First model

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Loading Packages, Data and Defining Global Variables

```
library(QCA)
```

```
## Loading required package: admisc
```

```
##
## To cite package QCA in publications, please use:
##   Dusa, Adrian (2019) QCA with R. A Comprehensive Resource.
##   Springer International Publishing.
##
## To run the graphical user interface, use: runGUI()
```

```
df = read.csv('../data/merged.csv')
Investment_Grade <- 0.70
Speculative <- 0.55
```

Inicializing fsQCA

Outcome: Higher rating

True Table

```
TT <- truthTable(
    df,
    outcome = "TE",
    conditions = "Rule_of_Law,
  Government_Size, Regulatory_Efficiency, Open_Markets",
incl.cut = paste(Investment_Grade, Speculative, sep = ", "),
  show.cases = TRUE,
  dcc = TRUE,
  )
TT
```

```
##
##   OUT: output value
##     n: number of cases in configuration
##  incl: sufficiency inclusion score
##   PRI: proportional reduction in inconsistency
##   DCC: deviant cases consistency
##
##      Rule_of_Law Government_Size Regulatory_Efficiency Open_Markets   OUT
##  1         0             0                  0                0          1
##  3         0             0                  1                0          1
##  4         0             0                  1                1          1
##  7         0             1                  1                0          1
##  8         0             1                  1                1          1
## 12         1             0                  1                1          1
## 15         1             1                  1                0          1
## 16         1             1                  1                1          1
##        n   incl  PRI
##  1     4   0.854 0.070
##  3     1   0.852 0.097
##  4     4   0.834 0.101
##  7     15  0.774 0.130
##  8     46  0.721 0.206
## 12     3   0.879 0.147
## 15     2   0.865 0.261
## 16     29  0.843 0.488
##       DCC
##  1    23,24,28,101
##  3    59
##  4    17,63,64,90
##  7    1,9,16,22,31,33,51,75,84,87,92,97,99,102
##  8    2,4,5,6,7,8,13,15,21,26,30,32,35,37,38,40,47,48,49,52,53,54,58,62,68,69,71,76,82,85,86,88,89,94
## 12    18,67,70
## 15    14
## 16    11,27,34,36,44,45,60,80,100,103
```

```
contradictions <- findRows(obj = TT, remainders = FALSE, type = 3)
```

Minimization

```
MIN <- minimize(TT, details = TRUE, min.pin = TRUE, row.dom = TRUE)
MIN
```

```
##
## M1: Government_Size*Regulatory_Efficiency + Regulatory_Efficiency*Open_Markets +
##     ~Rule_of_Law*~Government_Size*~Open_Markets => TE
##
##                                                 inclS   PRI   covS   covU
## ------------------------------------------------------------------------
## 1  Government_Size*Regulatory_Efficiency        0.647  0.296  0.967  0.021
## 2  Regulatory_Efficiency*Open_Markets           0.678  0.314  0.949  0.002
## 3  ~Rule_of_Law*~Government_Size*~Open_Markets  0.831  0.083  0.532  0.000
```

```
## ------------------------------------------------------------------------
##    M1                                              0.621  0.274  0.969
##
##                                                    cases
## ------------------------------------------------------
## 1  Government_Size*Regulatory_Efficiency           1,9,16,22,31,33,51,75,79,84,87,92,97,99,102;
##                                                    2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,4
##                                                    14,20; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,5
## 2  Regulatory_Efficiency*Open_Markets              17,63,64,90; 2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,
##                                                    18,67,70; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,5
## 3  ~Rule_of_Law*~Government_Size*~Open_Markets     23,24,28,101; 59
## ------------------------------------------------------
```

Outcome: Lower rating

True Table

```
TT <- truthTable(
    df,
    outcome = "~TE",
    conditions = "Rule_of_Law,
  Government_Size, Regulatory_Efficiency, Open_Markets",
  incl.cut = paste(Investment_Grade, Speculative, sep = ", "),
  show.cases = TRUE,
  dcc = TRUE,
  )
TT
```

```
##
##   OUT: output value
##     n: number of cases in configuration
##  incl: sufficiency inclusion score
##   PRI: proportional reduction in inconsistency
##   DCC: deviant cases consistency
##
##      Rule_of_Law Government_Size Regulatory_Efficiency Open_Markets   OUT
##  1         0             0                   0                0          1
##  3         0             0                   1                0          1
##  4         0             0                   1                1          1
##  7         0             1                   1                0          1
##  8         0             1                   1                1          1
## 12         1             0                   1                1          1
## 15         1             1                   1                0          1
## 16         1             1                   1                1          1
##        n   incl  PRI   DCC
##  1     4   0.989 0.930
##  3     1   0.984 0.903
##  4     4   0.981 0.899
##  7     15  0.966 0.870 79
##  8     46  0.924 0.785 10,25,42,50,57,72,73,74,91,93
## 12     3   0.979 0.853
## 15     2   0.953 0.739 20
```

```
## 16     29  0.843 0.489 3,12,19,39,41,43,46,55,56,61,65,66,77,78,81,83,95,98
```

```
contradictions <- findRows(obj = TT, remainders = FALSE, type = 3)
```

Minimization

```
MIN <- minimize(TT, details = TRUE, min.pin = TRUE, row.dom = TRUE)
MIN
```

```
##
## M1: Government_Size*Regulatory_Efficiency + Regulatory_Efficiency*Open_Markets +
##     ~Rule_of_Law*~Government_Size*~Open_Markets => ~TE
##
##                                                 inclS   PRI   covS   covU
## ------------------------------------------------------------------------
## 1  Government_Size*Regulatory_Efficiency        0.799  0.599  0.853  0.065
## 2  Regulatory_Efficiency*Open_Markets           0.810  0.594  0.809  0.019
## 3  ~Rule_of_Law*~Government_Size*~Open_Markets  0.985  0.917  0.451  0.012
## ------------------------------------------------------------------------
##    M1                                           0.797  0.611  0.889
##
##                                                 cases
## ------------------------------------------------------
## 1  Government_Size*Regulatory_Efficiency        1,9,16,22,31,33,51,75,79,84,87,92,97,99,102;
##                                                 2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,4
##                                                 14,20; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,5
## 2  Regulatory_Efficiency*Open_Markets           17,63,64,90; 2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,
##                                                 18,67,70; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,5
## 3  ~Rule_of_Law*~Government_Size*~Open_Markets  23,24,28,101; 59
## ------------------------------------------------------
```