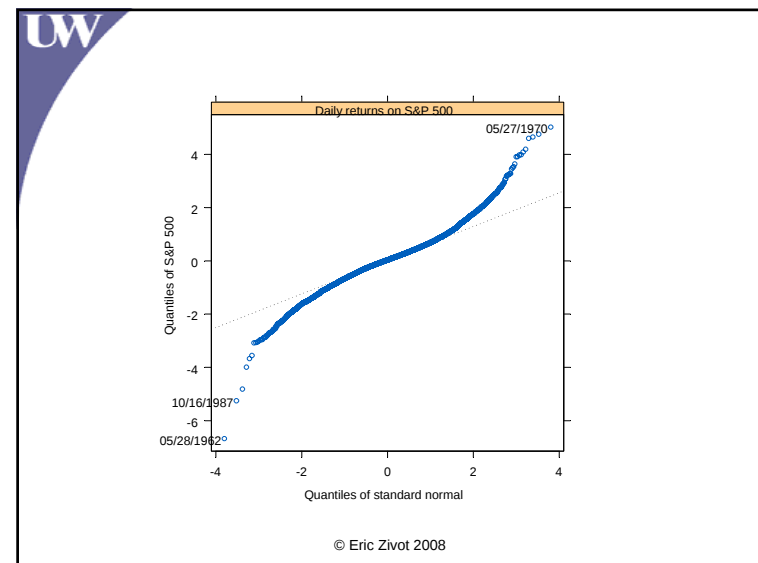
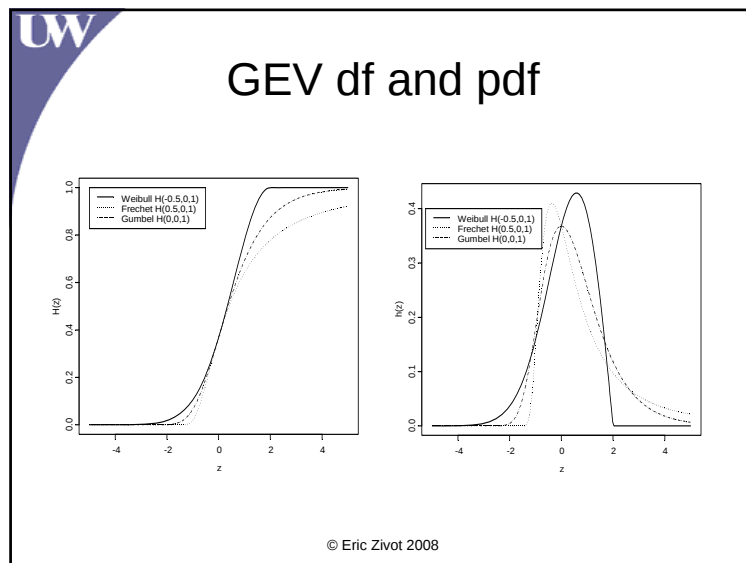
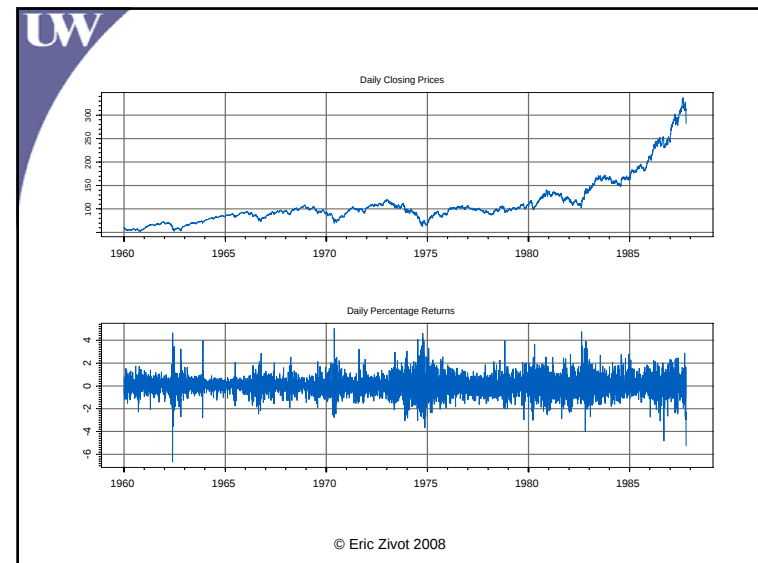


