

Nov21_est

Model Equations

- 1: $GROWTH_EA6 = 4*(LGDP_EA6-LGDP_EA6(-1))$
- 2: $GROWTH4_EA6 = LGDP_EA6-LGDP_EA6(-4)$
- 3: $GROWTH_BAR_EA6 = 4*(LGDP_BAR_EA6-LGDP_BAR_EA6(-1))$
- 4: $GROWTH4_BAR_EA6 = LGDP_BAR_EA6-LGDP_BAR_EA6(-4)$
- 5: $RS_EA6 = \gamma1_EA6*RS_EA6(-1)+(1-\gamma1_EA6)*(RR_BAR_EA6+PIE4_EA6(+3)+\gamma2_EA6*(PIE4_PIETAR_EA6)+0 +\gamma4_EA6*Y_EA6+0)+RESN_RS_EA6$
- 6: $RESN_RS_EA6 = \lambda1_RS_EA6*RESN_RS_EA6(-1)+RES_PIETAR_EA6+RES_RS_EA6$
- 7: $PIETAR_EA6 = PIETAR_EA6(-1)-RES_PIETAR_EA6$
- 8: $PIE_EA6 = \lambda1_EA6*PIE4_EA6(+4) +(1-\lambda1_EA6)*PIE4_EA6(-1)+\lambda2_EA6*Y_EA6(-1) +\lambda3_EA6*(REER_M_EA6-REER_M_EA6(-4)-(REER_M_BAR_EA6-REER_M_BAR_EA6(-4)))/4-RESN_PIE_EA6$
- 9: $RESN_PIE_EA6 = \zeta_EA6*RESN_PIE_EA6(-1) + RES_PIE_EA6$
- 10: $DRS_EA6 = RS_EA6-RS_EA6(-1)$
- 11: $RR_EA6 = RS_EA6-PIE_EA6(+1)$
- 12: $RR_BAR_EA6 = \rho_EA6*rr_bar_EA6_ss+(1-\rho_EA6)*RR_BAR_EA6(-1)+RES_RR_BAR_EA6$
- 13: $PIE4_EA6 = (PIE_EA6+PIE_EA6(-1)+PIE_EA6(-2)+PIE_EA6(-3))/4$
- 14: $LGDP_BAR_EA6 = LGDP_BAR_EA6(-1)+G_EA6/4+RES_LGDP_BAR_EA6$

- 15: $G_EA6 = \tau_EA6 * growth_EA6_ss + (1 - \tau_EA6) * G_EA6(-1) + RES_G_EA6$
- 16: $LCPI_EA6 = LCPI_EA6(-1) + PIE_EA6/4$
- 17: $E4_PIE4_EA6 = PIE4_EA6(+4)$
- 18: $E3_PIE4_EA6 = PIE4_EA6(+3)$
- 19: $E1_PIE_EA6 = PIE_EA6(+1)$
- 20: $E1_Y_EA6 = Y_EA6(+1)$
- 21: $E4_Y_EA6 = Y_EA6(+4)$
- 22: $E8_Y_EA6 = Y_EA6(+8)$
- 23: $REER_T_GAP_EA6 = REER_T_EA6 - REER_T_BAR_EA6$
- 24: $DOT_REER_M_EA6 = 4 * (REER_M_EA6 - REER_M_EA6(-1))$
- 25: $REER_M_EA6 = imp_EA6_EU * (LZ_EA6 - LZ_EU) + imp_EA6_JA * (LZ_EA6 - LZ_JA) + imp_EA6_LA6 * (LZ_EA6 - LZ_LA6) + imp_EA6_RC6 * (LZ_EA6 - LZ_RC6) + imp_EA6_US * LZ_EA6$
- 26: $REER_M_BAR_EA6 = imp_EA6_EU * (LZ_BAR_EA6 - LZ_BAR_EU) + imp_EA6_JA * (LZ_BAR_EA6 - LZ_BAR_JA) + imp_EA6_LA6 * (LZ_BAR_EA6 - LZ_BAR_LA6) + imp_EA6_RC6 * (LZ_BAR_EA6 - LZ_BAR_RC6) + imp_EA6_US * LZ_BAR_EA6$
- 27: $DOT_REER_M_BAR_EA6 = 4 * (REER_M_BAR_EA6 - REER_M_BAR_EA6(-1))$
- 28: $REER_T_EA6 = trade_EA6_EU * (LZ_EA6 - LZ_EU) + trade_EA6_JA * (LZ_EA6 - LZ_JA) + trade_EA6_LA6 * (LZ_EA6 - LZ_LA6) + trade_EA6_RC6 * (LZ_EA6 - LZ_RC6) + trade_EA6_US * LZ_EA6$

- 29: REER_T_BAR_EA6 =

$$+trade_EA6_EU *(LZ_BAR_EA6-LZ_BAR_EU)+trade_EA6_JA *(LZ_BAR_EA6-LZ_BAR_JA)+trade_EA6_LA6*(LZ_BAR_EA6-LZ_BAR_LA6)+trade_EA6_RC6*(LZ_BAR_EA6-LZ_BAR_RC6)+trade_EA6_US *LZ_BAR_EA6$$
- 30: FACT_EA6 =

$$+ spill_US_EA6*Y_US (-1) + spill_EU_EA6*Y_EU (-1) + spill_JA_EA6*Y_JA (-1) + spill_LA6_EA6*Y_LA6(-1) + spill_RC6_EA6*Y_RC6(-1)$$
- 31: FACT_RES_EA6 =

$$spill_EA6_EA6*RESN_YY_EA6 + spill_US_EA6*RESN_YY_US + spill_EU_EA6*RESN_YY_EU + spill_JA_EA6*RESN_YY_JA + spill_LA6_EA6*RESN_YY_LA6 + spill_RC6_EA6*RESN_YY_RC6$$
- 32: RESN_YY_EA6 =

$$0.5*RESN_YY_EA6(-1) + RES_YY_EA6$$
- 33: Y_EA6 =

$$LGDP_EA6-LGDP_BAR_EA6$$
- 34: RR_EA6-RR_US =

$$4*(LZ_E_EA6-LZ_EA6)+RR_BAR_EA6-RR_BAR_US - DOT_LZ_BAR_EA6+RESN_RR_DIFF_EA6$$
- 35: RESN_RR_DIFF_EA6 =

$$0.8*RESN_RR_DIFF_EA6(-1) + RES_RR_DIFF_EA6$$
- 36: LZ_BAR_EA6 =

$$LZ_BAR_EA6(-1)+DOT_LZ_BAR_EA6/4+RES_LZ_BAR_EA6$$
- 37: DOT_LZ_BAR_EA6 =

$$chi_EA6*dot_lz_bar_EA6_ss+(1-chi_EA6)*DOT_LZ_BAR_EA6(-1)+RES_DOT_LZ_BAR_EA6$$
- 38: LZ_E_EA6 =

$$phi_EA6*LZ_EA6(+1)+(1-phi_EA6)*(LZ_EA6(-1)+2*DOT_LZ_BAR_EA6/4)$$
- 39: Y_EA6 =

$$beta1_EA6*Y_EA6(-1)+beta2_EA6*Y_EA6(+1)-beta3m_EA6*(LRR_EA6(-1)-LRR_BAR_EA6(-1)) +beta_fact*FACT_EA6+beta_fact_res*FACT_RES_EA6+beta4_EA6*(REER.T(-1)-REER.T_BAR_EA6(-1)+REER.T_EA6(-2)-REER.T_BAR_EA6(-2)+REER.T_EA6(-3)-REER.T_BAR_EA6(-3)+REER.T_EA6(-4)-REER.T_BAR_EA6(-4))/4-E2_EA6+RESN_Y_EA6$$
- 40: RESN_Y_EA6 =

