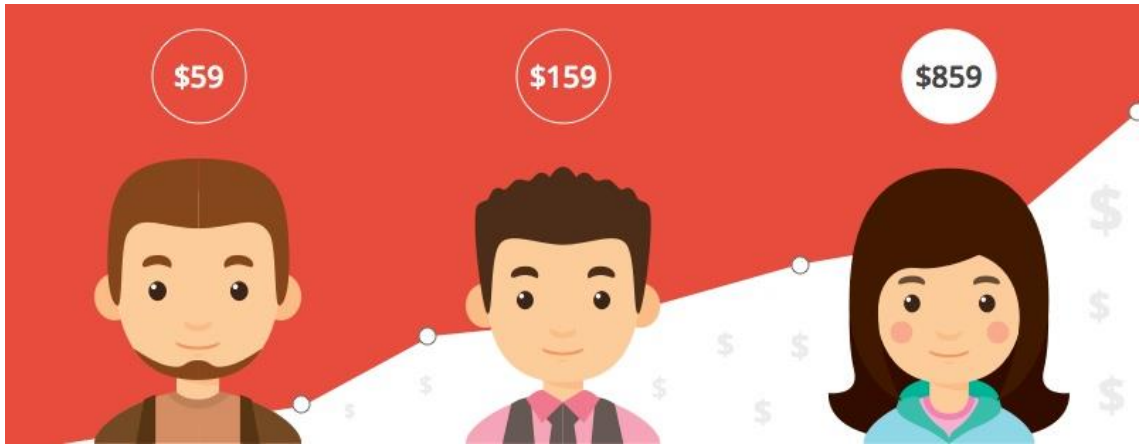

Module 2.4 Workshop on CLV Simulation Customer Relationship Management

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Content

- **Introducing Oracle CrystalBall**
- **Case Study**
- **Questions on workshop**

CrystalBall Software

- **Integrated with Excel**
- **Easy to use**
- **Two key inputs:**
  - **Assumption**
  - **Forecast**

See spreadsheet CLV Simulation.xls

CLV Case Study

- Suppose you are in charge of the data science department of an online start-up selling fashion apparel.
- The founder has just given you a list of transactions over the past year that are classed by its source.
- The sources include friends and family (referral), an online forum post, Singapore fashion week, Double 11 event, blog referral, walk-in, and organic search. The associated acquisition costs for these customers are also given in the spreadsheet.
- The founder says to use the CLV value to estimate the value of the company, and the VCs have recommended a time horizon up to 7 years.
- You do up a simulation spreadsheet and came up with an estimate of CLV.

CLV Simulated model

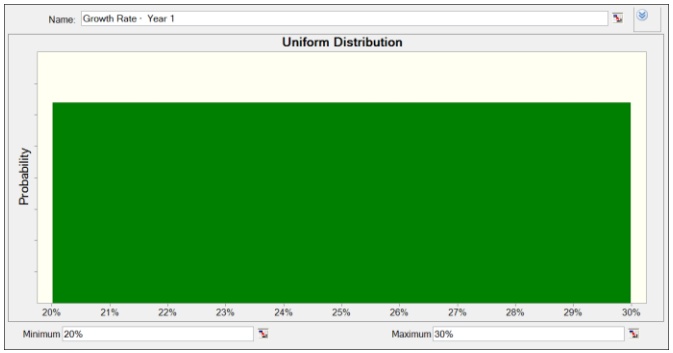
- The CLV simulated model use simple ratios and assume what happens in the past will be repeated in the future
- In this case study, the following are obtained.
  - Obtain customer value by first year transaction
  - Assume and simulate unknown factors from distributions
    - » Revenue growth
    - » Attrition rates
    - » Cluster customers by source
    - » Constant discount (or can be simulated)

Simulated assumptions

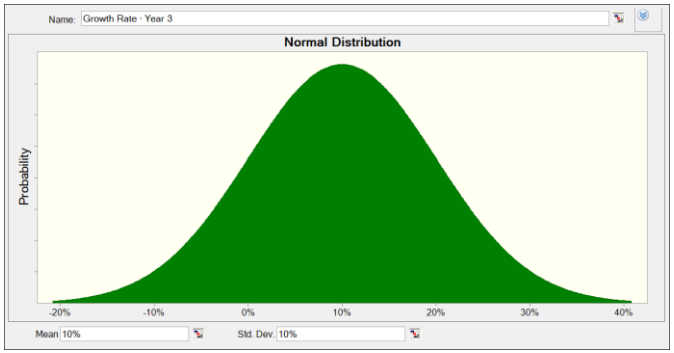
- **Growth Rates**
  - **Different assumptions for year 2 and year 3 onwards, and for different customer sources – higher / lower growth assumed.**

