



# Key Life Insurance Topics

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Boyang Meng  
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November 16, 2022

# Thoughts on Mortality

*Southeastern Actuaries Conference  
Actuaries' Club of the Southwest  
Annual Meeting  
November 16, 2022*

Kevin Larsen, ASA, MAAA  
Actuary, Actuarial Analytics  
Symetra Life Insurance Company

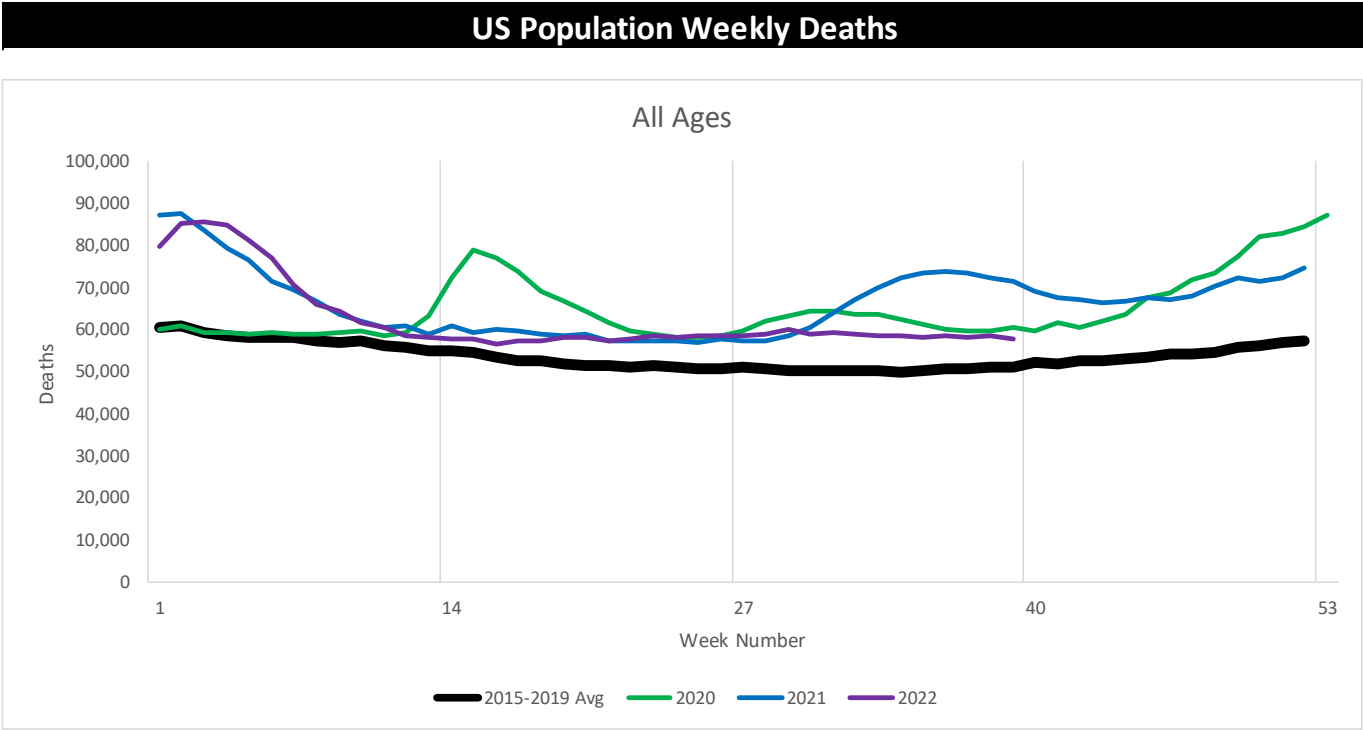




# Thoughts on Mortality

- Excess all-cause mortality during the COVID-19 pandemic
- Changes in specific causes of death over past three years
- Mortality Improvement – before, during, after pandemic

# Excess US Population Mortality During COVID-19 Pandemic

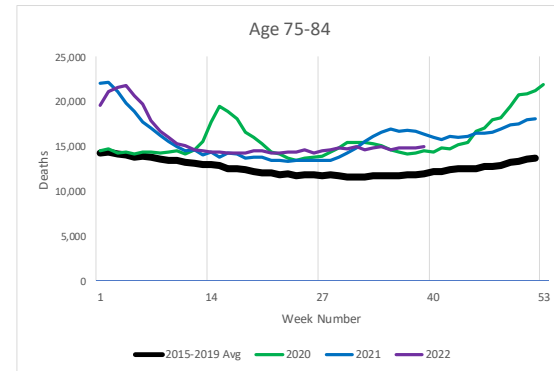
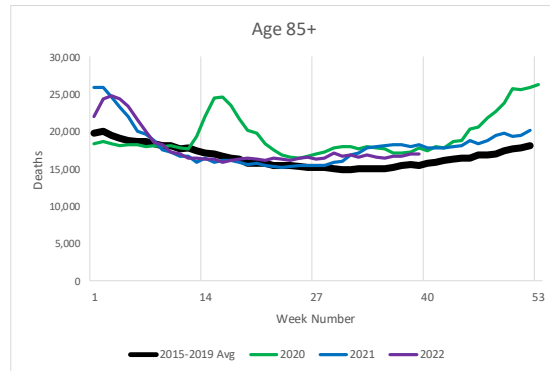
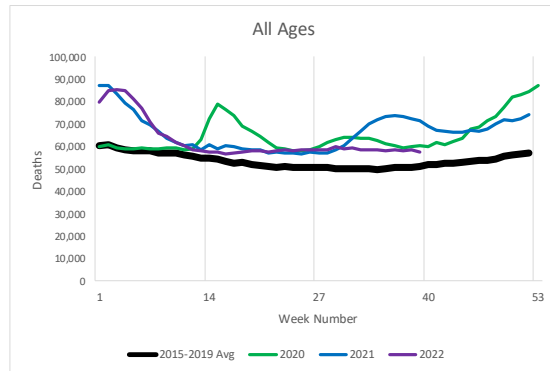


Excess Deaths as a % over 2015-2019 Average					
2020	2021	Q1 2022	Q2 2022	Q3 2022	2022 Proj
23%	24%	24%	11%	16%	15%

Source: National Center for Health Statistics. Weekly Counts of Deaths by Jurisdiction and Age. Date accessed November 2, 2022. Available from <https://data.cdc.gov/d/y5bj-9g5w>.

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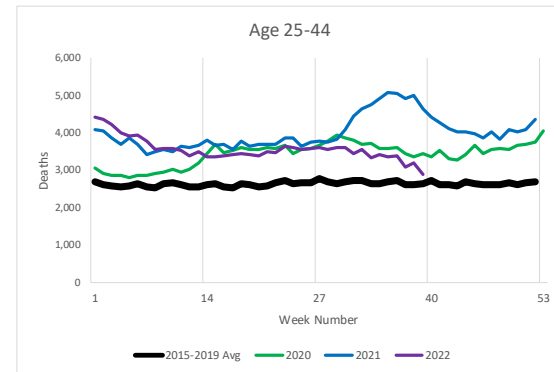
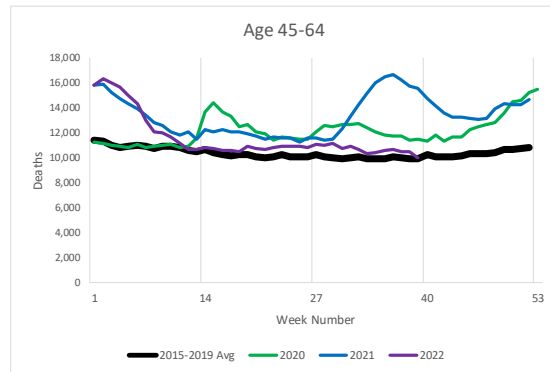
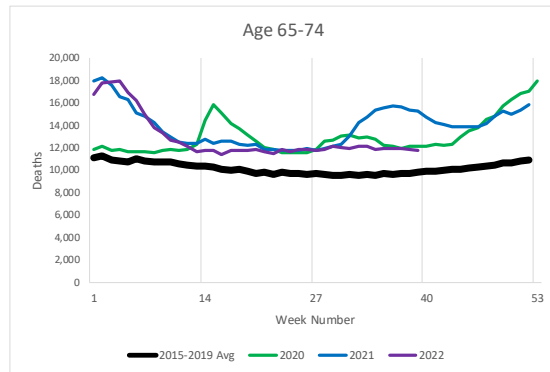
US Population Weekly Deaths



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2020	2021	Q1 2022	Q2 2022	Q3 2022	2022 Proj
19%	8%	9%	2%	10%	6%

Excess Deaths as a % over 2015-2019 Average					
2020	2021	Q1 2022	Q2 2022	Q3 2022	2022 Proj
27%	26%	31%	18%	26%	23%

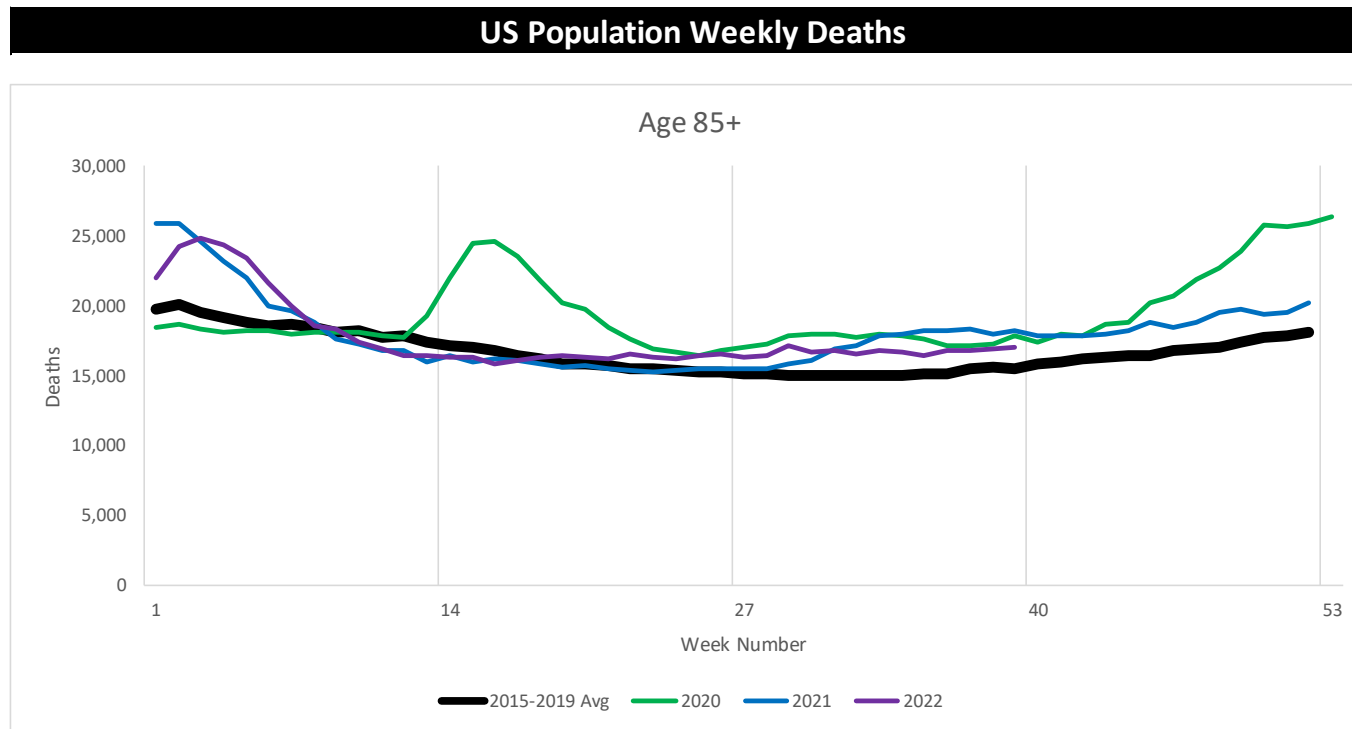


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30%	37%	39%	18%	24%	24%

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20%	29%	23%	6%	7%	8%

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33%	52%	48%	33%	27%	29%

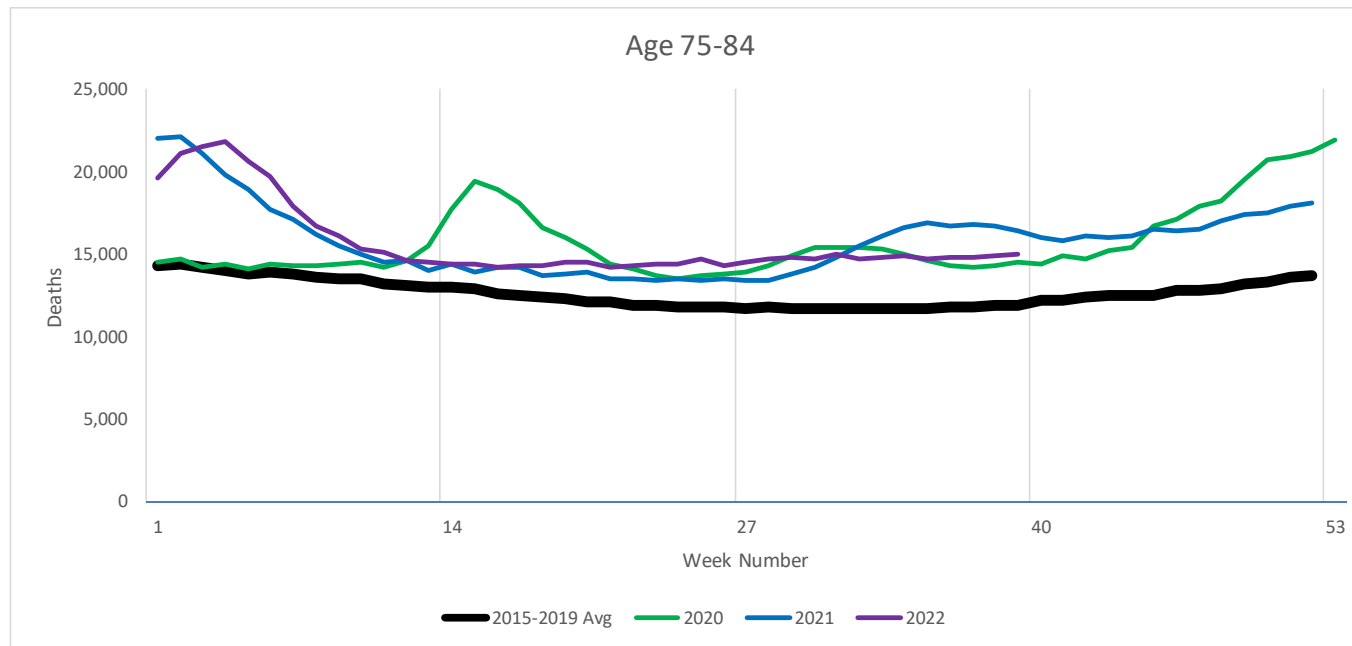
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## US Population Weekly Deaths

