

Reading: Friedland 09 (Bornhuetter-Ferguson Method)
Model: BF Method
Problem Type: Reserving Methods - Simple Example of BF

F-09 (010) BF (Problem 1)

Find Calculate the **unpaid** for AY **2024** using the Bornhuetter-Ferguson method.

Given All data is as of Dec 31, 2025

EP for CY	2024	600
ECR for AY	2024	70%
EP for CY	2025	1,800
ECR for AY	2025	86%

paid loss @ 12 mths	220
reported loss @ 12 mths	420
reported CDF for 12-ult	1.80
paid loss @ 24 mths	320
reported loss @ 24 mths	630
reported CDF for 24-ult	1.40

Step 1	ECR ultimate	=	ECR	x	EP
		=	70%	x	600
		=	<u>420</u>		

Step 2a The CDF we need is: 1.40 *(reported CDF for 24 mths)*

Step 2b	reported BF ultimate					
	=	rptd loss @ 24 mths	+	(1 - 1/CDF)	x	ECR ultimate
	=	630	+	0.2857	x	420
	=	<u>750</u>				

Final Answer	unpaid	for AY	2024	=	<u>430</u>
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Recall:

unpaid	=	ultimate	-	paid
IBNR	=	ultimate	-	reported

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F-09 (010) BF (Problem 2)

Find Calculate the ultimate for AY 2025 using the Bornhuetter-Ferguson method.

Given All data is as of Dec 31, 2025

EP for CY	2024	1,900
ECR for AY	2024	64%
EP for CY	2025	1,400
ECR for AY	2025	67%

paid loss @ 12 mths	770
reported loss @ 12 mths	1,290
reported CDF for 12-ult	1.10
paid loss @ 24 mths	1,810
reported loss @ 24 mths	2,260
reported CDF for 24-ult	1.00

Step 1	ECR ultimate	=	ECR	x	EP
		=	67%	x	1,400
		=	<u>938</u>		

Step 2a The CDF we need is: 1.10 *(reported CDF for 12-ult)*

Step 2b	reported BF ultimate					
	=	rptd loss @ 12 mths	+	(1 - 1/CDF)	x	ECR ultimate
	=	1,290	+	0.0909	x	938
	=	<u>1,375</u>				

Final Answer	ultimate for AY 2025	=	<u>1,375</u>
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Recall:

unpaid	=	ultimate	-	paid
IBNR	=	ultimate	-	reported

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F-09 (010) BF (Problem 3)

Find Calculate the IBNR for AY 2024 using the Bornhuetter-Ferguson method.

Given All data is as of Dec 31, 2025

EP for CY	2024	1,100
ECR for AY	2024	83%
EP for CY	2025	1,300
ECR for AY	2025	81%

paid loss @ 12 mths	530
reported loss @ 12 mths	990
paid CDF for 12-ult	1.30
paid loss @ 24 mths	1,080
reported loss @ 24 mths	1,660
paid CDF for 24-ult	1.00

Step 1	ECR ultimate	=	ECR	x	EP
		=	83%	x	1,100
		=	<u>913</u>		

Step 2a	The CDF we need is:	1.00	(paid CDF for 24 mths)
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Step 2b	paid BF ultimate	=	paid loss @ 24 mths	+	(1 - 1/CDF)	x	ECR ultimate
		=	1,080	+	0.0000	x	913
		=	<u>1,080</u>				

Final Answer	IBNR for AY 2024	=	-580
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Recall:

unpaid	=	ultimate	-	paid
IBNR	=	ultimate	-	reported

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F-09 (010) BF (Problem 4)

Find Calculate the **unpaid** for AY **2025** using the Bornhuetter-Ferguson method.

Given All data is as of Dec 31, 2025

EP for CY	2024	700
ECR for AY	2024	88%
EP for CY	2025	700
ECR for AY	2025	86%

paid loss @ 12 mths	430
reported loss @ 12 mths	650
paid CDF for 12-ult	3.00
paid loss @ 24 mths	760
reported loss @ 24 mths	1,140
paid CDF for 24-ult	2.60

Step 1	ECR ultimate	=	ECR	x	EP
		=	86%	x	700
		=	<u>602</u>		

Step 2a	The CDF we need is:	3.00	(paid CDF for 12-ult)
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Step 2b	paid BF ultimate					
	=	paid loss @ 12 mths	+	(1 - 1/CDF)	x	ECR ultimate
	=	430	+	0.6667	x	602
	=	<u>831</u>				

Final Answer	unpaid for AY 2025	=	<u>401</u>
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Recall:

unpaid	=	ultimate	-	paid
IBNR	=	ultimate	-	reported