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WCIRB Actuarial Committee Meeting

April 2, 2020

Agenda

1. AC20-03-01: First Quarter 2020 Review of Diagnostics
2. AC20-04-04: COVID-19 Crisis
3. AC20-03-02: 12/31/2019 Experience – Review of Methodologies
4. AC20-04-01: 12/31/2019 Loss Adjustment Expense Experience Review
5. AC20-04-03: 2021 Experience Rating Plan Changes

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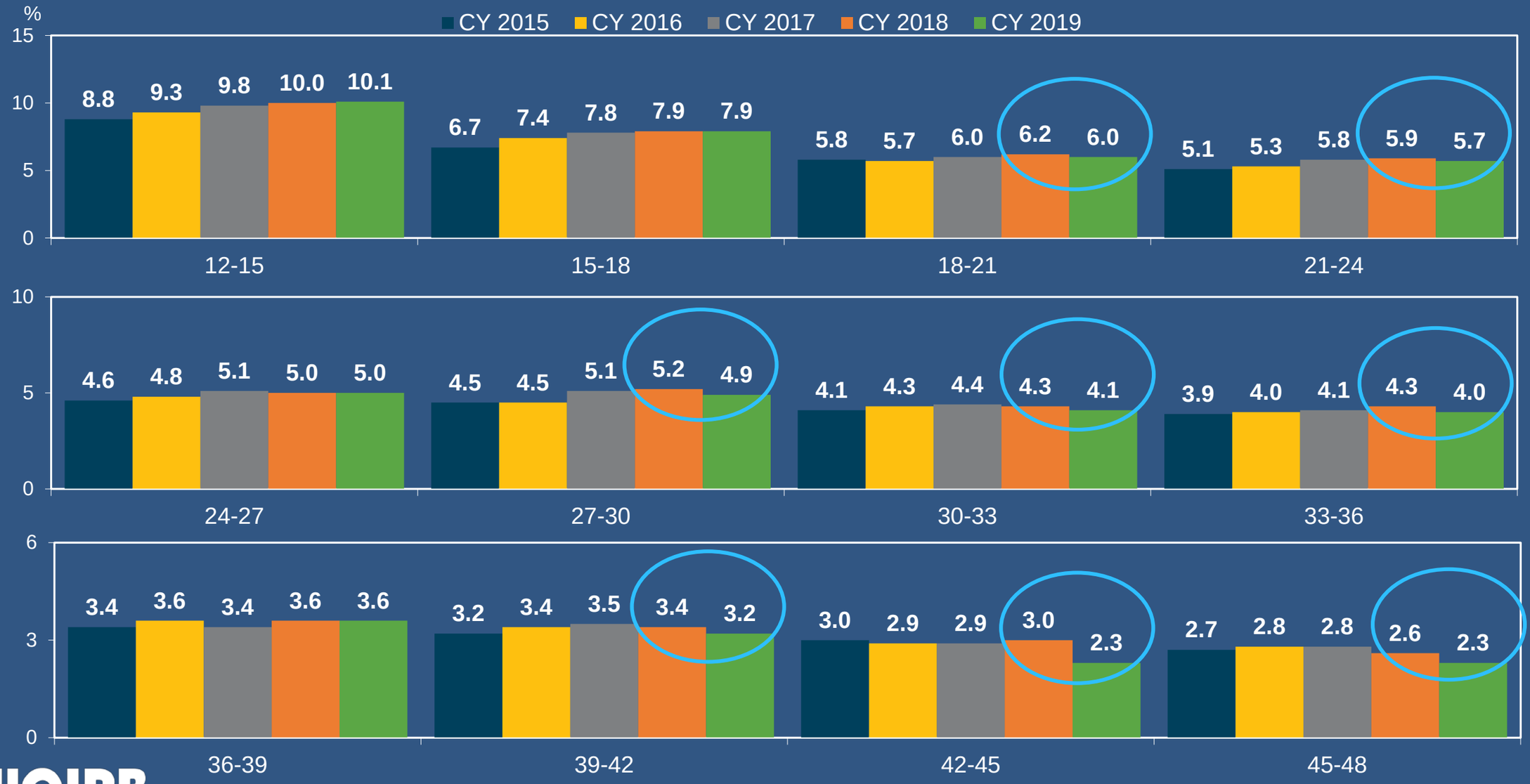
01

First Quarter 2020 Review of Diagnostics

Incremental Indemnity Claim Settlement Ratios

As of December 31, 2019



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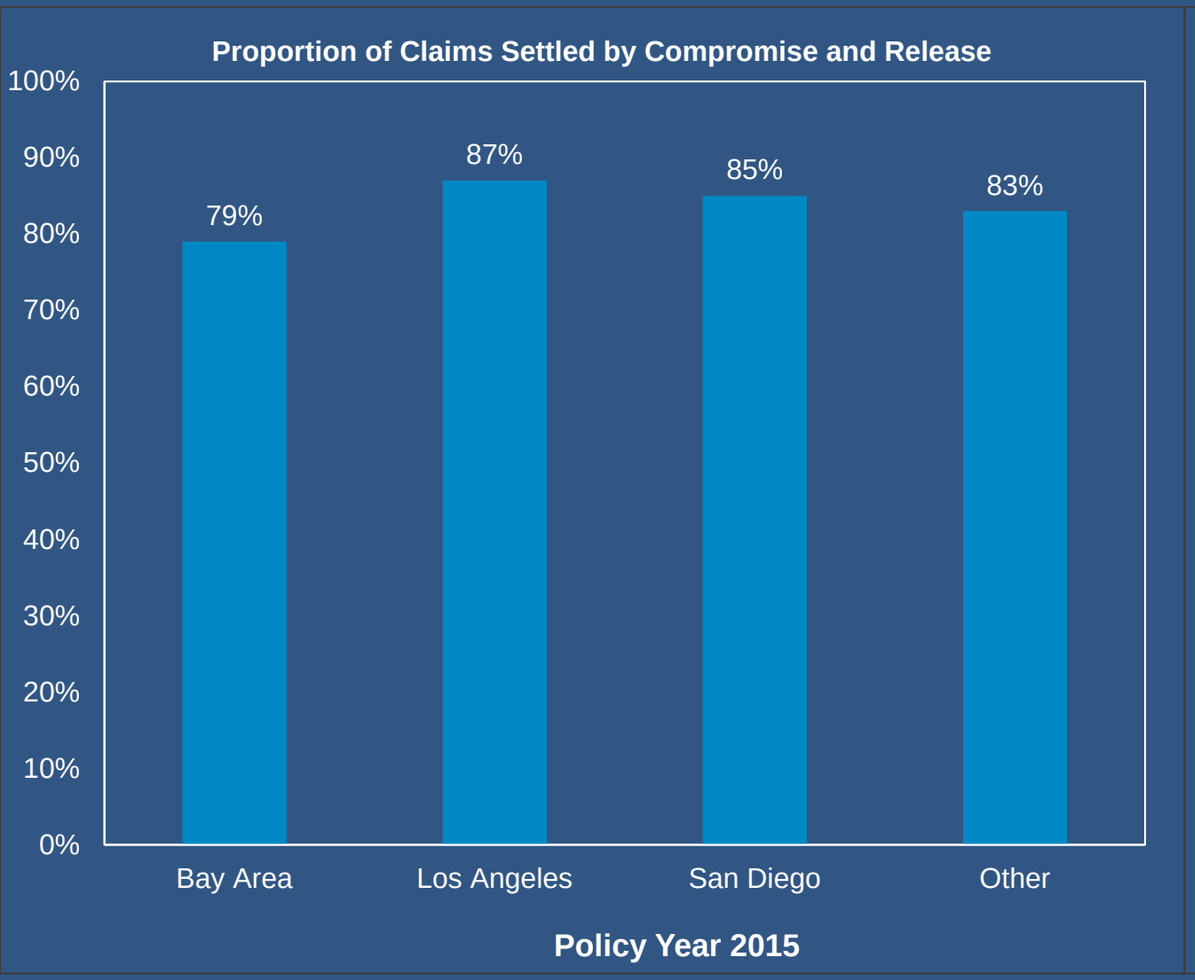
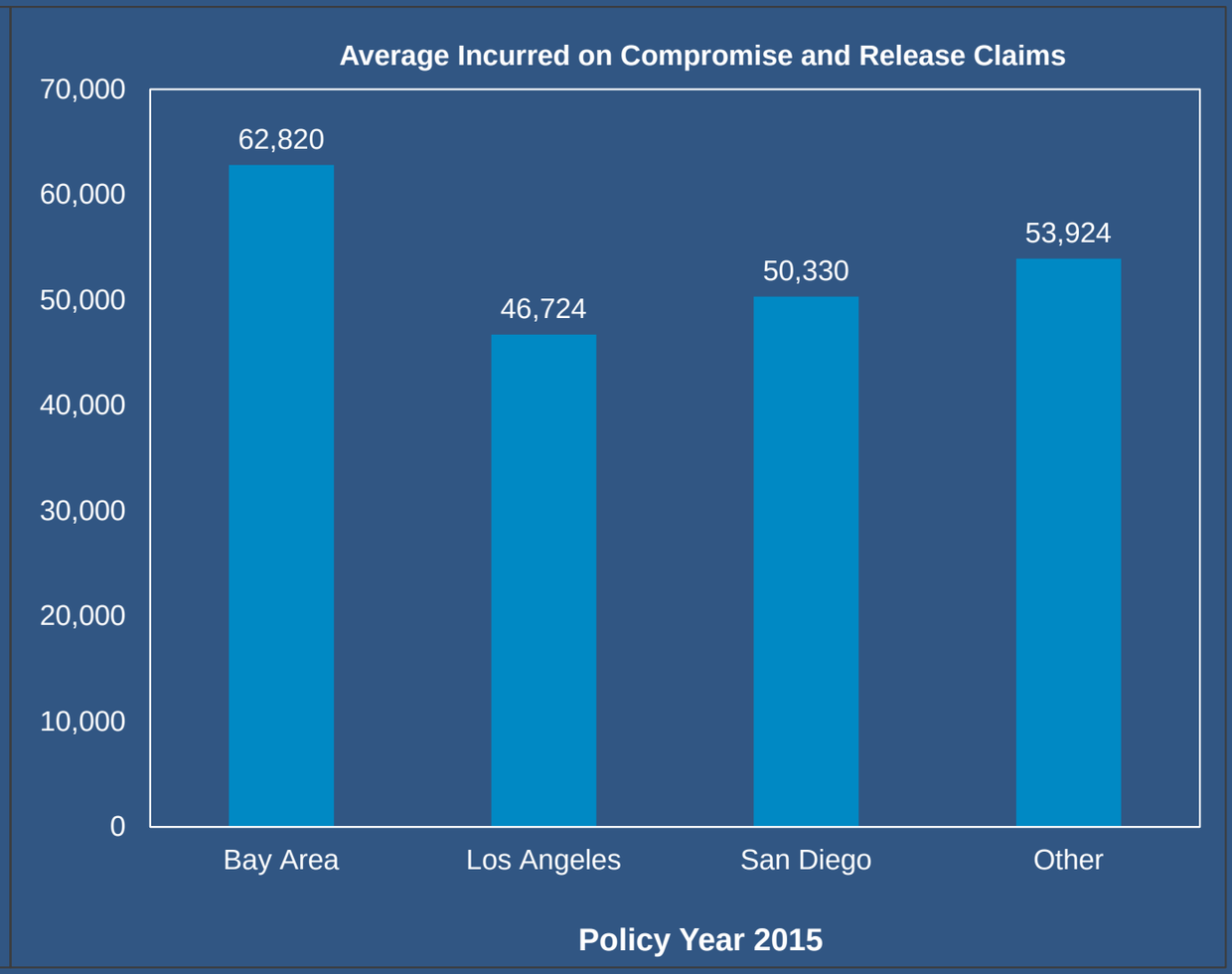
Source: WCIRB aggregate financial data

Claims Settled by Compromise & Release and Stipulated Award (Exhibits M6.1 - M6.5)





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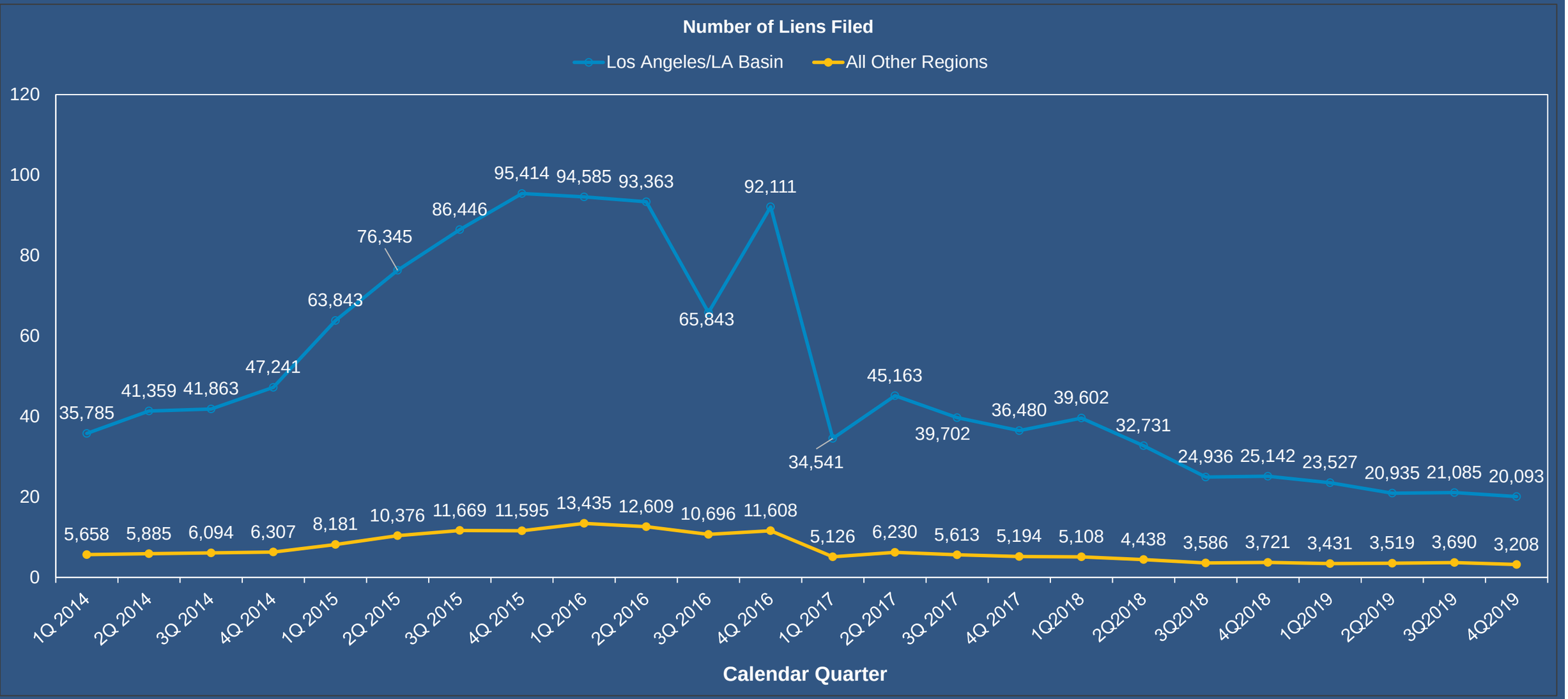
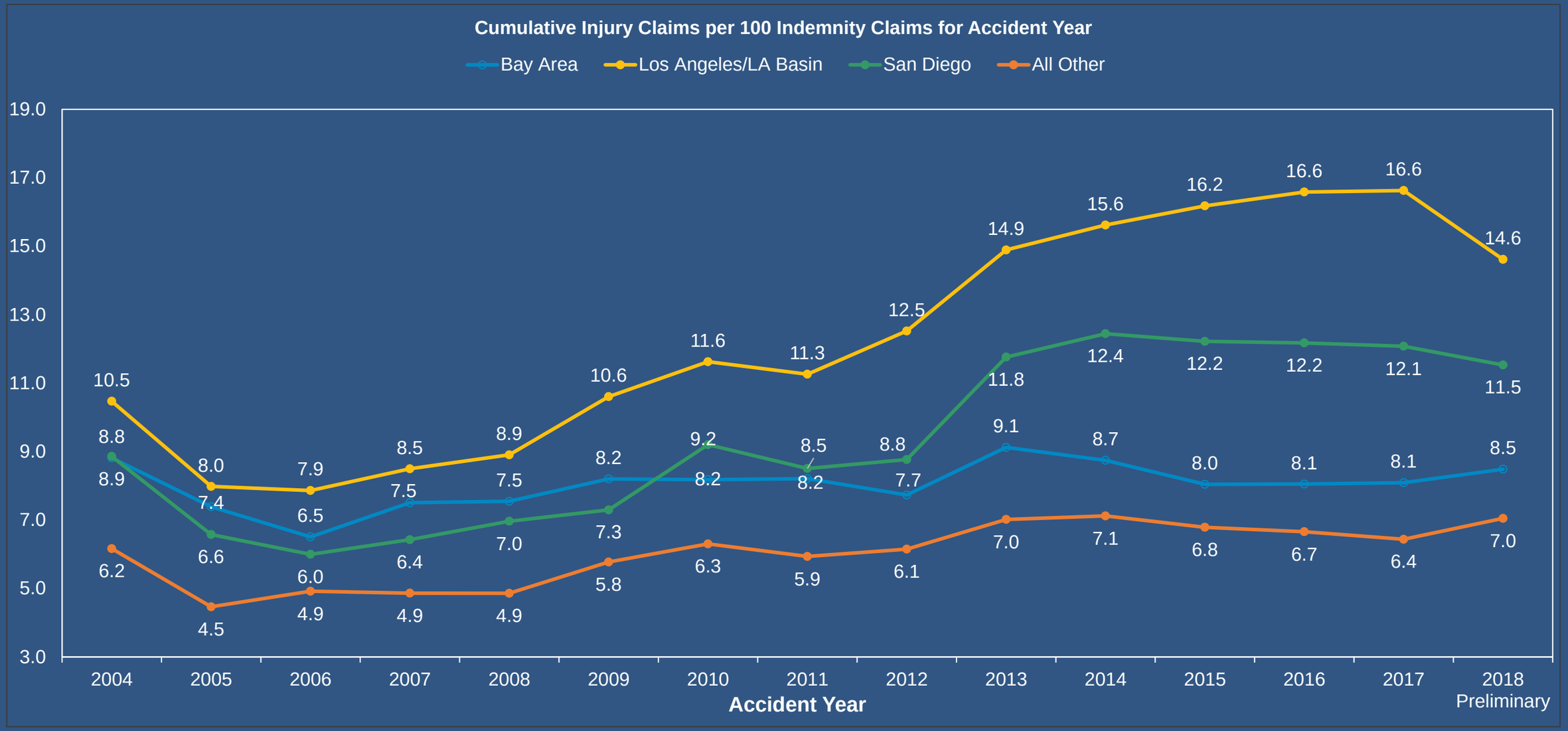
Source: WCIRB unit statistical data at third report level. Compares the percent of claims settled by C & R to the total claims settled by C & R or stipulated award

Filed Lien Counts (Exhibit M9.2)



Source: Division of Workers' Compensation

Claim Count Ratio by Region Based on USR at 1st Report Level (Exhibit C17)



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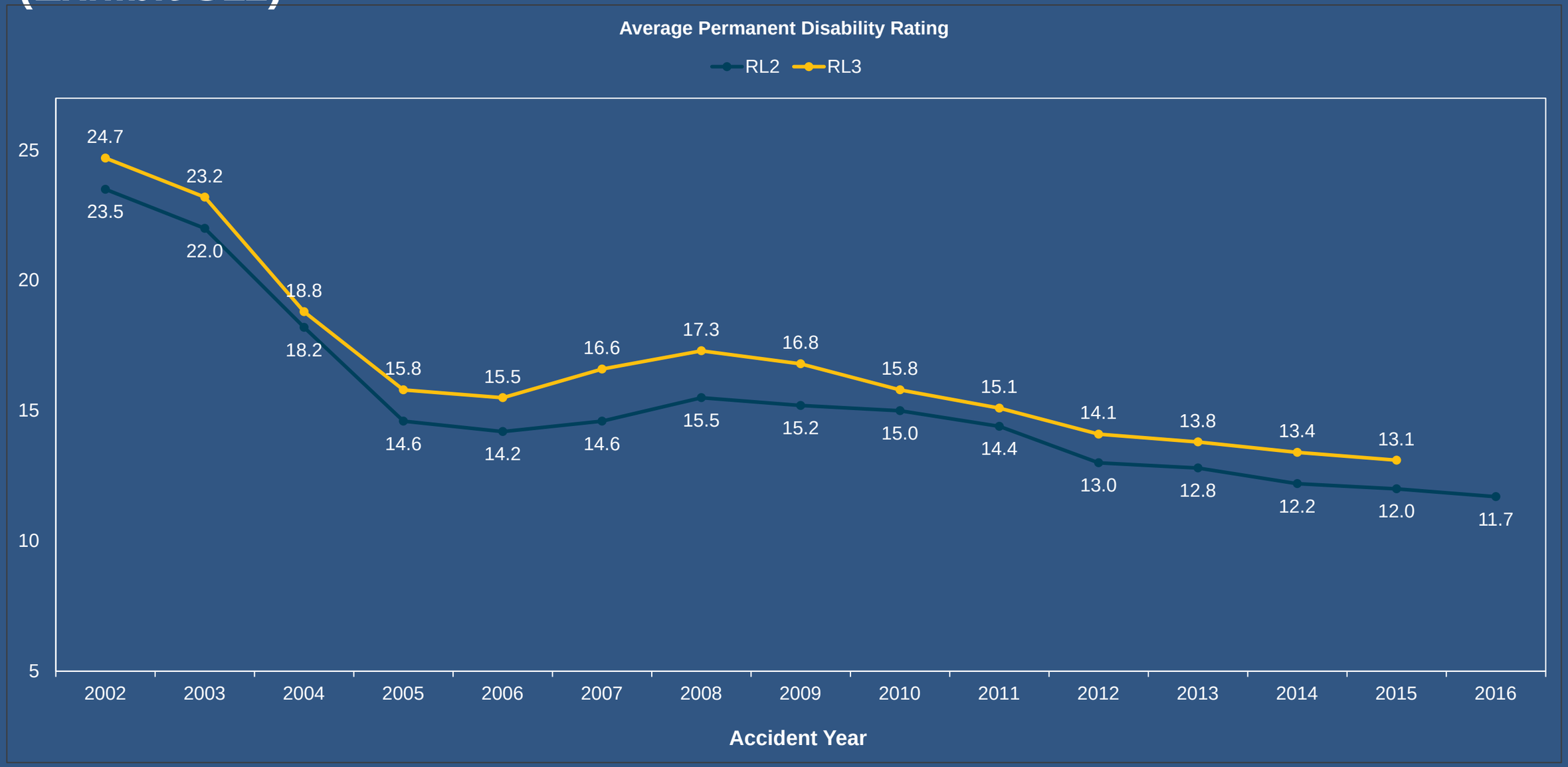
Source: WCIRB unit statistical data

Average Permanent Disability Rating (Exhibit S11)



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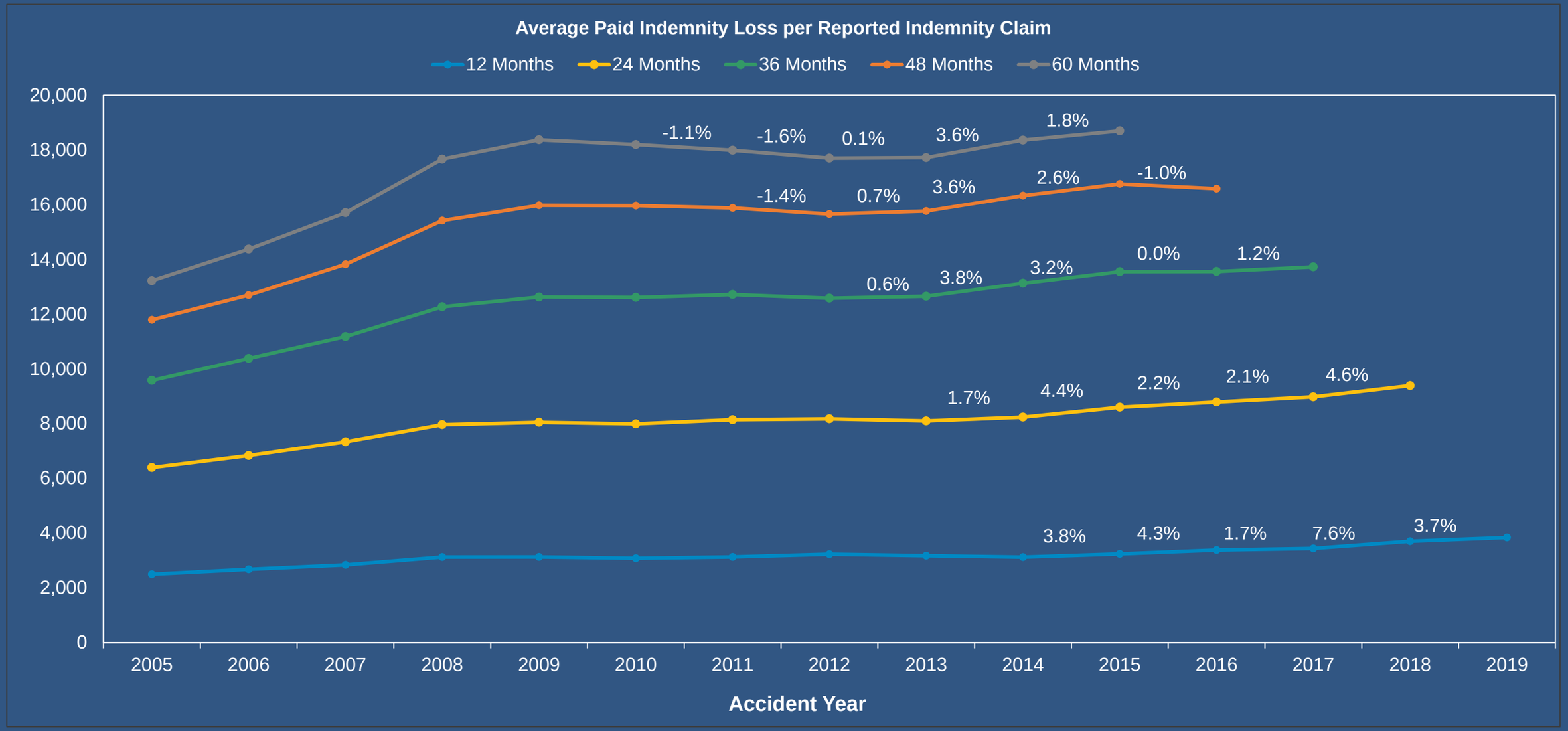
Source: WCIRB unit statistical data

Severity – Paid Indemnity per Indemnity Claim (Exhibit S4.1 Updated)



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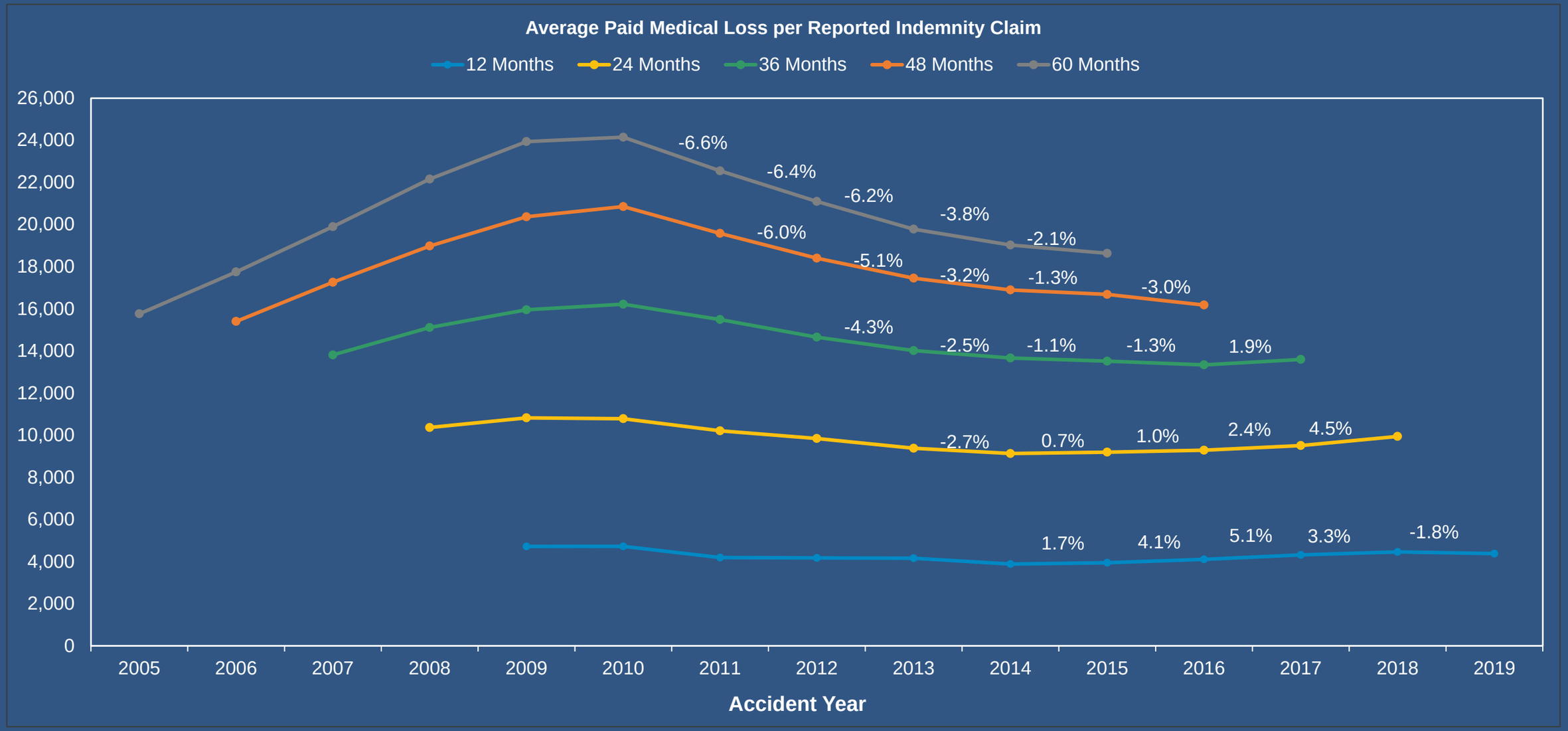
Source: WCIRB aggregate financial data

Severity – Paid Medical per Indemnity Claim (Exhibit S4.2 Updated)