$$0.5*RESN_Y_EA6(-1) + RES_Y_EA6$$
- 41: E2_EA6 =

$$theta_EA6*(spill_US_EA6*E2_US+spill_EU_EA6*E2_EU+spill_JA_EA6*E2_JA)$$

- 42: LZ_GAP_EA6 =
LZ_EA6-LZ_BAR_EA6
- 43: LS_EA6 =
LZ_EA6+LCPI_EA6-LCPI_US
- 44: RR4_EA6 =
(RR_EA6+RR_EA6(+1)+RR_EA6(+2)+RR_EA6(+3))/4
- 45: RR4_BAR_EA6 =
(RR_BAR_EA6+RR_BAR_EA6(+1)+RR_BAR_EA6(+2)+RR_BAR_EA6(+3))/4
- 46: LRR_EA6 =
Irrw01_EA6*RR_EA6 + Irrw04_EA6*RR4_EA6 +
Irrw12_EA6*(RR4_EA6+RR4_EA6(+4)+RR4_EA6(+8))/3 +
Irrw20_EA6*(RR4_EA6+RR4_EA6(+4)+RR4_EA6(+8)+RR4_EA6(12)+RR4_EA6(16))/5
- 47: LRR_BAR_EA6 =
Irrw01_EA6*RR_BAR_EA6 + Irrw04_EA6*RR4_BAR_EA6 +
Irrw12_EA6*(RR4_BAR_EA6+RR4_BAR_EA6(+4)+RR4_BAR_EA6(+8))/3
+
Irrw20_EA6*(RR4_BAR_EA6+RR4_BAR_EA6(+4)+RR4_BAR_EA6(+8)+RR4_BAR_EA6(12)+RR4_BAR_EA6(16))/5
- 48: LRR_GAP_EA6 =
LRR_EA6 - LRR_BAR_EA6
- 49: GROWTH_EU =
4*(LGDP_EU -LGDP_EU(-1))
- 50: GROWTH4_EU =
LGDP_EU -LGDP_EU(-4)
- 51: GROWTH_BAR_EU =
4*(LGDP_BAR_EU -LGDP_BAR_EU(-1))
- 52: GROWTH4_BAR_EU =
LGDP_BAR_EU -LGDP_BAR_EU(-4)
- 53: RS_EU =
gamma1_EU *RS_EU(-1) +(1-gamma1_EU)*(RR_BAR_EU
+PIE4_EU(+3) +gamma2_EU *(PIE4_EU(+3) -PIETAR_EU)+0
+gamma4_EU *Y_EU +0)+RESN_RS_EU
- 54: RESN_RS_EU =
lambda1_RS_EU*RESN_RS_EU(-1)+RES_RS_EU
- 55: PIETAR_EU =
pietar_EU_ss
- 56: UNR_GAP_EU =
alpha1_EU *UNR_GAP_EU(-1) +alpha2_EU *Y_EU +RES_UNR_GAP_EU

- 57: $UNR_GAP_EU = UNR_BAR_EU - UNR_EU$
- 58: $UNR_BAR_EU = UNR_BAR_EU(-1) + UNR_G_EU + RES_UNR_BAR_EU$
- 59: $UNR_G_EU = (1 - \alpha_{3_EU}) * UNR_G_EU(-1) + RES_UNR_G_EU$
- 60: $PIE_EU = \frac{\lambda_{1_EU} * PIE_{4_EU}(+4) + (1 - \lambda_{1_EU}) * PIE_{4_EU}(-1) + \lambda_{2_EU} * Y_EU(-1) + \lambda_{3_EU} * (REER_M_EU - REER_M_EU(-4) - (REER_M_BAR_EU - REER_M_BAR_EU(-4)))}{4 - RESN_PIE_EU}$
- 61: $RESN_PIE_EU = \zeta_{EU} * RESN_PIE_EU(-1) + RES_PIE_EU$
- 62: $DRS_EU = RS_EU - RS_EU(-1)$
- 63: $RR_EU = RS_EU - PIE_EU(+1)$
- 64: $RR_BAR_EU = \rho_{EU} * rr_bar_EU_ss + (1 - \rho_{EU}) * RR_BAR_EU(-1) + RES_RR_BAR_EU$
- 65: $PIE_{4_EU} = \frac{PIE_EU + PIE_EU(-1) + PIE_EU(-2) + PIE_EU(-3)}{4}$
- 66: $LGDP_BAR_EU = LGDP_BAR_EU(-1) + G_EU / 4 + RES_LGDP_BAR_EU$
- 67: $G_EU = \tau_{EU} * growth_EU_ss + (1 - \tau_{EU}) * G_EU(-1) + RES_G_EU$
- 68: $LCPI_EU = LCPI_EU(-1) + PIE_EU / 4$
- 69: $E4_PIE_{4_EU} = PIE_{4_EU}(+4)$
- 70: $E3_PIE_{4_EU} = PIE_{4_EU}(+3)$
- 71: $E1_PIE_EU = PIE_EU(+1)$
- 72: $E1_Y_EU = Y_EU(+1)$

- 73: $E4_Y_EU = Y_EU(+4)$
- 74: $E8_Y_EU = Y_EU(+8)$
- 75: $REER_T_GAP_EU = REER_T_EU - REER_T_BAR_EU$
- 76: $DOT_REER_M_EU = 4*(REER_M_EU-REER_M_EU(-1))$
- 77: $REER_M_EU = +imp_EU_EA6*(LZ_EU -LZ_EA6)+imp_EU_JA *(LZ_EU -LZ_JA)+imp_EU_LA6*(LZ_EU -LZ_LA6)+imp_EU_RC6*(LZ_EU -LZ_RC6)+imp_EU_US *LZ_EU$
- 78: $REER_M_BAR_EU = +imp_EU_EA6*(LZ_BAR_EU -LZ_BAR_EA6)+imp_EU_JA *(LZ_BAR_EU -LZ_BAR_JA)+imp_EU_LA6*(LZ_BAR_EU -LZ_BAR_LA6)+imp_EU_RC6*(LZ_BAR_EU -LZ_BAR_RC6)+imp_EU_US *LZ_BAR_EU$
- 79: $DOT_REER_M_BAR_EU = 4*(REER_M_BAR_EU -REER_M_BAR_EU(-1))$
- 80: $REER_T_EU = +trade_EU_EA6*(LZ_EU -LZ_EA6)+trade_EU_JA *(LZ_EU -LZ_JA)+trade_EU_LA6*(LZ_EU -LZ_LA6)+trade_EU_RC6*(LZ_EU -LZ_RC6)+trade_EU_US *LZ_EU$
- 81: $REER_T_BAR_EU = +trade_EU_EA6*(LZ_BAR_EU -LZ_BAR_EA6)+trade_EU_JA *(LZ_BAR_EU -LZ_BAR_JA)+trade_EU_LA6*(LZ_BAR_EU -LZ_BAR_LA6)+trade_EU_RC6*(LZ_BAR_EU -LZ_BAR_RC6)+trade_EU_US *LZ_BAR_EU$
- 82: $FACT_EU = + spill_US_EU *Y_US (-1) + spill_JA_EU *Y_JA (-1) + spill_EA6_EU *Y_EA6(-1) + spill_LA6_EU *Y_LA6(-1) + spill_RC6_EU *Y_RC6(-1)$
- 83: $FACT_RES_EU = spill_EU_EU *RESN_YY_EU + spill_US_EU *RESN_YY_US + spill_JA_EU *RESN_YY_JA + spill_EA6_EU *RESN_YY_EA6 + spill_LA6_EU *RESN_YY_LA6 + spill_RC6_EU *RESN_YY_RC6$
- 84: $RESN_YY_EU = 0.5*RESN_YY_EU(-1) + RES_YY_EU$
- 85: $Y_EU = LGDP_EU -LGDP_BAR_EU$

