ORGANISING

EU-SBAS INFORMATION DAY

A SHORT-TERM BASED ANTICIPATORY SYSTEM FOR THE EUROPEAN LABOUR MARKET TRENDS, SKILLS DEVELOPMENTS AND VET POLICY

SBAS
A SECTORAL BASED ANTICIPATORY SYSTEM FOR THE EUROPEAN LABOUR MARKET

TASK A2.2: REFINEMENTS OF THE ECONOMETRIC TECHNOLOGY OF THE SBAS PROJECT

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OUTLINE

- DATA
- MODELS
- REFINEMENTS
- A FORECAST-BASED EARLY WARNING SYSTEM
- RESULTS
- APPENDIX: TABLES AND CURRENT FORECASTS FIGURES

Data: Dependent Variables

- Dependent variables in three phases:

1. Series for each EU country disaggregated by occupation, based on ISCO, further divided into males and females and into four age groups: 15-24, 25-49, 50-64 and 65+ (about 4000 series)

2. Distribute the occupation series into sectors, based on NACE, using a NACE/ISCO imputation matrix provided by CEDEFOP/Eurostat. Forecasting sectoral employment developments for each European country, disaggregated by sex and age group (about 3500 series)

3. Following CEDEFOP, we distribute the occupations into low, medium and high skills. This provides short term skills forecasts for each country, again disaggregated by sex and age (about 470 series)

DATA: INDEPENDENT VARIABLES

INDEPENDENT VARIABLES:

✓ About 50 variables for each of the countries under analysis, containing indicators such as:

Independent Variables
The volumes of imports and exports
The volumes of the private investment and consumption
The volume of GDP
The GDP deflator
The government deficit as a percentage of the GDP
The sectorial value added
The general unemployment level and employment hours
The unit labour cost
Consumer surveys and economic sentiment indicators
Stock price and volatility indexes
Long-term interest rates

DATA: SAMPLE AND FREQUENCY

- **SAMPLE:** 1998 TO 2013/2014 (WHERE AVAILABLE)
- **FREQUENCY:** QUARTERLY
- SOME VARIABLES ARE MONTHLY (E.G. SURVEYS, STOCK MARKET VARIABLES, INTEREST RATES ETC.)
- WE ASSESS THREE WAYS TO COPE WITH THIS UNBALANCEDNESS PROBLEM.

1. USING THE QUARTERLY AVERAGES, I.E. AVERAGING OVER THE THREE MONTHS IN THE SAME QUARTER.
2. USING THE LAST MONTH IN EACH QUARTER ONLY, IN ORDER TO USE THE MOST UPDATED INFORMATION AVAILABLE BUT AT THE COST OF A POSSIBLE INCREASE IN THE VOLATILITY OF THE VARIABLE.
3. SPLITTING EACH MONTHLY VARIABLE INTO THREE QUARTERLY VARIABLES EACH CONTAINING, RESPECTIVELY, THE FIRST, SECOND AND THIRD MONTHS IN ALL QUARTERS ACROSS THE PERIOD. THIS APPROACH IS IN THE SPIRIT OF THE UMIDAS REGRESSIONS INTRODUCED IN FORONI AND MARCELLINO (2011). IT PRESERVES ALL THE AVAILABLE HIGHER FREQUENCY INFORMATION, AT THE COST OF FURTHER ENLARGING THE NUMBER OF VARIABLES UNDER CONSIDERATION.

DATA: SAMPLE AND FREQUENCY

Country	From	To	Country	From	To
AT	1998.1	2013.4	IE	1998.2	2014.1
BE	1998.2	2013.4	IT	1998.1	2014.1
BG	2000.1	2013.4	LT	1998.2	2014.1
CY	1999.2	2013.4	LU	1998.2	2013.4
CZ	1998.1	2013.4	LV	1998.2	2014.1
DE	1998.2	2013.4	MT	2000.2	2013.4
DK	1998.2	2014.1	NL	1998.2	2014.1
EE	1998.2	2014.1	PL	1998.2	2013.4
ES	1998.1	2013.4	PT	1998.1	2014.1
FI	1998.2	2013.4	RO	2005.2	2013.4
FR	1998.1	2013.4	SE	1998.2	2013.4
GR	1998.1	2013.4	SI	1998.2	2013.4
HR	2002.2	2013.4	SK	1998.1	2013.4
HU	1998.2	2013.4	UK	1998.2	2014.1

MODELS

- WE ASSESS A LARGE SET OF SHORT TERM FORECASTING MODELS, FOCUSING ON THOSE THAT PERFORM WELL FOR MACROECONOMIC VARIABLES BASED ON PREVIOUS STUDIES.
- THE MODELS THAT WE CONSIDER ARE ALSO SIMILAR TO THOSE USED FOR THEIR SHORT TERM PROJECTIONS BY THE STATE PROJECTIONS CONSORTIUM (RESPONSIBLE FOR DEVELOPING EMPLOYMENT PROJECTIONS UNDER CONTRACT WITH THE U.S. DEPARTMENT OF LABOR).

MODELS

- FIVE CATEGORIES:
  1. ***AR(P)*** WITH TWO LAG VALUES, ***P = {1,4}***
  2. ***ARMA(P,Q)*** WITH ***(P,Q) = (1,1)*** AND ***(P,Q) = (4,4)***
  3. ***PC(F)*** WITH ***F = {1,2,3,4}*** FACTORS AND INCLUDING OR EXCLUDING AN ***AR(P)***
  4. ***PLS(F)*** WITH ***F = {1,2,3,4}*** FACTORS AND INCLUDING OR EXCLUDING AN ***AR(P)***
  5. ***BR(WN)*** WITH SHRINKAGE PARAMETERS ***W = {0.5,1,2}*** AND INCLUDING OR EXCLUDING AN ***AR(P)***

- CHOICES FOR THE CONSTANT AND THE DUMMY VARIABLE:
  1. THE CONSTANT AND THE DUMMY VARIABLE ARE NOT INCLUDED AT ALL
  2. ONLY THE CONSTANT IS INCLUDED,
  3. ONLY THE DUMMY VARIABLE IS INCLUDED.

REFINEMENTS

- THE IMPLEMENTATION OF THE SBAS IS DIVIDED IN THREE PARTS:
- (I) A PSEUDO OUT-OF-SAMPLE FORECASTING EXERCISE WHERE THE PREDICTING ABILITY OF VARIOUS MODELS IS ASSESSED USING A CROSS-VALIDATION METHODOLOGY
- (II) THE ACTUAL OUT-OF-SAMPLE FORECASTING, WHERE THE FORECASTS ERRORS PRODUCED IN PART (I) ARE USED TO PICK THE FORECASTING MODEL(S) THAT BEST SUITS THE USER, PRODUCE ACTUAL FORECASTS, AND CALCULATE VARIOUS FORECAST RELATED STATISTICS AND,
- (III) THE EARLY WARNING SYSTEM (EWS) INDICATORS THAT WARN THE ECONOMIST OF A POTENTIAL SUDDEN MOVE.

REFINEMENTS

- ONCE THE MODEL PARAMETER ESTIMATES ARE OBTAINED, WE USE THE PROJECTION METHOD WHICH IS MORE ROBUST IN THE PRESENCE OF POSSIBLE MODEL MIS-SPECIFICATION (STOCK AND WATSON, 2002)
- WE START WITH ***H = 1*** AND SET THE MAXIMUM FORECAST HORIZON AT ***H = 8***. LONGER HORIZONS COULD BE ALSO CONSIDERED BUT TYPICALLY TIME SERIES BASED FORECASTS BECOME UNINFORMATIVE FOR LARGE VALUES OF ***H***.
- THEN, WE SPECIFY THE EVALUATION PERIOD, ***EVAL***, OMITTING THE FINAL H OBSERVATIONS IN ORDER TO HAVE THE SAME NUMBER (***EVAL***) OF FORECASTS FOR ANY GIVEN FORECAST HORIZON H, TO BE LATER COMPARED WITH THE ACTUAL VALUES.

REFINEMENTS

1. DEFINE THE VARIABLE OF INTEREST, Y, WHERE Y BELONGS TO THE SET OF EUROPEAN LABOUR MARKET VARIABLES
2. USE AN INITIAL SAMPLE OF T_1 OBSERVATIONS ($T_1 = T\text{-}EVAL\text{-}H$).
3. OBTAIN THE PROPER SET OF REGRESSORS FOR EACH MODEL I, X_{IT}, $T = 1,2,\ldots, T_1$
4. FOR EACH FORECAST HORIZON REGRESS Y_T ON X_{IT-H} AND OBTAIN THE (METHOD SPECIFIC) VECTOR OF PARAMETER ESTIMATES
5. CALCULATE FOR EACH METHOD THE FORECASTS USING THE PROJECTION METHOD
6. REPEAT THE WHOLE PROCEDURE INCREASING IN EACH STEP THE INITIAL SAMPLE BY ONE OBSERVATION
7. REPEAT THE WHOLE PROCEDURE FOR EACH VARIABLE OF INTEREST Y

REFINEMENTS

- FORECASTING SCHEMES:
  1. RECURSIVE (ADD ONE OBS AT THE END OF EACH SAMPLE, SO EXPANDING SAMPLE SIZE)
     - More efficient
  1. ROLLING: NOT INCLUDED. HOWEVER, THE PROGRAM CODE OF THE SBAS CAN PRODUCE THOSE RESULTS USING A FIXED-LENGTH ROLLING WINDOW
- IN OUR EXPERIMENTS:
  - ✓ ***h = 1,…,8***
  - ✓ ***Eval = 16*** periods (2009-2013 where available)
- **CEDEFOP AGGREGATION HAS BEEN DONE USING ANNUAL AND QUARTER WEIGHTS**

REFINEMENTS

- ROOT MEAN SQUARED FORECAST ERROR
- DIEBOLD-MARIANO STATISTIC
- SIGN SUCCESS RATIO
- COVERAGE RATES OF INTERVAL FORECASTS BASED ON PAST FORECAST ERRORS: THE SBAS CAN NOW ALSO DYNAMICALLY COMPUTE INTERVAL FORECASTS FOR EACH VARIABLE AND FORECAST HORIZON

REFINEMENTS

- DENSITY FORECASTING AND COVERAGE RATES OF DENSITY FORECASTING INTERVALS: AN NEW ADDITION IN THIS REPORT IS THE CONSTRUCTION OF THE DENSITY FORECASTS AND THEIR EVALUATIONS.
- THE DENSITY FORECASTS ARE BASED ON SIMULATION AND THE WAY THEY ARE CONSTRUCTED IS SIMPLE AND INTUITIVE. FOR A GIVEN SERIES AND A MODEL OF INTEREST WE ESTIMATE THE ERROR. THEN, WE RESAMPLE FROM THE ERROR, THUS CONSTRUCT A RESAMPLED ERROR SERIES, AND USING THE MODEL ESTIMATES WE COMPUTE THE SERIES VALUE.
- REPEATING THIS PROCEDURE A NUMBER OF TIMES, B, WE END UP WITH A SERIES OF VALUES THAT CAN BE USED FOR FURTHER DISTRIBUTIONAL ANALYSIS.
- WE USE THE BERKOWITZ LR STATISTIC FOR DENSITY EVALUATION

A Forecast-Based Early Warning System

- An interesting issue is whether the short term forecasts produced by the SBAS can be also used to produce a policy relevant early warning system (EWS).
- In particular, policy makers can be interested in whether a specific occupational type (possibly in a given country and/or for a given gender and age group) will increase or decrease substantially over the next quarters compared to the recent past.
- To construct such an EWS, we proceed as follows.