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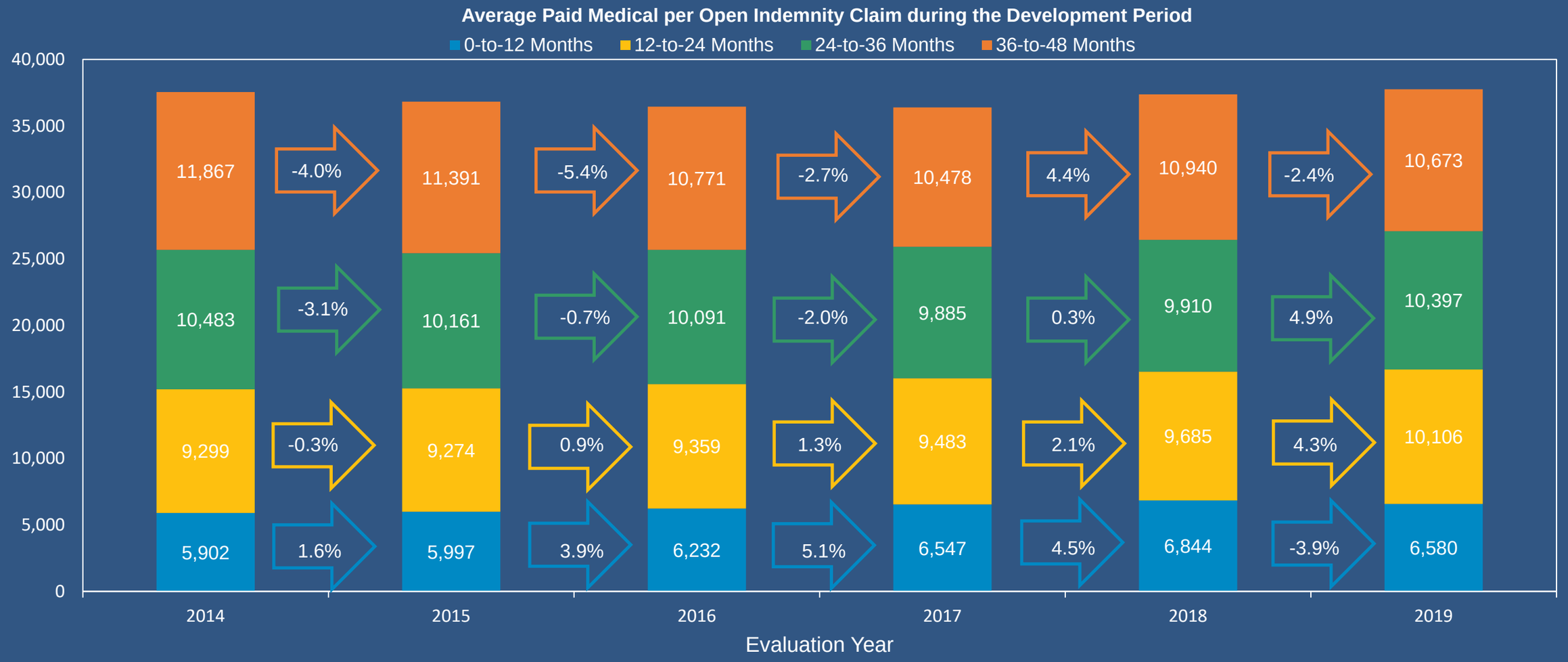
Source: WCIRB aggregate financial data

Severity – Incremental Paid Medical per Open Indemnity Claim During the Development Period (Exhibit S7 Updated)

As of December 31, 2019



Source: WCIRB aggregate financial data

02

COVID-19 Crisis

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COVID-19 Crisis – Areas of Concern

- Identification of COVID-19 Claims
- Potential Rule Changes
  - Experience Rating
  - Payroll/Basis of Premium
  - Classification
  - Data Reporting
- Impact on Ratemaking and WC System
- Duration of Health Crisis and Economic Impact

COVID-19 Crisis – Impact on Ratemaking and WC System

- Potential Direct Impacts
  - Significant slowdown in claim activity
  - Reductions in payrolls and premiums (audit premium impact)
  - Increase in work-at-home claims
  - Increase in disease claims for some industries
- Potential Indirect Impacts
  - Impact of economic slowdown on frequency in light of volume of post-termination claims
  - Impact of economic slowdown on claim duration
  - Impact of economic slowdown on industrial mix
  - Impact of reduced/substituted medical treatments on future costs and duration
  - Use of telemedicine

03

12/31/2019 Experience – Review of Methodologies

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Updated Summary of 12/31/2019 Experience

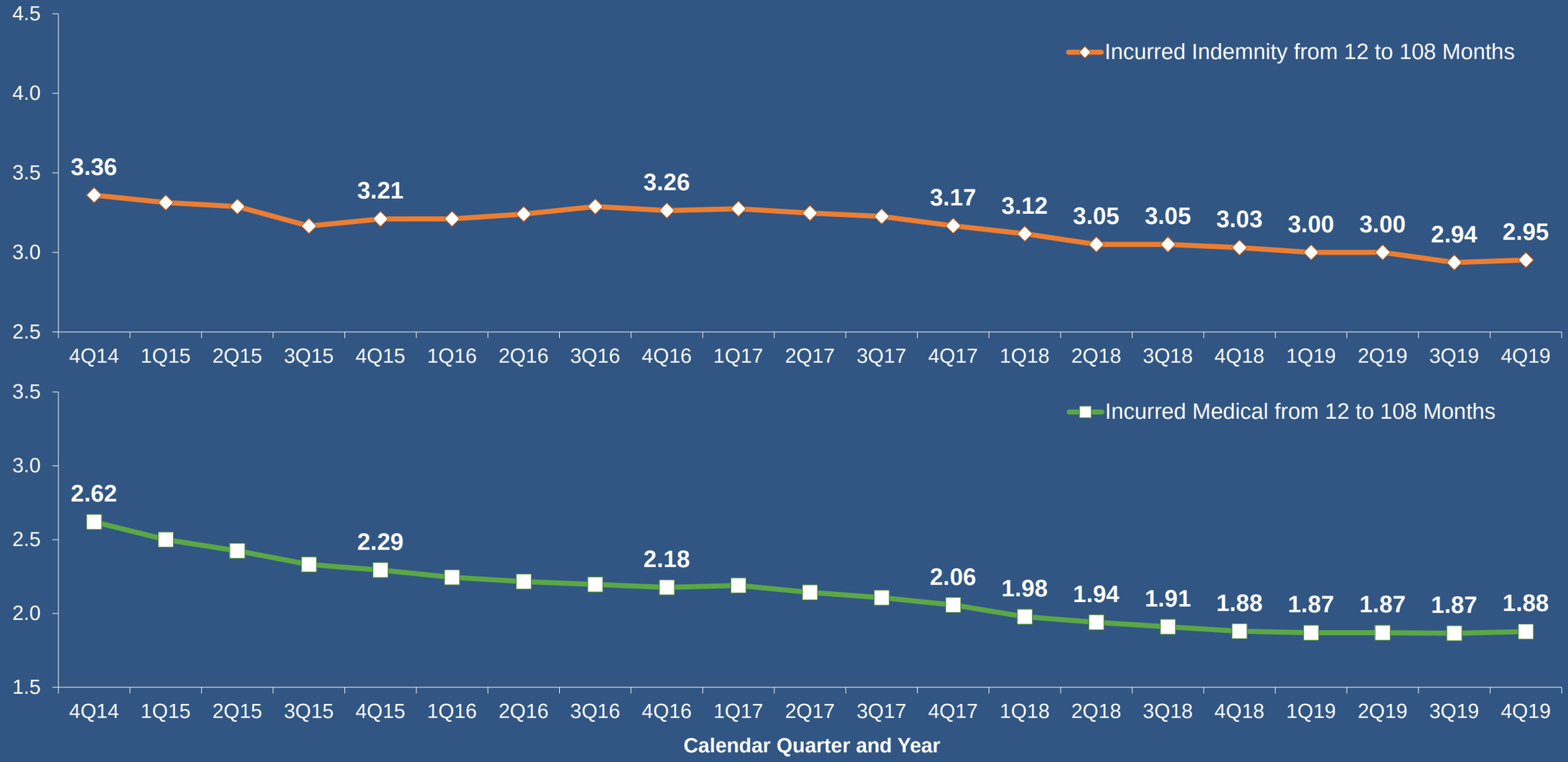
- Approximately 100% of market reflected
- Methodologies consistent with 1/1/2020 Filing
- Projected loss ratio for July 1, 2020 to December 31, 2020 policies: 0.561
- 2 point decrease from 1/1/2020 Filing projection based on 3/31/2019 experience (0.583)
- Modest increase from projection presented at 3/16/2020 meeting (0.557)
  - Updated March 2020 UCLA Forecast in premium on-level adjustments
  - Updated frequency model projections based on March 2020 UCLA Forecast
  - Updated severity trends for indemnity (0%) and medical (1.5%)

Approximate Change in Loss Ratio Projection

Factor	Approx. Change in Percentage Points
	From 1/1/2020 Filing
Loss Development Emergence	-1.5
Inclusion of 2019 Accident Year	0.0
Updated Wage Forecast	+0.5
Updated Frequency Trends	0.0
Updated Severity Trends	-0.5
Trend to July 1, 2020 Policy Period	-0.5
Total (to 4/2/2020 Agenda)	**-2.0**

