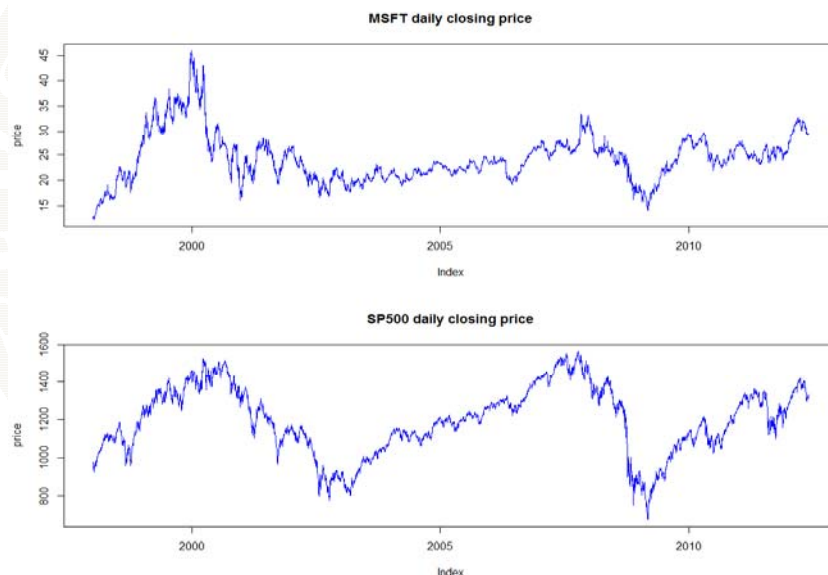


Descriptive Statistics for Daily Return Data

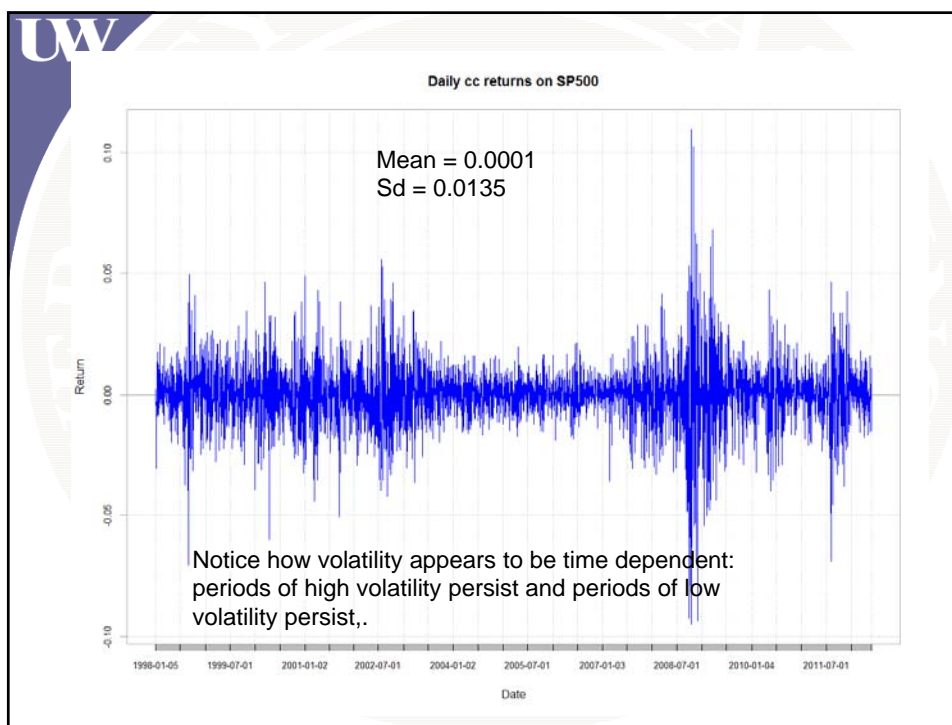
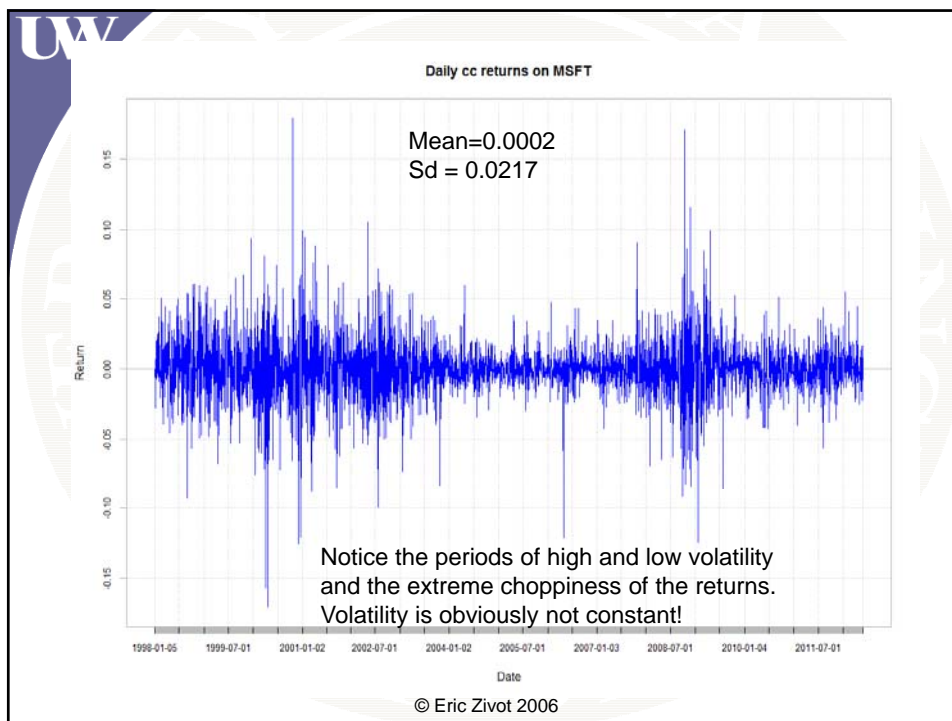
Econ 424/Amath 540
Summer 2012
Eric Zivot
Update: July 11, 2012

