



Basic Track II

2013 CLRS

September 15-17, 2013

Boston, Massachusetts

Introduction

- Review Session I: LDM Comparisons

- Reasonability and Sensitivity of Estimates
 - Ultimate Loss Ratios
 - Emergence & Settlement Patterns
 - Tail Factor Selection

Introduction

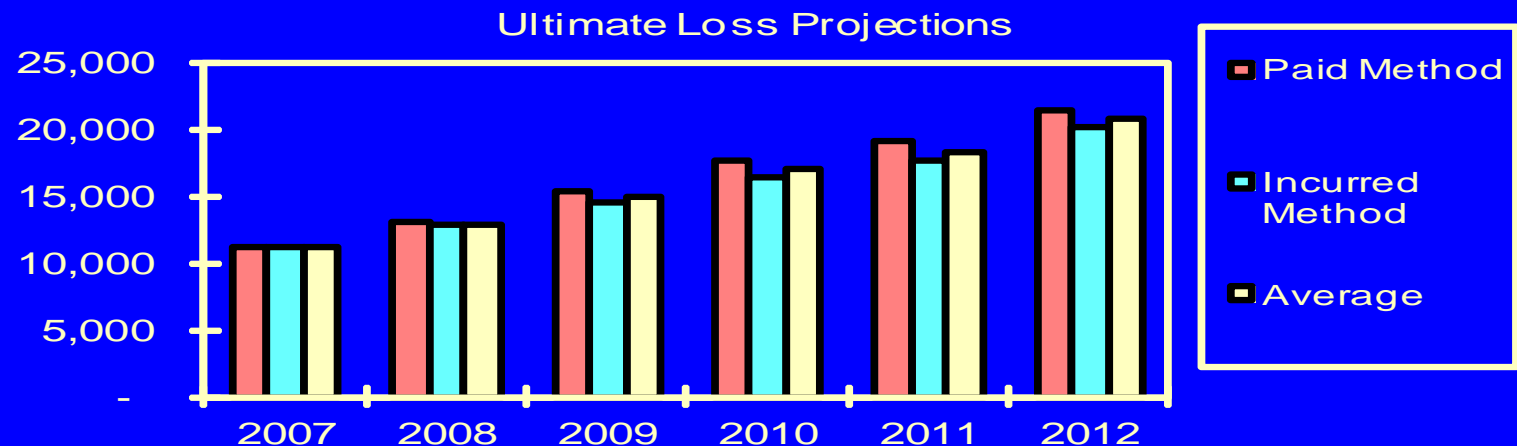
- Other Basic Methods
 - Expected Loss Ratio
 - Bornhuetter-Ferguson

- Loss Adjustment Expense Reserves

Recall LDM

Projection Differences

Accident Year	Estimated Ultimate Losses Based on:		
	Paid LDM	Incurred LDM	Average = Selected
	Paid Method	Incurred Method	Average
2007	11,244	11,250	11,247
2008	12,985	12,738	12,862
2009	15,215	14,471	14,843
2010	17,588	16,308	16,948
2011	19,109	17,539	18,324
2012	21,435	20,119	20,777
Total	97,576	92,425	95,001



Formulas to Derive IBNR Reserves

Once an estimate of ultimate loss has been obtained, the arithmetic of IBNR is straightforward.

Ultimate Losses

Minus

Paid Losses

Minus

Case Reserves

Ultimate Losses

Minus

Reported Losses

Unpaid Losses

Minus

Case Reserves

Reasonableness

- Check ultimate losses for reasonableness against relevant indicators:
 - Premium
 - Loss Ratios (LR)
 - Exposures or Number of Policies
 - Frequency
 - Pure Premium (PP)
 - Claim Counts
 - Implied Severity