- 86: $RR_EU - RR_US = 4*(LZ_E_EU - LZ_EU) + RR_BAR_EU - RR_BAR_US + RESN_RR_DIFF_EU$
- 87: $RESN_RR_DIFF_EU = 0.8*RESN_RR_DIFF_EU(-1) + RES_RR_DIFF_EU$
- 88: $LZ_BAR_EU = LZ_BAR_EU(-1) + RES_LZ_BAR_EU$
- 89: $LZ_E_EU = \phi_EU * LZ_EU(+1) + (1 - \phi_EU) * LZ_EU(-1)$
- 90: $Y_EU = \beta_{1_EU} * Y_EU(-1) + \beta_{2_EU} * Y_EU(+1) - \beta_{3m_EU} * (LRR_EU(-1) - LRR_BAR_EU(-1)) + \beta_{fact_EU} * FACT_EU + \beta_{fact_res_EU} * FACT_RES_EU + \beta_{4_EU} * (REER_T_EU(-1) - REER_T_BAR_EU(-1) + REER_T_EU(-2) - REER_T_BAR_EU(-2) + REER_T_EU(-3) - REER_T_BAR_EU(-3) + REER_T_EU(-4) - REER_T_BAR_EU(-4)) / 4 - E2_EU + RESN_Y_EU$
- 91: $RESN_Y_EU = 0.5*RESN_Y_EU(-1) + RES_Y_EU$
- 92: $E_EU = -RES_BLT_EU$
- 93: $BLT_EU = BLT_BAR_EU - \kappa_EU * Y_EU(+4) - RES_BLT_EU$
- 94: $BLT_BAR_EU = BLT_BAR_EU(-1) + RES_BLT_BAR_EU$
- 95: $E2_EU = \theta_EU * (0.04*(E_EU(-1) + E_EU(-9)) + 0.08*(E_EU(-2) + E_EU(-8)) + 0.12*(E_EU(-3) + E_EU(-7)) + 0.16*(E_EU(-4) + E_EU(-6)) + 0.2 * E_EU(-5))$
- 96: $LZ_GAP_EU = LZ_EU - LZ_BAR_EU$
- 97: $LS_EU = LZ_EU + LCPI_EU - LCPI_US$
- 98: $RR4_EU = (RR_EU + RR_EU(+1) + RR_EU(+2) + RR_EU(+3)) / 4$
- 99: $RR4_BAR_EU = (RR_BAR_EU + RR_BAR_EU(+1) + RR_BAR_EU(+2) + RR_BAR_EU(+3)) / 4$
- 100: $LRR_GAP_EU = LRR_EU - LRR_BAR_EU$

101: LRR_EU =
 Irrw01_EU *RR_EU
 + Irrw04_EU *RR4_EU
 + Irrw12_EU *(RR4_EU +RR4_EU(+4) +RR4_EU(+8))/3
 + Irrw20_EU *(RR4_EU +RR4_EU(+4) +RR4_EU(+8) +RR4_EU(12)
 +RR4_EU(16))/5

102: LRR_BAR_EU =
 Irrw01_EU *RR_BAR_EU
 + Irrw04_EU *RR4_BAR_EU
 + Irrw12_EU *(RR4_BAR_EU +RR4_BAR_EU(+4) +RR4_BAR_EU(+8)
)/3
 + Irrw20_EU *(RR4_BAR_EU +RR4_BAR_EU(+4) +RR4_BAR_EU(+8)
 +RR4_BAR_EU(12) +RR4_BAR_EU(16))/5

103: GROWTH_JA =
 4*(LGDP_JA -LGDP_JA(-1))

104: GROWTH4_JA =
 LGDP_JA -LGDP_JA(-4)

105: GROWTH_BAR_JA =
 4*(LGDP_BAR_JA -LGDP_BAR_JA(-1))

106: GROWTH4_BAR_JA =
 LGDP_BAR_JA -LGDP_BAR_JA(-4)

107: RS_JA =
 gamma1_JA *RS_JA(-1) +(1-gamma1_JA)*(RR_BAR_JA +PIE4_JA(+3)
 +gamma2_JA *(PIE4_JA(+3) -PIETAR_JA)+0 +gamma4_JA *Y_JA +0
)+RESN_RS_JA

108: RESN_RS_JA =
 lambda1_RS_JA*RESN_RS_JA(-1)+RES_RS_JA

109: PIETAR_JA =
 pietar_JA_ss

110: UNR_GAP_JA =
 alpha1_JA *UNR_GAP_JA(-1) +alpha2_JA *Y_JA +RES_UNR_GAP_JA

111: UNR_GAP_JA =
 UNR_BAR_JA -UNR_JA

112: UNR_BAR_JA =
 UNR_BAR_JA(-1) +UNR_G_JA +RES_UNR_BAR_JA

113: UNR_G_JA =
 (1-alpha3_JA)*UNR_G_JA(-1) +RES_UNR_G_JA

- 114: $PIE_JA =$
 $\lambda_{1_JA} * PIE4_JA(+4) + (1 - \lambda_{1_JA}) * PIE4_JA(-1)$
 $+ \lambda_{2_JA} * Y_JA(-1) + \lambda_{3_JA} * (REER_M_JA - REER_M_JA(-4)$
 $- (REER_M_BAR_JA - REER_M_BAR_JA(-4))) / 4 - RESN_PIE_JA$
- 115: $RESN_PIE_JA =$
 $\zeta_{JA} * RESN_PIE_JA(-1) + RES_PIE_JA$
- 116: $DRS_JA =$
 $RS_JA - RS_JA(-1)$
- 117: $RR_JA =$
 $RS_JA - PIE_JA(+1)$
- 118: $RR_BAR_JA =$
 $\rho_{JA} * rr_bar_JA_ss + (1 - \rho_{JA}) * RR_BAR_JA(-1) + RES_RR_BAR_JA$
- 119: $PIE4_JA =$
 $(PIE_JA + PIE_JA(-1) + PIE_JA(-2) + PIE_JA(-3)) / 4$
- 120: $LGDP_BAR_JA =$
 $LGDP_BAR_JA(-1) + G_JA / 4 + RES_LGDP_BAR_JA$
- 121: $G_JA =$
 $\tau_{JA} * growth_JA_ss + (1 - \tau_{JA}) * G_JA(-1) + RES_G_JA$
- 122: $LCPI_JA =$
 $LCPI_JA(-1) + PIE_JA / 4$
- 123: $E4_PIE4_JA =$
 $PIE4_JA(+4)$
- 124: $E3_PIE4_JA =$
 $PIE4_JA(+3)$
- 125: $E1_PIE_JA =$
 $PIE_JA(+1)$
- 126: $E1_Y_JA =$
 $Y_JA(+1)$
- 127: $E4_Y_JA =$
 $Y_JA(+4)$
- 128: $E8_Y_JA =$
 $Y_JA(+8)$
- 129: $REER_T_GAP_JA =$
 $REER_T_JA - REER_T_BAR_JA$
- 130: $DOT_REER_M_JA =$
 $4 * (REER_M_JA - REER_M_JA(-1))$