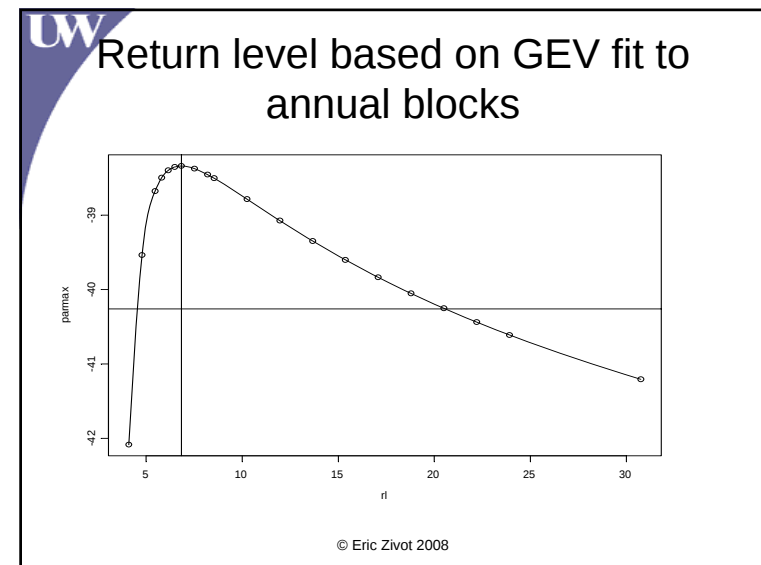
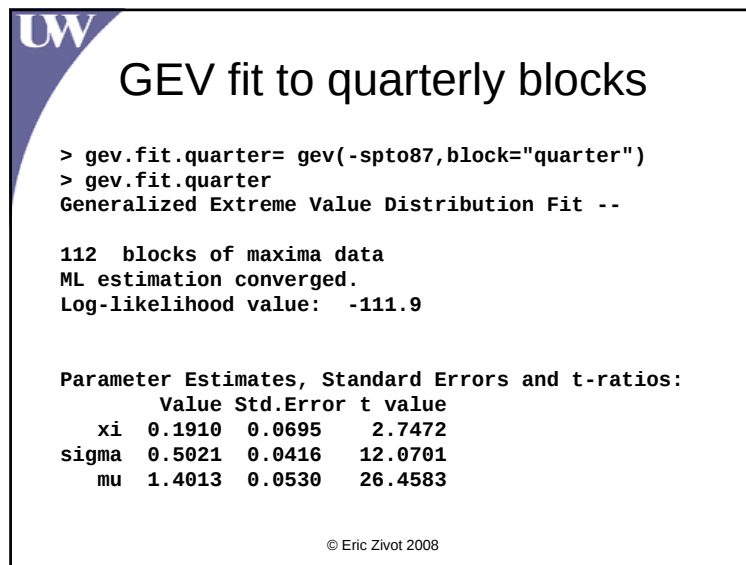
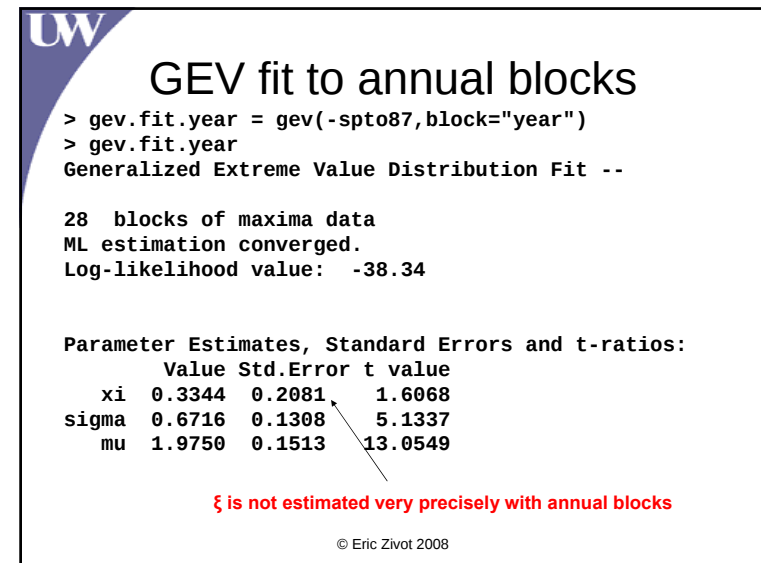
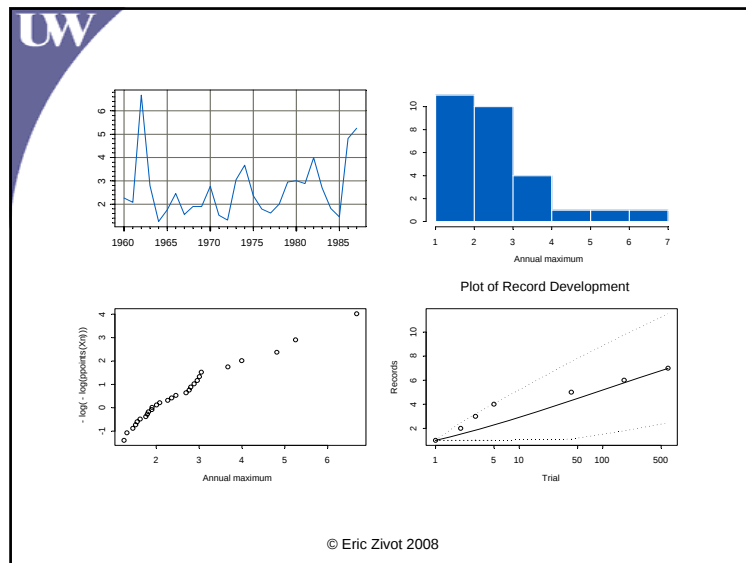