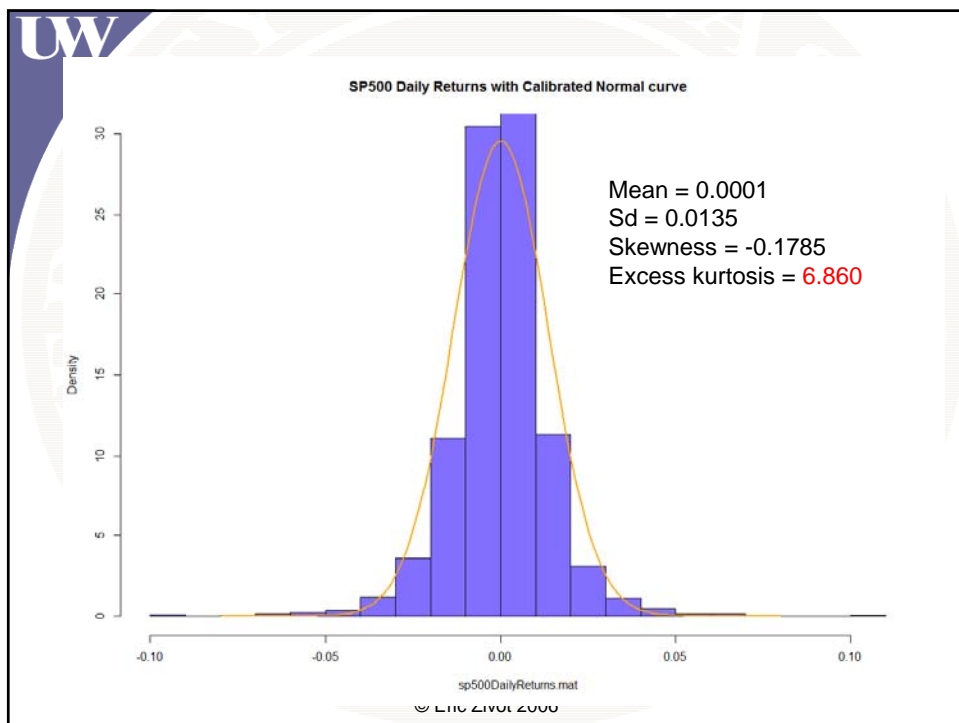
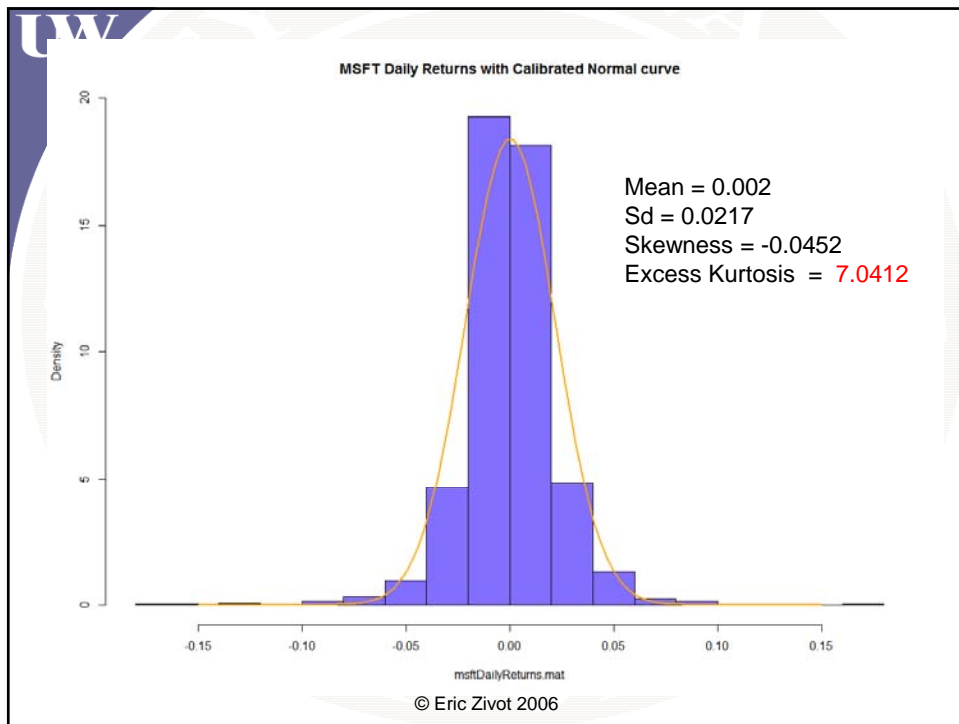
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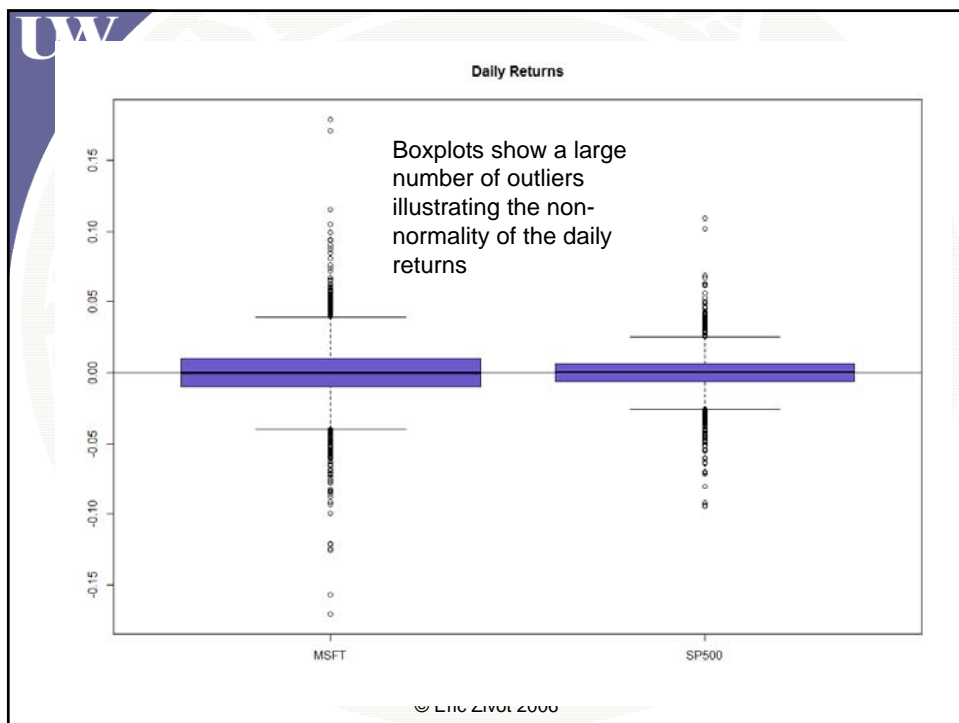
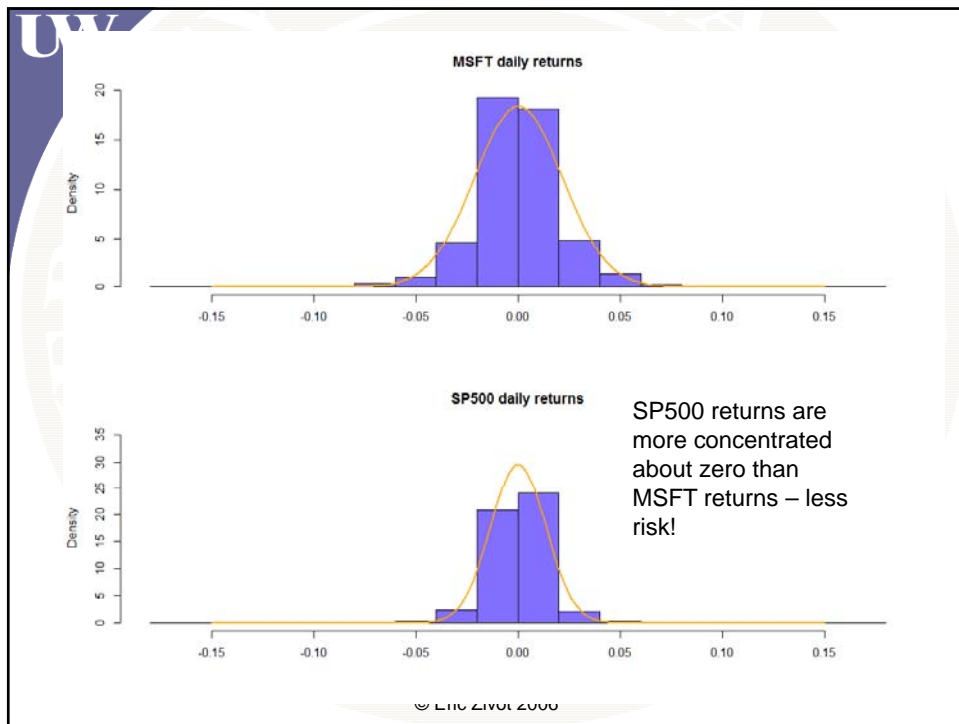
