MERCER

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Embedded Values

An Indicator of Management Performance

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Objectives of this talk

- Show you the embedded values of common Malaysia products and typical assumptions
- Show you which assumptions affect embedded values the most
- Show you what to look for in a prospective company (i.e. merger exercise) in terms of indicators from assumptions used in calculating embedded values
- Show you ways to maximize the embedded value of an insurance company

Who should understand embedded values?

- Upper management trying to maximize shareholder value
- Insurance executives involved in the work which determines the assumptions of the embedded values
- Regulators in order to understand best practices of insurance company management
- Anyone involved in insurance accounts and reporting, due to the International Accounting Standards Boards focus on fair value accounting

When will embedded values be calculated?

- When a merger exercise is taking place
- For a public listing
- During a buyout or sell off
- Yearly for informational purposes
- When management bonuses are being calculated

Where will embedded values be found?

- In a actuarial appraisal report
- In accounts (sometimes)
- In management reporting

What are embedded values?

- The value “embedded” in an insurance company

What are embedded values?

- Shareholders equity (“current value”)

  +

- Value of business inforce (“future value”)

Shareholders equity

- Current surplus in shareholders or life funds
- Unrealized gains
- Other “accounting” items

Value of business inforce

- Present value of future surpluses of the insurance funds
- Can vary quite significantly based on assumptions chosen, as premiums may be received for benefits payable possibly many years in the future

Use in management reporting

- Value added by management can be defined as change in embedded value + dividends paid – capital injected

Assumptions

- Mortality
- Management expense
- Termination rates
- Rider claims
- Investment return
- Discount rate

Mortality

- 100% M8388 common, 60-120% experience in reality

Management Expenses

- Either split current year expense results into first year and renewal, per policy and % premium

  or

- Use more standard assumptions and provide for expense overruns

Management Expenses

- Common is the BN minimum for sales illustrations
  - First year: RM160 per policy + 13% of premium
  - Renewal: RM40 per policy + 3% of premium
  - 3% expense inflation p.a.

Termination Rates

- Wide variability, but BN minimum of 10% year 1, 10% year 2, 3% thereafter is common

Rider Claims

- Insignificant for some insurers, vital for others
- Sensitive and depends on type of rider

Investment Return

- Depends on insurers past experience versus benchmarks and asset weightings in the future
- No “common” assumption, but 7%p.a. par fund, 6% non-par probably reasonable

Discount rate

- Varies widely by insurer and purpose of embedded value calculation
- Possible methodologies for setting include determining the level of risk perceived in the future surpluses versus the stock market, then predicting the long term expected average of the stock market
- Alternate methodology is given by the Canadian Institute of actuaries: well diversified insurance companies should add a risk premium of 3-4% over a long term interest rate used on government of Canada bonds maturing in ten years or more
- We use 11%p.a. here

Methodology for calculating value of business inforce

- Project surplus arising each year
- Get present value using the discount rate
- Allocate shareholders portion and take net of tax