A Forecast-Based Early Warning System

- First, for each variable under analysis, we compute the average value of the last *M* observations, as a summary measure of its recent past behaviour.
- We set m=20 so that the last 5 years of quarterly data are averaged.
- Then, we assess whether such an average falls outside the 90% or 95% interval forecast for that variable.

A Forecast-Based Early Warning System

- If the past average falls below the lower value of the forecast interval, a major decrease in that specific occupational type is expected, and vice versa for values larger than the upper forecast interval.
- In the SBAS, we can apply this procedure using the interval forecasts based either on the past forecast errors or the denisty simulation-based approach.

A Forecast-Based Early Warning System

- EVALUATION, CONDUCTED OVER THE $EVAL$
- PERIOD, TO VERIFY THE PERFORMANCE OF THE EWS, AND A PURE OUT-OF SAMPLE APPLICATION.

Results

- **Now, the SBAS tables present the following results:**
- RMSFE. The Root Mean Squared Forecast Error across all evaluation periods.
- DM. The two-sided Diebold-Mariano Statistic.
- DMp. The p-value for the two-sided Diebold-Mariano Statistic.
- SSR. The Sign Success Ratio calculated across all evaluation periods.

RESULTS

- CRPY-0,95. COVERAGE RATES USING THE 95% FORECAST INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE ACTUAL VALUE LIES INSIDE THE BOUNDS IS REPORTED.
- CRPY-0,90. COVERAGE RATES USING THE 90% FORECAST INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE ACTUAL VALUE LIES INSIDE THE BOUNDS IS REPORTED.

RESULTS

- CRDY-0,95. COVERAGE RATES USING THE 95% DENSITY FORECASTING INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE ACTUAL VALUE LIES INSIDE THE BOUNDS IS REPORTED.
- CRDY-0,90. COVERAGE RATES USING THE 90/% DENSITY FORECASTING INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE ACTUAL VALUE LIES INSIDE THE BOUNDS IS REPORTED.

RESULTS

- CRPM-0,95. COVERAGE RATES USING THE 95% FORECAST INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE AVERAGE OF THE LAST M VALUES LIES INSIDE THE BOUNDS IS REPORTED; M = 20.
- CRPM-0,90. COVERAGE RATES USING THE 90% FORECAST INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE AVERAGE OF THE LAST M VALUES LIES INSIDE THE BOUNDS IS REPORTED; M = 20.

RESULTS

- CRDY-0,95. COVERAGE RATES USING THE 95% DENSITY FORECASTING INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE AVERAGE OF THE LAST M VALUES LIES INSIDE THE BOUNDS IS REPORTED; M = 20.
- CRDY-0,90. COVERAGE RATES USING THE 90% DENSITY FORECASTING INTERVALS OBTAINED BY THE FORECAST ERROR. THE NUMBER OF TIMES THE AVERAGE OF THE LAST M VALUES LIES INSIDE THE BOUNDS IS REPORTED; M = 20.

RESULTS

- LR1. BERKOWITZ (2001) LIKELIHOOD RATIO STATISTIC FOR DENSITY EVALUATION. TESTING FOR MU=0 AND SIGMA=1.
- LR2. BERKOWITZ (2001) LIKELIHOOD RATIO STATISTIC FOR DENSITY EVALUATION. TESTING FOR RHO=0.
- LR3. BERKOWITZ (2001) LIKELIHOOD RATIO STATISTIC FOR DENSITY EVALUATION. JOINT TEST.
- LR1P. P-VALUE FOR LR1.
- LR2P. P-VALUE FOR LR2.
- LR3P. P-VALUE FOR LR3.

RESULTS

- LAST FORECAST. THE MOST RECENT REAL OUT-OF-SAMPLE FORECAST.

- EWSCONF. EARLY WARNING SYSTEM BASED ON THE FORECAST INTERVALS.
  - ✓ * indicates the average of the last m values lies outside the 90% bounds.
  - ✓ ** indicates the average of the last m values lies outside the 95% bounds.

RESULTS

- EWSDENS. EARLY WARNING SYSTEM BASED ON THE DENSITY FORECASTING INTERVALS.
  - ✓ * indicates the average of the last m values lies outside the 90% bounds.
  - ✓ ** Indicates the average of the last m values lies outside the 95% bounds.

COMPARISON TO CURRENT FORECASTS

Comparison to the official forecasts

	DE		ES		FR		IT	
Dates	Official	SBAS	Official	SBAS	Official	SBAS	Official	SBAS
2012	1.125%	-0.412%	-4.321%	-4.778%	-0.037%	-0.001%	-0.299%	-1.463%
2013	0.557%	0.696%	-2.944%	-4.315%	-0.346%	1.055%	-2.013%	-1.958%
2014	0.525%	0.717%	0.226%	0.600%	-1.080%	2.712%	-0.229%	-0.860%
2015	0.642%	1.799%	0.861%	0.063%	1.105%	-4.096%	0.474%	-0.002%
2016								0.001%

EWS

DE, ECOFIN, $h = 1$. EWS Example

Date	Value	EWSDens	Growth
2009.4	38555.71	**	
2010.1	37867.45	**	-1.80%
2010.2	38111.13	*	0.64%
2010.3	38392.53		0.74%
2010.4	38554.46	**	0.42%
2011.1	32199.27		-18.01%
2011.2	32734.43	**	1.65%
2011.3	32889.77	**	0.47%
2011.4	33100.31	*	0.64%
2012.1	32066.86		-3.17%
2012.2	32346.65		0.87%
2012.3	32757.32		1.26%
2012.4	32767.08		0.03%
2013.1	32290.68		-1.46%
2013.2	32812.66		1.60%
2013.3	33084.89		0.83%