Daily Prices on Microsoft and the S&P 500 Index: January 1998 –May 2012, $n = 3,627$



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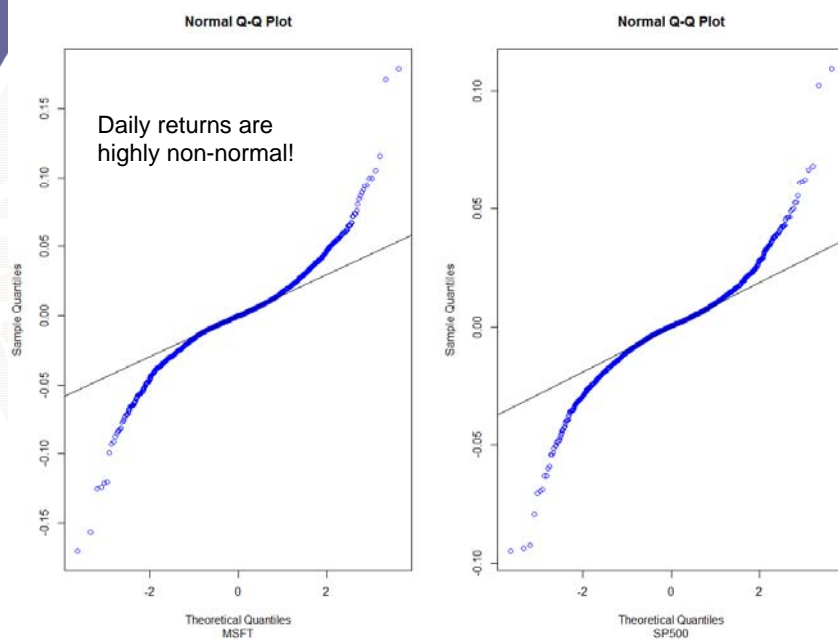


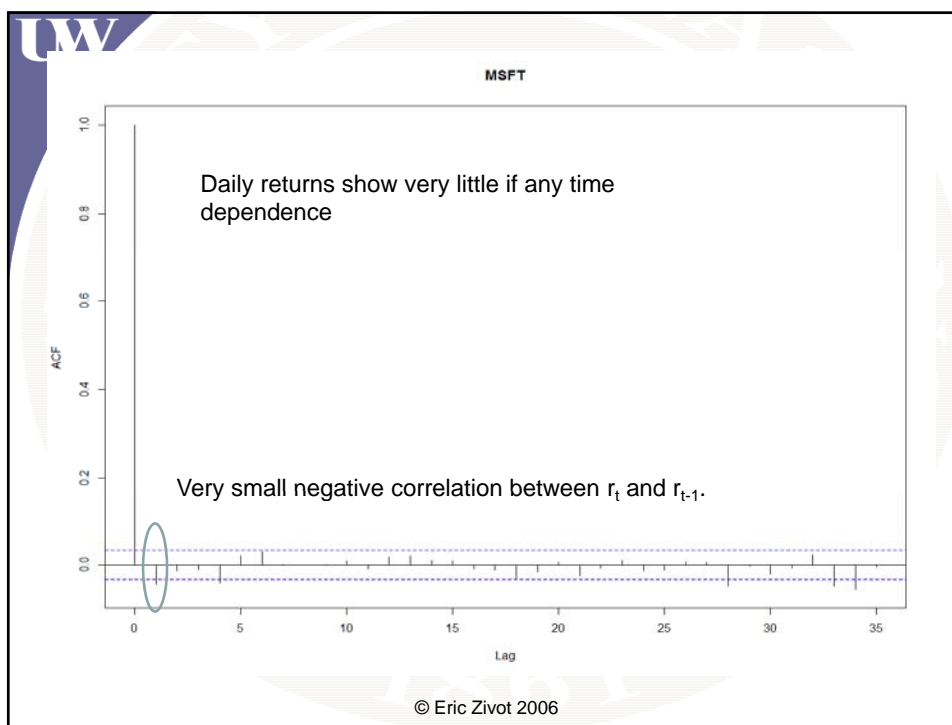
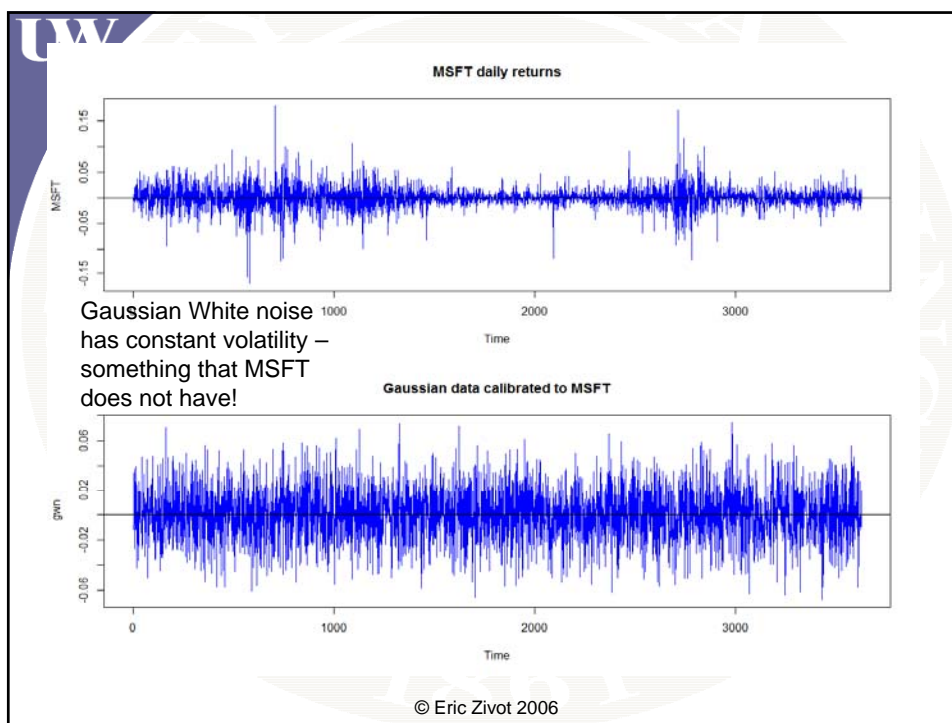