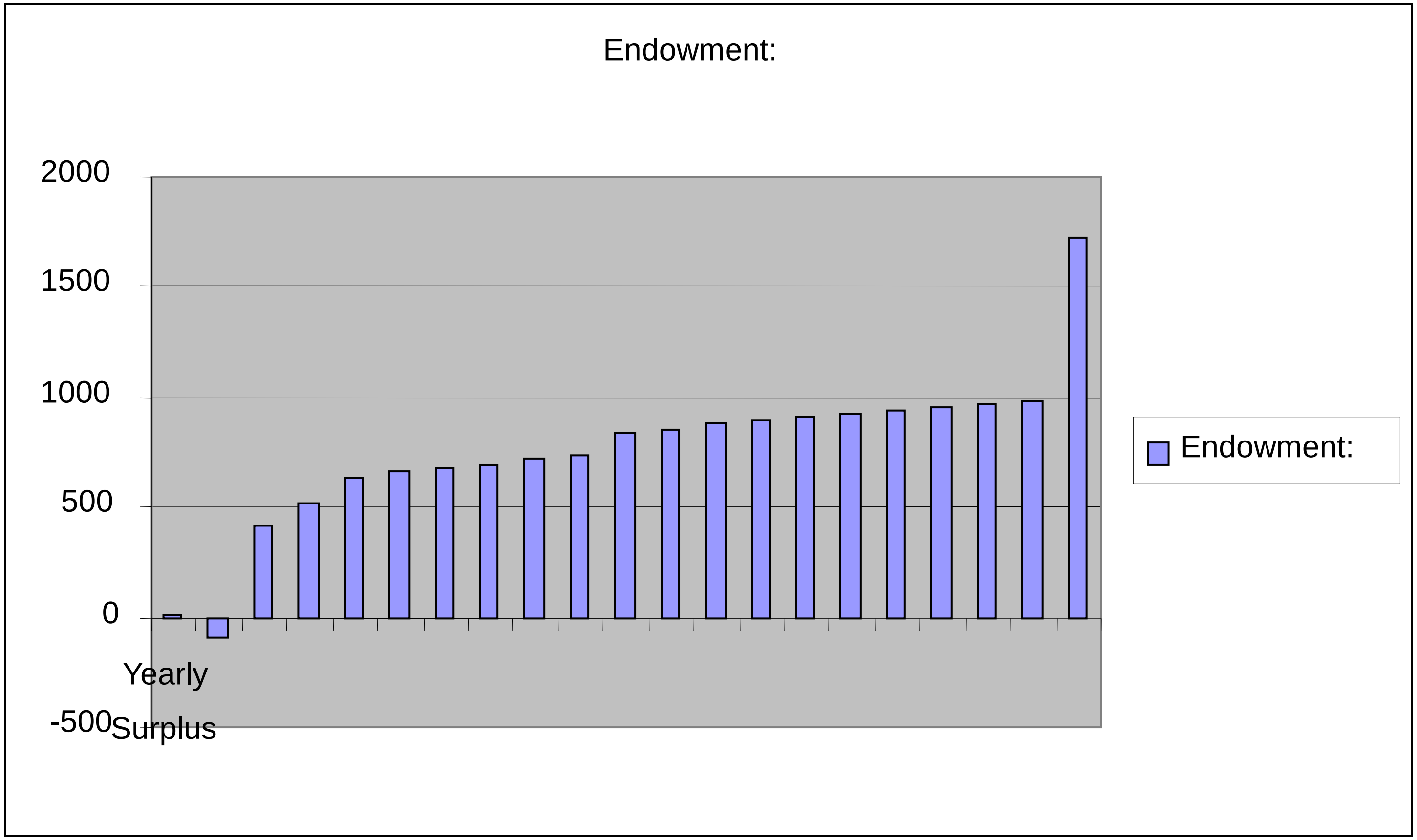
Surplus in a year

- Premium income + investment income – management and selling expenses – claims and surrender - income tax – increase in reserves – increase in solvency margin