APPENDIX
SAMPLE TABLES

IT, Low, $h = 1$, Annual Weights

	RMSFE	DM	DMp	SSR	CRpy-0.95	CRpy-0.90	CRdy-0.95	CRdy-0.90	CRpm-0.95	CRpm-0.90	CRdm-0.95	CRdm-0.90	LR1	LR2	LR3	LR1p	LR2p	LR3p	Last-Forecast	EWSConf	EWSDens
SLR	1.032	-0.599	0.558	0.375	0.688	0.688	1	0.875	0.438	0.438	0.5	0.312	4.052	1.04	4.165	0.132	0.308	0.244	21973271.71	**	**
SLR-D	0.885	0.562	0.583	0.75	0.688	0.688	0.938	0.75	0.375	0.375	0.375	0.25	5.22	1.369	4.268	0.074	0.242	0.234	22404689.44	**	**
AR(1)	1	0	1	0.5	0.688	0.688	1	0.938	0.5	0.25	0.438	0.375	6.003	2.095	5.243	0.05	0.148	0.155	22067822.78	**	**
AR(2)	1.003	-0.465	0.648	0.5	0.688	0.688	1	0.938	0.5	0.25	0.438	0.375	8.234	4.162	7.664	0.016	0.041	0.053	22068864.07	**	**
AR(3)	0.925	2.211	0.043	0.688	0.688	0.688	0.938	0.938	0.375	0.25	0.312	0.062	2.31	0.902	2.418	0.315	0.342	0.49	22116746.39	**	**
AR(4)	0.92	1.983	0.066	0.75	0.688	0.688	0.938	0.875	0.312	0.312	0.25	0.062	4.076	1.018	3.671	0.13	0.313	0.299	22167538.12	**	**
AR(1)-D	0.804	1.03	0.319	0.75	0.688	0.688	0.938	0.875	0.375	0.312	0.312	0.25	7.841	0.876	6.577	0.02	0.349	0.087	22429144.03	**	**
AR(2)-D	0.794	1.068	0.303	0.75	0.688	0.688	0.938	0.875	0.375	0.25	0.375	0.188	8.343	1.586	6.336	0.015	0.208	0.096	22395057.18	**	**
AR(3)-D	0.795	1.088	0.294	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.312	0.188	4.355	0.8	3.514	0.113	0.371	0.319	22371218.89	**	**
AR(4)-D	0.787	1.044	0.313	0.75	0.688	0.688	1	0.812	0.375	0.312	0.375	0.188	6.778	1.164	6.011	0.034	0.281	0.111	22376357.62	**	**
ARMA(1,1)	0.888	1.214	0.243	0.75	0.688	0.688	0.938	0.938	0.375	0.312	0.438	0.375	6.002	2.186	5.611	0.05	0.139	0.132	22273901.22	**	**
ARMA(2,2)	0.927	1.054	0.309	0.75	0.688	0.688	0.938	0.938	0.438	0.312	0.562	0.562	4.955	2.016	4.937	0.084	0.156	0.176	22177684.54	**	**
ARMA(3,3)	0.89	2.101	0.053	0.75	0.688	0.688	0.938	0.938	0.375	0.312	0.5	0.438	3.971	0.912	4.071	0.137	0.34	0.254	22262417.72	**	**
ARMA(4,4)	0.824	1.389	0.185	0.625	0.688	0.688	1	1	0.375	0.312	0.562	0.562	15.162	3.269	15.394	0.001	0.071	0.002	22604553.14	*	
ARMA(1,1)-D	0.896	0.554	0.588	0.75	0.688	0.688	1	0.938	0.438	0.312	0.562	0.5	12.811	1.468	10.735	0.002	0.226	0.013	22432300.5	**	**
ARMA(2,2)-D	0.8	1.007	0.33	0.75	0.688	0.688	1	0.938	0.312	0.25	0.438	0.438	11.566	0.75	11.498	0.003	0.386	0.009	22347539.48	**	**
ARMA(3,3)-D	0.8	1.007	0.33	0.75	0.688	0.688	1	0.938	0.312	0.25	0.438	0.375	9.368	1.226	8.43	0.009	0.268	0.038	22347539.48	**	**
ARMA(4,4)-D	0.902	0.512	0.616	0.688	0.688	0.688	1	0.938	0.438	0.312	0.625	0.625	13.577	0.04	13.357	0.001	0.841	0.004	22521413.55	**	**
PC(1)	0.989	0.276	0.786	0.25	0.688	0.688	0.938	0.812	0.438	0.375	0.438	0.312	2.391	0.769	2.532	0.303	0.38	0.469	21982019.69	**	**
PC(1)-D	0.796	0.937	0.364	0.75	0.688	0.688	1	0.875	0.375	0.312	0.375	0.312	7.42	1.728	6.114	0.024	0.189	0.106	22429360.72	**	**
PC(2)	0.987	0.17	0.867	0.688	0.688	0.688	0.938	0.938	0.438	0.438	0.312	0.312	0.249	0.425	0.646	0.883	0.515	0.886	21918021.8	**	**
PC(2)-D	0.765	1.005	0.331	0.75	0.688	0.688	1	0.938	0.312	0.25	0.375	0.188	3.768	2.003	4.106	0.152	0.157	0.25	22363267.1	**	**
PC(3)	0.975	0.338	0.74	0.625	0.688	0.688	1	0.938	0.438	0.312	0.375	0.312	0.995	0.723	1.506	0.608	0.395	0.681	21765138.29	**	**
PC(3)-D	0.749	1.104	0.287	0.75	0.688	0.688	1	0.938	0.312	0.25	0.375	0.25	4.972	2.243	5.224	0.083	0.134	0.156	22242527.9	**	**
PC(4)	0.971	0.404	0.692	0.625	0.688	0.688	0.938	0.938	0.438	0.312	0.438	0.312	0.7	0.355	1.12	0.705	0.551	0.772	21761983.76	**	**
PC(4)-D	0.752	1.093	0.292	0.75	0.688	0.688	0.938	0.875	0.312	0.25	0.312	0.188	1.575	1.411	2.169	0.455	0.235	0.538	22251554.15	**	**
PC(1)-AR(1)	0.989	0.27	0.791	0.25	0.688	0.688	0.938	0.875	0.438	0.375	0.375	0.25	2.84	0.843	2.769	0.242	0.359	0.429	21982348.27	**	**
PC(1)-AR(1)-D	0.793	0.952	0.356	0.75	0.688	0.688	1	0.875	0.375	0.312	0.375	0.25	5.818	1.806	5.217	0.055	0.179	0.157	22429373.42	**	**
PC(2)-AR(1)	0.987	0.177	0.862	0.688	0.688	0.688	1	0.812	0.438	0.438	0.312	0.312	1.869	0.716	2.289	0.393	0.397	0.515	21922589.49	**	**
PC(2)-AR(1)-D	0.763	1.014	0.327	0.75	0.688	0.688	1	0.875	0.312	0.25	0.188	0.188	5.097	1.945	5.048	0.078	0.163	0.168	22364827.2	**	**
PC(3)-AR(1)	0.976	0.341	0.738	0.625	0.688	0.688	1	0.938	0.438	0.312	0.375	0.375	2.157	0.906	2.635	0.34	0.341	0.451	21774823.89	**	**
PC(3)-AR(1)-D	0.749	1.1	0.289	0.75	0.688	0.688	1	0.938	0.312	0.25	0.312	0.188	3.865	1.716	4.4	0.145	0.19	0.221	22244832.73	**	**
PC(4)-AR(1)	0.972	0.402	0.693	0.625	0.688	0.688	1	0.938	0.438	0.312	0.438	0.312	0.927	1.324	1.906	0.629	0.25	0.592	21772693.74	**	**
PC(4)-AR(1)-D	0.752	1.087	0.294	0.75	0.688	0.688	0.938	0.875	0.312	0.25	0.375	0.25	2.214	2.158	3.046	0.331	0.142	0.385	22251053.06	**	**
PC(1)-AR(4)	0.989	0.266	0.794	0.312	0.688	0.688	0.938	0.812	0.438	0.375	0.438	0.375	2.603	0.398	2.602	0.272	0.528	0.457	21982372.38	**	**
PC(1)-AR(4)-D	0.792	0.929	0.368	0.75	0.688	0.688	0.938	0.812	0.375	0.312	0.375	0.312	3.978	0.877	3.372	0.137	0.349	0.338	22436498.74	**	**
PC(2)-AR(4)	0.987	0.164	0.872	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.312	1.117	1.309	2.054	0.572	0.253	0.561	21918396.85	**	**
PC(2)-AR(4)-D	0.764	0.992	0.337	0.75	0.688	0.688	1	0.812	0.312	0.25	0.25	0.188	3.667	1.942	3.671	0.16	0.163	0.299	22372726.43	**	**
PC(3)-AR(4)	0.972	0.38	0.71	0.625	0.688	0.688	0.938	0.938	0.438	0.312	0.312	0.312	0.085	0.557	0.63	0.958	0.456	0.889	21744697.59	**	**
PC(3)-AR(4)-D	0.747	1.085	0.295	0.75	0.688	0.688	0.938	0.938	0.312	0.25	0.312	0.312	2.412	1.199	2.54	0.299	0.274	0.468	22249851.61	**	**
PC(4)-AR(4)	0.971	0.398	0.696	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.312	0.321	0.744	0.96	0.852	0.388	0.811	21743194.34	**	**
