Regression V2

```r
library("openxlsx")
library("ggplot2")
library("forecast")
library("cowplot")
library("dplyr")
library("car")
library("Hmisc")
```

```
##       CAR0            Premium          Division          DealValue          RelativeSiz
e      GeographicalDistance Individualism    UncertaintyAvoidance
##  Min.   :-15.0610   Min.   :-0.4619   Min.   :0.0000   Min.   :   1.94   Min.   :  0.
00192   Min.   :  5.1      Min.   : 3.231   Min.   : 1.958
##  1st Qu.: -7.3948   1st Qu.: 0.2100   1st Qu.:0.0000   1st Qu.:  82.50   1st Qu.:  2.
42529   1st Qu.:1375.2     1st Qu.:15.576   1st Qu.: 8.045
##  Median : -4.0787   Median : 0.3358   Median :0.0000   Median : 362.79   Median :  7.
13154   Median :4699.1     Median :22.566   Median :13.921
##  Mean   : -4.1348   Mean   : 0.3985   Mean   :0.2059   Mean   :1082.01   Mean   : 24.
88965   Mean   :4473.3     Mean   :26.308   Mean   :18.534
##  3rd Qu.: -0.8783   3rd Qu.: 0.4816   3rd Qu.:0.0000   3rd Qu.:1021.75   3rd Qu.: 26.
41198   3rd Qu.:6749.3     3rd Qu.:34.855   3rd Qu.:22.175
##  Max.   :  7.8145   Max.   : 2.8100   Max.   :1.0000   Max.   :8881.21   Max.   :214.
75159   Max.   :9770.3     Max.   :96.187   Max.   :61.664
```

```
##                             CAR0 Premium Division DealValue RelativeSize GeographicalDistan
ce Individualism UncertaintyAvoidance
## CAR0                        1.00   -0.14    -0.11      0.01         0.09                 -0.
09         0.10                 0.03
## Premium                    -0.14    1.00    -0.07     -0.02         0.11                  0.
06        -0.02                 0.05
## Division                   -0.11   -0.07     1.00     -0.18         0.19                 -0.
16         0.20                 0.19
## DealValue                   0.01   -0.02    -0.18      1.00        -0.17                  0.
03        -0.28                -0.26
## RelativeSize                0.09    0.11     0.19     -0.17         1.00                  0.
06        -0.05                -0.01
## GeographicalDistance       -0.09    0.06    -0.16      0.03         0.06                  1.
00        -0.33                -0.23
## Individualism               0.10   -0.02     0.20     -0.28        -0.05                 -0.
33         1.00                 0.75
## UncertaintyAvoidance        0.03    0.05     0.19     -0.26        -0.01                 -0.
23         0.75                 1.00
##
## n= 102
##
##
## P
##                             CAR0    Premium Division DealValue RelativeSize GeographicalDista
nce Individualism UncertaintyAvoidance
## CAR0                                0.1670  0.2838   0.9440    0.3781       0.3821
    0.3247          0.7987
## Premium                    0.1670           0.4608   0.8321    0.2532       0.5484
    0.8504          0.6350
## Division                   0.2838  0.4608            0.0630    0.0625       0.1129
    0.0414          0.0515
## DealValue                  0.9440  0.8321   0.0630             0.0883       0.7608
    0.0050          0.0078
## RelativeSize               0.3781  0.2532   0.0625   0.0883                 0.5612
    0.5951          0.9381
## GeographicalDistance       0.3821  0.5484   0.1129   0.7608    0.5612
    0.0008          0.0183
## Individualism              0.3247  0.8504   0.0414   0.0050    0.5951       0.0008
                    0.0000
## UncertaintyAvoidance       0.7987  0.6350   0.0515   0.0078    0.9381       0.0183
    0.0000
```

```
##
## Call:
## lm(formula = CAR0 ~ DealValue + RelativeSize + Division + GeographicalDistance,
##     data = regress_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -11.6745  -2.9099   0.0373   3.0955  11.8017
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)          -3.261e+00  1.036e+00  -3.149  0.00218 **
## DealValue             1.178e-05  2.861e-04   0.041  0.96724
## RelativeSize          1.385e-02  1.156e-02   1.198  0.23399
## Division             -1.766e+00  1.245e+00  -1.419  0.15909
## GeographicalDistance -1.939e-04  1.664e-04  -1.165  0.24670
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.862 on 97 degrees of freedom
## Multiple R-squared:  0.03705,    Adjusted R-squared:  -0.002656
## F-statistic: 0.9331 on 4 and 97 DF,  p-value: 0.4481
```

```
##          DealValue         RelativeSize          Division GeographicalDistance
##           1.056332             1.065115          1.092877             1.034186
```

