Manufacturers' Warranty

Liability Estimation

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Douglas Moses, ACAS, MAAA

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Discussion points…

- Manufacturers' Warranties vs. Extended Service Contracts

- Manufacturers' Warranties
  - Background
  - Accounting considerations
  - Liability estimation

Background

- Manufacturers use warranties as a marketing tool to help build market share and brand loyalty.

- Warranty definition
  - A guarantee related to the performance (regarding function, not price) of nonfinancial assets that are owned by the guaranteed party.
  - The obligation, if incurred in connection with the sale of goods or services, may require further performance by the seller after the sale has taken place.

Why do we care?

	Equity	Warranty Accrual	%
Fiat Chrysler	$ 20.4 B	7.9 B	39%
GM	44.1 B	9.7 B	22%
Ford	29.2 B	5.0 B	17%
Toyota	162.6 B	15.2 B	9%
Honda	67.7 B	4.7 B	7%

- Proper estimation of warranty costs is critical to avoid adverse impacts on a company's financials
- Considerations are similar to typical P&C insurance policies
  - Product is priced in advance with an unknown or uncertain cost inputs
- Liabilities are less frequently estimated by actuaries compared to insurance
- Not insured

Why do we care?

- This presentation uses terminology related to an auto manufacturer but the concepts relate to all manufacturers.
  - E.g., heavy machinery, brown goods, white goods, etc.

	Equity	Warranty Accrual	%
Deere & Company	$ 6.5 B	0.8 B	12%
Caterpillar	13.2 B	1.3 B	10%
Apple	128.2 B	3.7 B	3%
Dell	19.0 B	0.6 B	3%
Sony	28.0 B	0.5 B	2%
Whirlpool	5.7 B	0.3 B	6%
GE	77.5 B	1.9 B	2%

Accounting considerations

- Is this exposure properly accounted for in the company's financials? (Does the company have exposure?)

- Under US GAAP, Product Warranties fall under the guidance of Contingencies per FASB Accounting Standard Codifications due to the uncertainty surrounding the claims that may be made under the warranty obligations.

- Losses from warranty obligations should be accrued when:
  - ✓ The losses are probable AND
  - ✓ The losses can be estimated reasonably

- Separately consider accounting treatment for:
  - Standard warranty claims
  - Goodwill claims
  - Recall claims

What is accrued?

- For all vehicles sold by the manufacturer through the accounting date:

  - The manufacturer has recognized the revenue
  - Deferred revenue is not booked

  - Therefore, a liability is established to cover:

    1.) Future payments related to loss events that already occurred

    - i.e., case and IBNR reserves

    2.) Future payments related to loss events that <u>did not yet occur</u>

    - differs from traditional P&C loss reserving

What is accrued?

- Differences to traditional P&C loss reserving:
  - Accrual includes liability <u>for future loss events</u>
  - No case reserves
  - No premium
    - Revenue and/or # of units sold can provide an exposure base
  - "Zero-day" claims

Liability estimation

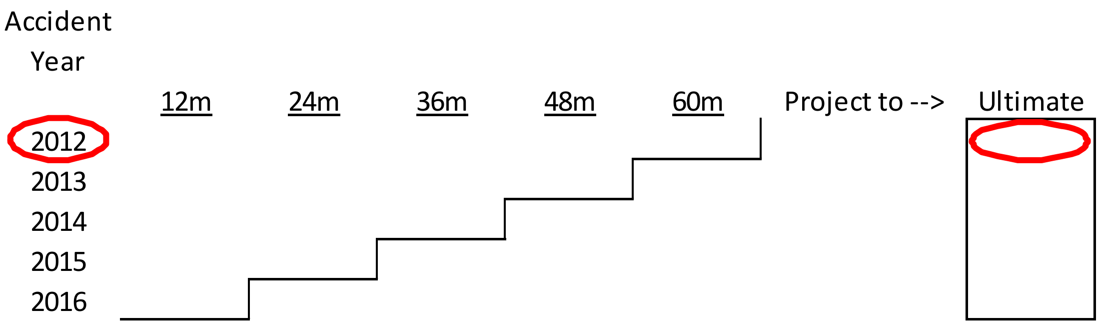
- Adequate estimation of warranty costs is critical for manufacturers to maintain profitability
  - Increases in warranty cost estimates over time – “adverse development” – can create a significant drain on earnings