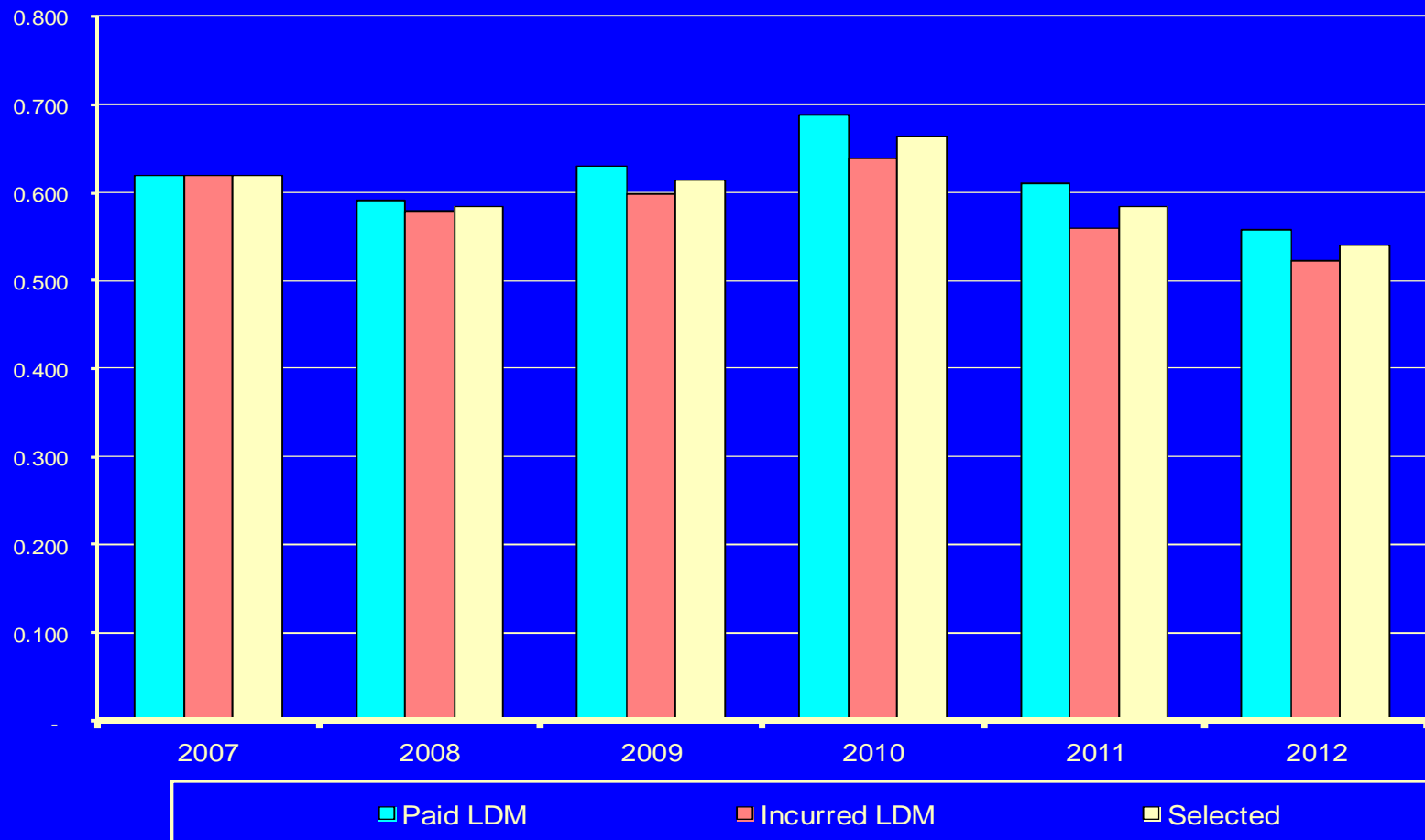
Reasonableness

- Assumptions & Methods
 - Document
 - Notes on spreadsheets
 - Written report detailing assumptions
 - Sensitivity analyses
 - Tests performed
 - Results of tests

Reasonableness Checks: Ultimate Loss Ratios

Accident Year	Earned Premium	Est. Ultimate Losses (\$000)			Indicated Loss Ratio		
		Using:			Using:		
		PLDM	ILDm	Selected	PLDM	ILDm	Selected
2007	18,168	11,244	11,250	11,247	0.619	0.619	0.619
2008	21,995	12,985	12,738	12,862	0.590	0.579	0.585
2009	24,173	15,215	14,471	14,843	0.629	0.599	0.614
2010	25,534	17,588	16,308	16,948	0.689	0.639	0.664
2011	31,341	19,109	17,539	18,324	0.610	0.560	0.585
2012	38,469	21,435	20,119	20,777	0.557	0.523	0.540
Total	159,680	97,576	92,425	95,001	0.611	0.579	0.595

Reasonableness Checks: Ultimate Loss Ratios



Sensitivity Analysis: Current Year Analysis

- Improvements in results may stem from:
 - Higher rates
 - Lower claim frequency
 - Lower claim severity
- Better results would *appear* to be present if:
 - Claims were being processed or paid more slowly
 - Case reserves were less adequate
 - Mix of business is different

Sensitivity Analysis: Ratios

- Review historical relationships
 - Losses
 - Paid losses to reported losses
 - Claim counts
 - Settlement
 - Ratio of claims closed with no payment to total closed claims
 - Losses and Claim Counts
 - Severities or average values

Sensitivity Analysis: Ratios - Paid to Reported

Cumulative Paid Losses (\$000 Omitted)				Cumulative Case Reported Losses (\$000 Omitted)			
Accident Year	Development Stage in Months			Accident Year	Development Stage in Months		
	12	24	36		12	24	36
2007	3,780	6,671	8,156	2007	9,337	10,847	11,092
2008	4,212	7,541		2008	10,540	12,205	
2009	4,901			2009	11,875		