PC(4)-AR(4)-D	0.751	1.082	0.296	0.75	0.688	0.688	0.938	0.938	0.312	0.25	0.25	0.188	2.325	0.922	2.289	0.313	0.337	0.515	22244593.77	**	**
PLS(1)	0.978	0.476	0.641	0.5	0.688	0.688	1	0.938	0.438	0.312	0.438	0.25	3.391	0.693	3.484	0.184	0.405	0.323	21902544	**	**
PLS(1)-D	0.78	1.004	0.331	0.75	0.688	0.688	0.938	0.875	0.375	0.25	0.25	0.188	7.715	0.795	6.963	0.021	0.373	0.073	22364537.43	**	**
PLS(2)	0.979	0.327	0.748	0.5	0.688	0.688	0.938	0.938	0.375	0.375	0.5	0.312	2.174	0.926	3.21	0.337	0.336	0.36	21804439.36	**	**
PLS(2)-D	0.755	1.051	0.31	0.75	0.688	0.688	0.938	0.875	0.375	0.188	0.312	0.312	3.595	2.247	3.781	0.166	0.134	0.286	22271404.55	**	**
PLS(3)	0.969	0.525	0.607	0.625	0.688	0.688	0.938	0.938	0.438	0.375	0.5	0.312	1.481	0.878	2.076	0.477	0.349	0.557	21761740.86	**	**
PLS(3)-D	0.75	1.083	0.296	0.75	0.688	0.688	0.938	0.875	0.375	0.188	0.375	0.25	5.042	1.638	4.86	0.08	0.201	0.182	22219828.31	**	**
PLS(4)	0.968	0.618	0.546	0.688	0.688	0.688	1	0.938	0.438	0.312	0.375	0.25	1.684	0.736	2.011	0.431	0.391	0.57	21761483.99	**	**
PLS(4)-D	0.773	1.082	0.296	0.75	0.688	0.688	1	0.875	0.312	0.25	0.312	0.188	4.968	0.776	4.563	0.083	0.378	0.207	22234401.17	**	**
PLS(1)-AR(1)	0.978	0.481	0.637	0.5	0.688	0.688	1	0.938	0.438	0.312	0.375	0.188	3.987	1.444	4.532	0.136	0.229	0.209	21906602.87	**	**
PLS(1)-AR(1)-D	0.778	1.014	0.327	0.75	0.688	0.688	1	0.875	0.375	0.25	0.312	0.188	6.206	2.068	6.005	0.045	0.15	0.111	22365209.06	**	**
PLS(2)-AR(1)	0.979	0.329	0.747	0.5	0.688	0.688	1	1	0.375	0.375	0.375	0.25	6.982	2.663	7.693	0.03	0.103	0.053	21808857.11	**	**
PLS(2)-AR(1)-D	0.754	1.059	0.307	0.75	0.688	0.688	1	0.938	0.375	0.188	0.375	0.312	5.927	1.879	5.852	0.052	0.17	0.119	22272014.26	**	**
PLS(3)-AR(1)	0.973	0.445	0.663	0.625	0.688	0.688	0.938	0.938	0.438	0.375	0.375	0.312	2.674	0.694	3.07	0.263	0.405	0.381	21768710.04	**	**
PLS(3)-AR(1)-D	0.749	1.084	0.296	0.75	0.688	0.688	0.938	0.875	0.375	0.188	0.375	0.188	2.847	2.186	3.413	0.241	0.139	0.332	22224869.22	**	**
PLS(4)-AR(1)	0.969	0.559	0.585	0.75	0.688	0.688	1	0.938	0.375	0.375	0.375	0.25	1.289	0.726	1.706	0.525	0.394	0.636	21769472.88	**	**
PLS(4)-AR(1)-D	0.767	1.09	0.293	0.75	0.688	0.688	0.938	0.875	0.312	0.25	0.25	0.188	2.685	1.045	2.59	0.261	0.307	0.459	22242506.3	**	**
PLS(1)-AR(4)	0.979	0.444	0.663	0.5	0.688	0.688	0.938	0.938	0.438	0.312	0.25	0.188	2.505	0.58	2.866	0.286	0.446	0.413	21902010.36	**	**
PLS(1)-AR(4)-D	0.778	0.988	0.339	0.75	0.688	0.688	1	1	0.375	0.25	0.312	0.25	5.747	3.581	5.746	0.056	0.058	0.125	22376680.57	**	**
PLS(2)-AR(4)	0.982	0.269	0.792	0.5	0.688	0.688	1	0.938	0.375	0.312	0.5	0.438	3.627	1.774	4.494	0.163	0.183	0.213	21794228.47	**	**
PLS(2)-AR(4)-D	0.754	1.037	0.316	0.75	0.688	0.688	1	0.938	0.375	0.25	0.375	0.25	6.004	2.259	5.564	0.05	0.133	0.135	22285132.04	**	**
PLS(3)-AR(4)	0.972	0.456	0.655	0.625	0.688	0.688	1	0.875	0.438	0.375	0.562	0.438	2.028	0.539	2.195	0.363	0.463	0.533	21741939.2	**	**
PLS(3)-AR(4)-D	0.748	1.065	0.304	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.312	0.188	2.868	1.613	3.062	0.238	0.204	0.382	22221233.47	**	**
PLS(4)-AR(4)	0.958	0.733	0.475	0.75	0.688	0.688	1	0.938	0.438	0.312	0.375	0.312	2.348	0.753	2.74	0.309	0.385	0.433	21742392.15	**	**
PLS(4)-AR(4)-D	0.763	1.056	0.308	0.75	0.688	0.688	1	0.938	0.312	0.25	0.375	0.25	2.538	0.41	2.388	0.281	0.522	0.496	22237296.07	**	**
BR(0.5)	1.633	-1.465	0.163	0.625	0.75	0.75	0.062	0.062	0.625	0.5	0	0	621.269	0.001	626.594	0	0.977	0	22861275.23		**
BR(0.5)-D	1.939	-2.127	0.05	0.562	0.688	0.688	0.062	0	0.625	0.5	0.062	0	3065.052	-0.011	2944.317	0	1	0	22875100.45		**
BR(1.0)	1.614	-1.574	0.136	0.562	0.75	0.688	0.062	0.062	0.625	0.5	0.125	0.125	999.197	0.101	892.03	0	0.751	0	22764495.64		**
BR(1.0)-D	1.849	-2.091	0.054	0.625	0.688	0.688	0.062	0.062	0.625	0.5	0.062	0.062	2407.491	-0.243	2949.338	0	1	0	22779267.95		**
BR(2.0)	1.588	-1.608	0.129	0.625	0.688	0.688	0.25	0.125	0.562	0.5	0.188	0.188	354.873	2.123	434.527	0	0.145	0	22604027.64		**
BR(2.0)-D	1.722	-2.031	0.06	0.625	0.688	0.688	0.062	0.062	0.625	0.5	0.125	0.125	1094.091	0.05	1135.926	0	0.822	0	22651925.62		**
BR(0.5)-AR(1)	1.334	-1.185	0.254	0.562	0.688	0.688	0.125	0.125	0.562	0.5	0.062	0.062	1143.912	-0.205	883.757	0	1	0	22848344.91		**
BR(0.5)-AR(1)-D	1.791	-2.716	0.016	0.5	0.625	0.625	0	0	0.5	0.5	0.125	0.125	2015.958	-3.363	4188.135	0	1	0	22754988.09		**
BR(1.0)-AR(1)	1.391	-1.868	0.081	0.5	0.688	0.688	0.125	0.125	0.562	0.5	0	0	1858.487	3.37	1767.273	0	0.066	0	22724325.23		**
BR(1.0)-AR(1)-D	1.719	-2.681	0.017	0.5	0.625	0.625	0	0	0.5	0.438	0	0	863.634	-8.589	2091.079	0	1	0	22673150.31		**
BR(2.0)-AR(1)	1.428	-2.289	0.037	0.625	0.688	0.688	0.25	0.188	0.562	0.5	0.062	0.062	693.2	1.016	737.621	0	0.313	0	22559492.28		**
BR(2.0)-AR(1)-D	1.615	-2.63	0.019	0.5	0.625	0.625	0.062	0	0.5	0.438	0	0	1398.973	0.056	1451.995	0	0.813	0	22562832.35		**
BR(0.5)-AR(4)	1.518	-1.316	0.208	0.625	0.75	0.688	0.062	0.062	0.562	0.438	0.062	0	345.775	0.009	397.8	0	0.922	0	23107603.7		**
BR(0.5)-AR(4)-D	1.719	-2.452	0.027	0.562	0.688	0.625	0	0	0.625	0.438	0	0	2710.805	-0.242	3143.528	0	1	0	23009770.99		**
BR(1.0)-AR(4)	1.506	-1.611	0.128	0.625	0.75	0.688	0.062	0	0.562	0.438	0.062	0.062	1754.006	0.229	1477.633	0	0.633	0	23066692.65		**
BR(1.0)-AR(4)-D	1.657	-2.468	0.026	0.562	0.625	0.625	0	0	0.562	0.438	0.062	0.062	1851.738	-0.263	1468.955	0	1	0	22956043.9		**
BR(2.0)-AR(4)	1.476	-1.908	0.076	0.562	0.75	0.688	0.062	0.062	0.562	0.438	0.062	0	669.697	0.299	683.099	0	0.584	0	22954236.62		**
BR(2.0)-AR(4)-D	1.562	-2.486	0.025	0.625	0.688	0.625	0.062	0.062	0.562	0.375	0.062	0.062	1264.968	-0.155	979.133	0	1	0	22871613.03		**