Cumulative Incurred Development from 12 to 108 Months

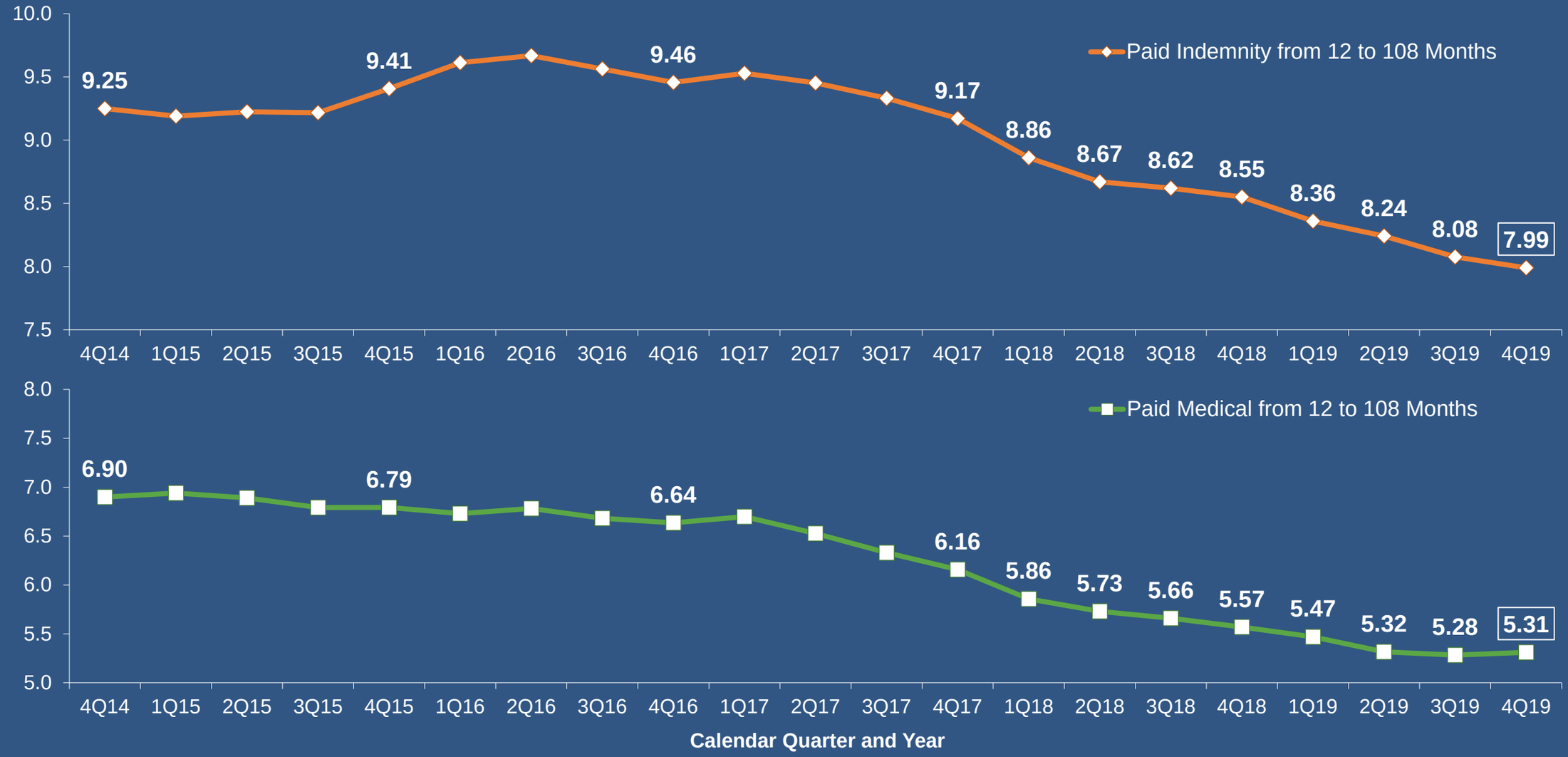
As of December 31, 2019



Source: WCIRB aggregate financial data

Cumulative Paid Development from 12 to 108 Months

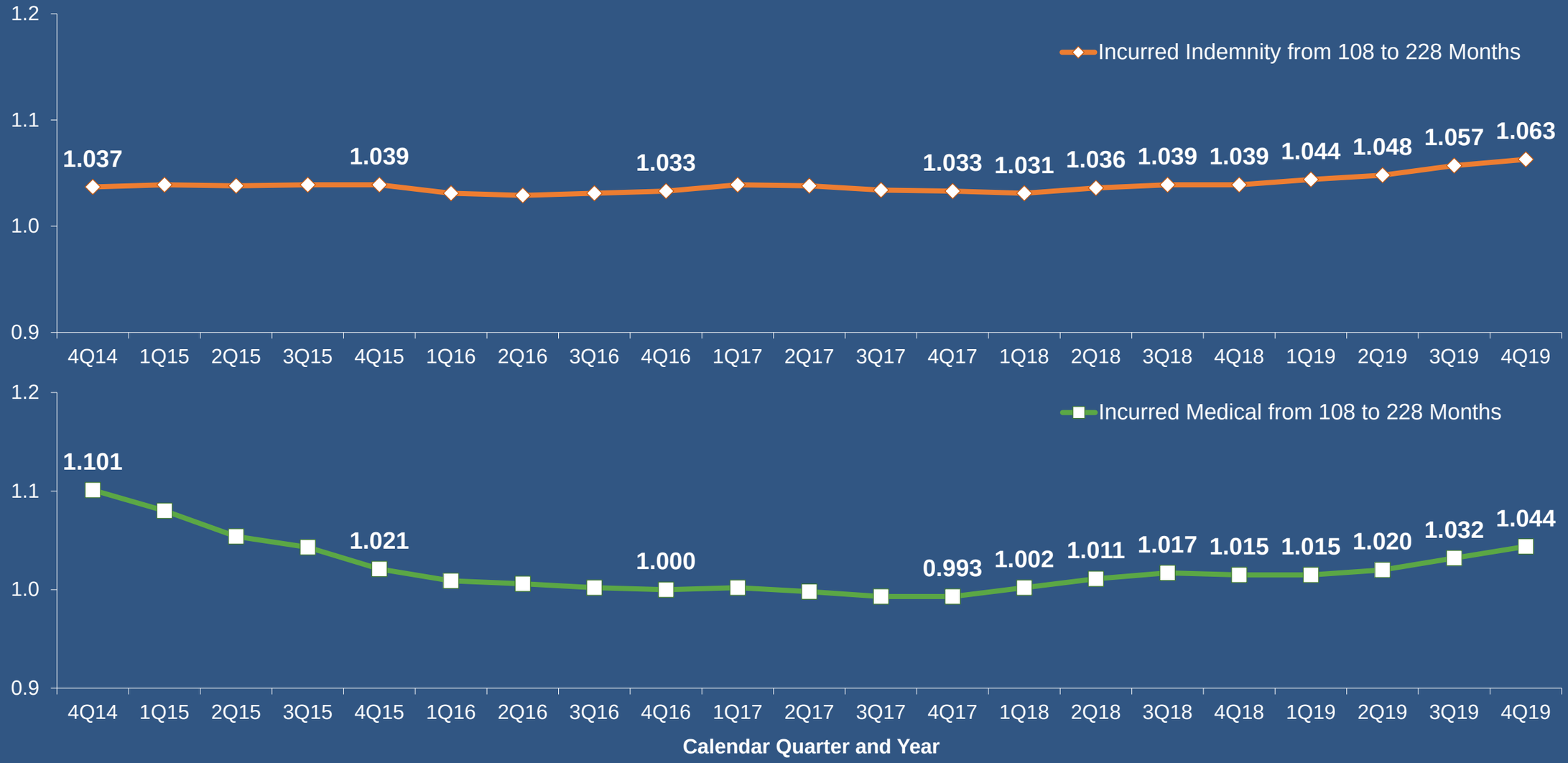
As of December 31, 2019



Source: WCIRB aggregate financial data

Cumulative Incurred Development from 108 to 228 Months

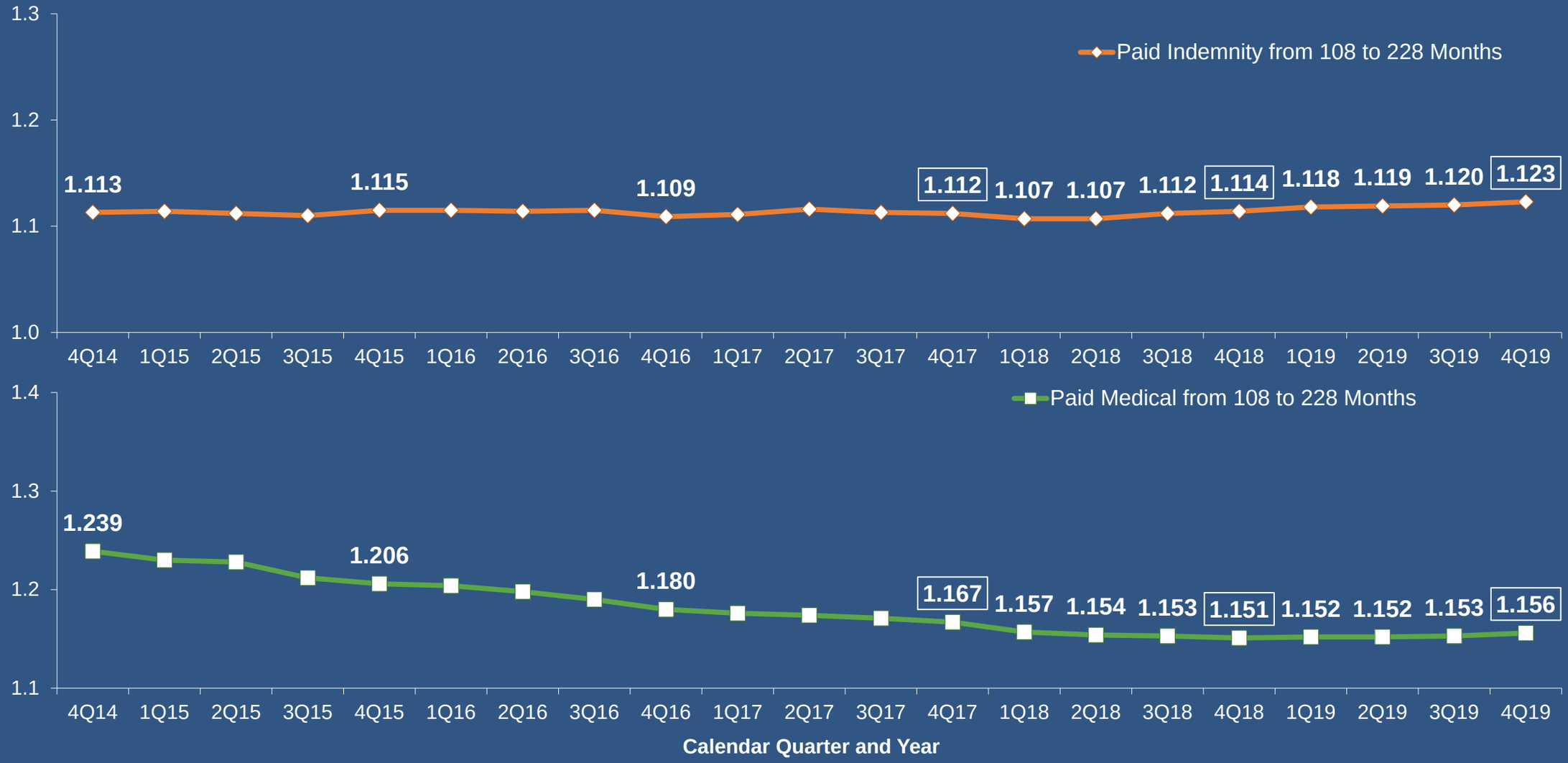
As of December 31, 2019



Source: WCIRB aggregate financial data

Cumulative Paid Development from 108 to 228 Months

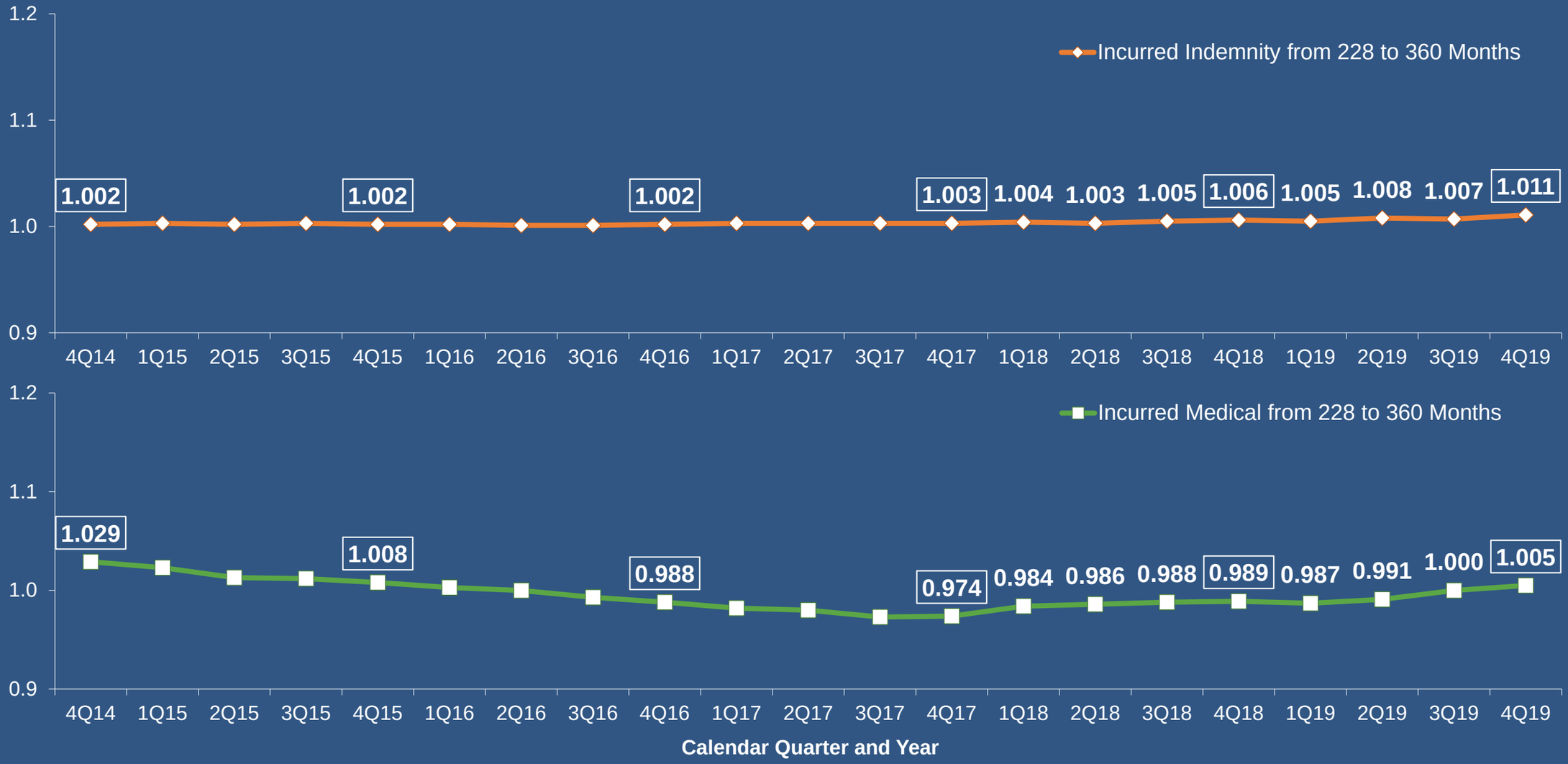
As of December 31, 2019



Source: WCIRB aggregate financial data

Cumulative Incurred Development from 228 to 360 Months

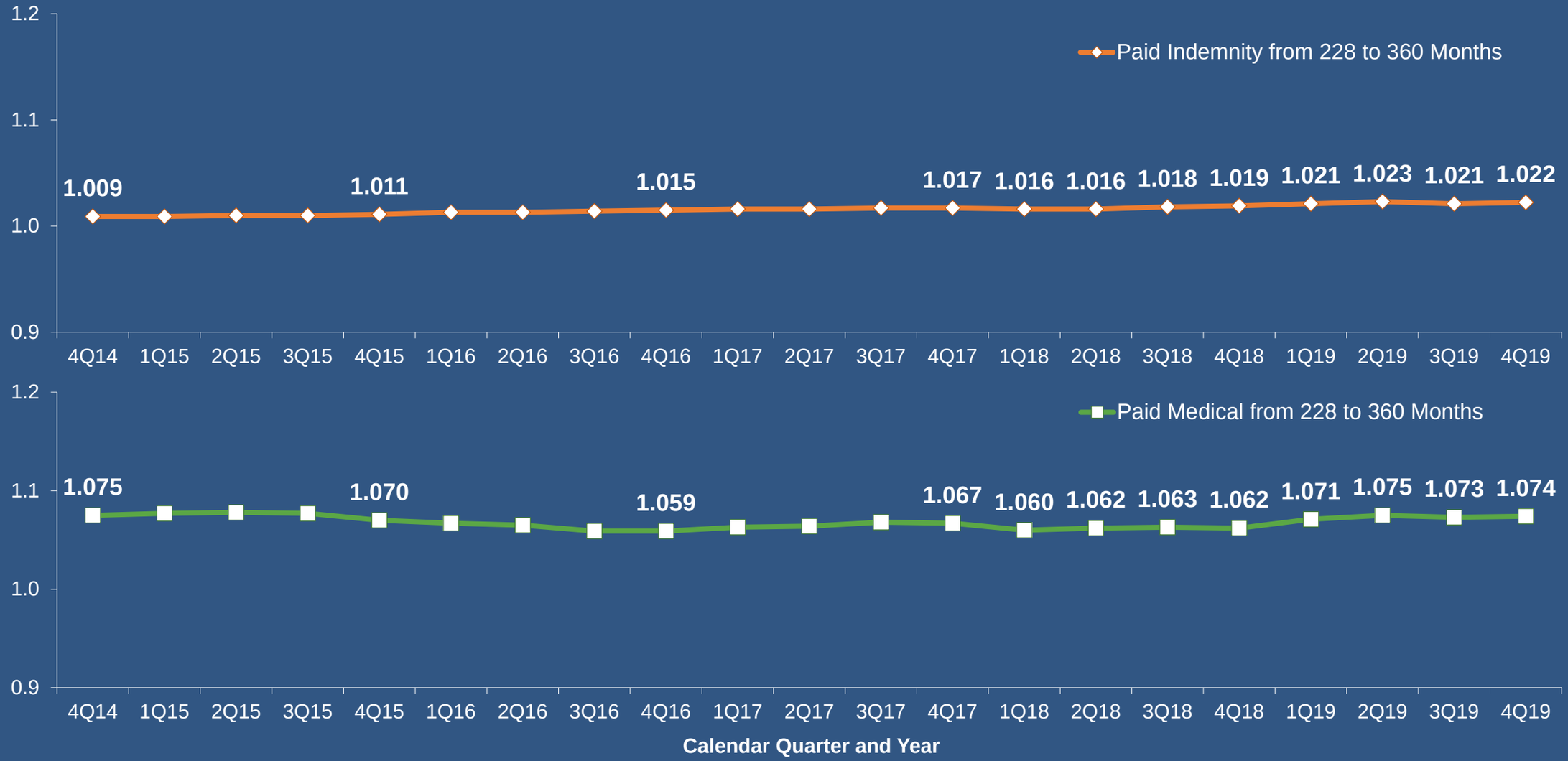
As of December 31, 2019



Source: WCIRB aggregate financial data

Cumulative Paid Development from 228 to 360 Months

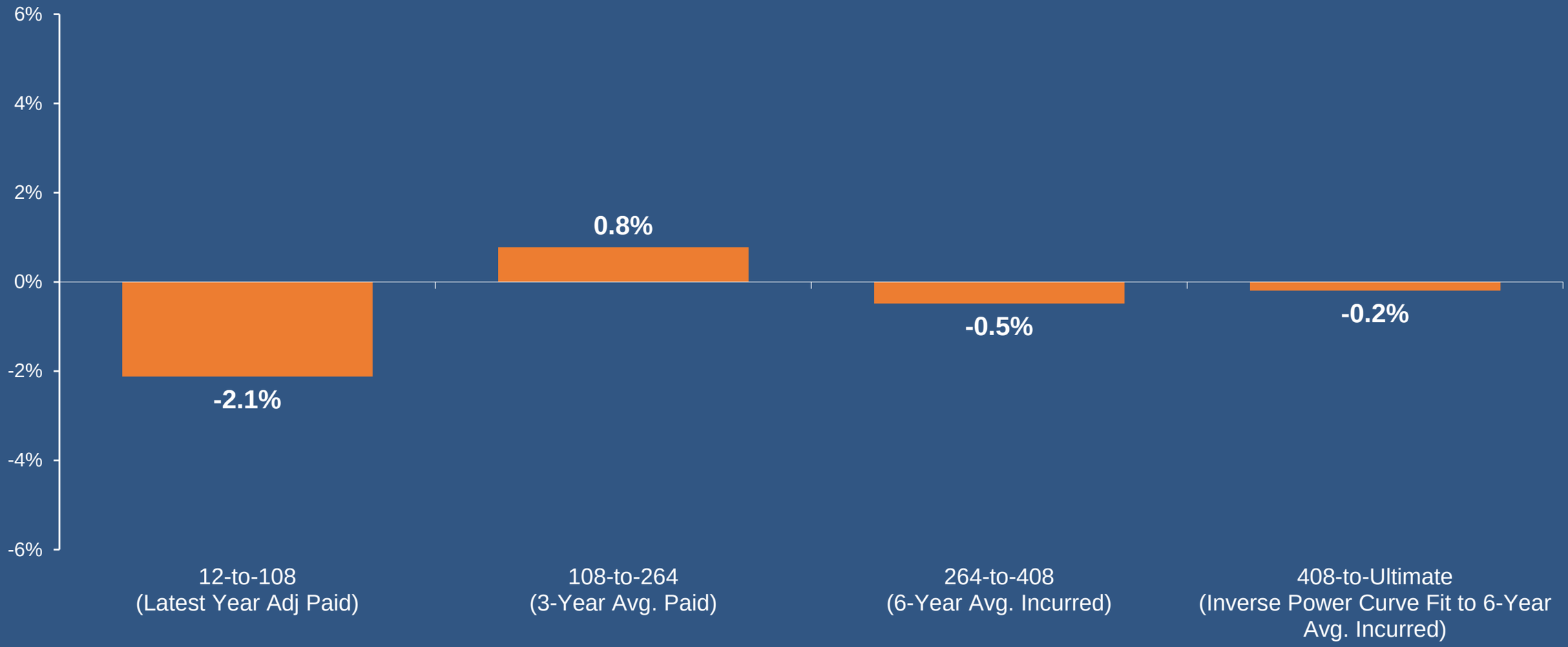
As of December 31, 2019



Source: WCIRB aggregate financial data

Change in Projected Medical Development Factor

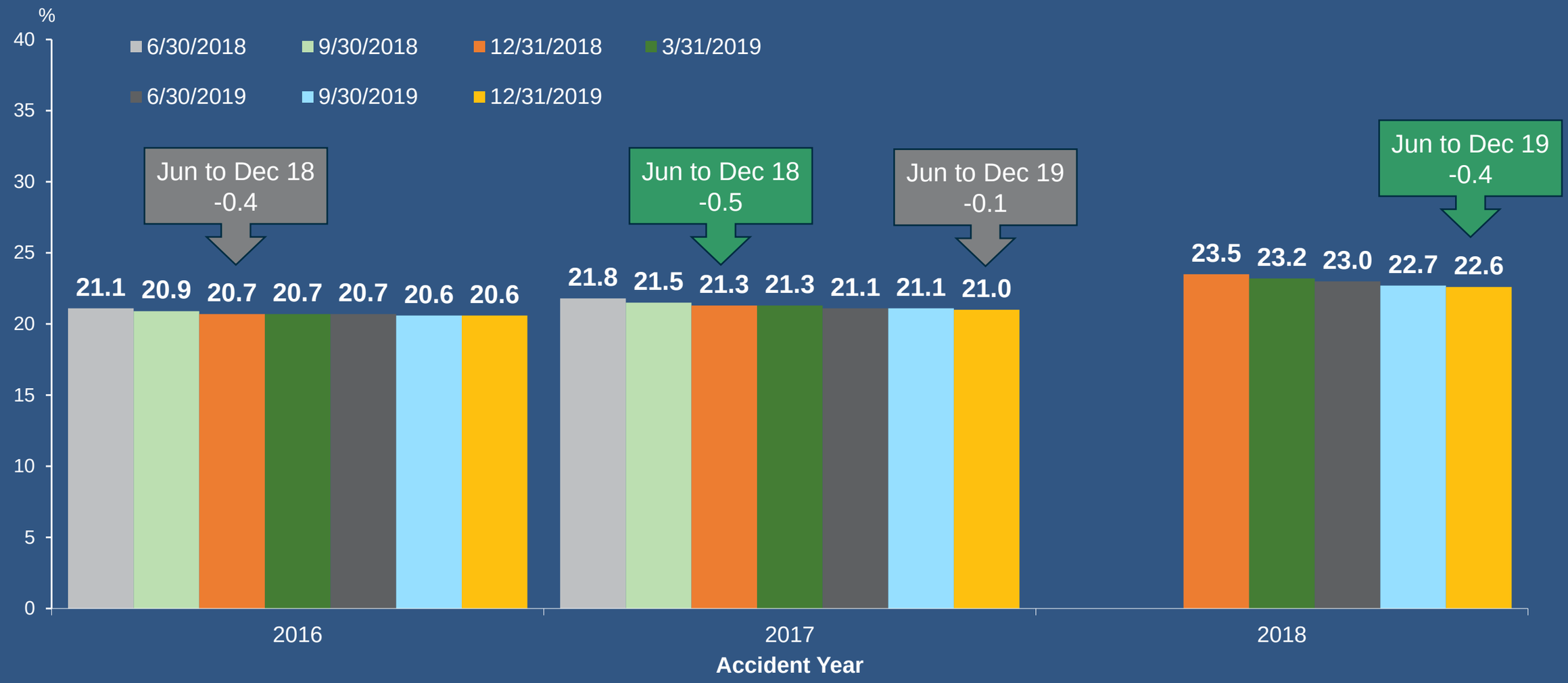
3/31/2019 to 12/31/2019 Experience



Source: WCIRB aggregate financial data

Projected Ultimate Indemnity Loss Ratios (Exhibit 3.1)

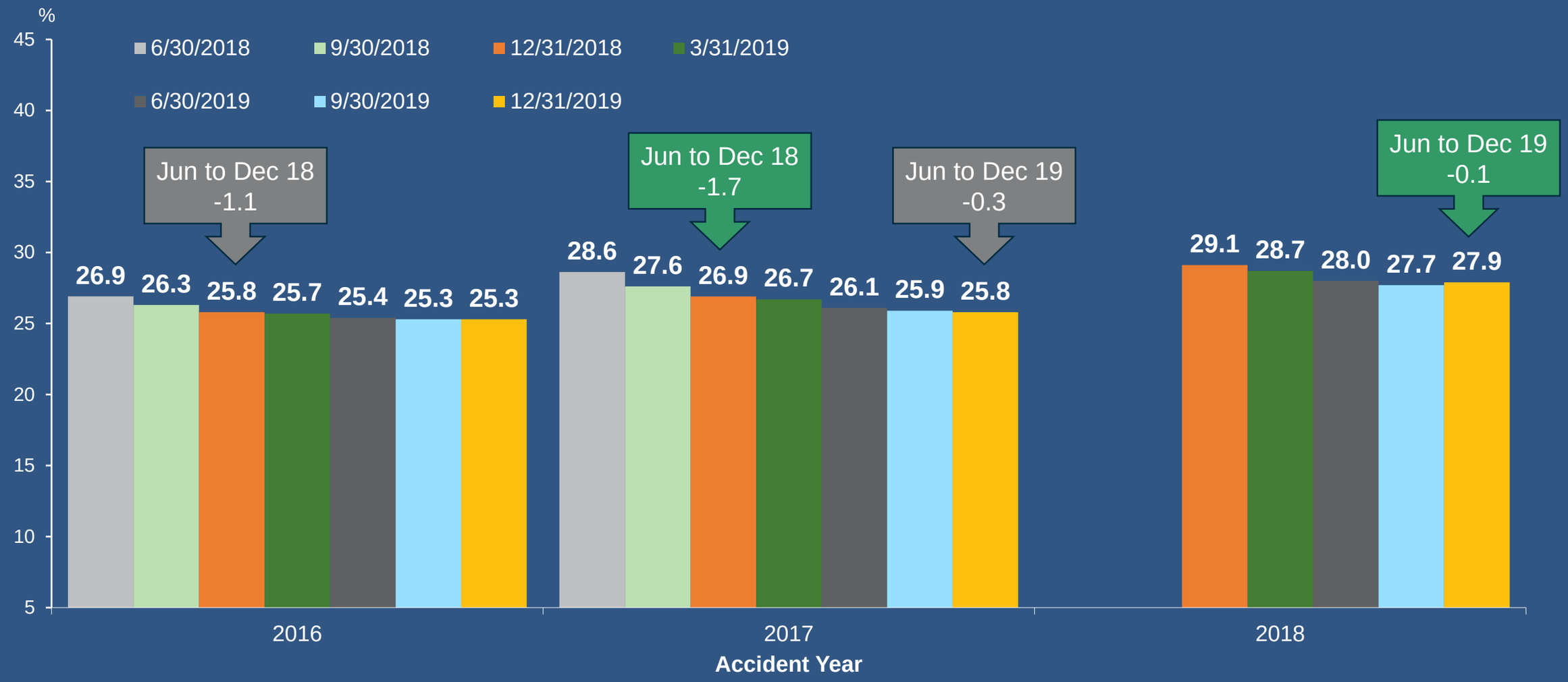
As of December 31, 2019



Note: All loss ratios are adjusted to the loss development methodology reflected in the 3/16/2020 Agenda and may not be comparable to the actual loss ratios projected at that time.
Source: WCIRB aggregate financial data

Projected Ultimate Medical Loss Ratios (Exhibit 3.2)

As of December 31, 2019



Note: All loss ratios are adjusted to the loss development methodology reflected in the 3/16/2020 Agenda and may not be comparable to the actual loss ratios projected at that time.
Source: WCIRB aggregate financial data

Alternative Loss Development Methodologies (Item AC20-04-02)
Incurred Methods

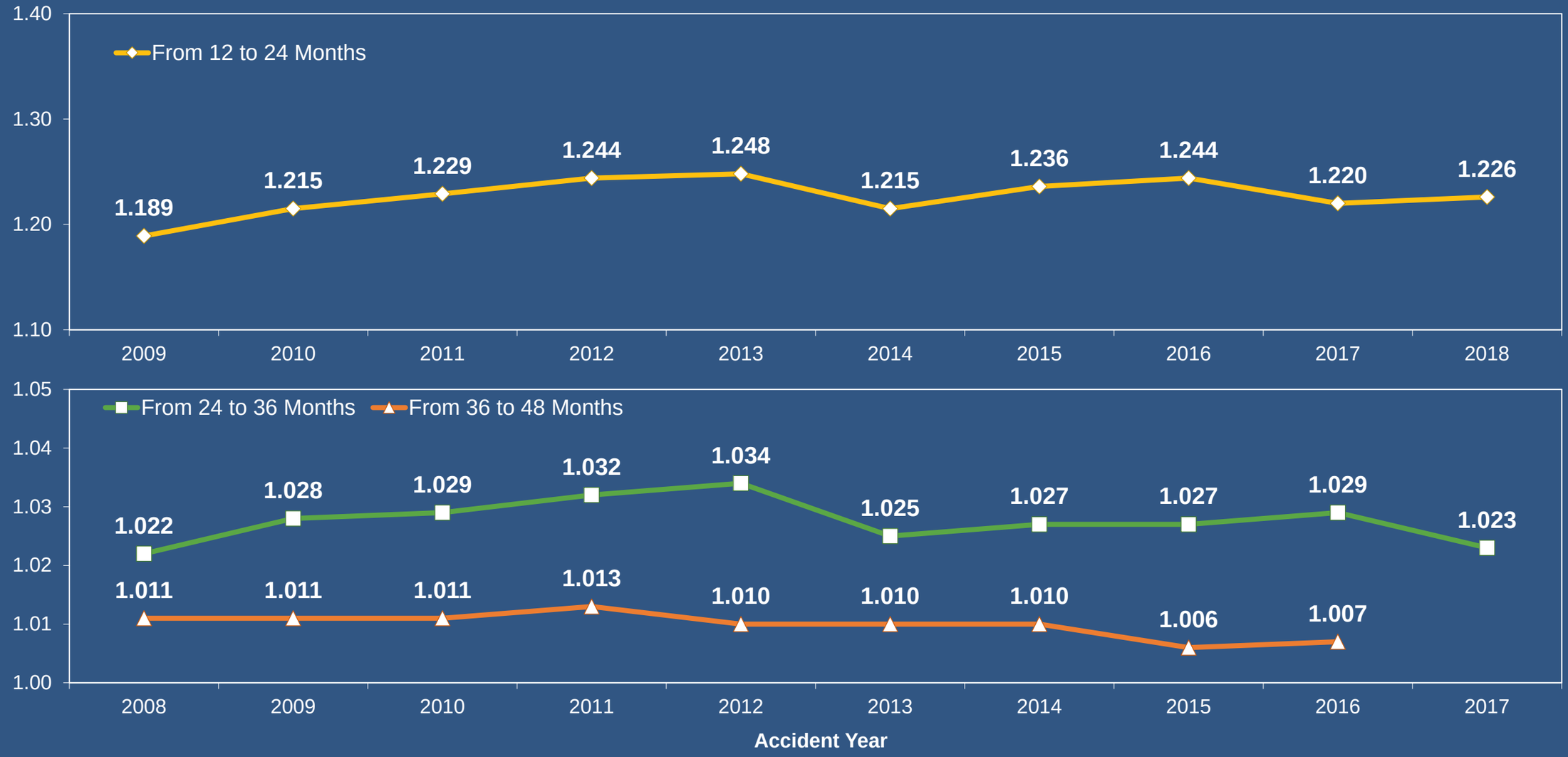
- Unadjusted Incurred Projections
  - Best with stable case reserve levels and incurred patterns
  - Can be distorted by changing reserve levels
  - ★ Incurred development more volatile and cyclical than paid development
  - Performed poorly during transition periods
  - ★ Greater variability across insurers than paid method
  - ★ Difficult to impute reform adjustments
  - Treatment of MCCP in medical reserves unknown
  - Incurred development decreased over last several years but has turned around recently
- Incurred Adjusted for Changes in Case Reserve Levels
  - ★ Best with clear evidence of changing case reserve levels
  - Unclear how to impute reform impacts
  - Recent updates reduced reliance on assumptions and improved accuracy of adjustment
  - ★ Method can be very volatile with constantly shifting reserve levels (3-year average is used)
  - Current projection not significantly different from unadjusted incurred projections

Alternative Loss Development Methodologies (Item AC20-04-02)
Paid Methods

- Unadjusted Paid Projections
  - Best with stable payment patterns
  - Can be distorted by changing settlement rates or reforms
  - Generally outperformed unadjusted incurred during transition periods
  - Less variability in paid patterns across insurers than in incurred patterns
  - ★ Recent changes in paid development likely related to reforms and claim settlement changes
- Reform-Adjusted Paid
  - Best with clear evidence of reform impact on payment patterns
  - SB 1160 adjustments reflect impact of liens on medical development patterns
  - Adjustment for pharmaceutical cost changes restate medical development to 2018 pharmaceutical cost level
  - Current projection slightly below unadjusted paid projection
- Claim Settlement Rate-Adjusted Paid
  - Best with clear evidence of changes in claim settlement rates affecting loss development
  - ★ Improved projection during periods of significant settlement rate change
  - Primary assumptions of method reasonable based on recent review
  - ★ Claim settlement rates have leveled in recent AYs but continued to increase for older years

Indemnity Claim Count Development (Exhibit 10.1)

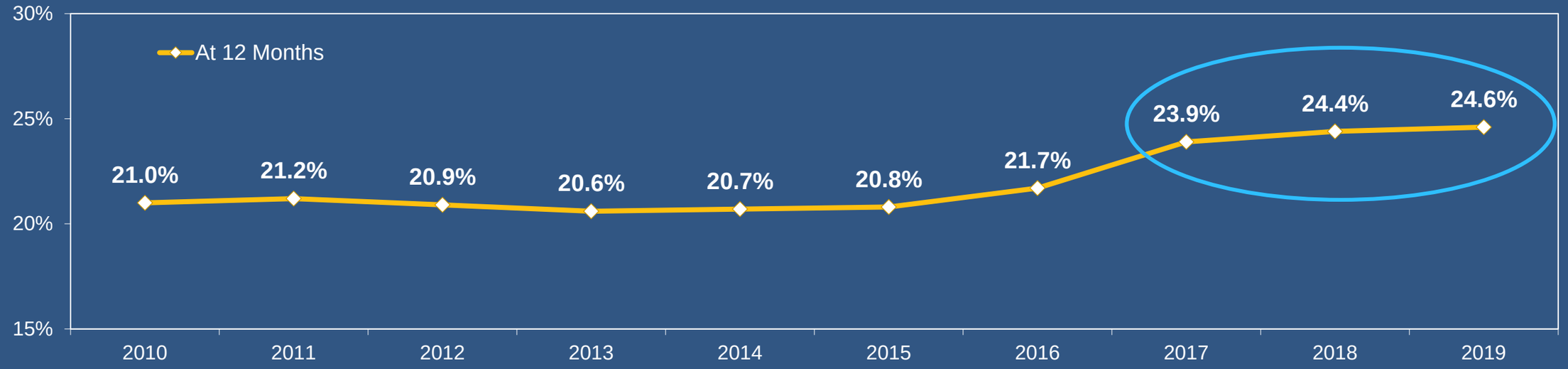
As of December 31, 2019

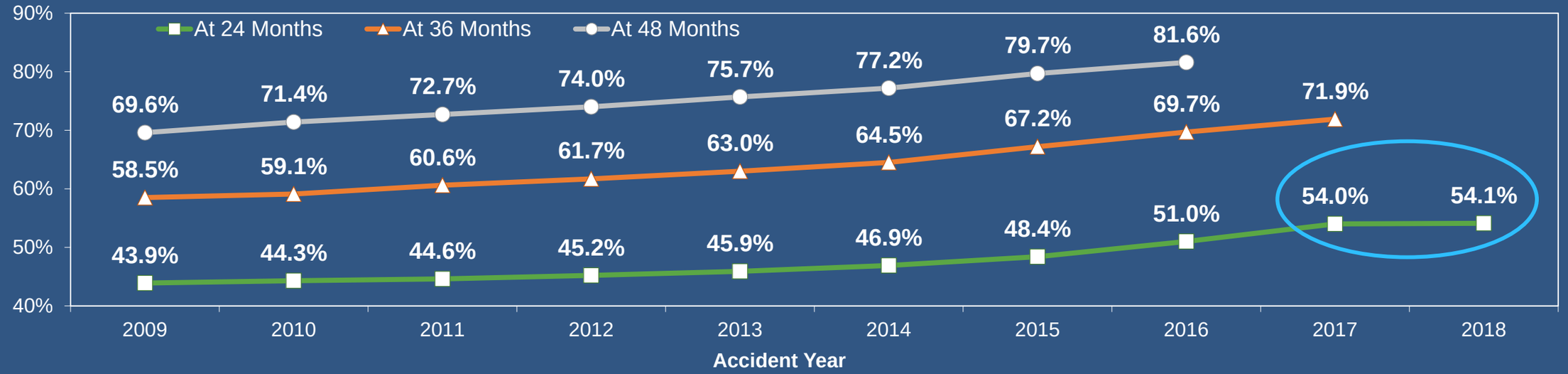


Source: WCIRB aggregate financial data

Ultimate Indemnity Claim Settlement Ratios (Exhibit 11.2)

As of December 31, 2019





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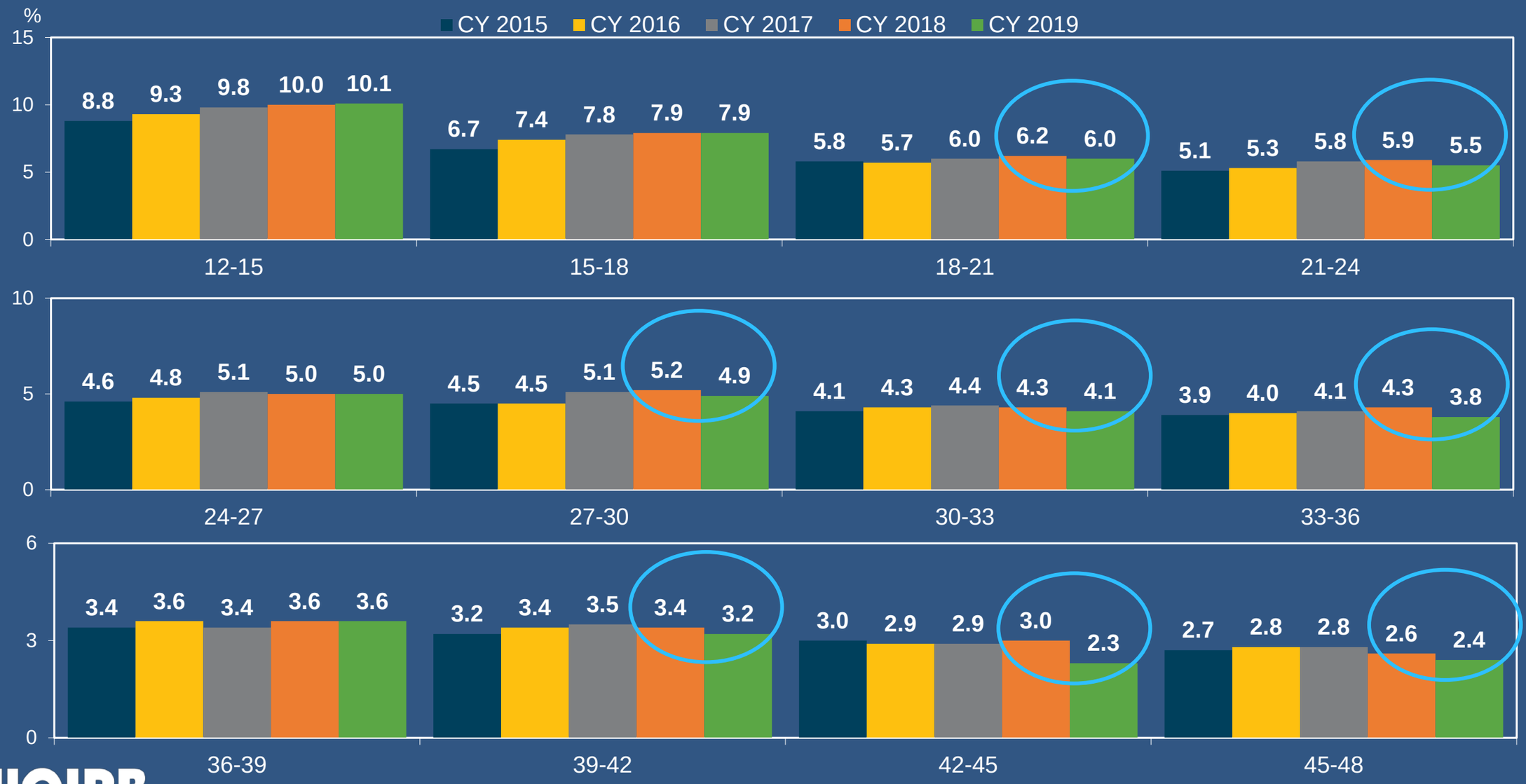
Source: WCIRB aggregate financial data and projections

Incremental Indemnity Claim Settlement Ratios (Exhibit 11.3)

As of December 31, 2019



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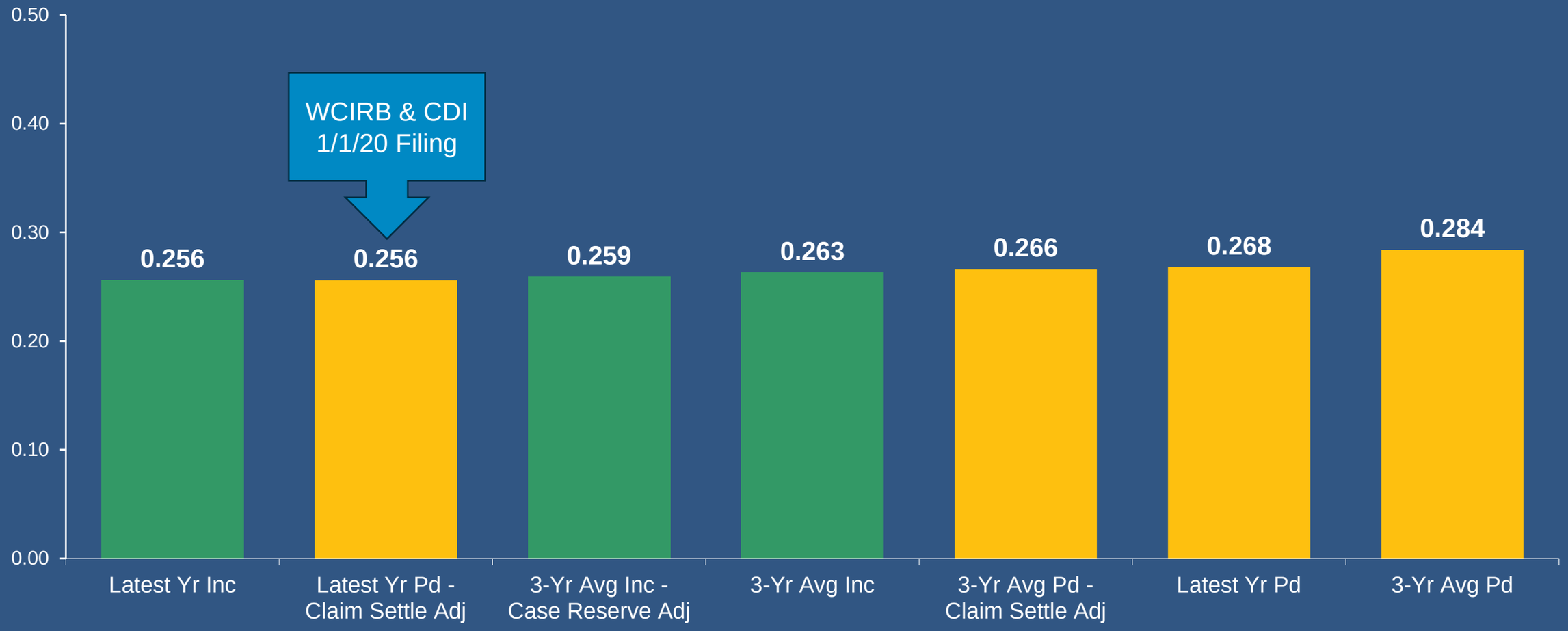
Source: WCIRB aggregate financial data

Projected Indemnity On-Level Loss Ratios under Alternative Development Methods

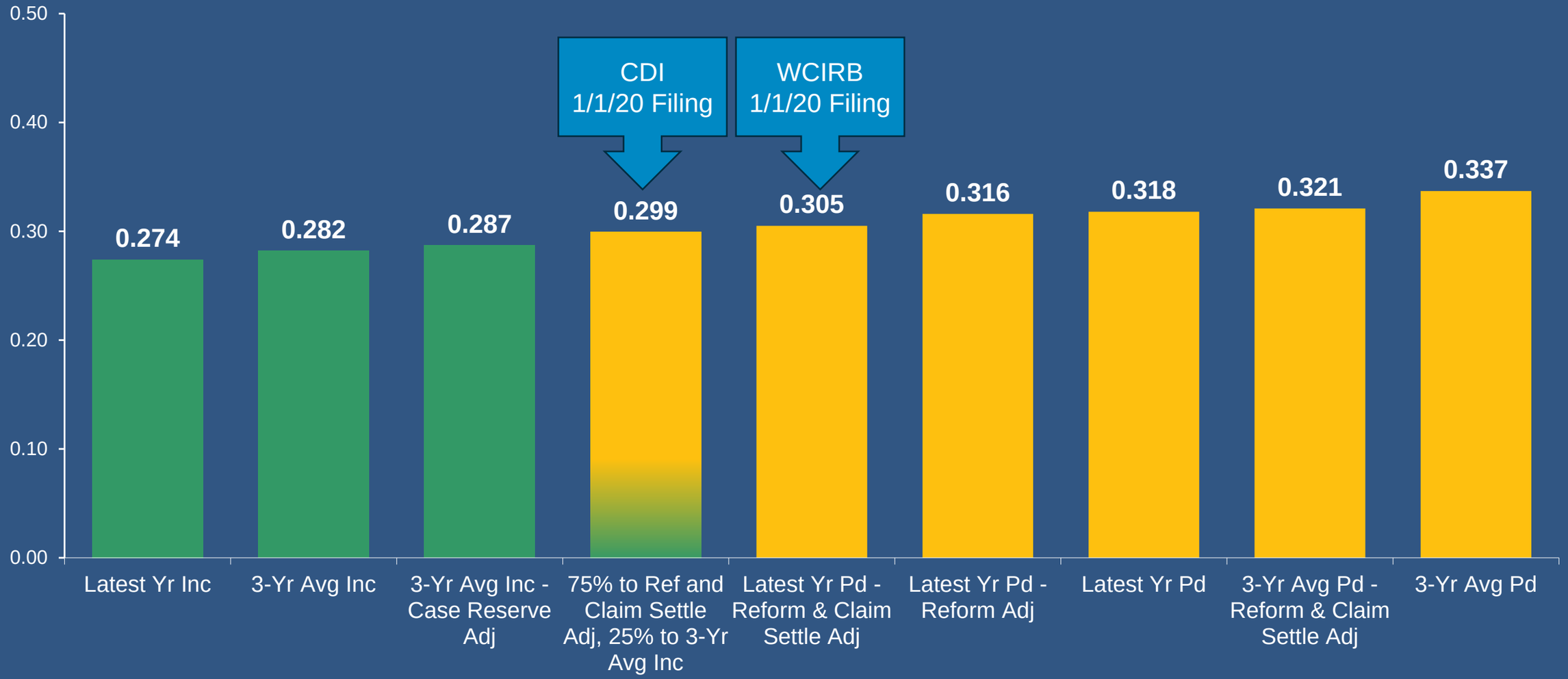
As of December 31, 2019



Source: WCIRB aggregate financial data and projections

Projected Medical On-Level Loss Ratios under Alternative Development Methods

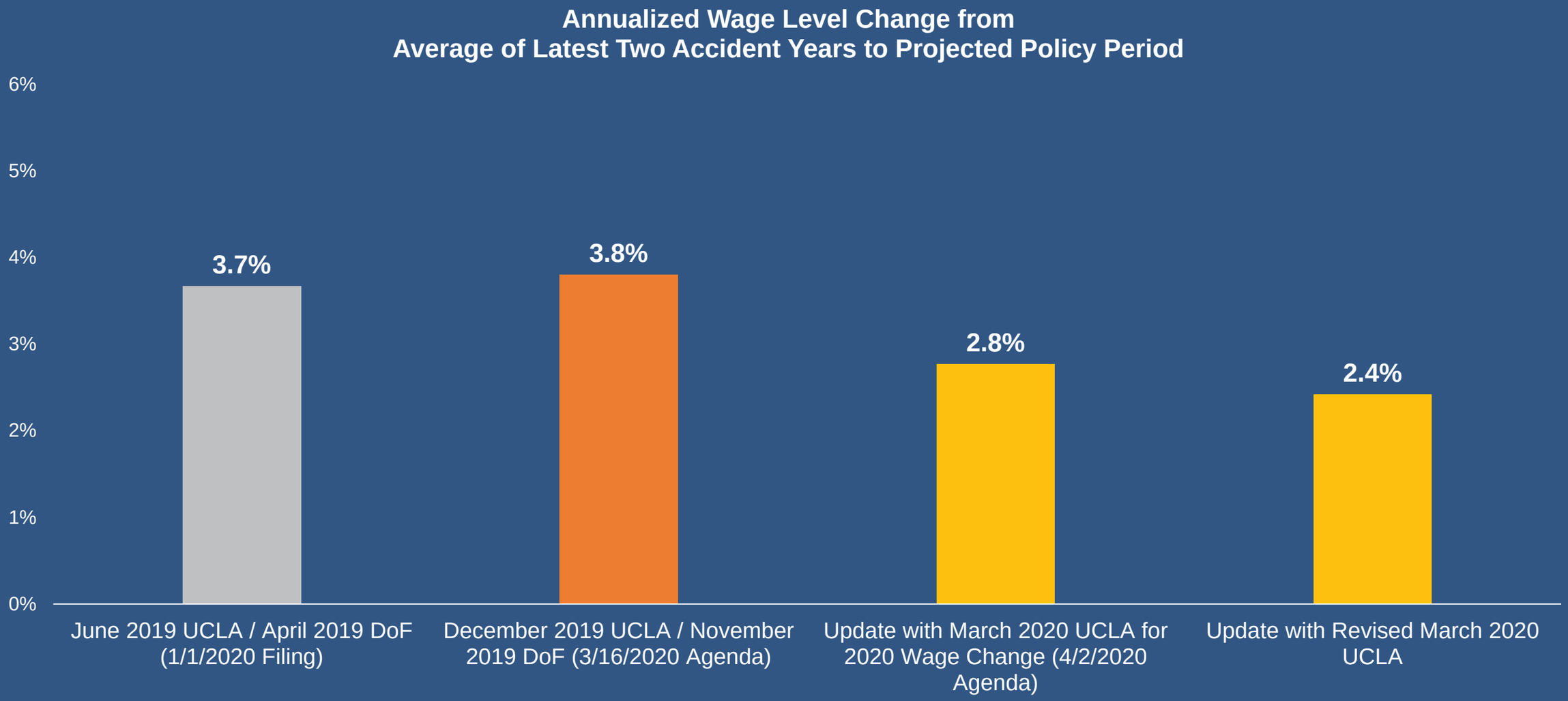
As of December 31, 2019



Source: WCIRB aggregate financial data and projections.