Accident Year	Ratio Paid to Case Reported Development Stage in Months		
	12	24	36
2007	+3,780 / 9,337	+6,671 / 10,847	
2008	+4,212 / 10,540		
2009			

Sensitivity Analysis: Ratios - Paid to Reported

Cumulative Paid Losses (\$000 Omitted)				Cumulative Case Reported Losses (\$000 Omitted)			
Accident Year	Development Stage in Months			Accident Year	Development Stage in Months		
	12	24	36		12	24	36
2007	3,780	6,671	8,156	2007	9,337	10,847	11,092
2008	4,212	7,541		2008	10,540	12,205	
2009	4,901			2009	11,875		

Accident Year	Ratio Paid to Case Reported Development Stage in Months		
	12	24	36
2007	0.405	0.615	0.735
2008	0.400	0.618	
2009	0.413		

Sensitivity Analysis: Ratios - Paid to Reported

Accident Year	Ratio Paid to Case Reported Development Stage in Months					
	12	24	36	48	60	72
2007	0.405	0.615	0.735	0.822	0.889	0.934
2008	0.400	0.618	0.745	0.838	0.907	
2009	0.413	0.641	0.772	0.864		
2010	0.428	0.661	0.790			
2011	0.421	0.666				
2012	0.420					

Sensitivity Analysis: Ratios - Average Reported

Accident Year	Average Reported Loss					
	Development Stage in Months					
	12	24	36	48	60	72
2007	6,539	3,913	3,892	3,905	3,915	3,895
2008	6,164	4,025	4,067	4,101	4,092	
2009	8,744	4,976	4,762	4,804		
2010	8,836	6,005	6,049			
2011	9,724	6,442				
2012	10,325					

Tail Factors: Impact of Selection

Accident Year	Reported Losses @ 12/31/12	Selected LDF's		Estimated Ultimate Losses	Earned Premium	Revised Loss Ratio	Unpaid Losses @ 12/31/12
		LDF	Age to Ult.				
2007	11,250	1.000	1.000	11,250	18,168	61.9%	742
2008	12,725	1.001	1.001	12,738	21,995	57.9%	1,202
2009	14,413	1.003	1.004	14,471	24,173	59.9%	2,013
2010	16,066	1.011	1.015	16,308	25,534	63.9%	3,609
2011	16,776	1.030	1.045	17,539	31,341	56.0%	6,367
2012	16,561	1.162	1.215	20,119	38,469	52.3%	13,157
Total	87,791			92,425	159,680	57.9%	27,090

Tail Factors: Impact of Selection

17

Effect on Estimates Given a 2% Increase in Reported Losses Tail Factor

Accident Year	Reported Losses @ 12/31/12	Selected LDF's		Estimated Ultimate Losses	Earned Premium	Revised Loss Ratio	Unpaid Losses @ 12/31/12
		LDF	Age to Ult.				
2007	11,250	1.020	1.020	11,475	18,168	63.2%	967
2008	12,725	1.001	1.021	12,992	21,995	59.1%	1,456
2009	14,413	1.003	1.024	14,759	24,173	61.1%	2,301
2010	16,066	1.011	1.035	16,628	25,534	65.1%	3,929
2011	16,776	1.030	1.066	17,883	31,341	57.1%	6,711
2012	16,561	1.162	1.239	20,519	38,469	53.3%	13,557
Total	87,791			94,256	159,680	59.0%	28,921

Estimated Unpaid Losses Based on Original ILDM (Without the 2% Tail Factor Increase)	27,090
---	--------

Increase in Estimated Unpaid Losses Due to Increased Tail Factor	6.8%
--	------

Selection of Tail Factors

- Ultimate losses increase by
 - \$1.8 million
 - 2.0% increase in ultimate losses
- Loss reserves also increase by
 - \$1.8 million
 - 6.8% increase in overall reserve levels!
- IBNR reserves also increase by
 - \$1.8 million
 - 40.0% increase in overall IBNR levels!!!!
- Biggest impacts are in the most recent year.

Other Basic Methods

- Expected Loss
 - Estimating the ultimate
- Bornhuetter-Ferguson
 - Estimating the reserve
- ⋮
- Many, many others available

EXPECTED LOSS RATIO METHOD

EXPECTED LOSS RATIO (ELR).

The anticipated ratio of projected ultimate losses to earned premiums.