- 131: REER_M_JA =
+imp_JA_EA6*(LZ_JA -LZ_EA6)+imp_JA_EU *(LZ_JA -LZ_EU
)+imp_JA_LA6*(LZ_JA -LZ_LA6)+imp_JA_RC6*(LZ_JA
-LZ_RC6)+imp_JA_US *LZ_JA
- 132: REER_M_BAR_JA =
+imp_JA_EA6*(LZ_BAR_JA -LZ_BAR_EA6)+imp_JA_EU
(LZ_BAR_JA -LZ_BAR_EU)+imp_JA_LA6(LZ_BAR_JA
-LZ_BAR_LA6)+imp_JA_RC6*(LZ_BAR_JA -LZ_BAR_RC6)+imp_JA_US
*LZ_BAR_JA
- 133: DOT_REER_M_BAR_JA =
4*(REER_M_BAR_JA -REER_M_BAR_JA(-1))
- 134: REER_T_JA =
+trade_JA_EA6*(LZ_JA -LZ_EA6)+trade_JA_EU *(LZ_JA -LZ_EU
)+trade_JA_LA6*(LZ_JA -LZ_LA6)+trade_JA_RC6*(LZ_JA
-LZ_RC6)+trade_JA_US *LZ_JA
- 135: REER_T_BAR_JA =
+trade_JA_EA6*(LZ_BAR_JA -LZ_BAR_EA6)+trade_JA_EU
(LZ_BAR_JA -LZ_BAR_EU)+trade_JA_LA6(LZ_BAR_JA -
LZ_BAR_LA6)+trade_JA_RC6*(LZ_BAR_JA -LZ_BAR_RC6)+trade_JA_US
*LZ_BAR_JA
- 136: FACT_JA =
+ spill_US_JA *Y_US (-1) + spill_EU_JA *Y_EU (-1) + spill_EA6_JA
*Y_EA6(-1) + spill_LA6_JA *Y_LA6(-1) + spill_RC6_JA *Y_RC6(-1)
- 137: FACT_RES_JA =
spill_JA_JA *RESN_YY_JA + spill_US_JA *RESN_YY_US + spill_EU_JA
*RESN_YY_EU + spill_EA6_JA *RESN_YY_EA6 + spill_LA6_JA
*RESN_YY_LA6 + spill_RC6_JA *RESN_YY_RC6
- 138: RESN_YY_JA =
0.5*RESN_YY_JA(-1) + RES_YY_JA
- 139: Y_JA =
LGDP_JA -LGDP_BAR_JA
- 140: RR_JA -RR_US =
4*(LZ_E_JA -LZ_JA)+RR_BAR_JA -RR_BAR_US +RESN_RR_DIFF_JA
- 141: RESN_RR_DIFF_JA =
0.8*RESN_RR_DIFF_JA(-1) + RES_RR_DIFF_JA
- 142: LZ_BAR_JA =
LZ_BAR_JA(-1) +RES_LZ_BAR_JA
- 143: LZ_E_JA =
phi_JA *LZ_JA(+1) +(1-phi_JA)*LZ_JA(-1)

144: $Y_{JA} =$
 $\text{beta1}_{JA} * Y_{JA}(-1) + \text{beta2}_{JA} * Y_{JA}(+1) - \text{beta3m}_{JA} * (\text{LRR}_{JA}(-1) - \text{LRR}_{BAR}_{JA}(-1)) + \text{beta_fact} * \text{FACT}_{JA} + \text{beta_fact_res} * \text{FACT_RES}_{JA}$
 $+ \text{beta4}_{JA} * (\text{REER_T}_{JA}(-1) - \text{REER_T_BAR}_{JA}(-1) + \text{REER_T}_{JA}(-2) - \text{REER_T_BAR}_{JA}(-2) + \text{REER_T}_{JA}(-3) - \text{REER_T_BAR}_{JA}(-3) + \text{REER_T}_{JA}(-4) - \text{REER_T_BAR}_{JA}(-4)) / 4 - E2_{JA} + \text{RESN_Y}_{JA}$

145: $\text{RESN_Y}_{JA} =$
 $0.5 * \text{RESN_Y}_{JA}(-1) + \text{RES_Y}_{JA}$

146: $E_{JA} =$
 $-\text{RES_BLT}_{JA}$

147: $\text{BLT}_{JA} =$
 $\text{BLT_BAR}_{JA} - \text{kappa}_{JA} * Y_{JA}(+4) - \text{RES_BLT}_{JA}$

148: $\text{BLT_BAR}_{JA} =$
 $\text{BLT_BAR}_{JA}(-1) + \text{RES_BLT_BAR}_{JA}$

149: $E2_{JA} =$
 $\text{theta}_{JA} * (0.04 * (E_{JA}(-1) + E_{JA}(-9)) + 0.08 * (E_{JA}(-2) + E_{JA}(-8)) + 0.12 * (E_{JA}(-3) + E_{JA}(-7)) + 0.16 * (E_{JA}(-4) + E_{JA}(-6)) + 0.2 * E_{JA}(-5))$

150: $\text{LZ_GAP}_{JA} =$
 $\text{LZ}_{JA} - \text{LZ_BAR}_{JA}$

151: $\text{LS}_{JA} =$
 $\text{LZ}_{JA} + \text{LCPI}_{JA} - \text{LCPI}_{US}$

152: $\text{RR4}_{JA} =$
 $(\text{RR}_{JA} + \text{RR}_{JA}(+1) + \text{RR}_{JA}(+2) + \text{RR}_{JA}(+3)) / 4$

153: $\text{RR4_BAR}_{JA} =$
 $(\text{RR_BAR}_{JA} + \text{RR_BAR}_{JA}(+1) + \text{RR_BAR}_{JA}(+2) + \text{RR_BAR}_{JA}(+3)) / 4$

154: $\text{LRR_GAP}_{JA} =$
 $\text{LRR}_{JA} - \text{LRR_BAR}_{JA}$

155: $\text{LRR}_{JA} =$
 $\text{Irrw01}_{JA} * \text{RR}_{JA}$
 $+ \text{Irrw04}_{JA} * \text{RR4}_{JA}$
 $+ \text{Irrw12}_{JA} * (\text{RR4}_{JA} + \text{RR4}_{JA}(+4) + \text{RR4}_{JA}(+8)) / 3$
 $+ \text{Irrw20}_{JA} * (\text{RR4}_{JA} + \text{RR4}_{JA}(+4) + \text{RR4}_{JA}(+8) + \text{RR4}_{JA}(12) + \text{RR4}_{JA}(16)) / 5$

156: $\text{LRR_BAR}_{JA} =$
 $\text{Irrw01}_{JA} * \text{RR_BAR}_{JA}$
 $+ \text{Irrw04}_{JA} * \text{RR4_BAR}_{JA}$
 $+ \text{Irrw12}_{JA} * (\text{RR4_BAR}_{JA} + \text{RR4_BAR}_{JA}(+4) + \text{RR4_BAR}_{JA}(+8)) / 3$
 $+ \text{Irrw20}_{JA} * (\text{RR4_BAR}_{JA} + \text{RR4_BAR}_{JA}(+4) + \text{RR4_BAR}_{JA}(+8) + \text{RR4_BAR}_{JA}(12) + \text{RR4_BAR}_{JA}(16)) / 5$