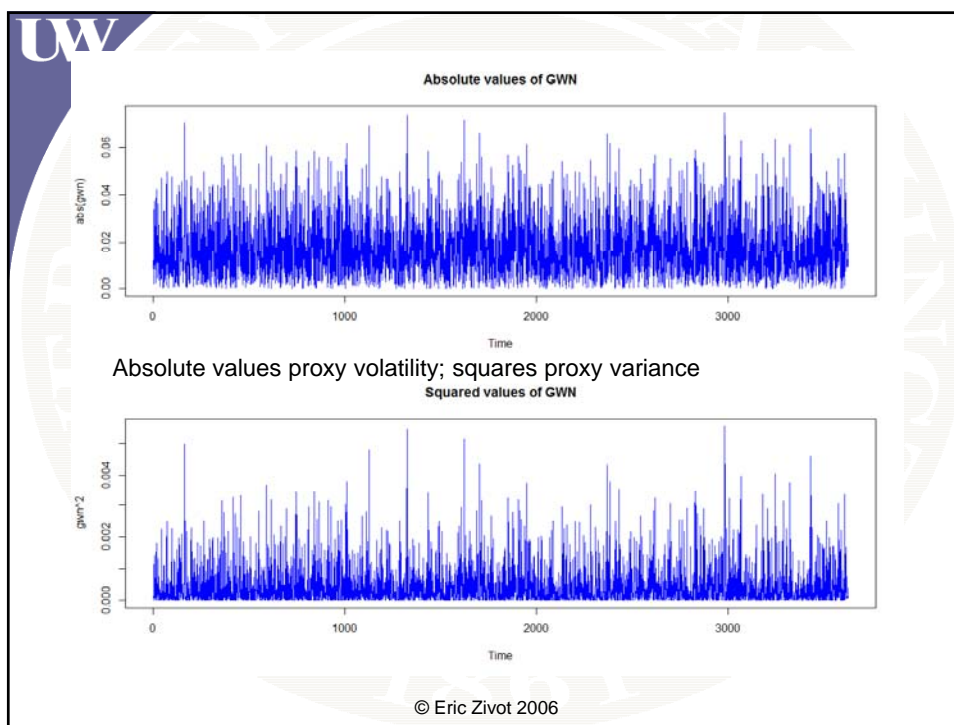
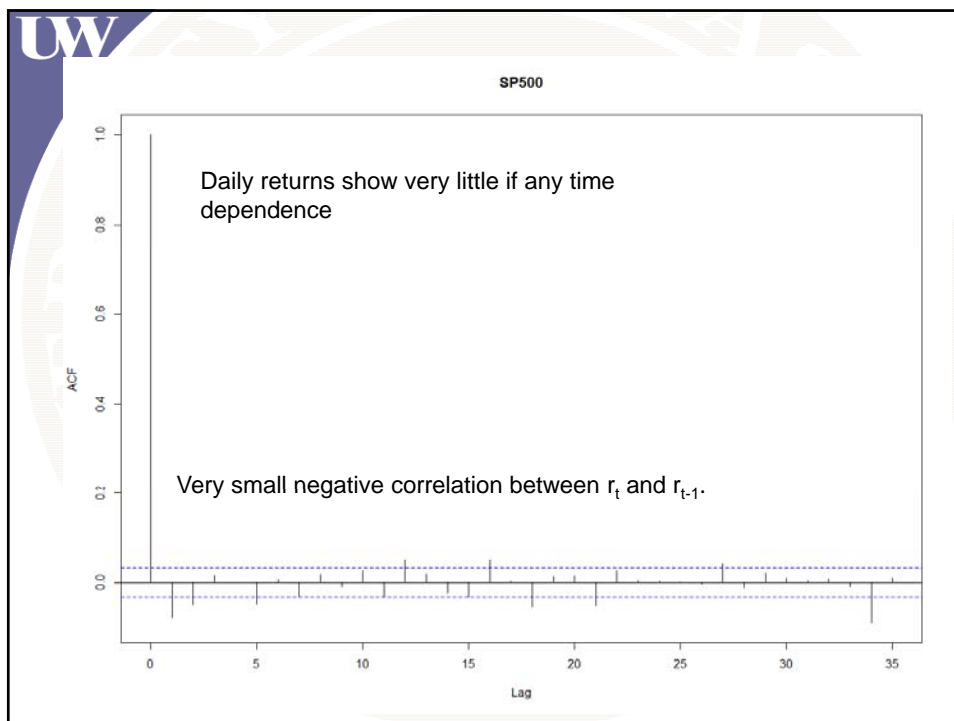
Daily VaR on \$100K invested in MSFT

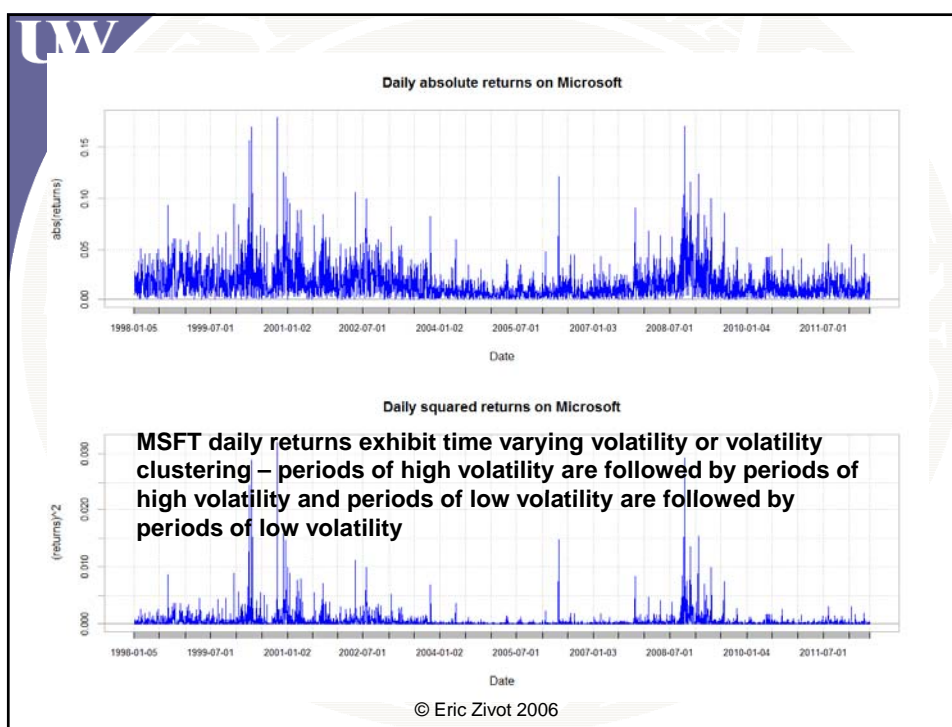
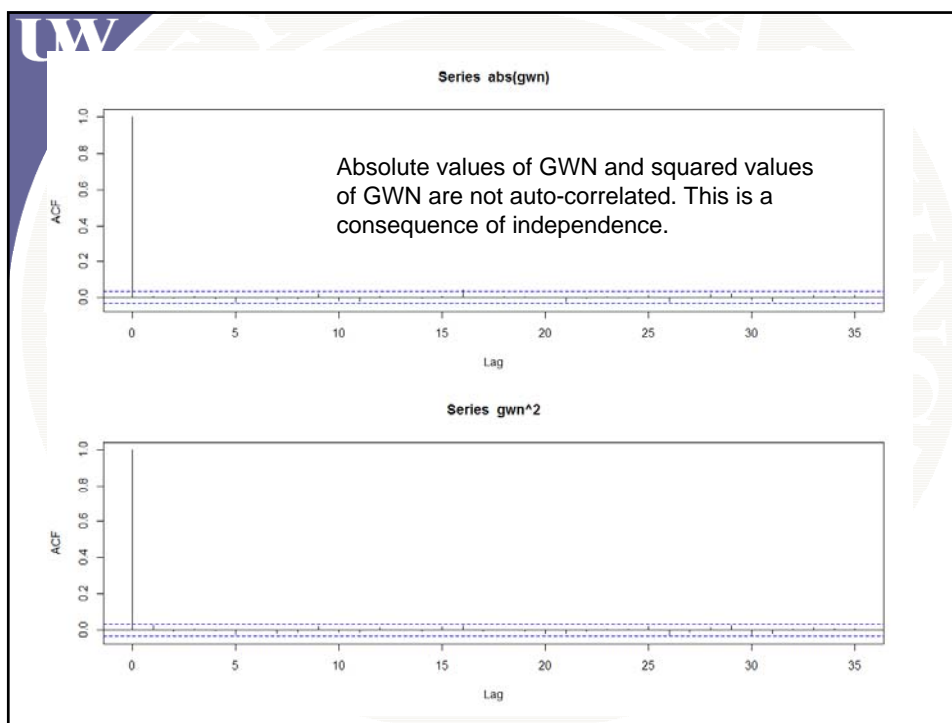
```