	RMSFE	DM	DMp	SSR	CRpy-0.95	CRpy-0.90	CRdy-0.95	CRdy-0.90	CRpm-0.95	CRpm-0.90	CRdm-0.95	CRdm-0.90	LR1	LR2	LR3	LR1p	LR2p	LR3p	Last-Forecast	EWSConf	EWSDens
SLR-C	1.057	-1.195	0.251	0.375	0.688	0.688	1	0.875	0.438	0.438	0.438	0.312	4.169	0.548	4.019	0.124	0.459	0.259	21940341.04	**	**
SLR-C-D	2.158	-1.395	0.186	0.429	0.786	0.786	1	0.857	0.786	0.786	0.571	0.429	3.182	0.089	3.012	0.204	0.765	0.39	22431548.99		**
AR(1)-C	1.026	-1.11	0.285	0.5	0.688	0.688	0.938	0.938	0.5	0.188	0.438	0.25	6.158	2.486	6.129	0.046	0.115	0.106	22051034.64	**	**
AR(2)-C	1.033	-1.389	0.185	0.5	0.688	0.688	1	0.938	0.5	0.25	0.5	0.375	8.084	2.588	7.011	0.018	0.108	0.072	22056508.33	**	**
AR(3)-C	0.945	2.139	0.049	0.688	0.688	0.688	0.938	0.875	0.375	0.25	0.25	0.188	9.475	0.811	9.383	0.009	0.368	0.025	22108002.49	**	**
AR(4)-C	0.943	1.795	0.093	0.625	0.688	0.688	0.938	0.875	0.312	0.312	0.312	0.125	2.815	0.726	2.767	0.245	0.394	0.429	22155759.53	**	**
AR(1)-C-D	2.617	-1.453	0.167	0.75	0.562	0.562	1	0.812	0.625	0.625	0.625	0.438	7.851	0.647	5.53	0.02	0.421	0.137	22248073.55		**
AR(2)-C-D	1.664	-3.733	0.002	0.6	0.8	0.8	1	1	0.8	0.8	0.8	0.733	3.009	1.212	3.522	0.222	0.271	0.318	22795964.07		**
AR(3)-C-D	2.869	-1.08	0.3	0.643	0.857	0.857	0.929	0.857	0.857	0.857	0.714	0.571	0.256	0.009	0.292	0.88	0.925	0.961	22492711.3		
AR(4)-C-D	4.665	-1.848	0.086	0.667	0.6	0.6	0.933	0.933	0.6	0.6	0.8	0.8	1.923	0.001	1.917	0.382	0.973	0.59	-8.39646e+20	**	
ARMA(1,1)-C	0.912	1.183	0.255	0.75	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.375	5.592	2.161	5.155	0.061	0.142	0.161	22265295	**	**
ARMA(2,2)-C	0.953	0.981	0.342	0.688	0.688	0.688	1	0.938	0.438	0.312	0.562	0.562	10.444	2.133	10.08	0.005	0.144	0.018	22164030.21	**	**
ARMA(3,3)-C	0.912	2.163	0.047	0.688	0.688	0.688	1	0.938	0.375	0.312	0.5	0.438	7.584	1.483	7.414	0.023	0.223	0.06	22249036.27	**	**
ARMA(4,4)-C	0.95	1.215	0.243	0.75	0.688	0.688	1	0.938	0.438	0.375	0.688	0.562	9.651	0.623	8.852	0.008	0.43	0.031	22275882.9	**	**
ARMA(1,1)-C-D	3.605	-1.105	0.287	0.438	0.688	0.688	0.938	0.875	0.688	0.688	0.75	0.75	0.233	0.097	0.299	0.89	0.756	0.96	21741742.03	**	**
ARMA(2,2)-C-D	30.618	-1.039	0.315	0.562	0.688	0.688	1	0.875	0.688	0.688	0.875	0.812	0.701	0.004	0.674	0.704	0.949	0.879	22957411.1		
ARMA(3,3)-C-D	13.13	-1.246	0.232	0.75	0.625	0.625	0.938	0.812	0.625	0.625	0.938	0.875	0.541	0.193	0.669	0.763	0.66	0.88	22012640.54		
ARMA(4,4)-C-D	11.395	-2.882	0.011	0.625	0.688	0.625	0.812	0.75	0.688	0.625	0.812	0.688	5.326	0.655	7.16	0.07	0.418	0.067	23756753.47		
PC(1)-C	1.008	-0.257	0.801	0.375	0.688	0.688	1	0.812	0.438	0.312	0.438	0.25	3.921	0.996	3.924	0.141	0.318	0.27	21973004.19	**	**
PC(1)-C-D	1.47	-1.445	0.169	0.625	0.625	0.625	1	0.875	0.375	0.375	0.75	0.375	1.121	0.534	1.513	0.571	0.465	0.679	22098374.75	*	**
PC(2)-C	0.999	0.023	0.982	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.312	1.934	0.66	2.331	0.38	0.417	0.507	21907898.98	**	**
PC(2)-C-D	1.632	-1.901	0.077	0.312	0.688	0.625	1	0.688	0.688	0.625	0.562	0.438	2.804	0.015	3.036	0.246	0.901	0.386	21116935.1	**	**
PC(3)-C	0.989	0.189	0.853	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.312	0.016	0.459	0.509	0.992	0.498	0.917	21752184.12	**	**
PC(3)-C-D	1.488	-1.431	0.173	0.625	0.75	0.75	0.875	0.875	0.688	0.625	0.5	0.375	2.224	0.173	2.96	0.329	0.678	0.398	20411622.92	**	*
PC(4)-C	0.985	0.263	0.796	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.438	0.375	0.862	0.647	1.509	0.65	0.421	0.68	21748960.45	**	**
PC(4)-C-D	1.337	-1.208	0.246	0.625	0.625	0.625	0.938	0.75	0.5	0.375	0.75	0.625	4.655	0.005	4.87	0.098	0.946	0.182	21614535.8	**	**
PC(1)-AR(1)-C	1.004	-0.108	0.916	0.375	0.688	0.688	0.938	0.875	0.438	0.312	0.375	0.25	2.692	1.257	2.926	0.26	0.262	0.403	21965399.54	**	**
PC(1)-AR(1)-C-D	1.442	-1.363	0.193	0.625	0.562	0.562	1	0.875	0.5	0.5	0.812	0.688	5.096	1.258	4.446	0.078	0.262	0.217	21197425.5	**	
PC(2)-AR(1)-C	0.997	0.04	0.968	0.688	0.688	0.688	0.938	0.938	0.438	0.438	0.312	0.312	0.803	0.688	1.271	0.669	0.407	0.736	21904514.98	**	**
PC(2)-AR(1)-C-D	2.717	-2.174	0.046	0.688	0.75	0.75	0.75	0.75	0.75	0.688	0.562	0.5	3.651	3.508	10.588	0.161	0.061	0.014	21618718.51		**
PC(3)-AR(1)-C	0.988	0.193	0.85	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.312	0.343	0.941	1.193	0.842	0.332	0.755	21753690.61	**	**
PC(3)-AR(1)-C-D	1.96	-2.606	0.02	0.625	0.688	0.688	0.938	0.75	0.75	0.688	0.812	0.688	0.317	2.189	3.043	0.854	0.139	0.385	21173006.67	*	**
PC(4)-AR(1)-C	0.984	0.266	0.794	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.438	0.312	1.026	0.418	1.344	0.599	0.518	0.719	21751517	**	**
PC(4)-AR(1)-C-D	2.202	-2.225	0.042	0.562	0.75	0.625	0.875	0.812	0.688	0.688	0.625	0.625	1.532	0.61	2.518	0.465	0.435	0.472	21484631.71	*	**
PC(1)-AR(4)-C	1.008	-0.248	0.808	0.375	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.312	1.691	0.821	1.968	0.429	0.365	0.579	21969272.74	**	**
PC(1)-AR(4)-C-D	4.232	-1.885	0.079	0.375	0.625	0.625	0.938	0.875	0.562	0.562	0.938	0.875	1.452	0.482	1.774	0.484	0.488	0.621	21887848.95		**
PC(2)-AR(4)-C	0.999	0.019	0.985	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.312	3.169	0.995	3.69	0.205	0.318	0.297	21904086.13	**	**
PC(2)-AR(4)-C-D	3.538	-1.192	0.252	0.5	0.625	0.625	1	0.938	0.625	0.625	0.875	0.75	3.616	0.662	3.147	0.164	0.416	0.369	21577834.5	**	**
PC(3)-AR(4)-C	0.985	0.239	0.815	0.688	0.688	0.688	0.938	0.938	0.438	0.312	0.438	0.438	0.294	0.744	0.961	0.863	0.389	0.811	21726829.89	**	**
PC(3)-AR(4)-C-D	1.485	-3.072	0.008	0.375	0.688	0.688	0.938	0.938	0.562	0.562	0.812	0.75	4.158	0.038	3.966	0.125	0.846	0.265	21662829.53	**	**
PC(4)-AR(4)-C	0.985	0.255	0.802	0.688	0.688	0.688	1	0.938	0.438	0.312	0.375	0.312	2.146	0.423	2.396	0.342	0.515	0.494	21725275.97	**	**
PC(4)-AR(4)-C-D	1.552	-2.37	0.032	0.5	0.688	0.688	1	1	0.562	0.5	0.688	0.5	3.363	0.072	3.409	0.186	0.788	0.333	5736340.155	**	
PLS(1)-C	0.998	0.063	0.951	0.625	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.188	3.067	0.874	3.746	0.216	0.35	0.29	21892030.14	**	**
PLS(1)-C-D	2.715	-1.526	0.148	0.5	0.625	0.625	1	0.875	0.688	0.5	0.875	0.562	8.581	1.722	7.667	0.014	0.189	0.053	22556694.84		*
PLS(2)-C	0.997	0.056	0.956	0.5	0.688	0.688	1	0.938	0.375	0.375	0.438	0.375	2.655	0.879	2.976	0.265	0.348	0.395	21792053.85	**	**
PLS(2)-C-D	1.709	-1.928	0.073	0.625	0.625	0.625	1	0.938	0.625	0.562	0.812	0.688	3.17	0.668	3.52	0.205	0.414	0.318	21964438.43		**
PLS(3)-C	0.988	0.263	0.796	0.562	0.688	0.688	1	0.938	0.438	0.375	0.5	0.312	1.324	1.511	2.3	0.516	0.219	0.513	21748609.36	**	**
PLS(3)-C-D	1.713	-2.402	0.03	0.438	0.688	0.688	1	0.938	0.688	0.5	0.75	0.688	5.445	0.684	5.681	0.066	0.408	0.128	21935873.99		**
PLS(4)-C	0.989	0.271	0.79	0.625	0.688	0.688	1	0.938	0.375	0.312	0.312	0.25	1.49	0.905	2.05	0.475	0.341	0.562	21748347.79	**	**
PLS(4)-C-D	1.856	-1.29	0.217	0.625	0.688	0.688	0.812	0.75	0.688	0.562	0.688	0.625	3.325	0.498	3.796	0.19	0.48	0.284	22224513.37		
PLS(1)-AR(1)-C	0.994	0.161	0.874	0.562	0.688	0.688	1	0.938	0.438	0.312	0.375	0.312	2.382	1.235	2.78	0.304	0.267	0.427	21888015.55	**	**
PLS(1)-AR(1)-C-D	4.826	-1.461	0.165	0.5	0.375	0.312	1	0.875	0.438	0.438	0.875	0.75	2.364	4.054	4.751	0.307	0.044	0.191	22606203.1		
PLS(2)-AR(1)-C	0.994	0.11	0.914	0.562	0.688	0.688	1	0.938	0.375	0.375	0.438	0.438	1.019	0.787	1.507	0.601	0.375	0.681	21788191.78	**	**
PLS(2)-AR(1)-C-D	1.968	-2.213	0.043	0.5	0.625	0.562	1	0.938	0.5	0.375	0.875	0.688	2.181	1.821	3.268	0.336	0.177	0.352	21914172.25		**
PLS(3)-AR(1)-C	0.988	0.232	0.82	0.562	0.688	0.688	1	0.938	0.438	0.375	0.5	0.25	2.344	1.292	2.872	0.31	0.256	0.412	21747292.57	**	**
PLS(3)-AR(1)-C-D	6.727	-1.038	0.316	0.438	0.625	0.625	0.938	0.875	0.688	0.688	0.688	0.688	2.582	1.888	3.847	0.275	0.169	0.278	21831550	*	**
PLS(4)-AR(1)-C	0.966	0.3	0.768	0.75	0.688	0.688	0.938	0.938	0.375	0.312	0.312	0.25	0.902	0.931	1.574	0.637	0.335	0.665	21748066.74	**	**
PLS(4)-AR(1)-C-D	1.617	-1.306	0.211	0.562	0.688	0.688	0.938	0.812	0.688	0.5	0.812	0.625	0.166	0.001	0.167	0.92	0.977	0.983	23463219.03		
PLS(1)-AR(4)-C	0.998	0.045	0.964	0.625	0.688	0.688	0.938	0.938	0.438	0.25	0.312	0.188	2.02	0.791	2.655	0.364	0.374	0.448	21887215.73	**	**
PLS(1)-AR(4)-C-D	2.001	-1.645	0.121	0.5	0.625	0.562	0.938	0.938	0.688	0.625	0.875	0.75	3.024	1.689	3.702	0.22	0.194	0.295	21497475.05	*	**
PLS(2)-AR(4)-C	1	0.006	0.996	0.5	0.688	0.688	0.938	0.938	0.375	0.375	0.438	0.375	1.394	1.056	2.068	0.498	0.304	0.558	21777162.59	**	**
PLS(2)-AR(4)-C-D	2.128	-1.925	0.073	0.438	0.562	0.562	1	0.875	0.625	0.625	0.812	0.625	1.014	0.843	1.562	0.602	0.359	0.668	21375979.02	*	**
PLS(3)-AR(4)-C	0.99	0.193	0.85	0.562	0.688	0.688	1	0.875	0.438	0.375	0.5	0.375	0.921	0.365	1.111	0.631	0.546	0.774	21723869.6	**	**
PLS(3)-AR(4)-C-D	1.882	-2.419	0.029	0.688	0.625	0.562	0.938	0.938	0.625	0.562	0.875	0.688	2.198	0.065	2	0.333	0.798	0.573	21723869.6		
PLS(4)-AR(4)-C	0.978	0.494	0.628	0.75	0.688	0.688	1	0.938	0.438	0.375	0.375	0.375	2.268	0.478	2.519	0.322	0.489	0.472	21724329.77	**	**
PLS(4)-AR(4)-C-D	2.658	-2.563	0.022	0.438	0.688	0.688	0.875	0.75	0.562	0.562	0.562	0.438	3.49	0.086	3.981	0.175	0.77	0.264	22206377.49		*
BR(0.5)-C	2.392	-2.431	0.028	0.562	0.688	0.688	0.062	0.062	0.688	0.625	0	0	1350.963	0.001	1354.253	0	0.972	0	22932377.53		**
BR(0.5)-C-D	2.171	-2.234	0.041	0.562	0.688	0.688	0.062	0.062	0.688	0.625	0.062	0.062	3159.067	-0.005	3243.124	0	1	0	22877171.93		**
BR(1.0)-C	2.279	-2.431	0.028	0.562	0.688	0.688	0	0	0.688	0.625	0	0	2529.98	-0.212	3360.125	0	1	0	22792241.31		**
BR(1.0)-C-D	2.069	-2.193	0.044	0.625	0.688	0.688	0.062	0.062	0.688	0.625	0.062	0	2034.718	-0.379	2708.44	0	1	0	22780844.04		**
BR(2.0)-C	2.113	-2.44	0.028	0.562	0.688	0.688	0.125	0.062	0.688	0.688	0.125	0	1228.572	0.392	1366.163	0	0.531	0	22608277.37		**
BR(2.0)-C-D	1.92	-2.131	0.05	0.625	0.688	0.688	0.125	0.062	0.688	0.562	0.062	0.062	1793.309	0.006	1840.535	0	0.939	0	22652709.75		**
BR(0.5)-AR(1)-C	2.067	-3.081	0.008	0.5	0.688	0.625	0.062	0.062	0.625	0.5	0	0	899.352	-4.594	1622.733	0	1	0	22802938.17		**
BR(0.5)-AR(1)-C-D	1.901	-2.908	0.011	0.5	0.688	0.625	0	0	0.5	0.5	0.125	0.125	3175.783	-0.093	2751.626	0	1	0	22753386.47		**
BR(1.0)-AR(1)-C	1.99	-3.099	0.007	0.5	0.688	0.625	0.062	0.062	0.625	0.5	0.062	0.062	2016.086	0.059	2693.923	0	0.809	0	22681630.13		**
BR(1.0)-AR(1)-C-D	1.827	-2.873	0.012	0.5	0.625	0.625	0	0	0.5	0.5	0.062	0.062	1011.112	-9.011	2780.844	0	1	0	22670833.32		**
BR(2.0)-AR(1)-C	1.874	-3.139	0.007	0.562	0.75	0.625	0.125	0.125	0.625	0.5	0.062	0.062	1438.571	0.051	1677.009	0	0.821	0	22520283.23		**
BR(2.0)-AR(1)-C-D	1.718	-2.814	0.013	0.5	0.625	0.625	0.062	0.062	0.562	0.438	0	0	1343.159	-0.023	1703.972	0	1	0	22559368.42		**
BR(0.5)-AR(4)-C	1.981	-3.051	0.008	0.5	0.75	0.625	0	0	0.625	0.5	0	0	913.646	-39.225	3160.134	0	1	0	23227678.33		**
BR(0.5)-AR(4)-C-D	1.806	-2.73	0.016	0.562	0.688	0.625	0	0	0.625	0.5	0	0	1534.527	-1.051	2376.346	0	1	0	23012114.92		**
BR(1.0)-AR(4)-C	1.895	-3.138	0.007	0.5	0.75	0.625	0	0	0.625	0.5	0.062	0.062	1727.224	-0.015	1859.608	0	1	0	23124178.94		**
BR(1.0)-AR(4)-C-D	1.742	-2.778	0.014	0.562	0.688	0.625	0.062	0	0.625	0.5	0	0	1922.228	-0.014	2049.251	0	1	0	22957973.76		**
BR(2.0)-AR(4)-C	1.766	-3.279	0.005	0.5	0.75	0.625	0.062	0.062	0.562	0.5	0	0	1702.46	0.039	1751.589	0	0.843	0	22975201.54		**
BR(2.0)-AR(4)-C-D	1.642	-2.858	0.012	0.625	0.75	0.625	0.062	0.062	0.562	0.375	0.062	0.062	1790.791	-0.132	1450.346	0	1	0	22872808.92		**

