210	355,017	0.740	42,500	0.5381	0.398
355,018	378,484	0.747	42,500	0.5381	0.402
378,485	403,765	0.753	42,500	0.5381	0.405
403,766	431,037	0.759	42,500	0.5381	0.408
431,038	460,495	0.766	42,500	0.5381	0.412
460,496	492,358	0.772	42,500	0.5381	0.415
492,359	526,876	0.779	42,500	0.5381	0.419
526,877	564,716	0.785	42,500	0.5381	0.422
564,717	605,023	0.791	42,500	0.5381	0.426
605,024	649,328	0.797	42,500	0.5381	0.429
649,329	697,647	0.804	42,500	0.5381	0.433
697,648	750,444	0.810	42,500	0.5381	0.436
750,445	808,254	0.816	42,500	0.5381	0.439
808,255	871,689	0.822	42,500	0.5381	0.442
871,690	941,454	0.828	42,500	0.5381	0.446
941,455	1,018,369	0.834	42,500	0.5381	0.449
1,018,370	1,103,385	0.840	42,500	0.5381	0.452
1,103,386	1,197,614	0.846	42,500	0.5381	0.455
1,197,615	1,302,362	0.853	42,500	0.5381	0.459
1,302,363	1,419,169	0.859	42,500	0.5381	0.462
1,419,170	1,549,860	0.865	42,500	0.5381	0.465
1,549,861	1,696,617	0.871	42,500	0.5381	0.469
1,696,618	1,862,053	0.877	42,500	0.5381	0.472
1,862,054	2,049,330	0.882	42,500	0.5381	0.475
2,049,331	2,262,294	0.888	42,500	0.5381	0.478
2,262,295	2,505,662	0.894	42,500	0.5381	0.481
2,505,663	2,785,266	0.900	42,500	0.5381	0.484
2,785,267	3,108,385	0.906	42,500	0.5381	0.488
3,108,386	3,484,193	0.912	42,500	0.5381	0.491
3,484,194	3,924,302	0.918	42,500	0.5381	0.494

**Effective: April 1, 2023**  
**Current Table B**  
**CURRENT PENNSYLVANIA EXPERIENCE RATING PLAN**

Expected Losses		Credibility "C"	Maximum Value of one Accident	Limit Charge "L"	Weighted Maximum Value Charge "L" * "C"
(1)	(2)	(3)	(4)	(5)	
3,924,303	4,444,019	0.923	42,500	0.5381	0.497
4,444,020	5,062,803	0.929	42,500	0.5381	0.500
5,062,804	5,806,851	0.935	42,500	0.5381	0.503
5,806,852	and over	0.938	42,500	0.5381	0.505



**Proposed Table B**  
**PENNSYLVANIA EXPERIENCE RATING PLAN**

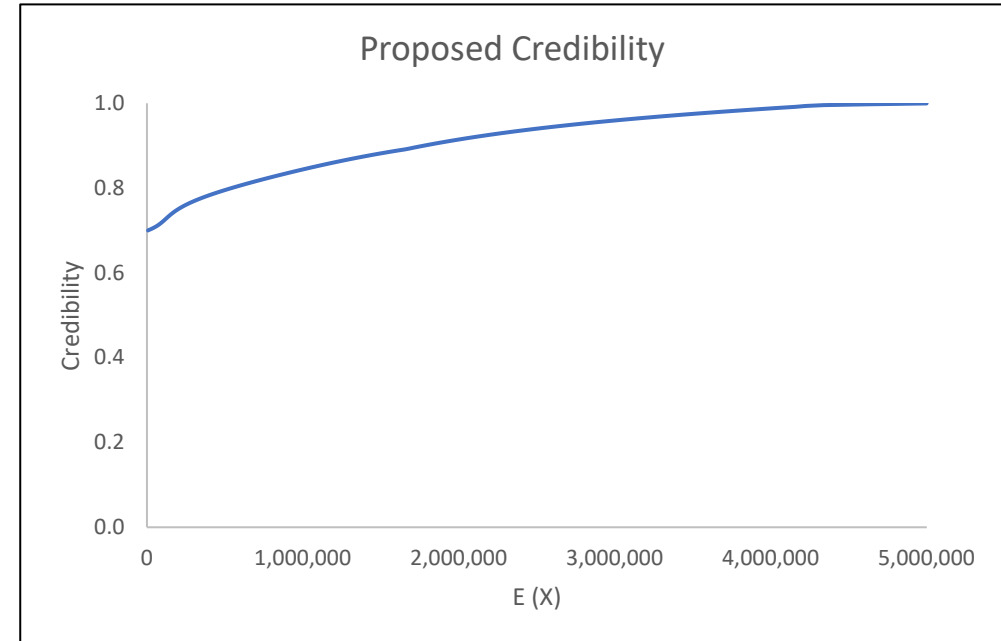
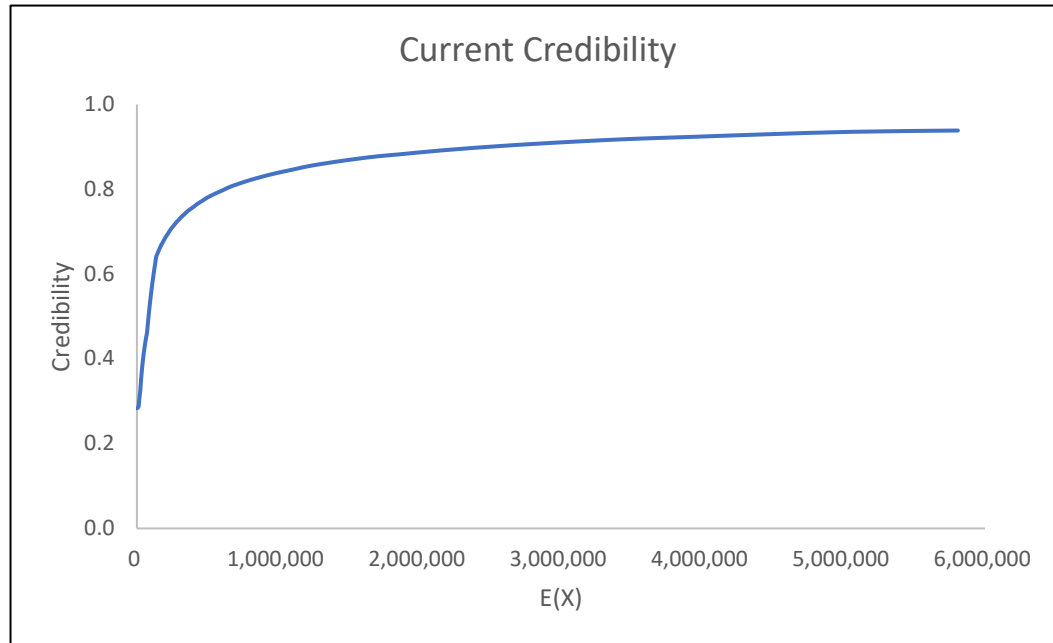
Expected Losses	Credibility "C"	Maximum Value of one Accident	Limit Charge "L"	Weighted Maximum Value Charge "L" * "C"	
(1)	(2)	(3)	(4)	(5)	
-	5,000	0.690	10,000	0.7861	0.542
5,000	11,097	0.692	11,000	0.7742	0.536
11,097	17,683	0.694	13,000	0.7519	0.522
17,683	23,953	0.697	15,000	0.7314	0.510
23,953	29,924	0.699	17,000	0.7122	0.498
29,924	35,614	0.701	19,000	0.6943	0.487
35,614	41,041	0.703	21,000	0.6774	0.476
41,041	55,902	0.706	23,000	0.6613	0.467
55,902	68,958	0.711	25,000	0.6461	0.459
68,958	80,590	0.715	27,000	0.6316	0.452
80,590	91,141	0.718	29,000	0.6177	0.444
91,141	100,920	0.722	31,000	0.6045	0.436
100,920	110,201	0.725	33,000	0.5918	0.429
110,201	119,228	0.728	35,000	0.5797	0.422
119,228	128,218	0.731	37,000	0.5680	0.415
128,218	137,358	0.734	39,000	0.5568	0.409
137,358	146,813	0.737	41,000	0.5460	0.402
146,813	156,724	0.740	43,000	0.5355	0.396
156,724	167,212	0.743	45,000	0.5255	0.390
167,212	178,379	0.746	47,000	0.5158	0.385
178,379	190,306	0.749	49,000	0.5064	0.379
190,306	203,062	0.752	51,000	0.4973	0.374
203,062	216,698	0.755	53,000	0.4884	0.369
216,698	231,254	0.758	55,000	0.4799	0.364
231,254	246,756	0.761	57,000	0.4716	0.359
246,756	263,220	0.764	59,000	0.4636	0.354
263,220	280,654	0.767	61,000	0.4558	0.350
280,654	299,053	0.770	63,000	0.4482	0.345
299,053	318,410	0.773	65,000	0.4408	0.341
318,410	338,707	0.776	67,000	0.4336	0.337
338,707	359,924	0.779	69,000	0.4266	0.332
359,924	382,034	0.782	71,000	0.4198	0.328
382,034	405,008	0.785	73,000	0.4132	0.324
405,008	428,814	0.788	75,000	0.4068	0.321
428,814	453,416	0.791	77,000	0.4005	0.317