- 157: $GROWTH_LA6 = 4*(LGDP_LA6-LGDP_LA6(-1))$
- 158: $GROWTH4_LA6 = LGDP_LA6-LGDP_LA6(-4)$
- 159: $GROWTH_BAR_LA6 = 4*(LGDP_BAR_LA6-LGDP_BAR_LA6(-1))$
- 160: $GROWTH4_BAR_LA6 = LGDP_BAR_LA6-LGDP_BAR_LA6(-4)$
- 161: $RS_LA6 = \text{gamma1_LA6}*RS_LA6(-1)+(1-\text{gamma1_LA6})*(RR_BAR_LA6+PIE4_LA6(+3)+\text{gamma2_LA6}*(PIE4_LA6(-1)+\text{gamma4_LA6}*Y_LA6+0))+RESN_RS_LA6$
- 162: $RESN_RS_LA6 = \text{lambda1_RS_LA6}*RESN_RS_LA6(-1)+RES_PIETAR_LA6+RES_RS_LA6$
- 163: $PIETAR_LA6 = PIETAR_LA6(-1)-RES_PIETAR_LA6$
- 164: $PIE_LA6 = \text{lambda1_LA6}*PIE4_LA6(+4) +(1-\text{lambda1_LA6})*PIE4_LA6(-1)+\text{lambda2_LA6}*Y_LA6(-1) +\text{lambda3_LA6}*(REER_M_LA6-REER_M_LA6(-4)-(REER_M_BAR_LA6-REER_M_BAR_LA6(-4)))/4-RESN_PIE_LA6$
- 165: $DRS_LA6 = RS_LA6-RS_LA6(-1)$
- 166: $RESN_PIE_LA6 = \text{zeta_LA6}*RESN_PIE_LA6(-1) + RES_PIE_LA6$
- 167: $RR_LA6 = RS_LA6-PIE_LA6(+1)$
- 168: $RR_BAR_LA6 = \text{rho_LA6}*rr_bar_LA6_ss+(1-\text{rho_LA6})*RR_BAR_LA6(-1)+RES_RR_BAR_LA6$
- 169: $PIE4_LA6 = (PIE_LA6+PIE_LA6(-1)+PIE_LA6(-2)+PIE_LA6(-3))/4$
- 170: $LGDP_BAR_LA6 = LGDP_BAR_LA6(-1)+G_LA6/4+RES_LGDP_BAR_LA6$
- 171: $G_LA6 = \text{tau_LA6}*growth_LA6_ss+(1-\text{tau_LA6})*G_LA6(-1)+RES_G_LA6$
- 172: $LCPI_LA6 = LCPI_LA6(-1)+PIE_LA6/4$

173: $E4_PIE4_LA6 = PIE4_LA6(+4)$

174: $E3_PIE4_LA6 = PIE4_LA6(+3)$

175: $E1_PIE_LA6 = PIE_LA6(+1)$

176: $E1_Y_LA6 = Y_LA6(+1)$

177: $E4_Y_LA6 = Y_LA6(+4)$

178: $E8_Y_LA6 = Y_LA6(+8)$

179: $REER_T_GAP_LA6 = REER_T_LA6 - REER_T_BAR_LA6$

180: $DOT_REER_M_LA6 = 4*(REER_M_LA6-REER_M_LA6(-1))$

181: $REER_M_LA6 = +imp_LA6_EA6*(LZ_LA6-LZ_EA6)+imp_LA6_EU *(LZ_LA6-LZ_EU)+imp_LA6_JA *(LZ_LA6-LZ_JA)+imp_LA6_RC6*(LZ_LA6-LZ_RC6)+imp_LA6_US *LZ_LA6$

182: $REER_M_BAR_LA6 = +imp_LA6_EA6*(LZ_BAR_LA6-LZ_BAR_EA6)+imp_LA6_EU *(LZ_BAR_LA6-LZ_BAR_EU)+imp_LA6_JA *(LZ_BAR_LA6-LZ_BAR_JA)+imp_LA6_RC6*(LZ_BAR_LA6-LZ_BAR_RC6)+imp_LA6_US *LZ_BAR_LA6$

183: $DOT_REER_M_BAR_LA6 = 4*(REER_M_BAR_LA6-REER_M_BAR_LA6(-1))$

184: $REER_T_LA6 = +trade_LA6_EA6*(LZ_LA6-LZ_EA6)+trade_LA6_EU *(LZ_LA6-LZ_EU)+trade_LA6_JA *(LZ_LA6-LZ_JA)+trade_LA6_RC6*(LZ_LA6-LZ_RC6)+trade_LA6_US *LZ_LA6$

185: $REER_T_BAR_LA6 = +trade_LA6_EA6*(LZ_BAR_LA6-LZ_BAR_EA6)+trade_LA6_EU *(LZ_BAR_LA6-LZ_BAR_EU)+trade_LA6_JA *(LZ_BAR_LA6-LZ_BAR_JA)+trade_LA6_RC6*(LZ_BAR_LA6-LZ_BAR_RC6)+trade_LA6_US *LZ_BAR_LA6$

- 186: $FACT_LA6 =$
 $+ spill_US_LA6*Y_US (-1) + spill_EU_LA6*Y_EU (-1)$
 $+ spill_JA_LA6*Y_JA (-1) + spill_EA6_LA6*Y_EA6(-1) +$
 $spill_RC6_LA6*Y_RC6(-1)$
- 187: $FACT_RES_LA6 =$
 $spill_LA6_LA6*RESN_YY_LA6 + spill_US_LA6*RESN_YY_US$
 $+ spill_EU_LA6*RESN_YY_EU + spill_JA_LA6*RESN_YY_JA +$
 $spill_EA6_LA6*RESN_YY_EA6 + spill_RC6_LA6*RESN_YY_RC6$
- 188: $RESN_YY_LA6 =$
 $0.5*RESN_YY_LA6(-1) + RES_YY_LA6$
- 189: $Y_LA6 =$
 $LGDP_LA6-LGDP_BAR_LA6$
- 190: $RR_LA6-RR_US =$
 $4*(LZ_E_LA6-LZ_LA6)+RR_BAR_LA6-RR_BAR_US -$
 $DOT_LZ_BAR_LA6+RESN_RR_DIFF_LA6$
- 191: $RESN_RR_DIFF_LA6 =$
 $0.8*RESN_RR_DIFF_LA6(-1) + RES_RR_DIFF_LA6$
- 192: $LZ_BAR_LA6 =$
 $LZ_BAR_LA6(-1)+DOT_LZ_BAR_LA6/4+RES_LZ_BAR_LA6$
- 193: $DOT_LZ_BAR_LA6 =$
 $chi_LA6*dot.lz.bar.LA6.ss+(1-chi.LA6)*DOT_LZ_BAR_LA6(-$
 $1)+RES_DOT_LZ_BAR_LA6$
- 194: $LZ_E_LA6 =$
 $phi_LA6*LZ_LA6(+1)+(1-phi_LA6)*(LZ_LA6(-1)+2*DOT_LZ_BAR_LA6/4)$
- 195: $Y_LA6 =$
 $beta1_LA6*Y_LA6(-1)+beta2_LA6*Y_LA6(+1)-beta3m_LA6*(LRR_LA6(-$
 $1)-LRR_BAR_LA6(-1)) +beta_fact*FACT_LA6+beta_fact_res*FACT_RES_LA6+beta4_LA6*(REER_T_L$
 $1)-REER_T_BAR_LA6(-1)+REER_T_LA6(-2)-REER_T_BAR_LA6(-$
 $2)+REER_T_LA6(-3)-REER_T_BAR_LA6(-3)+REER_T_LA6(-4)-$
 $REER_T_BAR_LA6(-4))/4-E2_LA6+RESN_Y_LA6$
- 196: $RESN_Y_LA6 =$
 $0.5*RESN_Y_LA6(-1) + RES_Y_LA6$
- 197: $E2_LA6 =$
 $theta_LA6*(spill_US_LA6*E2_US+spill_EU_LA6*E2_EU+spill_JA_LA6*E2_JA)$
- 198: $LZ_GAP_LA6 =$
 $LZ_LA6-LZ_BAR_LA6$
- 199: $LS_LA6 =$
 $LZ_LA6+LCPI_LA6-LCPI_US$