Higher Growth

For 2nd year

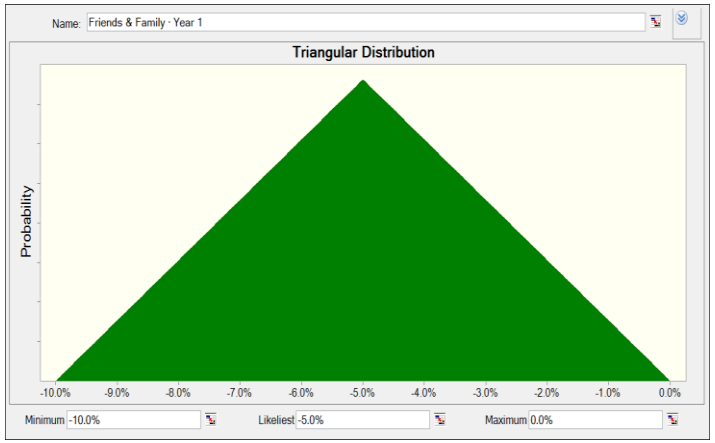


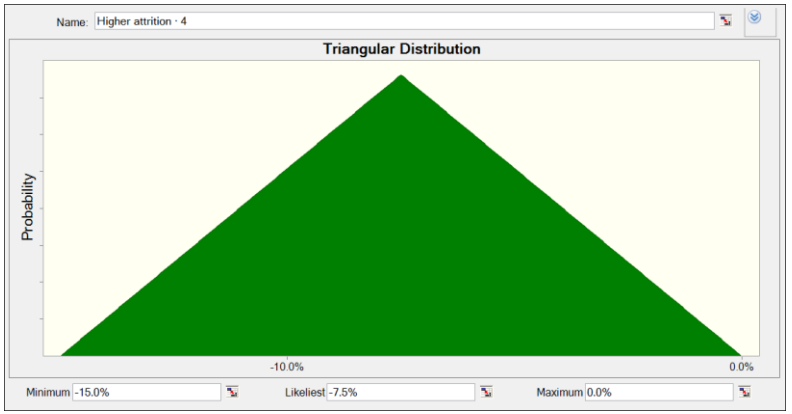
For 3rd year onwards



Simulated assumptions

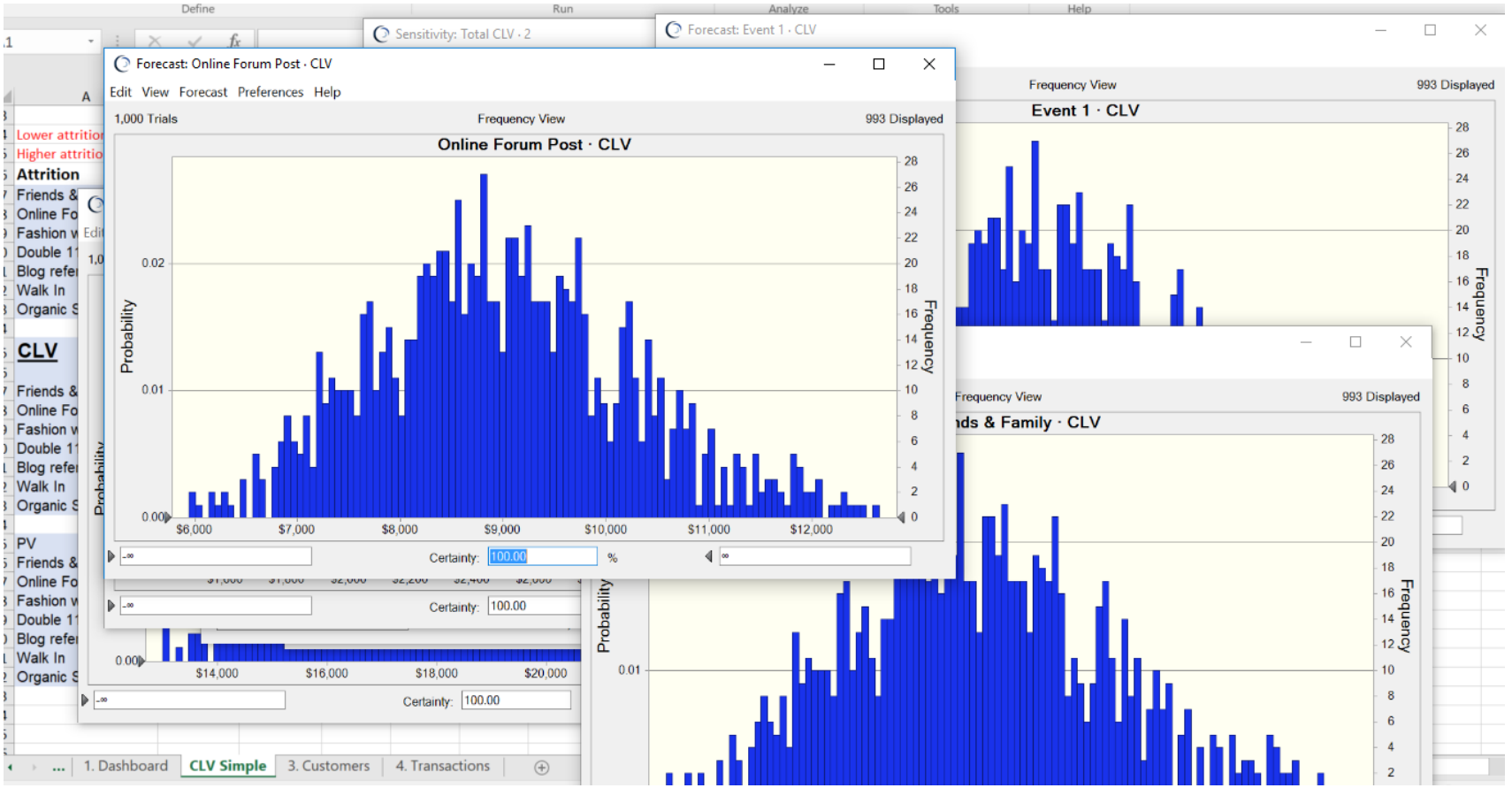
- **Attrition Rates**
  - **Different for customer sources – higher attritions assumed for blog referral, walk-in and organic search.**
  - **For referral, online forum post and from events,**
    - » **the attrition is assumed to follow a triangular distribution with [-0.1,-0.01,0]**
  - **For blog referral, walk-in and organic search,**
    - » **The attrition is assumed to follow a triangular distribution with [-0.15, -0.075, 0]**





