

# 2021 Pacific Life Case Competition

**Team 15**

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# ■ CONTENT



# INSURANCE PRODUCTS

TL



Term Life Insurance

Indexed  
Universal Life  
Insurance



IUL

VA



Variable Annuity

Single Premium  
Immediate  
Annuity



SPIA

# KEY RISKS

PREMATURE  
MORTALITY

MARKET  
VARIABILITY

OVER  
PROJECTED  
MORTALITY

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# ■ SPIA MECHANICS



# SENSITIVITY FACTORS

Modal  
Benefit

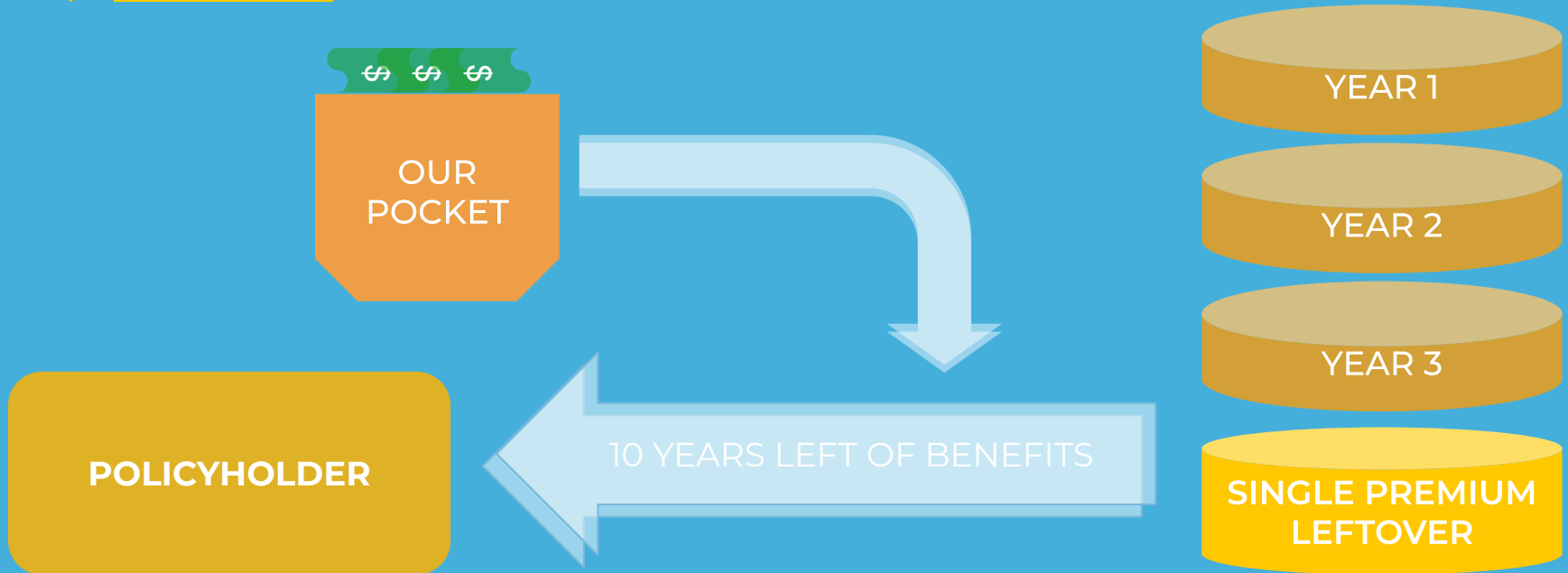
Mode

Issue  
Date

Mortality  
Rate

# SENSITIVITY CONSEQUENCES

## ▶ EXAMPLE:



# DATA QUALITY ANALYSIS

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# ■ Checking the **Data**

WHAT TO LOOK FOR:

Duplicate Accounts

Data Irregularities

Pronounced Data  
Issues

# Data Expectations: **NEW** vs **OLD**

## NEW DATA CHECKLIST



Got Rid of  
Duplicates



Fixed Irregularities



Corrected Data  
Issues



Sensitivities  
should be  
**LOWER**

# Best Estimate Comparison Graph

## Best Estimate Comparison

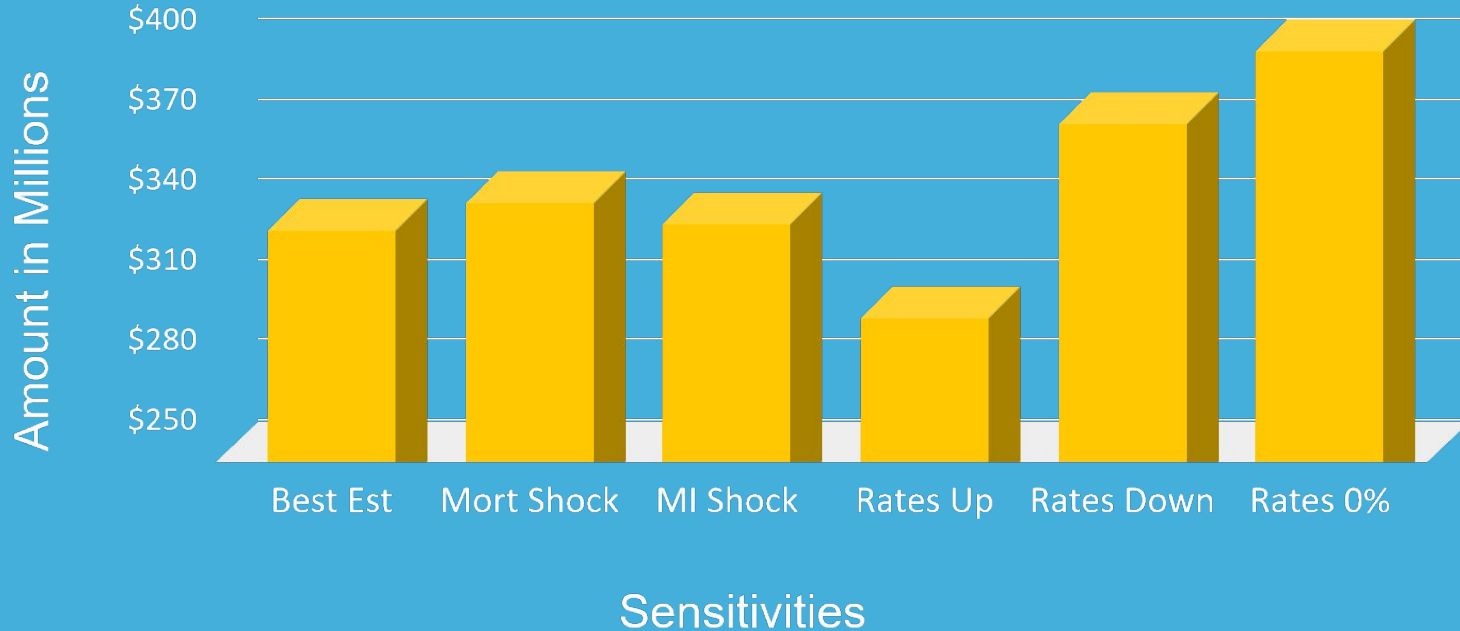


# EXPECTATIONS: Sensitivities



# Graph of Sensitivities

## Present Value Comparison of Sensitivities



# ■ Data Validation

Check to see if expectations were met

Take some time to understand the model and its calculations

Discuss the results with your teammates. Make sure it makes sense to everyone.

# PORTFOLIO ALLOCATION ANALYSIS

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# PORTFOLIO BREAKDOWN

Current

```
graph TD; Current[Current] --- DashedLine[ ]; DashedLine --- Alternate1[Alternate 1]; DashedLine --- Alternate2[Alternate 2];
```

Alternate 1

Alternate 2



# BOND RISK

low



high

CREDIT  
RATING

BBB

A

AA

AAA

5

10

20

TIME TO MATURITY (in years)

short



long

RISK & EXPECTED RETURN

A large, thick orange arrow with a yellow outline, pointing diagonally upwards and to the right. It is positioned over a dark green rectangular area, which is itself set against a blue background. The arrow's path starts near the bottom-left corner of the green area and ends near the top-right corner, illustrating the positive correlation between risk and expected return.