- 200: $RR4_LA6 = (RR_LA6+RR_LA6(+1)+RR_LA6(+2)+RR_LA6(+3))/4$
- 201: $RR4_BAR_LA6 = (RR_BAR_LA6+RR_BAR_LA6(+1)+RR_BAR_LA6(+2)+RR_BAR_LA6(+3))/4$
- 202: $LRR_LA6 = Irrw01_LA6*RR_LA6 + Irrw04_LA6*RR4_LA6 + Irrw12_LA6*(RR4_LA6+RR4_LA6(+4)+RR4_LA6(+8))/3 + Irrw20_LA6*(RR4_LA6+RR4_LA6(+4)+RR4_LA6(+8)+RR4_LA6(12)+RR4_LA6(16))/5$
- 203: $LRR_BAR_LA6 = Irrw01_LA6*RR_BAR_LA6 + Irrw04_LA6*RR4_BAR_LA6 + Irrw12_LA6*(RR4_BAR_LA6+RR4_BAR_LA6(+4)+RR4_BAR_LA6(+8))/3 + Irrw20_LA6*(RR4_BAR_LA6+RR4_BAR_LA6(+4)+RR4_BAR_LA6(+8)+RR4_BAR_LA6(12)+RR4_BAR_LA6(16))/5$
- 204: $LRR_GAP_LA6 = LRR_LA6 - LRR_BAR_LA6$
- 205: $GROWTH_RC6 = 4*(LGDP_RC6-LGDP_RC6(-1))$
- 206: $GROWTH4_RC6 = LGDP_RC6-LGDP_RC6(-4)$
- 207: $GROWTH_BAR_RC6 = 4*(LGDP_BAR_RC6-LGDP_BAR_RC6(-1))$
- 208: $GROWTH4_BAR_RC6 = LGDP_BAR_RC6-LGDP_BAR_RC6(-4)$
- 209: $RS_RC6 = \gamma1_RC6*RS_RC6(-1)+(1-\gamma1_RC6)*(RR_BAR_RC6+PIE4_RC6(+3)+\gamma2_RC6*(PIE_PIETAR_RC6)+0 +\gamma4_RC6*Y_RC6+0)+RESN_RS_RC6$
- 210: $RESN_RS_RC6 = \lambda1_RS_RC6*RESN_RS_RC6(-1)+RES_PIETAR_RC6+RES_RS_RC6$
- 211: $PIETAR_RC6 = PIETAR_RC6(-1)-RES_PIETAR_RC6$
- 212: $PIE_RC6 = \lambda1_RC6*PIE4_RC6(+4) + (1-\lambda1_RC6)*PIE4_RC6(-1) + \lambda2_RC6*Y_RC6(-1) + \lambda3_RC6*(REER_M_RC6-REER_M_RC6(-4)-(REER_M_BAR_RC6-REER_M_BAR_RC6(-4)))/4 - RESN_PIE_RC6$
- 213: $RESN_PIE_RC6 = \zeta_RC6*RESN_PIE_RC6(-1) + RES_PIE_RC6$

214: $DRS_RC6 = RS_RC6 - RS_RC6(-1)$

215: $RR_RC6 = RS_RC6 - PIE_RC6(+1)$

216: $RR_BAR_RC6 = \rho_RC6 * rr_bar_RC6_ss + (1 - \rho_RC6) * RR_BAR_RC6(-1) + RES_RR_BAR_RC6$

217: $PIE4_RC6 = (PIE_RC6 + PIE_RC6(-1) + PIE_RC6(-2) + PIE_RC6(-3)) / 4$

218: $LGDP_BAR_RC6 = LGDP_BAR_RC6(-1) + G_RC6 / 4 + RES_LGDP_BAR_RC6$

219: $G_RC6 = \tau_RC6 * growth_RC6_ss + (1 - \tau_RC6) * G_RC6(-1) + RES_G_RC6$

220: $LCPI_RC6 = LCPI_RC6(-1) + PIE_RC6 / 4$

221: $E4_PIE4_RC6 = PIE4_RC6(+4)$

222: $E3_PIE4_RC6 = PIE4_RC6(+3)$

223: $E1_PIE_RC6 = PIE_RC6(+1)$

224: $E1_Y_RC6 = Y_RC6(+1)$

225: $E4_Y_RC6 = Y_RC6(+4)$

226: $E8_Y_RC6 = Y_RC6(+8)$

227: $REER_T_GAP_RC6 = REER_T_RC6 - REER_T_BAR_RC6$

228: $DOT_REER_M_RC6 = 4 * (REER_M_RC6 - REER_M_RC6(-1))$

229: $REER_M_RC6 = imp_RC6_EA6 * (LZ_RC6 - LZ_EA6) + imp_RC6_EU * (LZ_RC6 - LZ_EU) + imp_RC6_JA * (LZ_RC6 - LZ_JA) + imp_RC6_LA6 * (LZ_RC6 - LZ_LA6) + imp_RC6_US * LZ_RC6$

230: REER_M_BAR_RC6 =
+imp_RC6_EA6*(LZ_BAR_RC6-LZ_BAR_EA6)+imp_RC6_EU
*(LZ_BAR_RC6-LZ_BAR_EU)+imp_RC6_JA *(LZ_BAR_RC6-LZ_BAR_JA
)+imp_RC6_LA6*(LZ_BAR_RC6-LZ_BAR_LA6)+imp_RC6_US
*LZ_BAR_RC6

231: DOT_REER_M_BAR_RC6 =
4*(REER_M_BAR_RC6-REER_M_BAR_RC6(-1))

232: REER_T_RC6 =
+trade_RC6_EA6*(LZ_RC6-LZ_EA6)+trade_RC6_EU *(LZ_RC6-LZ_EU
)+trade_RC6_JA *(LZ_RC6-LZ_JA)+trade_RC6_LA6*(LZ_RC6-
LZ_LA6)+trade_RC6_US *LZ_RC6

233: REER_T_BAR_RC6 =
+trade_RC6_EA6*(LZ_BAR_RC6-LZ_BAR_EA6)+trade_RC6_EU
*(LZ_BAR_RC6-LZ_BAR_EU)+trade_RC6_JA *(LZ_BAR_RC6-
LZ_BAR_JA)+trade_RC6_LA6*(LZ_BAR_RC6-LZ_BAR_LA6)+trade_RC6_US
*LZ_BAR_RC6

234: FACT_RC6 =
+ spill_US__RC6*Y_US (-1) + spill_EU__RC6*Y_EU (-1)
+ spill_JA__RC6*Y_JA (-1) + spill_EA6_RC6*Y_EA6(-1) +
spill_LA6_RC6*Y_LA6(-1)

235: FACT_RES_RC6 =
spill_RC6_RC6*RESN_YY_RC6 + spill_US__RC6*RESN_YY_US
+ spill_EU__RC6*RESN_YY_EU + spill_JA__RC6*RESN_YY_JA +
spill_EA6_RC6*RESN_YY_EA6 + spill_LA6_RC6*RESN_YY_LA6