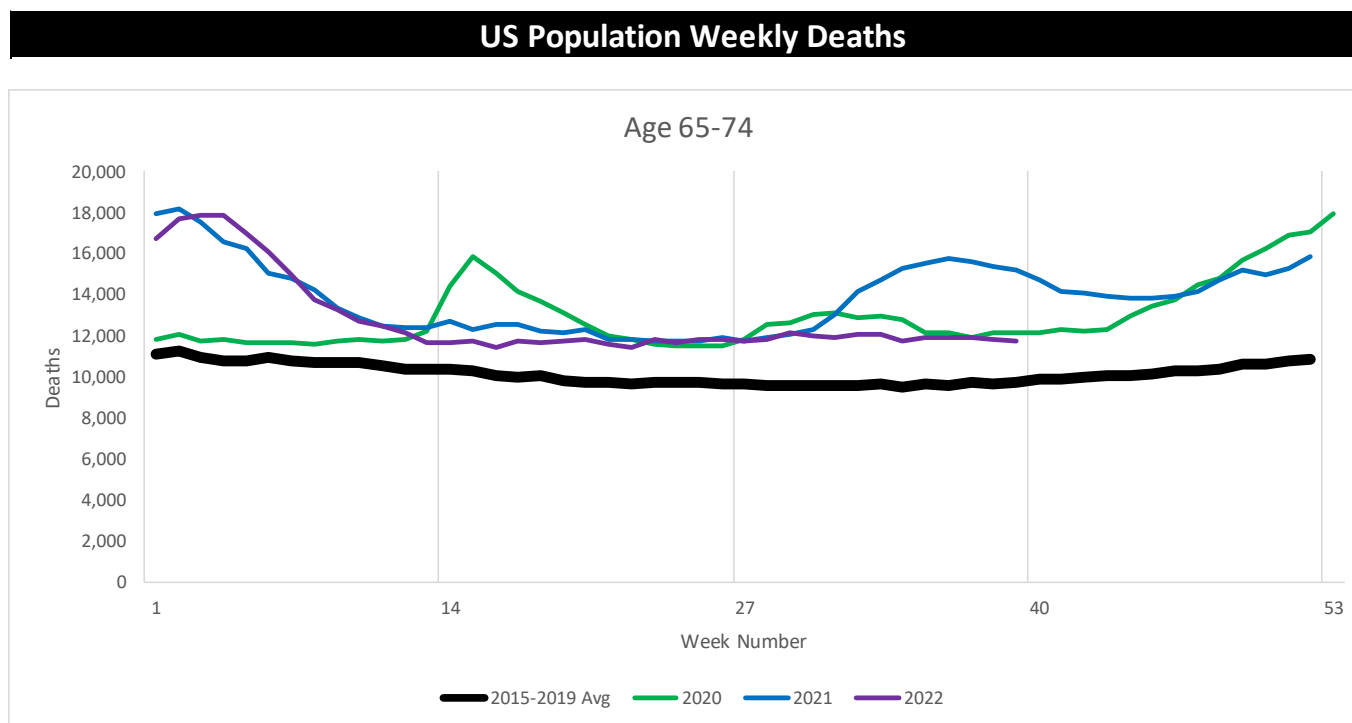


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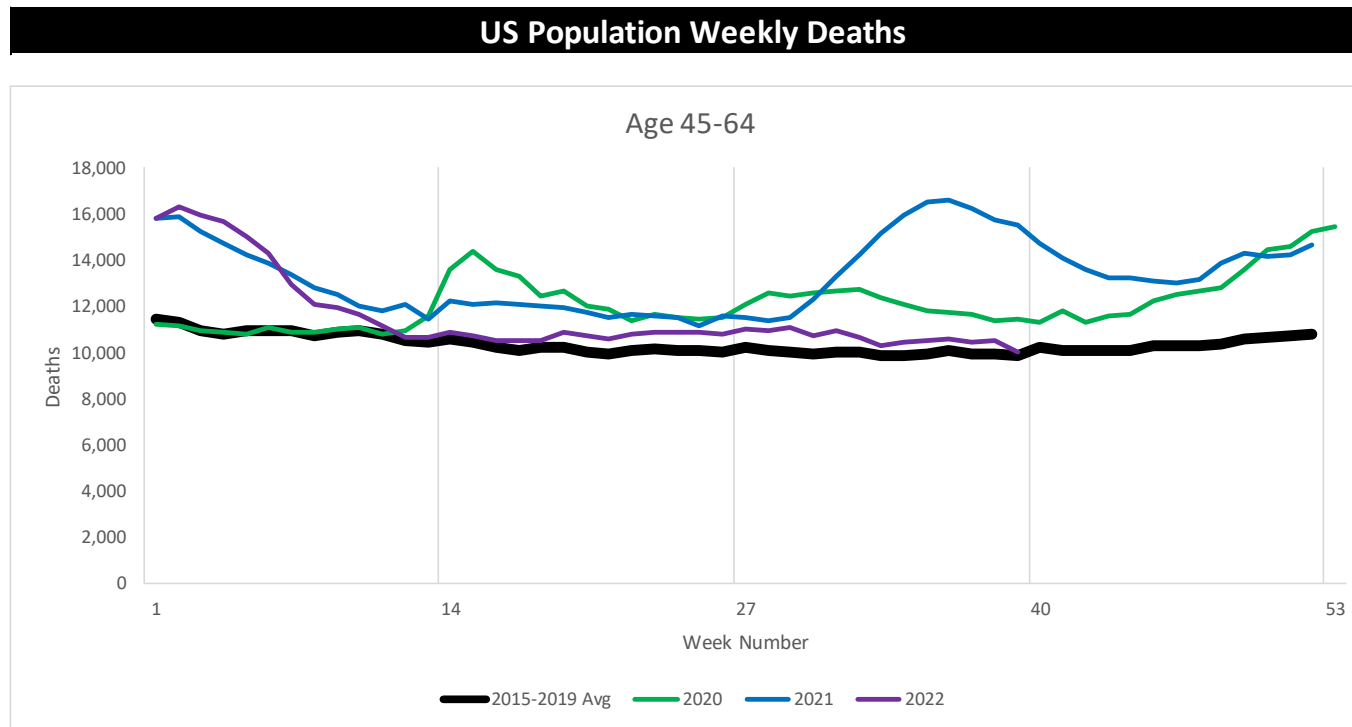
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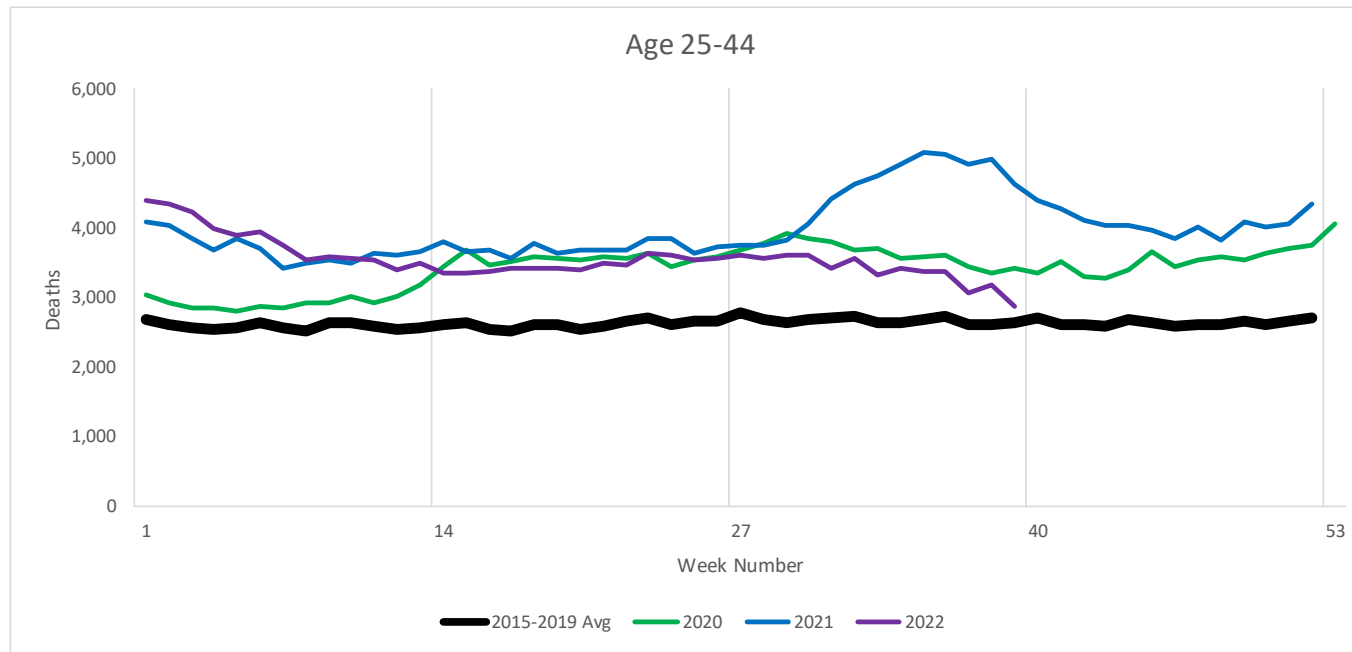


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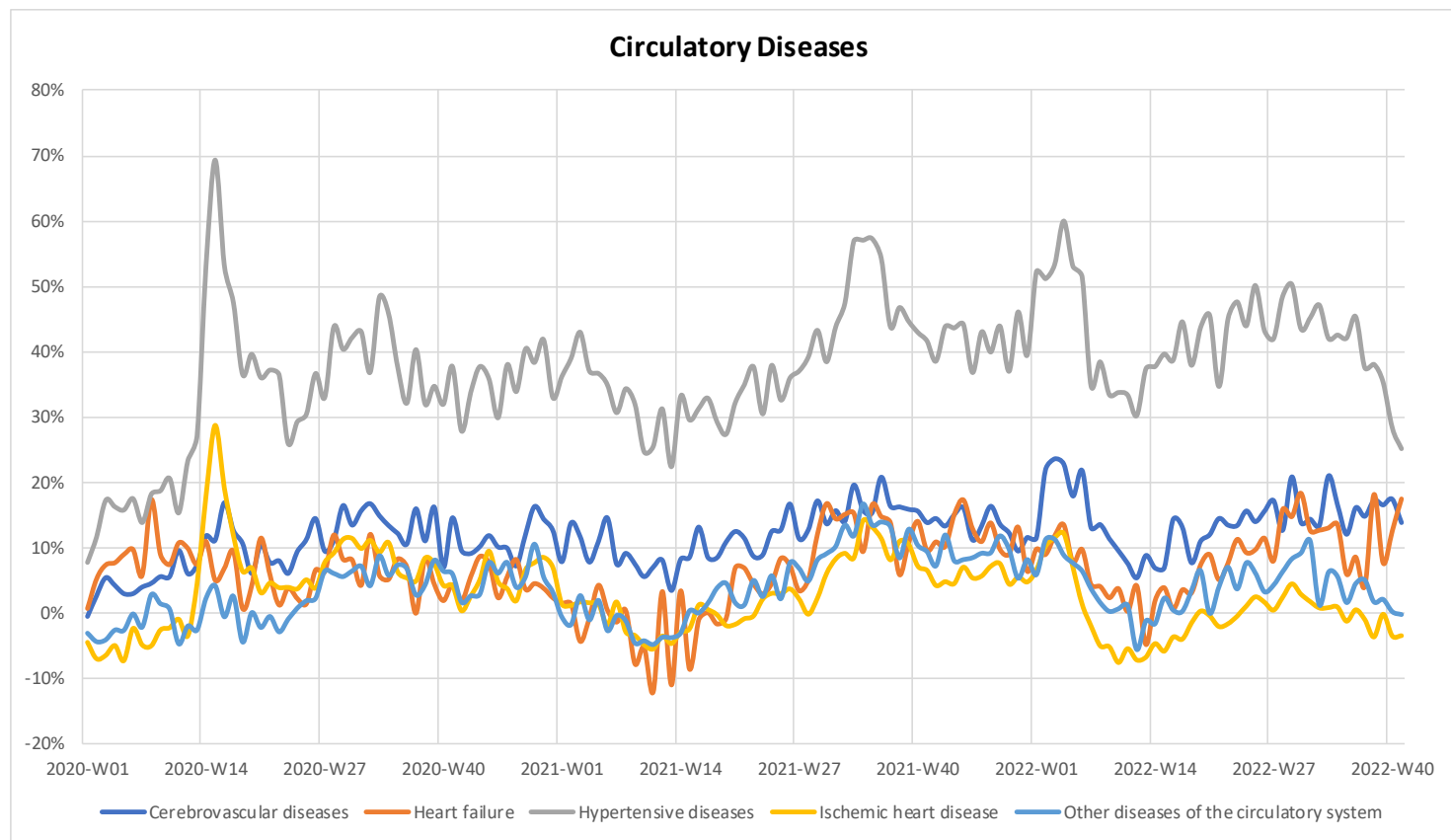
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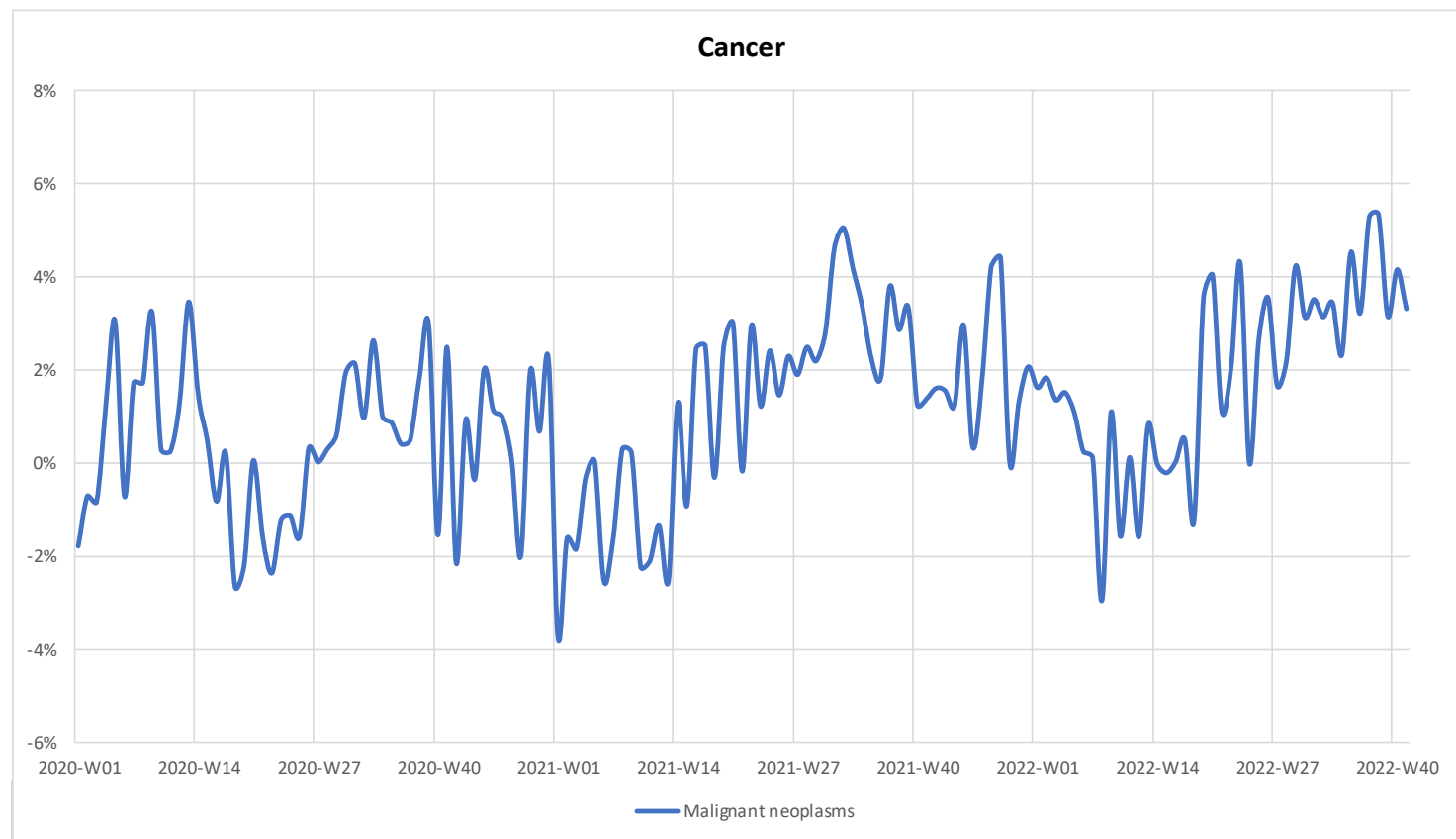
% Excess Deaths (compared to 2015-2019 average for corresponding weeks)



wtwco.com Source: National Center for Health Statistics. Weekly Counts of Death by Jurisdiction and Select Causes of Death. Date accessed November 2, 2022. Available from <https://data.cdc.gov/d/u6jv-9ijr>.

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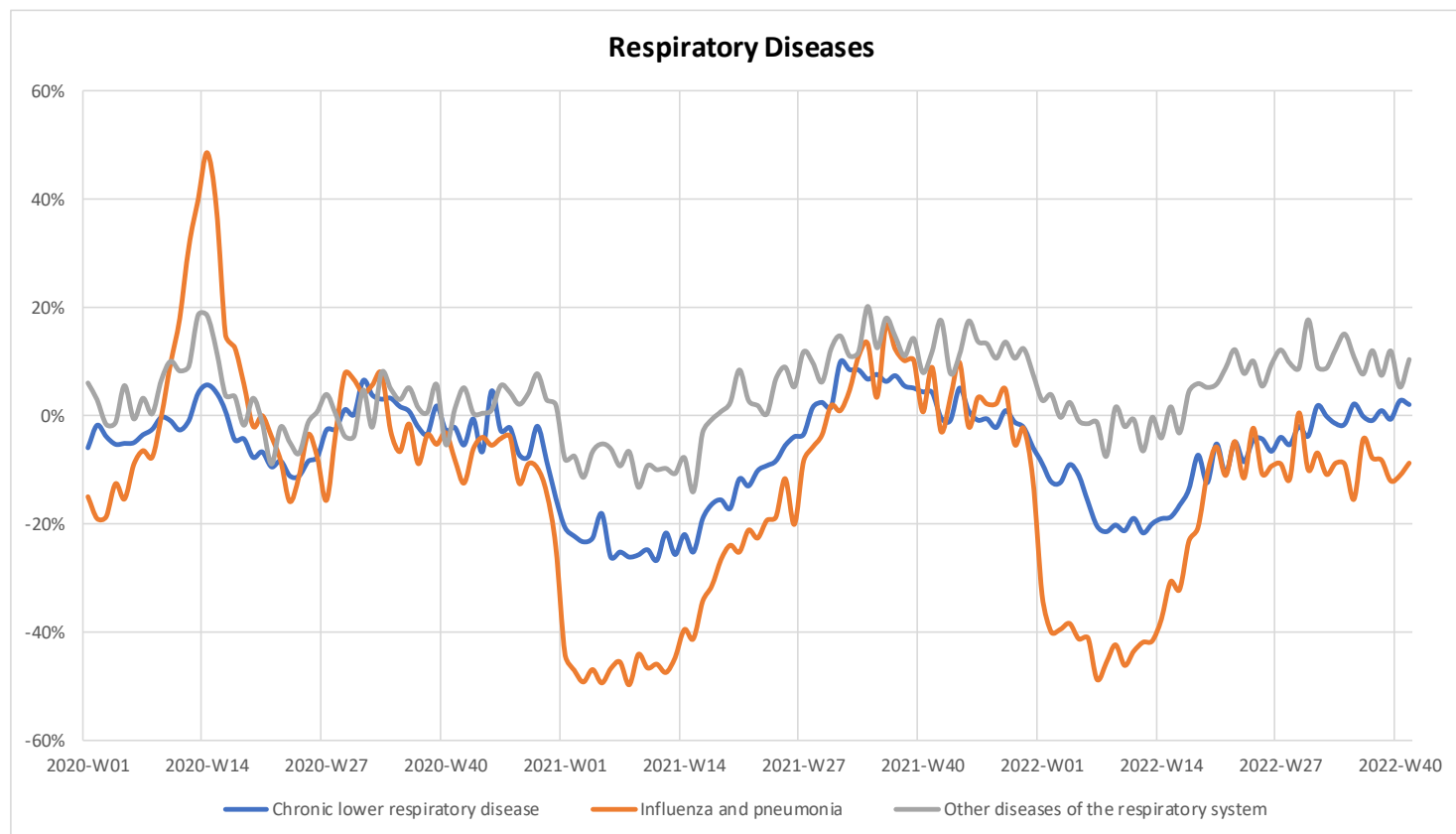