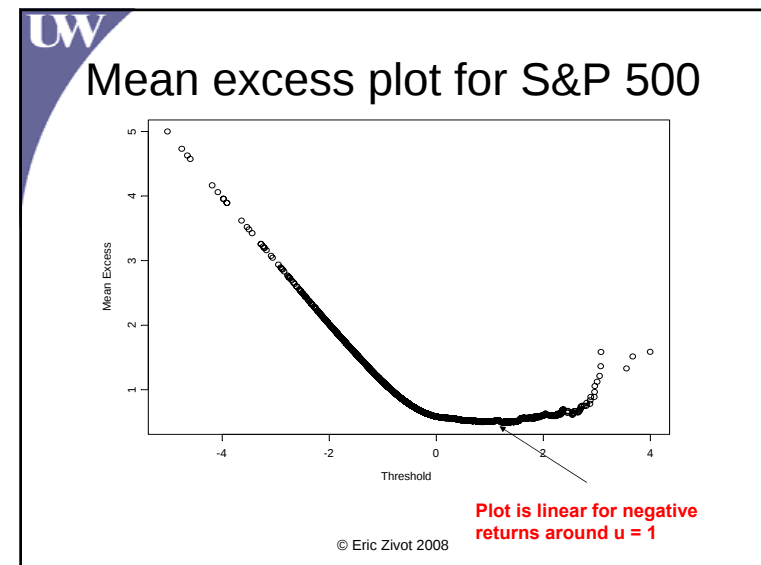
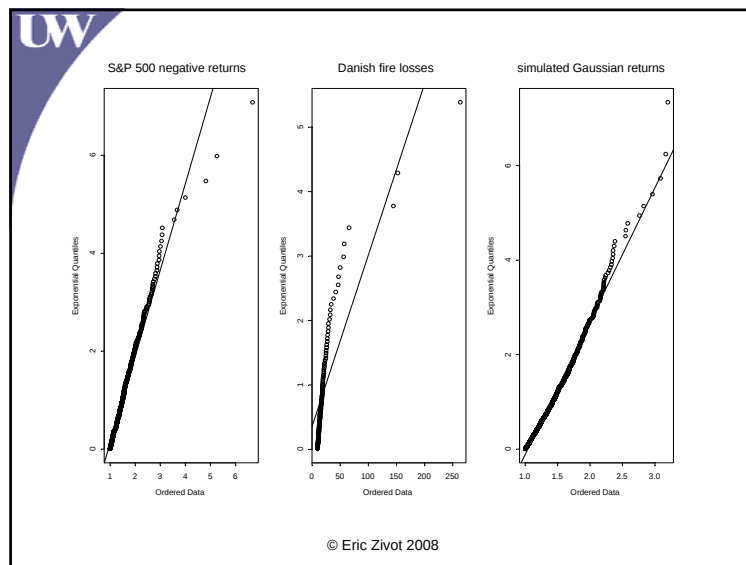
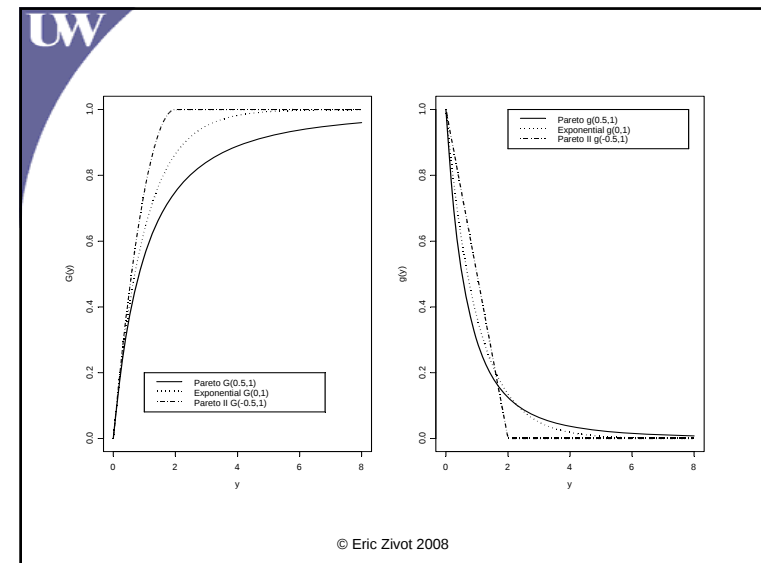
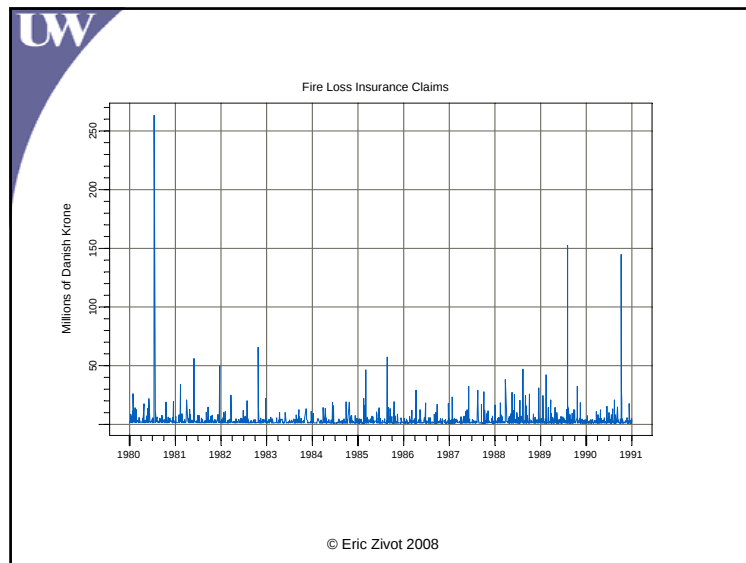
# Lecture 5: Extreme Values