# Portfolio **Assessment**

## Current

- Investment in strictly **A** and **AA** bonds
- Majority **10-year** and **20-year** bonds
- Duration of **10.1** (longest duration)

## Alternate 1

- Investment in **BBB** and **A** bonds
- Majority **5-year** and **10-year** bonds
- Duration of **8.9** (comparatively mid-length duration)

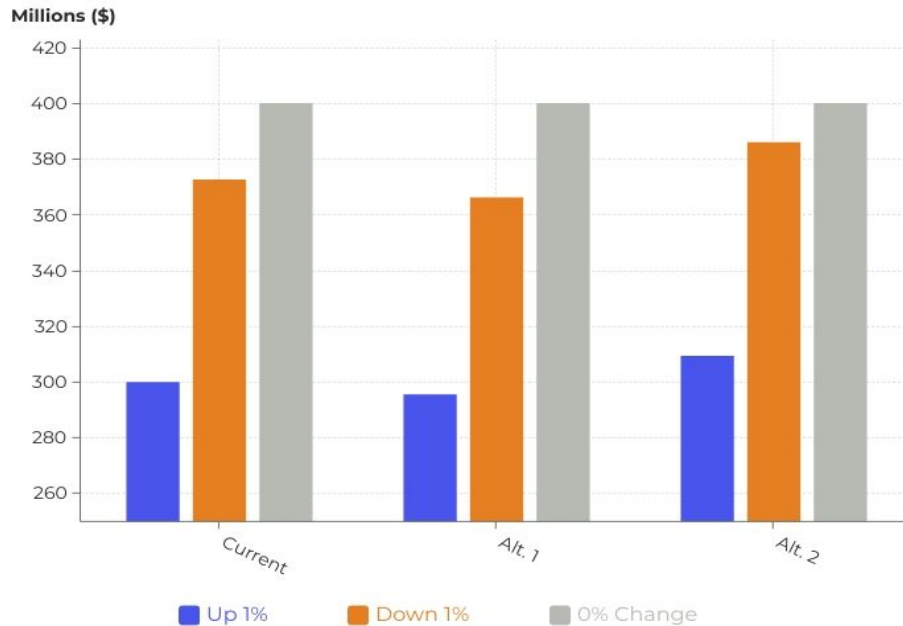
## Alternate 2

- Investment in strictly **A** and **AA** bonds
- Majority **5-year** and **10-year** bonds
- Duration of **7.5** (shortest duration)

# Updated Interest Rate Sensitivities (\$m)

Portfolio (baseline yield)	Up 1%	Down 1%	0% Change
Current (2.1%)	300.05	372.59	399.99
Alternate 1 (2.25%)	295.56	366.21	399.99
Alternate 2 (1.8%)	309.39	385.91	399.99

# Interest Rate Fluctuations



# CONCLUSION

- **Corrected flaws in the data**
- **Ran Projection Model on corrected data**
- **Compared 3 portfolios, each with its own strengths and weaknesses**
- **Based on the results, our team recommends Alternate 2**

