



# Spring Consulting Group, LLC

## Captive Risk Optimization – Employee Benefits

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*Proprietary & Confidential*

# **Captive Risk Optimization – Employee Benefits**

# Captive Risk Optimization – Employee Benefits

- The main reason why companies have a captive in the first place is to have more control over its own risks
- Captives are most effective when the company has a risk that it must cover and the risk either cannot be covered by a traditional insurer or the premiums are prohibitively expensive
  - Employee benefits tend to fall into that second category; the insurance carriers generally make a large profit from the coverage

# Captive Risk Optimization – Employee Benefits

- Covering employee benefits in the captive allows a company to achieve underwriting savings
- In addition, covering employee benefits in the captive also has a significant positive impact on the captive's overall risk profile
  - The volatility of claims (in relation to expected total claims) is reduced by adding these additional lines of coverage to the captive since these are risks are generally independent or low correlated risks

# Captive Risk Optimization – Employee Benefits

- The benefits of insuring employee benefits in a captive are
  - Remove incumbent insurer’s profit loading
  - Improve cash flow efficiency
  - Tax-favored investment income
  - **Enhance coverage spread of risk**
  - Create “unrelated” business (third party risk) – potential tax efficiency
  - Improve data management and claim cost management
- Typical employee benefits to include in a captive are
  - Life Insurance / AD&D
  - Long-Term Disability
  - Short-Term Disability
  - Retiree Medical
  - Medical Stop-Loss

# Captive Risk Optimization – Employee Benefits

- One of the most important considerations when reviewing the lines of coverage in a captive is how the lines are correlated with each other
- The higher the correlation between risks, the greater the severity of underwriting loss at high probability levels
  - The result is a high level of overall risk to the captive as well as high capital requirements
- **The aggregate risk profile of a captive can be greatly improved by adding risks that are uncorrelated (or low in correlation) with the current risks**

# Captive Risk Optimization – Employee Benefits

- Employee benefits significantly improve the risk profile of a captive
  - Employee benefit claims generally have higher frequency and more predictable severity than P&C claims
  - Employee benefit lines are largely uncorrelated to P&C lines
- Life insurance claims are usually independent not only of each other but of other risks that are written by the captive
- Short-Term Disability claims have a very high frequency level and very low severity level, along with being uncorrelated with other lines of coverage

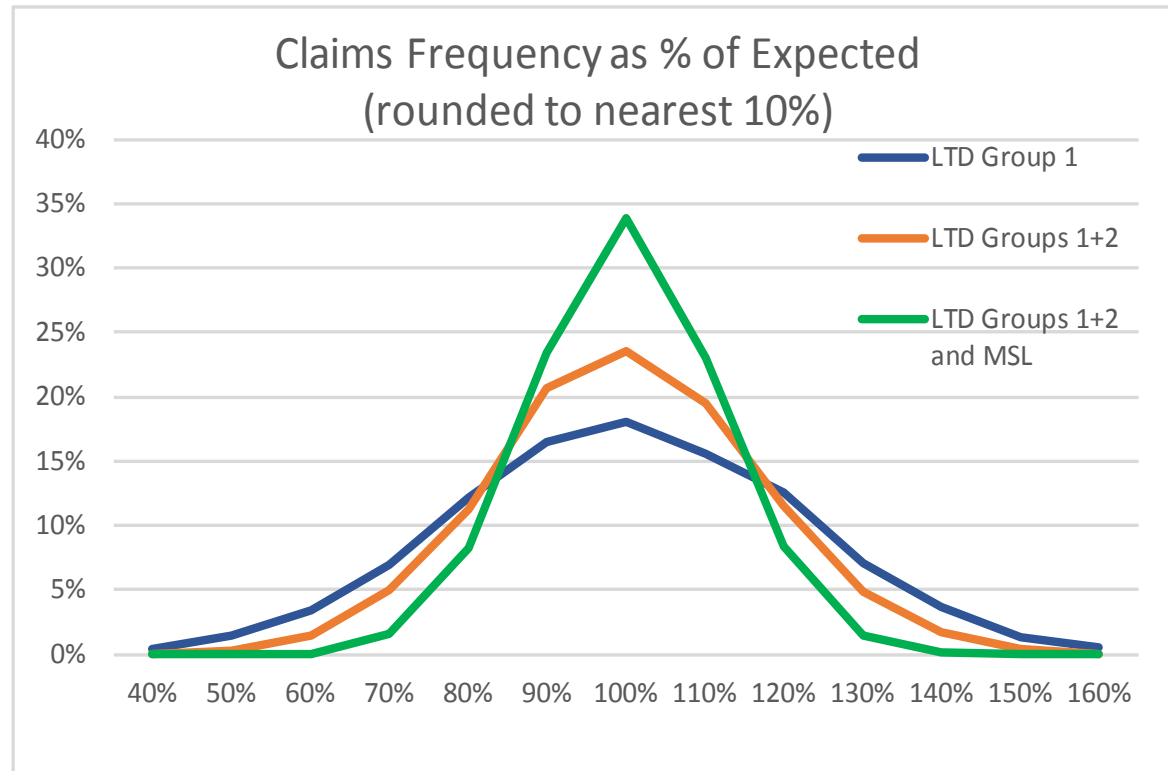
# Captive Risk Optimization – Employee Benefits