Sources:

- Pricing assumptions
- Historical data such as Schedule P
- Industry data

EXPECTED LOSS RATIO METHOD

	Percent of Premium
Commissions	20.0%
Taxes	5.0%
General Expenses	15.0%
Profit	-2.0%
Total	38.0%
Expected Loss Ratio	62.0%
(Available for Loss and Loss Adjustment Expense)	

EXPECTED LOSS RATIO METHOD

Schedule P - Part 1B

Private Passenger Auto Liability/Medical

Years Premiums Earned and Losses Incurred		Loss and Loss Expense Percentage (Incurred/Premiums Earned)		
		Direct and Assumed	Ceded	Net
1.	Prior	XXXX	XXXX	XXXX
2.	2003	73.1%	73.8%	72.4%
3.	2004	66.6%	65.9%	67.3%
4.	2005	70.3%	68.9%	71.7%
5.	2006	69.0%	70.6%	67.4%
6.	2007	74.1%	75.0%	73.2%
7.	2008	80.2%	83.3%	77.1%
8.	2009	60.5%	59.1%	61.9%
9.	2010	62.6%	61.3%	63.9%
10.	2011	66.7%	68.0%	65.4%
11.	2012	67.0%	68.3%	65.7%
3 year average				65.0%
5 year average				66.8%

EXPECTED LOSS RATIO METHOD

- Estimating Reserves Based on ELR
 - $\text{Earned Premium} \times \text{ELR} = \text{Expected Ultimate Losses}$
 - $\text{Ultimate Losses} - \text{Paid Losses} = \text{Total Reserve}$
 - $\text{Total Reserve} - \text{Case Reserve} = \text{IBNR Reserve}$

EXPECTED LOSS RATIO METHOD

Estimating Reserves Based on ELR

Earned Premium	=	\$ 100,000
Expected Loss Ratio	=	0.65
Paid Losses	=	\$ 10,000
Case Reserves	=	\$ 13,000
Total Reserve	=	$(\$100,000 \times 0.65) - \$10,000$
	=	$\$65,000 - \$10,000$
	=	$\$55,000$
IBNR Reserve	=	$\$55,000 - \$13,000$
	=	$\$42,000$

EXPECTED LOSS RATIO METHOD

Estimating Reserves Based on ELR

Use when you have no history such as:

- New product lines

- Radical changes in product lines

- Immature accident years for long tailed lines

Can generate negative reserves or negative IBNR if

Ultimate Losses < Incurred Losses; wrong unless recoveries such as salvage/subrogation are typical after payment made

BORNHUETTER-FERGUSON²⁶ METHOD

Reserves Based on ELR and Actual Loss

$$(EP \times ELR) \times (\text{IBNR Factor}) = (\text{IBNR Reserves})$$

$$\text{Where IBNR Factor} = (1.000 - 1.000/\text{CDF})$$

$$\text{Actual} + \text{IBNR Reserve} = \text{Ultimate Losses}$$

$$\text{Case Reserve} + \text{IBNR Reserve} = \text{Total Reserve}$$

The IBNR Factor is the percent of expected losses unreported.

BORNHUETTER-FERGUSON METHOD

Accident Year	Evaluation Interval in Months		
	12-24	24-36	36-48
2007	1.162	1.023	1.009
2008	1.158	1.028	1.011
2009	1.165	1.029	1.012
2010	1.165	1.034	
2011	1.159		
2012			
Selected LDF	1.162	1.030	1.011
Cumulative LDF	1.215	1.045	1.015

IBNR Factor = $1.000 - 1.000/\text{Cumulative Loss Development Factor}$

$$+1.000 - 1.000/1.215$$

$$+1.000 - 1.000/1.015$$

IBNR Factor

0.177

0.044

0.015

BORNHUETTER-FERGUSON METHOD

Accident Year	Evaluation Interval in Months					
	12-24	24-36	36-48	48-60	60-72	72 to Ultimate
2007	1.162	1.023	1.009	1.004	1.001	???
2008	1.158	1.028	1.011	1.003		
2009	1.165	1.029	1.012			
2010	1.165	1.034				
2011	1.159					
2012						
Average - All Years	1.162	1.029	1.011	1.004	1.001	
Average - Latest 3 Years	1.163	1.030	1.011	XXX	XXX	
Average - Excl Hi & Lo	1.162	1.029	1.011	XXX	XXX	
Wt Average - All Years	1.162	1.029	1.011	1.003	1.001	
Selected LDF	1.162	1.030	1.011	1.003	1.001	1.000
Cumulative LDF	1.215	1.045	1.015	1.004	1.001	1.000