- Traditional actuarial techniques generally work well
  - Paid loss development method
  - BF paid method
  - Claim count development methods
  - Frequency / Severity methods

Liability estimation

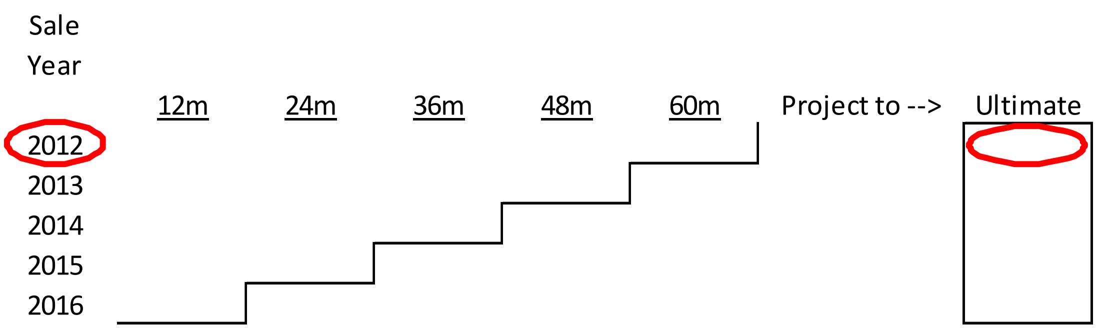
- Main difference → organization of data <u>and accruing for future loss events</u>

  - Accident Year exposure periods by Development Period



Ultimate value of loss events occurring 1/1/2012 - 12/31/2012

  - "Sale Year" exposure periods by Development Period



Ultimate value of loss events related to vehicles sold 1/1/2012 - 12/31/2012 regardless of when loss events occur

Standard warranty claims

- Aggregate data into homogeneous groups, considering:
  - Length of warranty term
    - E.g., 36 month / 36k mileage vs. 48 month / 48k mileage
  - Type of vehicle
    - E.g., model
  - Geography
    - Potential for differences → climate, regulation, customer behavior, etc.
  - Exposure Periods
    - Ideally, claims grouped by “in-service” date
    - Can use “sale date” to dealer or “manufactured date” instead
    - Can organize data differently if beneficial
      - E.g., by model year

Goodwill claims

Claims honored by the manufacturer even though they are not contractually obligated

- E.g., fulfilling claims after the warranty coverage has expired
- These are paid voluntarily at the company's discretion to:
  - Maintain "good faith" with clients and dealers
  - Protect reputation
  - Aid in marketing

- Accounting treatment differs by company
  - Some companies accrue for goodwill claims under the consideration that they have honored such claims in the past, plan to continue this practice in the future, and that such payments are probable and reasonably estimable.
  - Some companies do not accrue for goodwill claims on the basis that they do not have an <u>obligation</u> to fulfill these claims and that these claims are relatively infrequent.
  - Inclusion / exclusion of goodwill claim payment data in the ultimate loss estimation should be consistent with the company's accounting treatment.

Recall claims

Claims related to announced recalls

- Can be long-tailed
  - E.g., safety recalls related to older model year vehicles
  - Separate analysis is usually best
- Accounting treatment differs by company
  - The accounting expectation is that an accrual for recall claim payments should be established when the payments are probable and can be reasonably estimated.
  - Some companies accrue for lifetime recall costs when a vehicle is sold, which is consistent with revenue recognition.
    - E.g., Book a projected average lifetime recall cost when each vehicle is sold.
  - Some companies deem that their recall costs cannot be reasonably estimated at the point of product sale.
    - Instead, they accrue a liability at the point a recall is announced.
  - Inclusion / exclusion of recall claim payment data in the ultimate loss estimation should be consistent with the company's accounting treatment.

Other considerations

- Hindsight testing
  - Actual vs. Expected paid losses from one review to the next is useful to see if the accruals established are consistently too high or too low.
  - A comparison of ultimate losses, or ultimate loss per unit, from one review to the next should also be performed when possible.

- Data segmentation
  - Financial statement liability estimates can rely on data that is highly aggregated.
  - However, data available at the transactional level is very important to allow flexibility in aggregating the data for other purposes.
    - E.g., Quality and cost control reviews will require much more granularity than aggregate loss reserving.

Thank you