Average Annual Wage Level Change Forecast (Exhibit 5.1)

As of November 2019 & March 2020



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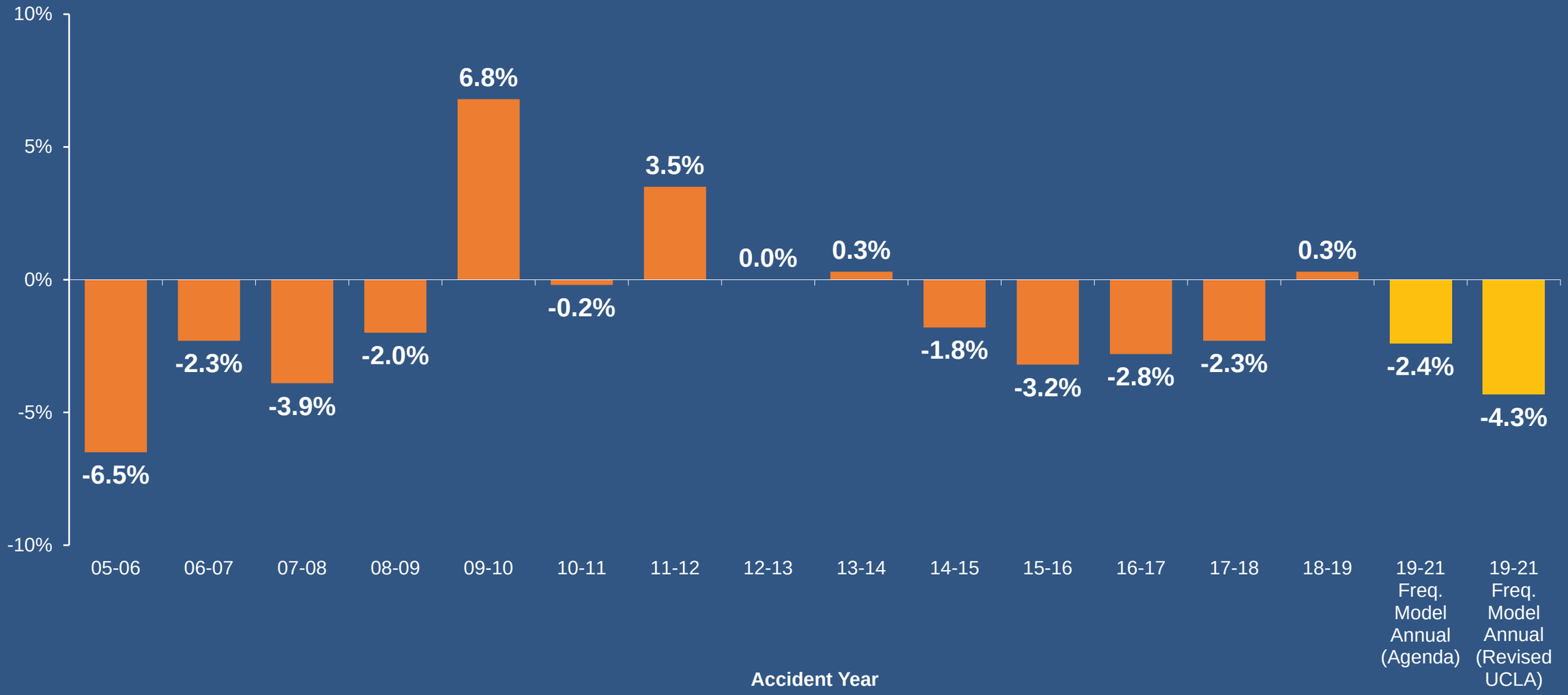
Source: Average of UCLA Anderson School of Business and California Department of Finance forecasts

Projected Changes in Indemnity Claim Frequency (Exhibits 6.1 & 12)

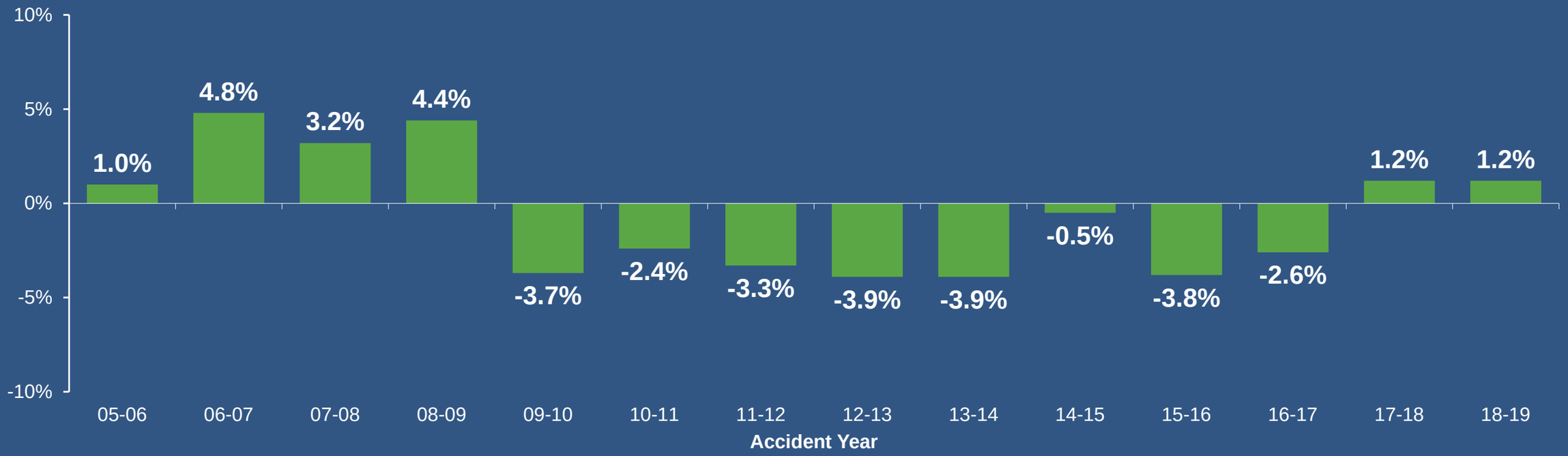
As of December 31, 2019



Source: 2019 is based on changes in aggregate indemnity claim counts compared to changes in statewide employment. All other estimates are based on unit statistical indemnity claim counts compared to reported insured payroll. Forecasts produced by the WCIRB Econometric Claim Frequency Model and are adjusted to remove the impact of changes in the classification mix.

Projected Changes in On-Level Indemnity Severity (Exhibit 6.2)

As of December 31, 2019



Annual Exponential Trend Based on:

1990 to 2019: +1.2%

2005 to 2019: -1.3%

2015 to 2019: -1.0%

4/2/2020 Agenda Selected: 0%

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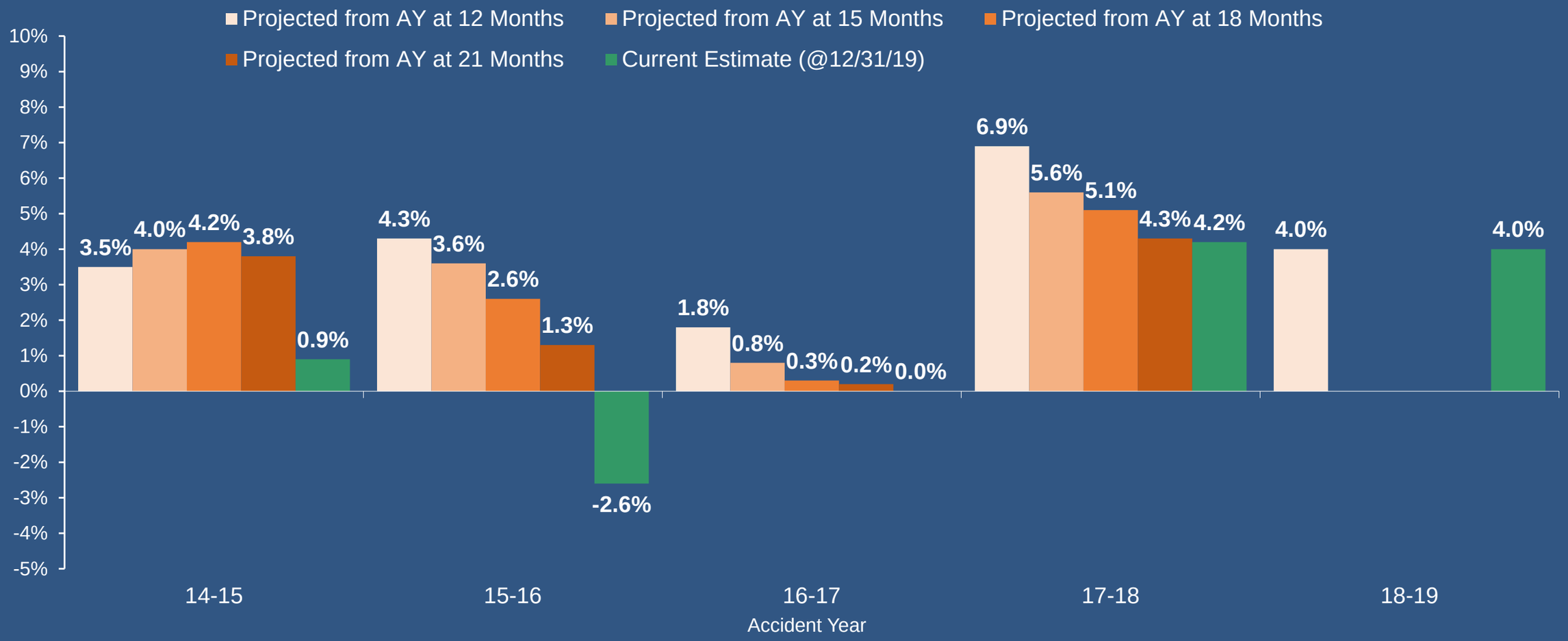
Source: WCIRB aggregate financial data and projections

Indemnity Severity Changes Projected from Early Evaluations Compared to Current

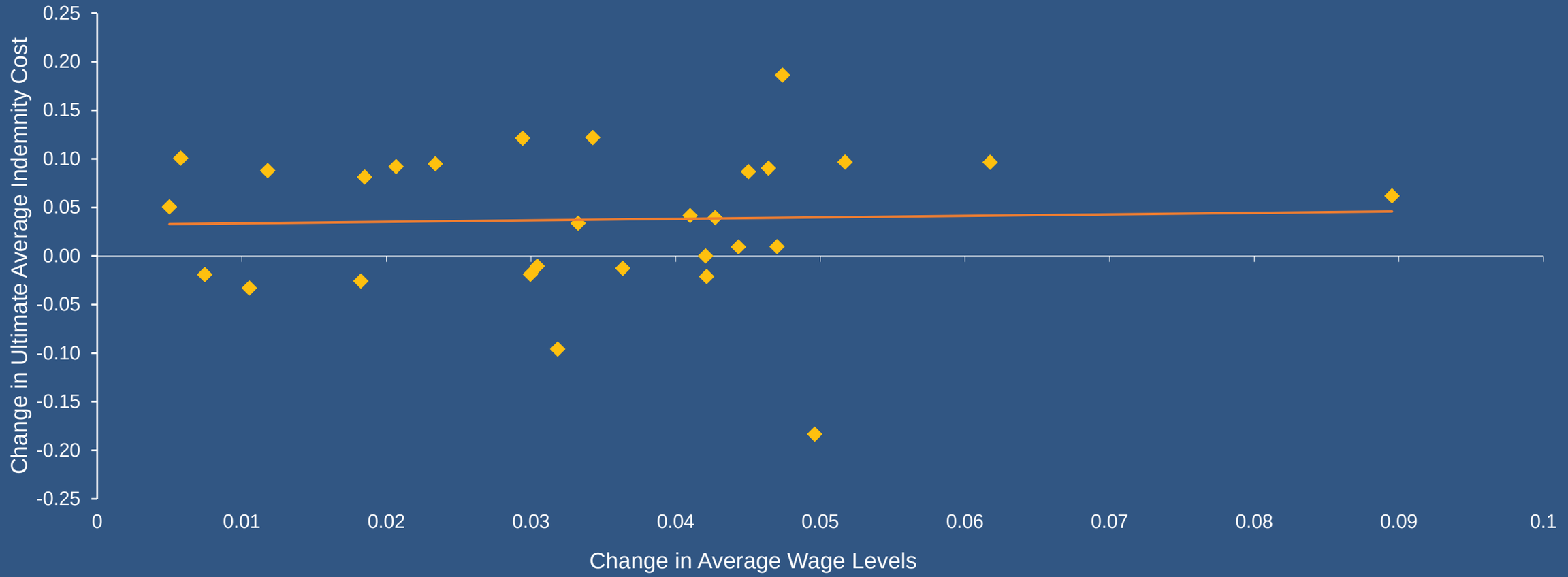
As of December 31, 2019



Source: WCIRB aggregate financial data

Changes in Indemnity Severity Compared to Changes in Average Wages

As of December 31, 2019

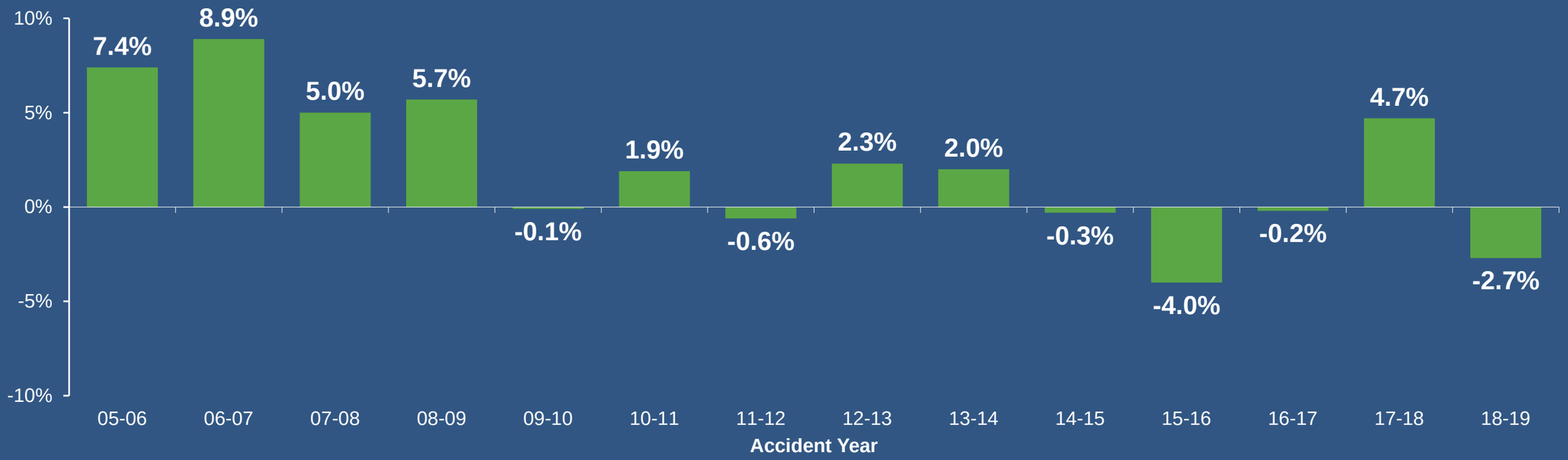


Correlation = 0.038

Source: WCIRB aggregate financial data and projections. Wage level changes based on the BLS.

Projected Changes in On-Level Medical Severity (Exhibit 6.4)

As of December 31, 2019



Annual Exponential Trend Based on:

1990 to 2019 (Incl. MCCP): +5.5%

2005 to 2019: +1.6%

2015 to 2019: 0.0%

4/2/2020 Agenda Selected: 1.5%

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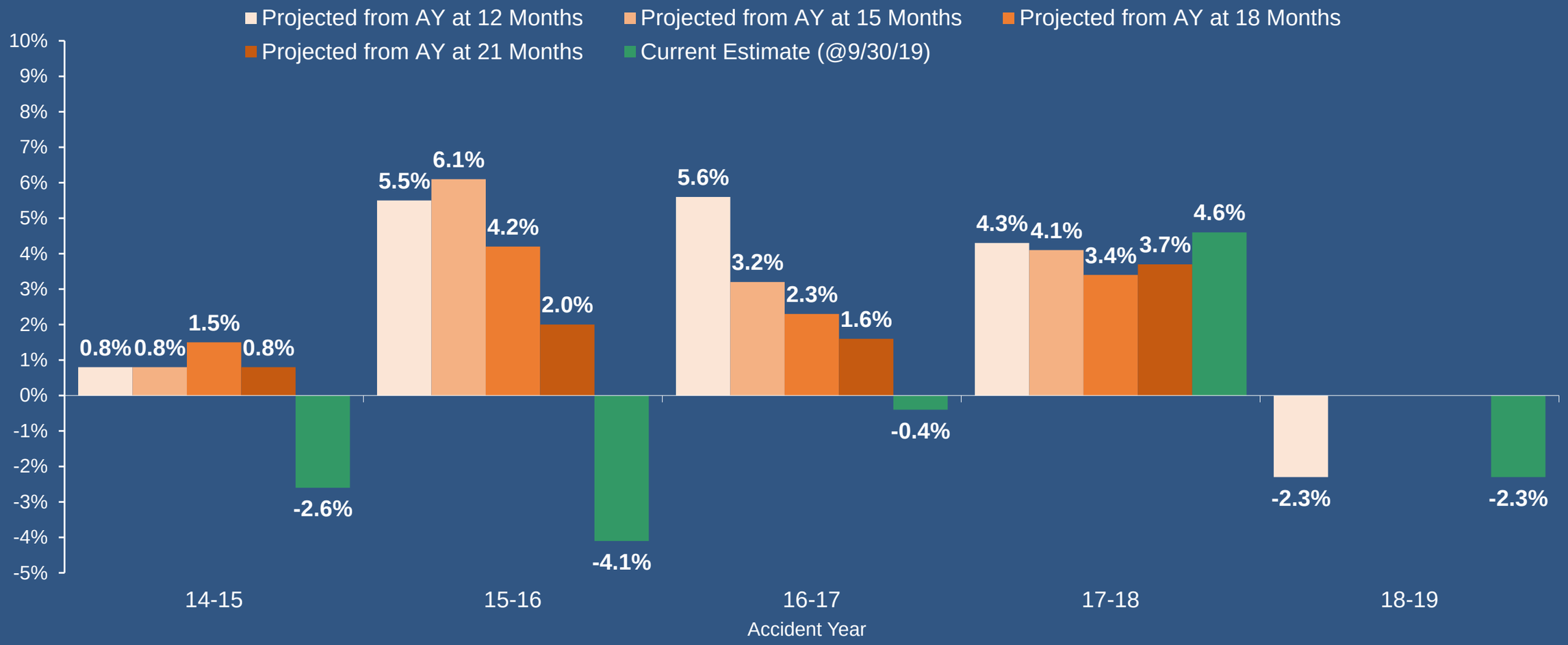
Source: WCIRB aggregate financial data and projections. Excludes MCCP costs.

Medical Severity Changes Projected from Early Evaluations Compared to Current

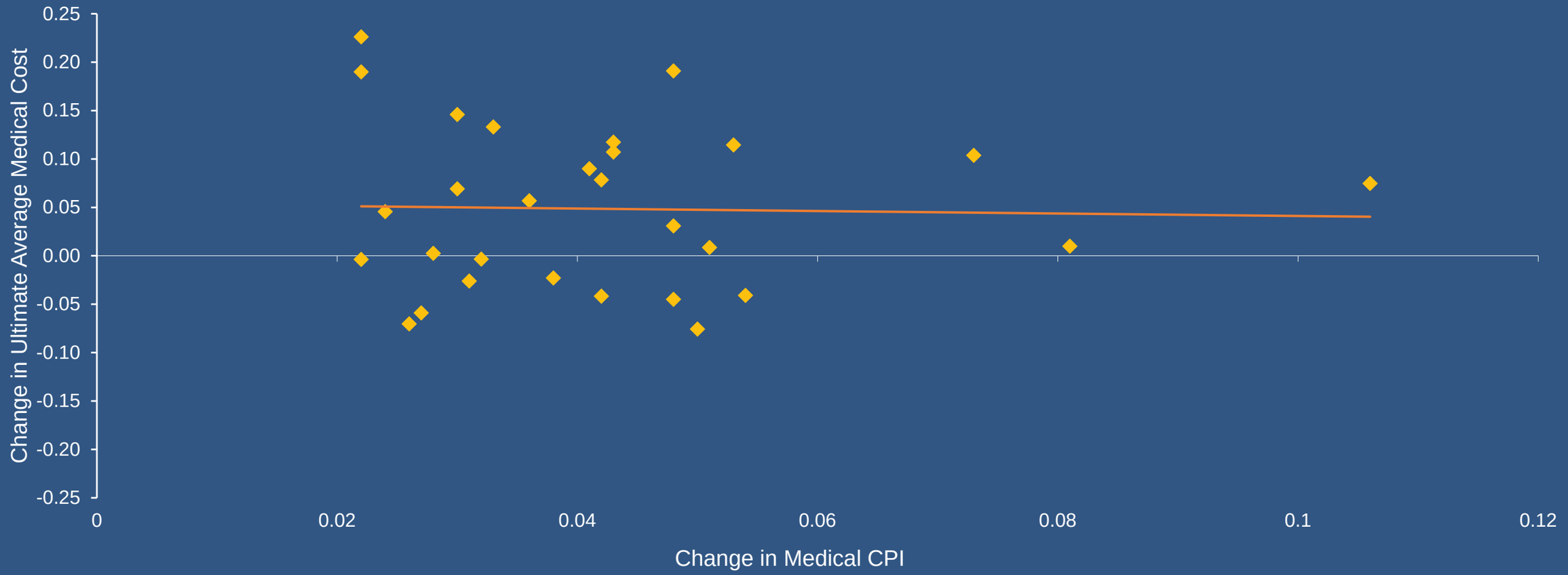
As of December 31, 2019



Source: WCIRB aggregate financial data

Changes in Medical Severity Compared to Changes in Medical CPI

As of December 31, 2019



Correlation = -0.029

Source: WCIRB aggregate financial data and projections for indemnity claims only. Medical CPI provided by California Department of Finance based on the average of the San Francisco and Los Angeles regions.

Alternative Trending Methodologies (Item AC20-04-02)

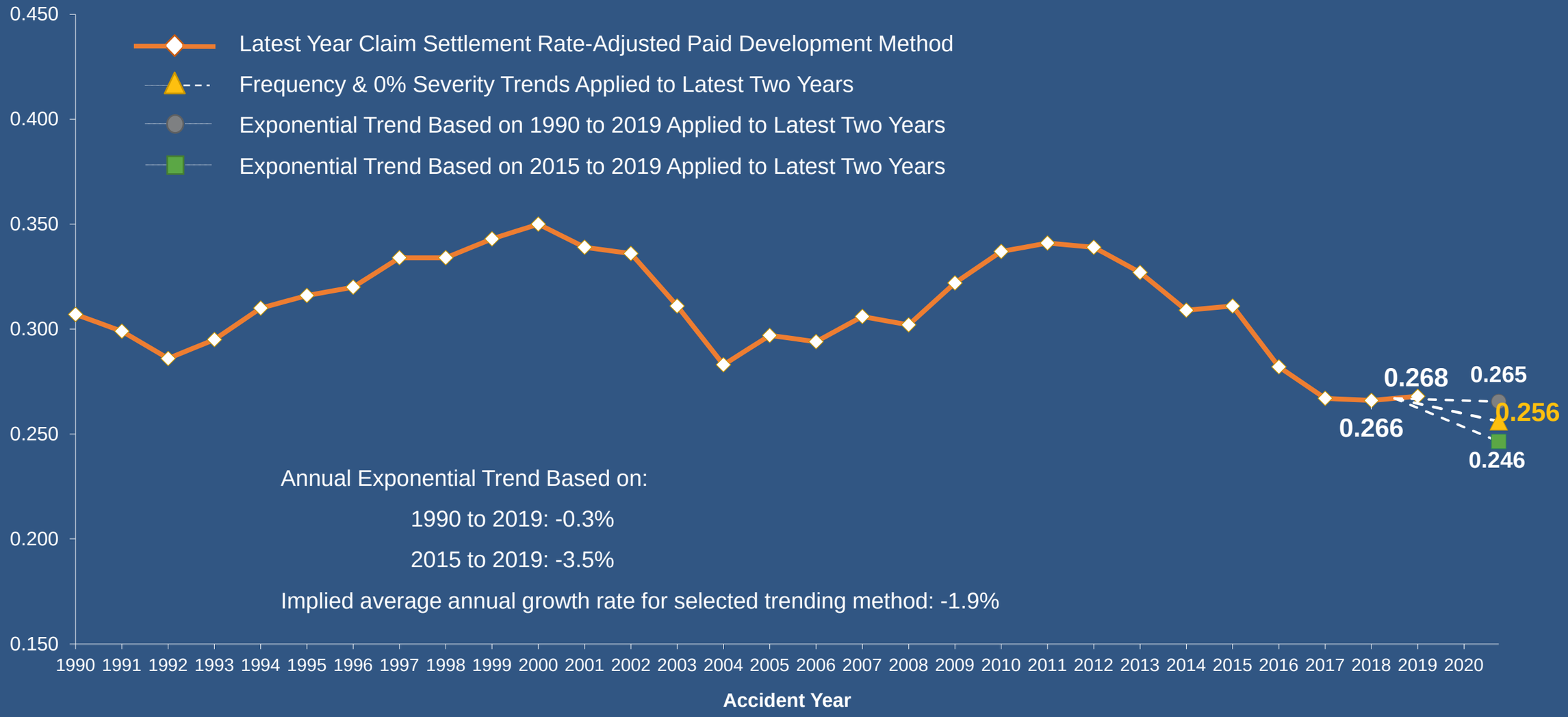
- Separate Frequency & Severity Trends Projections
  - Best during periods when loss ratios are volatile
  - Frequency and severity are affected by differing underlying forces
  - ★ Allows for separate assumptions and judgment about future trends
  - Assumes frequency & severity not highly correlated
  - Performed well during 2002-2004 reform and SB 863 transition periods but not recession period
  - ★ Performed well in most recent study of trending methods
  - Recent modest frequency decreases consistent with model forecasts
  - On-level indemnity and medical severities relatively flat over last several years
  - ★ Trending from two-year average generally outperformed latest year method in recent review
  - ★ Impact of COVID-19 on frequency and severity uncertain

Alternative Trending Methodologies (Item AC20-04-02)

- Loss Ratio Trend Projections
  - Best during periods with stable loss ratio trends
  - Historical loss ratios fit reasonably well to exponential curve
  - Rely on accurate on-leveling adjustments
  - Performed well during recent recession period
  - Did not perform well during 2002 to 2004 reform and SB 863 transition periods when trends moderate
  - Generally not as accurate as frequency & severity method in most recent trending study
  - Recent trends have moderated with SB 863 & SB 1160 reforms
  - ★ Current loss ratio projections consistent with separate frequency & severity projections when similar periods to select trends are used
  - Trending from two-year average generally outperformed latest year method in recent review

Projected On-Level Indemnity Loss Ratios (Exhibit 7.1)