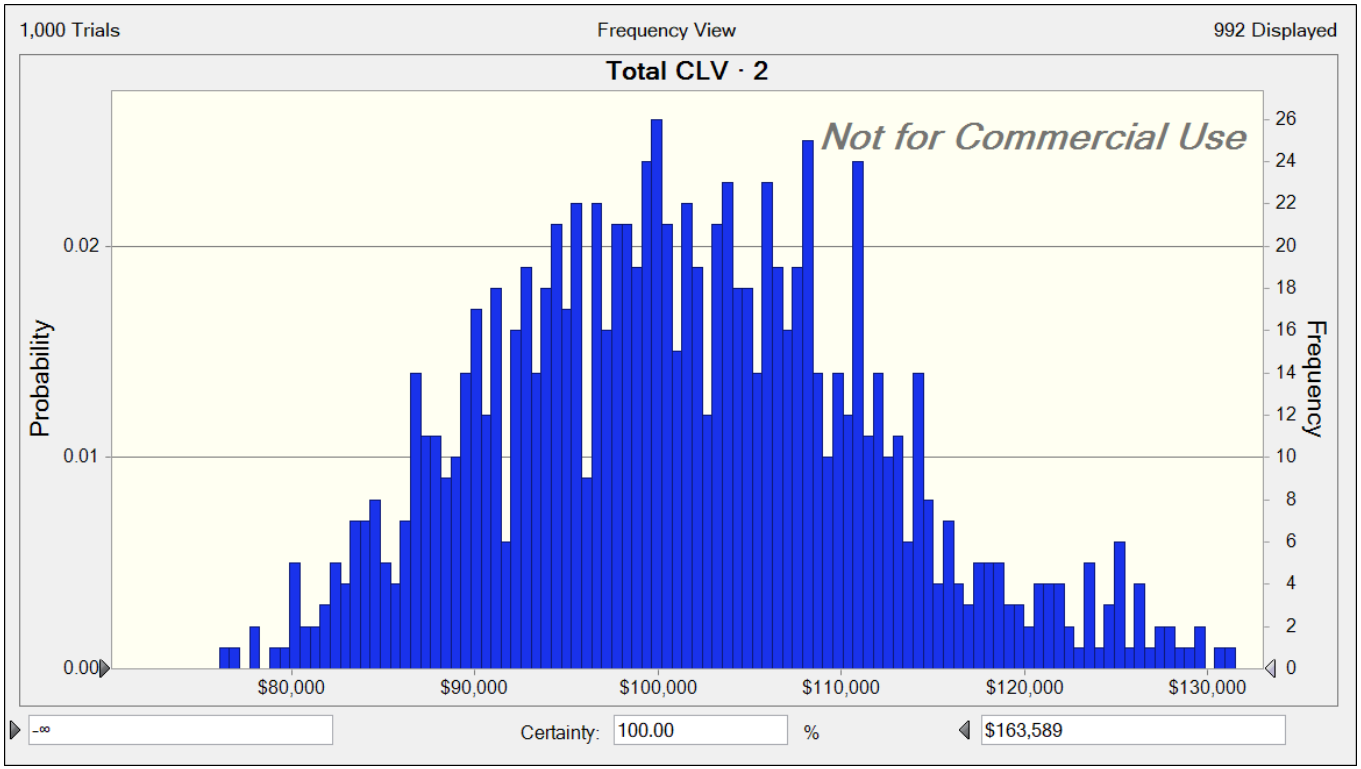
Forecasted scenarios

- **CLV** for each customer source



Forecasted scenarios

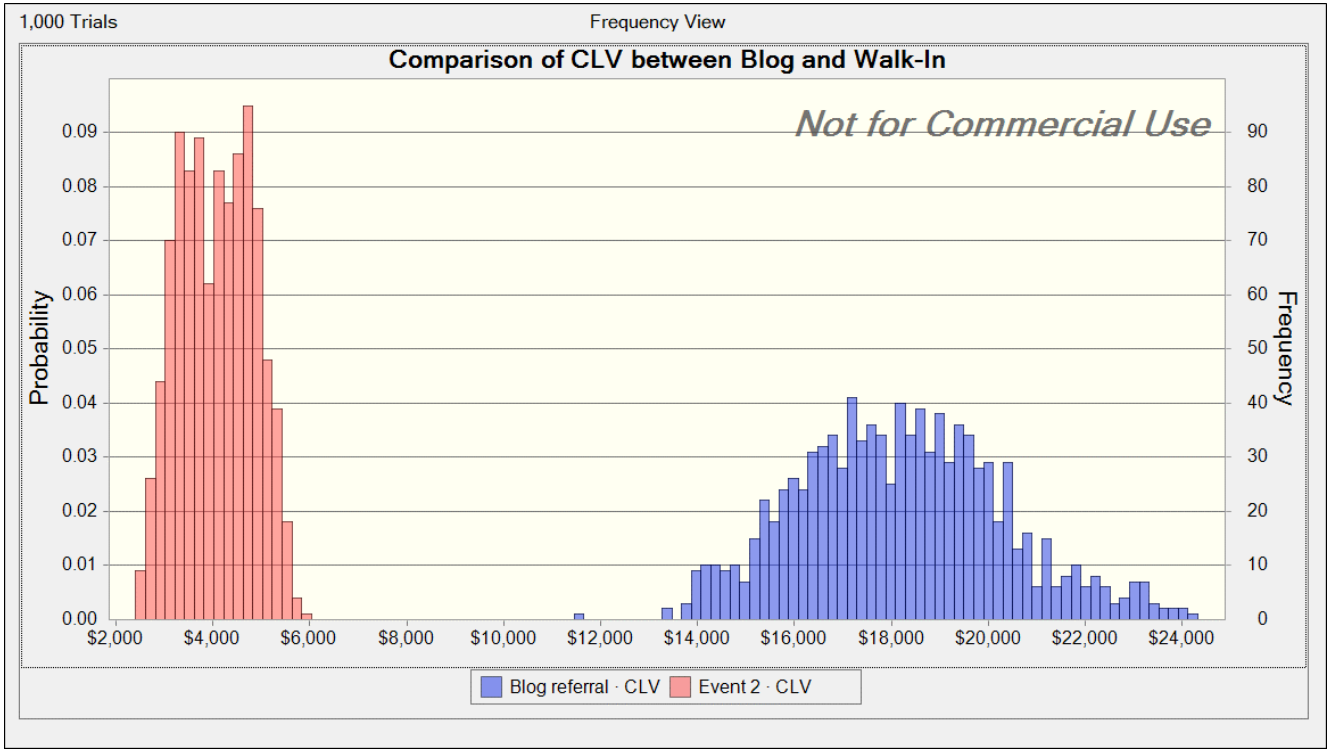
- **Total CLV** for company
  - Based on 1000 simulations, the total CLV for the company is $101,565 with standard deviation of $10,684. The lowest expected value is $69,365 and the maximum is $137,886.



Questions on CLV simulation

- Based on your simulated spreadsheet calculations, the founder has asked a few questions:
  - Which customer source contributes the most to the total CLV?
  - Total CLV calculation is most sensitive to which assumed risk factor?
  - Between blog referral and walk-in, which contributes more to the CLV? But which is the riskier one? Which has the higher potential to contribute more to the CLV?

Overlaid Scenarios



The chart shows the distributions of CLV computed from blog referral and walk-ins. Qn: which has the higher mean and riskiness?

Workshop on CLV simulation

- The founder was looking at some of your assumptions and was surprised to find that you have assumed a fixed acquisition cost for each of the customer source.
- He advised that the acquisition costs for the Double 11 event are lower and the Fashion week event are much lower.
  - It follows a uniform distribution of U(500,1500) and U(1500,2500) respectively.
  - Now, how will you integrate these assumptions into your model?
  - How will your answers to the previous questions change now?