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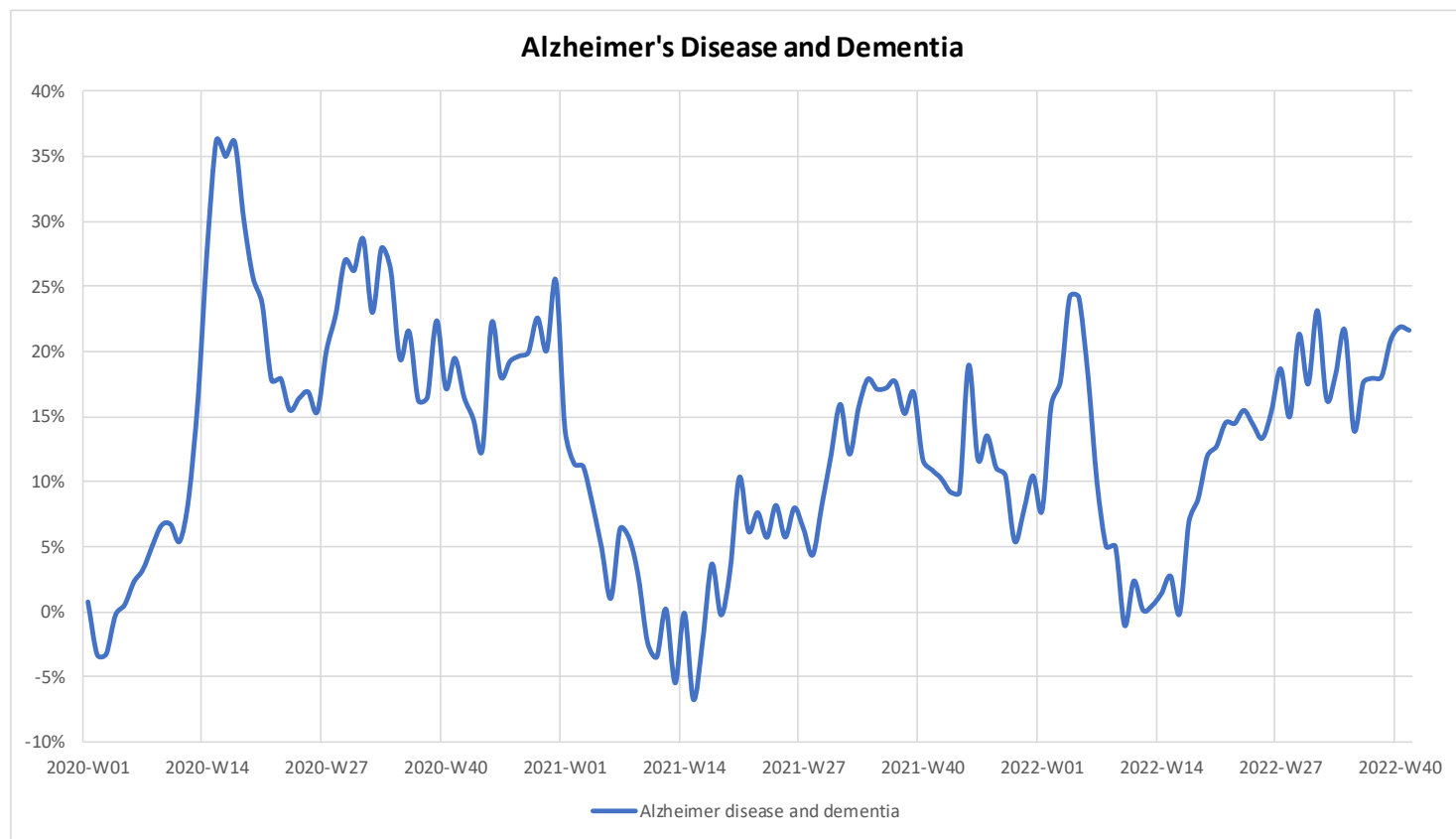
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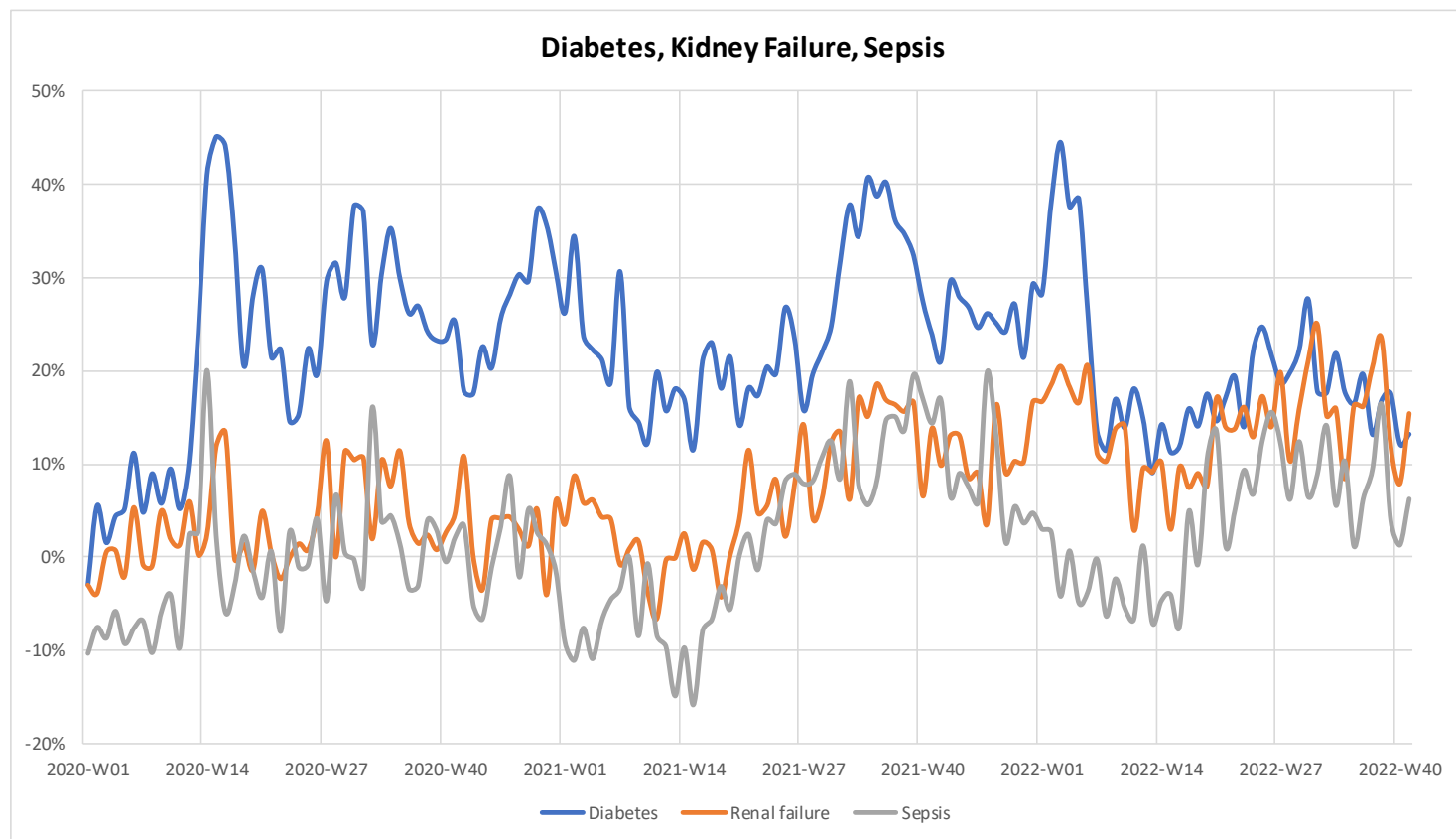
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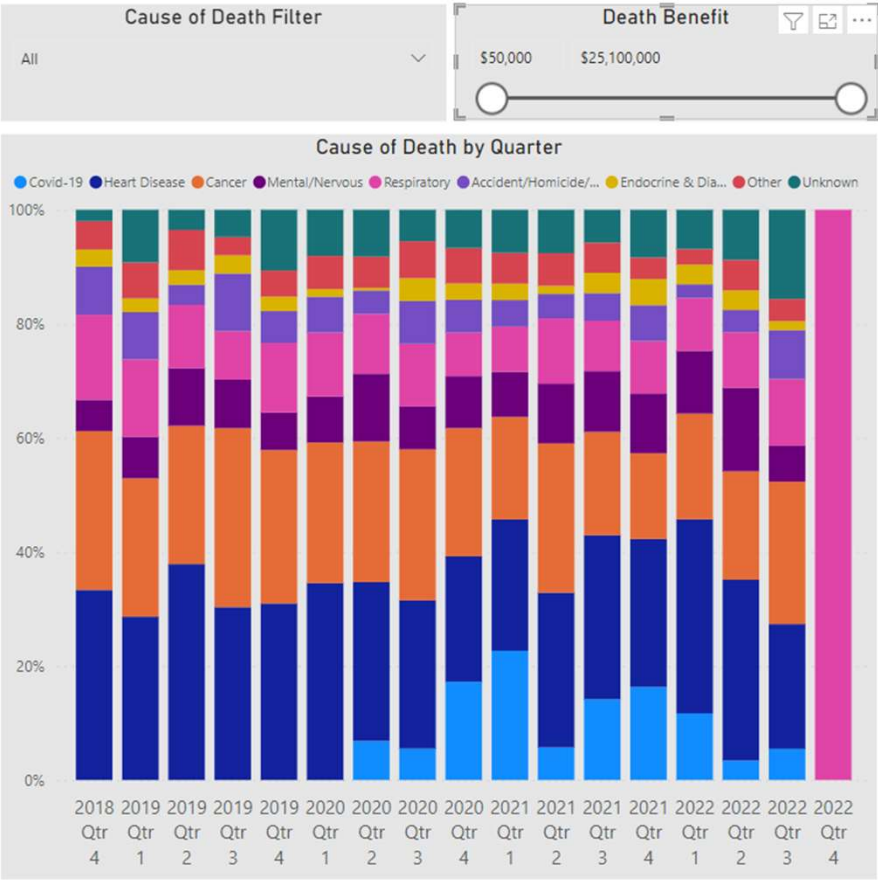
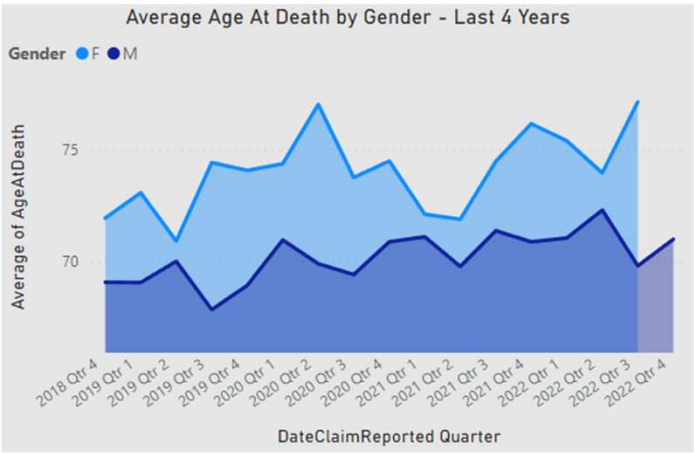
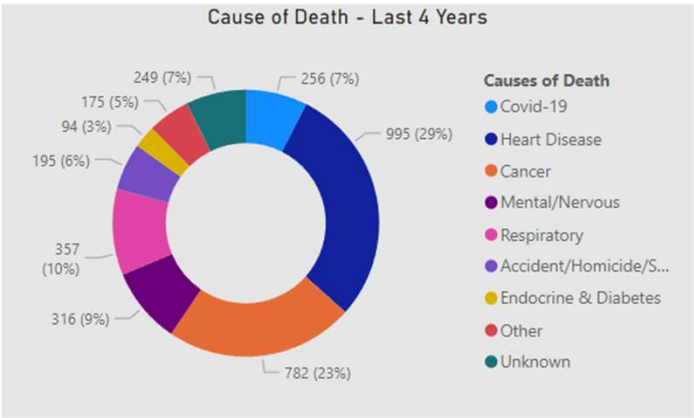
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# Cause of Death Trend – Amounts > \$50,000 - Company S



# Mortality Improvement Thoughts

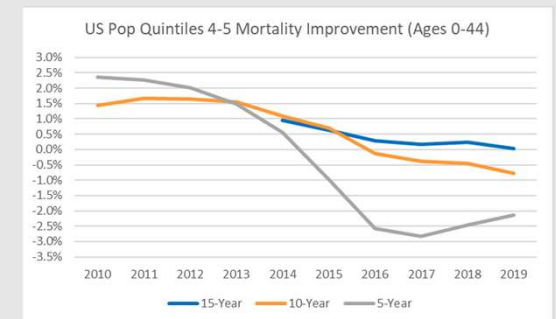
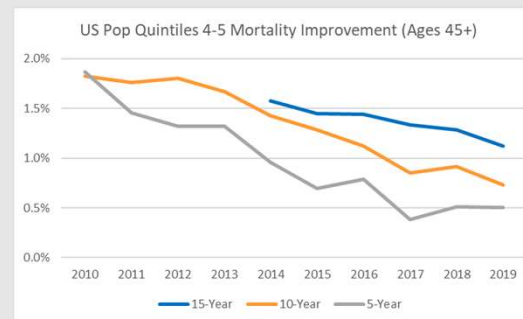
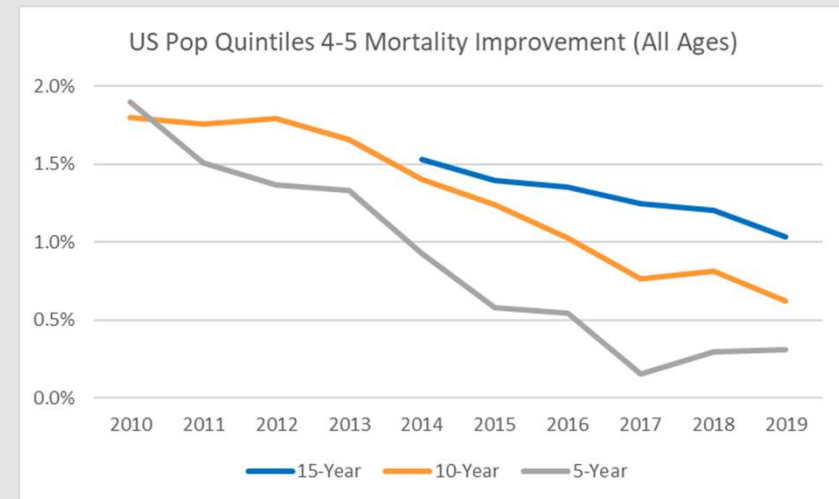
- Long-term slope over time
  - 1959-2016 average ~1.0% each year for both males and females
  - Fluctuation over any 10- to 15- year period between 0.25%-2.0%
  - Fluctuation over any two consecutive periods (25-30 yrs) between 0.75%-1.5%
- Source: SOA Research Institute Analysis of Historical US Population Mortality Improvement Drivers 1959-2016

Period	Male	Female
1959-1970	0.17%	0.81%
1970-1980	2.06%	2.17%
1980-1995	1.01%	0.65%
1995-2010	1.55%	1.02%
2010-2016	0.32%	0.22%
<b>1959-2016</b>	<b>1.10%</b>	<b>1.00%</b>



# Mortality Improvement Thoughts

- Immediately Preceding Pandemic
  - Top two quintiles only
  - While 2010-16 were nearly flat, 2017-19 had exceeded 1% again
  - Big fluctuation point at age 45
    - Impact to overall is small, though because vast majority of deaths are age 45+



# Spikes and Waves (Pandemics and Temporary Events)

When temporary mortality events arise, layer as additive mortality on top of baseline MI trend

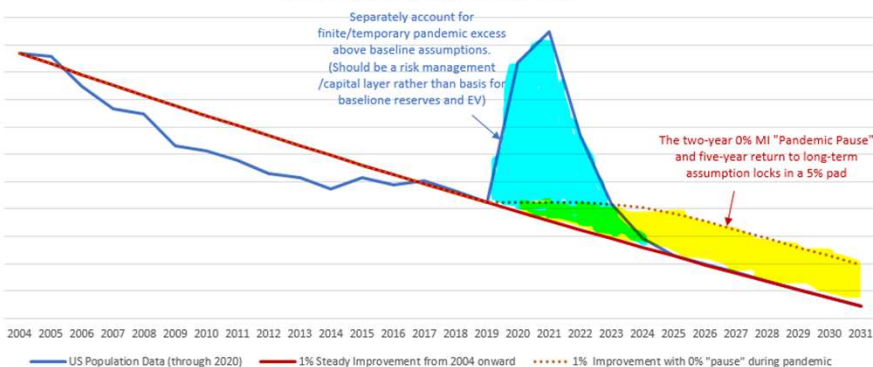
Magnitude and duration should be monitored and based on best research available

When temporary event complete should expected mortality return to the baseline trend line or pre-event level?