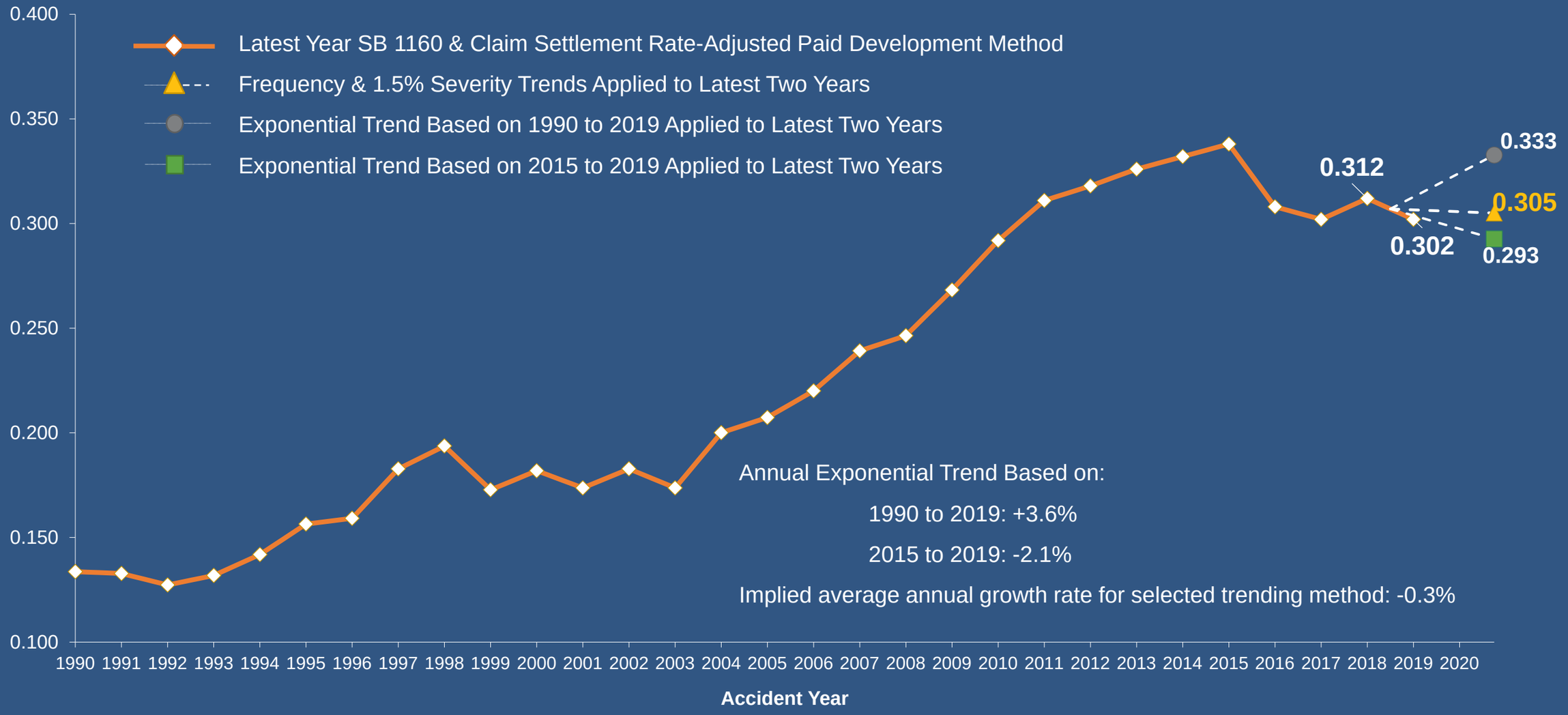
As of December 31, 2019



Source: WCIRB aggregate financial data and projections

Projected On-Level Medical Loss Ratios (Exhibit 7.3)

As of December 31, 2019



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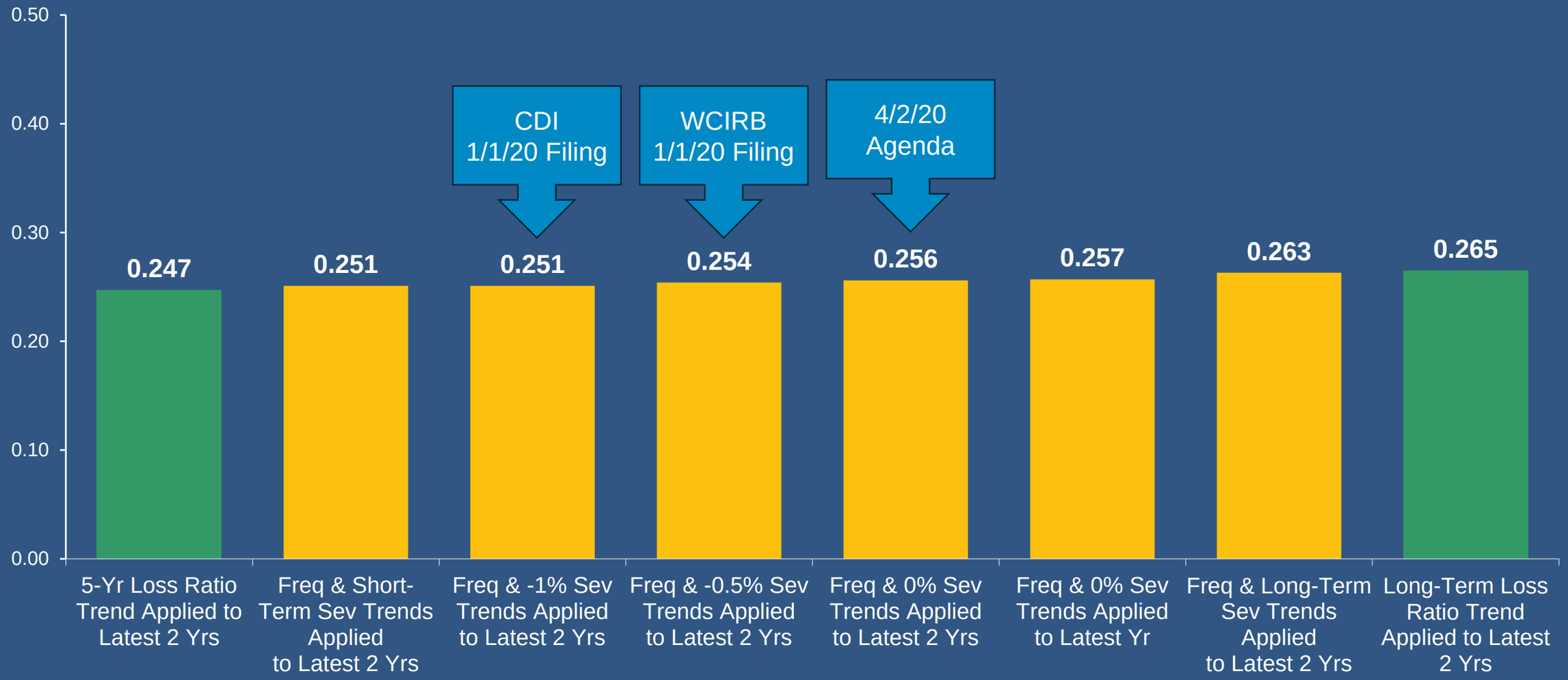
Source: WCIRB aggregate financial data and projections. 2010 and prior years adjusted to a level that excludes MCCP costs.

Projected On-Level Indemnity Loss Ratios under Alternative Trending Methods

As of December 31, 2019



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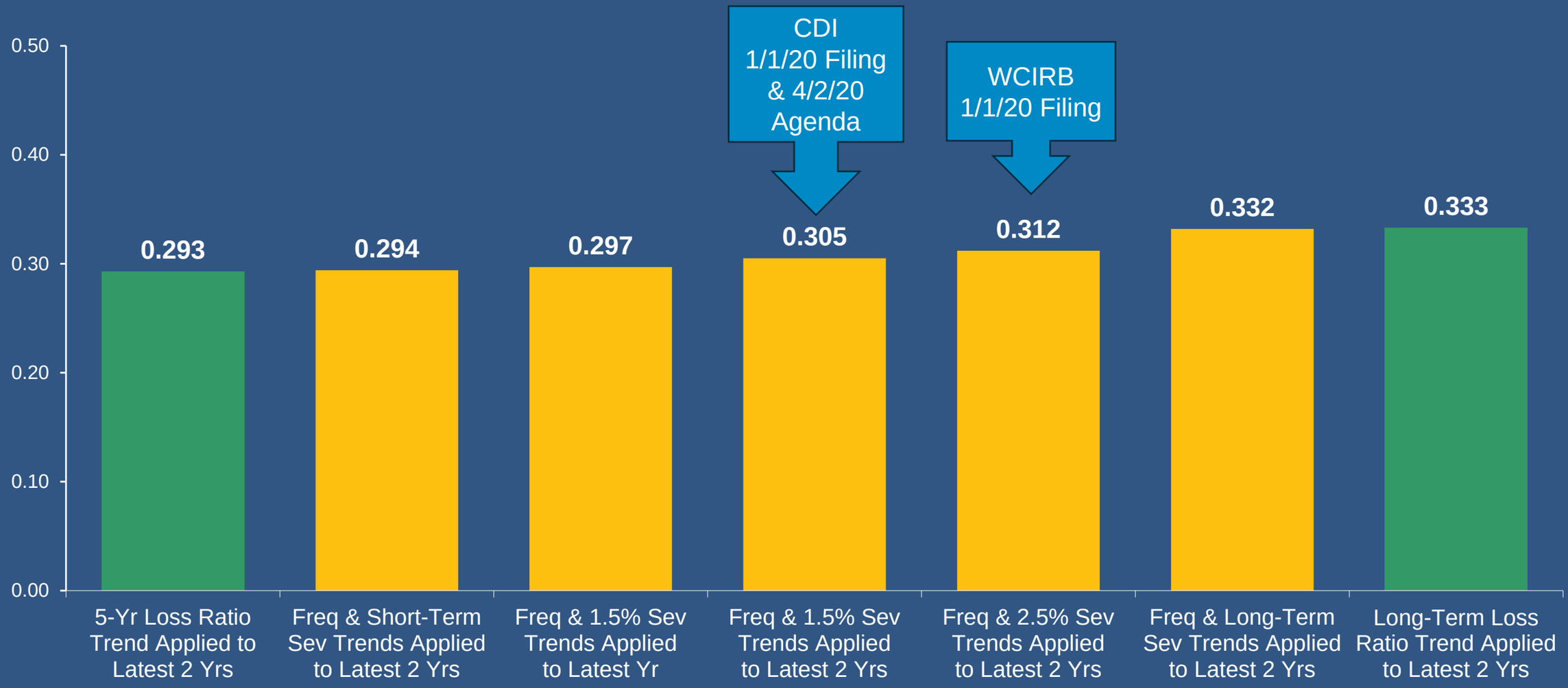
Source: WCIRB aggregate financial data and projections. For consistency of comparisons, loss ratios are prior to reflecting the impact of the Drug Formulary.

Projected On-Level Medical Loss Ratios under Alternative Trending Methods

As of December 31, 2019



Source: WCIRB aggregate financial data and projections. For consistency of comparisons, loss ratios are prior to reflecting the impact of the Drug Formulary.

04

12/31/2019 Loss Adjustment Expense Experience Review

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Projections of ULAE to Loss

January 1, 2020 Filing Projection

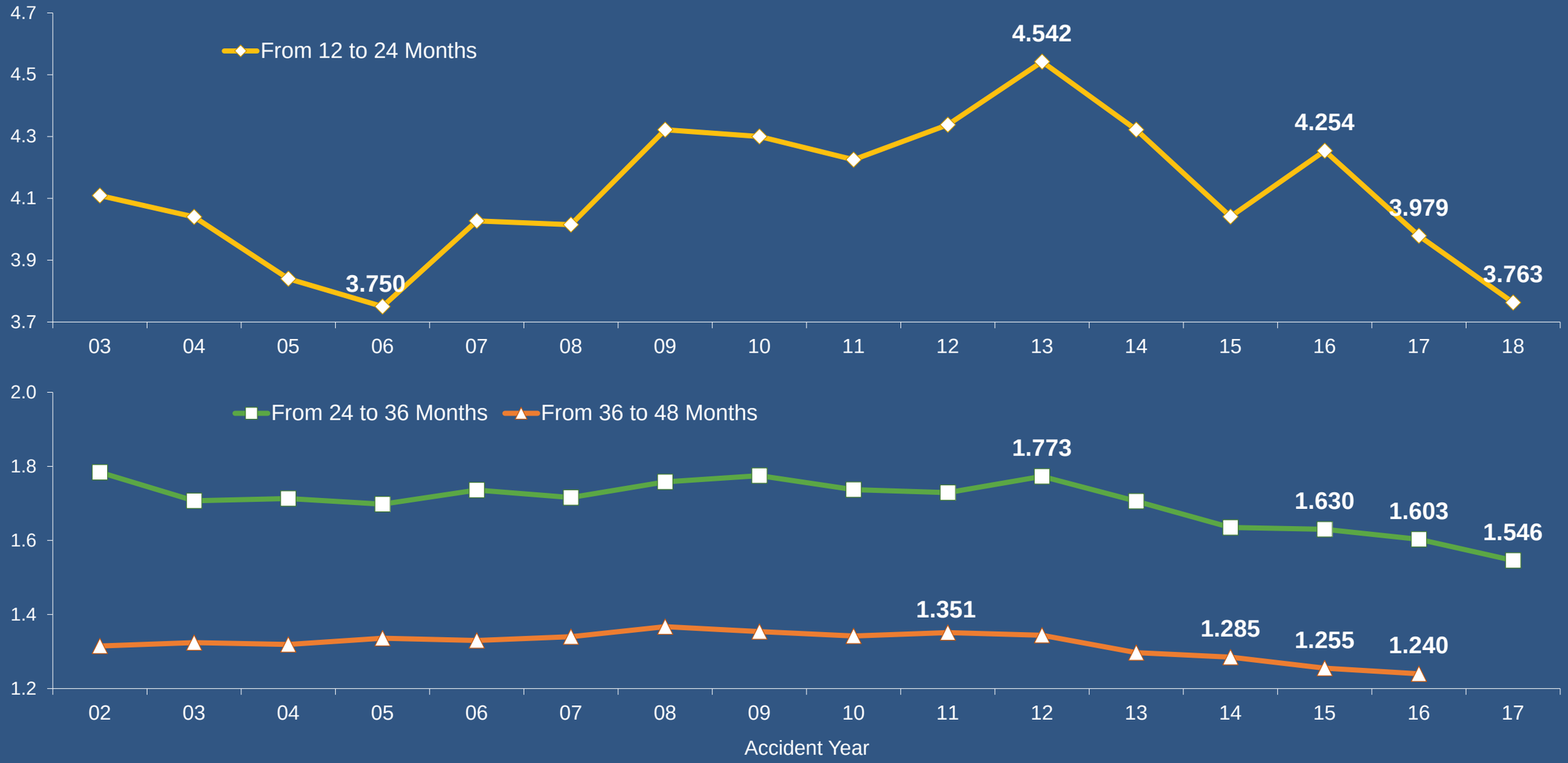
Method	ULAE Projection
Paid ULAE per Open Indemnity Claim	15.6%
Paid ULAE to Paid Losses	13.8%
Average of Two Projection Methods	**14.7%**

Updated Projection

Method	ULAE Projection
Paid ULAE per Open Indemnity Claim	16.1%
Paid ULAE to Paid Losses	14.2%
Average of Two Projection Methods	**15.2%**

Paid ALAE Development – Private Insurers (Exhibit 4.2)

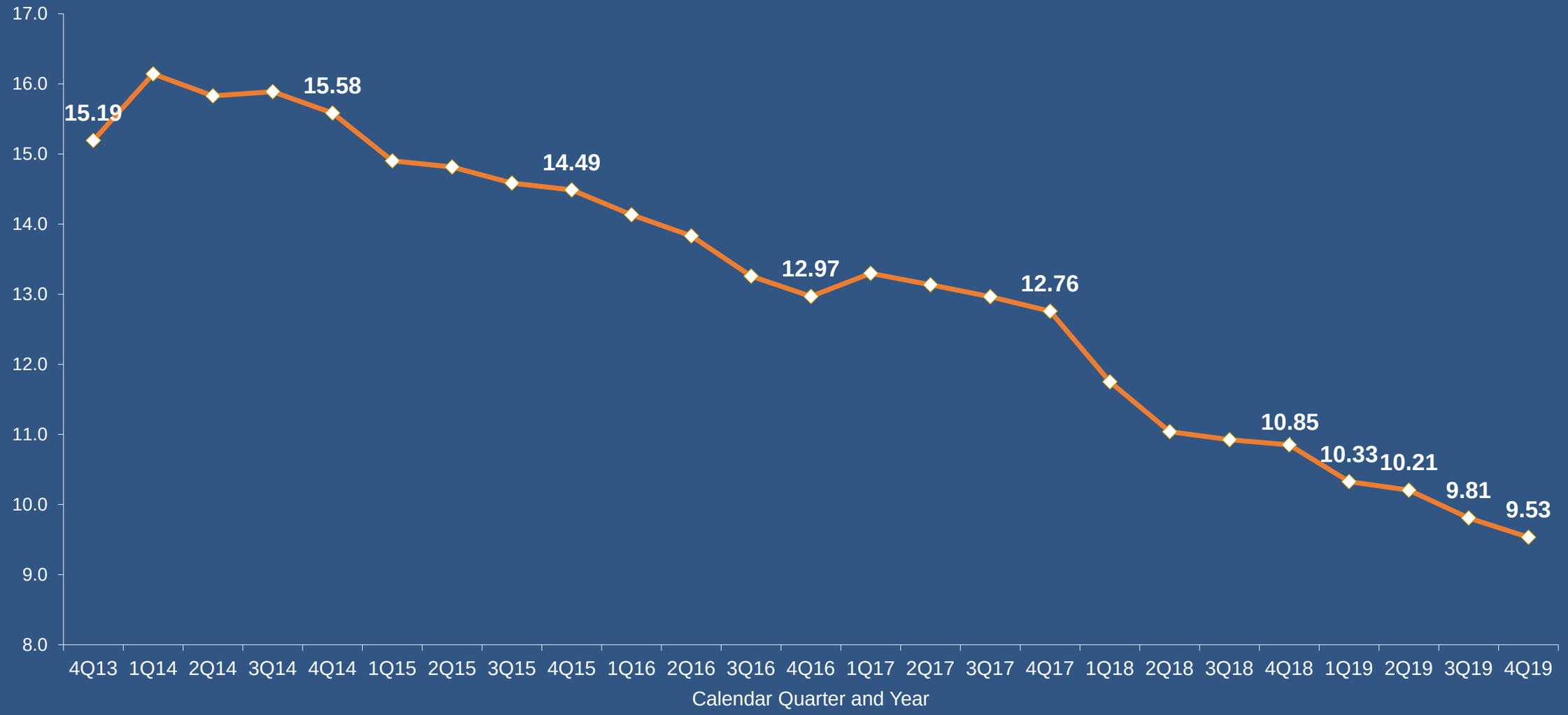
As of December 31, 2019



Source: WCIRB aggregate financial data. Excludes medical cost containment program costs and includes costs for independent medical review and independent bill review for all years.

Cumulative Paid ALAE Development from 12 to 90 Months

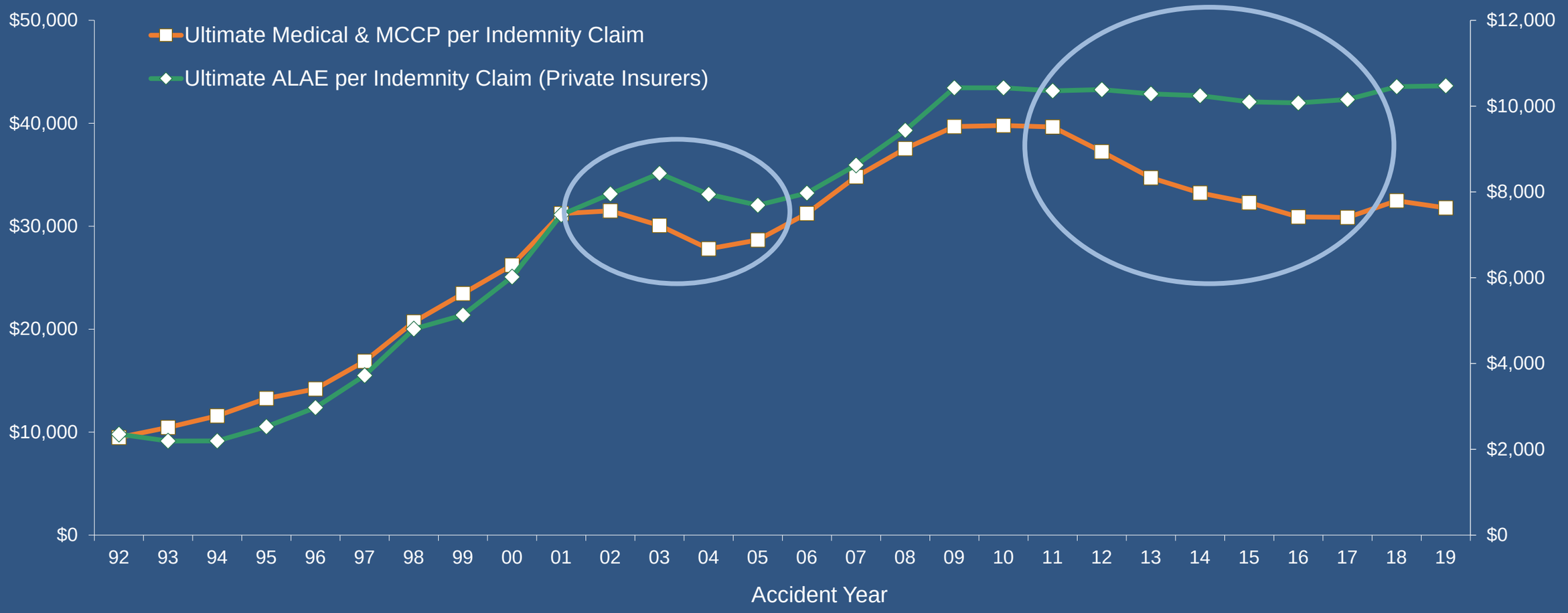
As of December 31, 2019



Source: WCIRB aggregate financial data. MCCP is excluded.

Ultimate Medical and ALAE per Indemnity Claim

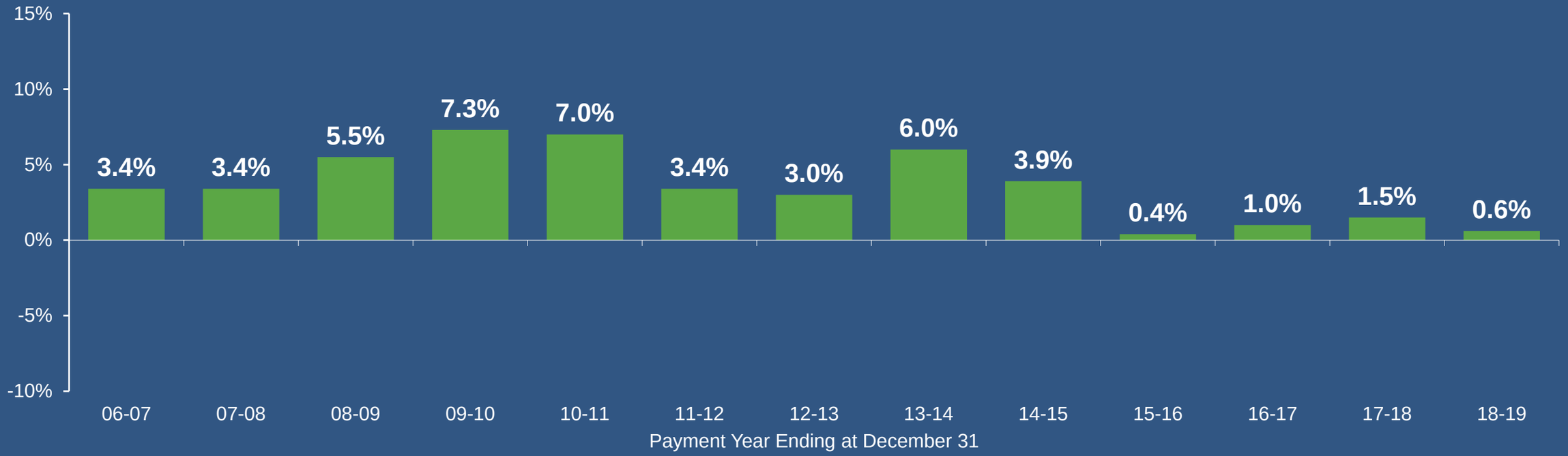
As of December 31, 2019



Source: WCIRB aggregate financial data and projections. MCCP costs are included in medical for all years for consistency.

Change in Incremental Paid ALAE per Open Indemnity Claim – Private Insurers (Exhibit 2)

As of December 31, 2019



Annual Exponential Trend Based on:

2006 to 2019: +3.9%

2015 to 2019: +1.0%

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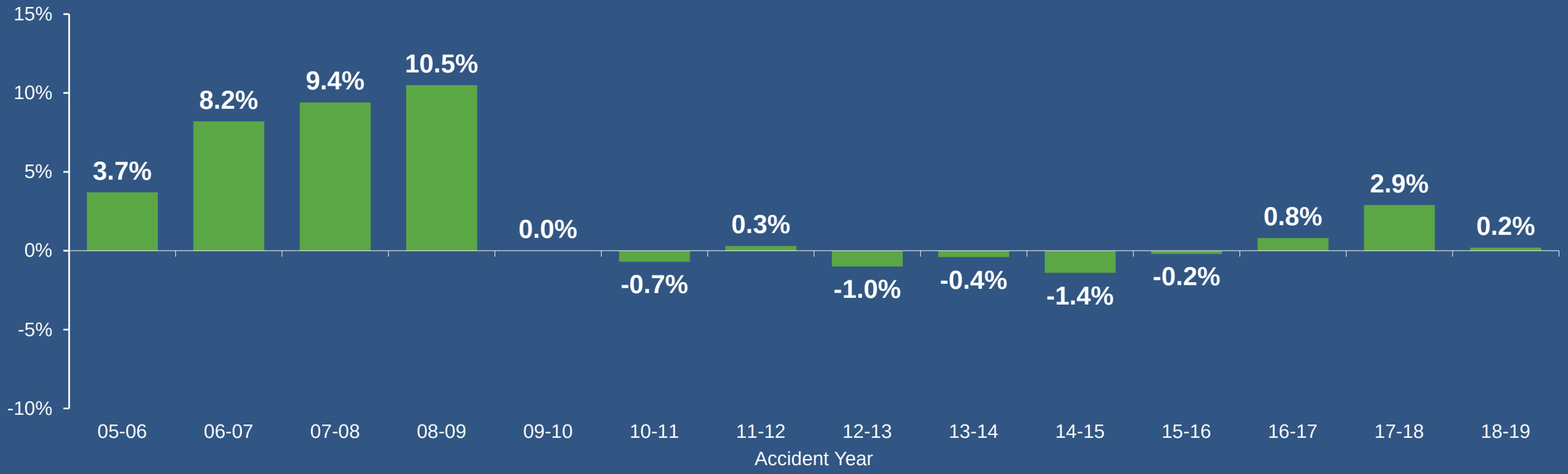
Source: WCIRB aggregate financial data and projections. Excludes MCCP costs.

Projected Changes in Ultimate ALAE Severity – Private Insurers (Exhibit 3)

As of December 31, 2019



Annual Exponential Trend Based on:

2006 to 2019: +1.3%

2015 to 2019: +1.1%

Agenda Selected ALAE Severity Trend: +2.0%

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Source: WCIRB aggregate financial data and projections. Excludes MCCP costs.

ALAE Projection Methodology

- Accident Year Ultimate Indemnity Claim Counts
  - Latest year development
  - Projected using WCIRB frequency forecasts
- Accident Year Ultimate ALAE per Indemnity Claim
  - Data based on private insurers only
  - Latest year development with inverse power curve tail
  - Projected using average of ultimate ALAE per indemnity claim and incremental paid ALAE per open indemnity claim for both long-term and short-term periods
- Projected 7/1/2020 to 12/31/2020 Policy Period ALAE
  - (Projected # of ultimate indemnity claims) X (projected ultimate ALAE per indemnity claim)
  - Projection from latest two accident years
  - Initial projected ratio reduced for lien savings from SB 1160 & AB 1244 not yet significantly reflected in emerging ALAE costs
    - Full impact is 9.6% based on 60% reduction in lien filings
    - Tempered by 40% based on impact already emerging

Adjustment for Changing Claim Settlement Rates in ALAE Development

- August 2019 study found statistical relationship between claim settlement rate changes and changes in projected ALAE development
  - Committee recommended adjustment to ALAE DFs when settlement rates change by 1.5 points or more
- Adjustment reflected in 1/1/2020 Filing for 2017 ALAE development (2.8 point settlement rate change)
- July 1, 2020 to December 31, 2020 period projection based on AYs 2018 and 2019
- Settlement rate changes based on 12/31/2019 experience:
  - AY 2018: 0.1 points
  - AY 2019: 0.3 points
- Given modest settlement rate changes, staff is not recommending adjustment to 2018 & 2019 ALAE DFs
- Adjustment to be reviewed prior to next annual filing

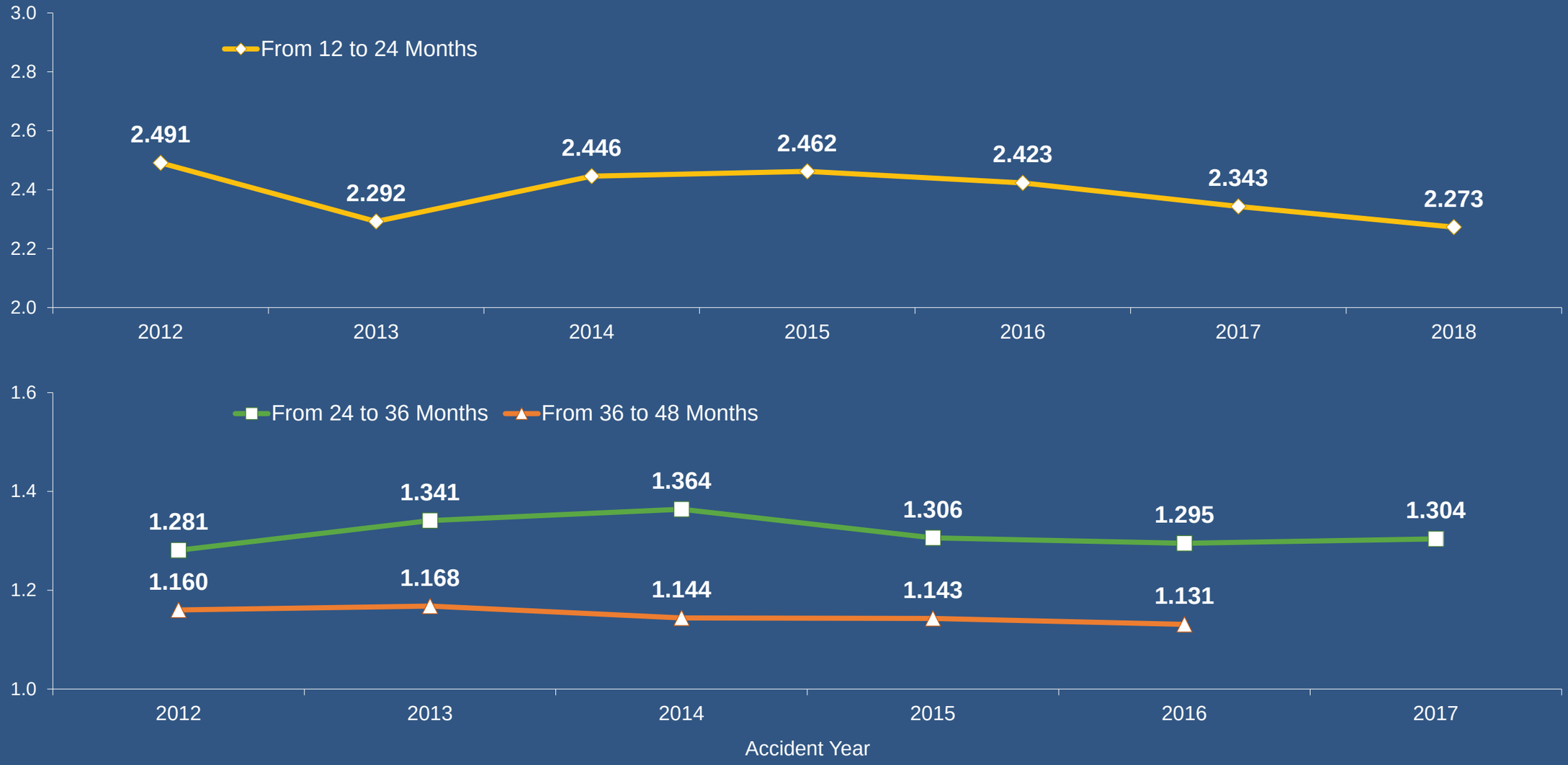
Adjustment for SB 1160 & AB 1244 Lien Reforms in ALAE

As of December 31, 2019

AY & Age	Estimated % of Ultimate ALAE Paid	Estimated % of 168 Mos. ALAE Paid	Estimate Reflected in 1/1/2020 Filing
2018 (24 Months)	31%	35%	---
2017 (36 Months)	47%	53%	---
Average	39%	44%	**25%**
Tempered Adjustment to ALAE (9.6% Full)	---	**5.8% (40% tempering)**	**7.2%**

Paid MCCP Development (Exhibit 8.1)

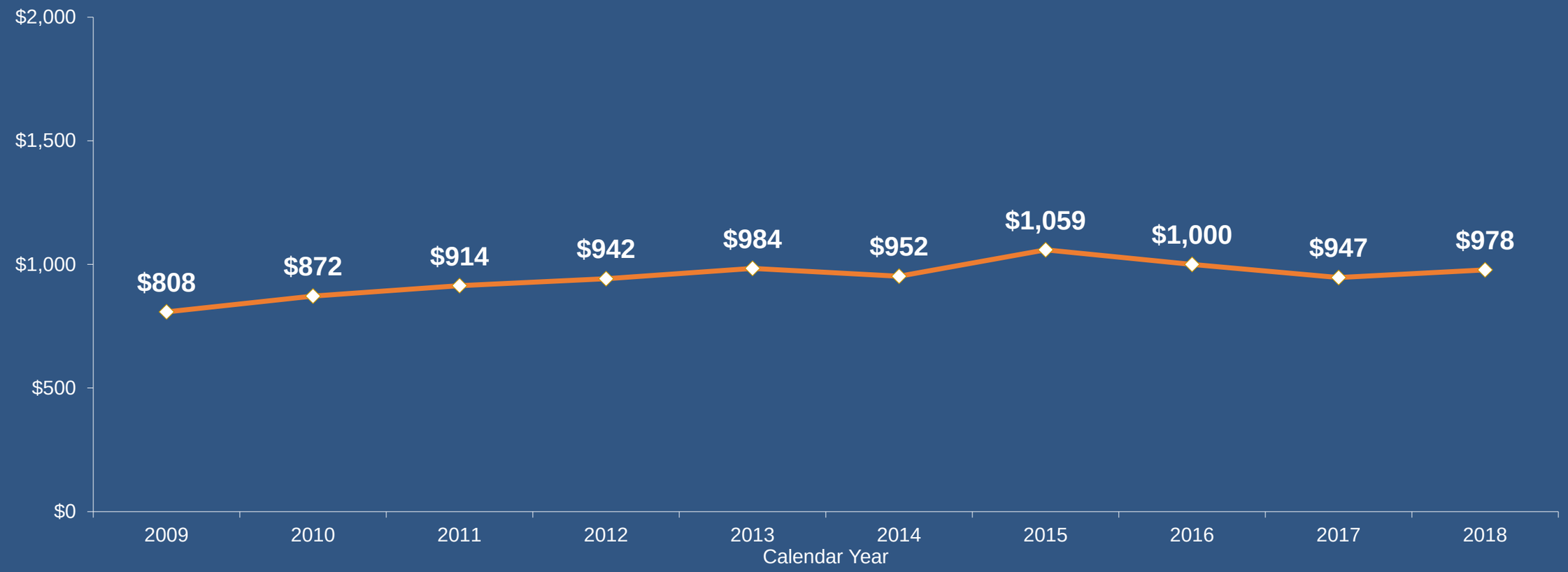
As of December 31, 2019



Source: WCIRB aggregate financial data. Excludes the cost of IMR and IBR from all years.