Expected Losses		Credibility	Maximum Value of one Accident	Limit Charge	Weighted Maximum Value Charge
(1)		"C"	(3)	"L"	"L" * "C"
(1)	(2)	(2)	(3)	(4)	(5)
453,416	478,780	0.794	80,000	0.3914	0.311
478,780	504,867	0.797	83,000	0.3826	0.305
504,867	531,643	0.800	86,000	0.3741	0.299
531,643	559,072	0.803	89,000	0.3659	0.294
559,072	587,119	0.806	92,000	0.3579	0.289
587,119	615,751	0.809	95,000	0.3503	0.283
615,751	644,938	0.812	98,000	0.3428	0.278
644,938	674,652	0.815	102,000	0.3335	0.272
674,652	704,871	0.818	106,000	0.3244	0.265
704,871	735,573	0.821	110,000	0.3153	0.259
735,573	766,742	0.824	114,000	0.3071	0.253
766,742	798,366	0.827	118,000	0.2989	0.247
798,366	830,440	0.830	122,000	0.2911	0.242
830,440	862,961	0.833	126,000	0.2837	0.236
862,961	895,933	0.836	130,000	0.2763	0.231
895,933	929,367	0.839	134,000	0.2695	0.226
929,367	963,278	0.842	138,000	0.2628	0.221
963,278	997,690	0.845	142,000	0.2563	0.217
997,690	1,032,631	0.848	146,000	0.2502	0.212
1,032,631	1,068,138	0.851	150,000	0.2441	0.208
1,068,138	1,104,253	0.854	154,000	0.2385	0.204
1,104,253	1,141,026	0.857	158,000	0.2329	0.200
1,141,026	1,178,516	0.860	162,000	0.2275	0.196
1,178,516	1,216,788	0.863	166,000	0.2224	0.192
1,216,788	1,255,914	0.866	170,000	0.2172	0.188
1,255,914	1,295,976	0.869	174,000	0.2126	0.185
1,295,976	1,337,061	0.872	178,000	0.2079	0.181
1,337,061	1,379,268	0.875	182,000	0.2034	0.178
1,379,268	1,422,700	0.878	186,000	0.1991	0.175
1,422,700	1,467,472	0.881	190,000	0.1948	0.172
1,467,472	1,513,704	0.884	194,000	0.1908	0.169
1,513,704	1,561,526	0.887	198,000	0.1869	0.166
1,561,526	1,611,076	0.890	202,000	0.1831	0.163
1,611,076	1,662,502	0.893	206,000	0.1795	0.160
1,662,502	1,715,957	0.896	210,000	0.1759	0.158
1,715,957	1,771,606	0.899	215,000	0.1717	0.154
1,771,606	1,829,621	0.902	220,000	0.1676	0.151
1,829,621	1,890,183	0.905	225,000	0.1638	0.148
1,890,183	1,953,479	0.908	230,000	0.1600	0.145

Expected Losses		Credibility	Maximum Value of one Accident	Limit Charge	Weighted Maximum Value Charge
(1)		"C" (2)	(3)	"L" (4)	"L" * "C" (5)
1,953,479	2,019,709	0.911	235,000	0.1565	0.143
2,019,709	2,089,078	0.914	240,000	0.1530	0.140
2,089,078	2,161,801	0.917	245,000	0.1498	0.137
2,161,801	2,238,101	0.920	250,000	0.1466	0.135
2,238,101	2,318,210	0.923	255,000	0.1436	0.133
2,318,210	2,402,367	0.926	260,000	0.1407	0.130
2,402,367	2,490,821	0.929	265,000	0.1379	0.128
2,490,821	2,583,829	0.932	270,000	0.1352	0.126
2,583,829	2,681,655	0.935	275,000	0.1327	0.124
2,681,655	2,784,572	0.938	280,000	0.1301	0.122
2,784,572	2,892,863	0.941	285,000	0.1278	0.120
2,892,863	3,006,815	0.944	290,000	0.1255	0.118
3,006,815	3,126,727	0.947	295,000	0.1233	0.117
3,126,727	3,252,905	0.950	300,000	0.1212	0.115
3,252,905	3,385,661	0.953	300,000	0.1212	0.115
3,385,661	3,525,316	0.956	300,000	0.1212	0.116
3,525,316	3,672,201	0.959	300,000	0.1212	0.116
3,672,201	3,826,650	0.962	300,000	0.1212	0.117
3,826,650	3,989,009	0.965	300,000	0.1212	0.117
3,989,009	4,159,630	0.968	300,000	0.1212	0.117
4,159,630	4,338,871	0.971	300,000	0.1212	0.118
4,338,871	Above	0.974	300,000	0.1212	0.118

# Experience Rating Credibilities, Current vs. Proposed

Exhibit 6

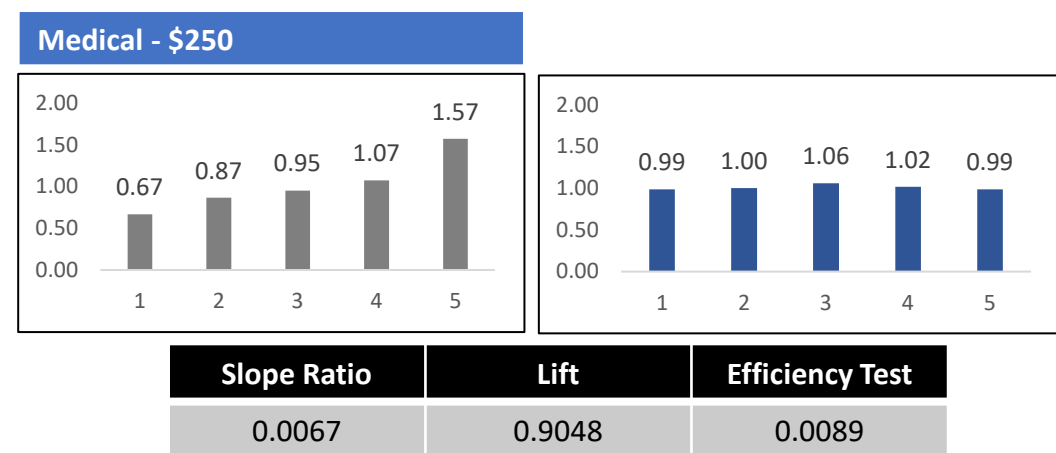
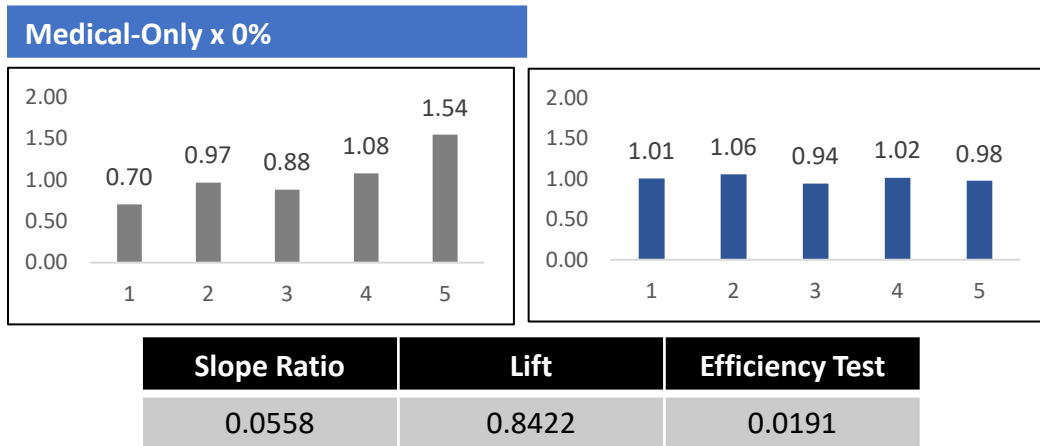
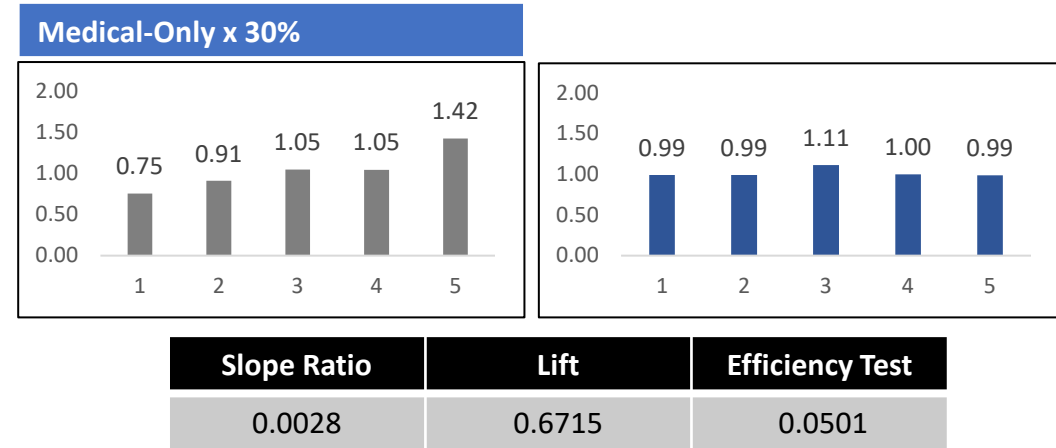
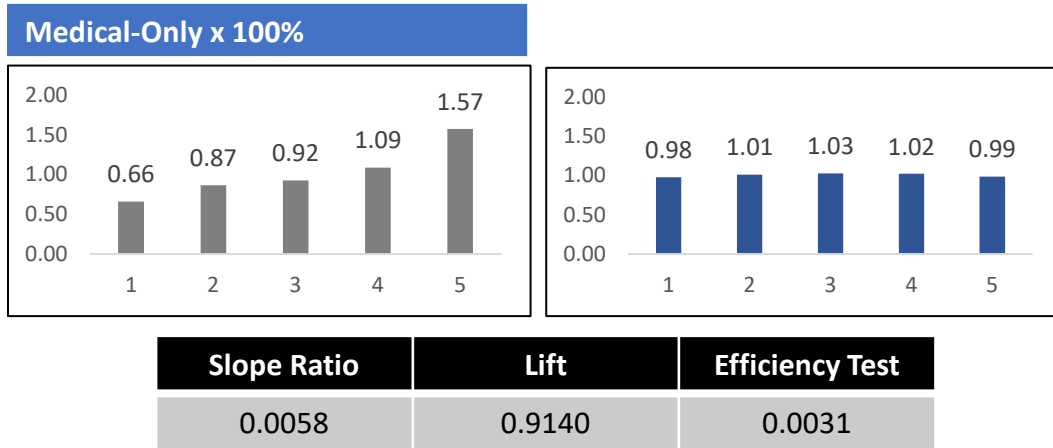


Under the current plan, the credibility curve starts at 28.3% and the maximum credibility is 93.8%. The proposed credibility curve starts at 69.0% and the maximum credibility is 97.4%.

The result of the current experience rating plan performance test showed, in general, that the plan gives too little credibility to the risks.

