

## Correlation significance level tests results

Pearson's product-moment correlation

```
data: res1$vol and res1$attack
t = 0.4444, df = 25, p-value = 0.6606
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
-0.3016309 0.4532946
sample estimates:
      cor
0.08853083

> cr2<-cor.test(res2$vol,res2$number, method="pearson")
> cr2
```

Pearson's product-moment correlation

```
data: res2$vol and res2$number
t = 2.4515, df = 25, p-value = 0.02156
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
0.07230973 0.70268669
sample estimates:
      cor
0.4402268

> tau1<-cor.test(res1$vol,res1$attack, method="kendall")
> tau1
```

Kendall's rank correlation tau

```
data: res1$vol and res1$attack
T = 199, p-value = 0.341
alternative hypothesis: true tau is not equal to 0
sample estimates:
      tau
0.1339031
```

```
> tau2<-cor.test(res2$vol,res2$number, method="kendall")
Warning message:
In cor.test.default(res2$vol, res2$number, method = "kendall") :
  Cannot compute exact p-value with ties
> tau2
```

Kendall's rank correlation tau

```
data: res2$vol and res2$number
z = 2.0263, p-value = 0.04273
alternative hypothesis: true tau is not equal to 0
sample estimates:
      tau
0.3218697
```

```
> rho1<-cor.test(res1$vol,res1$attack, method="spearman")
> rho1<-cor.test(res1$vol,res1$attack, method="spearman")
> rho1
```

```

Spearman's rank correlation rho

data: res1$vol and res1$attack
S = 2712, p-value = 0.3888
alternative hypothesis: true rho is not equal to 0
sample estimates:
rho
0.1721612

> rho2<-cor.test(res2$vol,res2$number, method="spearman")
Warning message:
In cor.test.default(res2$vol, res2$number, method = "spearman") :
  Cannot compute exact p-value with ties
> rho2

Spearman's rank correlation rho

data: res2$vol and res2$number
S = 1934.2, p-value = 0.03387
alternative hypothesis: true rho is not equal to 0
sample estimates:
rho
0.4095827

```

### Regression results: volat vs losses attacks

```

Call:
lm(formula = vol ~ attack, data = month_df)

Residuals:
    Min      1Q      Median      3Q      Max 
-0.24822 -0.18320 -0.09289  0.09314  1.02359 

Coefficients:
            Estimate Std. Error t value Pr(>|t|)    
(Intercept) 3.338e-01  5.572e-02  5.992  2.95e-06 ***
attack      1.637e-07 3.684e-07  0.444   0.661    
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.2754 on 25 degrees of freedom
Multiple R-squared:  0.007838,  Adjusted R-squared: -0.03185 
F-statistic: 0.1975 on 1 and 25 DF,  p-value: 0.6606

```

## Regression results: volat vs nb attacks

```
non-numeric argument to mathematical function
> month_df = data.frame(dates= do.call("c", my_dates), vol = unlist(my_vol), number = unlist(my_number))
> summary(reg)
```

Call:  
lm(formula = vol ~ attack, data = month\_df)

Residuals:

Min	1Q	Median	3Q	Max
-0.32836	-0.14111	-0.03555	0.05944	0.90600

Coefficients:

	Estimate	Std. Error	t value	Pr(> t )
(Intercept)	0.07745	0.11783	0.657	0.5170
attack	0.18761	0.07653	2.451	0.0216 *
---				
Signif. codes:	0	***	0.001	***
			0.01	**
			0.05	*
			0.1	.
			1	

Residual standard error: 0.2482 on 25 degrees of freedom  
Multiple R-squared: 0.1938, Adjusted R-squared: 0.1616  
F-statistic: 6.01 on 1 and 25 DF, p-value: 0.02156