IT, Low, $h = 1$, Quarter Weights

	RMSFE	DM	DMp	SSR	CRpy-0.95	CRpy-0.90	CRdy-0.95	CRdy-0.90	CRpm-0.95	CRpm-0.90	CRdm-0.95	CRdm-0.90	LR1	LR2	LR3	LR1p	LR2p	LR3p	Last-Forecast	EWSConf	EWSDens
SLR	1.031	-0.598	0.558	0.375	0.688	0.688	0.938	0.938	0.438	0.438	0.438	0.438	2.003	0.677	2.077	0.367	0.41	0.557	5475489.193	**	**
SLR-D	0.878	0.592	0.563	0.75	0.688	0.688	0.938	0.812	0.375	0.375	0.375	0.25	4.897	1.136	3.899	0.086	0.286	0.273	5582700.58	**	**
AR(1)	1	0	1	0.5	0.688	0.688	1	1	0.5	0.312	0.375	0.188	9.528	4.689	9.009	0.009	0.03	0.029	5498465.863	**	**
AR(2)	1.003	-0.413	0.686	0.5	0.688	0.688	1	0.938	0.5	0.25	0.438	0.25	8.575	3.156	7.362	0.014	0.076	0.061	5498769.785	**	**
AR(3)	0.921	2.249	0.04	0.75	0.688	0.688	0.938	0.875	0.375	0.25	0.375	0.062	2.181	1.329	2.629	0.336	0.249	0.452	5510980.695	**	**
AR(4)	0.916	2.011	0.063	0.75	0.688	0.688	0.938	0.812	0.312	0.312	0.375	0.125	4.719	0.923	4.347	0.094	0.337	0.226	5523993.042	**	**
AR(1)-D	0.8	1.05	0.311	0.75	0.688	0.688	0.875	0.812	0.375	0.312	0.312	0.188	11.206	1.079	7.353	0.004	0.299	0.061	5588626.232	**	**
AR(2)-D	0.79	1.086	0.295	0.75	0.688	0.688	1	0.875	0.375	0.25	0.375	0.188	6.486	1.329	5.179	0.039	0.249	0.159	5580320.173	**	**
AR(3)-D	0.79	1.11	0.284	0.75	0.688	0.688	0.875	0.875	0.375	0.25	0.25	0.188	6.242	1.147	5.259	0.044	0.284	0.154	5574274.158	**	**
AR(4)-D	0.781	1.066	0.303	0.75	0.688	0.688	0.938	0.875	0.375	0.375	0.312	0.188	5.244	1.276	4.224	0.073	0.259	0.238	5575769.534	**	**
ARMA(1,1)	0.887	1.176	0.258	0.75	0.688	0.688	1	0.938	0.438	0.312	0.438	0.438	6.7	1.796	6.447	0.035	0.18	0.092	5549639.291	**	**
ARMA(2,2)	0.93	0.971	0.347	0.75	0.688	0.688	1	0.938	0.438	0.312	0.562	0.5	11.049	3.64	10.923	0.004	0.056	0.012	5523656.569	**	**
ARMA(3,3)	0.885	2.09	0.054	0.75	0.688	0.688	1	1	0.375	0.312	0.438	0.438	12.56	1.245	12.435	0.002	0.265	0.006	5546852.19	**	**
ARMA(4,4)	0.798	1.423	0.175	0.625	0.688	0.688	1	0.938	0.375	0.25	0.625	0.625	8.91	2.861	9.092	0.012	0.091	0.028	5597441.418	**	
ARMA(1,1)-D	0.888	0.592	0.562	0.75	0.688	0.688	0.938	0.938	0.438	0.375	0.688	0.625	7.833	0.648	6.493	0.02	0.421	0.09	5589465.286	**	**
ARMA(2,2)-D	0.785	1.088	0.294	0.75	0.688	0.688	1	0.938	0.375	0.25	0.562	0.438	12.088	1.319	11.779	0.002	0.251	0.008	5568057.707	**	**
ARMA(3,3)-D	0.785	1.088	0.294	0.75	0.688	0.688	1	0.938	0.375	0.25	0.438	0.438	14.567	1.629	13.926	0.001	0.202	0.003	5568057.707	**	**
ARMA(4,4)-D	0.983	0.097	0.924	0.75	0.688	0.688	1	0.938	0.5	0.312	0.688	0.5	10.088	1.423	9.31	0.006	0.233	0.025	5634419.991	*	
PC(1)	0.988	0.289	0.776	0.25	0.688	0.688	1	0.875	0.438	0.312	0.375	0.188	2.298	0.967	2.749	0.317	0.325	0.432	5477608.416	**	**
PC(1)-D	0.791	0.958	0.353	0.75	0.688	0.688	1	0.875	0.375	0.312	0.438	0.25	8.832	1.442	7.556	0.012	0.23	0.056	5588723.298	**	**
PC(2)	0.987	0.175	0.864	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.312	0.633	0.531	1.022	0.729	0.466	0.796	5461971.529	**	**
PC(2)-D	0.762	1.023	0.323	0.75	0.688	0.688	0.875	0.875	0.312	0.312	0.25	0.25	1.895	1.307	2.212	0.388	0.253	0.53	5572587.803	**	**
PC(3)	0.975	0.347	0.733	0.625	0.688	0.688	0.938	0.938	0.438	0.312	0.438	0.312	0.339	0.558	0.82	0.844	0.455	0.845	5424005.574	**	**
PC(3)-D	0.745	1.122	0.279	0.75	0.688	0.688	1	0.875	0.312	0.25	0.312	0.188	3.688	1.628	3.945	0.158	0.202	0.268	5542754.481	**	**
PC(4)	0.971	0.415	0.684	0.625	0.688	0.688	0.938	0.938	0.438	0.375	0.375	0.375	0.083	0.57	0.634	0.959	0.45	0.889	5423218.244	**	**
PC(4)-D	0.748	1.113	0.283	0.75	0.688	0.688	0.938	0.875	0.312	0.25	0.312	0.312	1.977	0.755	2.447	0.372	0.385	0.485	5545014.54	**	**
PC(1)-AR(1)	0.988	0.283	0.781	0.25	0.688	0.688	0.938	0.875	0.438	0.312	0.375	0.25	4.702	0.861	4.468	0.095	0.353	0.215	5477689.121	**	**
PC(1)-AR(1)-D	0.789	0.972	0.346	0.75	0.688	0.688	0.938	0.875	0.375	0.312	0.25	0.25	6.67	1.02	5.084	0.036	0.312	0.166	5588726.169	**	**
PC(2)-AR(1)	0.987	0.181	0.859	0.688	0.688	0.688	1	1	0.438	0.438	0.312	0.312	3.232	0.825	3.553	0.199	0.364	0.314	5463095.414	**	**
PC(2)-AR(1)-D	0.76	1.031	0.319	0.75	0.688	0.688	0.875	0.812	0.312	0.312	0.312	0.188	3.695	0.434	3.649	0.158	0.51	0.302	5572953.709	**	**
PC(3)-AR(1)	0.976	0.35	0.731	0.625	0.688	0.688	1	0.938	0.438	0.375	0.375	0.312	0.721	0.499	1.082	0.697	0.48	0.782	5426364.188	**	**
PC(3)-AR(1)-D	0.746	1.118	0.281	0.75	0.688	0.688	0.938	0.875	0.312	0.25	0.25	0.188	1.831	1.174	2.169	0.4	0.279	0.538	5543267.881	**	**
PC(4)-AR(1)	0.972	0.413	0.686	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.375	0.312	0.594	0.531	0.958	0.743	0.466	0.811	5425838.178	**	**
PC(4)-AR(1)-D	0.749	1.106	0.286	0.75	0.688	0.688	1	0.938	0.312	0.25	0.375	0.188	2.283	1.587	2.793	0.319	0.208	0.425	5544836.055	**	**
PC(1)-AR(4)	0.989	0.279	0.784	0.312	0.688	0.688	1	0.875	0.438	0.312	0.438	0.25	2.324	0.869	2.64	0.313	0.351	0.451	5477695.709	**	**
PC(1)-AR(4)-D	0.788	0.949	0.358	0.75	0.688	0.688	0.938	0.812	0.375	0.312	0.375	0.25	6.469	1.51	4.916	0.039	0.219	0.178	5590466.14	**	**
PC(2)-AR(4)	0.987	0.168	0.869	0.688	0.688	0.688	0.938	0.938	0.438	0.438	0.312	0.312	1.968	0.471	2.561	0.374	0.492	0.464	5462034.959	**	**
PC(2)-AR(4)-D	0.76	1.009	0.329	0.75	0.688	0.688	1	0.875	0.312	0.312	0.375	0.25	4.078	3.249	5.113	0.13	0.071	0.164	5574880.225	**	**
PC(3)-AR(4)	0.972	0.391	0.701	0.688	0.688	0.688	1	0.938	0.438	0.375	0.438	0.312	1.268	1.091	2.033	0.53	0.296	0.566	5418821.339	**	**
PC(3)-AR(4)-D	0.744	1.103	0.287	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.312	0.25	2.355	1.135	2.442	0.308	0.287	0.486	5544503.435	**	**
PC(4)-AR(4)	0.971	0.411	0.687	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.375	0.312	0.109	0.46	0.553	0.947	0.497	0.907	5418432.177	**	**
PC(4)-AR(4)-D	0.747	1.102	0.288	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.25	0.188	1.196	1.493	1.95	0.55	0.222	0.583	5543185.397	**	**
PLS(1)	0.978	0.483	0.636	0.5	0.688	0.688	1	0.938	0.438	0.375	0.438	0.25	3.516	1.577	4.017	0.172	0.209	0.26	5457897.588	**	**
PLS(1)-D	0.776	1.025	0.322	0.75	0.688	0.688	0.938	0.875	0.375	0.312	0.25	0.188	3.113	1.352	3.054	0.211	0.245	0.383	5572676.335	**	**
PLS(2)	0.98	0.323	0.752	0.5	0.688	0.688	1	0.938	0.438	0.375	0.438	0.312	3.488	2.526	4.572	0.175	0.112	0.206	5433849.513	**	**
PLS(2)-D	0.751	1.071	0.301	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.438	0.312	2.802	1.767	3.739	0.246	0.184	0.291	5549779.937	**	**
PLS(3)	0.97	0.524	0.608	0.625	0.688	0.688	1	0.875	0.438	0.375	0.5	0.375	1.979	0.803	2.412	0.372	0.37	0.491	5423226.347	**	**
PLS(3)-D	0.746	1.101	0.288	0.75	0.688	0.688	0.938	0.938	0.375	0.25	0.375	0.25	4.552	1.33	4.699	0.103	0.249	0.195	5537094.08	**	**
PLS(4)	0.965	0.701	0.494	0.75	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.312	2.237	0.452	2.427	0.327	0.501	0.489	5423161.827	**	**
PLS(4)-D	0.769	1.102	0.288	0.75	0.688	0.688	1	0.875	0.375	0.25	0.438	0.188	4.003	0.485	3.748	0.135	0.486	0.29	5540531.419	**	**
PLS(1)-AR(1)	0.978	0.489	0.632	0.5	0.688	0.688	1	0.938	0.438	0.375	0.312	0.25	3.846	1.652	4.415	0.146	0.199	0.22	5458878.084	**	**
PLS(1)-AR(1)-D	0.774	1.035	0.317	0.75	0.688	0.688	1	0.875	0.375	0.312	0.312	0.188	6.049	1.305	5.676	0.049	0.253	0.128	5572828.874	**	**
PLS(2)-AR(1)	0.98	0.324	0.751	0.5	0.688	0.688	1	0.938	0.438	0.375	0.312	0.312	2.086	1.913	3.127	0.352	0.167	0.372	5434891.429	**	**
PLS(2)-AR(1)-D	0.75	1.077	0.299	0.75	0.688	0.688	1	0.875	0.375	0.25	0.375	0.25	5.555	3.654	5.897	0.062	0.056	0.117	5549909.476	**	**
PLS(3)-AR(1)	0.974	0.442	0.665	0.625	0.688	0.688	1	0.938	0.438	0.375	0.375	0.375	1.548	1.387	2.365	0.461	0.239	0.5	5424905.123	**	**
PLS(3)-AR(1)-D	0.745	1.101	0.288	0.75	0.688	0.688	1	0.938	0.375	0.25	0.375	0.188	5.195	2.271	5.142	0.074	0.132	0.162	5538269.838	**	**
PLS(4)-AR(1)	0.967	0.625	0.542	0.75	0.688	0.688	1	0.938	0.438	0.312	0.375	0.25	2.224	1.122	2.871	0.329	0.289	0.412	5425056.25	**	**
PLS(4)-AR(1)-D	0.764	1.103	0.287	0.75	0.688	0.688	1	0.875	0.312	0.25	0.25	0.188	3.379	0.452	3.022	0.185	0.502	0.388	5542413.322	**	**
PLS(1)-AR(4)	0.979	0.449	0.66	0.5	0.688	0.688	1	1	0.438	0.375	0.438	0.25	4.927	0.927	5.173	0.085	0.336	0.16	5457713.755	**	**
PLS(1)-AR(4)-D	0.773	1.009	0.329	0.75	0.688	0.688	1	0.812	0.375	0.312	0.312	0.188	3.832	2.159	3.791	0.147	0.142	0.285	5575648.604	**	**
PLS(2)-AR(4)	0.982	0.261	0.798	0.5	0.688	0.688	0.938	0.938	0.375	0.375	0.375	0.312	0.512	1.109	1.459	0.774	0.292	0.692	5431220.217	**	**
PLS(2)-AR(4)-D	0.75	1.056	0.308	0.75	0.688	0.688	1	0.938	0.375	0.25	0.375	0.188	4.344	3.556	4.978	0.114	0.059	0.173	5553122.757	**	**
PLS(3)-AR(4)	0.972	0.453	0.657	0.625	0.688	0.688	0.938	0.875	0.438	0.375	0.438	0.312	1.422	0.695	1.742	0.491	0.404	0.628	5418244.776	**	**
PLS(3)-AR(4)-D	0.744	1.083	0.296	0.75	0.688	0.688	0.938	0.875	0.375	0.25	0.438	0.25	3.042	1.842	3.43	0.219	0.175	0.33	5537265.452	**	**
PLS(4)-AR(4)	0.957	0.787	0.444	0.75	0.688	0.688	1	0.938	0.438	0.375	0.312	0.312	1.829	0.586	2.036	0.401	0.444	0.565	5418321.884	**	**
PLS(4)-AR(4)-D	0.762	1.062	0.305	0.75	0.688	0.688	1	0.875	0.312	0.25	0.312	0.188	4.581	0.595	4.617	0.101	0.441	0.202	5540912.974	**	**
BR(0.5)	1.644	-1.486	0.158	0.625	0.75	0.75	0.062	0.062	0.625	0.5	0	0	1766	1.457	1622.511	0	0.227	0	5693898.293		**
BR(0.5)-D	1.916	-2.123	0.051	0.562	0.688	0.688	0.062	0	0.625	0.5	0.062	0.062	2908.134	-0.228	2464.159	0	1	0	5698761.389		**
BR(1.0)	1.616	-1.583	0.134	0.562	0.75	0.688	0.125	0	0.625	0.5	0.125	0.125	1016.068	1.013	985.061	0	0.314	0	5670824.442		**
BR(1.0)-D	1.828	-2.086	0.054	0.562	0.688	0.688	0.062	0.062	0.625	0.5	0	0	3047.591	-0.16	3638.507	0	1	0	5675077.442		**
BR(2.0)	1.583	-1.61	0.128	0.625	0.688	0.688	0.188	0.125	0.625	0.5	0.188	0.188	593.934	1.203	659.527	0	0.273	0	5631531.787		**
BR(2.0)-D	1.703	-2.025	0.061	0.625	0.688	0.688	0.125	0.062	0.625	0.5	0.125	0.062	1081.011	0.145	993.562	0	0.704	0	5643587.796		**
BR(0.5)-AR(1)	1.346	-1.208	0.246	0.562	0.688	0.688	0.125	0.125	0.562	0.5	0.062	0.062	945.8	-0.229	715.104	0	1	0	5689709.175		**
BR(0.5)-AR(1)-D	1.775	-2.725	0.016	0.5	0.625	0.625	0	0	0.5	0.5	0.062	0.062	1521.339	-6.936	3987.426	0	1	0	5668533.072		**
BR(1.0)-AR(1)	1.396	-1.87	0.081	0.5	0.688	0.688	0.125	0.125	0.562	0.5	0.062	0	1239.951	3.531	1316.652	0	0.06	0	5659879.518		**
BR(1.0)-AR(1)-D	1.704	-2.692	0.017	0.5	0.625	0.625	0	0	0.562	0.438	0.062	0.062	549.287	-20.864	2032.186	0	1	0	5648236.975		**
BR(2.0)-AR(1)	1.427	-2.292	0.037	0.688	0.688	0.688	0.188	0.188	0.562	0.5	0.062	0.062	1064.753	0.828	1120.845	0	0.363	0	5619505.829		**
BR(2.0)-AR(1)-D	1.601	-2.641	0.019	0.5	0.625	0.625	0.062	0.062	0.562	0.438	0	0	1371.266	0.001	1378.739	0	0.98	0	5620904.952		**
BR(0.5)-AR(4)	1.538	-1.351	0.197	0.625	0.75	0.688	0.062	0.062	0.562	0.438	0	0	166.286	1.947	286.894	0	0.163	0	5754358.089		**
BR(0.5)-AR(4)-D	1.711	-2.452	0.027	0.562	0.688	0.625	0	0	0.625	0.438	0	0	4535.899	-0.787	3548.352	0	1	0	5733327.136		**
BR(1.0)-AR(4)	1.517	-1.626	0.125	0.625	0.75	0.688	0.062	0.062	0.562	0.438	0.062	0.062	1606.503	0.372	1411.089	0	0.542	0	5745532.606		**
BR(1.0)-AR(4)-D	1.649	-2.468	0.026	0.562	0.625	0.625	0.062	0	0.562	0.438	0.062	0.062	1674.585	-0.002	1724.874	0	1	0	5719826.211		**
BR(2.0)-AR(4)	1.48	-1.908	0.076	0.562	0.75	0.688	0.125	0.062	0.562	0.438	0	0	633.025	1.317	677.384	0	0.251	0	5718285.444		**
BR(2.0)-AR(4)-D	1.553	-2.485	0.025	0.625	0.688	0.625	0.062	0.062	0.562	0.438	0.062	0.062	1151.742	-0.087	937.277	0	1	0	5698683.755		**