# Medical-Only Performance Testing

Exhibit 7



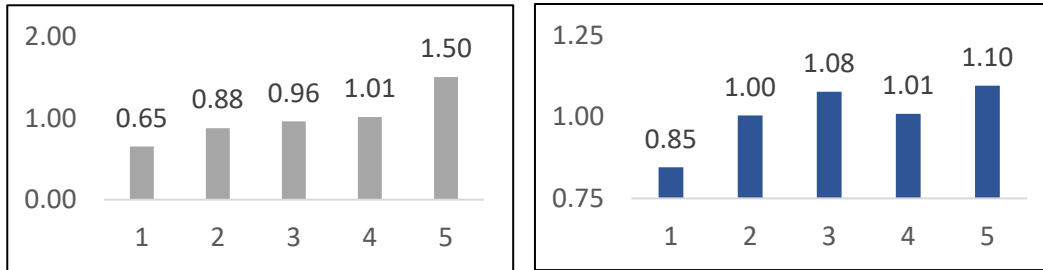
The PCRB performed four different scenario tests: the first three tests varied the medical-only amounts, and the last test subtracted \$250 from the medical claim.



# Current ERP Performance Test

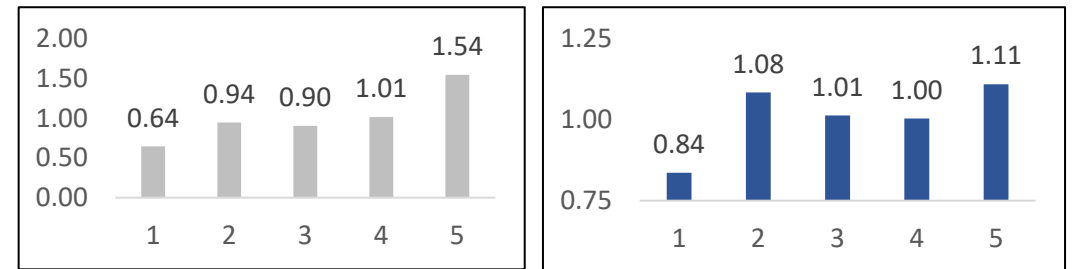
Exhibit 8

## 2015-2017



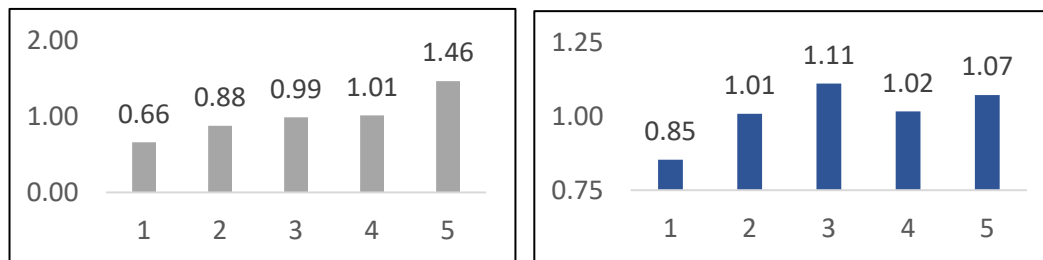
Slope Ratio	Lift	Efficiency Test
0.2753	0.8505	0.1000

## 2015



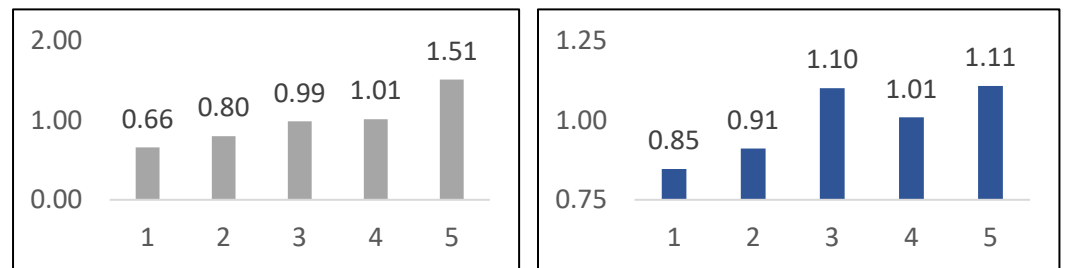
Slope Ratio	Lift	Efficiency Test
0.2489	0.8991	0.1054

## 2016



Slope Ratio	Lift	Efficiency Test
0.2558	0.8032	0.1138

## 2017



Slope Ratio	Lift	Efficiency Test
0.3229	0.8523	0.1271

Note: Expected losses are normalized to ensure overall loss ratios achieve a unity loss ratio

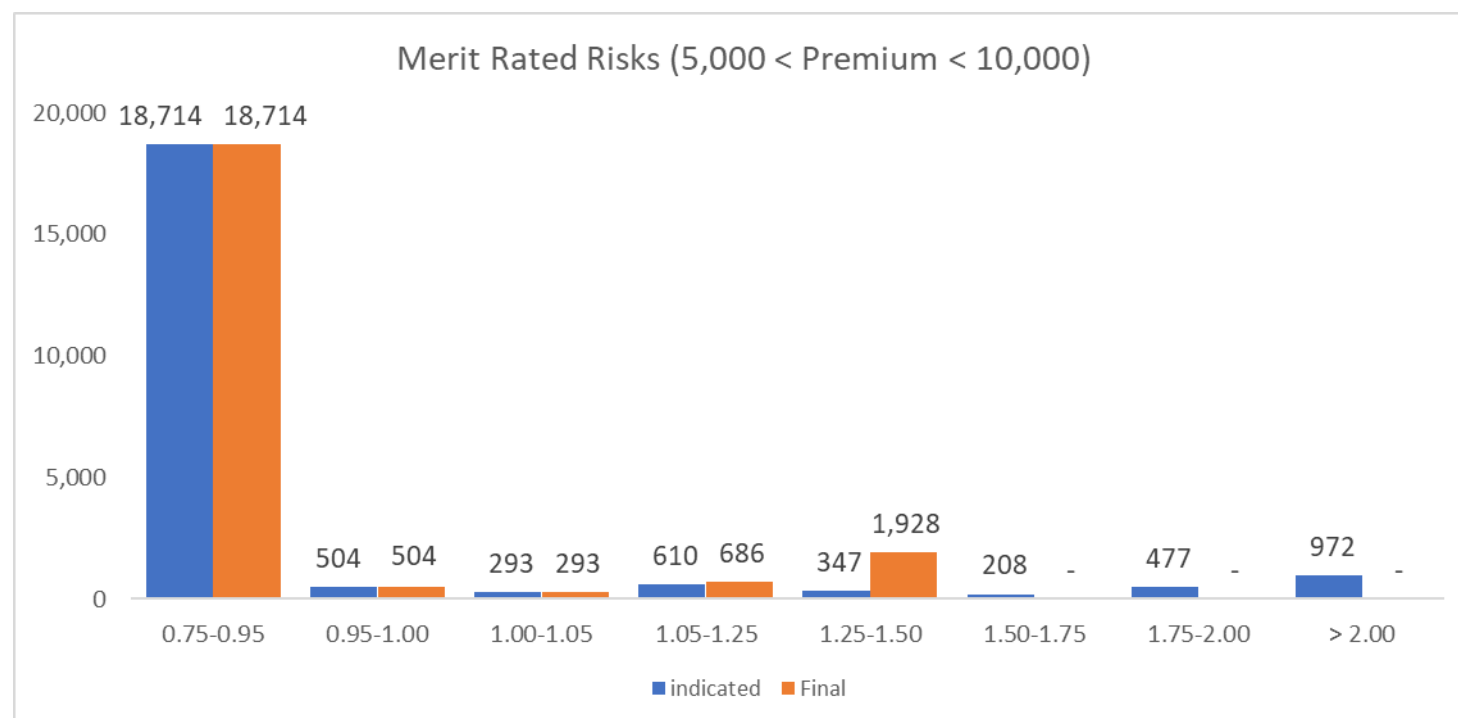
# Distribution of Policies

Premium	Count	%
Prem < 5,000	124,549	63%
5,000 <= Prem <=7,500	13,630	7%
7,500 < Prem <=10,000	9,334	4%
10,000 < Prem <=15,000	11,916	6%
Prem >= 15,000	43,223	20%
Total	202,651	

\*The distribution is based on the average number of risks in Policy Years 2017 and 2018.

# Distribution of Small Risks (Policy Year 2018)

Mod Range	Indicated	Final	Subject to Capping
0.75-0.95	18,714	18,714	
0.95-1.00	504	504	
1.00-1.05	293	293	
1.05-1.25	610	686	1
1.25-1.50	347	1,948	239
1.50-1.75	208		208
1.75-2.00	477		477
> 2.00	972		973
<b>Total</b>	<b>22,125</b>	<b>22,125</b>	<b>1,898</b>



Note: 1,898 current merit rated risks would be subject to capping procedure.

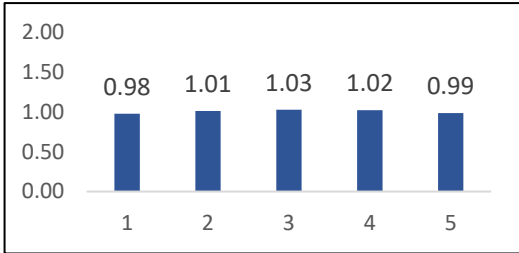
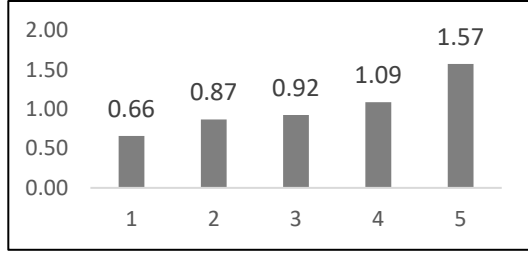
# Proposed ERP Performance Test

Current Eligibility = \$10,000

The following lift charts are produced using the optimized elements.

