

# Biro zelene karte u Bosni i Hercegovini

## Analiza AO

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# Dnevni red – Analiza programa AO

1. Indeksacija historijskih šteta
2. Izračunati obrazac razvoja odvojeno za
  - 2.1 nastale i
  - 2.2 plaćene štete
3. Izabrati jačinu i broj distribucije zahtjeva
4. Tehnička ponuda
5. Sažetak

# Dobijeni podaci

- Štete
  - Podijeljene na plaćene i u rezervaciji
  - Uklj. istek za godine događaja 1998. – 2007. (na 31. juli)
- Broj polica / Premijski prihod:

Godina	Broj polica	Premijski prihod (EUR)
1998	504,609	57,949,821
1999	601,414	72,424,494
2000	653,017	79,144,385
2001	646,327	78,099,834
2002	672,760	82,225,960
2003	683,064	79,144,716
2004	686,258	82,832,078
2005	700,084	92,687,094
2006	748,860	96,747,805
2007 (Procjena)	775,428	101,643,566
2008 (Procjena)	816,389	107,358,801

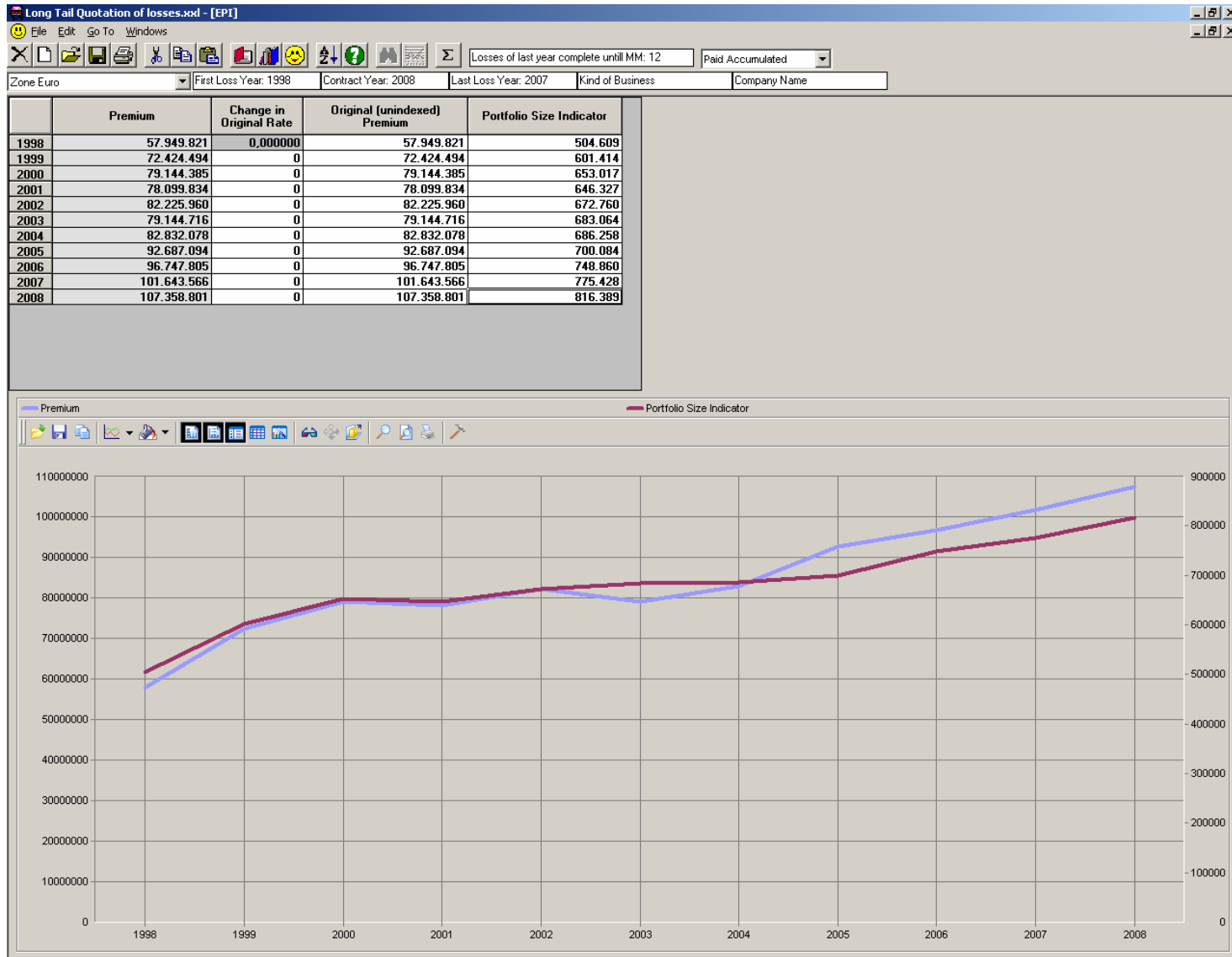
# Korišteni indeks

- Indeks plata:

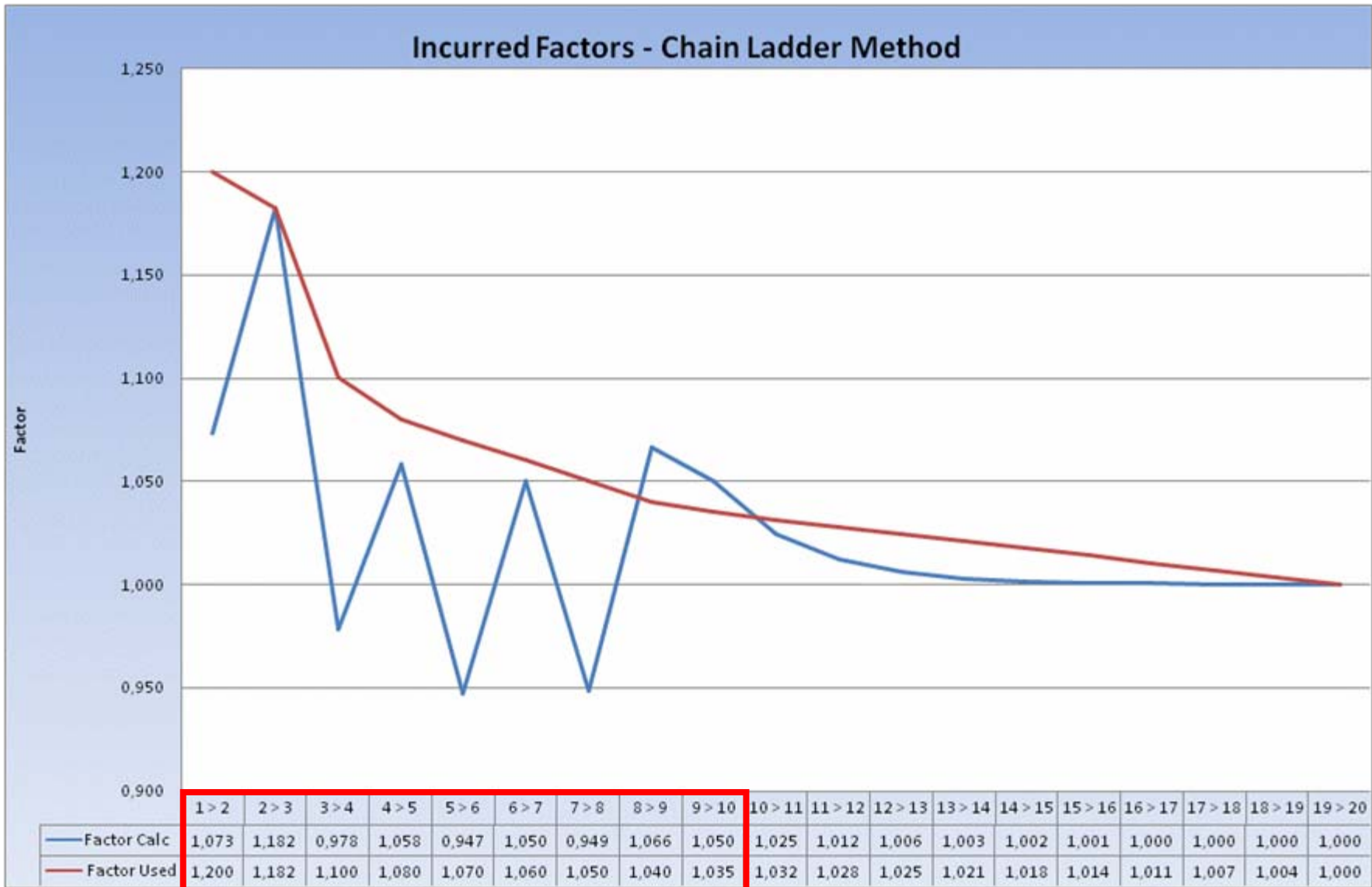
Godina	Indeks plata EUR područje
1998	100.0
1999	101.3
2000	105.0
2001	109.3
2002	113.1
2003	116.4
2004	119.1
2005	122.1
2006	125.3
2007	128.5
2008	131.8