Baseline Mortality Improvement Trend

Separately account for finite/temporary pandemic excess above baseline assumptions. (Should be a risk management /capital layer rather than basis for baseline reserves and EV)

The two-year 0% MI "Pandemic Pause" and five-year return to long-term assumption locks in a 5% pad





# Life Insurance Mortality Insights

Boyang Meng



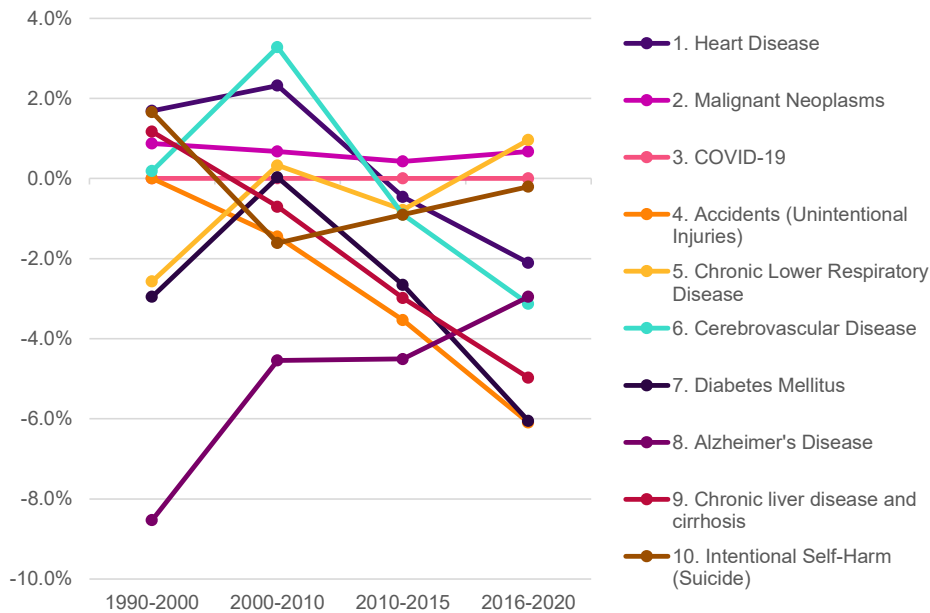
## **Boyang Meng, ASA MAAA**

Manager

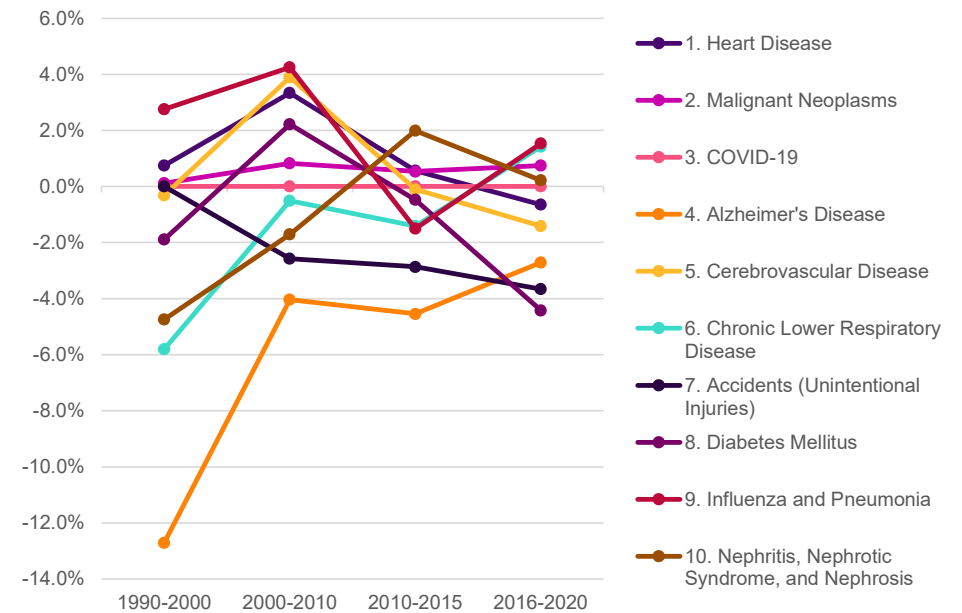
Boyang has nearly 10 years of life insurance industry experience with a focus on experience studies, predictive analytics and financial modeling for individual life insurance. He is also a core member of the team responsible for developing and executing the TOAMS Industry Experience Studies with a focus on predictive modeling and analysis.

# Mortality Improvement – Cause of Death

**Historical Male Mortality Improvement in the U.S Population 1990 to 2020 By Top 10 COD**



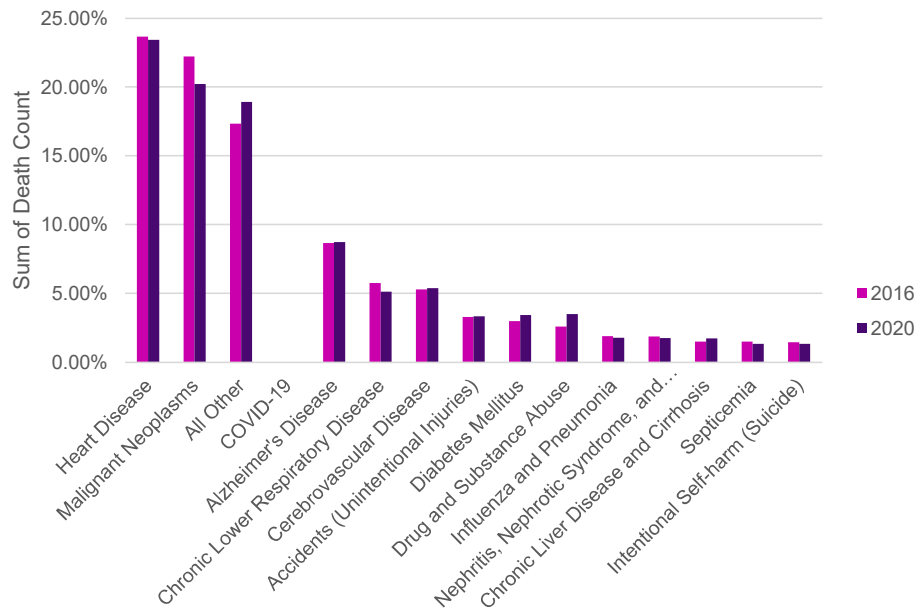
**Historical Female Mortality Improvement in the U.S Population 1990 to 2020 By Top 10 COD**





# Mortality Improvement – Cause of Death

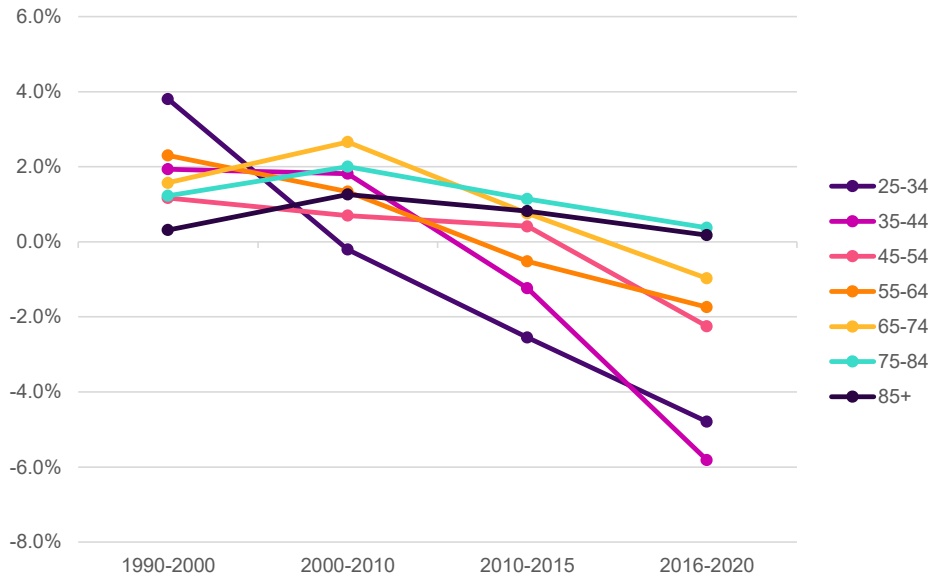
Percentage of COD Death Count to Total Comparison  
Between 2016 and 2020 by Top 14 COD



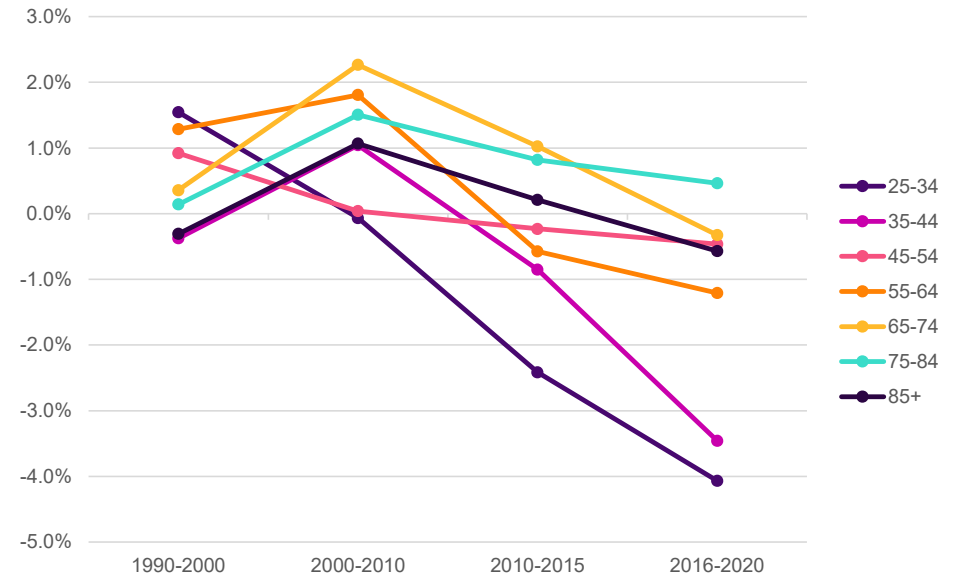
Row Labels	Sum of Deaths		Percentage to Total Death without Covid	
	2016	2020	2016	2020
Heart Disease	633,677	695,546	23.66%	23.43%
Malignant Neoplasms	595,276	599,888	22.22%	20.21%
All Other	464,018	561,214	17.32%	18.90%
COVID-19	-	350,223	0.00%	0.00%
Alzheimer's Disease	231,872	259,200	8.66%	8.73%
Chronic Lower Respiratory Disease	154,164	152,259	5.75%	5.13%
Cerebrovascular Disease	141,719	159,839	5.29%	5.38%
Accidents (Unintentional Injuries)	88,109	99,133	3.29%	3.34%
Diabetes Mellitus	79,811	101,814	2.98%	3.43%
Drug and Substance Abuse	69,613	103,591	2.60%	3.49%
Influenza and Pneumonia	50,992	53,043	1.90%	1.79%
Nephritis, Nephrotic Syndrome, and Nephrosis	49,893	52,412	1.86%	1.77%
Chronic Liver Disease and Cirrhosis	40,491	51,590	1.51%	1.74%
Septicemia	40,134	39,747	1.50%	1.34%
Intentional Self-harm (Suicide)	39,058	39,564	1.46%	1.33%
<b>Grand Total</b>	<b>2,678,827</b>	<b>3,319,063</b>	<b>100.00%</b>	<b>100.00%</b>

# Mortality Improvement – Gender & Age

**Historical Male Mortality Improvement in the U.S Population 1990 to 2020 By Age Group Without Covid**



**Historical Female Mortality Improvement in the U.S Population 1990 to 2020 By Age Group Without Covid**



# TOAMS Geo-dem process

## TOAMS4 Seriatim

- ~18% of TOAMS4 data had valid ZIP5

## US Census 2015 ACS

- ZCTA/ZIP5 level
- Race/Ethnicity removed

## IBM / Truven Healthscan

- Individual transaction
- Summarized to ZIP3 level (303xx)

## Feature Selection

GBM model

- Response: TOAMS4 GLM residual
- Random 5% of data with zip code available
- Top 100 variables contribute ~80% of predictive gain

## TOAMS4 base GLM model

Refitted to Zip data w/modifications

## Emblem



- Set model parameters (log link, poisson error)
- Investigate variable correlations
- Categorize ACS variables by over-arching group
- Forward step-wise regression for initial assessment

## Modeling (75%)

## Holdout (25%)

## Complicate

- Add simple factors (imbalances between observed vs predicted)

## Review/Assess

## Simplify

- Exclude interactions

- Group levels

## Holdout Validation/Model Comparison

Apply curves/variates

- Standard errors
- Confidence intervals
- Consistency
- Model statistics (AIC / BIC)

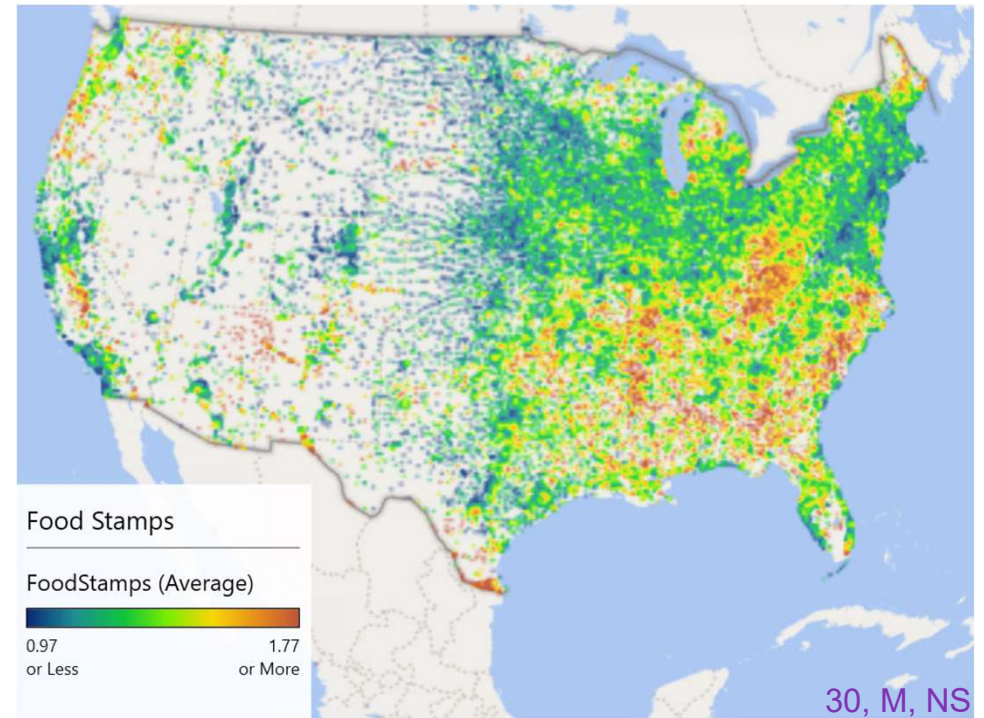
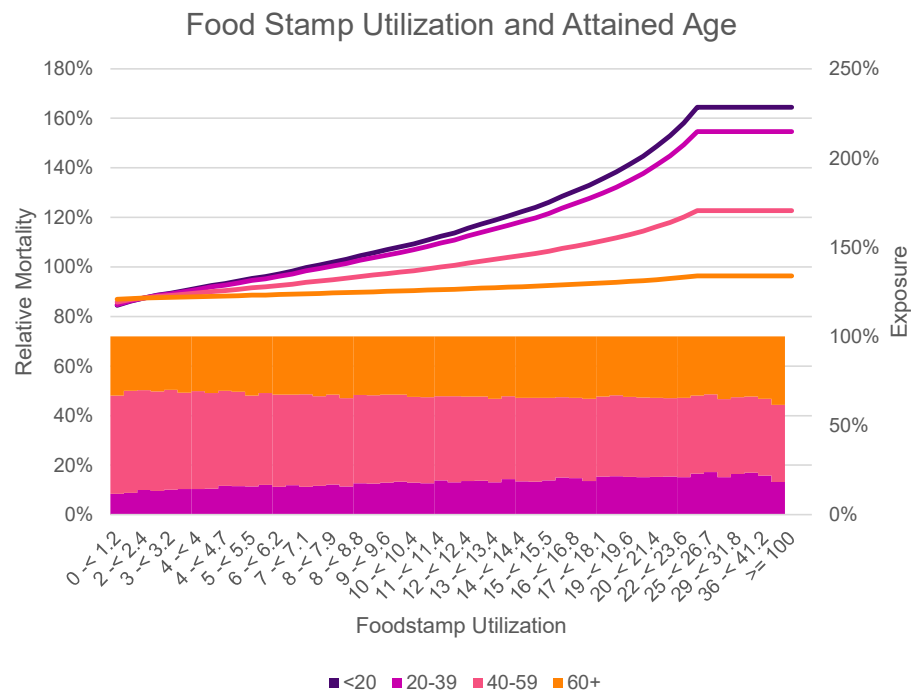
# Predictive modeling results