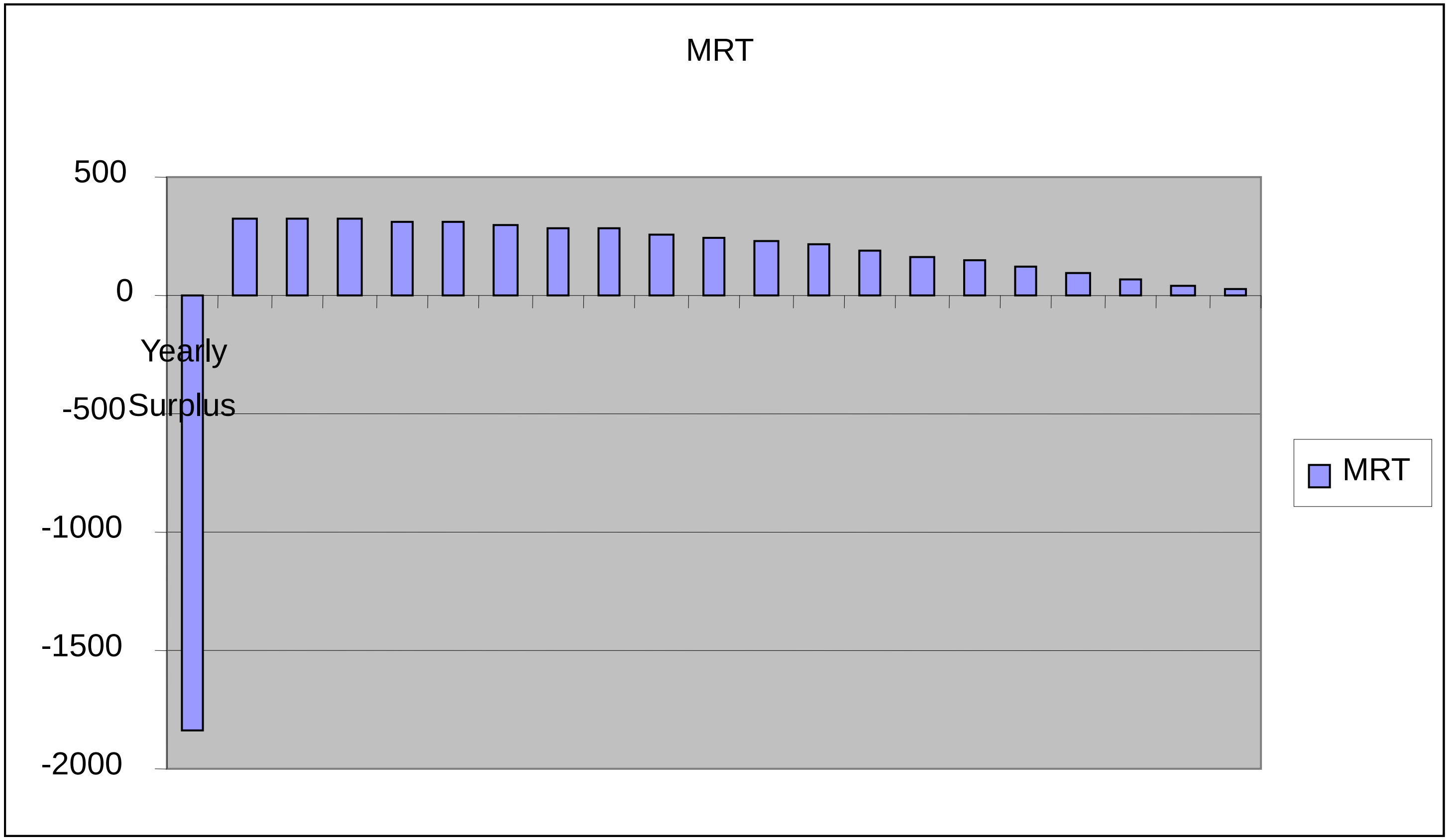
Examples

- Par regular premium endowment, 20 years, male non-smoker age 35, RM40,000 sum assured
- Non-par single premium mortgage reducing term 20 year plan, male non-smoker, age 35, RM200,000 sum assured 8% loan rate
- Non-par non-life riders, RM100 per annum premiums, attaching to the above endowment but in the non-par fund

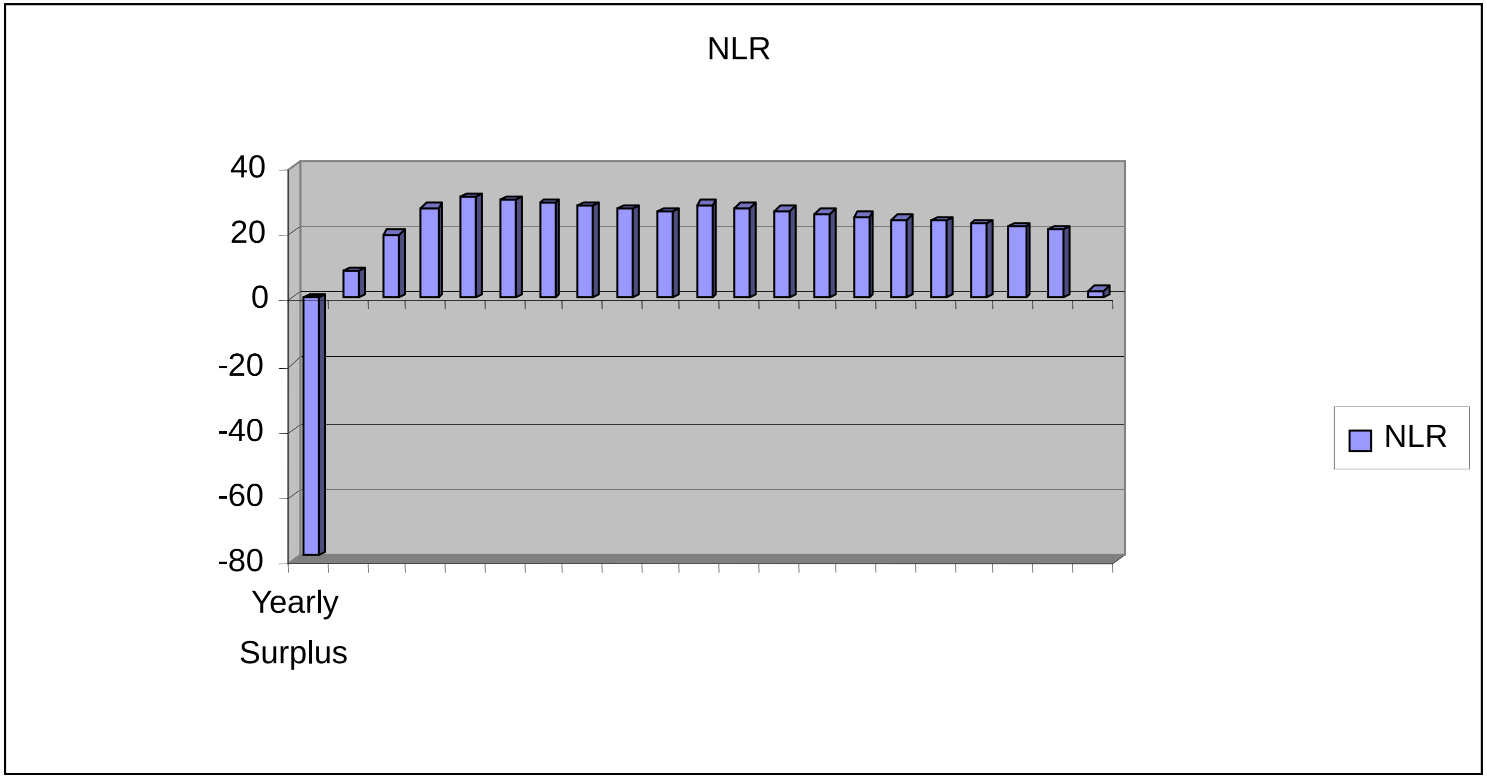
Yearly surplus



Yearly surplus



Yearly surplus



Embedded Values

- Endowment:
  - Yearly Premium = RM2,300
  - Discounted value (at 11%) of total surplus = RM4,528
  - Shareholders portion (15%) = RM679
  - Shareholders portion net of tax (28%) = RM489