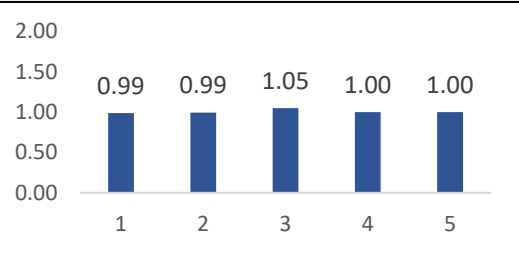
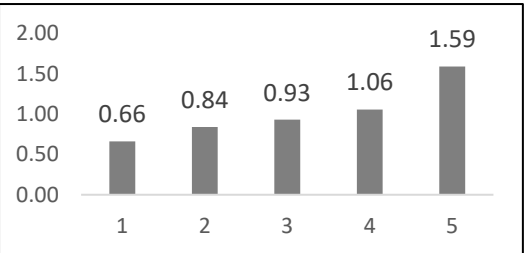
Exhibit 11

2015-2018



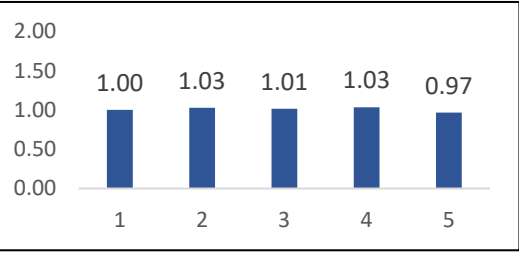
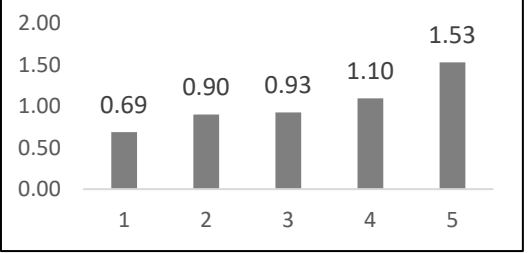
Slope Ratio	Lift	Efficiency Test
0.0107	0.9138	0.0048

2016



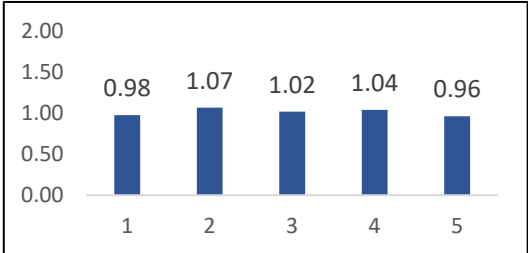
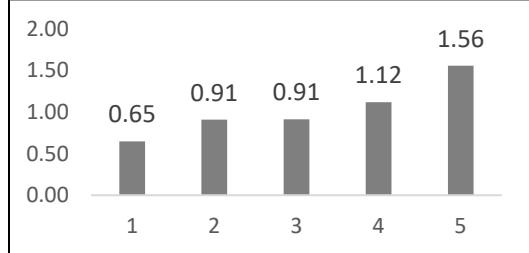
Slope Ratio	Lift	Efficiency Test
0.0148	0.9265	0.0051

2018



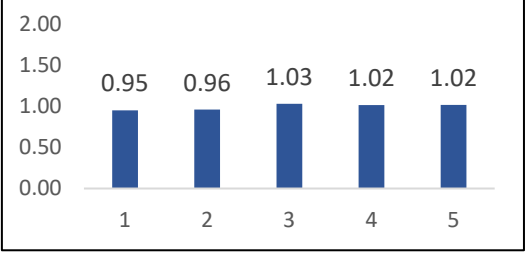
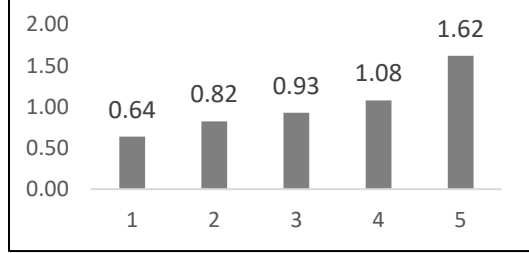
Slope Ratio	Lift	Efficiency Test
0.0346	0.8412	0.0078

2015



Slope Ratio	Lift	Efficiency Test
0.0271	0.9083	0.0188

2017



Slope Ratio	Lift	Efficiency Test
0.0854	0.9814	0.0100

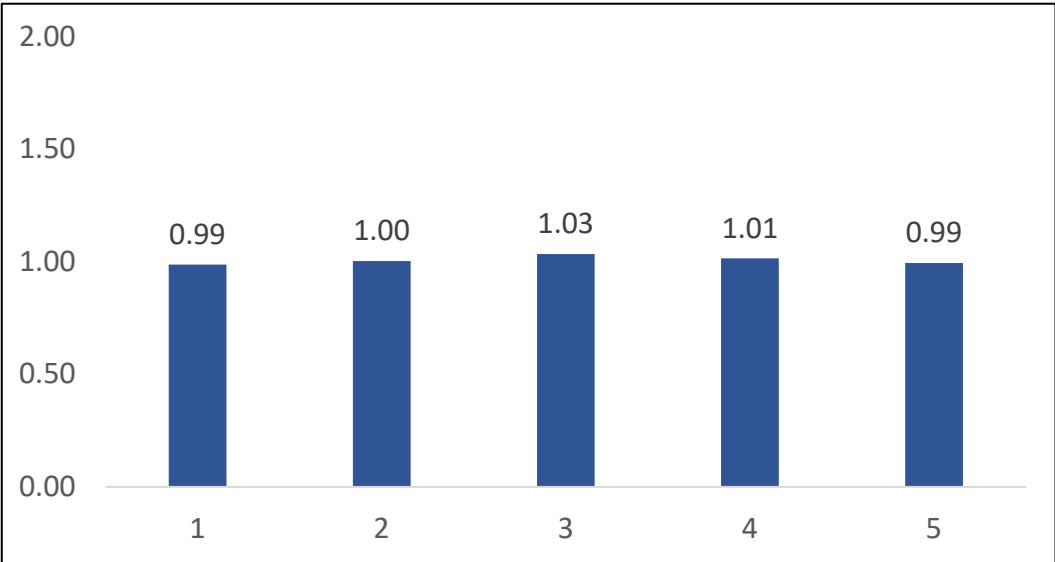
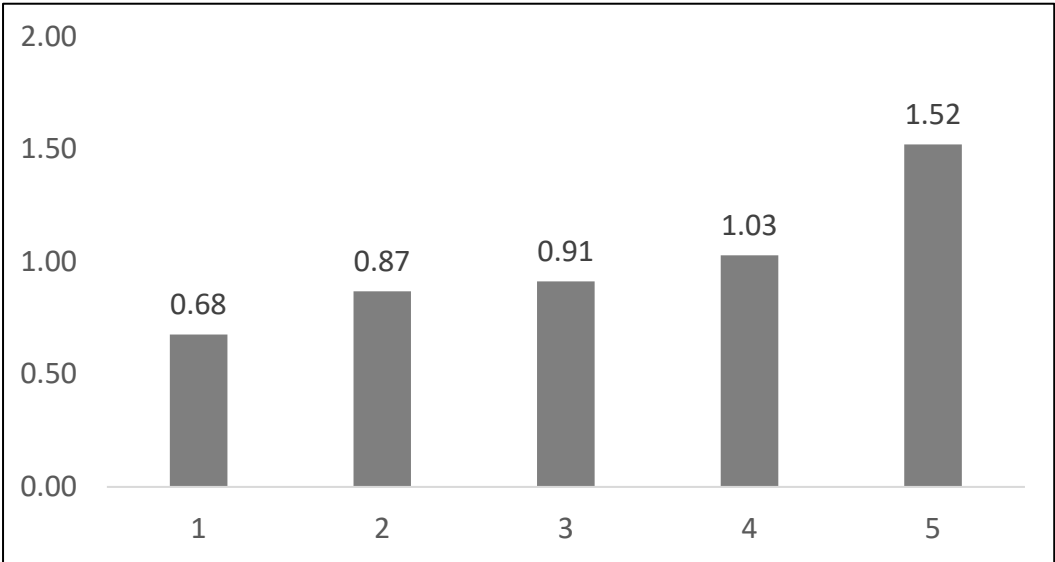
Expected loss is normalized to ensure overall loss ratios achieve a unity loss ratio

# Proposed ERP Performance Test

Proposed Eligibility = \$5,000

The following lift charts are produced using the optimized elements.

2015 – 2018  
Eligibility = \$5,000



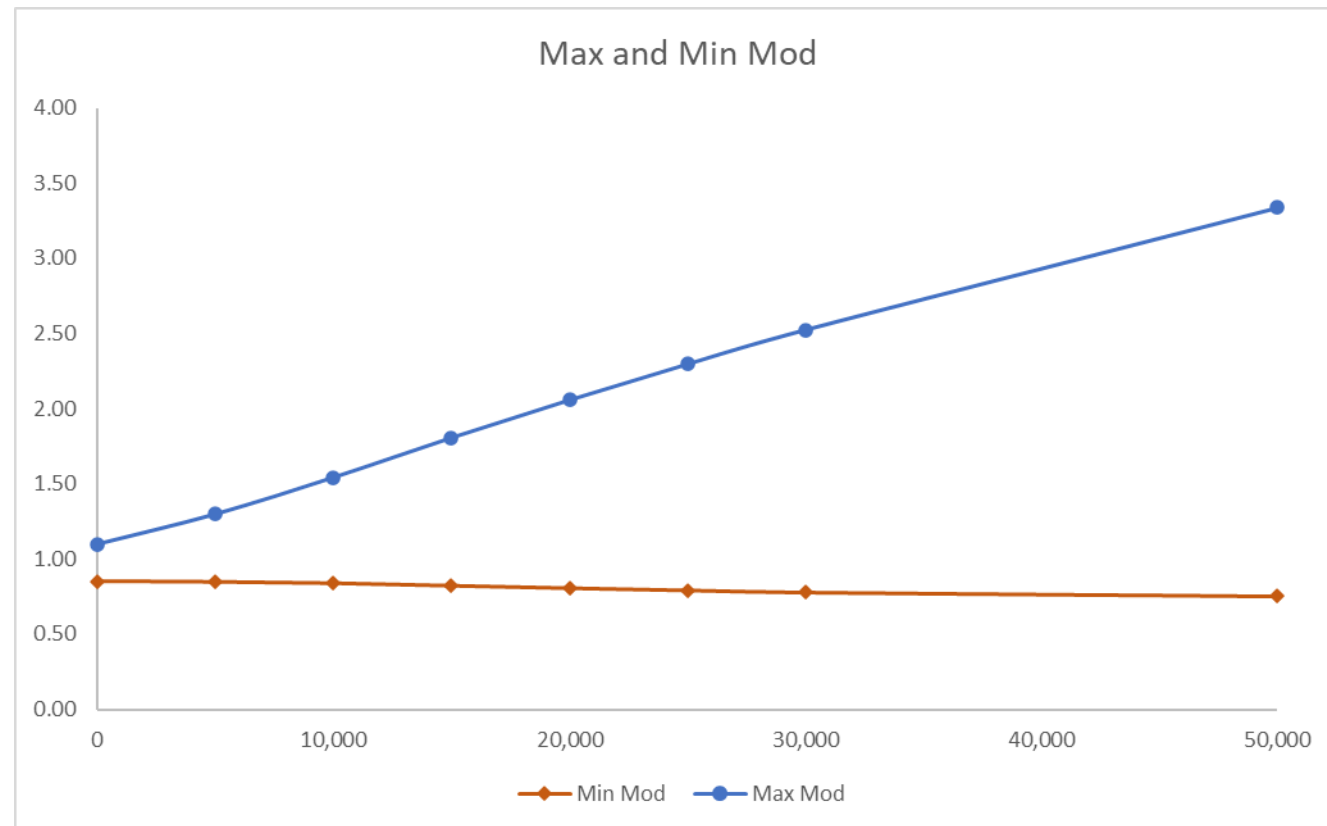


# Maximum Modification Factors

Exhibit 13

$$\text{Max Mod} = 1.10 + 0.0004 (E/G)$$

Exp Loss	0	5,000	10,000	25,000	50,000	250,000	500,000	1M
Max Mod (G=10)	1.10	1.30	1.50	2.10	3.10	11.10	21.10	41.10
Loss Free Mod	0.85	0.85	0.84	0.79	0.76	0.59	0.50	0.36