\*) Izvor: Međunarodni monetarni fond

# Dobijeni podaci



# Analiza isteka



# Analiza isteka

- Faktori za plaćeno: Metod lančane ljestvice kao procenat zadnje poznate rezervacije

Plaćeno	God 2	God 3	God 4	God 5	God 6	God 7	God 8	God 9
1998 - 2007	27.28	26.87	44.70	20.21	6.41	36.21	10.41	3.29

# Analiza isteka

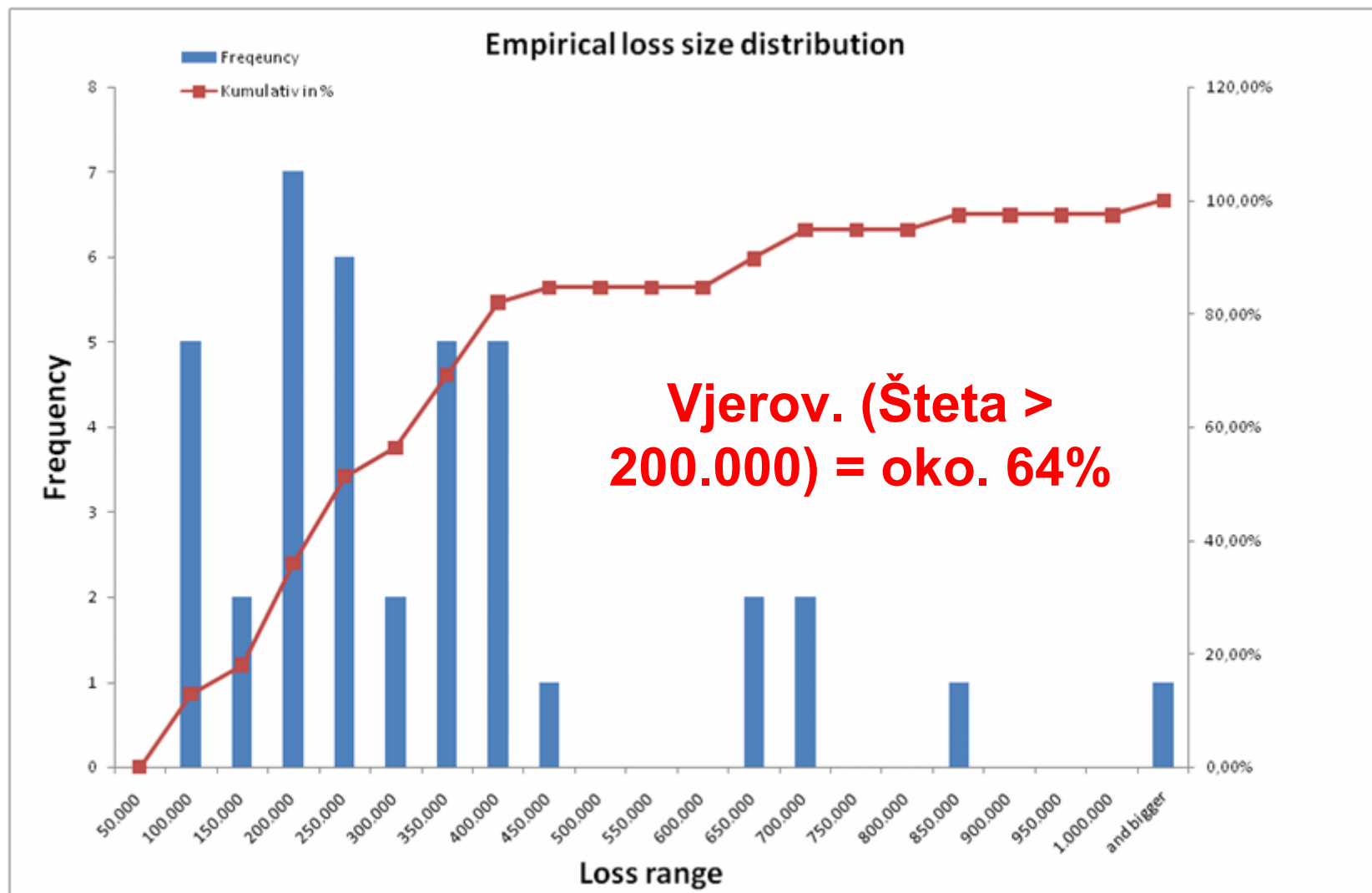
- Najveće štete ( $\geq 200.000$ ) po 2007. i uključujući istek:

God dog	Nastale po 2007	Nastale sa prognozom
1998	270,013	315,530
1998	204,604	239,095
1999	308,128	308,128
1999	275,394	275,394
1999	238,785	238,785
2000	813,909	1,023,776
2000	500,685	629,787
2000	290,232	365,068
2001	500,000	660,372
2001	301,403	398,076
2002	253,819	355,343
2002	318,867	318,867
2002	164,866	230,811
2003	684,544	684,544
2003	290,567	290,567
2003	222,764	222,764
2004	814,324	814,324
2004	148,417	240,112
2005	216,992	386,161
2005	213,347	379,674
2006	300,000	631,241
2006	200,000	420,827
2006	161,503	339,825
2006	150,000	315,620
2006	108,905	229,151

Prosječno povećanje šteta po isteku oko 30%.



# Analiza isteka



# Tehnička ponuda – čisti BC (FIC10)

Long Tail Quotation of losses.xml - [Layering and Burning Cost Calculation]

File Edit Go To Windows

**EPI = 107.358.801**

Zone Euro First Loss Year: 1998 Contract Year: 2008 Last Loss Year: ZUU/ Kind of Business Company Name

Layer Definition		Limit (Claims From)	Deductible (Claims To)	AAD	Annual Limit	Index Clause
1st Layer	XoL	800.000	200.000	0	0	Cont/Lim:FIC10/Ded:FI
2nd Layer	XoL	4.000.000	1.000.000	0	0	Cont/Lim:FIC10/Ded:FI
3rd Layer	XoL	9.999.999.999	5.000.000	0	0	Cont/Lim:FIC10/Ded:FI
4th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI
5th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI
6th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI

**Calculate**

Use Claims from 1998 to 2007

	# of RI's	RI# 1	RI# 2	RI# 3	RI# 4
1st Layer	6	0,00	0,00	0,00	0,00
2nd Layer	2	0,00	0,00		
3rd Layer	oo free				
4th Layer	oo free				
5th Layer	oo free				
6th Layer	oo free				

Loadings	in %
Cost	0,00
Profit	0,00
Add. Costs	0,00
Brokerage	0,00
M + D Premium	100,00