9 geo-demographic factors were assessed to be significant predictors of mortality

<b>Median Home Value (Owner-Occupied)</b>	<b>Food Stamps Utilization</b> <ul style="list-style-type: none"><li>▪ x Attained Age</li></ul>	<b>Education – Masters Plus</b>
<b>Commute Alone by Car Ratio</b>	<b>Dependency Ratio</b>	<b>Cardiovascular Rx Expenditure</b>
<b>Latitude</b> <ul style="list-style-type: none"><li>▪ x Smoking Status</li></ul>	<b>Latitude</b> <ul style="list-style-type: none"><li>▪ x Attained Age</li></ul>	<b>Latitude</b> <ul style="list-style-type: none"><li>▪ x Longitude</li></ul>

# Food Stamps Utilization

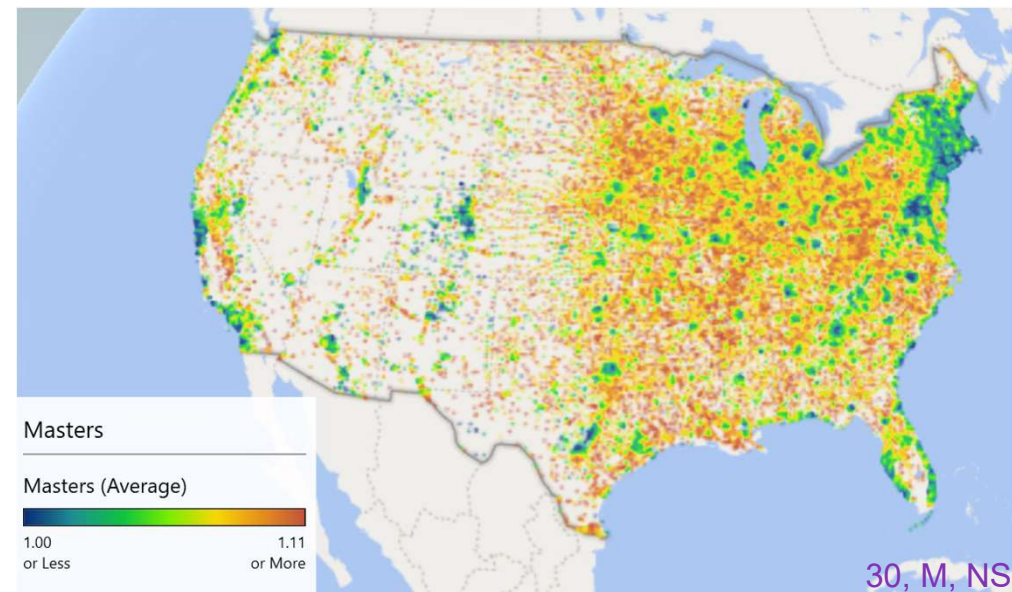
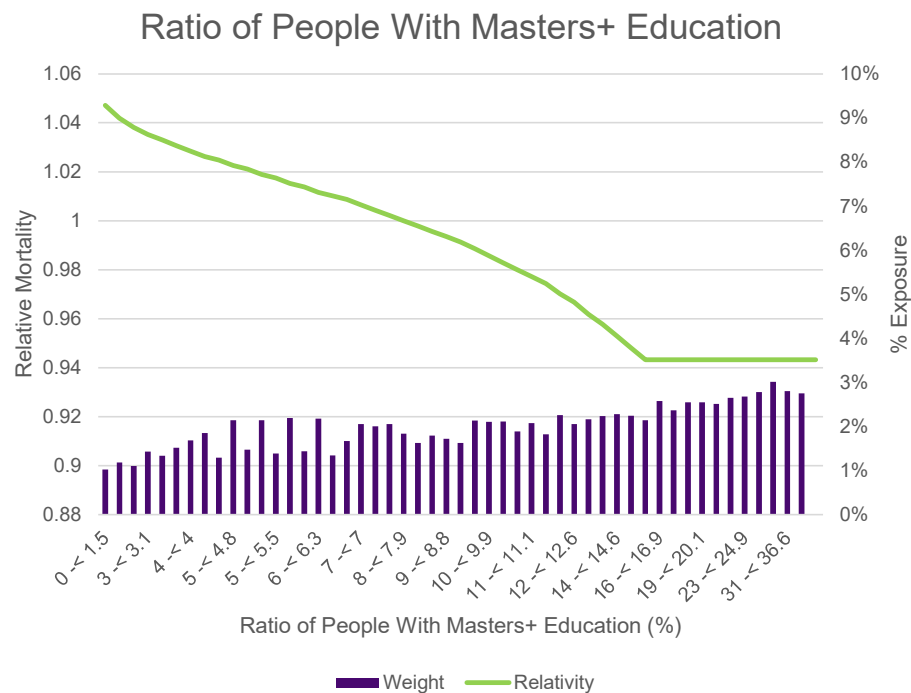
% households with at least one member receiving Food Stamp/SNAP program in the past 12 months





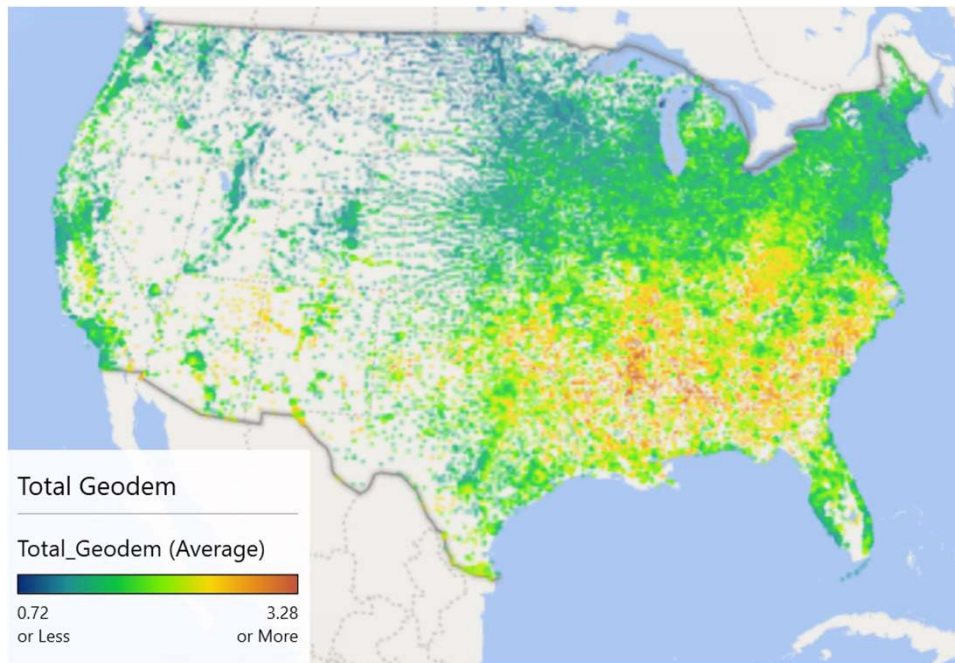
# Education – Masters Plus

% population (age 25+) who have attained a graduate or professional degree

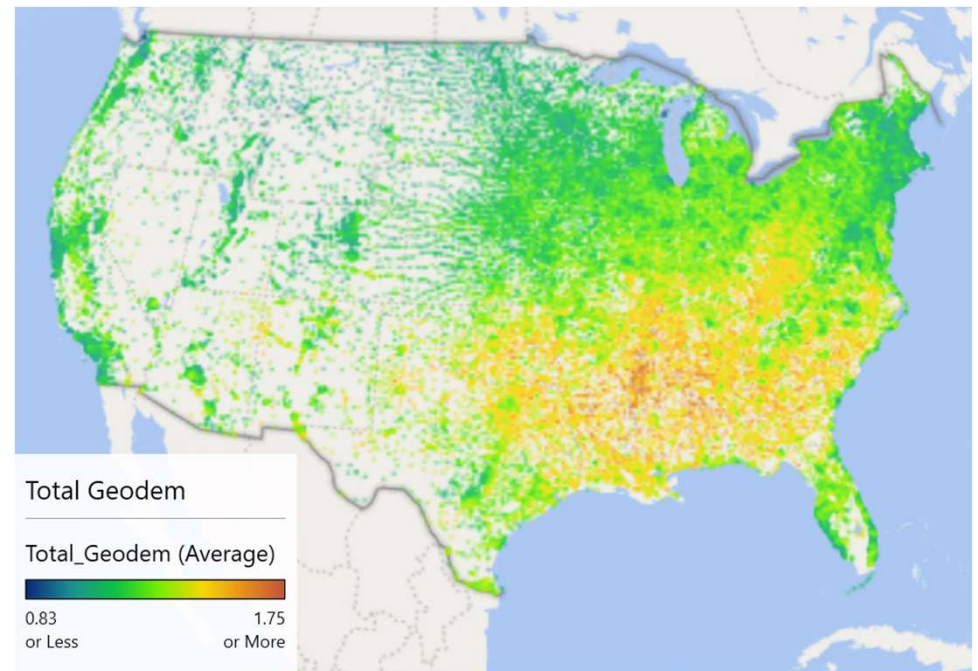


# Aggregate Geo-Demographic Factor

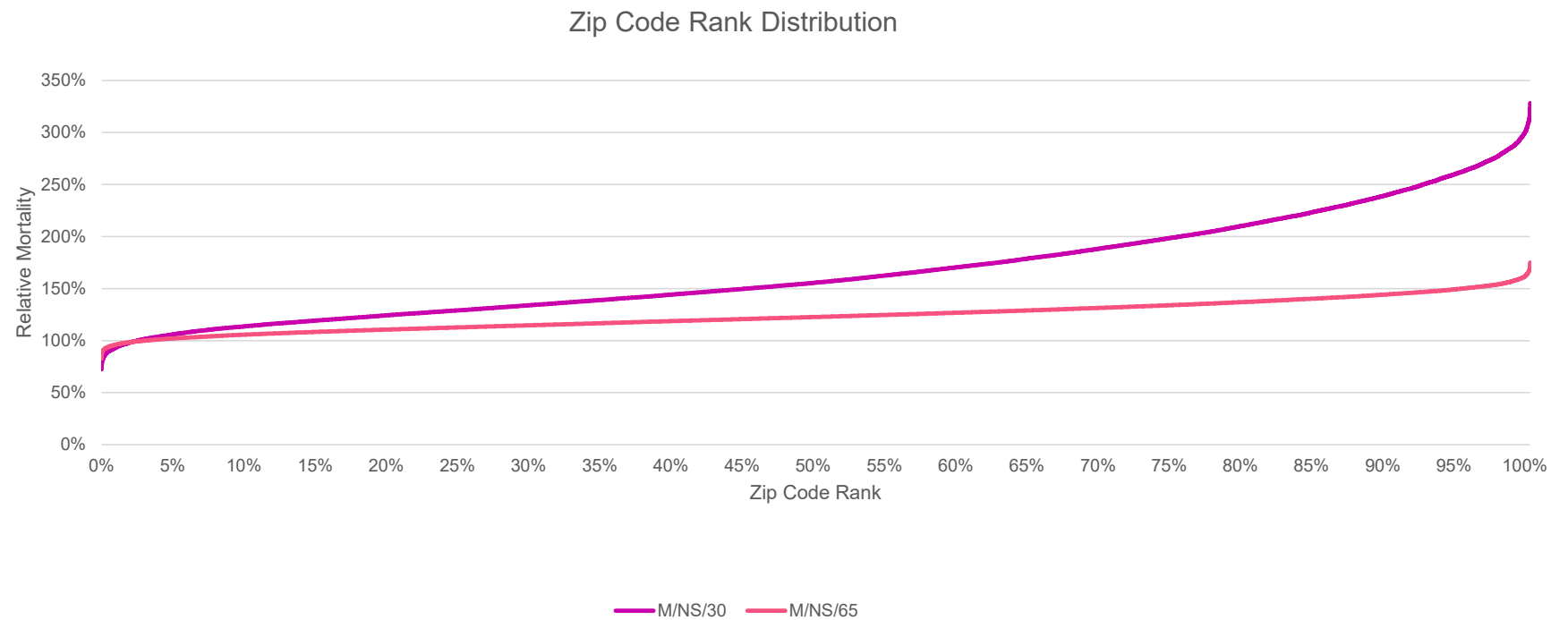
30, M, NS



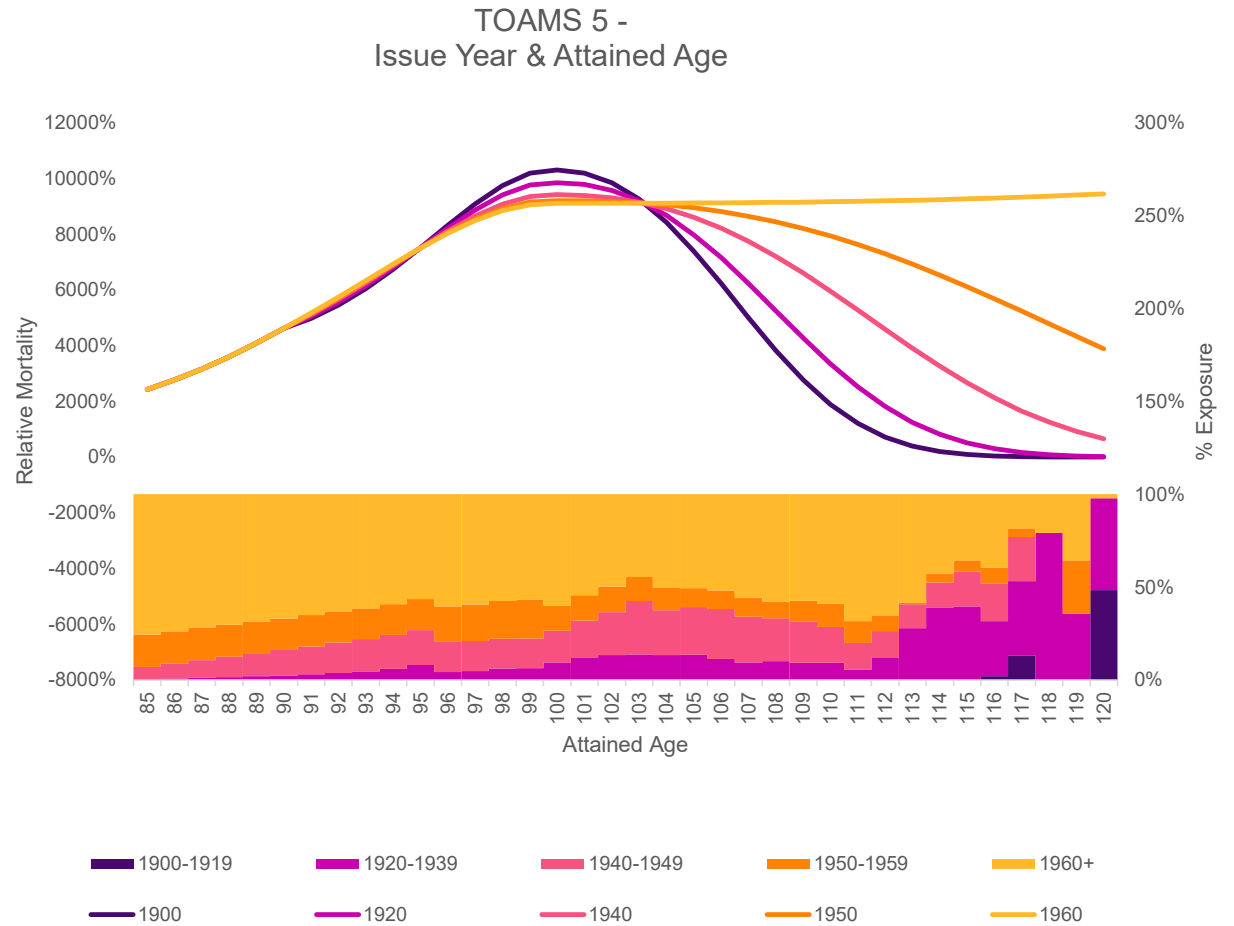
65, M, NS



# Aggregate Factor Distribution



# Older Age



# Company Differentials

## TOAMS 5 Company Classical Rank vs Predictive Rank

Company	Classical Rank	Predictive Rank (AA35)	Predictive Rank (AA85)	Company	Classical Rank	Predictive Rank (AA35)	Predictive Rank (AA85)
A	1	6	1	L	12	4	12
B	2	2	7	M	13	5	14
C	3	18	6	N	14	13	18
D	4	3	8	O	15	13	18
E	5	9	15	P	16	1	4
F	6	10	2	Q	17	21	21
G	7	16	3	R	18	13	18
H	8	7	11	S	19	17	5
I	9	8	13	T	20	13	18
J	10	19	9	U	21	13	18
K	11	20	10				



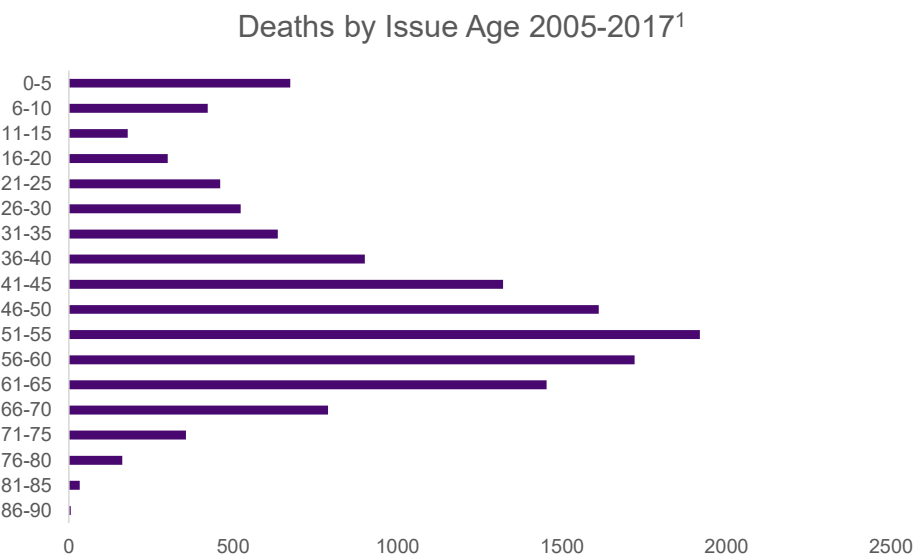
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# STRUCTURED SETTLEMENT MORTALITY

HOUSTON PERRETT, FSA, CERA  
AVP & ACTUARY

# OVERVIEW

Issued by life insurers to provide income streams to claimants or dependents after an event such as a workers' compensation claim or a car accident.