# Calculation of G Value

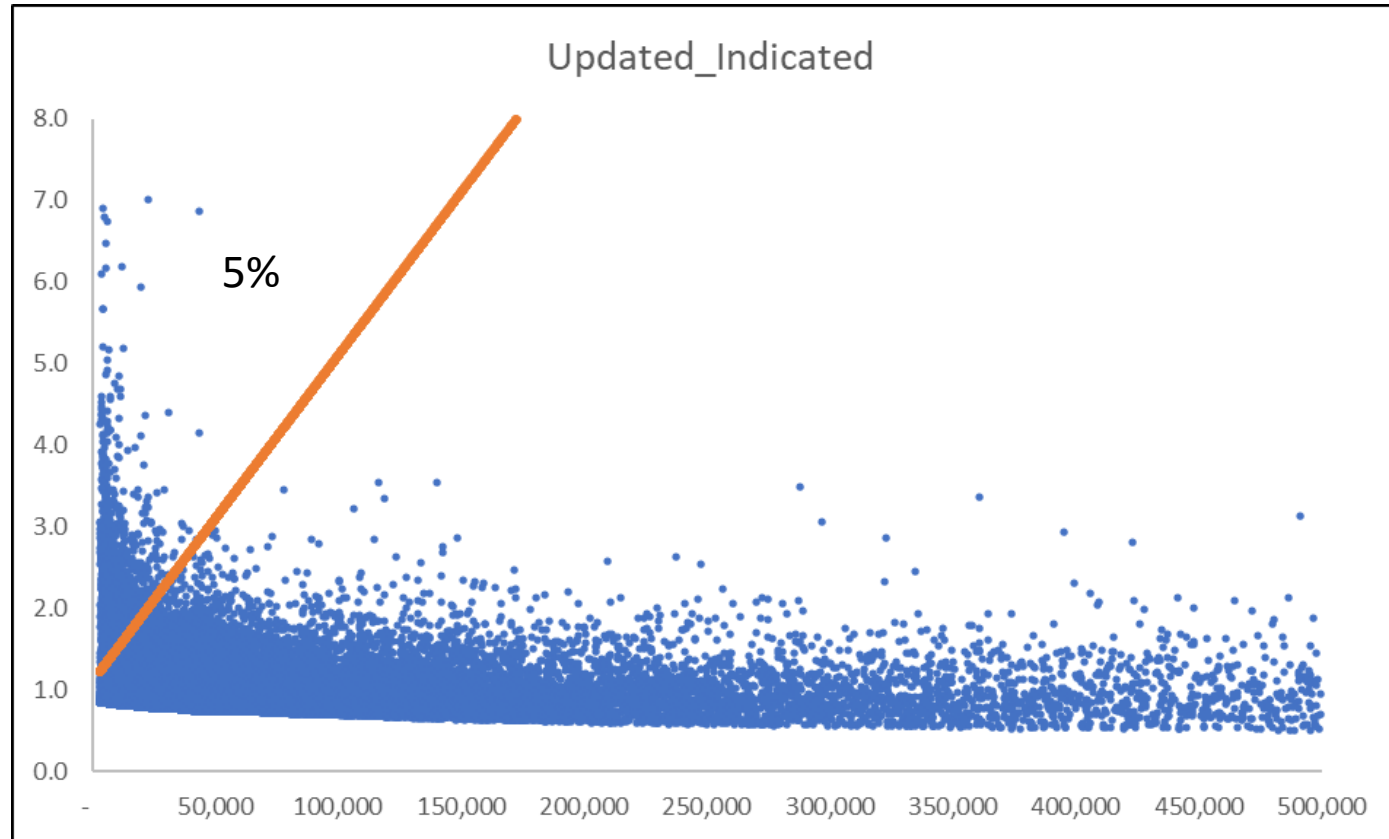
Exhibit 14

Policy Year	2019	2018	2017	2016	2015
Undeveloped Loss	1,453,983,232	1,635,608,758	1,494,926,313	1,463,998,013	1,451,688,278
Undeveloped Counts including Med-Only	135,089	154,286	156,162	156,423	150,796
State Average Cost Per Case	10,763	10,601	9,573	9,359	9,627
G	11	11	10	9	10

Selected 'G' value = 10 (Average of five policy years)

# Risks Capped by Maximum Modification

Exhibit 15



Approximately 5% of the risks are capped at the max mod.

# Distribution of Risks by the Size of Expected Loss

Mod Range	EL < \$5,000		\$5,000 < EL < \$10,000		\$10,000 < EL < \$25,000		\$25,000 < EL < \$50,000		\$50,000 < EL	
	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed	Current	Proposed
0-0.6	0	0	0	0	0	0	0	0	2	488
0.6-0.8	0	0	1	0	0	1,011	3	4,147	3,601	4,759
0.8-0.9	12	7,695	6,808	16,762	15,434	14,189	6,363	2,119	3,290	1,948
0.9-1.0	9,259	499	13,558	1,452	2,232	1,534	1,178	789	2,117	1,790
1.0-1.1	1	201	229	557	845	748	610	539	1,708	1,588
1.1-1.2	0	114	155	311	545	496	422	862	1,315	1,079
1.2-1.5	0	155	245	540	975	2,049	1,363	1,323	1,677	1,803
1.5-2.0	1	127	147	1,267	1,287	1,325	433	563	610	771
2.0-3.0	0	417	354	559	349	314	72	101	90	176
>3.0	0	65	34	83	40	41	6	7	6	14

The number of risks within the circles represent the risks that are capped by the maximum modification, which is calculated using the following formula:  $\text{Max Mod} = 1.10 + 0.0004(E/G)$ .

\* Based on Policy Year 2018 data

## Distribution of Policies Capped by Various Capping Methods

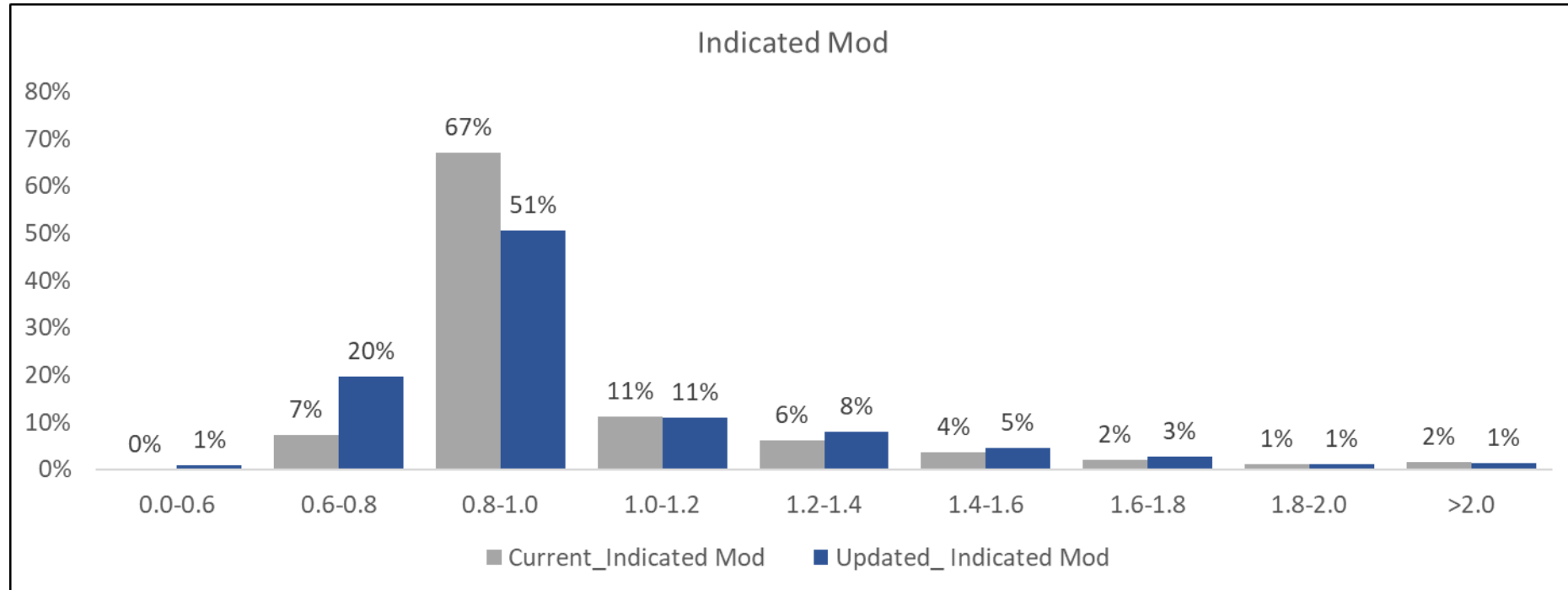
Eligibility	\$10,000	\$5,000	\$5,000
Expected Loss	Current Plan	Max Mod	Max Mod & +40% Cap
<10,000	1%	3.7%	3.8%
10,000<=EL<=25,000	5%	1.4%	2.6%
25,000<EL<=50,000	3%	0.046%	0.9%
50,000<EL<=250,000	3%	0.002%	0.5%
>=250,000	0.27%	0.000%	0.1%
<b>Total</b>	<b>12%</b>	<b>5%</b>	<b>8%</b>

The +40% capping measure is estimated to impact about 3% of the risks.