# Compute daily VaR using empirical quantiles
> q.01 = quantile(msftDailyReturns.mat, probs=0.01)
> q.05 = quantile(msftDailyReturns.mat, probs=0.05)
> q.01
      1%
-0.05854
> q.05
      5%
-0.03243
> VaR.01 = 100000*(exp(q.01) - 1)
> VaR.05 = 100000*(exp(q.05) - 1)
> VaR.01
      1%
-5686
> VaR.05
      5%
-3191
```

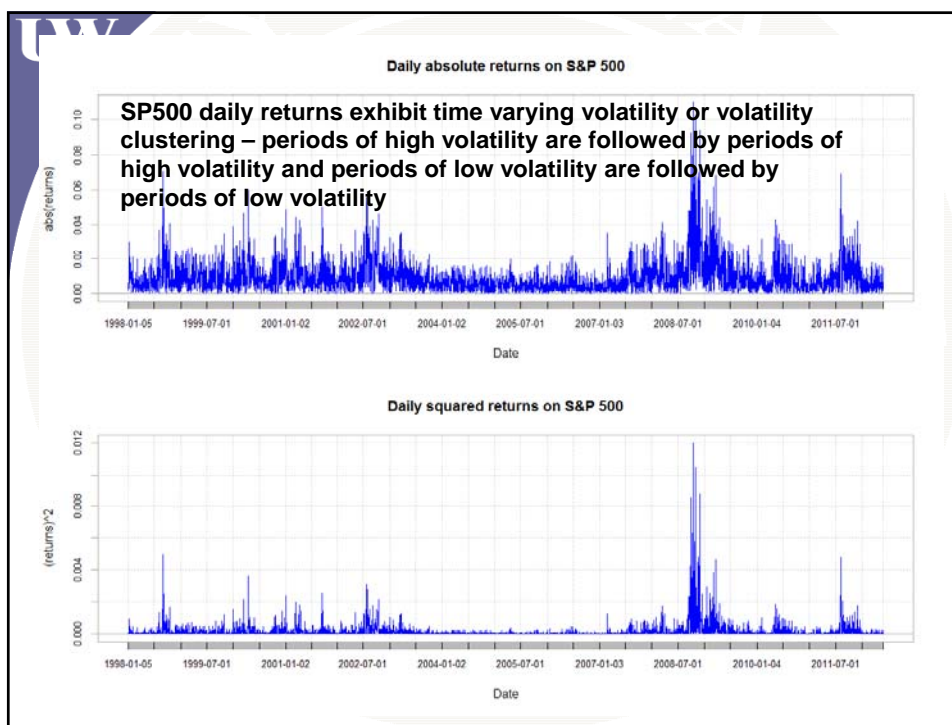
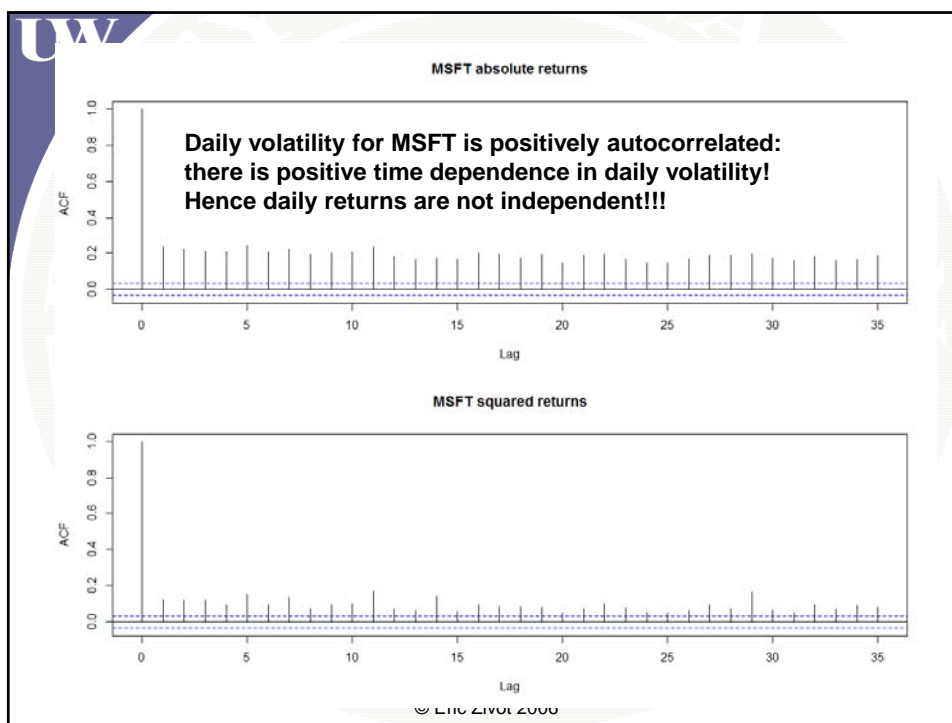
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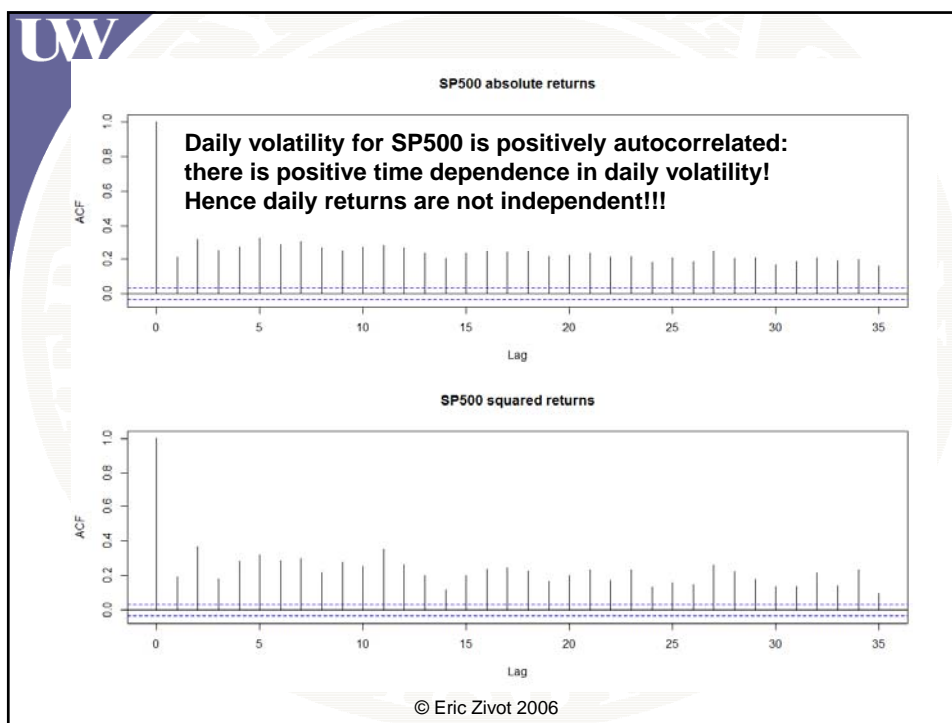












UW

Stylized Facts for Daily Returns

- Returns are not normally distributed. Empirical distributions have fatter tails than normal distribution (more outliers)
- Returns are approximately uncorrelated over time (no serial correlation)
- Returns are not independent over time
 - Squared and absolute returns are positively autocorrelated
 - Volatility appears to be serially correlated
 - See Engle's GARCH model

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