236: RESN_YY_RC6 =
0.5*RESN_YY_RC6(-1) + RES_YY_RC6

237: Y_RC6 =
LGDP_RC6-LGDP_BAR_RC6

238: RR_RC6-RR_US =
4*(LZ_E_RC6-LZ_RC6)+RR_BAR_RC6-RR_BAR_US -
DOT_LZ_BAR_RC6+RESN_RR_DIFF_RC6

239: RESN_RR_DIFF_RC6 =
0.8*RESN_RR_DIFF_RC6(-1) + RES_RR_DIFF_RC6

240: LZ_BAR_RC6 =
LZ_BAR_RC6(-1)+DOT_LZ_BAR_RC6/4+RES_LZ_BAR_RC6

241: DOT_LZ_BAR_RC6 =
chi_RC6*dot_lz_bar_RC6_ss+(1-chi_RC6)*DOT_LZ_BAR_RC6(-
1)+RES_DOT_LZ_BAR_RC6

- 242: LZ_E_RC6 =

$$\text{phi_RC6} * \text{LZ_RC6}(+1) + (1 - \text{phi_RC6}) * (\text{LZ_RC6}(-1) + 2 * \text{DOT_LZ_BAR_RC6}/4)$$
- 243: Y_RC6 =

$$\begin{aligned} & \text{beta1_RC6} * \text{Y_RC6}(-1) + \text{beta2_RC6} * \text{Y_RC6}(+1) - \\ & \text{beta3m_RC6} * (\text{LRR_RC6}(-1) - \text{LRR_BAR_RC6}(-1)) \\ & + \text{beta_fact} * \text{FACT_RC6} + \text{beta_fact_res} * \text{FACT_RES_RC6} + \text{beta4_RC6} * (\text{REER_T_RC6}(- \\ & 1) - \text{REER_T_BAR_RC6}(-1) + \text{REER_T_RC6}(-2) - \text{REER_T_BAR_RC6}(- \\ & 2) + \text{REER_T_RC6}(-3) - \text{REER_T_BAR_RC6}(-3) + \text{REER_T_RC6}(-4) - \\ & \text{REER_T_BAR_RC6}(-4)) / 4 - \text{E2_RC6} + \text{RESN_Y_RC6} \end{aligned}$$
- 244: RESN_Y_RC6 =

$$0.5 * \text{RESN_Y_RC6}(-1) + \text{RES_Y_RC6}$$
- 245: E2_RC6 =

$$\text{theta_RC6} * (\text{spill_US_RC6} * \text{E2_US} + \text{spill_EU_RC6} * \text{E2_EU} + \text{spill_JA_RC6} * \text{E2_JA})$$
- 246: LZ_GAP_RC6 =

$$\text{LZ_RC6} - \text{LZ_BAR_RC6}$$
- 247: LS_RC6 =

$$\text{LZ_RC6} + \text{LCPI_RC6} - \text{LCPI_US}$$
- 248: RR4_RC6 =

$$(\text{RR_RC6} + \text{RR_RC6}(+1) + \text{RR_RC6}(+2) + \text{RR_RC6}(+3)) / 4$$
- 249: RR4_BAR_RC6 =

$$(\text{RR_BAR_RC6} + \text{RR_BAR_RC6}(+1) + \text{RR_BAR_RC6}(+2) + \text{RR_BAR_RC6}(+3)) / 4$$
- 250: LRR_RC6 =

$$\begin{aligned} & \text{lrrw01_RC6} * \text{RR_RC6} + \text{lrrw04_RC6} * \text{RR4_RC6} + \\ & \text{lrrw12_RC6} * (\text{RR4_RC6} + \text{RR4_RC6}(+4) + \text{RR4_RC6}(+8)) / 3 + \\ & \text{lrrw20_RC6} * (\text{RR4_RC6} + \text{RR4_RC6}(+4) + \text{RR4_RC6}(+8) + \text{RR4_RC6}(12) + \text{RR4_RC6}(16)) / 5 \end{aligned}$$
- 251: LRR_BAR_RC6 =

$$\begin{aligned} & \text{lrrw01_RC6} * \text{RR_BAR_RC6} + \text{lrrw04_RC6} * \text{RR4_BAR_RC6} + \\ & \text{lrrw12_RC6} * (\text{RR4_BAR_RC6} + \text{RR4_BAR_RC6}(+4) + \text{RR4_BAR_RC6}(+8)) / 3 \\ & + \\ & \text{lrrw20_RC6} * (\text{RR4_BAR_RC6} + \text{RR4_BAR_RC6}(+4) + \text{RR4_BAR_RC6}(+8) + \text{RR4_BAR_RC6}(12) + \text{RR4_BAR_RC6}(16)) / 5 \end{aligned}$$
- 252: LRR_GAP_RC6 =

$$\text{LRR_RC6} - \text{LRR_BAR_RC6}$$
- 253: GROWTH_US =

$$4 * (\text{LGDP_US} - \text{LGDP_US}(-1))$$
- 254: GROWTH4_US =

$$\text{LGDP_US} - \text{LGDP_US}(-4)$$
- 255: GROWTH_BAR_US =

$$4 * (\text{LGDP_BAR_US} - \text{LGDP_BAR_US}(-1))$$

256: $GROWTH4_BAR_US = LGDP_BAR_US - LGDP_BAR_US(-4)$

257: $RS_US = \gamma1_US * RS_US(-1) + (1 - \gamma1_US) * (RR_BAR_US + PIE4_US(+3) + \gamma2_US * (PIE4_US(+3) - PIETAR_US) + 0 + \gamma4_US * Y_US) + RESN_RS_US$

258: $RESN_RS_US = \lambda1_RS_US * RESN_RS_US(-1) + RES_RS_US$

259: $PIETAR_US = \text{pietar_US_ss}$

260: $UNR_GAP_US = \alpha1_US * UNR_GAP_US(-1) + \alpha2_US * Y_US + RES_UNR_GAP_US$

261: $UNR_GAP_US = UNR_BAR_US - UNR_US$

262: $UNR_BAR_US = UNR_BAR_US(-1) + UNR_G_US + RES_UNR_BAR_US$

263: $UNR_G_US = (1 - \alpha3_US) * UNR_G_US(-1) + RES_UNR_G_US$

264: $PIE_US = \lambda1_US * PIE4_US(+4) + (1 - \lambda1_US) * PIE4_US(-1) + \lambda2_US * Y_US(-1) + \lambda3_US * (REER_M_US - REER_M_US(-4) - (REER_M_BAR_US - REER_M_BAR_US(-4))) / 4 - RES_PIE_US$

265: $DRS_US = RS_US - RS_US(-1)$

266: $RR_US = RS_US - PIE_US(+1)$

267: $RR_BAR_US = \rho_US * rr_bar_US_ss + (1 - \rho_US) * RR_BAR_US(-1) + RES_RR_BAR_US$

268: $PIE4_US = (PIE_US + PIE_US(-1) + PIE_US(-2) + PIE_US(-3)) / 4$

269: $LGDP_BAR_US = LGDP_BAR_US(-1) + G_US / 4 + RES_LGDP_BAR_US$

270: $G_US = \tau_US * growth_US_ss + (1 - \tau_US) * G_US(-1) + RES_G_US$

271: $LCPI_US = LCPI_US(-1) + PIE_US / 4$

272: $E4_PIE4_US = PIE4_US(+4)$

273: $E3_PIE4_US = PIE4_US(+3)$

274: $E1_PIE_US = PIE_US(+1)$

275: $E1_Y_US = Y_US(+1)$

276: $E4_Y_US = Y_US(+4)$

277: $E8_Y_US = Y_US(+8)$

278: $REER_T_GAP_US = REER_T_US - REER_T_BAR_US$

279: $DOT_REER_M_US = 4*(REER_M_US-REER_M_US(-1))$

280: $REER_M_US = +imp_US_EA6*(-LZ_EA6)+imp_US_EU*(-LZ_EU)+imp_US_JA*(-LZ_JA)+imp_US_LA6*(-LZ_LA6)+imp_US_RC6*(-LZ_RC6)$