\* Based on Policy Years 2017 and 2018



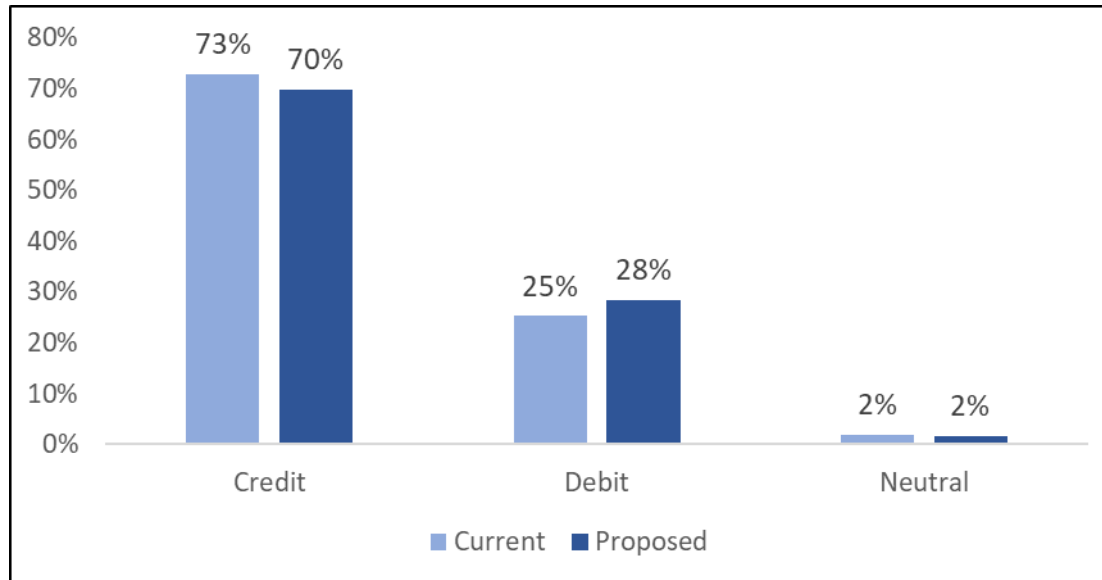
## Distribution of Current and Proposed Modifications



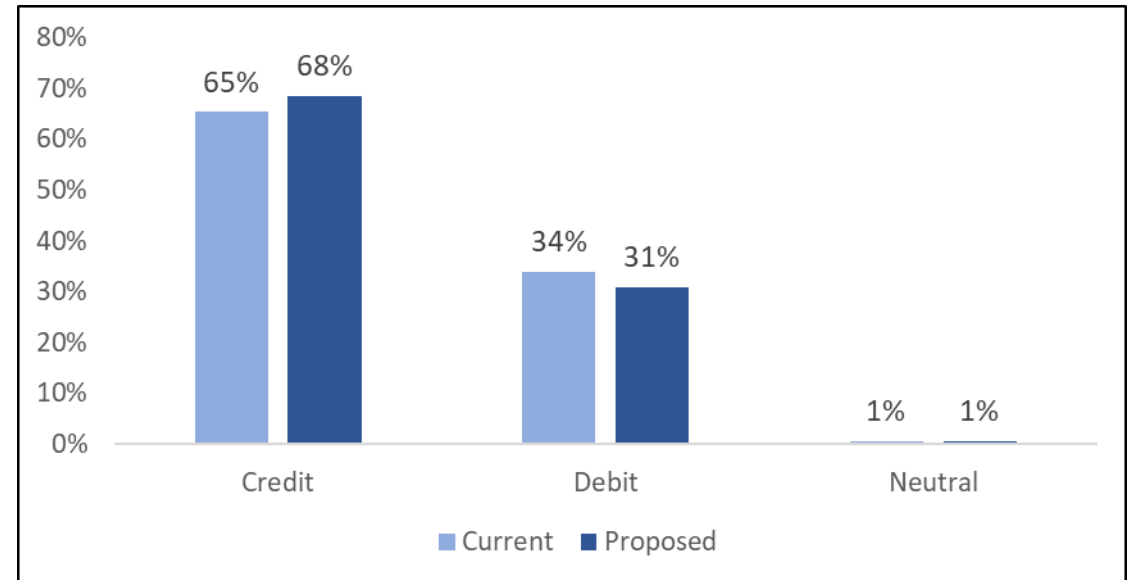
\* Based on Policy Year 2018 data

# Policy Count and Premium Distribution

## Policy Count

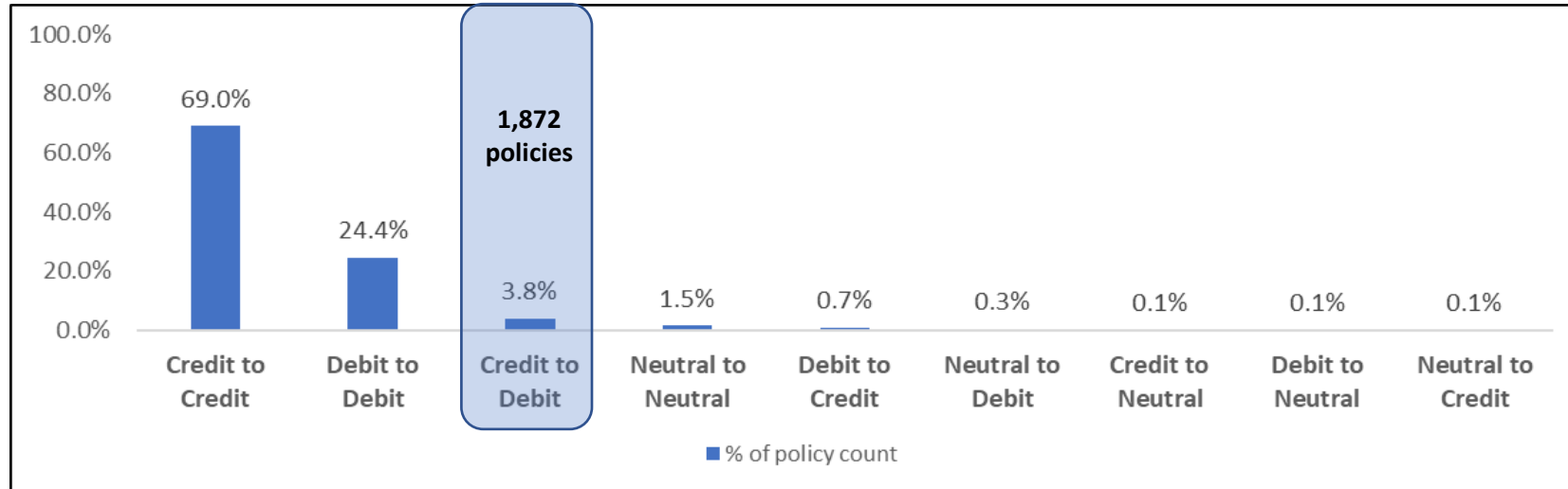


## Premium



\* Based on Policy Year 2018 data

# Policies that Shift Credit to Debit Modifications



Under the proposed plan, expected loss at \$42,500 split point is around \$150,000.

EL <= 150,000	1,816
EL > 150,000	56
<b>Total</b>	<b>1,872</b>

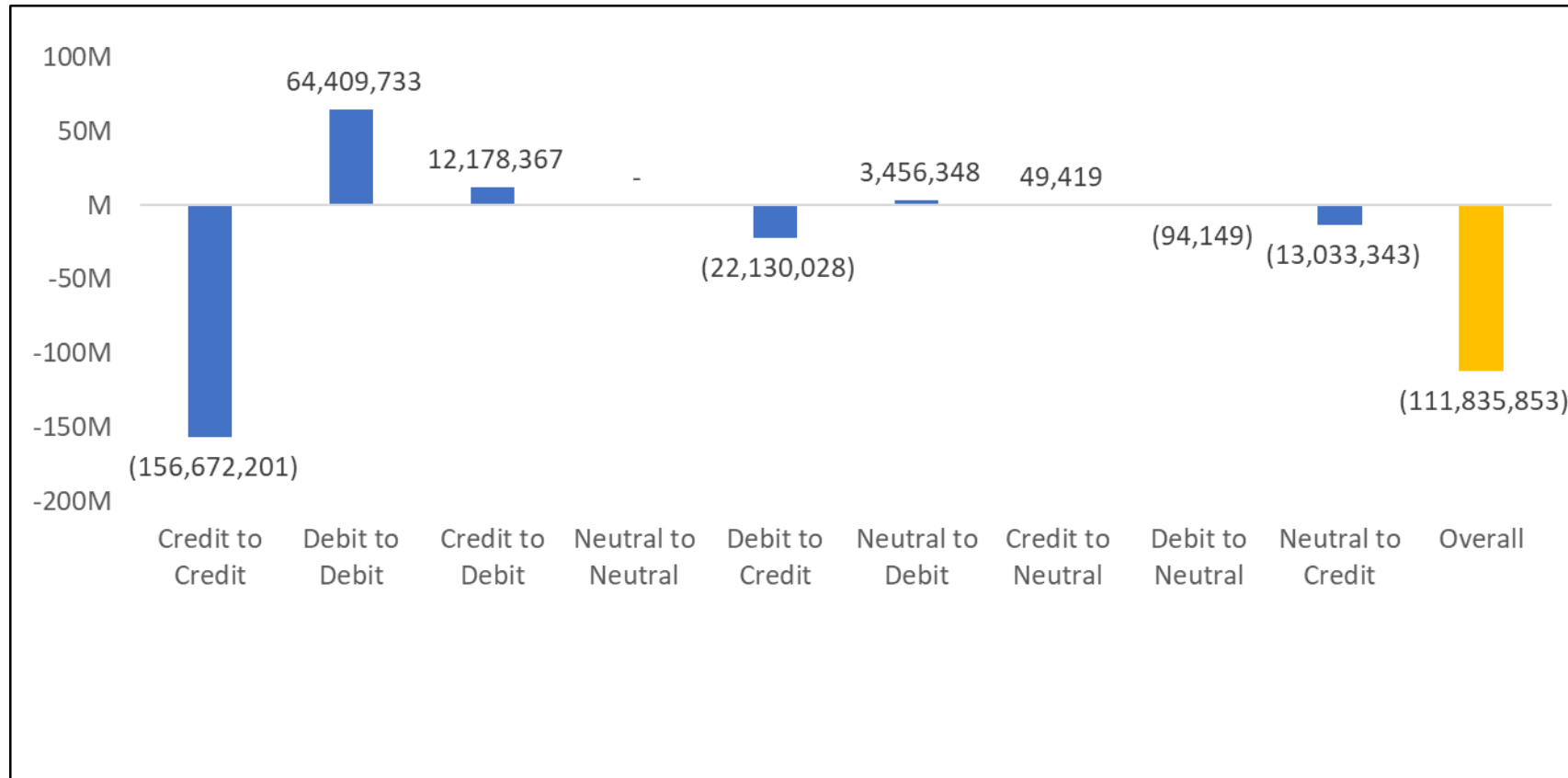
Current Plan	
<= 0.90	10
0.90 < Mod <= 0.95	403
0.95 < Mod <=0.975	770
0.975 < Mod <=1.00	689
<b>Credit to Debit</b>	<b>1,872</b>