Calendar Year Paid MCCP per Indemnity Claims Inventory (Exhibit 6)

As of December 31, 2018



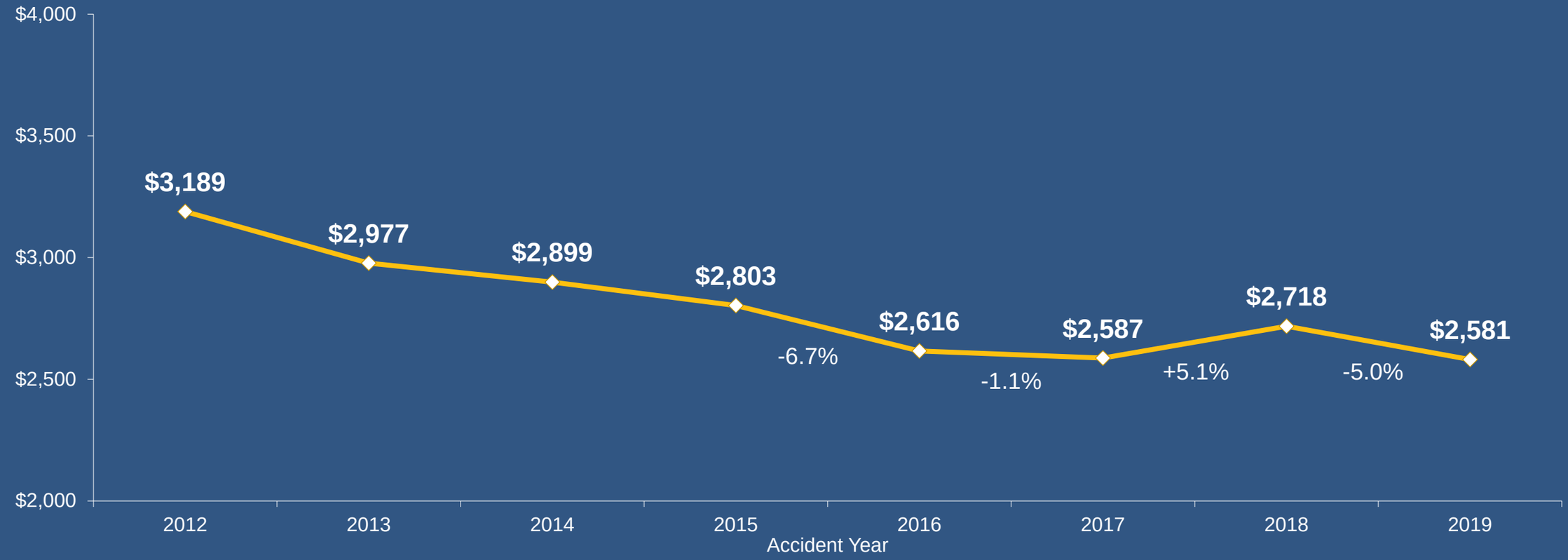
Annual Exponential Trend Based on:

2009 to 2018: +1.9%

Source: WCIRB aggregate financial data. Excludes the cost of IMR and IBR from all years.

Projected Ultimate MCCP per Indemnity Claim (Exhibit 7)

As of December 31, 2019



Annual Exponential Trend Based on:

2013 to 2019: -2.3%

2015 to 2019: -1.3%

Agenda Selected MCCP Severity Trend: 0%

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Source: WCIRB aggregate financial data and projections. Excludes the cost of IMR and IBR from all years.

Projections of ALAE and Total LAE to Loss

January 1, 2020 Filing Projection

Method	Projection
Ultimate ALAE (Excl. MCCP) per Indemnity Claim	17.2%
Ultimate MCCP per Indemnity Claim	4.5%
Total LAE Ratio	**36.4%**

Updated Projection

Method	Projection
Ultimate ALAE (Excl. MCCP) per Indemnity Claim	16.8%
Ultimate MCCP per Indemnity Claim	4.3%
Total LAE Ratio	**36.3%**

05

2021 Experience Rating Plan Changes

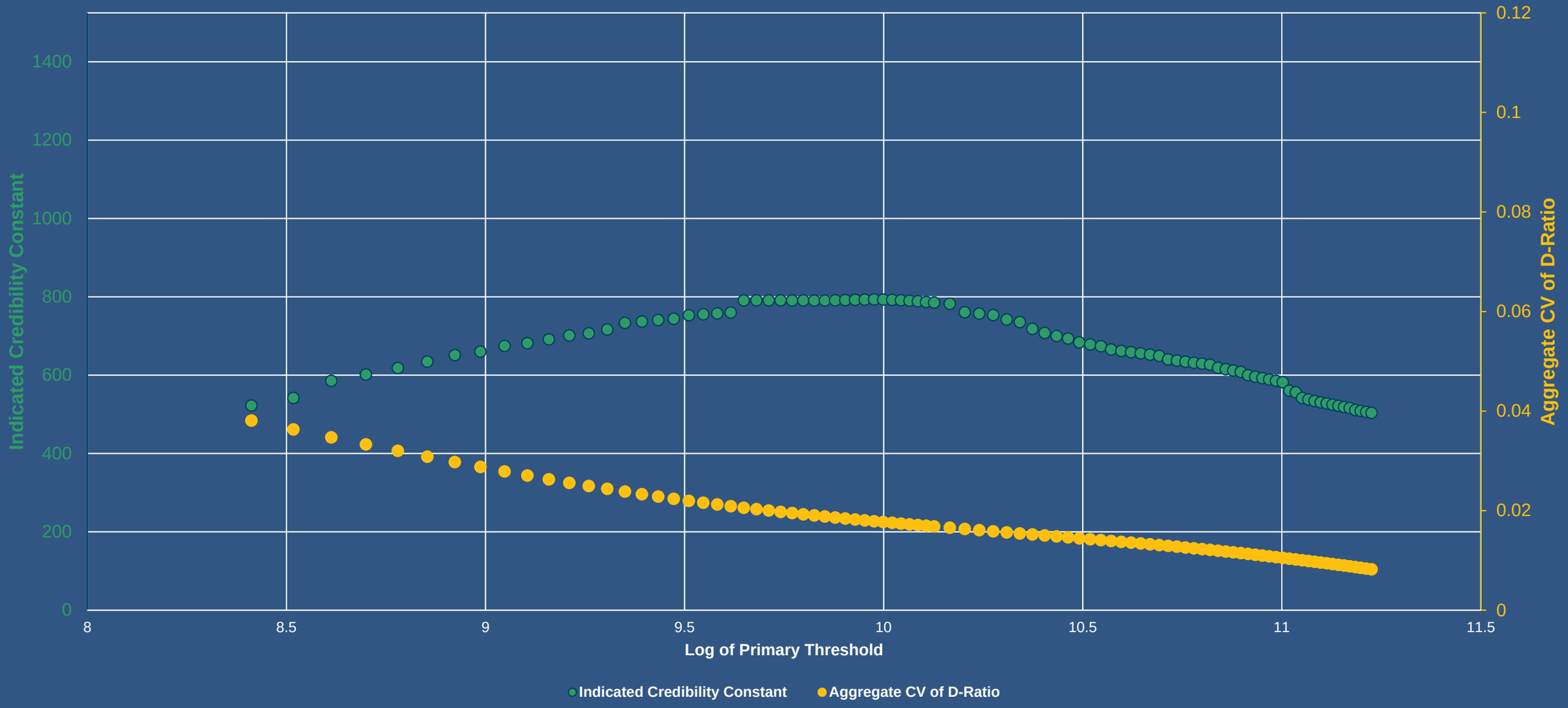
Proposed 2021 Experience Rating Values - Background

- Variable split plan was implemented effective 1/1/17
- Updated to exclude the first $250 of each loss effective 1/1/19
- This study intended to update expected loss ranges for primary thresholds to reflect most current experience
- Also recommend frequency of update

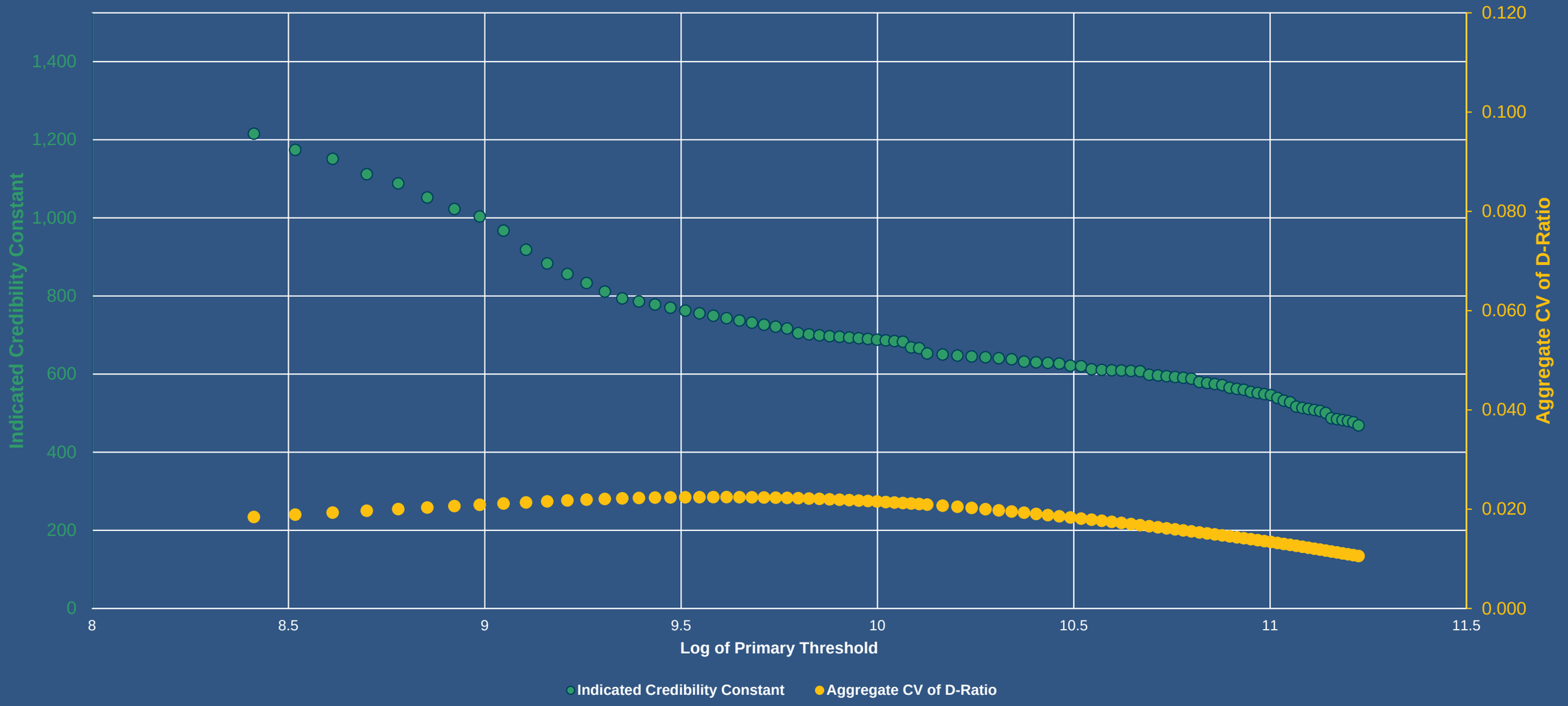
Background on Current D-Ratio Credibility Method

- Classification expected loss rates and D-ratios are updated each year as part of the regulatory filing
- D-ratios are calculated using the most recent unit statistical report (USR) data
- D-ratios are promulgated for each combination of class and primary threshold
- For classifications with limited statistical experience, their experience is credibility weighted with empirical retro hazard group (RHG) D-ratios to yield the final values
- Current credibility methodology uses the same limited fluctuation methodology as used previously for the plan with a single primary threshold
- The full credibility standard, N, was determined by the relationship between class size (indemnity claim count) and D-ratio volatility (five-year coefficient of variation) for each primary threshold
    - This relationship was fit to a log-logistic curve and the 95th percentile was used as a full credibility standard
    - Classification CV-based credibilities were then fit to the limited fluctuation formula

Indicated Credibility Constant and Aggregate CV by Primary Threshold Experience Periods for Projection Years 2010-2014



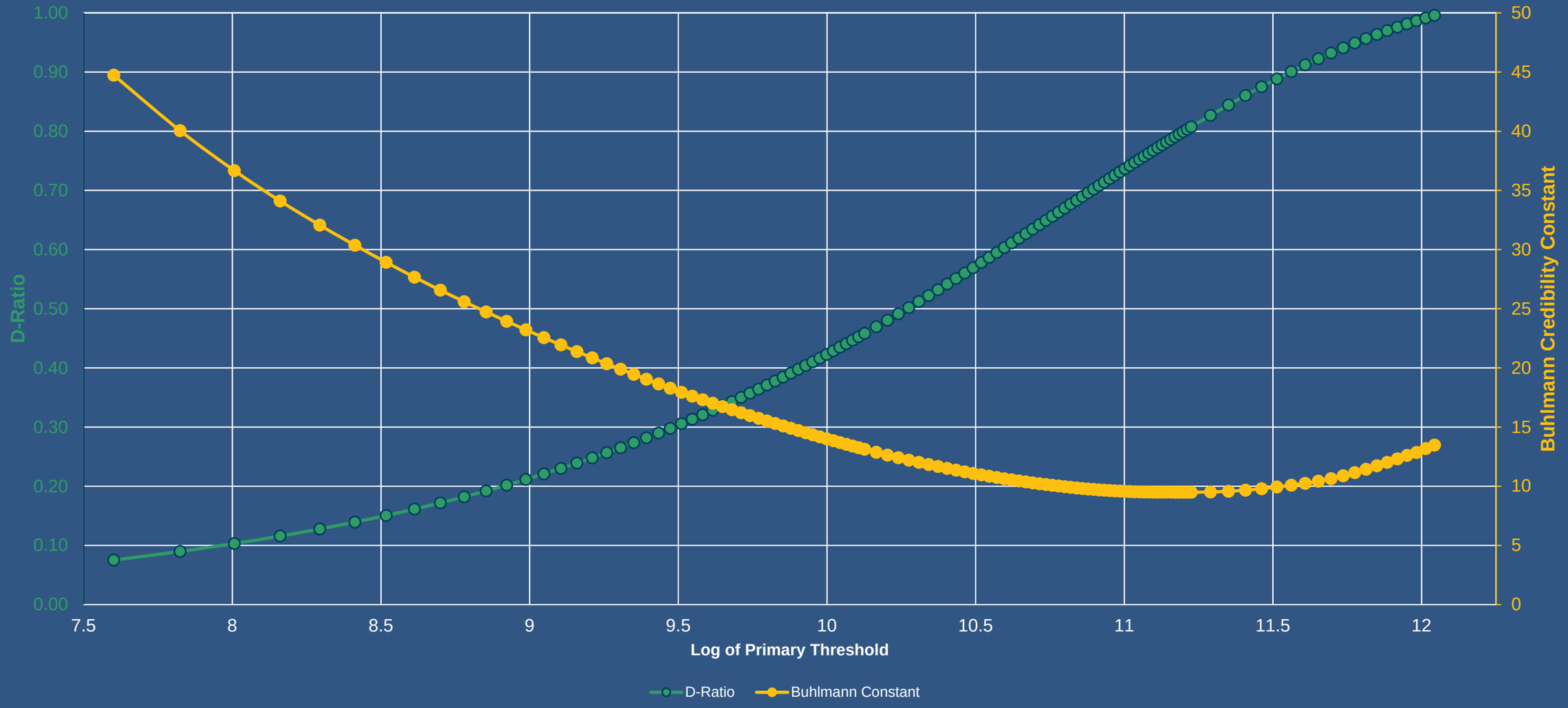
Indicated Credibility Constant and Aggregate CV by Primary Threshold Experience Periods for Projection Years 2013-2017



Decision to Propose Buhlmann Credibility

- When the variable primary threshold plan was first introduced, this methodology produced reasonable results
- However, when updated with five additional years of data, the results were inconsistent
- Staff retrospectively tested the results for projection years 1997-2017 and found that the results changed significantly over time and did not consistently yield reasonable results
- Current method would add unnecessary volatility to the calculated D-ratios on an annual basis
- Investigated Buhlmann credibility
  - Does not require distributional assumptions
  - Best linear least squares predictor
- The Buhlmann credibility method yielded more stable and reasonable patterns over time:
  - Patterns were smooth
  - Changes in patterns were explainable (i.e. More significant changes after when there were large, systemic changes)

D-Ratio and Buhlmann Constant by Primary Threshold—Projection Year 2012



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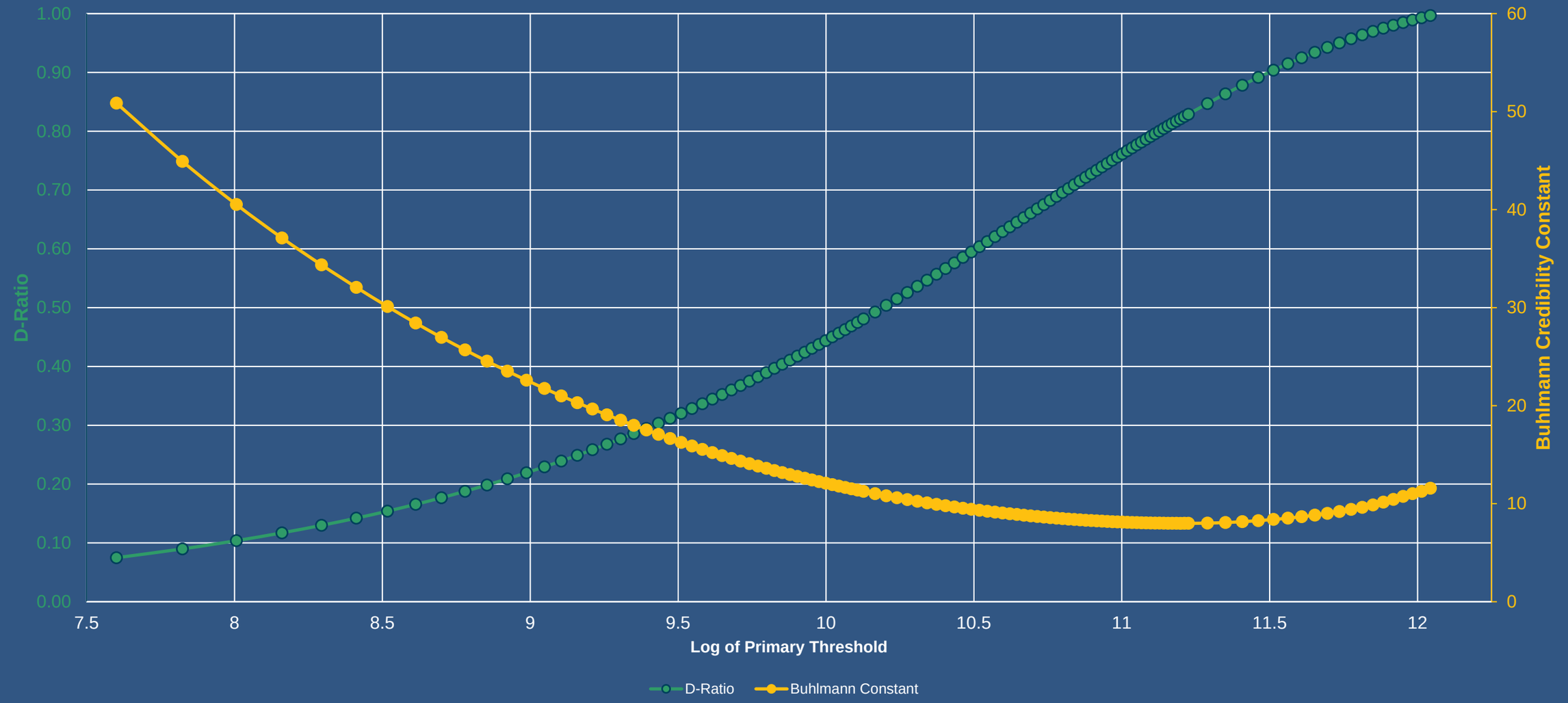
D-Ratio and Buhlmann Constant by Primary Threshold—Projection Year 2017



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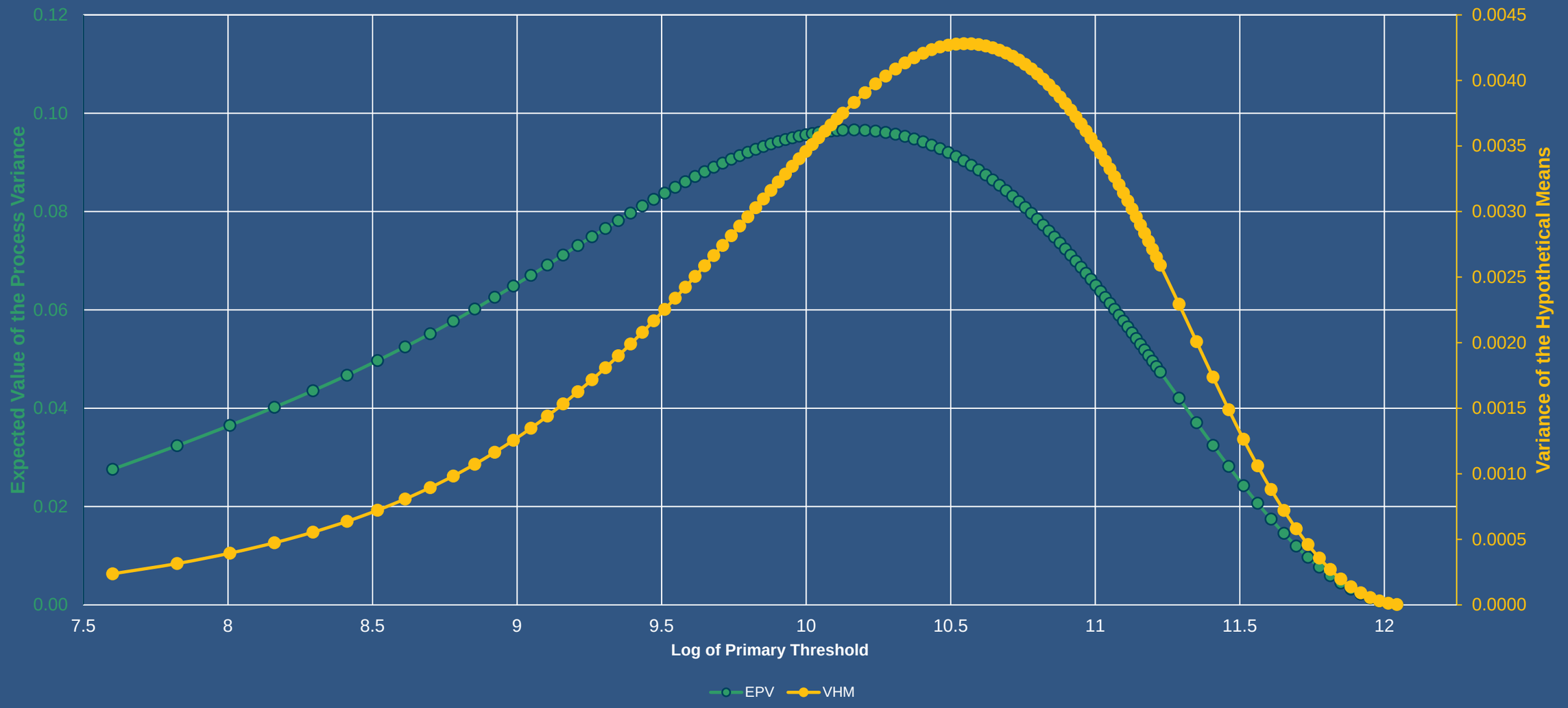
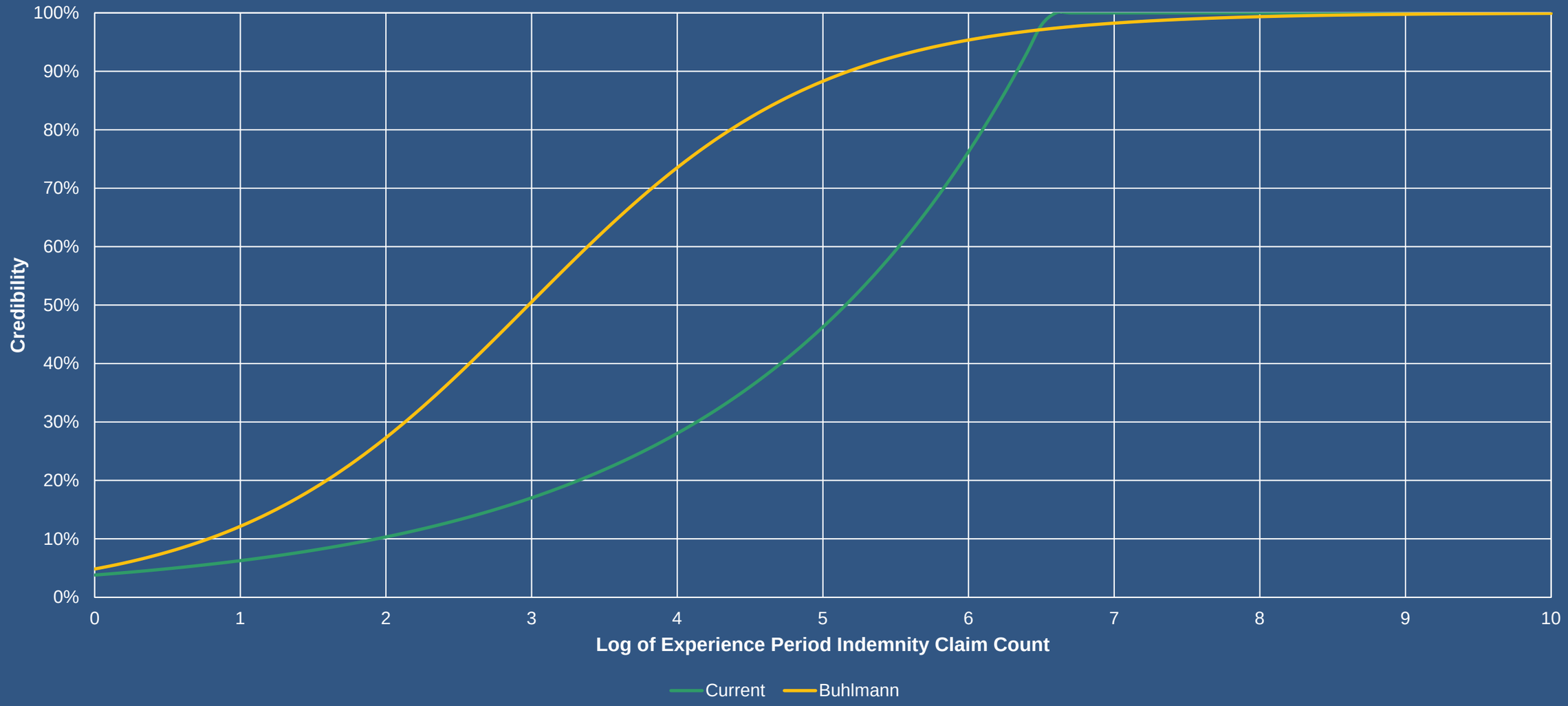
Variance Structure by Primary Threshold—Projection Year 2017