Common Impairments:

- Cerebral Palsy
- Spinal Cord Injury
- Traumatic Brain Injury

<sup>1</sup> <https://www.soa.org/49be3c/globalassets/assets/files/resources/research-report/2020/2005-17-structured-settlement-mortality.pdf> Information contained herein is hypothetical and provided for illustration purposes only



# RATED AGE

## THE PREDOMINANT APPROACH

Assigns a shorter life expectancy than standard mortality would imply based on impairment.

Industry experience shows a poor fit.

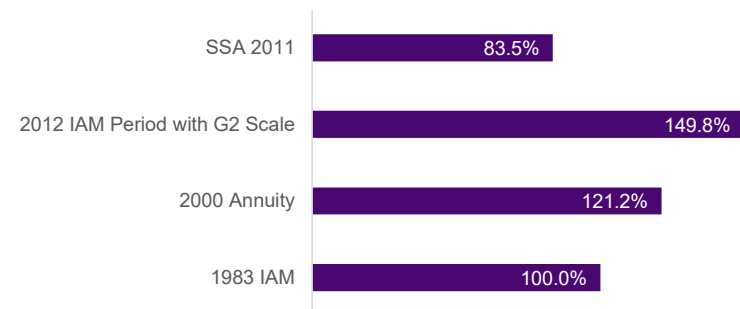
- Very competitive market led to aggressive underwriting.
- Medical advances and block experience not reflected.
- Mortality curvature is not like a traditional annuitant.



Example:

A 31-year-old male with a traumatic brain injury may have a rated age of 56 or a 25 year “rate up”.

Overall A/E By Expected Basis<sup>1</sup>



# ALTERNATIVES

## GRADED RATED AGE

Rated age mortality grades to standard mortality as the impaired ages.

## PROPORTIONAL LIFE EXPECTANCY

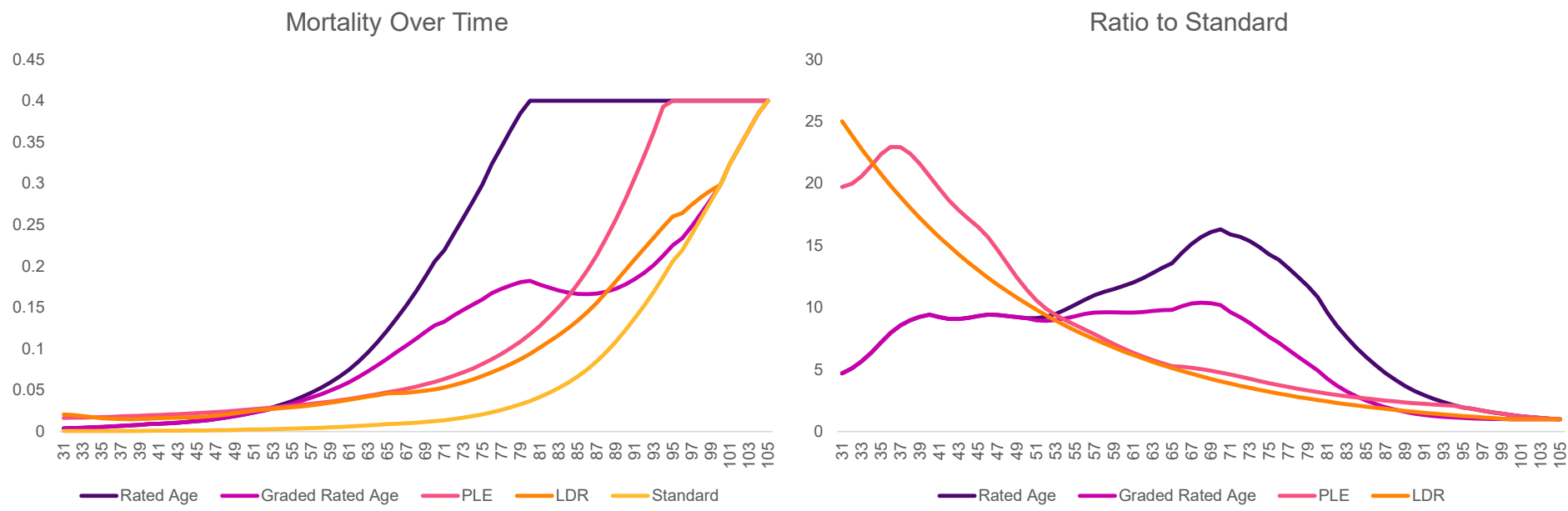
The life expectancy of the impaired remains constant throughout time.

## LOG LINEAR DECLINING RELATIVE RISK

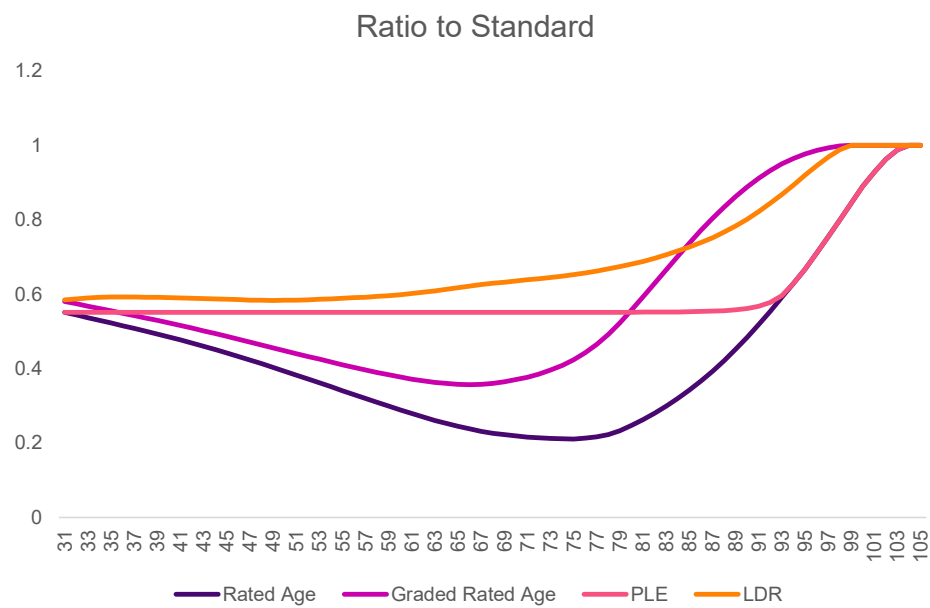
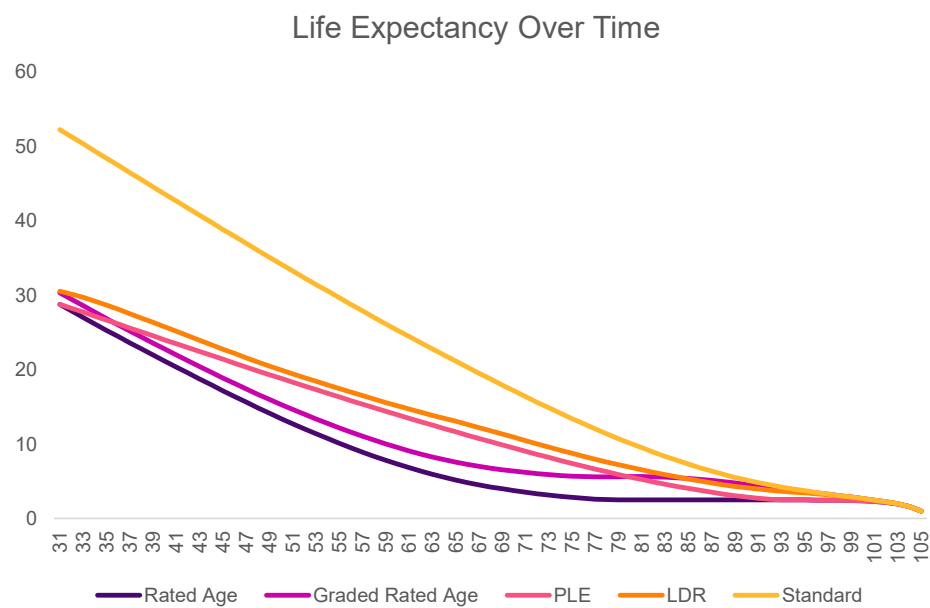
The impaired mortality grades log linearly to standard mortality over time.

Estimation of Future Mortality Rates and Life Expectancy in Chronic Medical Conditions (Strauss 2005)

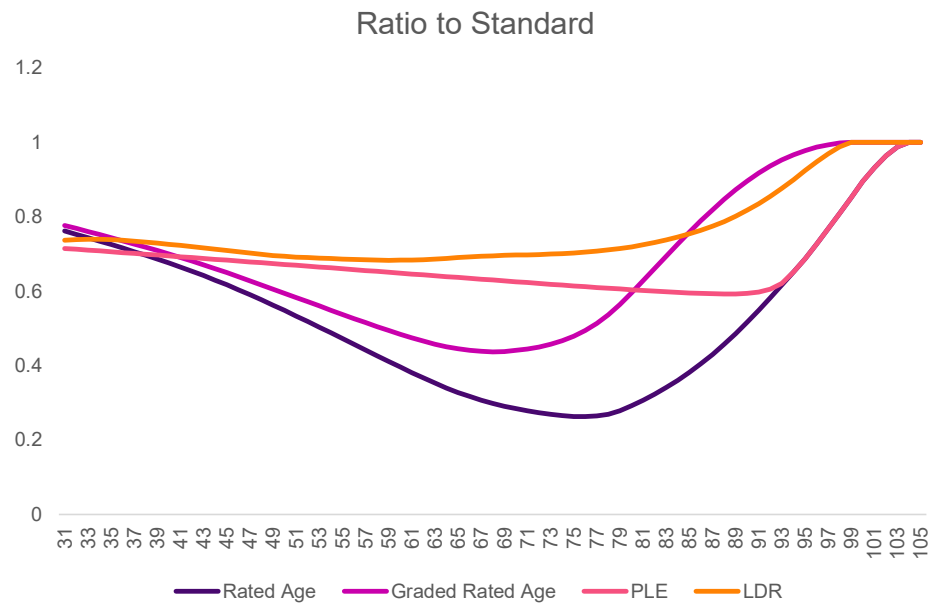
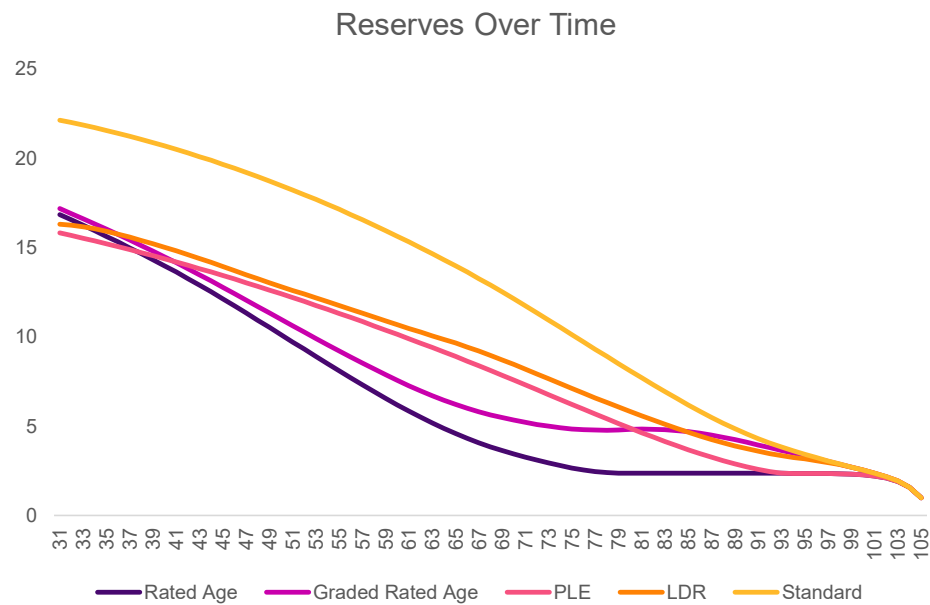
# MORTALITY



# LIFE EXPECTANCY



# RESERVES



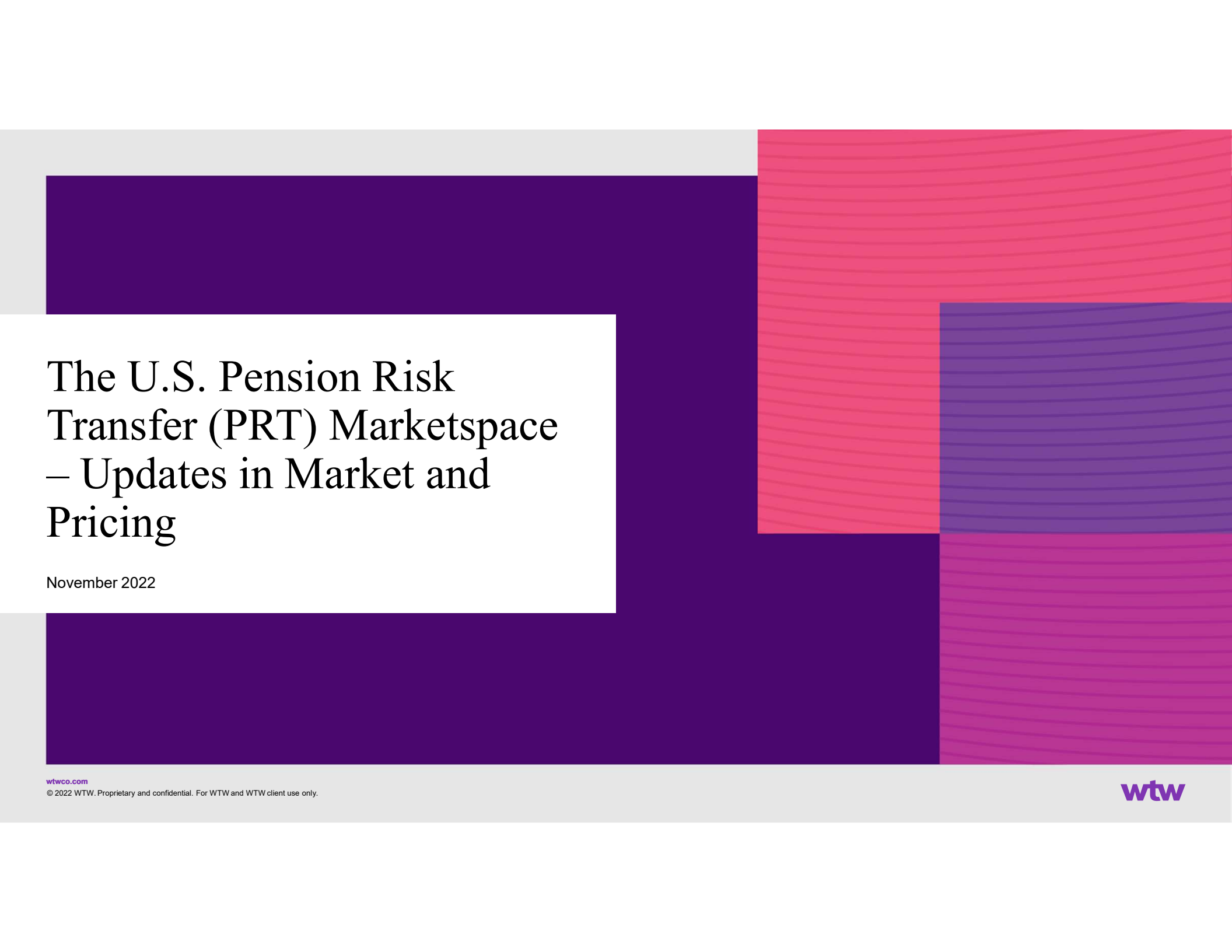


# QUESTIONS



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CONTACT ME



# The U.S. Pension Risk Transfer (PRT) Market – Updates in Market and Pricing

November 2022



# PRT 101

- Defined benefit (DB) plans are offered by employers to their employees and specify a pension payment (or lump sum) upon retirement
  - Benefit amount is determined by a number of factors including years of service, age at retirement, and salary
- PRT is the transfer of risk from defined benefit pension plans
- Many associated risks:
  - Longevity
  - Investment risk
  - Interest rate risk
  - Asset/liability risk
- Effort and cost of administration of the plan
- Plans can be restructured or participants can be offered lump sums, but we focus on transfers of liabilities and assets to insurance companies