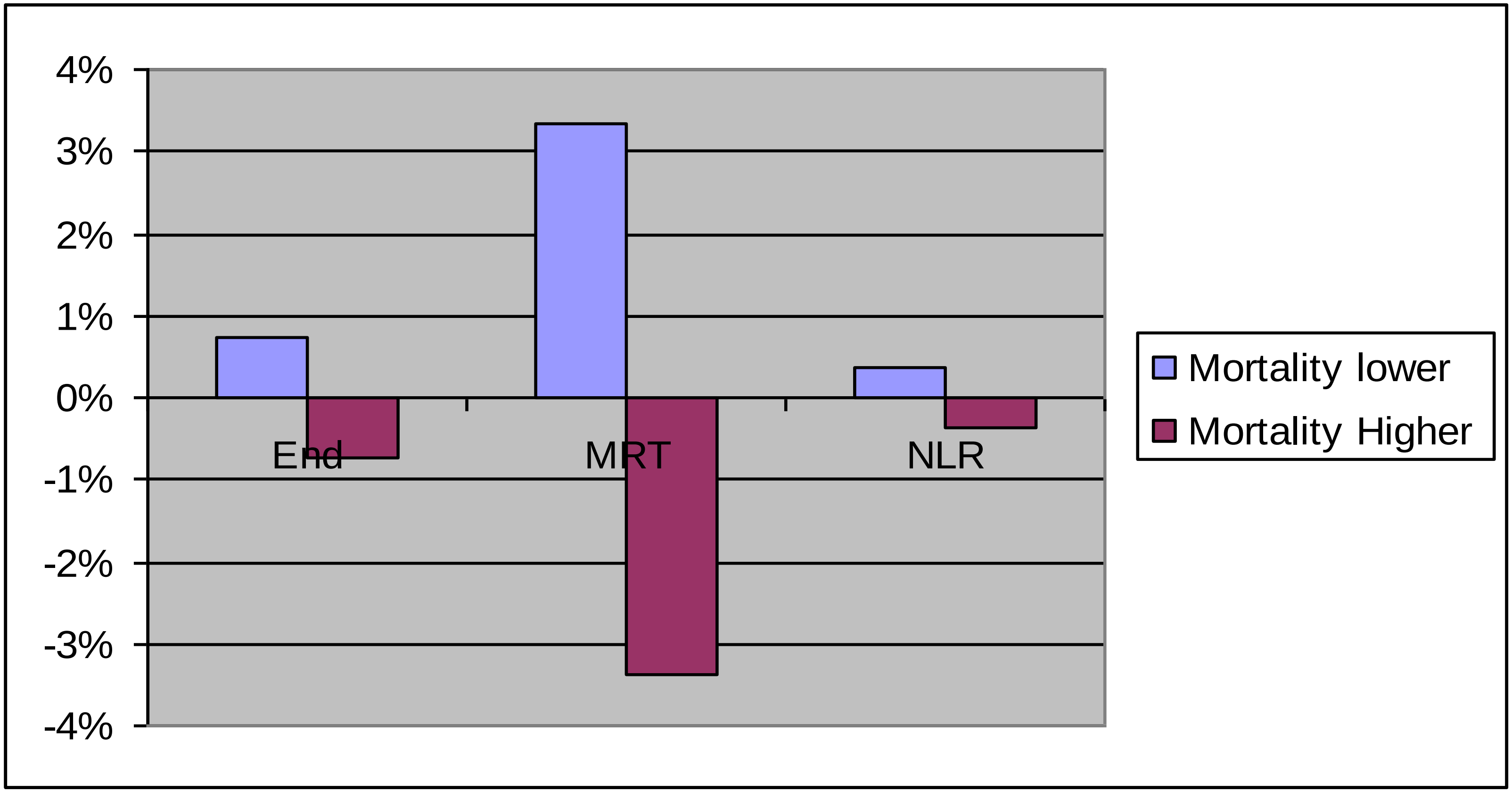
Embedded Values

- MRTA:
  - Single Premium = RM5,100
  - Discounted value (at 11%) of total surplus = RM236
  - Shareholders portion (100%) = RM236
  - Shareholders portion net of tax (28%) = RM170