Proposed Plan	
1.00 < Mod <=1.05	1,017
1.05 < Mod <=1.10	625
1.10 < Mod <=1.15	216
1.15 < Mod <=1.20	12
> 1.20	2
<b>Credit to Debit</b>	<b>1,872</b>

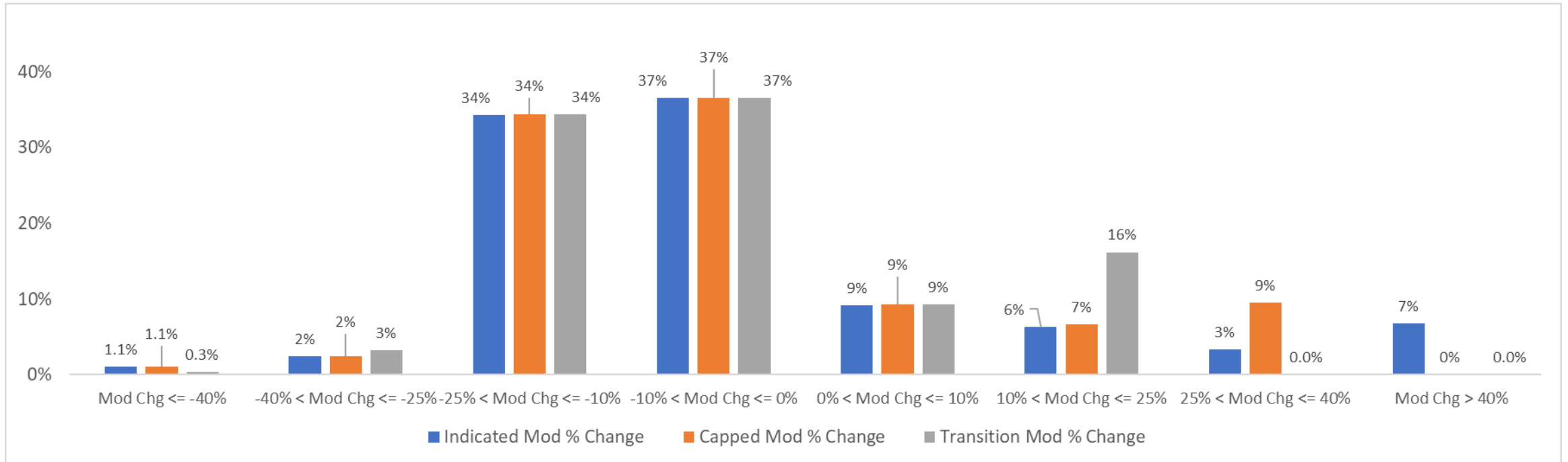
% of Mod Change	Distribution
0%- 5%	7%
5% - 10%	64%
10% - 15%	28%
15% - 20%	1%
> 20%	1%

\* Only experience rated risks in Policy Year 2018

# Impact on Premium



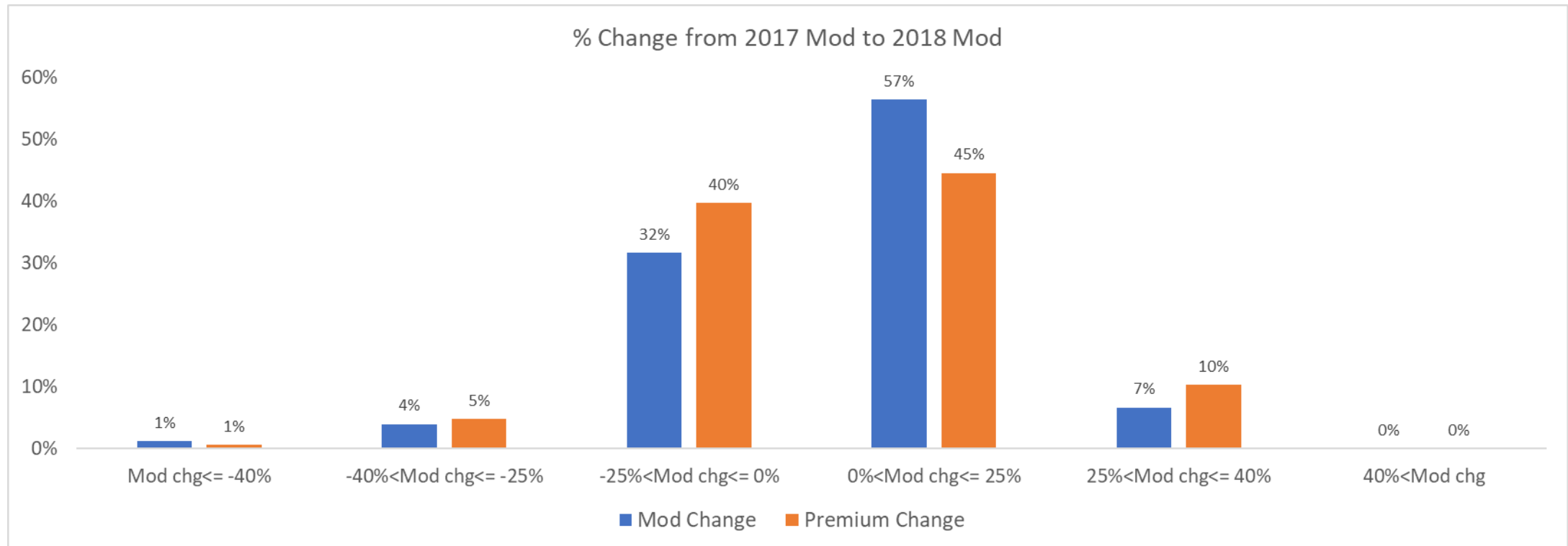
# Policies Capped (PY 2018 Max Mod and +40% cap)



Note: "Capped Mod" is calculated using Policy Year 2018 data and incorporates the application of the Max Mod formula along with a +40% capping measure. "Transition Mod" uses both Max Mod and +/-25% swing limit capping used during the transition period.



# Distribution of Mod Change and Premium



- The percentage change is calculated from the 2017 capped mod to the 2018 capped mod, based on the proposed plan’s mod calculation method.

**COLLECTIBLE PREMIUM RATIOS \*****CURRENT PLAN**

Policy Years 2016 to 2018 Unit Data

Policy Year	Premium at Manual Rates	Collected Premium (Excluding Constants)	Collectible Premium Ratio (2)/(3)
(1)	(2)	(3)	(4)
ALL INDUSTRIES			
2016	2,623,010,809	2,562,287,890	1.0237
2017	2,650,729,938	2,571,141,164	1.0310
2018	2,893,155,407	2,781,765,166	1.0400
TOTAL	8,166,896,154	7,915,194,219	1.0318
MANUFACTURING AND UTILITIES			
2016	559,993,105	537,684,690	1.0415
2017	553,827,078	532,918,920	1.0392
2018	598,974,395	574,738,156	1.0422
TOTAL	1,712,794,578	1,645,341,766	1.0410
CONTRACTING AND QUARRYING			
2016	501,419,522	441,963,730	1.1345
2017	519,605,885	454,196,973	1.1440
2018	583,359,942	506,382,804	1.1520
TOTAL	1,604,385,349	1,402,543,507	1.1439
OTHER INDUSTRIES			
2016	1,561,598,182	1,582,639,469	0.9867
2017	1,577,296,975	1,584,025,271	0.9958
2018	1,710,821,070	1,700,644,206	1.0060
TOTAL	4,849,716,227	4,867,308,946	0.9964

\* Excludes classifications and coverages not subject to experience rating.

Based on updated unit data used in the ERP study

**COLLECTIBLE PREMIUM RATIOS \***  
**PROPOSED PLAN**  
 Policy Years 2016 to 2018 Unit Data

Policy Year	Premium at Manual Rates	Collected Premium (Excluding Constants)	Collectible Premium Ratio (2)/(3)
(1)	(2)	(3)	(4)
<b>ALL INDUSTRIES</b>			
2016	2,623,010,809	2,502,449,132	1.0482
2017	2,650,729,938	2,491,234,826	1.0640
2018	2,893,155,407	2,669,929,313	1.0836
<b>TOTAL</b>	<b>8,166,896,154</b>	<b>7,663,613,270</b>	<b>1.0657</b>
<b>MANUFACTURING AND UTILITIES</b>			
2016	559,993,105	516,994,076	1.0832
2017	553,827,078	506,212,121	1.0941
2018	598,974,395	539,719,970	1.1098
<b>TOTAL</b>	<b>1,712,794,578</b>	<b>1,562,926,168</b>	<b>1.0959</b>
<b>CONTRACTING AND QUARRYING</b>			
2016	501,419,522	426,413,336	1.1759
2017	519,605,885	432,466,030	1.2015
2018	583,359,942	476,453,786	1.2244
<b>TOTAL</b>	<b>1,604,385,349</b>	<b>1,335,333,152</b>	<b>1.2015</b>
<b>OTHER INDUSTRIES</b>			
2016	1,561,598,182	1,559,041,720	1.0016
2017	1,577,296,975	1,552,556,674	1.0159
2018	1,710,821,070	1,653,755,557	1.0345
<b>TOTAL</b>	<b>4,849,716,227</b>	<b>4,765,353,950</b>	<b>1.0177</b>

\* Excludes classifications and coverages not subject to experience rating.