## Terminology

**Plan sponsor** = Employer which maintains the pension plan

**In-pays/retirees** = plan participants receiving monthly payments

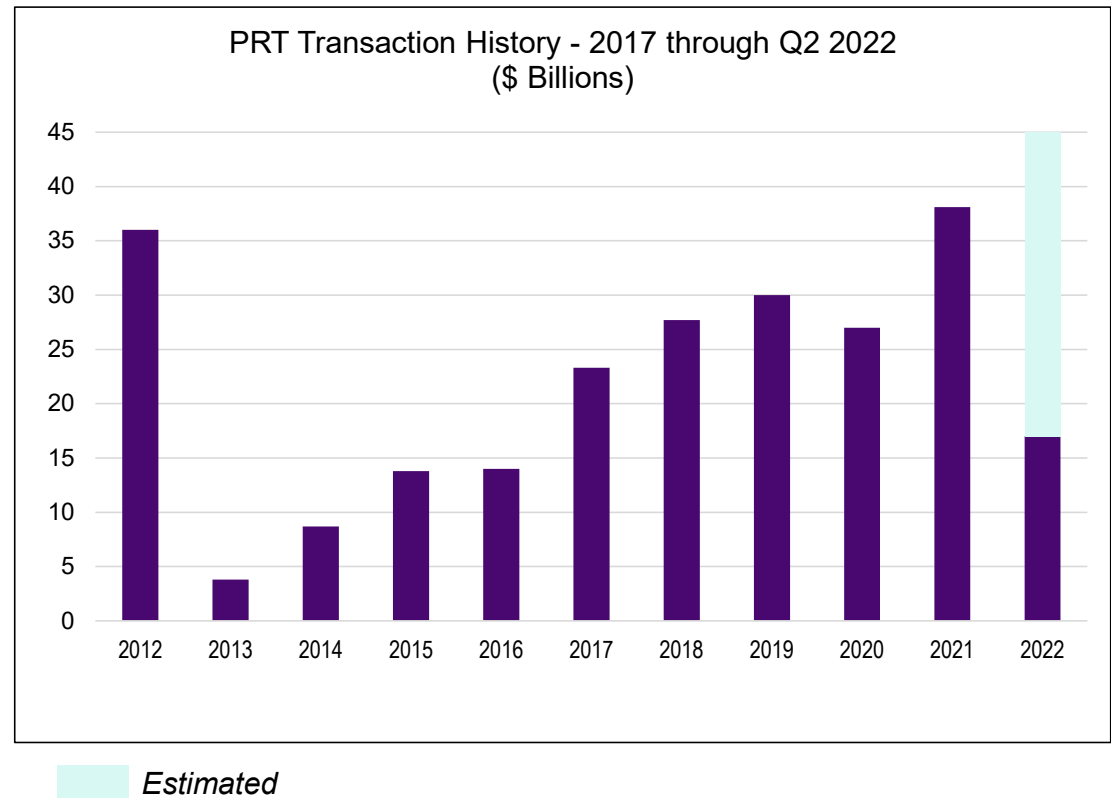
**Deferred lives** = plan participants who have not yet begun receiving monthly payments

- Actives = still employed with the plan sponsor
- Terminated vested = former employee who became vested (i.e., eligible to receive pension payments) before employment terminated with the plan sponsor

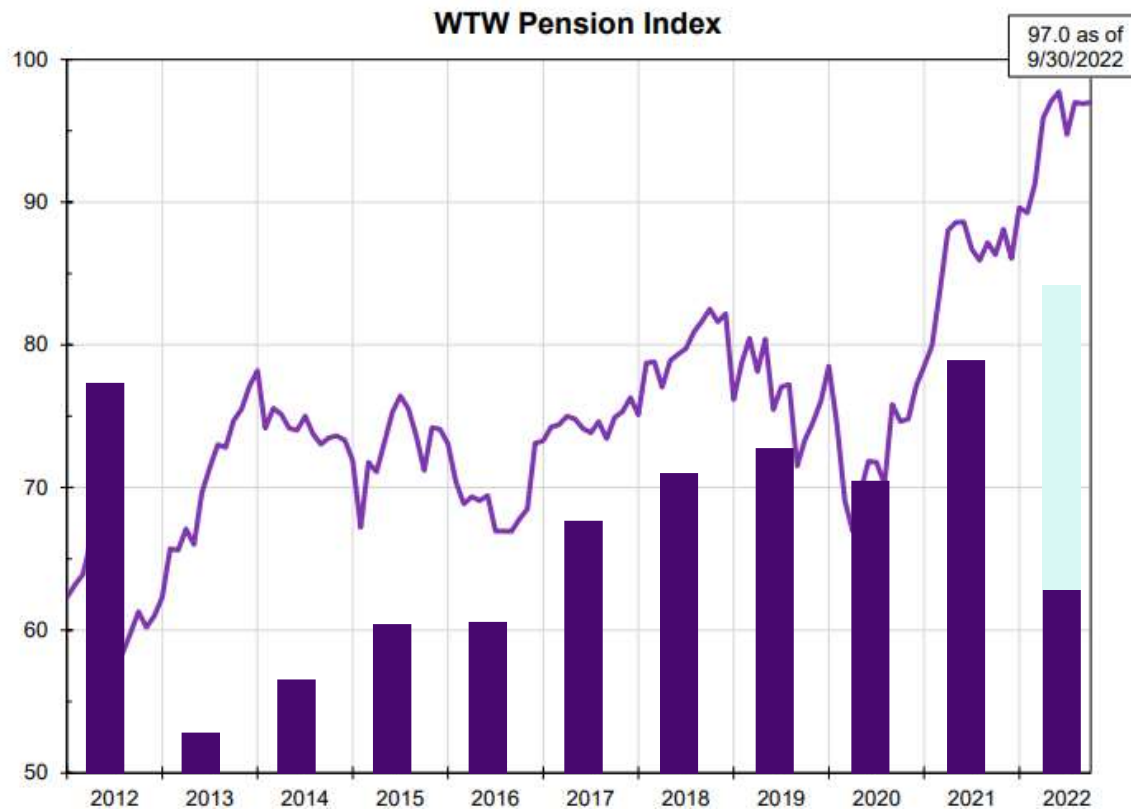
**Pension Benefit Guarantee Corporation (PBGC)** = A U.S. government agency established in 1974 aimed at protecting retirement incomes from DB plans in the event of sponsor bankruptcy

# A Return to Market Growth

- Plan sponsors abruptly pulled back from the PRT market in early 2020 due to high levels of uncertainty associated with the onset of the COVID-19 pandemic
- Insurer interest in PRT did not wane
- Result was only a small downturn in the amount of liabilities transferred that year, followed by a return to market growth in 2021
- Through June 2022, sales were approximately \$18B (as opposed to about \$9B in the first half of 2021)
- \$16B IBM deal in Q3
- Looking ahead:
  - 2022 expected to be record breaking
  - Still over \$3T in plan sponsor pension liabilities
    - PBGC costs continue to rise
  - Likely will see at least one additional player over the next year
  - Growing reinsurance interest



# Pension Plan Performance – 2022

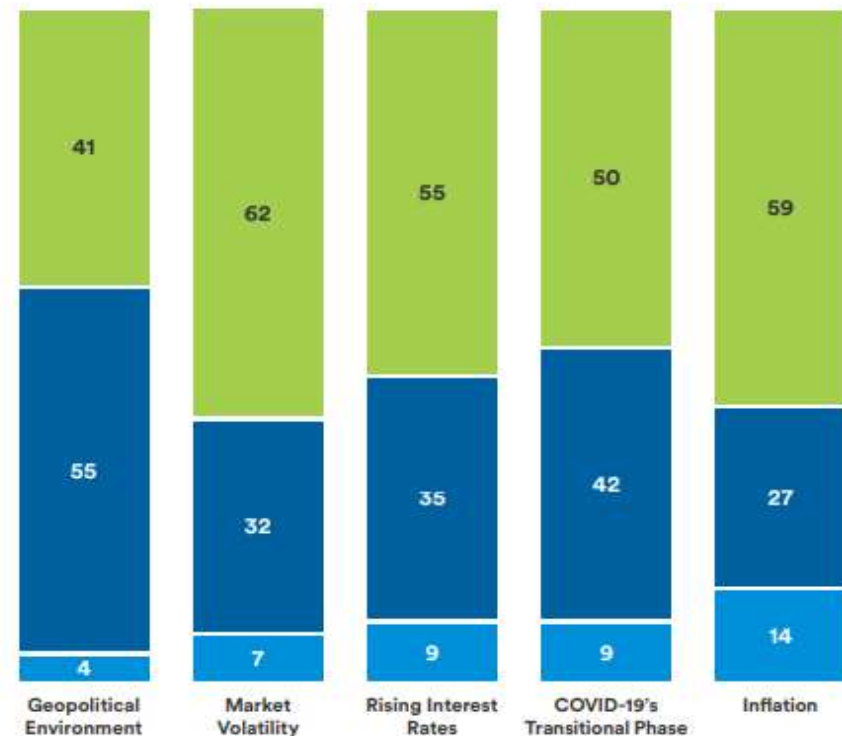


- Willis Towers Watson Pension Index
  - Funded ratio (market value of assets/projected benefit obligation) for a benchmark pension
  - Asset value changes from month to month based on investment performance (60% equity/40% fixed income portfolio)
  - Provides an indicator of capital market effects on pension plan financing
  - Higher funding ratios mean less contributions if transferring
- 2020 ended right where it started, but experienced significant volatility
  - Low point was March 2020, at 67.0
  - Unsurprising that plan sponsors pulled back in Q2 2022
- Since then, significant increases in funding ratios as interest rates have increased, leading to decreases in liabilities

# MetLife's 2022 PRT Survey

- Surveyed 251 U.S. defined benefit plan sponsors
- 64% predict the number of large PRT transactions will increase over the next 5 years
- Most intend to divest all DB plan liabilities at some point in the future, of which 57% said PRT most likely to be used
  - Up from 34% in 2020
- 92% say rising interest rates are making it more likely they would move forward with PRT
- Inflation poses risks for inflation-linked benefits

Impact of Market Forces on De-risking Plans (n=251)



■ Increased/Accelerated Likelihood of a PRT
 ■ No Change to PRT Plans
 ■ Decreased/Delayed Likelihood of a PRT

Note: Percentages may not total 100% due to rounding.

Source: 2022 MetLife PRT Survey

# PRT Players

- Need to be competitive on price – key drivers:
  - Investment strategy
  - Base mortality
  - Capital levels
  - Profit goals
- May take a while to get traction in market
  - New entrants can have higher bar
- Plans and their advisors will assess whether insurer meets Department of Labor (DOL) guidelines on “safest available”
- Need available capital, staffing and administrative capabilities
- Have to consider which segment of market to target
  - Small to jumbo
  - Retiree only, or willing to take some deferred obligations
  - Implications of lump sum offers/availability on pricing

## Current Direct Players

- AIG
- Athene
- CUNA
- F&G
- Great American (*exiting as now part of MassMutual*)
- L&G
- MassMutual
- MetLife
- Mutual of America
- Mutual of Omaha
- Nationwide
- NY Life
- OneAmerica
- Pacific Life
- Principal
- Prudential
- Sammons
- Securian
- Western & Southern Life

# WTW Pension Risk Transfer Surveys

WTW has performed three industry surveys of U.S. pension risk transfer (PRT) pricing assumptions, among leading PRT writers

## 2022 WTW Pension Risk Transfer Study (2022 WTW PRT Survey)

Information was requested on pricing practices and methodologies used in the most recent pricing exercise taking place prior to **12/31/2021**

Includes 13 PRT market players representing over 95% of the 2021 market share and covers:

- Context of Survey Participants
- Mortality and Deferred Life Assumptions
- Reserves
- Capital
- Investment Assumptions
- Pricing Methodology
- Profit Metrics and Targets
- Expenses

## 2020 WTW Pension Risk Transfer Study (2020 WTW PRT Survey)

Information was requested on pricing practices and methodologies used in the most recent pricing exercise taking place prior to **12/31/2019**

The survey covered 2 main topical areas:

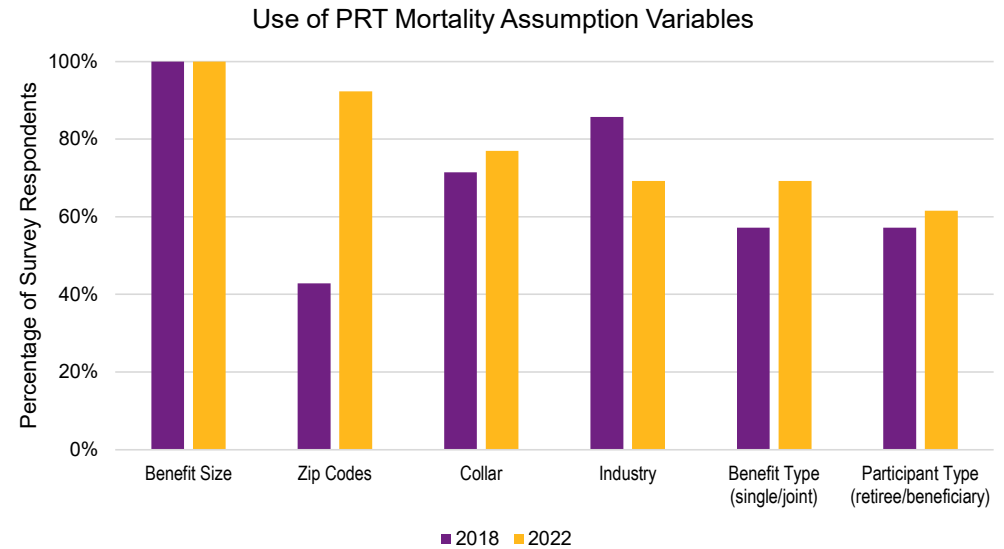
- Expenses
- Future Mortality Improvement (FMI)

## 2018 WTW Pension Risk Transfer Study (2018 WTW PRT Survey)

Information was requested on pricing practices and methodologies used in the most recent pricing exercise taking place prior to **6/29/2018**

# Refining Mortality

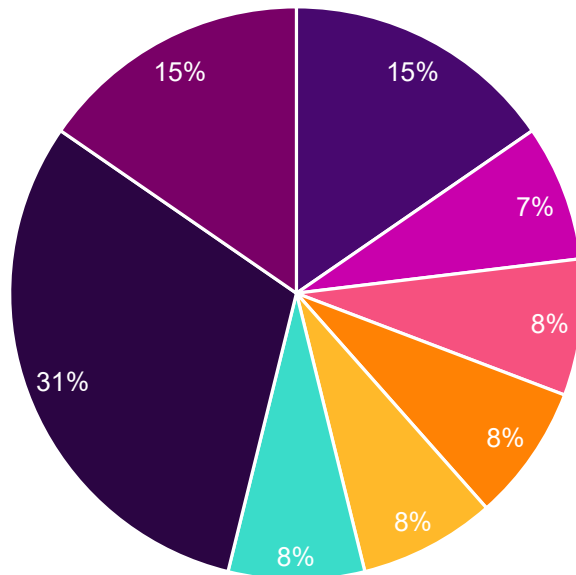
- Respondents listed mortality as one of the top pricing considerations (second only to investment yield)
- Various approaches to base mortality and mortality improvement
- Mortality expected to vary widely based on deal population characteristics
- Mortality assumption setting are growing in sophistication
- Insurers have moved to greater use of experience and predictive analytics
- Zip code now a key mortality variable





# COVID Mortality Impacts

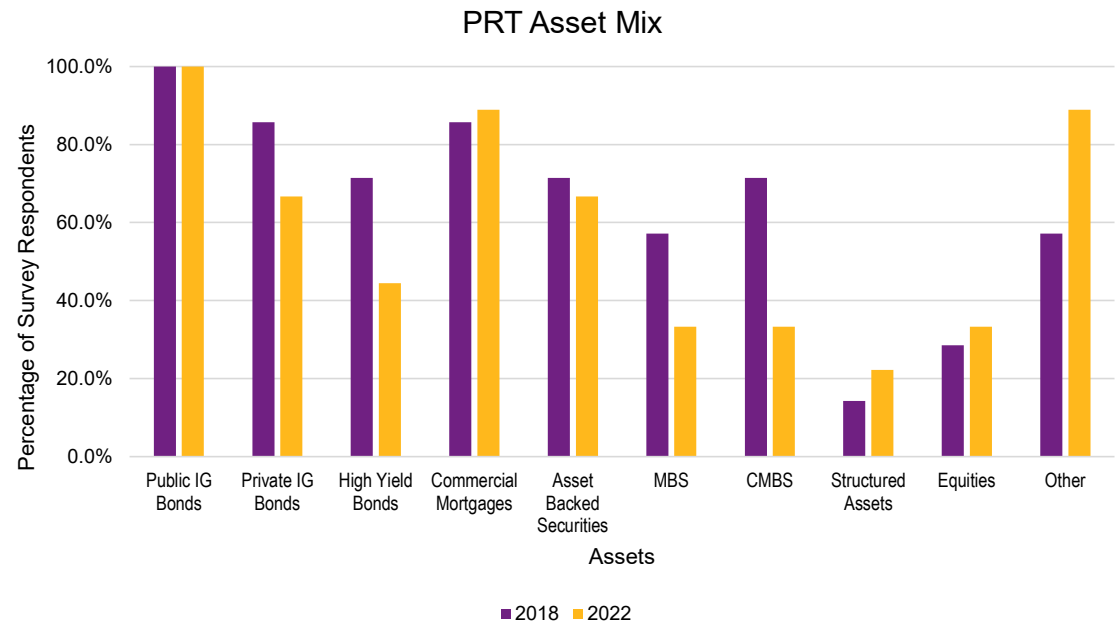
- Few adjusted base mortality assumptions for COVID impacts
- No consensus among respondents with regards to COVID mortality sensitivities