IBNR Factor = $1.000 - 1.000/\text{Cumulative Loss Development Factor}$

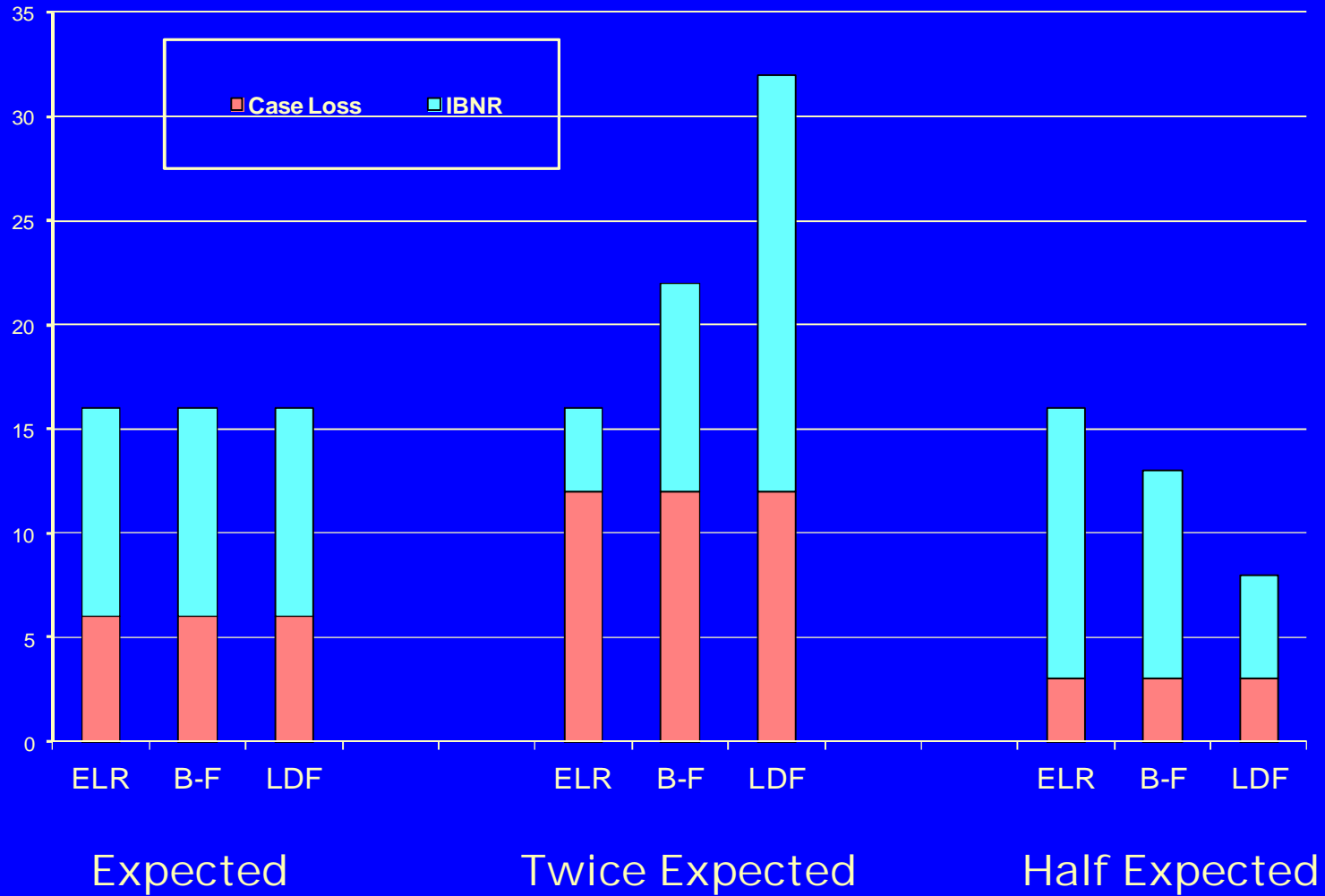
IBNR Factor	0.177	0.044	0.015	0.004	0.001	-
-------------	-------	-------	-------	-------	-------	---

BORNHUETTER-FERGUSON METHOD

29

Accident Year	Earned Premium	Assumed Expected Loss Ratio	Assumed Expected Losses	IBNR Factor	Estimated IBNR	Cumulative Incurred Losses	Estimated Ultimate Losses
(1)	(2)	(3)	(4) (2) x (3)	(5)	(6) (4) x (5)	(7)	(8) (6) + (7)
2007	18,168	62.0%	11,264.16	-	-	11,250	11,250
2008	21,995	62.0%	13,636.90	0.001	14	12,725	12,739
2009	24,173	62.0%	14,987.26	0.004	60	14,413	14,473
2010	25,534	62.0%	15,831.08	0.015	235	16,066	16,301
2011	31,341	62.0%	19,431.42	0.044	846	16,776	17,622
2012	38,469	62.0%	23,850.78	0.177	4,218	16,561	20,779
Total	159,680		99,001.60		5,372	87,791	93,163

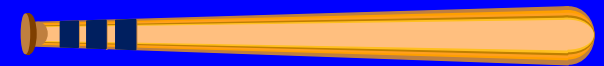
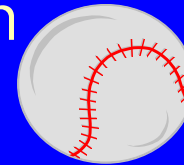
Comparison of Methods



B-F Baseball Forecasting

Given the following, how many home runs will Adam Dunn hit this year?