	RMSFE	DM	DMp	SSR	CRpy-0.95	CRpy-0.90	CRdy-0.95	CRdy-0.90	CRpm-0.95	CRpm-0.90	CRdm-0.95	CRdm-0.90	LR1	LR2	LR3	LR1p	LR2p	LR3p	Last-Forecast	EWSConf	EWSDens
SLR-C	1.057	-1.193	0.252	0.375	0.688	0.688	1	0.875	0.438	0.438	0.5	0.25	2.575	0.719	2.705	0.276	0.397	0.439	5467437.566	**	**
SLR-C-D	2.406	-1.476	0.164	0.5	0.571	0.5	0.929	0.929	0.5	0.5	0.571	0.5	5.108	0.71	3.961	0.078	0.399	0.266	5424880.52		**
AR(1)-C	1.026	-1.122	0.28	0.5	0.688	0.688	0.938	0.875	0.5	0.312	0.375	0.188	8.178	2.554	7.692	0.017	0.11	0.053	5494601.09	**	**
AR(2)-C	1.034	-1.399	0.182	0.5	0.688	0.688	1	1	0.5	0.312	0.5	0.312	9.961	3.457	8.776	0.007	0.063	0.032	5496008.188	**	**
AR(3)-C	0.942	2.234	0.041	0.688	0.688	0.688	0.938	0.875	0.375	0.25	0.375	0.125	2.619	0.91	2.584	0.27	0.34	0.46	5509037.526	**	**
AR(4)-C	0.939	1.864	0.082	0.562	0.688	0.688	1	0.875	0.375	0.312	0.375	0.125	5.688	2.016	5.278	0.058	0.156	0.153	5521333.471	**	**
AR(1)-C-D	1.71	-1.463	0.164	0.625	0.625	0.562	0.938	0.875	0.5	0.5	0.438	0.438	2.99	0.001	2.946	0.224	0.98	0.4	5583832.623		
AR(2)-C-D	1.738	-1.145	0.27	0.75	0.625	0.625	1	1	0.5	0.375	0.75	0.625	3.58	0.001	3.582	0.167	0.976	0.31	5688267.235		
AR(3)-C-D	2.616	-1.212	0.246	0.667	0.6	0.6	1	0.933	0.533	0.533	0.8	0.733	2.583	0.129	2.61	0.275	0.72	0.456	6126549.574		
AR(4)-C-D	3.227	-1.353	0.199	0.5	0.786	0.786	0.929	0.857	0.786	0.786	0.571	0.429	0.513	2.087	2.215	0.774	0.149	0.529	5644930.063		
ARMA(1,1)-C	0.912	1.139	0.273	0.75	0.688	0.688	0.938	0.938	0.438	0.312	0.375	0.375	5.607	2.099	5.409	0.061	0.147	0.144	5547767.334	**	**
ARMA(2,2)-C	0.957	0.863	0.402	0.688	0.688	0.688	1	1	0.438	0.312	0.562	0.562	13.038	2.353	12.507	0.001	0.125	0.006	5520669.648	**	**
ARMA(3,3)-C	0.908	2.181	0.046	0.688	0.688	0.688	1	0.938	0.375	0.312	0.5	0.438	7.738	2.689	7.977	0.021	0.101	0.046	5543793.313	**	**
ARMA(4,4)-C	0.945	0.895	0.385	0.688	0.688	0.688	0.938	0.938	0.438	0.438	0.688	0.625	5.714	0.956	4.666	0.057	0.328	0.198	5539627.742	**	**
ARMA(1,1)-C-D	2.985	-1.323	0.206	0.562	0.75	0.75	0.938	0.938	0.75	0.75	0.812	0.812	7.788	0.038	7.545	0.02	0.845	0.056	5622934.619		**
ARMA(2,2)-C-D	3.319	-2.69	0.017	0.688	0.688	0.625	0.938	0.938	0.75	0.688	0.938	0.75	0.59	1.149	1.462	0.745	0.284	0.691	5002847.753	*	
ARMA(3,3)-C-D	23.447	-1.326	0.205	0.562	0.688	0.688	1	0.938	0.688	0.625	0.875	0.812	0.575	0.869	1.139	0.75	0.351	0.768	5896347.663		
ARMA(4,4)-C-D	14.527	-2.439	0.028	0.812	0.625	0.5	0.875	0.875	0.625	0.625	0.688	0.5	2.279	0.017	2.277	0.32	0.895	0.517	6439081.697		
PC(1)-C	1.008	-0.256	0.801	0.375	0.688	0.688	1	0.875	0.438	0.312	0.375	0.375	2.443	1.137	2.834	0.295	0.286	0.418	5475573.342	**	**
PC(1)-C-D	5.192	-1.009	0.329	0.562	0.625	0.625	0.938	0.875	0.625	0.625	0.625	0.562	1.833	1.282	2.464	0.4	0.258	0.482	5463141.779	**	**
PC(2)-C	0.999	0.018	0.986	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.312	1.434	0.761	1.899	0.488	0.383	0.594	5459667.416	**	**
PC(2)-C-D	1.459	-1.507	0.153	0.438	0.625	0.625	1	0.812	0.688	0.625	0.625	0.625	4.963	2.997	5.329	0.084	0.083	0.149	5280879.473	**	
PC(3)-C	0.989	0.191	0.851	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.438	0.375	0.117	1.242	1.317	0.943	0.265	0.725	5421004.698	**	**
PC(3)-C-D	1.612	-1.751	0.1	0.5	0.75	0.75	0.75	0.562	0.75	0.75	0.562	0.5	3.93	0.28	5.105	0.14	0.596	0.164	5103809.306	**	**
PC(4)-C	0.985	0.267	0.793	0.688	0.688	0.688	1	0.938	0.438	0.375	0.438	0.375	2.548	1.069	3.073	0.28	0.301	0.38	5420200.417	**	**
PC(4)-C-D	1.432	-1.348	0.198	0.562	0.625	0.625	0.938	0.938	0.5	0.5	0.75	0.625	6.208	0.087	5.309	0.045	0.768	0.151	5454688.015	**	**
PC(1)-AR(1)-C	1.004	-0.11	0.914	0.375	0.688	0.688	1	0.875	0.438	0.312	0.375	0.25	3.889	1.369	4.102	0.143	0.242	0.251	5473705.176	**	**
PC(1)-AR(1)-C-D	2.092	-2.148	0.048	0.438	0.625	0.625	1	1	0.5	0.5	0.688	0.562	7.099	2.05	7.708	0.029	0.152	0.052	5448878.359		**
PC(2)-AR(1)-C	0.998	0.036	0.972	0.688	0.688	0.688	1	0.938	0.438	0.438	0.312	0.25	1.545	0.734	1.917	0.462	0.392	0.59	5458837.942	**	**
PC(2)-AR(1)-C-D	2.963	-1.656	0.118	0.438	0.75	0.688	0.812	0.75	0.75	0.688	0.438	0.25	12.397	0.465	13.857	0.002	0.495	0.003	5275307.725	*	**
PC(3)-AR(1)-C	0.988	0.195	0.848	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.438	0.25	0.148	0.529	0.649	0.929	0.467	0.885	5421353.878	**	**
PC(3)-AR(1)-C-D	1.839	-2.358	0.032	0.438	0.688	0.625	0.875	0.875	0.625	0.562	0.625	0.438	1.894	2.995	5.236	0.388	0.084	0.155	5297218.926	**	*
PC(4)-AR(1)-C	0.984	0.269	0.791	0.688	0.688	0.688	1	0.938	0.438	0.375	0.375	0.375	1.489	0.553	1.802	0.475	0.457	0.614	5420817.214	**	**
PC(4)-AR(1)-C-D	2.083	-1.098	0.29	0.812	0.625	0.625	1	0.875	0.625	0.5	0.875	0.688	2.66	0.175	3.453	0.264	0.676	0.327	5594317.869		
PC(1)-AR(4)-C	1.008	-0.252	0.804	0.375	0.688	0.688	1	0.812	0.438	0.312	0.438	0.312	2.885	1.021	3.049	0.236	0.312	0.384	5474692.556	**	**
PC(1)-AR(4)-C-D	1.596	-1.201	0.248	0.5	0.625	0.625	1	1	0.625	0.438	0.75	0.562	12.772	3.622	13.376	0.002	0.057	0.004	5483501.492	**	**
PC(2)-AR(4)-C	0.999	0.014	0.989	0.688	0.688	0.688	0.938	0.938	0.438	0.438	0.312	0.312	0.697	0.34	1.027	0.706	0.56	0.795	5458737.142	**	**
PC(2)-AR(4)-C-D	2.941	-1.974	0.067	0.438	0.688	0.625	0.938	0.688	0.562	0.562	0.562	0.25	1.448	4.584	4.962	0.485	0.032	0.175	5518233.614		**
PC(3)-AR(4)-C	0.986	0.244	0.811	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.438	0.375	0.495	0.47	1.014	0.781	0.493	0.798	5414647.494	**	**
PC(3)-AR(4)-C-D	3.002	-1.789	0.094	0.5	0.562	0.5	1	0.875	0.5	0.438	0.688	0.562	0.195	0.017	0.188	0.907	0.897	0.979	5444966.176		**
PC(4)-AR(4)-C	0.985	0.261	0.798	0.688	0.688	0.688	0.938	0.938	0.438	0.375	0.5	0.375	0.475	0.661	1.039	0.789	0.416	0.792	5414245.824	**	**
