Lecture 3: Market Efficiency

Econ 512
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Spring 2008
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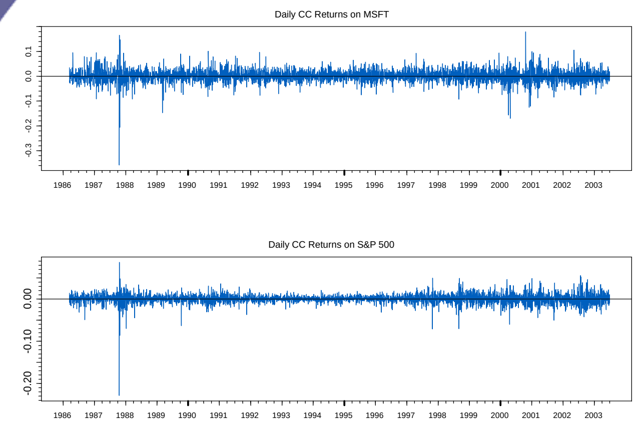
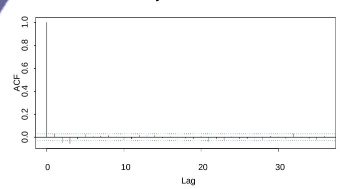


Daily CC Returns on MSFT

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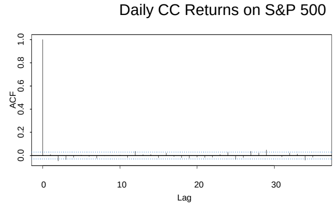
Test for Autocorrelation: Ljung-Box

Null Hypothesis: no autocorrelation

Test Statistics:
            SP500
Test Stat 35.1892
  p.value  0.0191

Dist. under Null: chi-square with 20
degrees of freedom
   Total Observ.: 4365
```

Daily CC Returns on S&P 500

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Test for Autocorrelation: Ljung-Box

Null Hypothesis: no autocorrelation

Test Statistics:
             MSFT
Test Stat 43.2323
  p.value  0.0019

Dist. under Null: chi-square with 20
degrees of freedom
   Total Observ.: 4365
```

MQ stat is not robust to heteroskedasticity

Variance Ratio Test: MSFT

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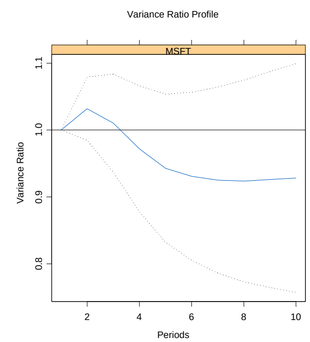
Variance Ratio Test

Null Hypothesis: random walk with
   heteroskedastic errors

Variable: MSFT
   var.ratio std.err    stat
 2    1.0317 0.02361  1.3443
 3    1.0103 0.03667  0.2796
 4    0.9718 0.04703 -0.5991
 5    0.9428 0.05535 -1.0335
 6    0.9308 0.06274 -1.1033
 7    0.9251 0.06946 -1.0776
 8    0.9237 0.07538 -1.0119
 9    0.9260 0.08066 -0.9180
10    0.9283 0.08547 -0.8385

 * : significant at 5% level
** : significant at 1% level
```



Variance Ratio Test: MSFT

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Variance Ratio Test

Null Hypothesis: random walk with
   heteroskedastic errors

Variable: SP500
   var.ratio std.err    stat
 2    1.0104 0.03711  0.2799
 3    0.9832 0.05683 -0.2954
 4    0.9522 0.07156 -0.6684
 5    0.9272 0.08253 -0.8825
 6    0.9118 0.09167 -0.9620
 7    0.8989 0.09974 -1.0139
 8    0.8835 0.10671 -1.0916
 9    0.8707 0.11283 -1.1461
10    0.8605 0.11831 -1.1788

 * : significant at 5% level
** : significant at 1% level
```
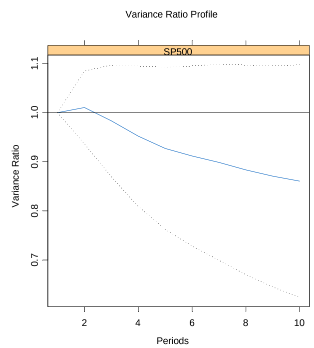
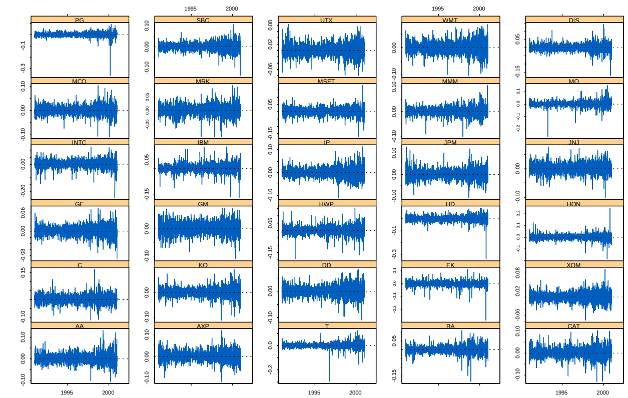



Dow Jones 30 Daily returns: 1991 - 2001



Variance Ratio Profile