Discounting – Work shop

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Discounting work shop – liability discount rate

Recall for insurance liabilities that do not vary based on the returns of underlying financial underlying items should reflect liquidity of the instrument but not reflect any credit spread.

- Recall the two approaches discussed to arrive at the appropriate discount rate

- Review the five examples on the "liability discount rate" tab.

- For each, given the information, determine the appropriate liability discount curve. If there is more than one possible answer, provide the maximum and minimum possible rates.

  – There could be more than one answer because there is either not enough information or there is conflicting information

- For example 5, the FX spot is the projected exchange rate in the future

  – For example, 1.23786 of currency A will be worth 1 of currency B in one year

  – This implies that today's exchange rate is 1.25/1

    • 1.25 x 1.02% / 1 x 1.03% = 1.23786

Discounting work shop – stochastic scenarios

You should maximize the use of market information.

You sell a product that is 100% invested in equities

- The current risk free rate is flat and 3%
- Your company's best estimate is that equities have a 5% risk premium so are expected to rise, on average by 8% per year
- Equity futures are priced in your market based on the risk free curve
- You will value this product with stochastic scenarios.

What is the appropriate mean discount rate for this product?

Discounting work shop – market price

You should maximize the use of market information.

An equity instrument will pay 100 at the end of 5 years

- – The value of the instrument is currently 82.147
- – The market price of the instrument can be determined by discounting the year 5 payout along just five potential scenarios
- – What are the missing discount factors?

Discounting work shop – volatility

You should maximize the use of market information.

You are creating stochastic scenarios to value an insurance contract

- The insurance contract has expected cash flows for 20 years
- You need to determine the appropriate volatility inputs for your ESG

Market inputs

- There is a highly liquid market of equity options with tenors less than 5 years
- There are limited equity option transactions with tenors between 5 and 10 years
- There are is no indication of implied volatility beyond 10 years
- You have captured historical actual equity volatility over the last 20 years

What volatility should you use for your ESG?

Discounting work shop – asset dependent

Cash flows that vary based on returns of a financial underlying should either be discounted using rates that reflect that return or adjusted for the effect of the variability and discounted at a rate that reflects the adjustment.

You sell a product that credits variable interest with discretion interest.

- Information of reference assets and the guaranteed crediting rate are supplied

- What are the potential discount rates for this product?

- How does the guarantee affect the discount rate?

- Do you need to separate the guaranteed and discretionary cash flows to value the contract?

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