Installments + Payment Pattern

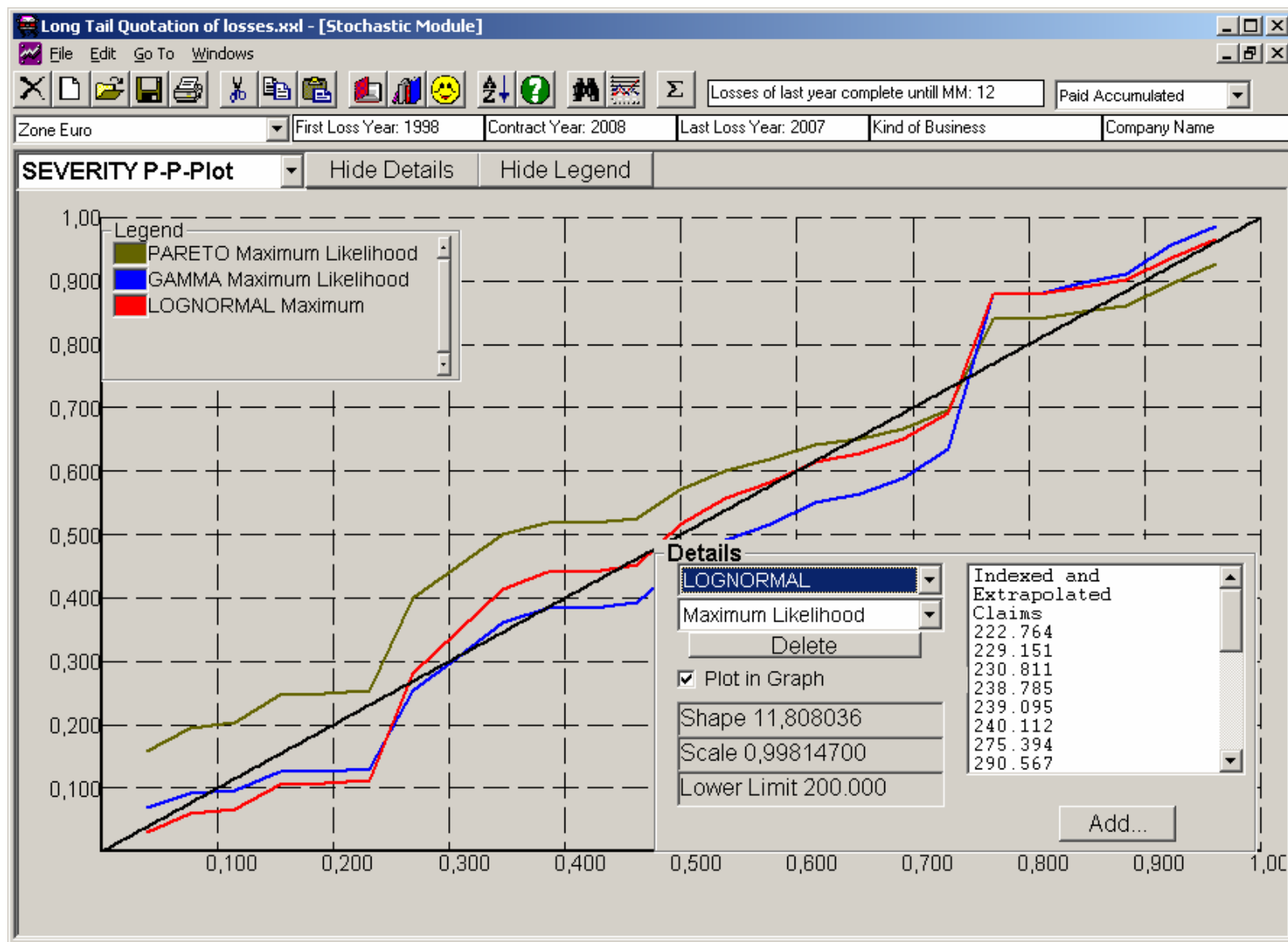
Premium: 2 Installments in Total Claims: 1 Installments per Year

Interest on Cash Flow  
Positive 3,00% Negative 5,00%

Traditional Burning Cost  
 Per Claim Burning Cost, Threshold: 190000,000 Average # of Claims Above 4 View

	Rate	Rate incl. Interest	ROL	ROL incl. Interest	M+D Premium	M+D Premium incl. Interest	Used Capacity	Adjust for Unused Capacity
1st Layer	0,6530	0,5180	87,6360	69,4850	701,086	555,881	173,73% x Limit...	Select
2nd Layer	0,0000	0,0000	0,0000	0,0000	0	0	0,00% x Limit...	Select
3rd Layer	0,0000	0,0000	0,0000	0,0000	0	0	0,00% x Limit...	Select
4th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select
5th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select
6th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select

# Stohastička analiza - Jačina



## Stohastička analiza – Učestalost

God.	Broj posmatranih zahtjeva	Broj prilagođenih zahtjeva
1998	0	0
1999	7	10
2000	6	8
2001	5	6
2002	5	6
2003	4	5
2004	0	0
2005	3	3
2006	5	5
2007	0	0

- Izabrana distribucija učestalosti: Poisson sa parametrom  $\lambda = 7$

# Tehnička ponuda – uklj. stoh. prilagodbe ( $\lambda = 7$ ) i Lognormal i dodatak (FIC)

Long Tail Quotation of losses.xml - [Layering and Burning Cost Calculation]

File Edit Go To Windows

**EPI = 107.358.801**

Zone Euro First Loss Year: 1998 Contract Year: 2008

Layer Definition		Limit (Claims From)	Deductible (Claims To)	AAD	Annual Limit	Index Clause
1st Layer	XoL	800.000	200.000	0	0	Cont/Lim:FIC10/Ded:Fl
2nd Layer	XoL	4.000.000	1.000.000	0	0	Cont/Lim:FIC10/Ded:Fl
3rd Layer	XoL	9.999.999.999	5.000.000	0	0	Cont/Lim:FIC10/Ded:Fl
4th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:Fl
5th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:Fl
6th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:Fl

