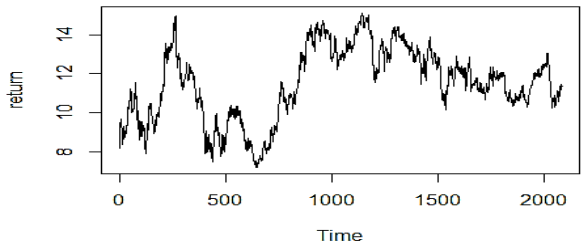
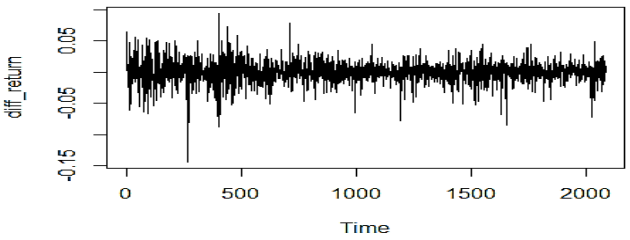
Time series forecasting using Ford stock data

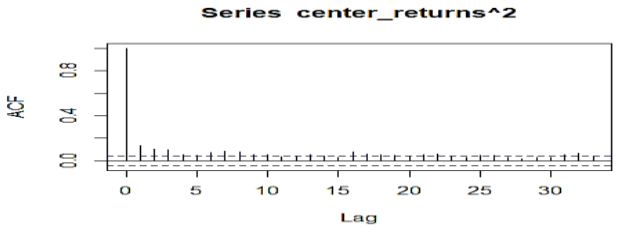
Original series



After differencing



ACF Plot of squared center_returns




```
> m6 <- garchFit(~arma(1,0)+garch(1,1),data=center_returns,trace=F,cond.dist = c("std"))
> summary(m6)

Title:
 GARCH Modelling
Call:
 garchFit(formula = ~arma(1, 0) + garch(1, 1), data = center_returns,
    cond.dist = c("std"), trace = F)
Mean and Variance Equation:
 data ~ arma(1, 0) + garch(1, 1)
<environment: 0x000000001e8cb248>
 [data = center_returns]
Conditional Distribution:
 std
Coefficient(s):
        mu         ar1       omega      alpha1       beta1       shape
1.3568e-18  5.0757e-02  2.3256e-06  4.2298e-02  9.5087e-01  4.8321e+00
Std. Errors:
 based on Hessian
Error Analysis:
        Estimate  Std. Error  t value Pr(>|t|)
mu     1.357e-18   2.968e-04    0.000   1.0000
ar1    5.076e-02   2.134e-02    2.378   0.0174 *
omega  2.326e-06   1.229e-06    1.892   0.0585 .
alpha1 4.230e-02   1.025e-02    4.125  3.7e-05 ***
beta1  9.509e-01   1.212e-02   78.424  < 2e-16 ***
shape  4.832e+00   4.927e-01    9.807  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
Log Likelihood:
 5713.866    normalized:  2.740463
Description:
 Mon Apr 23 00:16:57 2018 by user: nikhita
Standardised Residuals Tests:
                                Statistic p-Value
 Jarque-Bera Test   R    Chi^2  3651.578  0
 Shapiro-Wilk Test  R    W      0.9480359 0
 Ljung-Box Test     R    Q(10)  7.436676  0.6836764
 Ljung-Box Test     R    Q(15)  13.25754  0.5824127
 Ljung-Box Test     R    Q(20)  20.19939  0.4455207
 Ljung-Box Test     R^2  Q(10)  4.562433  0.9184298
 Ljung-Box Test     R^2  Q(15)  6.747327  0.9642856
 Ljung-Box Test     R^2  Q(20)  7.627243  0.9940607
 LM Arch Test       R    TR^2   6.008452  0.9156554

Information                Criterion Statistics:
      AIC                  BIC       SIC      HQIC
-5.475171 -5.458934 -5.475188 -5.469222
```