- Due to their uncorrelated nature, adding employee benefits to the captive reduces the aggregate volatility of the captive
- Lowering the overall volatility of the captive will also improve the captive's capital requirements
  - The captive's total capital requirement will be less than the sum of the P&C and benefits stand-alone requirements



# Captive Risk Optimization – Employee Benefits

- The graph shows the effect on volatility of adding more lives to the same line of coverage, and also of adding another line of coverage
- The blue line represents just one group of lives with LTD coverage in the captive
- Adding more lives with LTD coverage to the captive (orange line) narrows the curve and increases the chance that claims come in around the expected



- Adding an uncorrelated line of coverage to the captive (green line) such as medical stop-loss narrows the curve even further, showing the reduced claims volatility

# Captive Risk Optimization – Employee Benefits

- Adding employee benefits to a captive accomplishes the following
  - Capture the underwriting profits previously enjoyed by the traditional insurer
  - Diversify the captive's risk profile
  - Reduce required premium risk margins when set to high confidence levels
  - Improve the captive's capital requirements
  - Reduce the aggregate volatility of the captive
- This can be analyzed through a multivariate analysis
  - Multiple lines and the correlations between lines are observed and analyzed simultaneously in a multivariate analysis

# Captive Risk Optimization

## Case Study – P&C Only

- A P&C captive is funded at the 75<sup>th</sup> percent confidence level
- The captive has \$1M in expected loss for directors & officers (D&O) and \$1M in expected loss for workers' compensation (WC)
- The captive's coverages have the following correlation profile

Correlation Matrix		
Coverage	D&O	WC
D&O	100%	
WC	25%	100%

- The risk margin is \$434,000 (21.7% of total captive expected loss)
  - This would be 24.6% for D&O and 23.0% for WC if treated separately
- Required capitalization to support the 85<sup>th</sup> percentile simulated loss event is \$808,000 (40.4% of total captive expected loss)
  - This would be 52.3% for D&O and 45.9% for WC if treated separately

# Captive Risk Optimization

## Case Study – Benefits Only

- A benefits captive is funded at the 75<sup>th</sup> percent confidence level
- The captive has \$1M in expected loss for long term disability (LTD) and \$1M in expected loss for life insurance
- The captive’s coverages have the following correlation profile

Correlation Matrix		
Coverage	LTD	Life
LTD	100%	
Life	10%	100%

- The risk margin is \$385,000 (19.2% of total captive expected loss)
  - This would be 25.4% for LTD and 20.4% for life if treated separately
- Required capitalization to support the 85<sup>th</sup> percentile simulated loss event is \$739,000 (36.9% of total captive expected loss)
  - This would be 57.6% for LTD and 38.4% for life if treated separately

# Captive Risk Optimization

## Case Study – Benefits and P&C Combined

- A captive has both P&C and benefits and has the funding and expected loss characteristics identical to the prior two slides
- The captive's coverages have the following correlation profile

Correlation Matrix				
Coverage	D&O	WC	LTD	Life
D&O	100%			
WC	25%	100%		
LTD	5%	25%	100%	
Life	5%	5%	10%	100%

- The risk margin is \$679,000 (17.0% of total captive expected loss)
  - This is a 4.7% reduction (as a % of total expected loss) in risk margin from the P&C only example and a 2.3% reduction from the benefits only example
- Required capitalization to support the 85<sup>th</sup> percentile simulated loss event is \$1.25M (31.2% of total captive expected loss)
  - This is a 9.2% reduction (as a % of total expected loss) in the capitalization level from the P&C only example and a 5.8% reduction from the benefits only example

# Captive Risk Optimization

## Case Study – Benefits and P&C Combined

- Low correlations between coverages result in substantial decreases in both risk margin and capital
- Risk margin requirements total \$819,000 for the separate P&C and Benefits captives and \$679,000 when combined
  - As such there is a risk margin decrease of \$140,000 by including P&C and benefits in a single captive structure
- Capitalization requirements at an 85<sup>th</sup> percentile total \$1.55M for the separate P&C and Benefits captives and \$1.25M when combined
  - As such there is a indicated capital decrease of \$300,000 by including P&C and benefits in a single captive structure

# Questions