He has hit 20 home runs through 40 games
There are 160 games in a season



Information is needed to perform
a Bornhuetter-Ferguson (B-F) projection:

Expected Ultimate Value

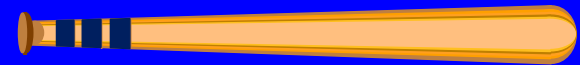
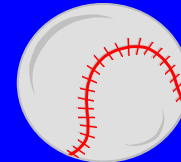
Factor to Project to Actual Data to Ultimate

Actual Data To Date

B-F Baseball Forecasting

Information for our example : Career average
Before the season started, how many home runs would we expect Adam Dunn to hit?

Expected Ultimate Value = 40



To project season total from current statistics,
multiply the current statistics by 4 since the season is
1/4 completed.

Projection Factor = 4.000

He has already hit 20 home runs.

Actual Hits To Date = 20

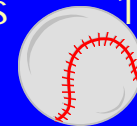
B-F Baseball Forecasting

B-F Projection: Ultimate Value =
 (Expected Value * IBNR Factor) + (Inc. to Date)

- IBNR Factor = $1.000 - (1.000/LDF) = 1.000 - (1.000/4.000) = .75$
 (In Other Words, 75% of the season is left to be played)
- Ultimate Value = $(40 * .75) + 20 = 50$

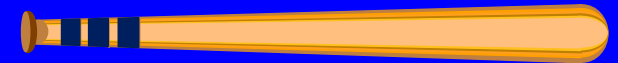
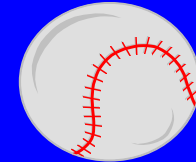
The B-F Method projects that Adam Dunn will hit 50 home runs this year.

<u>Games 0-40</u>	<u>Games 41-80</u>	<u>Games 81-120</u>	<u>Games 121-160</u>
20 Home Runs	10 Home Runs	10 Home Runs	10 Home Runs



B-F Baseball Forecasting

Comparison of B-F with Two Other Methods



Incurred Loss Development Method

$$\begin{aligned} \text{Ultimate Value} &= \text{Incurred To Date} * \text{Cumulative LDF} \\ &= 20 * 4.000 = 80 \text{ Home Runs} \end{aligned}$$

Games 0-40	Games 41-80	Games 81-120	Games 121-160
20 Home Runs	20 Home Runs	20 Home Runs	20 Home Runs

Expected Loss Ratio Method

$$\text{Ultimate Value} = \text{Expected Value} = 40 \text{ Home Runs}$$

Games 0-40	Games 41-80	Games 81-120	Games 121-160
10 Home Runs	10 Home Runs	10 Home Runs	10 Home Runs

Note: 40 Home Runs previously expected – 20 so far early in the season. Unless Adam Dunn is expected to slump, this method seems inappropriate.

BORNHUETTER- FERGUSON METHOD

ASSUMPTIONS

Premium is an accurate measure of exposure

Expected loss ratio is predictable

Constant reporting, case reserving and settling

SAMPLE PROBLEMS

Pricing Inconsistency

Instability in accident year loss ratios

Introduction of new claim systems

Backlog in processing

BORNHUETTER- FERGUSON METHOD

ADVANTAGES

- Compromise between loss development and expected loss ratio methods
- Avoids overreaction to unexpected incurred losses to date
- Suitable for new or volatile line of business
- Can be used with no internal loss history
- Easy to use

DISADVANTAGES

- Assumes that case development is unrelated to reported losses
- Relies on accuracy of expected loss ratio
- Less responsive to losses incurred to date
- Relies on accuracy of earned premium

LOSS ADJUSTMENT EXPENSES (LAE)

- Loss adjustment expenses are reported as either
Defense & Cost Containment (DCC) expenses
or
Adjusting & Other (AO) expenses

LOSS ADJUSTMENT EXPENSES (LAE)

- Some companies continue to use the pre 1998 terminology based upon whether or not an expense could be assigned to a specific claim:
 - ALAE – Allocated loss adjustment expense
 - ULAE – Unallocated loss adjustment expense
- For some companies the definition change has had little impact.
 - DCC is nearly equal to allocated expense.
 - AO is nearly equal to unallocated expense.

LOSS ADJUSTMENT EXPENSES (LAE)

DEFENSE AND COST CONTAINMENT EXPENSE (DCC)

- Internal or external expenses relating to the following:
 - Defense
 - Litigation
 - Medical Cost Containment

LOSS ADJUSTMENT EXPENSES (LAE)

ADJUSTING AND OTHER EXPENSE (AO)

- Expenses including but not limited to the following :
 - Fees of adjusters and settling agents
 - Attorney fees incurred in the determination of coverage, including litigation between insurer and policyholder
 - Fees or salaries for appraisers, private investigators, hearing representatives, inspectors and fraud investigators

LAE RESERVING METHODS

1. Paid LAE (DCC or AO) Development
2. Cumulative Paid LAE (DCC or AO) to Cumulative Paid Losses Ratio Development
3. "50/50 Rule" (typically only used for AO or a subset of AO)

