clear

\*set more off

cd C:\EigeneDateien\FH\Finance\Angewandte\Daten

capture log close

log using sp500w.log, replace

use sp500w.dta, clear

pause on

describe

gen jahr= year(daten)

gen monat=month(daten)

gen time =\_n

tsset time

gen ren= ln(close)-ln(l.close)

tsline ren

pause

histogram ren, normal

pause

qnorm ren, title(Quantil Plot NV)

pause

sum ren, detail

tabstat ren, statistics( mean sd semean median kurtosis skewness ) columns(variables) format(%6.4f)

sktest ren

gen ren\_2 =ren^2

tsline ren\_2

corr ren\_2 l.ren\_2

regress ren\_2 l.ren\_2

corrgram ren\_2

ac ren\_2, lags(40)

pause

wntestq ren\_2, lags(40)

pause

/\* Renditen Leverage Effekt\*/

corr ren\_2 l.ren

corr ren\_2 l2.ren

/\* Hier gibt regress nicht den Korrelationskoeffizienten an, da beta= cov/var(X) und ro= cov(x,y)/s(x)s(y)\*/

\*regress ren\_2 l.ren

bysort jahr: sum ren

\*rolling var\_roll=r(Var), saving(Var\_sp500w) window(60): summarize ren, detail

\*der Befehl wird f�r diese variable gebraucht

tssmooth exponential ewma\_rm= ren\_2, parms(0.06) forecast(1)

tssmooth exponential ewma\_opt= ren\_2, forecast(1)

gen vol\_ewma\_rm=sqrt(ewma\_rm\*52)

gen vol\_ewma\_opt=sqrt(ewma\_opt\*52)

gen vol\_sma= sqrt(var\_roll\*52)

twoway (tsline vol\_ewma\_rm) (tsline vol\_ewma\_opt), ytitle(Volatilit�ten) title(Vola Berchnung Vergleich)

pause

twoway (tsline vol\_sma) (tsline vol\_ewma\_rm), ytitle(Volatilit�ten) title(Vola Berchnung Vergleich)

pause

tssmooth exponential ewma\_alt= ren\_2, parms(0.20) forecast(1)

gen vol\_ewma\_alt=sqrt(ewma\_alt\*52)

twoway (tsline vol\_ewma\_alt) (tsline vol\_ewma\_rm), ytitle(Volatilit�ten) title(Vola Berchnung Vergleich)

sum vol\_ewma\_rm vol\_ewma\_opt vol\_ewma\_alt

pause

arch ren, arch(1/2)

arch ren, arch(1/3)

arch ren, arch(1/4)

arch ren, arch(1/1) garch(1/1)

arch ren, arch(1/2) garch(1/2)

arch ren, arch(1/1) garch(1/2)

predict garch\_, variance

gen vol\_garch=sqrt(garch\_\*52)

arch ren, arch(1/1) garch(1/1) tarch(1/1)

predict garch\_as, variance

gen vol\_garch\_as=sqrt(garch\_as\*52)

sum vol\_garch vol\_garch\_as vol\_ewma\_rm vol\_sma

twoway (tsline vol\_ewma\_rm) (tsline vol\_garch), ytitle(Volatilit�ten) title(Vola Berchnung Vergleich)