PC(4)-AR(4)-C-D	9.577	-1.046	0.312	0.625	0.625	0.625	1	0.812	0.688	0.625	0.625	0.562	0.004	0.016	0.018	0.998	0.9	0.999	5326717.822		**
PLS(1)-C	0.998	0.058	0.954	0.625	0.688	0.688	1	0.812	0.438	0.312	0.312	0.125	1.531	0.82	1.897	0.465	0.365	0.594	5455495.225	**	**
PLS(1)-C-D	1.45	-0.957	0.354	0.562	0.625	0.625	1	0.875	0.625	0.438	0.625	0.562	5.155	0.463	5.128	0.076	0.496	0.163	5323748.165	**	**
PLS(2)-C	0.998	0.039	0.97	0.5	0.688	0.688	0.938	0.938	0.438	0.375	0.438	0.312	0.814	1.86	2.347	0.665	0.173	0.504	5430992.512	**	**
PLS(2)-C-D	1.045	-0.182	0.858	0.5	0.625	0.625	1	1	0.375	0.375	0.75	0.562	12.184	0.716	12.227	0.002	0.397	0.007	5587813.614	**	
PLS(3)-C	0.989	0.246	0.809	0.625	0.688	0.688	0.938	0.938	0.438	0.312	0.5	0.375	1.35	0.685	1.659	0.509	0.408	0.646	5420184.324	**	**
PLS(3)-C-D	1.197	-1.341	0.2	0.5	0.688	0.625	0.938	0.812	0.438	0.375	0.75	0.688	2.922	0.015	3.368	0.232	0.903	0.338	5381415.192	**	**
PLS(4)-C	0.986	0.347	0.734	0.688	0.688	0.688	0.938	0.938	0.375	0.312	0.375	0.312	1.129	0.394	1.253	0.569	0.53	0.74	5420118.657	**	**
PLS(4)-C-D	5.374	-1.294	0.215	0.438	0.5	0.5	0.812	0.625	0.438	0.438	0.812	0.562	10.656	0.045	10.782	0.005	0.832	0.013	5131083.933	*	*
PLS(1)-AR(1)-C	0.994	0.156	0.878	0.625	0.688	0.688	1	0.938	0.438	0.312	0.375	0.25	2.155	0.95	2.541	0.341	0.33	0.468	5454491.782	**	**
PLS(1)-AR(1)-C-D	2.224	-1.068	0.302	0.5	0.625	0.625	0.938	0.875	0.562	0.5	0.75	0.562	0.28	0.031	0.302	0.87	0.861	0.96	5810758.86		
PLS(2)-AR(1)-C	0.995	0.093	0.927	0.5	0.688	0.688	0.938	0.938	0.438	0.375	0.438	0.375	1.482	1.171	2.096	0.477	0.279	0.553	5429999.459	**	**
PLS(2)-AR(1)-C-D	4.265	-1.239	0.234	0.375	0.562	0.562	0.938	0.875	0.625	0.625	0.938	0.812	4.103	0.907	4.256	0.129	0.341	0.235	4877270.626	**	**
PLS(3)-AR(1)-C	0.989	0.215	0.833	0.562	0.688	0.688	1	0.875	0.438	0.375	0.5	0.375	1.663	0.902	2.008	0.435	0.342	0.571	5419826.861	**	**
PLS(3)-AR(1)-C-D	1.605	-2.057	0.058	0.438	0.625	0.625	0.875	0.75	0.625	0.625	0.812	0.562	3.956	0.816	4.012	0.138	0.366	0.26	5447071.645	*	**
PLS(4)-AR(1)-C	0.984	0.36	0.724	0.688	0.688	0.688	0.875	0.875	0.438	0.312	0.375	0.25	0.936	0.407	1.121	0.626	0.524	0.772	5419980.257	**	**
PLS(4)-AR(1)-C-D	1.853	-2.319	0.035	0.562	0.625	0.625	0.938	0.812	0.562	0.5	0.75	0.625	3.207	0.056	3.933	0.201	0.813	0.269	5535716.886		
PLS(1)-AR(4)-C	0.999	0.036	0.971	0.625	0.688	0.688	1	0.938	0.438	0.312	0.438	0.312	4.141	1.577	4.804	0.126	0.209	0.187	5454294.333	**	**
PLS(1)-AR(4)-C-D	1.143	-1.299	0.214	0.625	0.688	0.688	1	0.938	0.562	0.312	0.625	0.5	1.206	0.79	1.698	0.547	0.374	0.637	5467514.724	**	**
PLS(2)-AR(4)-C	1.001	-0.016	0.987	0.5	0.688	0.688	1	1	0.375	0.375	0.438	0.312	3.957	2.194	4.96	0.138	0.139	0.175	5427247.601	**	**
PLS(2)-AR(4)-C-D	2.93	-1.288	0.217	0.438	0.625	0.625	0.938	0.875	0.625	0.625	0.562	0.5	2.27	3.768	4.492	0.321	0.052	0.213	5091378.175	**	**
PLS(3)-AR(4)-C	0.992	0.172	0.866	0.562	0.688	0.688	1	0.938	0.438	0.375	0.438	0.375	2.41	0.913	2.815	0.3	0.339	0.421	5414024.286	**	**
PLS(3)-AR(4)-C-D	1.417	-2.081	0.055	0.312	0.688	0.688	1	0.875	0.688	0.5	0.688	0.625	4.353	0.18	3.792	0.113	0.671	0.285	5457927.3	**	**
PLS(4)-AR(4)-C	0.976	0.547	0.592	0.75	0.688	0.688	1	0.938	0.438	0.312	0.312	0.25	1.827	1.121	2.442	0.401	0.29	0.486	5414102.646	**	**
PLS(4)-AR(4)-C-D	1.898	-2.063	0.057	0.312	0.688	0.688	0.75	0.688	0.625	0.625	0.688	0.688	2.86	1.603	3.687	0.239	0.205	0.297	5528283.209		**
BR(0.5)-C	2.37	-2.438	0.028	0.562	0.688	0.688	0	0	0.688	0.625	0	0	1288.023	0.011	1279.565	0	0.916	0	5714012.272		**
BR(0.5)-C-D	2.148	-2.229	0.042	0.562	0.688	0.688	0	0	0.688	0.625	0	0	2799.594	-0.156	3241.51	0	1	0	5699353.446		**
BR(1.0)-C	2.258	-2.439	0.028	0.562	0.688	0.688	0.062	0	0.688	0.625	0	0	3187.5	0.002	3070.463	0	0.962	0	5679229.027		**
BR(1.0)-C-D	2.047	-2.187	0.045	0.562	0.688	0.688	0.062	0.062	0.688	0.625	0	0	1947.888	-0.202	2391.29	0	1	0	5675553.343		**
BR(2.0)-C	2.095	-2.448	0.027	0.562	0.688	0.688	0.188	0.062	0.688	0.688	0	0	1387.194	0.419	1496.505	0	0.518	0	5633546.35		**
BR(2.0)-C-D	1.9	-2.124	0.051	0.625	0.688	0.688	0.125	0.062	0.688	0.562	0.062	0.062	1580.312	0.008	1630.682	0	0.928	0	5643877.905		**
BR(0.5)-AR(1)-C	2.053	-3.104	0.007	0.5	0.688	0.625	0.062	0.062	0.625	0.5	0	0	876.258	-6.146	1726.7	0	1	0	5681121.952		**
BR(0.5)-AR(1)-C-D	1.884	-2.924	0.01	0.5	0.688	0.625	0	0	0.625	0.5	0.125	0.125	1894.21	-0.318	2451.218	0	1	0	5668225.78		**
BR(1.0)-AR(1)-C	1.976	-3.125	0.007	0.5	0.688	0.625	0.125	0.062	0.625	0.5	0.062	0.062	2096.268	0.095	2749.771	0	0.758	0	5650921.307		**
BR(1.0)-AR(1)-C-D	1.811	-2.889	0.011	0.5	0.625	0.625	0	0	0.562	0.5	0.062	0.062	1108.282	-6.523	2668.889	0	1	0	5647758.59		**
BR(2.0)-AR(1)-C	1.862	-3.168	0.006	0.562	0.75	0.625	0.188	0.125	0.625	0.5	0.062	0.062	1204.35	0.593	1491.055	0	0.441	0	5610798.91		**
BR(2.0)-AR(1)-C-D	1.704	-2.831	0.013	0.5	0.625	0.625	0.062	0.062	0.562	0.5	0	0	1312.325	0.055	1429.015	0	0.814	0	5620152.406		**
BR(0.5)-AR(4)-C	1.972	-3.051	0.008	0.5	0.75	0.625	0	0	0.625	0.562	0	0	3686.705	0.078	2959.067	0	0.781	0	5788265.433		**
BR(0.5)-AR(4)-C-D	1.796	-2.736	0.015	0.562	0.688	0.625	0	0	0.625	0.5	0	0	842.535	0	841.54	0	1	0	5734049.582		**
BR(1.0)-AR(4)-C	1.885	-3.14	0.007	0.5	0.75	0.625	0	0	0.625	0.562	0.062	0.062	1779.626	-0.188	2263.309	0	1	0	5762270.651		**
BR(1.0)-AR(4)-C-D	1.731	-2.785	0.014	0.562	0.688	0.625	0	0	0.625	0.5	0	0	2536.39	-0.132	2149.393	0	1	0	5720450.323		**
BR(2.0)-AR(4)-C	1.755	-3.286	0.005	0.5	0.75	0.625	0.062	0.062	0.562	0.562	0	0	1327.498	0.015	1279.536	0	0.903	0	5724966.203		**
BR(2.0)-AR(4)-C-D	1.631	-2.868	0.012	0.625	0.688	0.625	0.062	0.062	0.562	0.438	0.062	0.062	1672.984	-0.177	1349.6	0	1	0	5699133.407		**

TITLE LEVEL 1

- **Sub-title level**