

# Reserve Impacts

# Reserve Impact Results - Term

Mortality Improvement Basis	Term	
	VM-20 DR	Reserve Change From Baseline
<b>Baseline:</b> Historical Mortality Improvement (HMI): Approach 1 remove 2020 from the data in determining the 10-year historical average; use average from 2009-2019 Future Mortality Improvement (FMI): Zero FMI	\$ (79,846)	----
<b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Zero FMI	\$ (50,285)	\$ 29,561
<b>RECOMMENDATION:</b> <b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Approach 2 (COVID impact in first 3 years) + margin for general uncertainty (25%)	\$ (68,968)	\$ 10,878
Sensitivity: <b>HMI:</b> Approach 2 (remove 2020 data - (use average from 2010-2020 – but include 2020 mortality = 2019 mortality) <b>FMI:</b> Approach 3: Same as Approach 2, but assume 50% greater deterioration for 2023 and 2024 than Approach 2 followed by zero improvement in 2025	\$ (66,303)	\$ 13,543

Note: All of the valuation date deterministic reserves shown on this slide are negative

# Reserve Impact Results - ULSG

	ULSG	
	Normalized VM-20 DR	Percentage Change from Baseline
<b>Mortality Improvement Basis</b>		
<b>Baseline:</b> Historical Mortality Improvement (HMI): Approach 1 remove 2020 from the data in determining the 10-year historical average; use average from 2009-2019 Future Mortality Improvement (FMI): Zero FMI	\$ 1,000,000.00	----
<b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Zero FMI	\$ 1,014,962.02	1.50%
<b>RECOMMENDATION:</b> <b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Approach 2 (COVID impact in first 3 years) + margin for general uncertainty (25%)	\$ 940,464.62	-5.95%
<b>Sensitivity:</b> <b>HMI:</b> Approach 2 (remove 2020 data - (use average from 2010-2020 – but include 2020 mortality = 2019 mortality) <b>FMI:</b> Approach 3: Same as Approach 2, but assume 50% greater deterioration for 2023 and 2024 than Approach 2 followed by zero improvement in 2025	\$ 938,346.28*	-6.17%*

\*The slight decrease in reserves for the sensitivity compared to the recommendation seems counterintuitive given the higher initial mortality deterioration. The decrease is due to the net-amount-at-risk pattern (decreasing in the initial years due to fund value growth before increasing in later years) combined with the shift of death claims to earlier years from later years for the sensitivity run as compared to the recommendation. Overall, the additional margin did not have a material impact on the deterministic reserve calculation for this product. Results are highly dependent on the business mix and product designs and will likely vary from company to company

# Combined ULSG and Term Reserve Impact Results

	ULSG	Term
<b>Mortality Improvement Basis</b>	Qualitative Impact on DR	Qualitative Impact on DR
<b>Baseline:</b> Historical Mortality Improvement (HMI): Approach 1 remove 2020 from the data in determining the 10-year historical average; use average from 2009-2019 Future Mortality Improvement (FMI): Zero FMI	N/A	N/A
<b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Zero FMI	Increase	Largest Increase
<b>RECOMMENDATION:</b> <b>HMI:</b> Approach 2 - remove 2020 from the data in determining the 10-year historical average; use average from 2010-2020 – but include 2020 mortality = 2019 mortality <b>FMI:</b> Approach 2 (COVID impact in first 3 years) + margin for general uncertainty (25%)	Decrease, similar to Sensitivity	Smallest Increase
<b>Sensitivity:</b> <b>HMI:</b> Approach 2 (remove 2020 data - (use average from 2010-2020 – but include 2020 mortality = 2019 mortality) <b>FMI:</b> Approach 3: Same as Approach 2, but assume 50% greater deterioration for 2023 and 2024 than Approach 2 followed by zero improvement in 2025	Decrease, similar to Recommendation	Second Largest Increase

# Model Office Information

# ULSG

## NAIC Model Office Information

- Universal Life with Secondary Guarantees (ULSG) focus—long-duration product, larger potential for reserve reduction
  - Model office and assumptions same as used in the YRT representative model analysis
  - Lifetime shadow account secondary guarantee
  - No reinsurance in the model

Component	Values
Issue ages	Decennial issue ages 30 – 70
Gender	Male Female
Risk classes	Preferred non-tobacco Standard non-tobacco Standard tobacco
Face bands	Low (\$250,000) High (\$1,000,000)

# Term NAIC Model Office Information

- Term Life Insurance Product with 10- and 20-year level premium periods
  - Model office and assumptions same as used in the YRT representative model analysis
  - Mature at age 95
  - 100% shock lapse at end of level term period

Component	Values
Issue ages	Decennial issue ages 20 – 60
Gender	Male Female
Risk classes	Preferred non-tobacco Standard non-tobacco Standard tobacco
Face bands	Low (\$250,000) High (\$1,000,000)
Term lengths	10 year 20 year