# Reasons for **Flawed** Data

Data entry mistakes



Data transfer errors



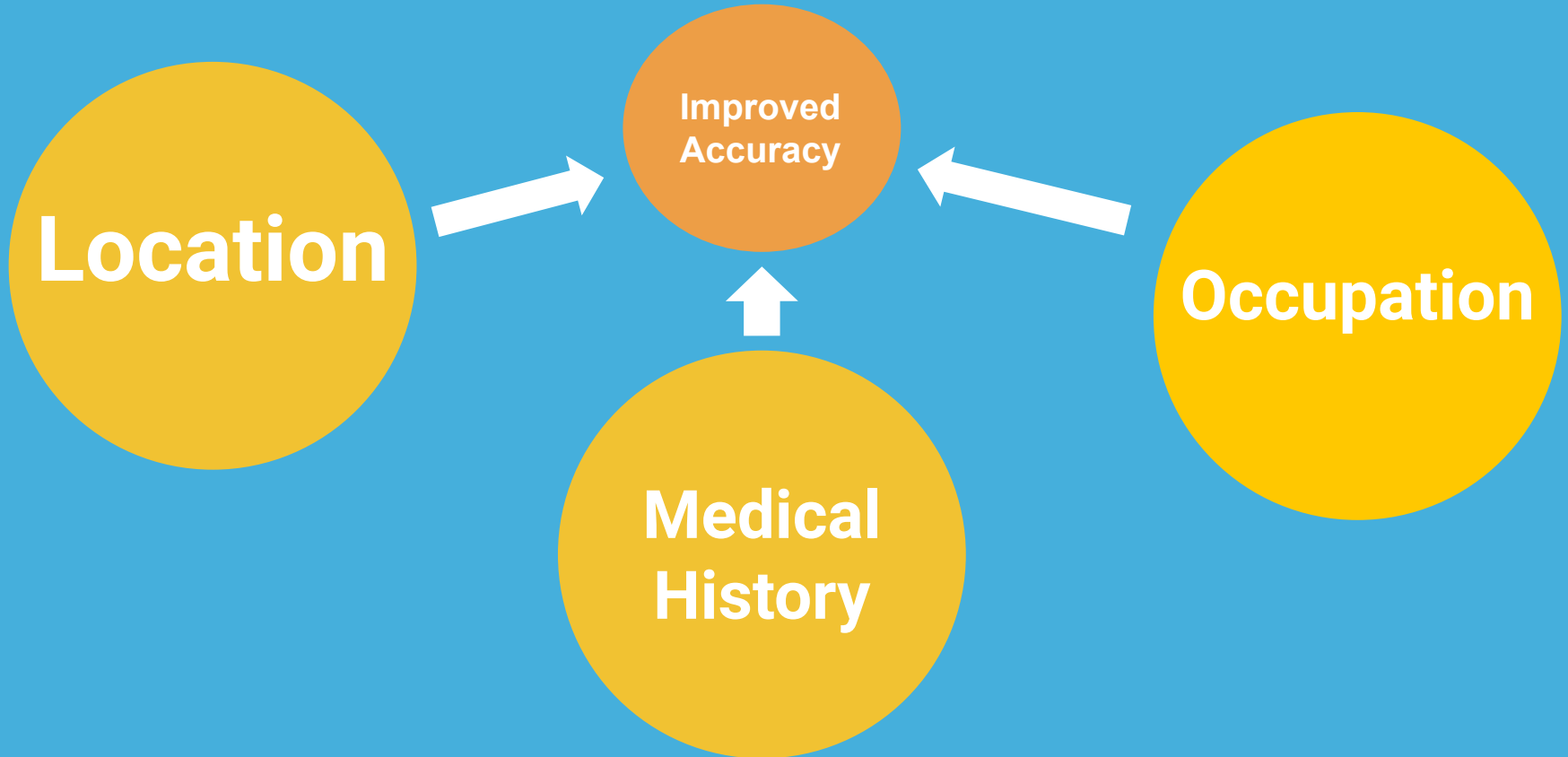
Infrequent review of data

**Inaccurate Data**

# Implications from Flawed Data

01	Inaccuracies in Data	<ul style="list-style-type: none"><li>• Loss in profit</li><li>• Incorrect future rates</li></ul>
02	Ways to improve?	<ul style="list-style-type: none"><li>• Frequently analyze current data</li></ul>
03	Additional Problems	<ul style="list-style-type: none"><li>• Current model far too limited</li></ul>

# Model Improvements





**THANK  
YOU / Q&A**