```
##
## Call:
## lm(formula = CAR0 ~ DealValue + RelativeSize + Division + GeographicalDistance +
##     Premium, data = regress_data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -11.5441  -2.8965   0.0029   3.0736  11.7787
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)          -2.587e+00  1.111e+00  -2.328    0.022 *
## DealValue             3.542e-06  2.839e-04   0.012    0.990
## RelativeSize          1.612e-02  1.156e-02   1.394    0.167
## Division             -1.946e+00  1.240e+00  -1.570    0.120
## GeographicalDistance -1.838e-04  1.652e-04  -1.113    0.269
## Premium              -1.831e+00  1.149e+00  -1.594    0.114
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.823 on 96 degrees of freedom
## Multiple R-squared:  0.06189,    Adjusted R-squared:  0.01302
## F-statistic: 1.267 on 5 and 96 DF,  p-value: 0.2847
```

```
##              DealValue           RelativeSize              Division GeographicalDistance
         Premium
##             1.056682               1.081462              1.102043             1.035696
        1.024700
```

```
##
## Call:
## lm(formula = CAR0 ~ DealValue + RelativeSize + Division + GeographicalDistance +
##     Premium + UncertaintyAvoidance + Individualism, data = regress_data)
##
## Residuals:
##     Min       1Q   Median       3Q      Max
## -11.0312  -2.7628   0.0622   2.6960  11.8003
##
## Coefficients:
##                        Estimate Std. Error t value Pr(>|t|)
## (Intercept)          -3.855e+00  1.605e+00  -2.402   0.0183 *
## DealValue             8.362e-05  2.965e-04   0.282   0.7786
## RelativeSize          1.767e-02  1.166e-02   1.515   0.1331
## Division             -2.101e+00  1.257e+00  -1.672   0.0979 .
## GeographicalDistance -1.228e-04  1.739e-04  -0.706   0.4817
## Premium              -1.796e+00  1.157e+00  -1.553   0.1238
## UncertaintyAvoidance -2.688e-02  5.168e-02  -0.520   0.6043
## Individualism         5.267e-02  4.531e-02   1.163   0.2480
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.835 on 94 degrees of freedom
## Multiple R-squared:  0.07701,    Adjusted R-squared:  0.008282
## F-statistic:  1.12 on 7 and 94 DF,  p-value: 0.3569
```

```
##              DealValue           RelativeSize              Division GeographicalDistance
         Premium UncertaintyAvoidance         Individualism
##             1.147428               1.095643              1.126493             1.142106
        1.033979               2.352605              2.520624
```

```
##
## Call:
## lm(formula = CAR0 ~ DealValue + RelativeSize + Division + GeographicalDistance +
##       Premium + UncertaintyAvoidance + Individualism + Premium *
##       UncertaintyAvoidance + Premium * Individualism, data = regress_data)
##
## Residuals:
##      Min      1Q  Median      3Q     Max
## -10.787  -2.685   0.059   2.573  12.284
##
## Coefficients:
##                                Estimate Std. Error t value Pr(>|t|)
## (Intercept)                   -3.392e+00  1.688e+00  -2.010   0.0474 *
## DealValue                      9.484e-05  2.969e-04   0.319   0.7502
## RelativeSize                   1.883e-02  1.190e-02   1.583   0.1169
## Division                      -2.392e+00  1.288e+00  -1.857   0.0664 .
## GeographicalDistance          -6.222e-05  1.798e-04  -0.346   0.7301
## Premium                       -4.465e+00  2.436e+00  -1.833   0.0701 .
## UncertaintyAvoidance           2.427e-02  7.717e-02   0.314   0.7539
## Individualism                 -2.189e-03  6.340e-02  -0.035   0.9725
## Premium:UncertaintyAvoidance  -1.664e-01  1.591e-01  -1.045   0.2986
## Premium:Individualism          2.049e-01  1.626e-01   1.260   0.2108
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 4.839 on 92 degrees of freedom
## Multiple R-squared:  0.09501,    Adjusted R-squared:  0.00648
## F-statistic: 1.073 on 9 and 92 DF,  p-value: 0.39
```

```
##                DealValue              RelativeSize                       Divisio
n        GeographicalDistance                   Premium          UncertaintyAvoidance
             Individualism Premium:UncertaintyAvoidance         Premium:Individualism
##                 1.148691                  1.138196                       1.18061
3                1.218940                  4.578354                      5.234913
                 4.927154                 35.146028                     44.417353
```