PAID LAE DEVELOPMENT METHOD

Cumulative Paid DCC (\$ 000)
EZ INSURANCE COMPANY AUTO LIABILITY

Accident Year	DEVELOPMENT STAGE IN MONTHS						
	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>
2006	71	166	286	416	527	611	677
2007	83	189	313	458	584	672	
2008	93	213	361	523	657		
2009	103	226	394	581			
2010	108	245	437				
2011	128	280					
2012	132						

Accident Year	PAID DCC DEVELOPMENT FACTORS						
	<u>12-24</u>	<u>24-36</u>	<u>36-48</u>	<u>48-60</u>	<u>60-72</u>	<u>72-84</u>	<u>84-Ult</u>
2006	2.338	1.723	1.455	1.267	1.159	1.108	
2007	2.277	1.656	1.463	1.275	1.151		
2008	2.290	1.695	1.449	1.256			
2009	2.194	1.743	1.475				
2010	2.269	1.784					
2011	2.188						

Average	2.259	1.720	1.460	1.266	1.155	1.108	
4 point average	2.235	1.719	1.460				
Avg. excl. high/low	2.258	1.720	1.459				
Vol. wght. average	2.251	1.724	1.461	1.266	1.155	1.108	

PAID LAE DEVELOPMENT METHOD

DCC Reserves Based on Paid DCC Development

EZ INSURANCE COMPANY AUTO LIABILITY (\$ 000s)

Accident <u>Year</u>	<u>DCC Paid</u> <u>to Date</u>	<u>Selected</u> <u>Factor</u>	<u>estimated</u> <u>Ultimate</u>	Unpaid <u>DCC</u>
(1)	(2)	(3)	(4)	(5)
	slide 42	slide 42	(2) x (3)	(4) - (2)
2006	677	1.108	750	73
2007	672	1.228	825	153
2008	657	1.418	931	274
2009	581	1.794	1,042	461
2010	437	2.621	1,145	708
2011	280	4.518	1,265	985
2012	<u>132</u>	<u>10.170</u>	<u>1,342</u>	<u>1,210</u>
Total	3,436		7,302	3,866

PAID LAE DEVELOPMENT METHOD

DCC Reserves Based on Paid DCC Development

ADVANTAGES

Similar to paid losses

Easy & straightforward

May work well for older accident years

DISADVANTAGES

Ignores relationship to losses

Heavily influenced by amount of highly volatile initial payments

LAE RATIO DEVELOPMENT METHOD

Cumulative Paid DCC to Cumulative Paid Losses

(\$ 000s)

EZINSURANCE COMPANY AUTO LIABILITY

Accident	CUMULATIVE PAID DCC						
Year	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>
2006	71	166	286	416	527	611	677
2007	83	189	313	458	584	672	
2008	93	213	361	523	657		
2009	103	226	394	581			
2010	108	245	437				
2011	128	280					
2012	132						

Accident	CUMULATIVE PAID LOSS						
Year	<u>12</u>	<u>24</u>	<u>36</u>	<u>48</u>	<u>60</u>	<u>72</u>	<u>84</u>
2006	3,361	5,991	7,341	8,259	8,916	9,408	9,759
2007	3,780	6,671	8,156	9,205	9,990	10,508	
2008	4,212	7,541	9,351	10,639	11,536		
2009	4,901	8,864	10,987	12,458			
2010	5,708	10,268	12,699				
2011	6,093	11,172					
2012	6,962						

LAE RATIO DEVELOPMENT METHOD

Cumulative Paid DCC to Cumulative Paid Losses

EZ INSURANCE COMPANY AUTO LIABILITY

Accident Year	12	24	36	48	60	72	84
2006	0.021	0.028	0.039	0.050	0.059	0.065	0.069
2007	0.022	0.028	0.038	0.050	0.058	0.064	
2008	0.022	0.028	0.039	0.049	0.057		
2009	0.021	0.025	0.036	0.047			
2010	0.019	0.024	0.034				
2011	0.021	0.025					
2012	0.019						

0.025 = 280 Paid DCC / 11,172 Paid Loss

LAE RATIO DEVELOPMENT METHOD

Cumulative Paid DCC to Cumulative Paid Losses Ratio Development EZ INSURANCE COMPANY AUTO LIABILITY

Accident Year	PAID TO PAID DEVELOPMENT I						
	<u>12-24</u>	<u>24-36</u>	<u>36-48</u>	<u>48-60</u>	<u>60-72</u>	<u>72-84</u>	<u>84-Ult</u>
2006	1.312	1.406	1.293	1.173	1.099	1.068	
2007	1.290	1.355	1.297	1.175	1.094		
2008	1.279	1.367	1.273	1.159			
2009	1.213	1.406	1.301				
2010	1.261	1.442					
2011	1.193						
Average	1.258	1.395	1.291	1.169	1.096	1.068	
4 point avg.	1.237	1.393	1.291				
Avg. excl. high/low	1.261	1.393	1.295				
SELECTED LDFs	1.237	1.393	1.291	1.169	1.096	1.068	1.068
CUMULATIVE LDFs	3.252	2.629	1.887	1.462	1.251	1.141	1.068