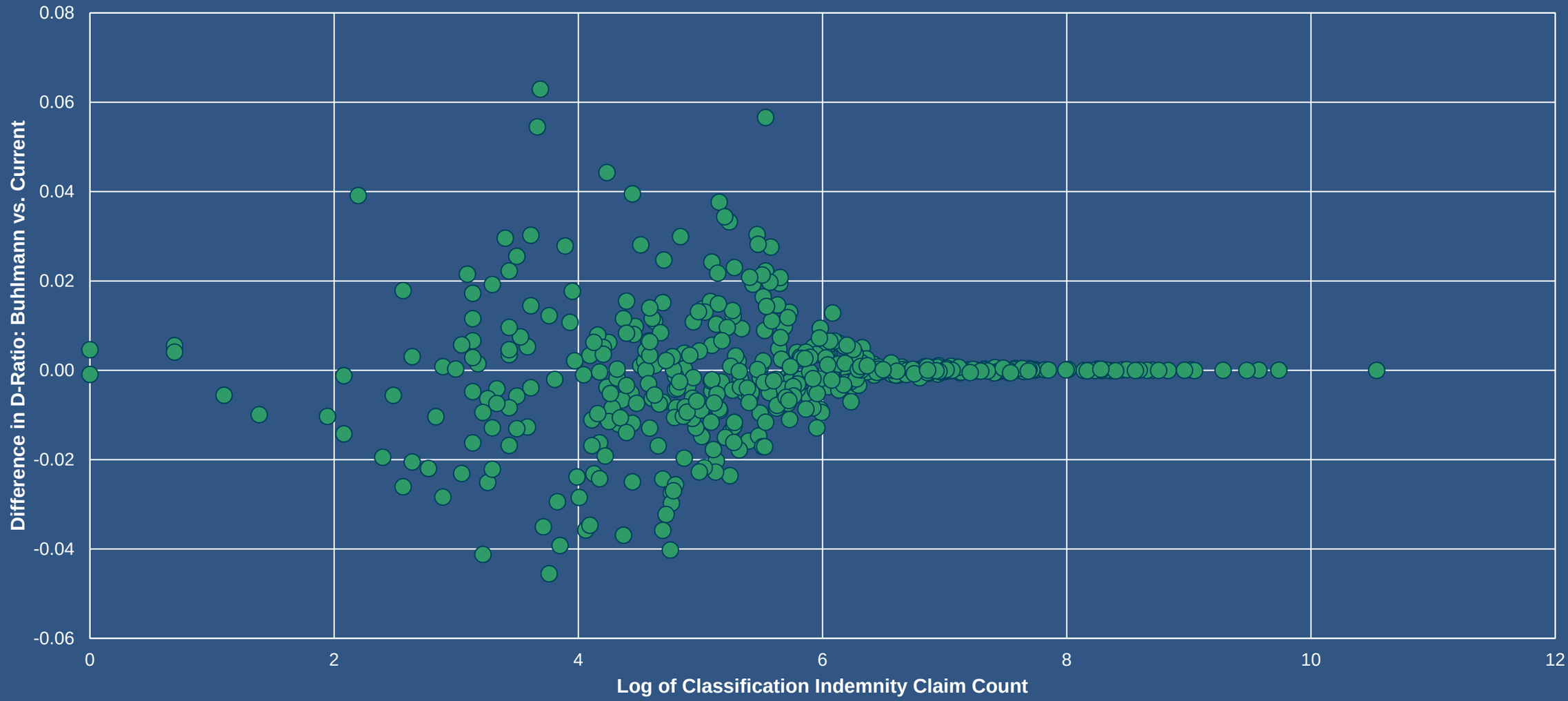


D-Ratio and Buhlmann Constant by Policy Projection Year for a Primary Threshold of $10,000

Comparison of Current and Proposed Credibility for a Primary Threshold of $10,000



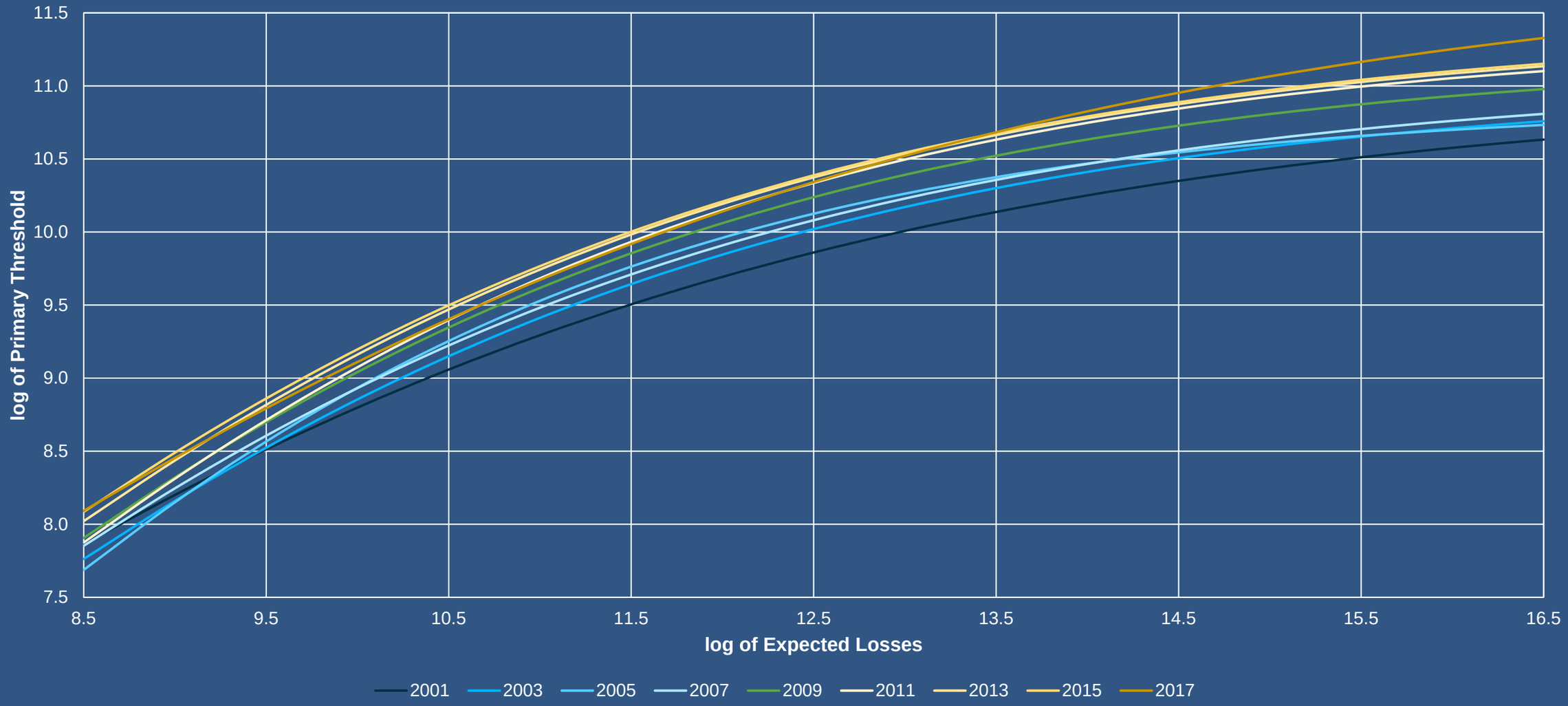
Impact of Credibility Methodology on Final D-Ratios for a Primary Threshold of $10,000 for Projection Year 2017



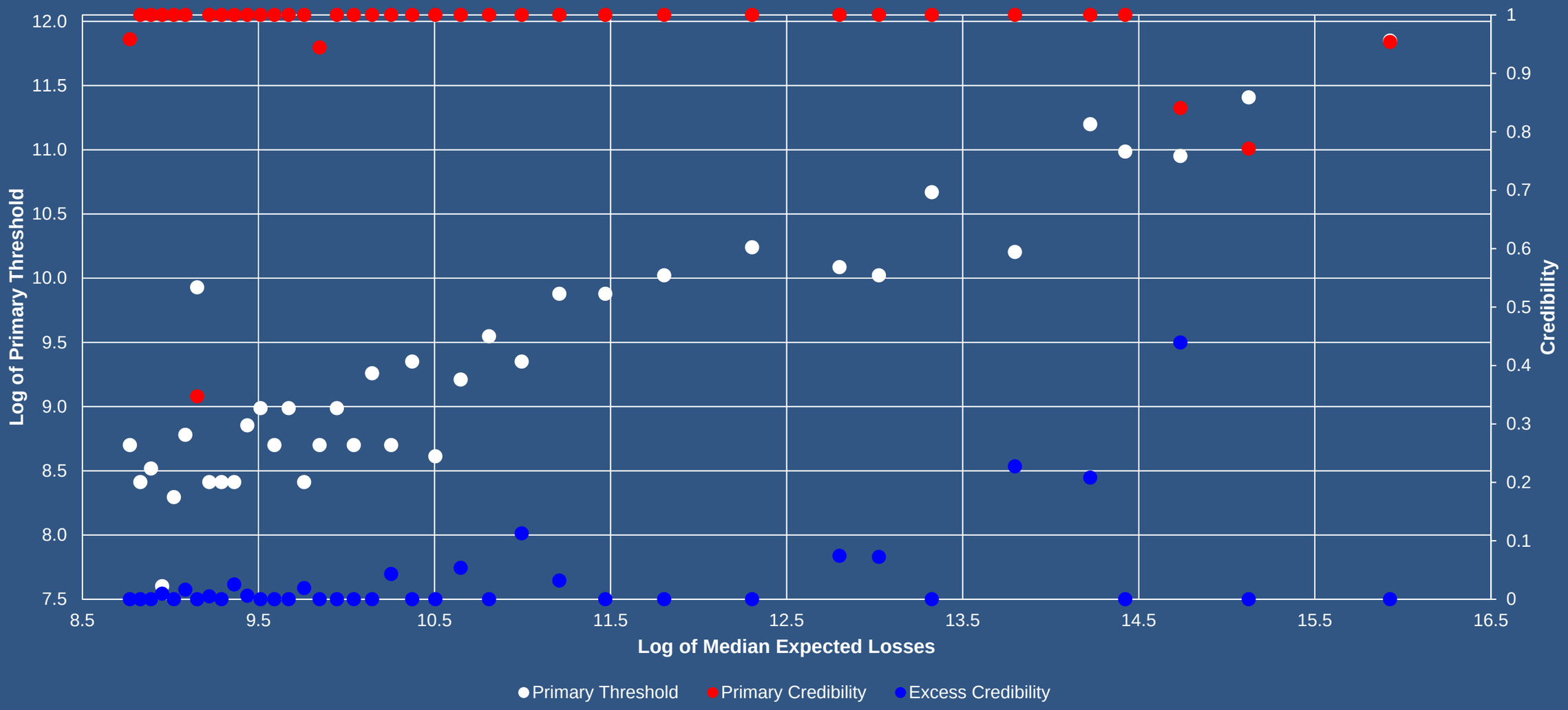
Background on Primary Thresholds

- The expected loss groups corresponding to a primary threshold have not been updated using new data since the initial release
- Using the same database as for the exploration of D-ratio credibility except that the D-ratios in this database use the updated methodology
- Checked to ensure that the results from the prior review still held
- Reviewed twenty-one years to see how the indicated primary thresholds moved over time

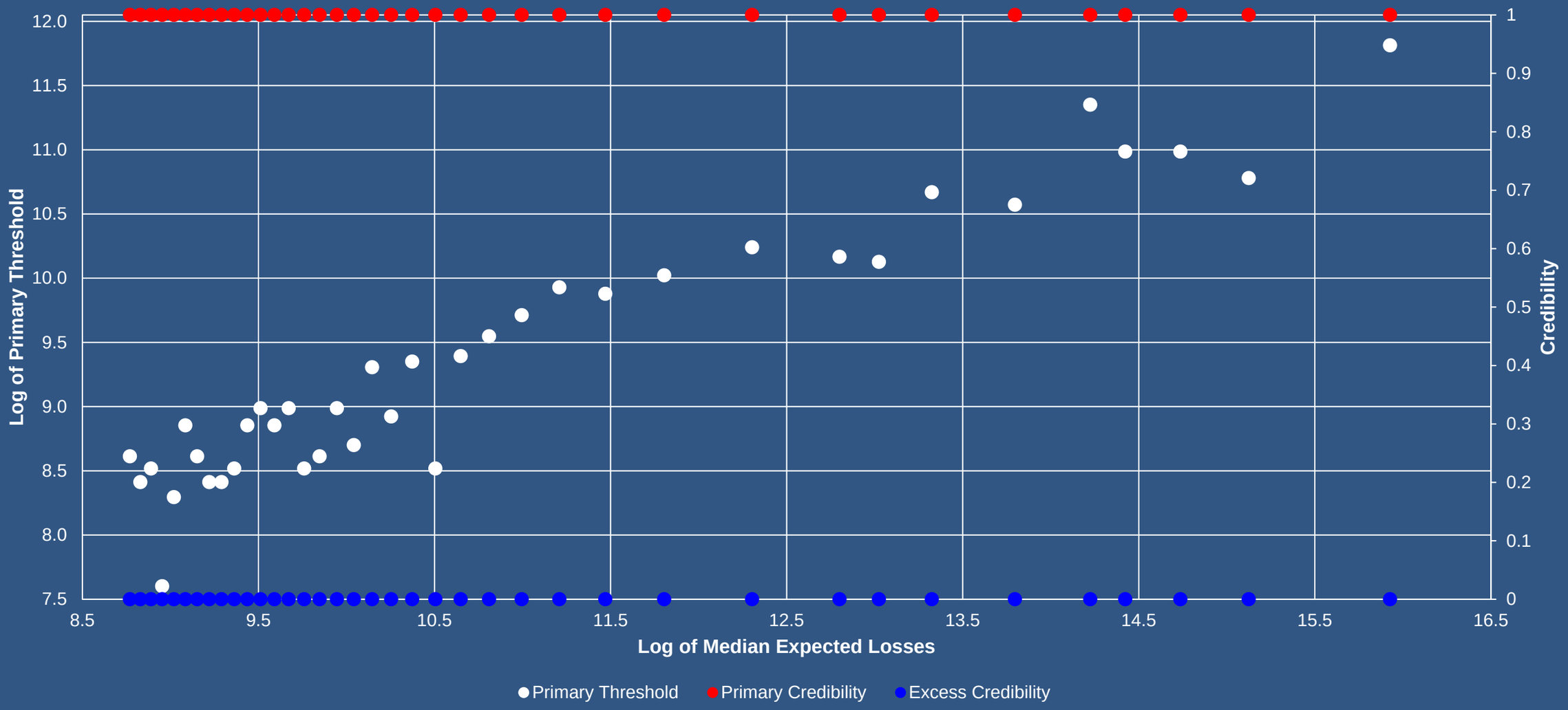
Smoothed Primary Thresholds by Projection Year



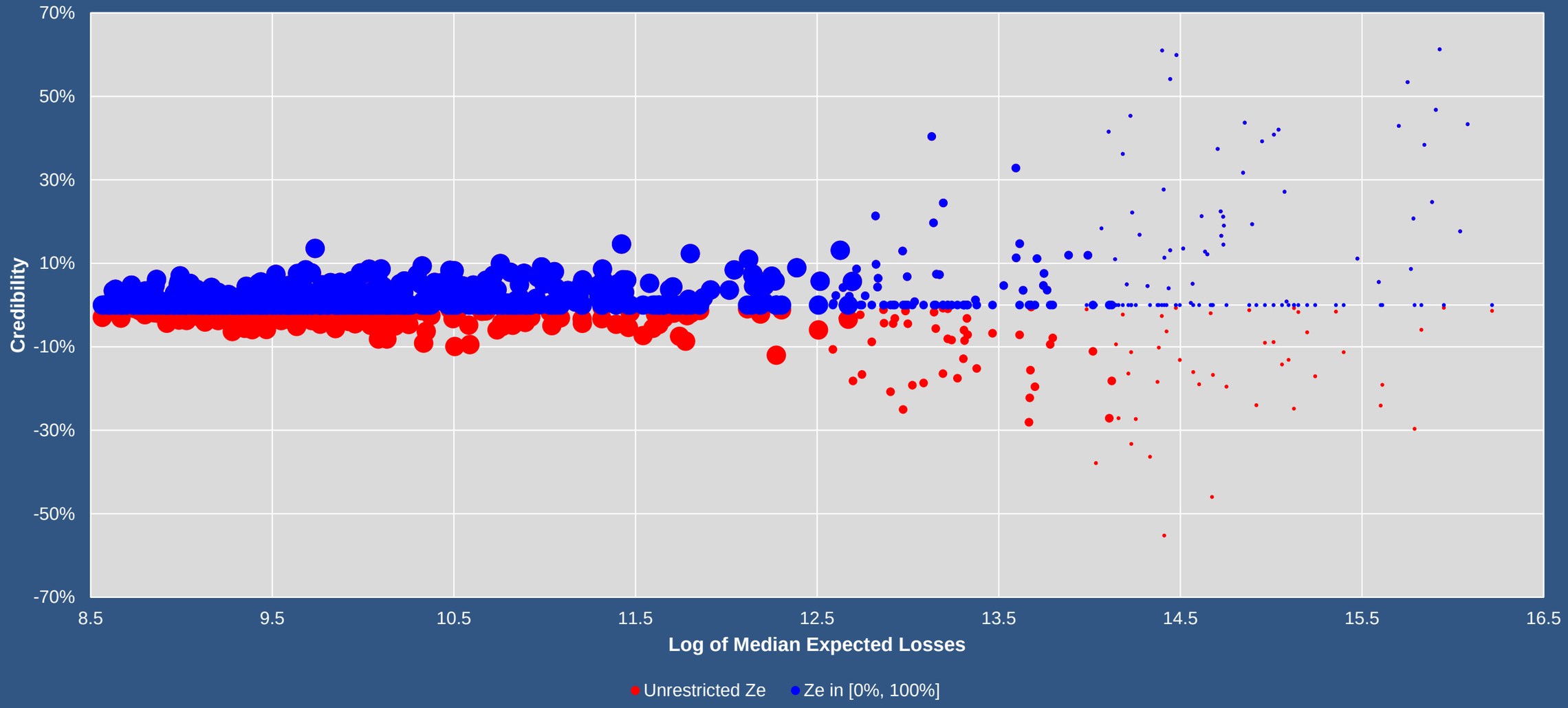
Maximum Efficiency Primary Threshold and Credibilities by Cohort for Projection Year 2017



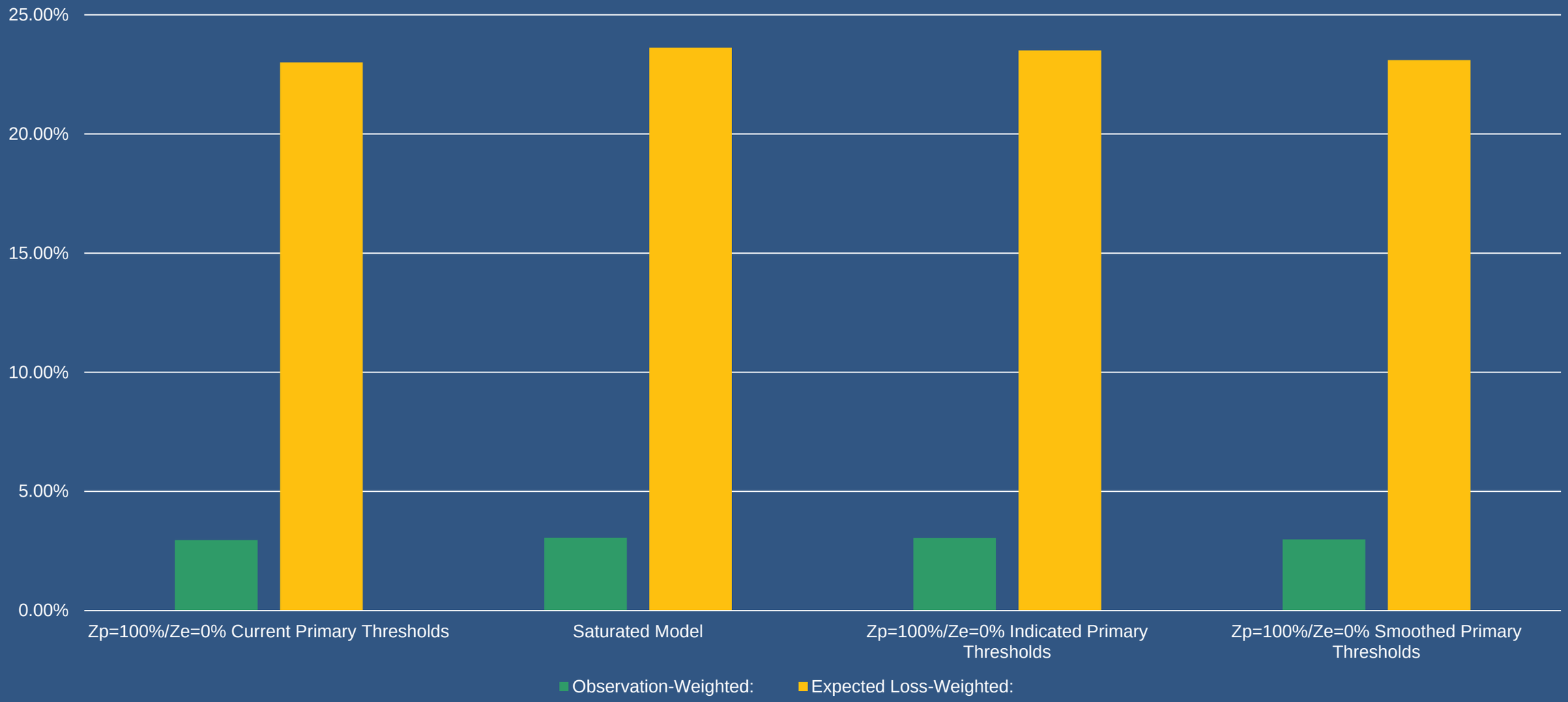
Maximum Efficiency Primary Threshold and Credibilities by Cohort for Projection Year 2017 with Primary Credibility of 100% and Excess Credibility of 0%



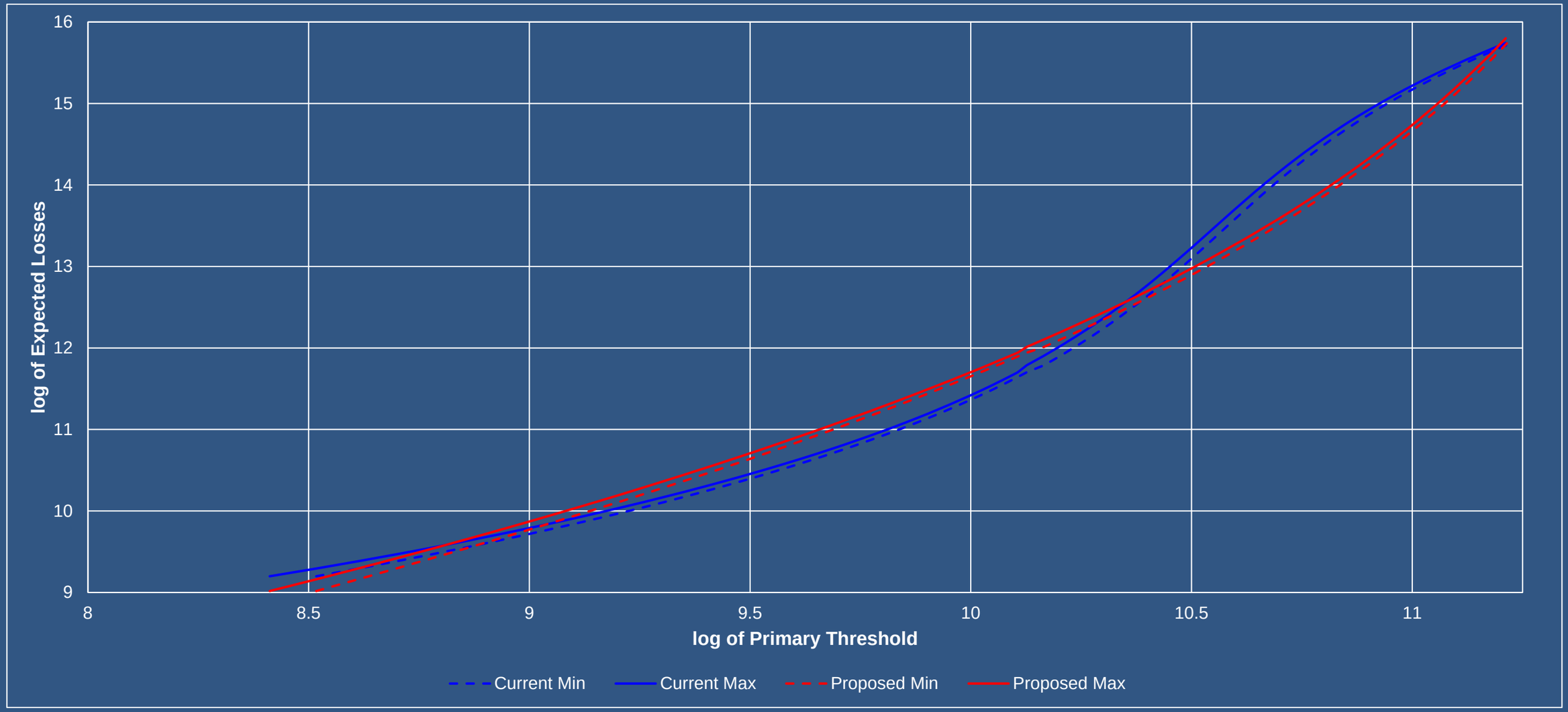
Comparison of Constrained and Unconstrained Excess Credibility by Cohort for All Projection Years with Primary Credibility of 100%



Comparison of Plan Efficiency by Parameterization for Projection Year 2017



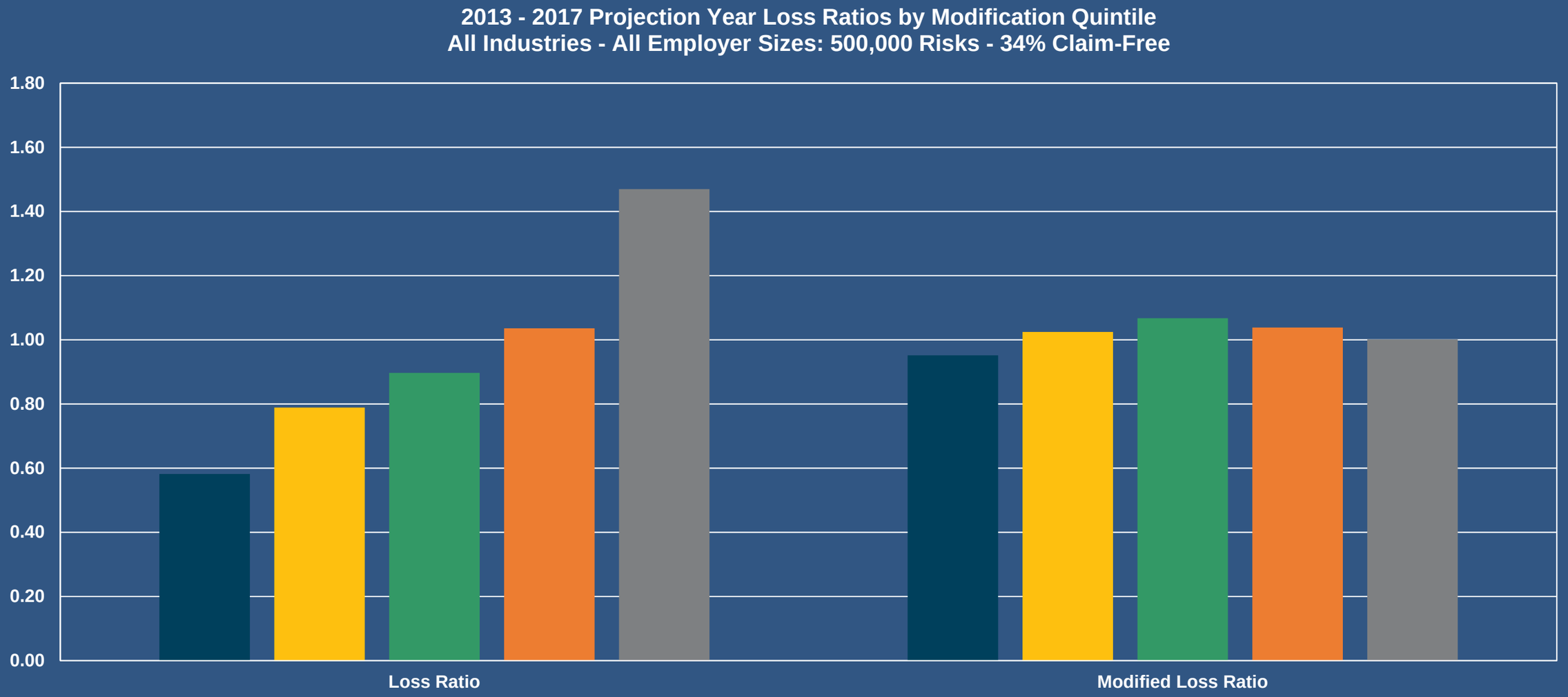
Current and Proposed Primary Thresholds and Expected Loss Ranges



Impact Analysis

- Reviewed the estimated impacts:
  - Quintile distributions of modified vs unmodified loss ratios
  - Impact on issued modifications
- Impact on PY 2019-2020 issued modifications:
  - Change in the D-ratio credibility methodology
  - Update to the expected loss ranges corresponding to a primary threshold
  - Combination of the two changes
- Impact is projected to be small overall and insignificant compared to the typical volatility of annual changes

Modified vs Unmodified Loss Ratios by Experience Modification for Projection Years 2013-2017