**Calculate**

Use Claims from 1998 to 2007

	# of RI's	RI# 1	RI# 2	RI# 3	RI# 4
1st Layer	6	0,00	0,00	0,00	0,00
2nd Layer	2	0,00	0,00		
3rd Layer	oo free				
4th Layer	oo free				
5th Layer	oo free				
6th Layer	oo free				

Loadings	in %
Cost	30,00
Profit	0,00
Add. Costs	0,00
Brokerage	0,00
M + D Premium	100,00

Installments + Payment Pattern

Premium: 2 Installments in Total Claims: 1 Installments per Year

Interest on Cash Flow  
Positive 3,00% Negative 5,00%

Traditional Burning Cost  
 Per Claim Burning Cost, Threshold: 190000,000 Average # of Claims Above 4 View

	Rate	Rate incl. Interest	ROL	ROL incl. Interest	M+D Premium	M+D Premium incl. Interest	Used Capacity	Adjust for Unused Capacity
1st Layer	1.4800	1.2870	198.5880	172.6580	1.588.702	1.381.268	173,73% x Limit...	Select
2nd Layer	0.1570	0.1570	4.2160	4.2160	168.630	168.630	0,00% x Limit...	Select
3rd Layer	0.0000	0.0000	0.0000	0.0000	0	0	0,00% x Limit...	Select
4th Layer	0.0000	0.0000	0.0000	0.0000	0	0		Select
5th Layer	0.0000	0.0000	0.0000	0.0000	0	0		Select
6th Layer	0.0000	0.0000	0.0000	0.0000	0	0		Select

# Tehnička ponuda – uklj. stoh. prilagodbe ( $\lambda = 7$ ) i Pareto i dodatak (FIC)

Long Tail Quotation of losses.xml - [Layering and Burning Cost Calculation]

**EPI = 107.358.801**

Zone Euro | First Loss Year: 1998 | Contract Year: 2008 | Last Loss Year: 2007 | Kind of Business | Company Name

Layer Definition		Limit (Claims From)	Deductible (Claims To)	AAD	Annual Limit	Index Clause
1st Layer	XoL	800.000	200.000	0	0	Cont/Lim:FIC10/Ded:FI
2nd Layer	XoL	4.000.000	1.000.000	0	0	Cont/Lim:FIC10/Ded:FI
3rd Layer	XoL	9.999.999.999	5.000.000	0	0	Cont/Lim:FIC10/Ded:FI
4th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI
5th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI
6th Layer	XoL	0	0	0	0	Cont/Lim:FIC10/Ded:FI

**Calculate**  
Use Claims from 1998 to 2007

	# of RI's	RI# 1	RI# 2	RI# 3	RI# 4
1st Layer	6	0,00	0,00	0,00	0,00
2nd Layer	2	0,00	0,00		
3rd Layer	oo free				
4th Layer	oo free				
5th Layer	oo free				
6th Layer	oo free				

Loadings	in %
Cost	30,00
Profit	0,00
Add. Costs	0,00
Brokerage	0,00
M + D Premium	100,00

Installments + Payment Pattern  
Premium: 2 Installments in Total  
Claims: 1 Installments per Year

Interest on Cash Flow  
Positive 3,00% Negative 5,00%

Traditional Burning Cost  
 Per Claim Burning Cost, Threshold: 190000,000 Average # of Claims Above 4 View

	Rate	Rate incl. Interest	ROL	ROL incl. Interest	M+D Premium	M+D Premium incl. Interest	Used Capacity	Adjust for Unused Capacity
1st Layer	1,5390	1,3460	206,5100	180,5810	1.652.084	1.444.649	173,73% x Limit...	Select
2nd Layer	0,7130	0,7130	19,1300	19,1300	765.219	765.219	0,00% x Limit...	Select
3rd Layer	0,0000	0,0000	0,0000	0,0000	0	0	0,00% x Limit...	Select
4th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select
5th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select
6th Layer	0,0000	0,0000	0,0000	0,0000	0	0		Select

# Sažetak

- Postojeća cijena za sloj 800.000 preko 200.000 leži **tehnički** u rasponu (1,48%; 1,53%)
- Postojeća cijena za sloj 4.000.000 preko 1.000.000 leži **tehnički** u rasponu (0,16%; 0,70%)
- Neograničeno preko 5.000.000 je tržišna cijena