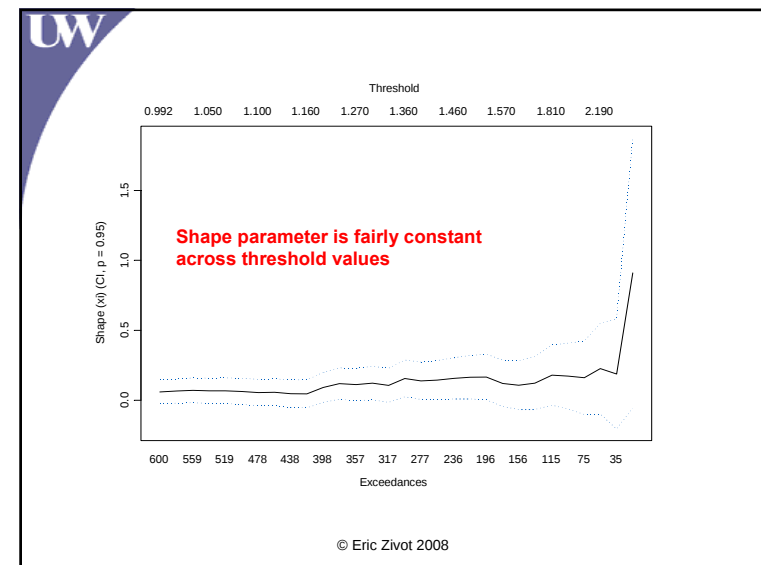
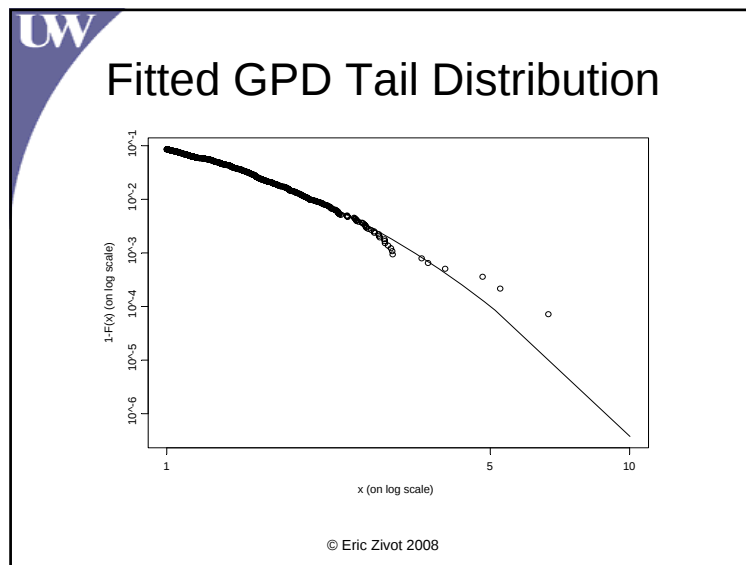
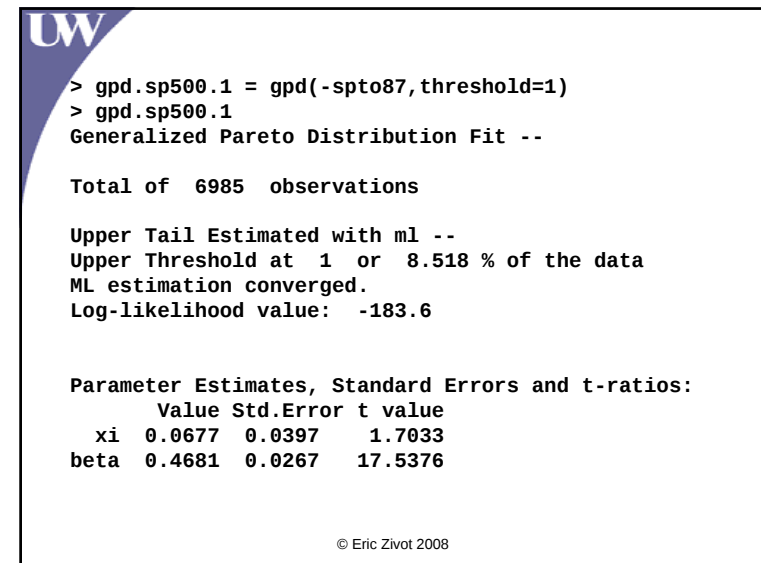
