

REGRET ANALYSIS

Prof. Miguel Bagajewicz



MINIMAX REGRET ANALYSIS

Motivating Example

➤ Traditional way

Maximize Average...select A

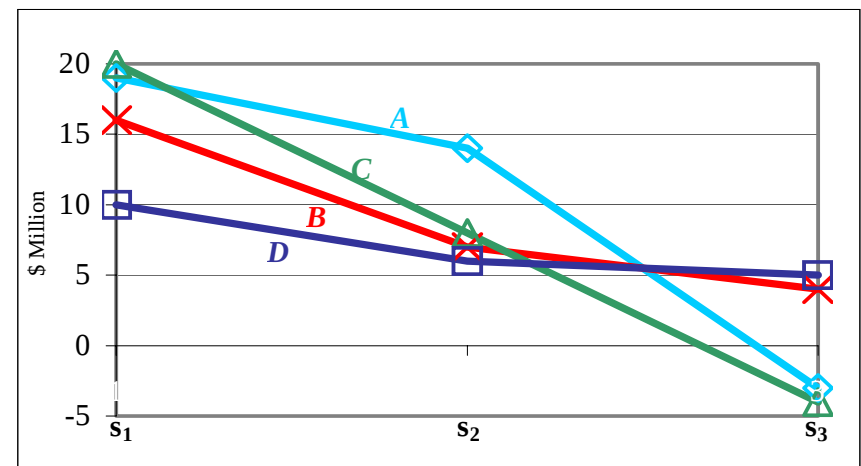
➤ Optimistic decision maker

MaxiMax ... select C

➤ Pessimistic decision maker

MaxiMmin ... select D

	s ₁ High	s ₂ Medium	s ₃ Low	Average
A	19	14	-3	10
B	16	7	4	9
C	20	8	-4	8
D	10	6	5	7
Max	20(C)	14(A)	5(D)	10(A)



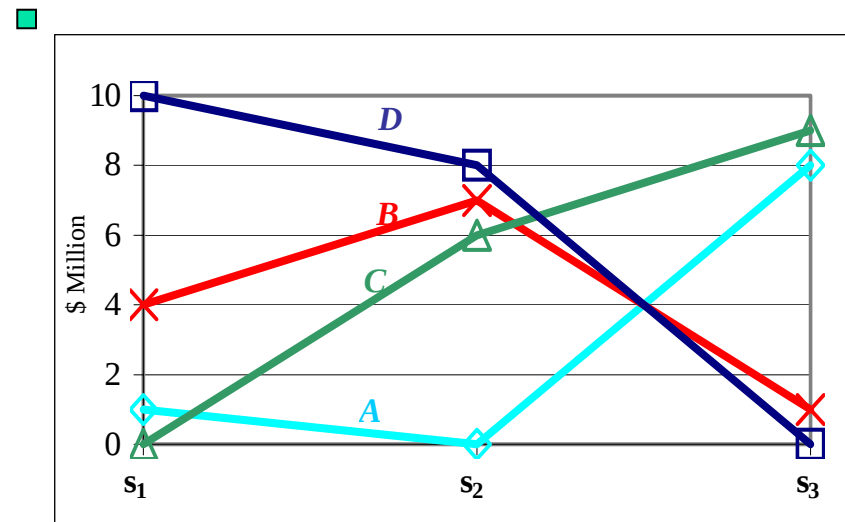


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Motivating Example

- *Calculate regret:*
find maximum regret
- A ... regret = 8 @ low market
- C ... regret = 9 @ low market
- D ... regret = 10 @ high market
- B ... regret = 7 @ medium market
- **MINIMAX** → **B**
- In general, gives *conservative* decision
but not pessimistic.

	S ₁ High	S ₂ Medium	S ₃ Low	Maximum Regret
A	1	0	8	8
B	4	7	1	7
C	0	6	9	9
D	10	8	0	10





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Two-Stage Stochastic Programming Using Regret Theory

NPV								
	s1	s2	s3	s4	s5	ENPV	Max	Min
d1	19.01	10.38	10.57	15.48	10.66	13.22	19.01	10.38
d2	11.15	14.47	8.87	20.54	10.58	13.12	20.54	8.87
d3	12.75	7.81	16.02	22.25	9.16	13.60	22.25	7.81
d4	5.41	9.91	12.63	32.02	8.08	13.61	32.02	5.41
d5	15.09	7.40	8.81	12.48	15.05	11.77	15.09	7.40
Max	19.01	14.47	16.02	32.02	15.05	13.61	32.02	10.38

Regret						
	s1	s2	s3	s4	s5	Max
d1	0.00	4.09	5.45	16.54	4.39	16.54
d2	7.86	0.00	7.15	11.48	4.47	11.48
d3	6.26	6.66	0.00	9.77	5.89	9.77
d4	13.60	4.56	3.39	0.00	6.97	13.60
d5	3.92	7.07	7.21	19.54	0.00	19.54
Min						9.77