- Short term increase only
- Short term decrease only
- Long term increase only
- Long term decrease only
- Short term increase followed by long term decrease
- Short term decrease followed by long term increase
- None
- Other

# Chasing Yield

- Net earned rates varied widely among participants
- Public IG bonds continue to generally be the largest allocation within survey participants. However, there has been a shift away from public IG bonds to higher yielding asset classes
- Other assets showed the widest range in earned rates
  - Other assets included RML, alternatives and private credit, commercial real estate CLO, agricultural mortgages, residential mortgages, taxable municipal bonds, treasuries, and bank loans



# Looking Abroad

- Players in the US are also looking abroad
- Growing market and interest in Canada, as seen in the chart to the right
- In the UK, pension scheme de-risking is set to be the biggest on record with £65bn of bulk annuity and longevity swap transactions expected to be completed in 2022
  - According to recent WTW research, one in three (30%) pension schemes anticipate de-risking their liabilities in the next three years
- In 2020, the UK pensions regulator paved the way for superfunds
  - Can take over the employee pension scheme obligations
  - Not insurance companies - less onerous regulations
  - Early indications are the superfund pricing is advantageous relative to insurer pricing – though insurers are viewed as offering greater benefit security
  - There is also the possibility that superfunds will aggregate pensions liabilities for a few years then wholesale sell them on to traditional insurers
  - Clara-Pensions opened late 2021, first deal expected soon

## WTW Annuity Purchase Index<sup>1,2,3</sup>

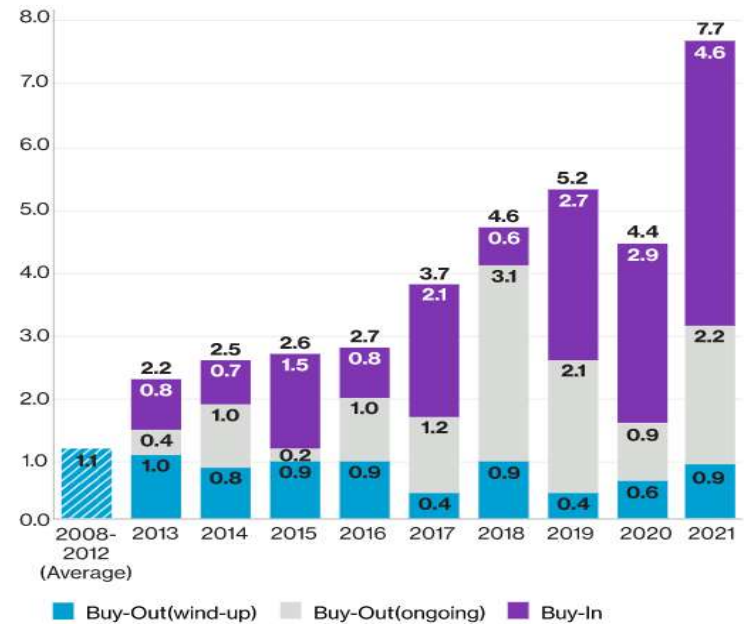


Chart showing yearly annuity sales in billions of dollars from 2013 through 2021, as well as an average for 2008-2012.

Sales (\$ Billion)

<sup>1</sup> For 2008 to 2012, the breakdown of sales between buy-in and buy-out for terminated plans and buy-out for ongoing plans is not available.

<sup>2</sup> Excludes longevity insurance agreements.

<sup>3</sup> Sources of data: LIMRA, Assumption Life, Beneva, BMO Financial Group, Brookfield Annuity, The Canada Life Assurance Company, Co-operators Life Insurance Company, Desjardins Financial Security, IA Financial Group, RBC Insurance and Sun Life Financial.



# Primer on Bermuda Reinsurers

Mike Lebeouf

November 2022

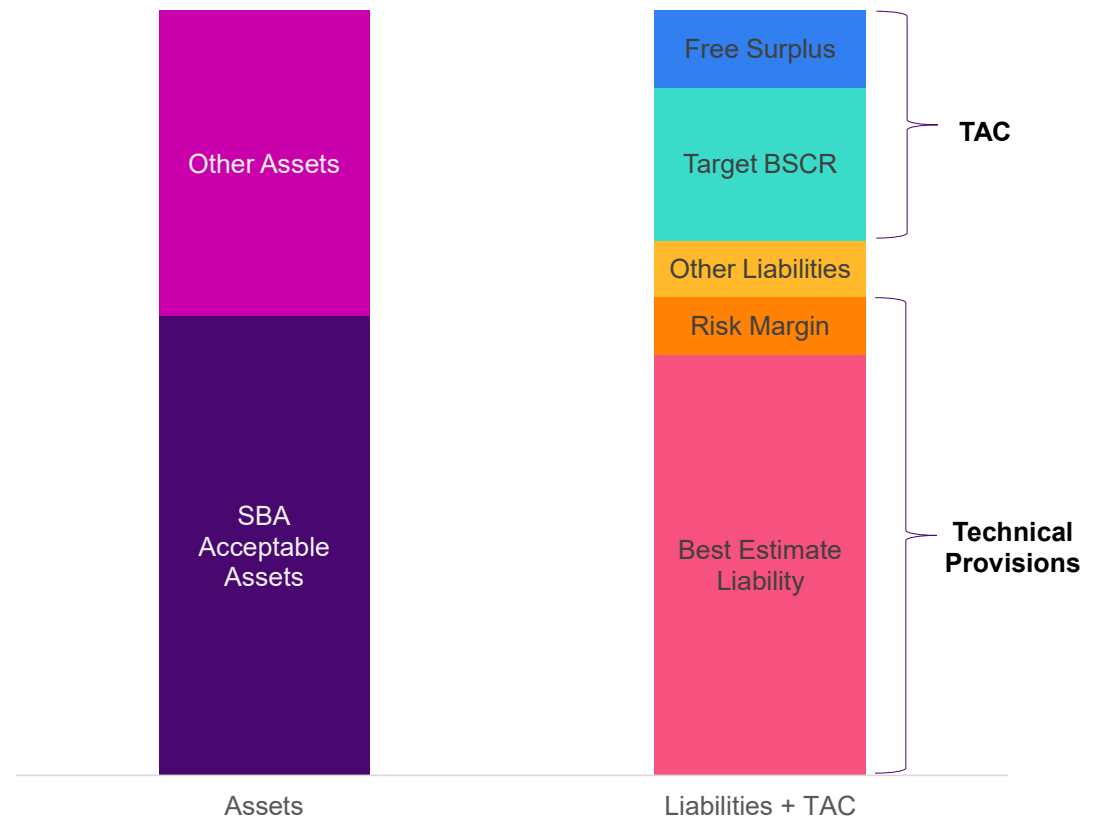
# Glossary

ALM	Asset Liability Management
BEL	Best Estimate Liability
BMA	Bermuda Monetary Authority
BSCR	Bermuda Solvency Capital Requirement
EBS	Economic Balance Sheet
SBA	Scenario Based Approach
TAC	Total Available Capital

# Bermuda EBS

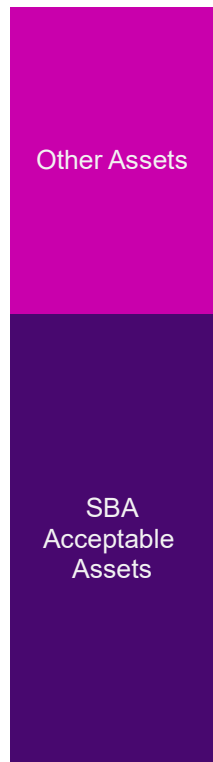
## Overview

- The EBS framework is used to calculate the capital requirements for commercial (re)insurers.
- Assets and Liabilities are valued on a market value basis.



# Bermuda EBS

## Assets



Assets

### Other Assets

- Equities
- Equity tranches of instruments
- Investments with poorly defined cash flows
- Investments with unpredictable future asset values

*For more details,  
see Guidance Note  
Paragraph 258C-E*

### Acceptable Assets (for SBA, as defined in para. 258C)

#### Investment Grade:

- Government, Municipal and Corporate Bonds
- Mortgage Backed Securities; Asset Backed Securities
- Commercial mortgage loans
- Collateralized loan obligations
- Preferred stock
- Certificates of Deposit
- Other debt instruments

### Acceptable on a limited\* basis (for SBA)

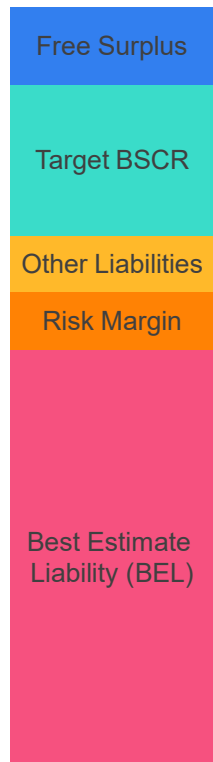
- Below Investment Grade 258C Assets
- Commercial real estate
- Credit funds (containing fixed income instruments)

*\*Subject to BMA approval;  
at most 10% of the asset portfolio*



# Bermuda EBS

## Liabilities + TAC



**Free Surplus** is assets in excess of liabilities and capital requirements on an EBS basis

**Target BSCR** is the capital requirement for insurers imposed by the BMA (120%+ BSCR ratio). It mitigates insurer solvency risk in cases of significant adverse deviations from expectations

**Other liabilities** include liabilities distinct from both TAC and Technical Provisions

**Risk Margin** accounts for uncertainty in liability cashflows

**BEL** represents projected probability-weighted liability cashflows from insurance obligations, discounted for time value of money and illiquidity

# Best Estimate Liability

## Standard Approach



There are two approaches to calculate BEL:

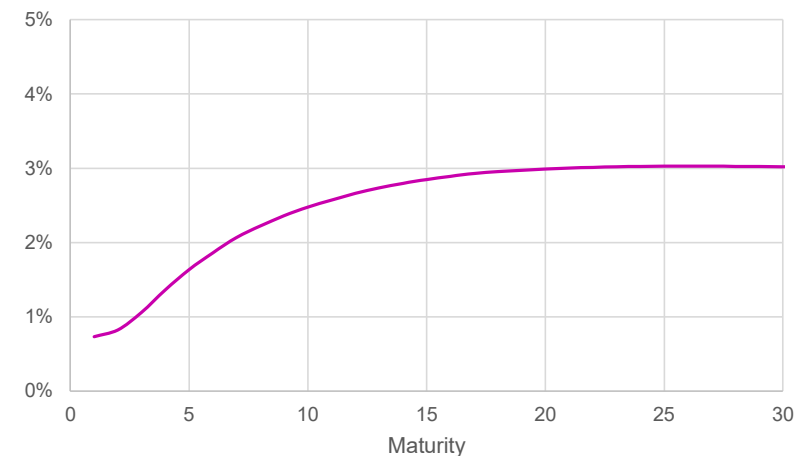
1. Standard Approach
2. Scenario-Based Approach (SBA)

Standard Approach BEL is equal to projected liability cashflows discounted at the BMA prescribed Standard Corporate yield curve.

The Standard Corporate yield curve:

- Varies by currency
- Is typically updated quarterly
- Equals: risk-free + corporate bond spreads from a representative portfolio with BMA adjustments

Standard Corporate Yield Curve – 03/31/2021



# Best Estimate Liability

## SBA



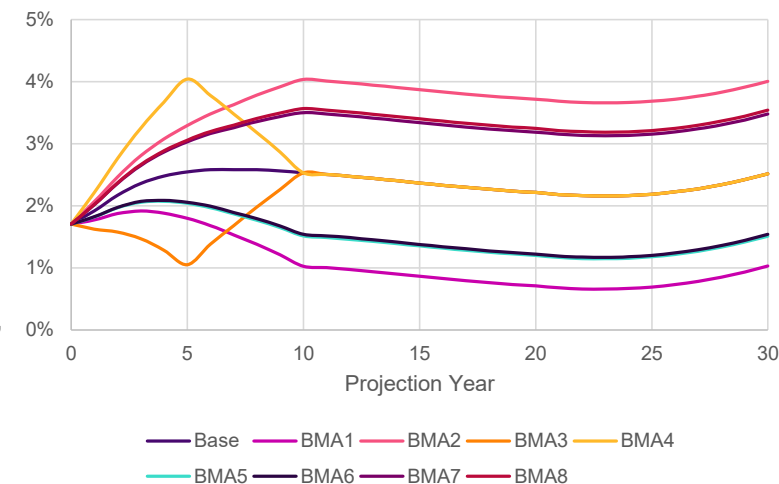
SBA BEL involves running an ALM model under 9 different economic scenarios: a base scenario and 8 BMA prescribed scenarios.

For each of the 8 BMA scenarios, the model:

- Compares liability and asset cashflows (Acceptable assets only)
- Reinvests when net cashflows are positive, and disinvests when net cashflows are negative
  - Positive net cashflows are invested into “theoretical” new assets, determined based on company specified reinvestment guidelines
- Calculates a scenario BEL (sBEL)
  - sBEL = market value of initial assets required to defray all future liability cashflows under the given economic scenario

Once all 8 sBELs are computed, final BEL is set equal to the maximum of the 8 sBELs.

Base + BMA8 Scenarios – 3/31/2021



# Best Estimate Liability

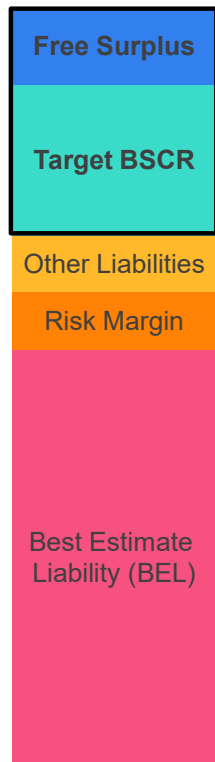
Standard Approach vs SBA – SBA is typically lower by up to 10% vs. Standard Approach



	Standard Approach	SBA
<b>Liability Cashflows</b>	Probability adjusted	
<b>Risk-free rate</b>	BMA prescribed	
<b>Spread</b>	BMA prescribed	Based on company asset portfolio
<b>Reinvestment yield</b>	Not modeled explicitly	Based on company reinvestment assumptions
<b>Economic Scenario</b>	Single scenario with 35% uncertainty spread margin	Uses worst of 8 deterministic scenarios

# TAC

## Target BSCR + Free Surplus



### BSCR

- Main components
  - Market Risk: arising from fluctuations in values of, or income from, assets or in interest rates or exchange rates
    - Covers fixed income, equities, currency, etc.
  - Credit Risk: the risk of loss arising from an insurer's inability to collect funds from debtors
  - Long-Term Insurance Risk:
    - Risk associated with premiums, reserves, and catastrophic events
  - Operational Risk: risk of loss arising from inadequate or failed internal processes, people, systems or external events.
    - Also includes legal risks
- Transition BSCR
  - BSCR is calculated with 2018 and 2019+ methodologies
  - Transition BSCR is the result of applying weights to both, where weights shift towards 2019+ rules each year after 2018 by 10%

### TAC

- $TAC = Assets - Liabilities$ 
  - Valued through tiers of eligible capital
    - Tier 1: fully paid common shares, contributed surplus, statutory economic surplus
    - Tier 2: hybrid capital instruments, unpaid common shares, certain approved letters of credit/guarantees
    - Tier 3: short-term hybrid capital instruments, certain approved letters of credit/guarantees
- BSCR Ratio
  - Calculated as  $TAC / BSCR$

# Reinsurance Pricing Considerations

- Key Drivers:
  - Investment strategy
  - Profit Expectations
  - Capital levels
- Bermuda Reinsurers audited financials are on a GAAP Basis
  - Will impact how income emerges
- Treaty Terms will also have important pricing implications
  - How assets are to held in collateral trusts
  - Does the structure require over-collateralization

## Current Bermuda Reinsurance Players

- 777 Re.
- Aspida Life Re
- Athene Life Re
- Fortitude Re
- Global Atlantic Re
- Gibraltar Re
- Hannover Re
- Kuvare Life Re
- Martello Re
- Monument Re
- Pacific Life Re
- Partner Re
- Resolution Re
- RGA Re
- Somerset Re
- Talcott Re
- Transamerica Life Re
- Wilton Re

# Reinsurance Structures

- Coinsurance
  - Very common
  - Sends all risks over to reinsurer
- Coinsurance (Funds Withheld)
  - Also common and keeps assets close to the ceding company
- Modified Coinsurance
  - Less common, since it does not transfer the assets to the reinsurer
- Deposit Accounting
  - Some reinsurers do not want to participate in all the risks and may send the non-asset risks back to the ceding company
  - Can be acceptable if a swaption is desired

## Targeted Risks for Bermuda Reinsurers

- Annuities
  - Fixed
  - Indexed
  - Variable
  - Structured Settlements
- Life Policies
  - UL W/ Long Term Secondary Guarantees
  - CAUL
  - Indexed UL
  - Term
- PRT
- LTC
- LTD