LAE RATIO DEVELOPMENT METHOD

DCC Reserves Based on Cumulative Paid DCC to Cumulative Paid Loss Development EZ INSURANCE COMPANY AUTO LIABILITY (\$000s)

Accident <u>Year</u> (1)	Ratio <u>to Date</u> (2) slide 46	Devel. <u>Factor</u> (3) slide 47	Developed <u>Paid/Paid</u> <u>Ratio</u> (4) (2) x (3)	Ultimate <u>Losses</u> (5)	Ultimate <u>DCC</u> (6) (4) x (5)	Paid <u>DCC</u> <u>to Date</u> (7) slide 45	Indicated <u>DCC</u> <u>Reserves</u> (8) (6) - (7)
2006	0.069	1.068	0.074	10,292	762	677	85
2007	0.064	1.141	0.073	11,261	822	672	150
2008	0.057	1.251	0.071	12,751	905	657	248
2009	0.047	1.462	0.068	14,500	986	581	405
2010	0.034	1.887	0.065	16,326	1,061	437	624
2011	0.025	2.629	0.066	17,641	1,164	280	884
2012	0.019	3.252	0.062	<u>20,716</u>	<u>1,284</u>	<u>132</u>	<u>1,152</u>
Total				103,487	6,985	3,436	3,549

LAE RATIO DEVELOPMENT METHOD

Cumulative Paid LAE to Cumulative Paid Loss Ratio Development Method

ADVANTAGES

Recognizes relationship of LAE to losses.

Straightforward methodology; predictable.

Provides tool for monitoring relationship of LAE to losses.

DISADVANTAGES

Over or under estimation of losses reflected in LAE estimates.

More complex than paid LAE development.

Heavily influenced by volatile initial ratios of LAE to loss.

Significant LAE can be spent to close claims without payment.

Changes in legal defense strategies may distort.

AO RESERVING METHOD

ULAE

Need to reserve for LAE that cannot be associated with individual claims

THE “50/50” Rule

Assumes 50% of expense is paid when the claim is opened and 50% is paid when the claim is closed.

AO RESERVING METHOD

The “50/50” Rule

- 3 year average of the ratio of calendar year paid expense to paid losses.
- 50% of the ratio applied to known case loss reserves.
- 100% of the ratio applied to IBNR reserves.
- It may be necessary to separate the “broad” IBNR reserve into development on known case reserves and “pure” IBNR.

AO RESERVING METHOD

Consideration in Selecting Ratio of Calendar Year Paid AO to Paid Losses

Average over 3 years may not produce appropriate factor:

- AO payments may not completely correlate to the years' loss payments

May need to judgmentally select factor based on:

- Steadily increasing or decreasing factors
- Changes in expense allocation procedures

AO RESERVING METHOD

Example of "50/50" Rule

EZ Insurance Co. - Auto Liability
(\$ 000s)

<u>Calendar Year</u> (1)	<u>Paid AO</u> (2)	<u>Paid Losses</u> (3)	<u>Ratio</u> (4) = (2) / (3)
2010	1,038	14,107	0.074
2011	1,244	15,906	0.078
<u>2012</u>	<u>1,459</u>	<u>17,709</u>	<u>0.082</u>
Total	3,741	47,722	0.078

AO RESERVING METHOD

Example of "50/50" Rule

Ratio of Paid AO to Paid Losses 0.078

50% of Ratio 0.039

Known Case Loss Reserves 22,989

IBNR Reserve 5,296

AO Reserve

$$= (0.039 \times 22,989) + (0.078 \times 5,296)$$

$$= 897 + 413$$

$$= 1,310$$

AO RESERVING METHOD

Assumptions in Applying "50/50" Rule

- Age of claim does not affect the ratio of paid AO to Losses
- AO and Losses are paid at the same rate
- These assumptions should be reviewed for each situation where the "50/50" rule is used

LAE RESERVING METHODS

Total LAE Reserve may be the sum of estimates from different methods

- May use paid development and/or paid to paid development to select reserve estimate for expenses assigned to specific claims where development triangles are available and then add the reserve estimate using the 50/50 rule for expenses not assigned to specific claims.

Session II Review

- Review Session I: LDM Comparisons
- Reasonability and Sensitivity of Estimates
 - Ultimate Loss Ratios
 - Emergence & Settlement Patterns
 - Tail Factor Selection
- Other Basic Methods
 - Expected Loss Ratio
 - Bornhuetter-Ferguson

Looking Ahead

- Schedule P
- Examples - You set the reserve!



Basic Track II

2013 CLRS

September 15-17, 2013

Boston, Massachusetts