

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;
##                                           2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,44,45,46,55,59;
##                                           14,20; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,59;
## 2  Regulatory_Efficiency*Open_Markets    17,63,64,90; 2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,44,45,46,55,59;
##                                           18,67,70; 3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,59;
## 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;
##                                           2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,101,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120;
##                                           3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,56,57,58,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,135,137,139,141,143,145,147,149,151,153,155,157,159,161,163,165,167,169,171,173,175,177,179,181,183,185,187,189,191,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,223,225,227,229,231,233,235,237,239,241,243,245,247,249,251,253,255,257,259,261,263,265,267,269,271,273,275,277,279,281,283,285,287,289,291,293,295,297,299,301,303,305,307,309,311,313,315,317,319,321,323,325,327,329,331,333,335,337,339,341,343,345,347,349,351,353,355,357,359,361,363,365,367,369,371,373,375,377,379,381,383,385,387,389,391,393,395,397,399,401,403,405,407,409,411,413,415,417,419,421,423,425,427,429,431,433,435,437,439,441,443,445,447,449,451,453,455,457,459,461,463,465,467,469,471,473,475,477,479,481,483,485,487,489,491,493,495,497,499,501,503,505,507,509,511,513,515,517,519,521,523,525,527,529,531,533,535,537,539,541,543,545,547,549,551,553,555,557,559,561,563,565,567,569,571,573,575,577,579,581,583,585,587,589,591,593,595,597,599,601,603,605,607,609,611,613,615,617,619,621,623,625,627,629,631,633,635,637,639,641,643,645,647,649,651,653,655,657,659,661,663,665,667,669,671,673,675,677,679,681,683,685,687,689,691,693,695,697,699,701,703,705,707,709,711,713,715,717,719,721,723,725,727,729,731,733,735,737,739,741,743,745,747,749,751,753,755,757,759,761,763,765,767,769,771,773,775,777,779,781,783,785,787,789,791,793,795,797,799,801,803,805,807,809,811,813,815,817,819,821,823,825,827,829,831,833,835,837,839,841,843,845,847,849,851,853,855,857,859,861,863,865,867,869,871,873,875,877,879,881,883,885,887,889,891,893,895,897,899,901,903,905,907,909,911,913,915,917,919,921,923,925,927,929,931,933,935,937,939,941,943,945,947,949,951,953,955,957,959,961,963,965,967,969,971,973,975,977,979,981,983,985,987,989,991,993,995,997,999,1000;
##
## 2  Regulatory_Efficiency*Open_Markets      17,63,64,90; 2,4,5,6,7,8,10,13,15,21,25,26,30,32,35,37,38,40,42,44,46,48,50,52,54,56,58,60,62,64,66,68,70,72,74,76,78,80,82,84,86,88,90,92,94,96,98,100,101,103,104,105,106,107,108,109,110,111,112,113,114,115,116,117,118,119,120;
##                                           3,11,12,19,27,29,34,36,39,41,43,44,45,46,55,56,57,58,59,61,63,65,67,69,71,73,75,77,79,81,83,85,87,89,91,93,95,97,99,101,103,105,107,109,111,113,115,117,119,121,123,125,127,129,131,133,135,137,139,141,143,145,147,149,151,153,155,157,159,161,163,165,167,169,171,173,175,177,179,181,183,185,187,189,191,193,195,197,199,201,203,205,207,209,211,213,215,217,219,221,223,225,227,229,231,233,235,237,239,241,243,245,247,249,251,253,255,257,259,261,263,265,267,269,271,273,275,277,279,281,283,285,287,289,291,293,295,297,299,301,303,305,307,309,311,313,315,317,319,321,323,325,327,329,331,333,335,337,339,341,343,345,347,349,351,353,355,357,359,361,363,365,367,369,371,373,375,377,379,381,383,385,387,389,391,393,395,397,399,401,403,405,407,409,411,413,415,417,419,421,423,425,427,429,431,433,435,437,439,441,443,445,447,449,451,453,455,457,459,461,463,465,467,469,471,473,475,477,479,481,483,485,487,489,491,493,495,497,499,501,503,505,507,509,511,513,515,517,519,521,523,525,527,529,531,533,535,537,539,541,543,545,547,549,551,553,555,557,559,561,563,565,567,569,571,573,575,577,579,581,583,585,587,589,591,593,595,597,599,601,603,605,607,609,611,613,615,617,619,621,623,625,627,629,631,633,635,637,639,641,643,645,647,649,651,653,655,657,659,661,663,665,667,669,671,673,675,677,679,681,683,685,687,689,691,693,695,697,699,701,703,705,707,709,711,713,715,717,719,721,723,725,727,729,731,733,735,737,739,741,743,745,747,749,751,753,755,757,759,761,763,765,767,769,771,773,775,777,779,781,783,785,787,789,791,793,795,797,799,801,803,805,807,809,811,813,815,817,819,821,823,825,827,829,831,833,835,837,839,841,843,845,847,849,851,853,855,857,859,861,863,865,867,869,871,873,875,877,879,881,883,885,887,889,891,893,895,897,899,901,903,905,907,909,911,913,915,917,919,921,923,925,927,929,931,933,935,937,939,941,943,945,947,949,951,953,955,957,959,961,963,965,967,969,971,973,975,977,979,981,983,985,987,989,991,993,995,997,999,1000;
##
## 3  ~Rule_of_Law*~Government_Size*~Open_Markets 23,24,28,101; 59
## -----
```