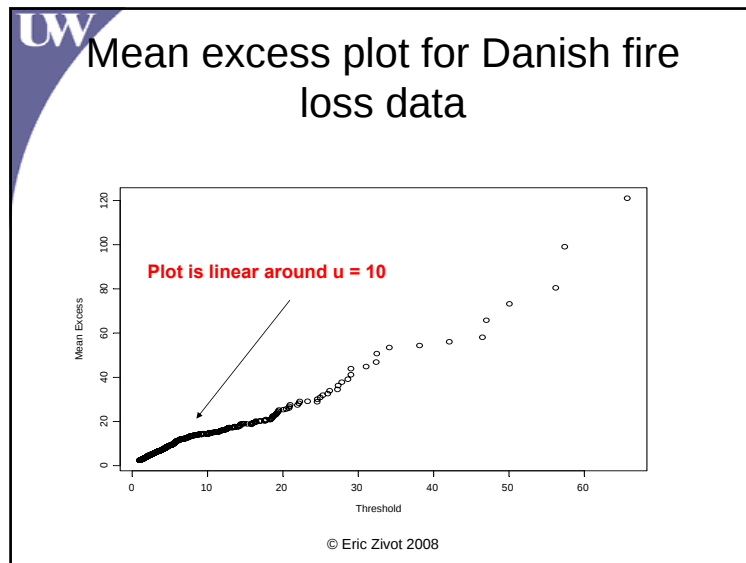
Econ 512  
Eric Zivot  
Spring 2008  
Updated: April 17, 2008