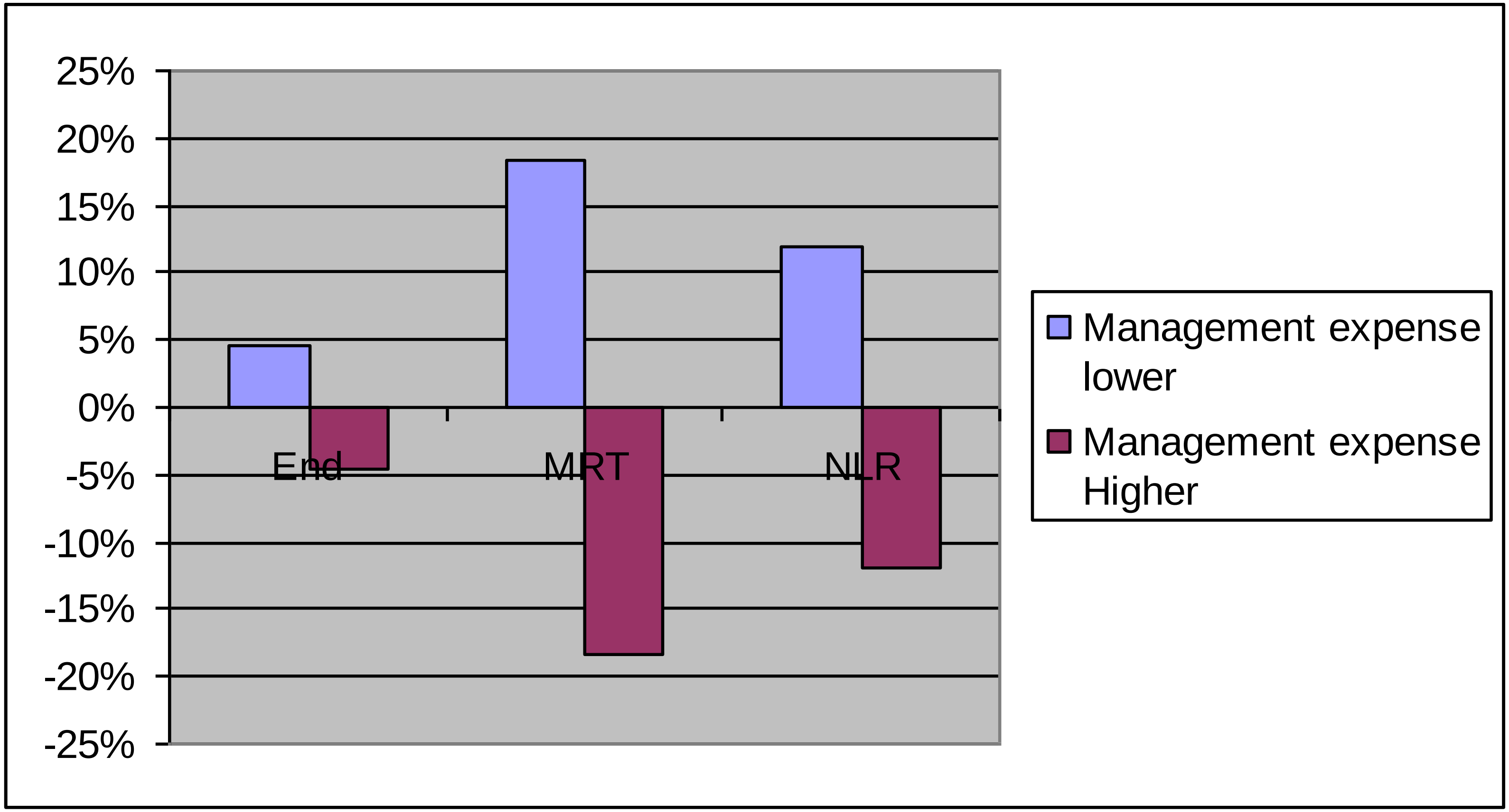
Embedded Values

- Non-Life Rider:
  - Yearly Premium = RM100
  - Discounted value (at 11%) of total surplus = RM102
  - Shareholders portion (100%) = RM102
  - Shareholders portion net of tax (28%) = RM73