Based on updated unit data used in the ERP study

## EXPECTED LOSS COST FACTORS (a) CURRENT PLAN

Policy Year Beginning 4/1	HB 1846 Adjustment Factor	Protz & HB 1840 Adjustment Factor	Loss Ratio Development Factor	Collectible Premium Ratio (b)	Trend Factor	Product (2) * (3) * (4) * (5) * (6)	Expected Loss Cost Factor 1.0 / (7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b><u>Manufacturing and Utilities</u></b>							
2018	1.0000	1.0003	1.0980	1.0410	0.8383	0.9585	1.0433
2019	1.0000	1.0000	1.1613	1.0410	0.8760	1.0590	0.9443
2020	1.0000	1.0000	1.3877	1.0410	0.9154	1.3224	0.7562
<b><u>Contracting and Quarrying</u></b>							
2018	1.0000	1.0003	1.1436	1.1439	0.8383	1.0969	0.9117
2019	1.0000	1.0000	1.1912	1.1439	0.8760	1.1936	0.8378
2020	1.0000	1.0000	1.4320	1.1439	0.9154	1.4995	0.6669
<b><u>Other Industries</u></b>							
2018	1.0000	1.0003	1.0855	0.9964	0.8383	0.9070	1.1025
2019	1.0000	1.0000	1.1623	0.9964	0.8760	1.0145	0.9857
2020	1.0000	1.0000	1.4032	0.9964	0.9154	1.2799	0.7813

a Apply to pure Loss Costs (pre-LBA, Merit Rating Plan, PCCPAP and Certified Safety Committee adjustments).

b Based on updated unit data used in the ERP study

## EXPECTED LOSS COST FACTORS (a) PROPOSED PLAN

Policy Year Beginning 4/1	HB 1846 Adjustment Factor	Protz & HB 1840 Adjustment Factor	Loss Ratio Development Factor	Collectible Premium Ratio (b)	Trend Factor	Product (2) * (3) * (4) * (5) * (6)	Expected Loss Cost Factor 1.0 / (7)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b><u>Manufacturing and Utilities</u></b>							
2018	1.0000	1.0003	1.0980	1.0959	0.8383	1.0090	0.9911
2019	1.0000	1.0000	1.1613	1.0959	0.8760	1.1149	0.8969
2020	1.0000	1.0000	1.3877	1.0959	0.9154	1.3921	0.7183
<b><u>Contracting and Quarrying</u></b>							
2018	1.0000	1.0003	1.1436	1.2015	0.8383	1.1522	0.8679
2019	1.0000	1.0000	1.1912	1.2015	0.8760	1.2538	0.7976
2020	1.0000	1.0000	1.4320	1.2015	0.9154	1.5750	0.6349
<b><u>Other Industries</u></b>							
2018	1.0000	1.0003	1.0855	1.0177	0.8383	0.9263	1.0796
2019	1.0000	1.0000	1.1623	1.0177	0.8760	1.0362	0.9651
2020	1.0000	1.0000	1.4032	1.0177	0.9154	1.3072	0.7650

a Apply to pure Loss Costs (pre-LBA, Merit Rating Plan, PCCPAP and Certified Safety Committee adjustments).

b Based on updated unit data used in the ERP study



PENNSYLVANIA WORKERS COMPENSATION MANUAL OF RULES, CLASSIFICATIONS, AND RATING VALUES FOR WORKERS COMPENSATION AND FOR EMPLOYERS LIABILITY INSURANCE

*Proposed Effective April 1, 2024*

**INFORMATION PAGE** remains unchanged.

**PREFACE** remains unchanged.

**MEMBERSHIP** remains unchanged.

**TABLE OF CONTENTS** remains unchanged.

**SECTION 1** through **SECTION 4** remains unchanged.

**SECTION 5 – EXPERIENCE RATING PLAN**

**SECTION I – INSTRUCTIONS** through **SECTION II – DEFINITIONS** remain unchanged.

**SECTION III – GENERAL PROVISIONS**

1. **Eligibility Requirements.** A risk shall qualify for rating under this Plan if the premium developed by the audited payrolls or other exposures of the experience period, extended at current PCRB Loss Costs, is ~~\$10,000~~ \$5,000 or more.

Items 2 through Item 10 remain unchanged.

**SECTION IV – APPLICATION OF EXPERIENCE MODIFICATION** through **SECTION V – TABULATION OF EXPERIENCE** remains unchanged.

**SECTION VI – RATING PROCEDURE**

1. Actual Primary Losses. Actual Primary Losses ( $A_p$ ), as tabulated in accordance with the provisions of Rules 4 and 5 of Section V, shall be used in the rating.
2. Expected Losses. Expected Losses (E) shall be determined from the application of the appropriate Expected Loss Factor, shown in Table A, to the payrolls or other exposures for each classification for the experience period.
3. Credibility. The Credibility (C) of the experience of the risk shall correspond to Expected Losses (E), as shown in Table B.
4. ~~Maximum Value Limit~~ Charge. A ~~limitation~~ charge (L) reflecting the loss dollars eliminated by the ~~Maximum Value split point~~ placed on One Accident, shall be included in calculating the modification. The Charge times Credibility, or  $L \times C$ , shall be determined by entering Table B at the level of Expected Losses for the experience period.

5. Credibility Complement (1-C). The Credibility Complement is computed by subtracting the Credibility (C) from unity (1.0).

6. 5. Experience Modification. The Experience Modification (~~M~~) shall be determined from the formula:  $[A_p \times C + E \times C \times L \times C + E(1.000 - C)] / E = \text{Indicated Modification, Final Modification Capped to } \pm 25\% \text{ of Prior Modification, except that where the indicated Modification is less than unity (1.000) and the Capped Modification is greater than unity (1.000), then the Final}$

~~Modification shall be set equal to unity (1.000)~~ The indicated modification will be subject to capping based on the Maximum Modification formula below:

$$1.10 + 0.0004 \times (E / G), \text{ where } G=10$$

If the indicated modification, after application of the Maximum Modification formula, still exceeds +40% compared to the prior final experience modification, the Final Modification will be capped at 40% of the prior modification.

7. Transition Rules: During the transition period based on the RED between 4/1/2024 to 3/31/2026, the current capping rules will remain in effect, which limit changes (up or down) to no more than +/-25% of the prior Final Modification and the application of the Double Swing Cap (Secondary Capping) defined below. Additionally, the maximum modification, calculated using the formula above, will be applied to the Final Modification. The Final Modification factor will be determined by selecting the lower value between the modification calculated based on the current capping rule and the Maximum Modification.

The Double Swing Cap recognizes the favorable experience of the risk by setting the Final Modification to 1.0 in specific situations. When the 25% swing limit is applied to a previous experience modification factor that is above 1.0 but the Indicated Modification is below 1.0, the Final Modification shall be set at 1.0. The Double Swing Cap will be eliminated once the two-year transition period concludes.

The experience modification shall be rounded to three decimal places.

**SECTION VII – SCHEDULE RATING PLAN** remains unchanged.

**SECTION 6 – MERIT RATING PLAN** remains unchanged.

**PENNSYLVANIA WORKERS COMPENSATION MANUAL OF RULES, CLASSIFICATIONS, AND RATING VALUES FOR WORKERS COMPENSATION AND FOR EMPLOYERS LIABILITY INSURANCE**

*Proposed Effective April 1, 2024*

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**SECTION I – INSTRUCTIONS** through **SECTION II – DEFINITIONS** remain unchanged.

**SECTION III – GENERAL PROVISIONS**

1. **Eligibility Requirements.** A risk shall qualify for rating under this Plan if the premium developed by the audited payrolls or other exposures of the experience period, extended at current PCRB Loss Costs, is \$5,000 or more.

Items 2 through Item 10 remain unchanged.

**SECTION IV – APPLICATION OF EXPERIENCE MODIFICATION** through **SECTION V – TABULATION OF EXPERIENCE** remains unchanged.

**SECTION VI – RATING PROCEDURE**

1. **Actual Primary Losses.** Actual Primary Losses (Ap), as tabulated in accordance with the provisions of Rules 4 and 5 of Section V, shall be used in the rating.
2. **Expected Losses.** Expected Losses (E) shall be determined from the application of the appropriate Expected Loss Factor, shown in Table A, to the payrolls or other exposures for each classification for the experience period.
3. **Credibility.** The Credibility (C) of the experience of the risk shall correspond to Expected Losses (E), as shown in Table B.
4. **Limit Charge.** A limit charge (L) reflecting the loss dollars eliminated by the split point placed on One Accident, shall be included in calculating the modification. The Charge times Credibility, or  $L \times C$ , shall be determined by entering Table B at the level of Expected Losses for the experience period.
5. **Credibility Complement (1-C).** The Credibility Complement is computed by subtracting the Credibility (C) from unity (1.0).
6. **Experience Modification.** The Experience Modification shall be determined from the formula:  
$$[Ap \times C + E \times C \times L + E(1.0 - C)] / E$$
The indicated modification will be subject to capping based on the Maximum Modification formula below:

$$1.10 + 0.0004 \times (E / G), \text{ where } G=10$$

If the indicated modification, after application of the Maximum Modification formula, still exceeds +40% compared to the prior final experience modification, the Final Modification will be capped at 40% of the prior modification.

7. Transition Rules: During the transition period based on the RED between 4/1/2024 to 3/31/2026, the current capping rules will remain in effect, which limit changes (up or down) to no more than +/-25% of the prior Final Modification and the application of the Double Swing Cap (Secondary Capping) defined below. Additionally, the maximum modification, calculated using the formula above, will be applied to the Final Modification. The Final Modification factor will be determined by selecting the lower value between the modification calculated based on the current capping rule and the Maximum Modification.

The Double Swing Cap recognizes the favorable experience of the risk by setting the Final Modification to 1.0 in specific situations. When the -25% swing limit is applied to a previous experience modification factor that is above 1.0 but the Indicated Modification is below 1.0, the Final Modification shall be set at 1.0. The Double Swing Cap will be eliminated once the two-year transition period concludes.

The experience modification shall be rounded to three decimal places.

**SECTION VII – SCHEDULE RATING PLAN** remains unchanged.

**SECTION 6 – MERIT RATING PLAN** remains unchanged.