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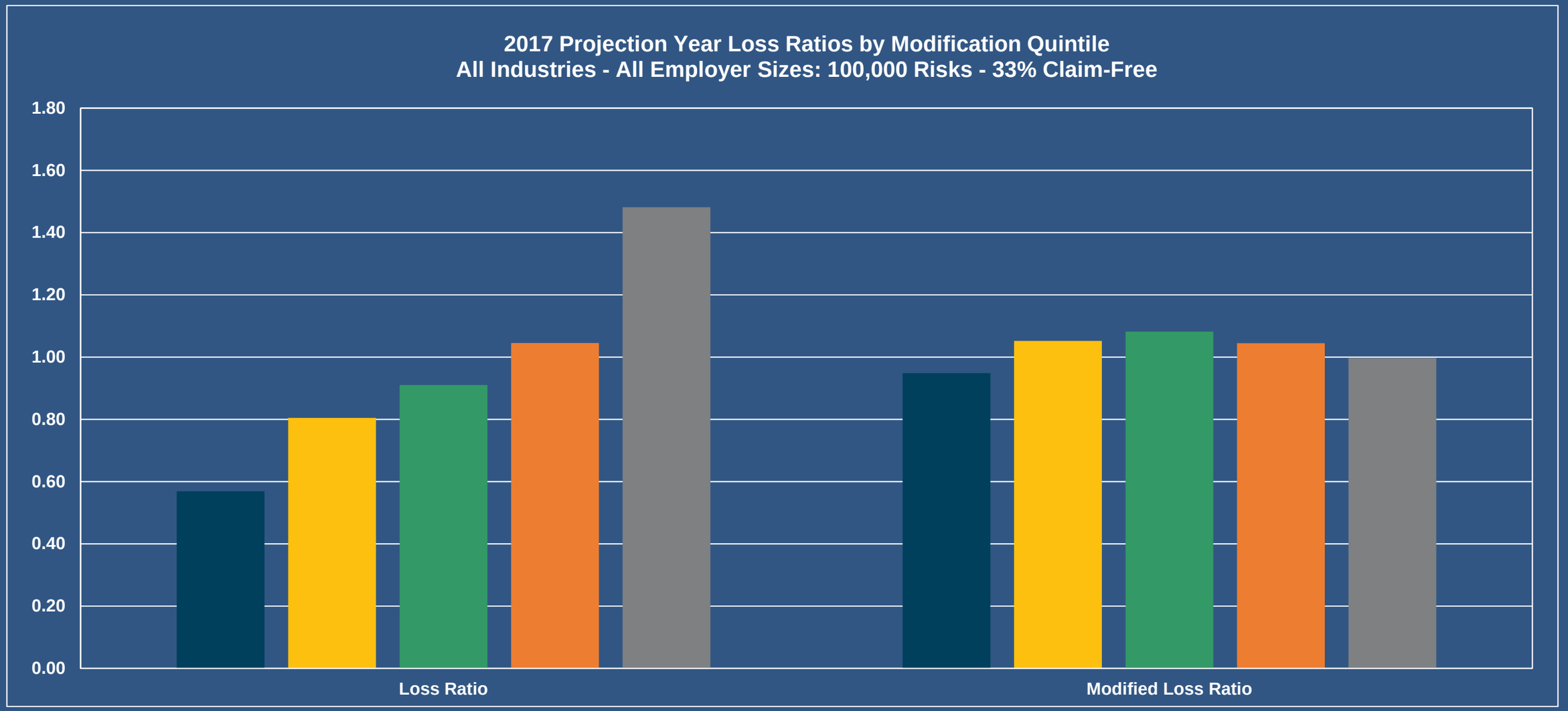
Modified vs Unmodified Loss Ratios by Experience Modification for Projection Year 2017



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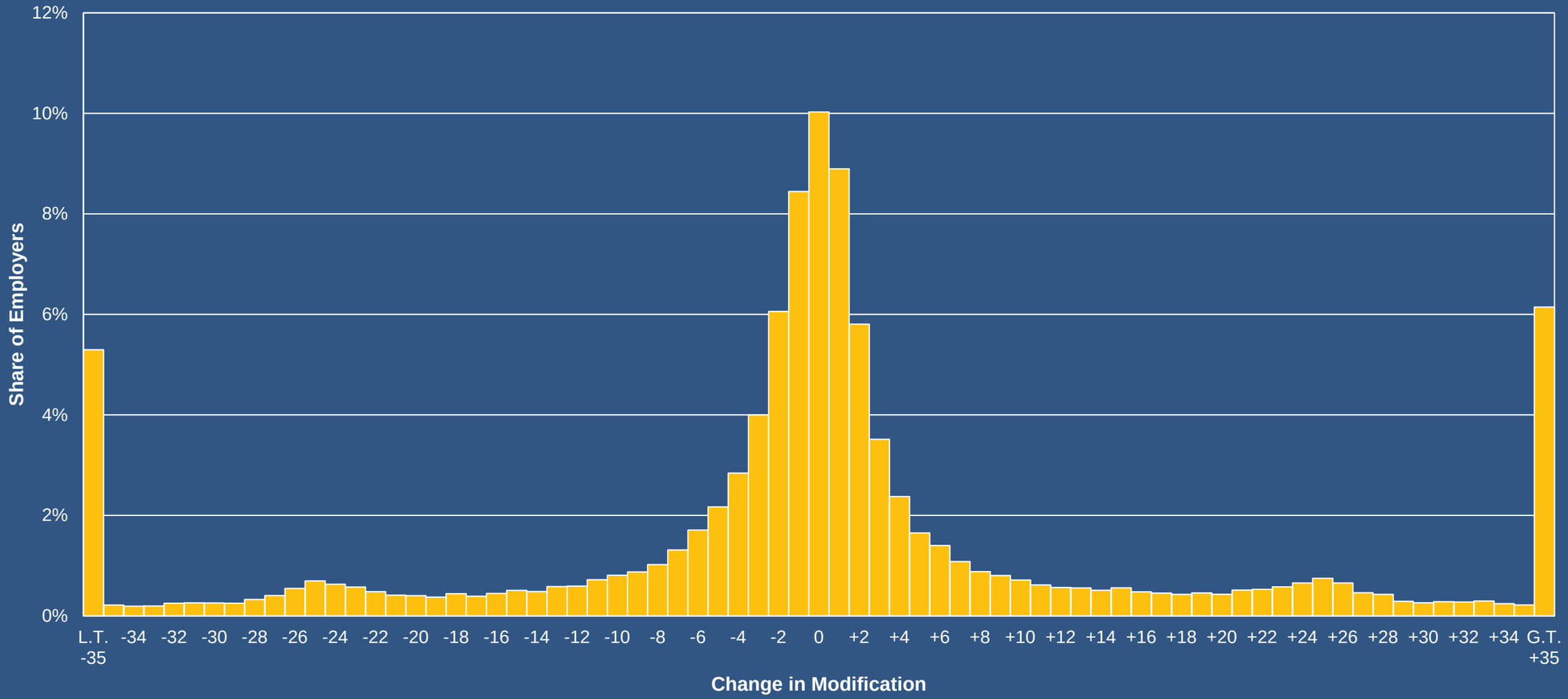
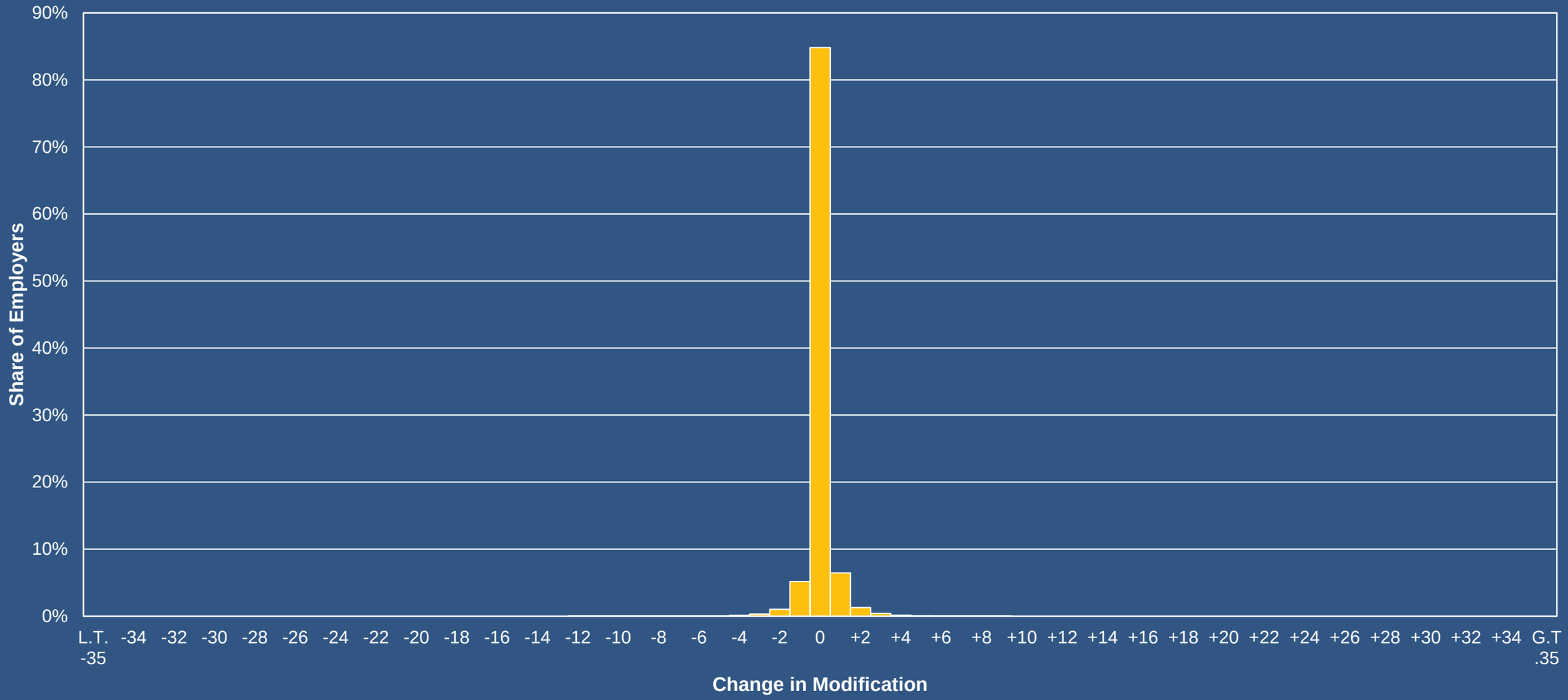
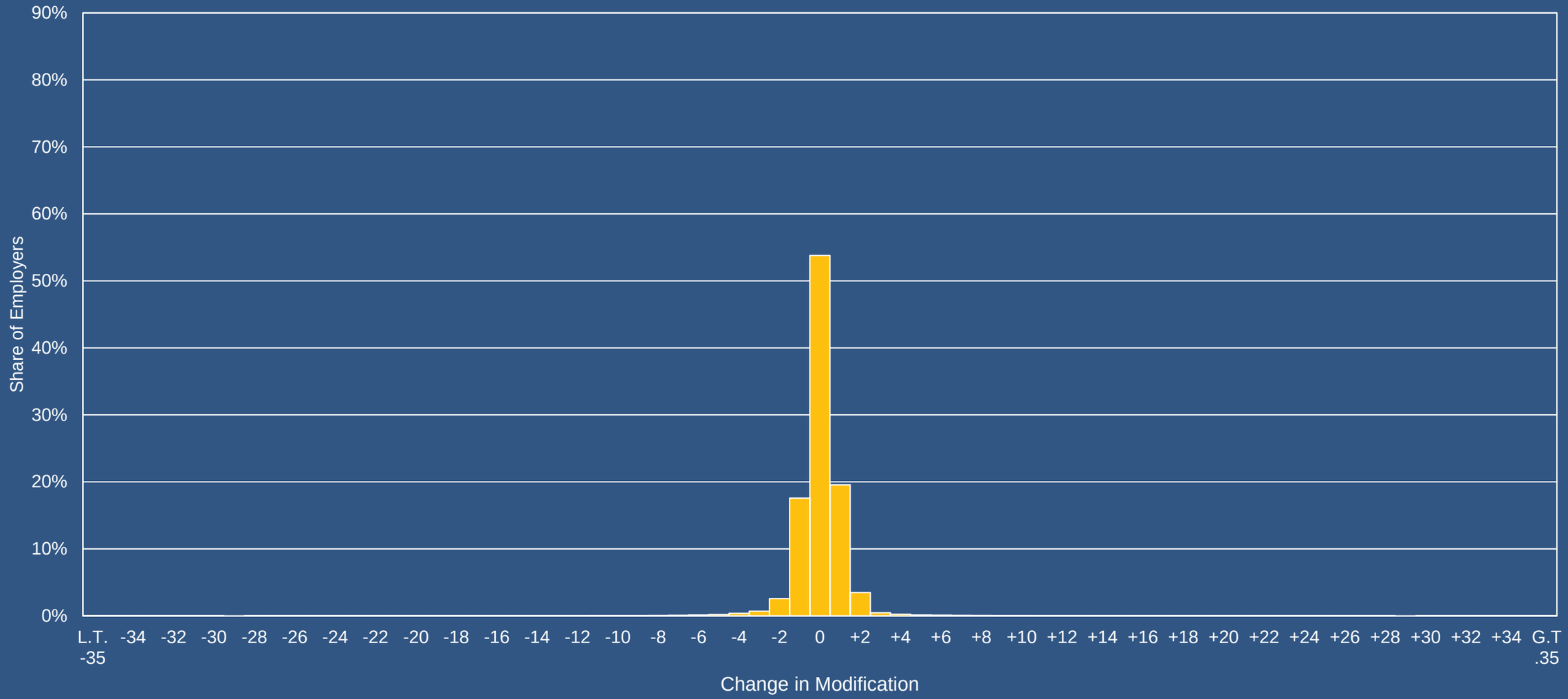
Distribution of Change in Issued Modifications PY 2019-2020 (67,000 employers)



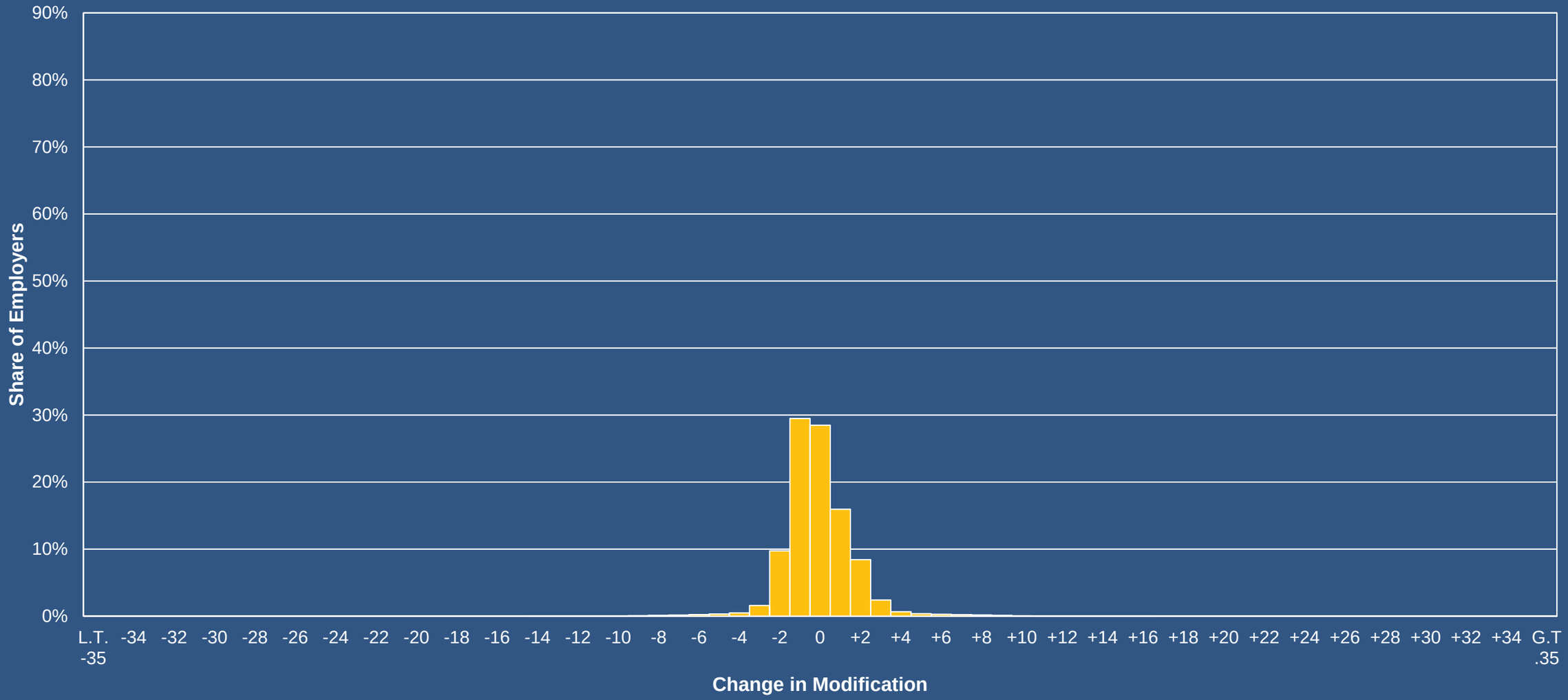
Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Proposed D-Ratio Credibility Methodology



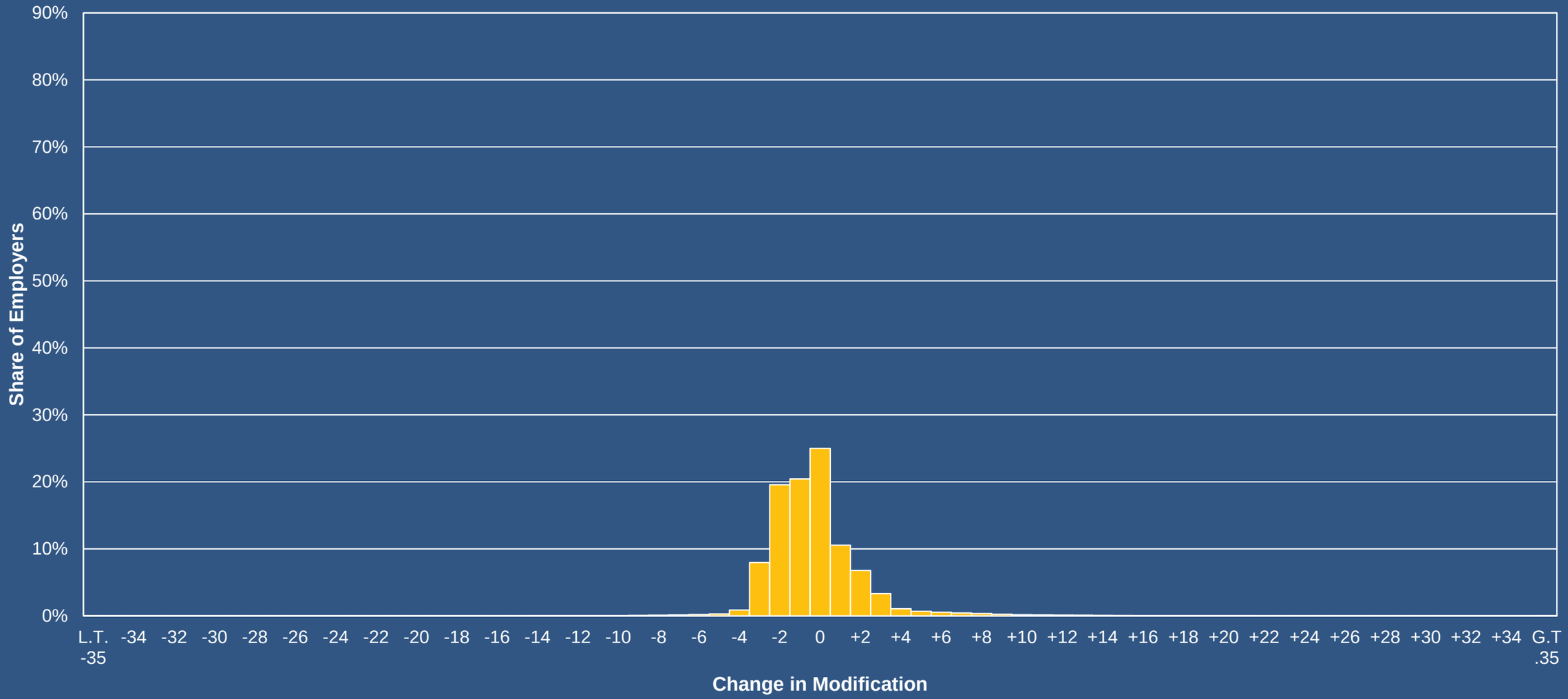
Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Updated Primary Thresholds with Annual Update



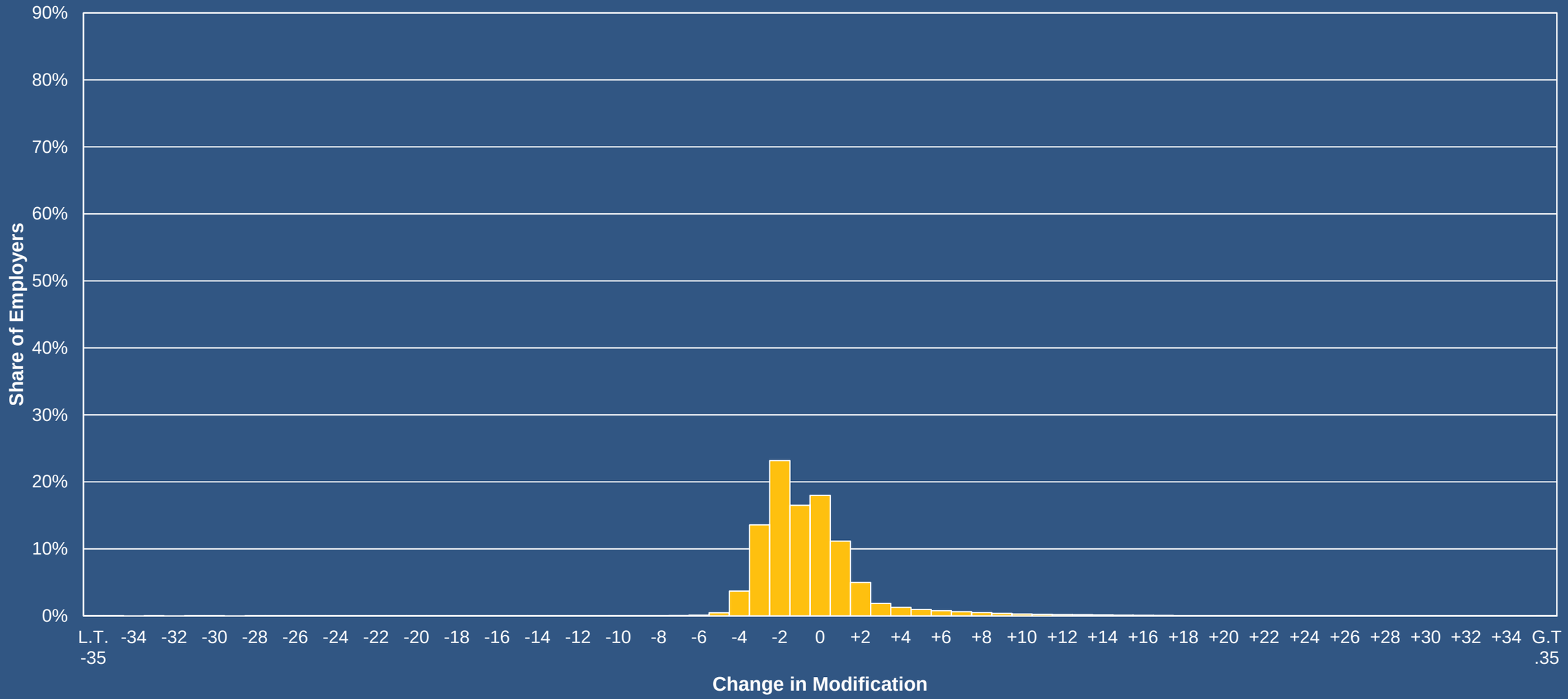
Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Updated Primary Thresholds with Update Every Two Years



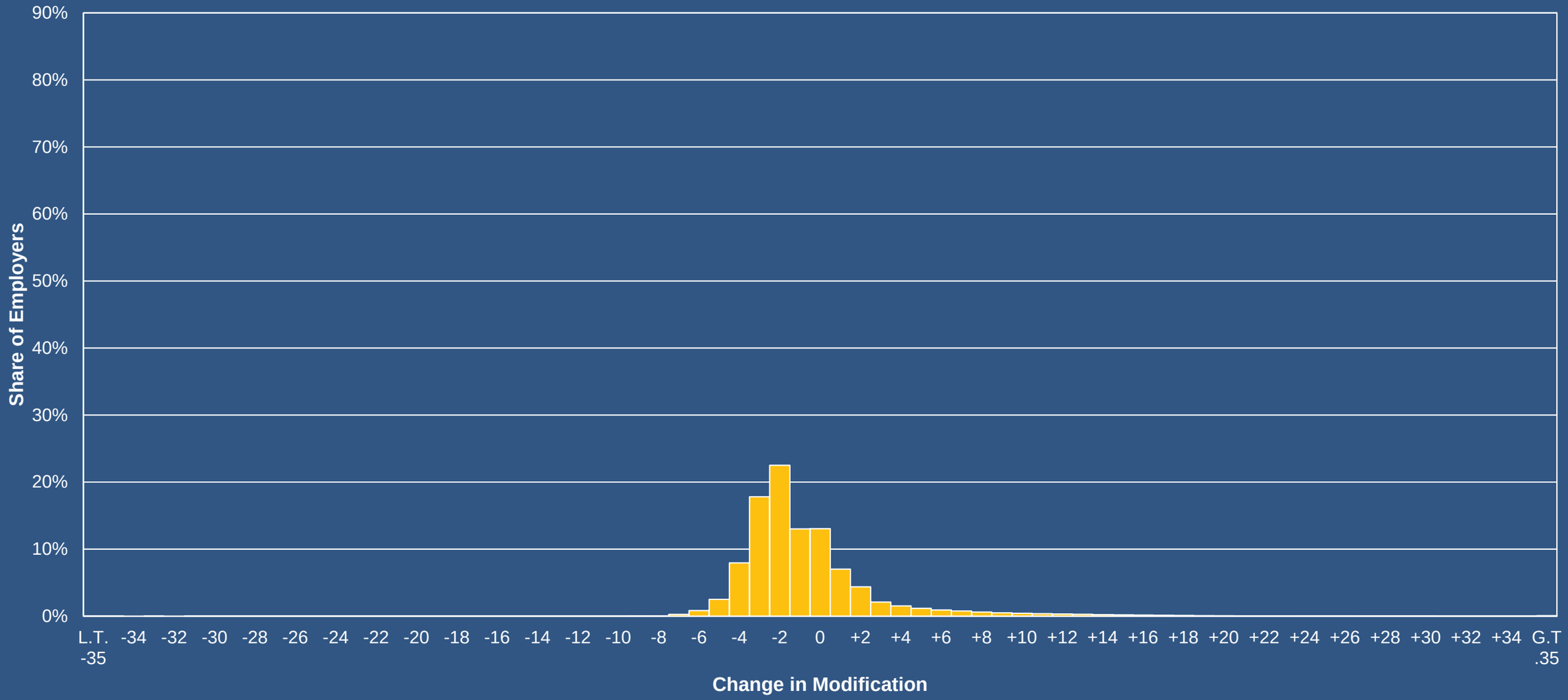
Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Updated Primary Thresholds with Update Every Three Years



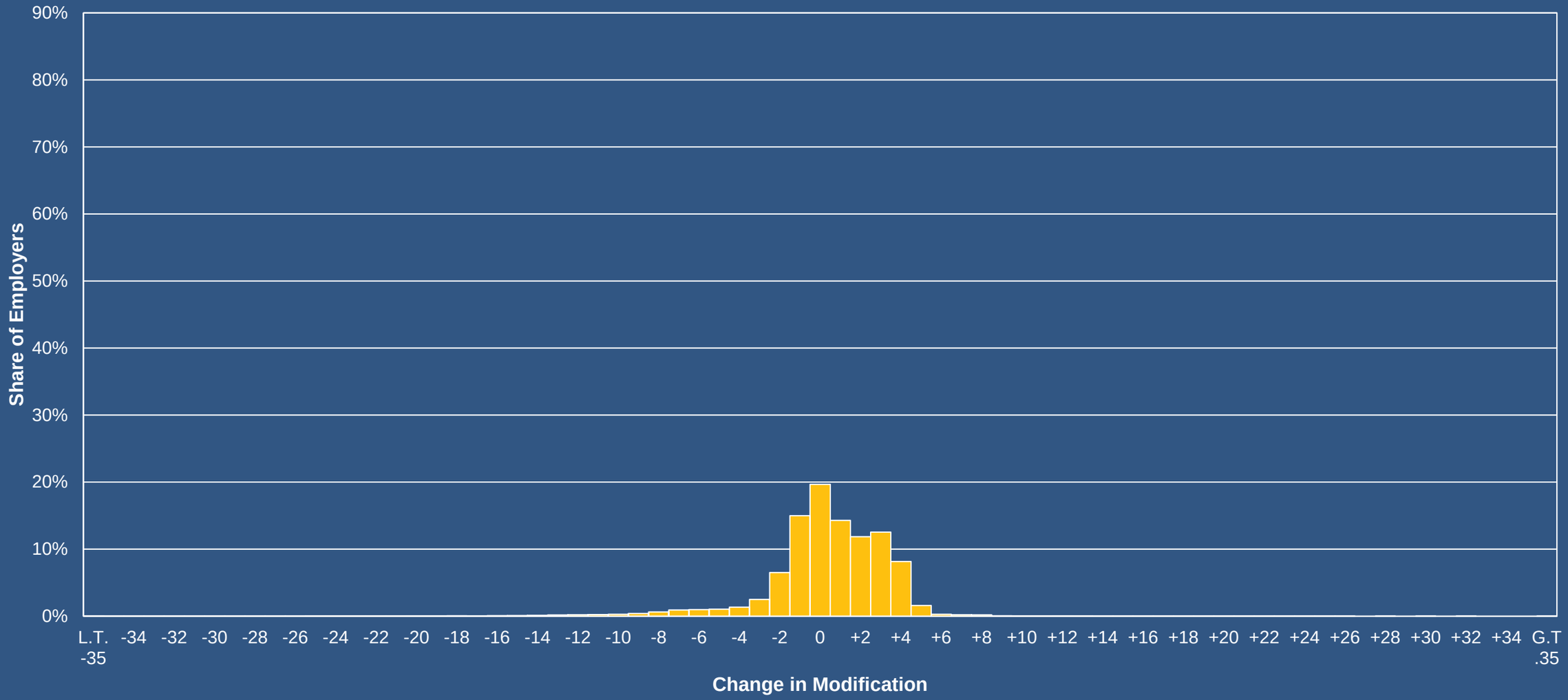
Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Updated Primary Thresholds with Update Every Four Years



Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Updated Primary Thresholds with Update Every Five Years



Distribution of Estimated Change in Issued Modifications for PY 2019-2020 due to Proposed Changes



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1221 Broadway, Suite 900
Oakland, CA 94612
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