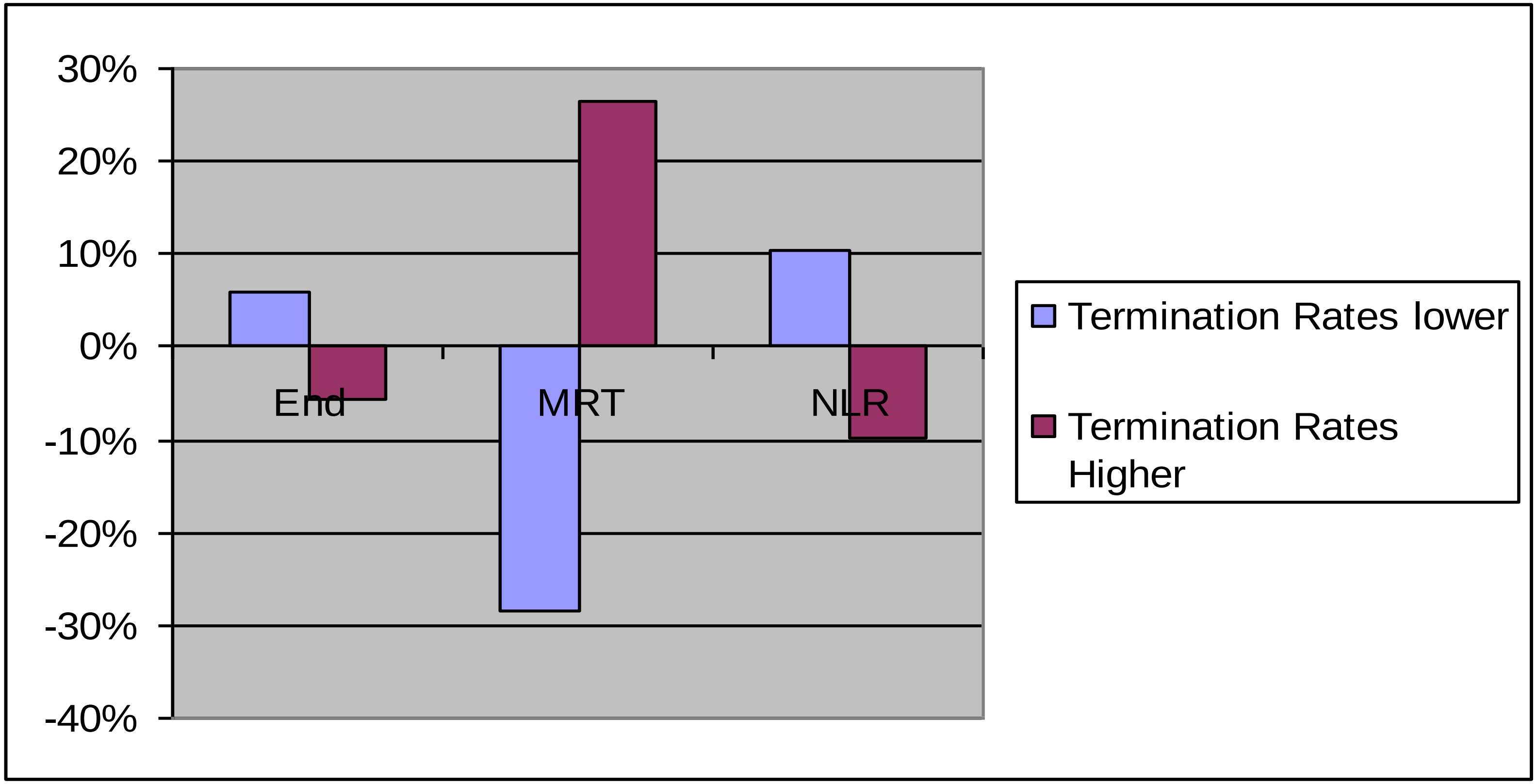
Sensitivity Tests
Mortality



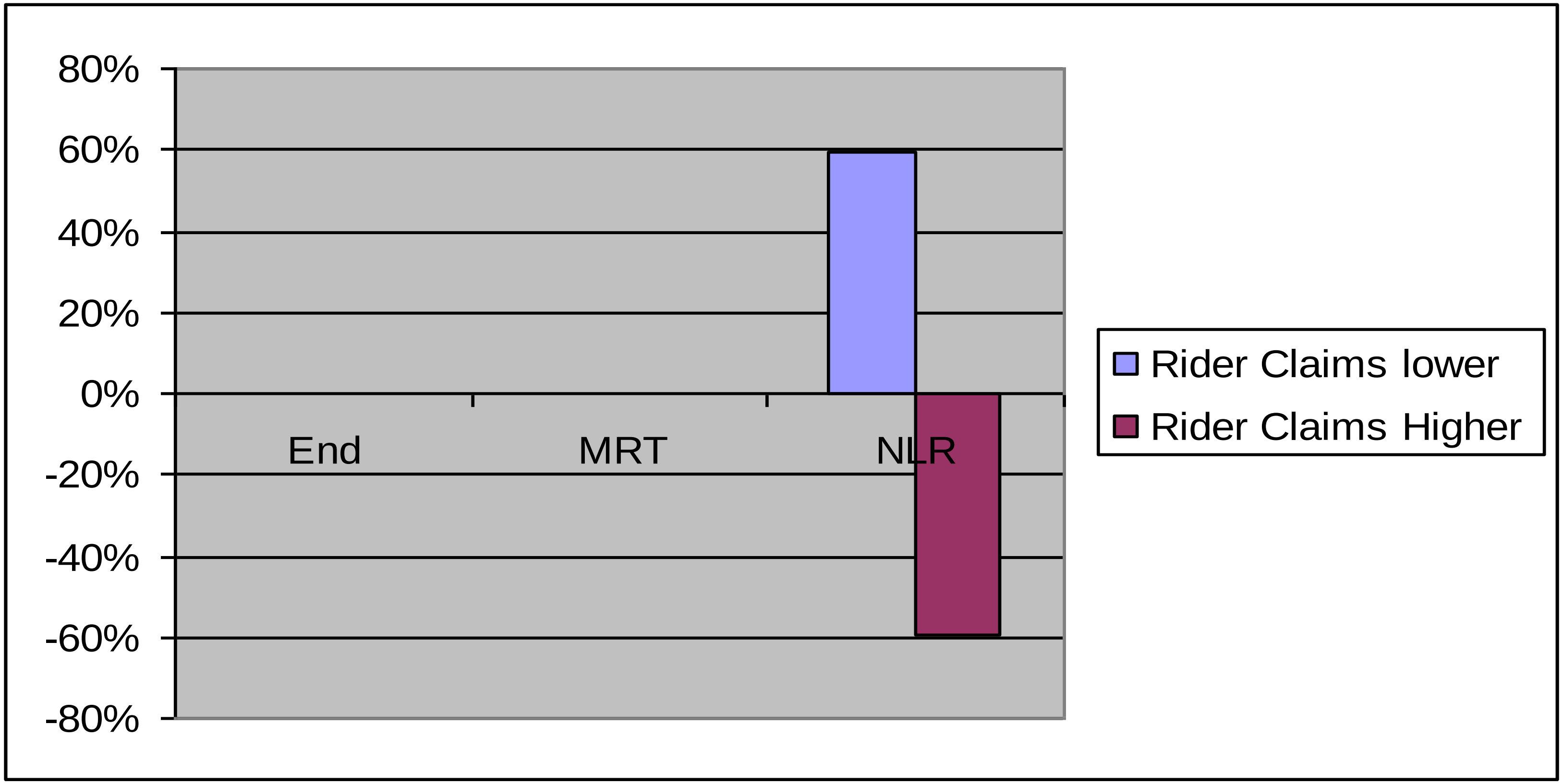
Sensitivity Tests
Management Expense



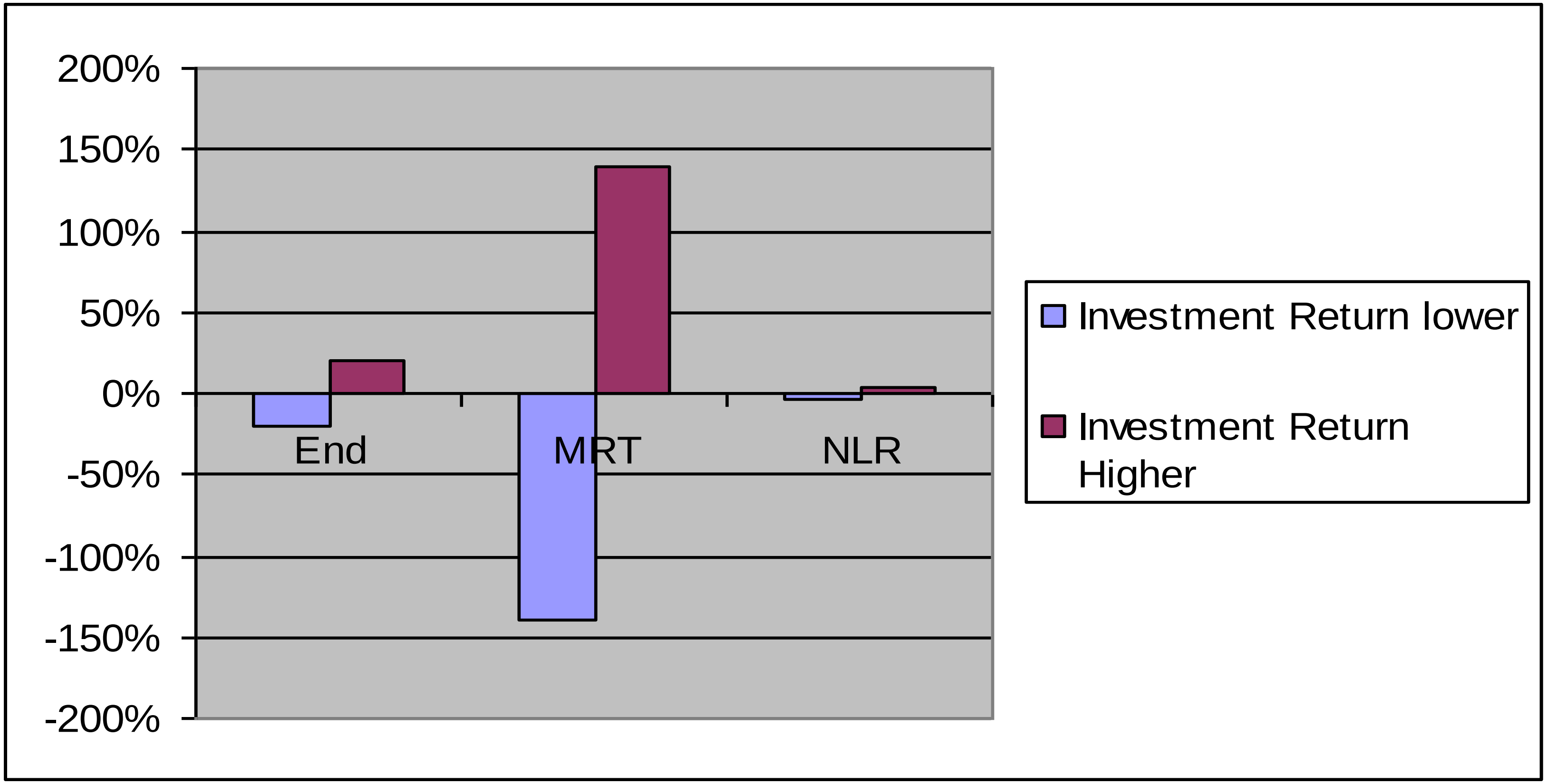
Sensitivity Tests
Termination Rates



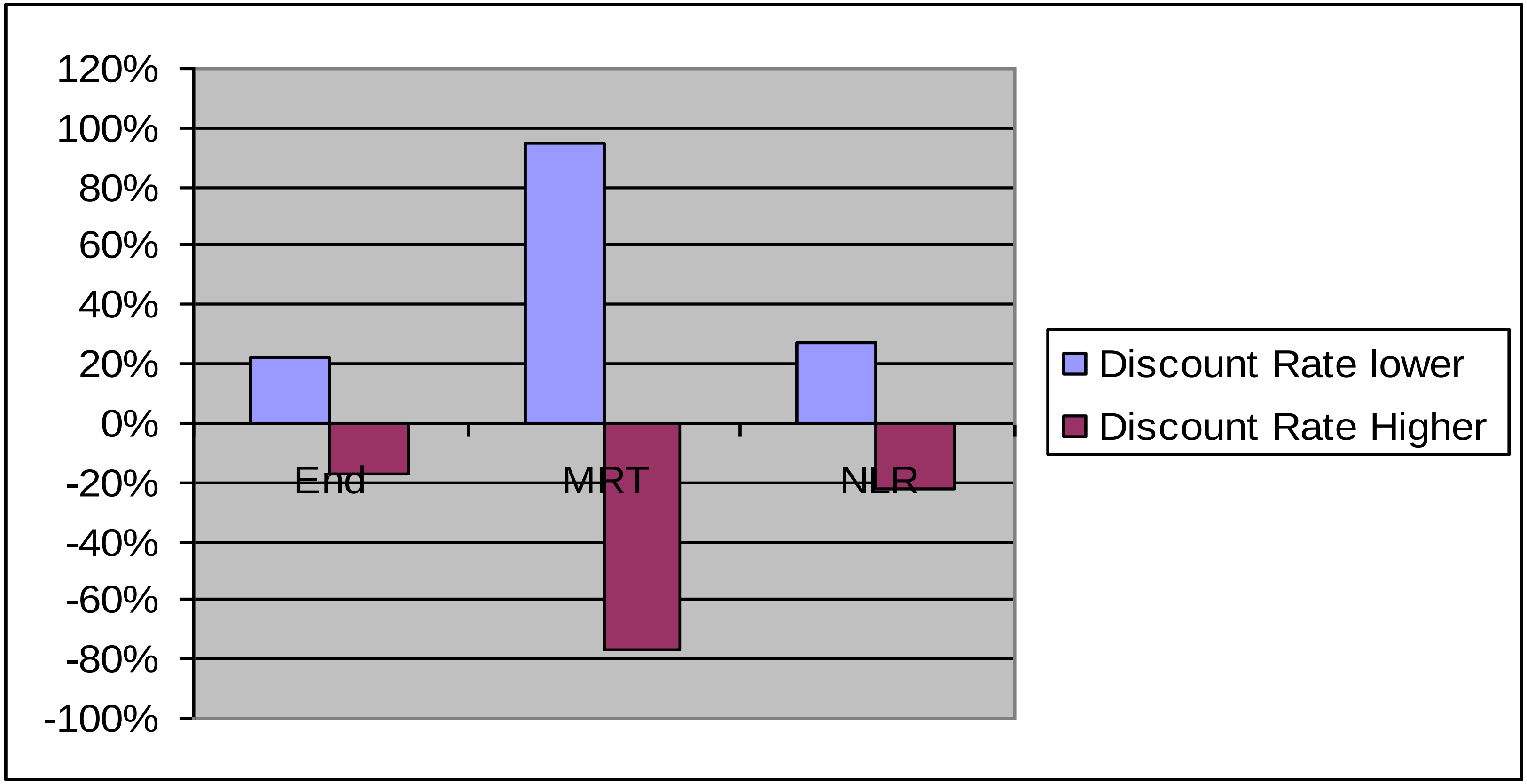
Sensitivity Tests
Rider Claims



Sensitivity Tests
Investment Return



Sensitivity Tests
Discount Rate



Endowment Sensitivities

- Investment return
- Discount rate

MRT Sensitivities

- Investment return
- Discount rate
- Termination rates
- Management expense or mortality

NLR Sensitivities

- Loss ratio
- Discount rate

Mortality Indicators

- Marketing strategy
- Relative strictness of underwriting

Management expense indicators

- New business
- Critical size

Termination rate indicators

- Agency satisfaction / turnover
- Quality of selling practices

Rider loss ratio indicators

- Significance varies greatly by insurer
- Need to be careful of trend in experience

Investment return indicators

- Future asset class weighting and risk
- Historic class returns versus benchmarks indicates investment abilities

Discount rate indicators

- Difficult to arrive at a theoretically correct discount rate
- Aggressive new business growth or new distribution channels being relied on to achieve critical size would have a higher discount rate than an established insurer with more modest intentions

Maximization of value
Discount rate

- Difficult
- Ensure achievement of critical size is not dependent on heavy new business growth on new distribution channels (or wait until critical size is achieved)

Maximization of value
Investment return

- Ensure consistency with bonus rates
- Regularly track investment returns by class versus benchmarks

Maximization of value
Rider loss ratio

- Regular tracking of experience
- Regular review of contract wordings and premium rates for new business

Maximization of value
Other assumptions

- Regular tracking of experience
- Comparison of results versus industry statistics

Conclusions

- Understanding embedded values can have a huge effect on shareholders value
- Regular reporting of embedded values can greatly assist in this
- Regular experience analysis and benchmarking, especially for investment return, is key

More information

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