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## Fit GPD to Danish Fire Loss Data

```
> gpd.danish.10 = gpd(danish,threshold=10)
> gpd.danish.10
Generalized Pareto Distribution Fit --
```

Total of 2167 observations

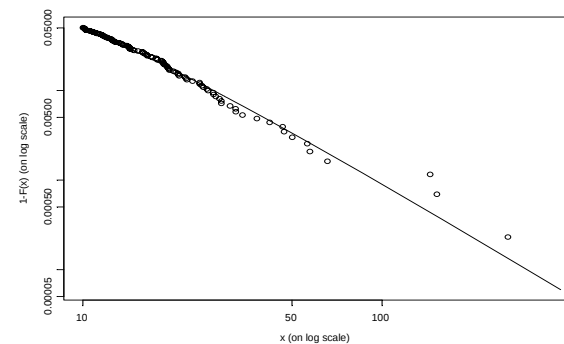
Upper Tail Estimated with ml --  
 Upper Threshold at 10 or 5.03 % of the data  
 ML estimation converged.  
 Log-likelihood value: -374.9

Parameter Estimates, Standard Errors and t-ratios:

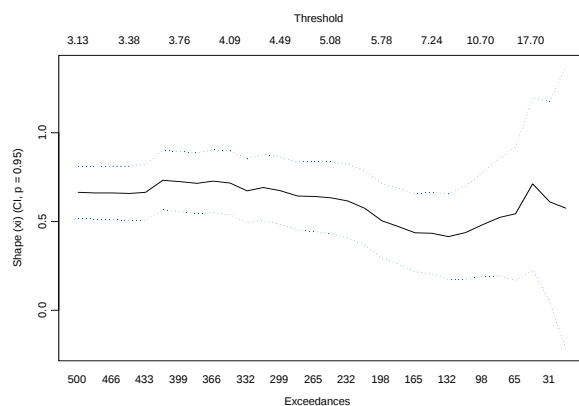
|      | Value  | Std.Error | t value |
|------|--------|-----------|---------|
| xi   | 0.4970 | 0.1363    | 3.6467  |
| beta | 6.9755 | 1.1135    | 6.2645  |

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## Fitted GPD Tail



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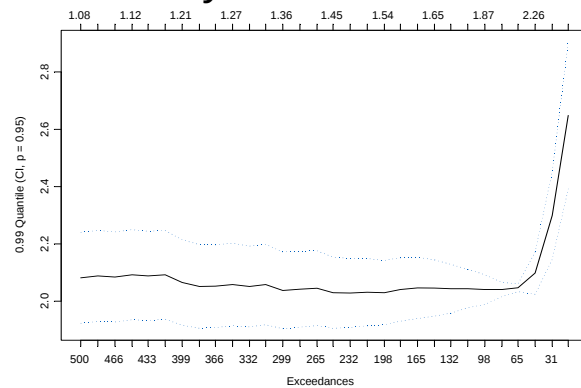
## Risk Measures for S&P 500

```
> riskmeasures.normal(-spt087)
p quantile sfall
[1,] 0.95 1.299051 1.635526
[2,] 0.99 1.847814 2.120681
```

```
> riskmeasures(gpd.sp500.1,p=c(0.95,0.99))
p quantile sfall
[1,] 0.95 1.253920 1.774384
[2,] 0.99 2.079005 2.659356
```

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# Sensitivity of VaR to threshold



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