**rmsprg\_final.m:**

THIS PROGRAM IS CONCERNED WITH TESTS OF MULTIVARIATE ONE-SIDED HYPOTHESES for USE IN TESTS and CONFIDENCE INTERVALS CONCERNING MOMENT INEQUALITIES. IT COMPUTES RESULTS FOR THE MMM (I.E., SUM) AND AQLR TEST STATISTICS AND THE PA, t-TEST/KappaAuto/Nm, AND t-TEST/KappaAuto/Bt CRITICAL VALUES. THE RECOMMENDED TEST IN ANDREWS AND BARWICK (2012) IS THE AQLR/t-TEST/KappaAuto/Bt test. THE MMM/PA TEST IS FASTER TO COMPUTE AND MAY BE USEFUL FOR DETERMINING THE ROUGH SHAPE OF A CONFIDENCE INTERVAL BEFORE SWITCHING TO THE RECOMMENDED TEST FOR GETTING MORE PRECISE RESULTS. TESTING PROBLEM CONSIDERED HERE ARE:

H\_0: MU>=0 VERSUS H\_1: MU NOT >=0.

IT CALLS FUNCTIONS AUTOMAT.m, STAT.m, AND CRITVALS.m.

**rmsprg\_fs\_short\_final.m:**

THE PROGRAM IS USED TO COMPUTE THE FINITE SAMPLE SIZE AND POWER RESULTS IN ANDREWS AND BARWICK (2012). IT ONLY COMPUTES RESULTS FOR THE MMM (I.E., SUM) AND AQLR TEST STATISTICS AND THE PA, t-TEST/KappaAuto/Nm, AND t-TEST/KappaAuto/Bt CRITICAL VALUES. THE RECOMMENDED TEST IN ANDREWS AND BARWICK (2012) IS THE AQLR/t-TEST/KappaAuto/Bt test. THE MMM/PA TEST IS FASTER TO COMPUTE AND MAY BE USEFUL FOR DETERMINING THE ROUGH SHAPE OF A CONFIDENCE INTERVAL BEFORE SWITCHING TO THE RECOMMENDED TEST FOR GETTING MORE PRECISE RESULTS.TESTING PROBLEM CONSIDERED HERE:

H\_0: MU>=0 VERSUS H\_1: MU NOT >=0, for X ~ ( MU, V),

WHERE THE DISTRIBUTION OF X CAN BE Normal, t5, t3, t2, ChiSq, OR Uniform.

**AUTOMAT.m**

THIS FUNCTION IS CALLED BY rmsprg\_final.m / rmsprg\_fs\_short\_final.m AND COMPUTES KAPPA AND ETA-AUTO BASED ON A GIVEN VALUE OF DELTA AND A RULE (THAT IS PROGRAMMED INTO THE CODE) FOR HOW KAPPA and ETA-AUTO SHOULD DEPEND ON DELTA. DELTA IS A MEASURE OF HOW MUCH CORRELATION IS IN THE CORRELATION MATRIX OMEGA, WHICH CORRESPONDS TO THE VARIANCE MATRIX V.

**STAT.m:**

THIS FUNCTION IS CALLED USED BY rmsprg\_final.m / rmsprg\_fs\_short\_final.m AND TAKES A R BY P MATRIX OF DATA, ZMAT, AND A P BY P VARIANCE MATRIX, V, AND COMPUTES AN R VECTOR OF TEST STATISTICS. THE TYPE OF TEST STATISTIC THAT IS CALCULATED IS SPECIFIED BY STATTYPE.

**CRITVALS.m**

THIS FUNCTION IS USED BY THE PROGRAM rmsprg\_final.m AND COMPUTES CRITICAL VALUES OF TYPE:

CVTYPE == 0 STD PLUG-IN ASYMPTOTIC, I.E., PA (UNCONDITIONAL),

CVTYPE == 1 PHI1, t TEST, (A CONDITIONAL CV),

CVTYPE == 11 PHI1, t TEST, WITH AUTOMATIC DETERMINATION OF KAPPA and ETA BASED ON V.

IF A BOOTSTRAP RMS CRITICAL VALUE IS DESIRED, ONE ADDS 10 BEFORE THE NUMBER OF THE CVTYPE. THUS,

CVTYPE == 100 BOOTSTRAP PLUG-IN ASY CRIT VAL,

CVTYPE == 101 BOOTSTRAP PHI1, t TEST, (A CONDITIONAL CV),

CVTYPE == 1011 BOOTSTRAP PHI1, t TEST, WITH AUTOMATIC DETERMINATION OF KAPPA and ETA BASED ON V.

**CRITVALS\_FS.m**

THIS PROCEDURE IS USED BY THE PROGRAM rmsprg\_fs\_short\_final.m AND COMPUTES CRITICAL VALUES OF TYPE:

CVTYPE == 0 STD PLUG-IN ASYMPTOTIC, I.E., PA (UNCONDITIONAL),

CVTYPE == 1 PHI1, t TEST, (A CONDITIONAL CV),

CVTYPE == 11 PHI1, t TEST, WITH AUTOMATIC DETERMINATION OF KAPPA and ETA BASED ON V.

IF A BOOTSTRAP RMS CRITICAL VALUE IS DESIRED, ONE ADDS 10 BEFORE THE NUMBER OF THE CVTYPE. THUS,

CVTYPE == 100 BOOTSTRAP PLUG-IN ASY CRIT VAL,

CVTYPE == 101 BOOTSTRAP PHI1, t TEST, (A CONDITIONAL CV),

CVTYPE == 1011 BOOTSTRAP PHI1, t TEST, WITH AUTOMATIC DETERMINATION OF KAPPA and ETA BASED ON V.

IT IS SIMILAR TO CRITVALS.m, EXCEPT THAT IT ALLOWS USER TO PROVIDE ETA FOR FINITE-SAMPLE SIZE CORRECTION.