281: $REER_M_BAR_US = +imp_US_EA6*(-LZ_BAR_EA6)+imp_US_EU*(-LZ_BAR_EU)+imp_US_JA*(-LZ_BAR_JA)+imp_US_LA6*(-LZ_BAR_LA6)+imp_US_RC6*(-LZ_BAR_RC6)$

282: $DOT_REER_M_BAR_US = 4*(REER_M_BAR_US -REER_M_BAR_US(-1))$

283: $REER_T_US = +trade_US_EA6*(-LZ_EA6)+trade_US_EU*(-LZ_EU)+trade_US_JA*(-LZ_JA)+trade_US_LA6*(-LZ_LA6)+trade_US_RC6*(-LZ_RC6)$

284: $REER_T_BAR_US = +trade_US_EA6*(-LZ_BAR_EA6)+trade_US_EU*(-LZ_BAR_EU)+trade_US_JA*(-LZ_BAR_JA)+trade_US_LA6*(-LZ_BAR_LA6)+trade_US_RC6*(-LZ_BAR_RC6)$

285: $FACT_US = +spill_EU_US *Y_EU (-1) + spill_JA_US *Y_JA (-1) + spill_EA6_US *Y_EA6(-1) + spill_LA6_US *Y_LA6(-1) + spill_RC6_US *Y_RC6(-1)$

286: FACT_RES_US =
spill_US_US *RESN_YY_US + spill_EU_US *RESN_YY_EU +
spill_JA_US *RESN_YY_JA + spill_EA6_US *RESN_YY_EA6 +
spill_LA6_US *RESN_YY_LA6 + spill_RC6_US *RESN_YY_RC6

287: RESN_YY_US =
0.5*RESN_YY_US(-1) + RES_YY_US

288: Y_US =
LGDP_US -LGDP_BAR_US

289: Y_US =
beta1_US *Y_US(-1) + beta2_US *Y_US(+1) -beta3m_US *(LRR_US(-1)
-LRR_BAR_US(-1)) +beta_fact*FACT_US +beta_fact_res*FACT_RES_US
+beta4_US *(REER_T_US(-1) -REER_T_BAR_US(-1) + REER_T_US(-2)
-REER_T_BAR_US(-2) + REER_T_US(-3) -REER_T_BAR_US(-3) +
REER_T_US(-4) -REER_T_BAR_US(-4))/4-E2_US+RESN_Y_US

290: RESN_Y_US =
0.5*RESN_Y_US(-1) + RES_Y_US

291: E_US =
-RES_BLT_US

292: BLT_US =
BLT_BAR_US -kappa_US *Y_US(+4) -RES_BLT_US

293: BLT_BAR_US =
BLT_BAR_US(-1) +RES_BLT_BAR_US

294: E2_US =
theta_US *(0.04*(E_US(-1) +E_US(-9))+0.08*(E_US(-2) +E_US(-8)
)+0.12*(E_US(-3) +E_US(-7))+0.16*(E_US(-4) +E_US(-6)
)+0.2*E_US(-5))

295: RR4_US =
(RR_US +RR_US(+1) +RR_US(+2) +RR_US(+3))/4

296: RR4_BAR_US =
(RR_BAR_US +RR_BAR_US(+1) +RR_BAR_US(+2) +RR_BAR_US(+3)
)/4

297: LRR_GAP_US =
LRR_US - LRR_BAR_US

298: LRR_US =
Irrw01_US *RR_US
+ Irrw04_US *RR4_US
+ Irrw12_US *(RR4_US +RR4_US(+4) +RR4_US(+8))/3
+ Irrw20_US *(RR4_US +RR4_US(+4) +RR4_US(+8) +RR4_US(12)
+RR4_US(16))/5

299: LRR_BAR_US =
Irrw01_US *RR_BAR_US
+ Irrw04_US *RR4_BAR_US
+ Irrw12_US *(RR4_BAR_US +RR4_BAR_US(+4) +RR4_BAR_US(+8)
) /3
+ Irrw20_US *(RR4_BAR_US +RR4_BAR_US(+4) +RR4_BAR_US(+8)
+RR4_BAR_US(12) +RR4_BAR_US(16)) /5

Parameter Values (First Part)

	EU	JA	US	EA6	LA6	RC6
alpha1	0.717	0.7589	0.8235			
alpha2	0.1401	0.0599	0.1823			
alpha3	0.101	0.2214	0.3649			
beta1	0.7563	0.7792	0.5688	0.4707	0.544	0.441
beta1_prime	0.9454	0.974	0.711	0.8199	0.8989	0.8126
beta2	0.04365	0.02082	0.2312	0.2146	0.1782	0.4085
beta2_prime	0.8	0.8	0.8	0.8	0.8	0.8
beta3	0.2009	0.1478	0.1866	0.2	0.2	0.2
beta3m	0.2009	0.1478	0.1866	0.2	0.2	0.2
beta4	0.06652	0.03627	0.05084	0.1715	0.1477	0.06968
beta_reergap	0.273	0.1643	0.1179	0.324	0.324	0.1246
chi				0.05	0.05	0.05
dVA_dX	0.89	0.89	0.88	0.79	0.69	0.8
dY_dVA	1.4	1.4	1.5	1.3	1.2	1.3
exp_EA6	0.2275	0.1963	0.3663		0.0309	0.179
exp_EU		0.0381	0.2021	0.133	0.0385	0.5884
exp_JA	0.1312		0.2844	0.457	0.021	0.1064
exp_LA6	0.1109	0.0287	0.6868	0.0619		0.1117
exp_RC6	0.4524	0.0439	0.3687	0.108	0.027	
exp_US	0.1682	0.077		0.1902	0.1776	0.3862
gamma1	0.6859	0.7497	0.7107	0.6666	0.6448	0.725
gamma2	1.306	1.058	0.9104	1.114	0.911	0.8983
gamma4	0.2012	0.1693	0.2052	0.1691	0.2023	0.1621
imp_EA6	0.2122	0.3074	0.2055		0.0534	0.2221
imp_EU		0.0508	0.1132	0.2589	0.0479	0.5292
imp_JA	0.1059		0.1489	0.532	0.0406	0.1727
imp_LA6	0.1451	0.0576	0.4221	0.2432		0.1317
imp_RC6	0.489	0.0486	0.2075	0.208	0.0469	
imp_US	0.1542	0.0835		0.3147	0.1484	0.2992
kappa	20.08	20.08	20.08			
lambda1	0.7	0.75	0.75	0.7199	0.5935	0.5452
lambda1_RS	0.69	0.63	0.39	0.58	0.28	0.3
lambda2	0.2223	0.1836	0.1801	0.1967	0.228	0.1491
lambda3	0.173	0.1675	0.1212	0.08477	0.176	0.1185
lrrw01	0.1	0.1	0.1	0.1	0.1	0.1
lrrw04	0.35	0.35	0.35	0.35	0.35	0.35
lrrw12	0.35	0.35	0.35	0.35	0.35	0.35
lrrw20	0.2	0.2	0.2	0.2	0.2	0.2
mrat	0.1291	0.1108	0.1271	0.1608	0.1608	0.1822
phi	0.8342	0.8562		0.8	0.8	0.8

	EU	JA	US	EA6	LA6	RC6
rho	0.4673	0.03	0.2901	0.2	0.2	0.2
rsize_EA6	0.52	1.21	0.43		2.57	0.7
rsize_EU		2.31	0.81	1.91	4.92	1.33
rsize_JA	0.43		0.35	0.83	2.13	0.58
rsize_LA6	0.2	0.47	0.17	0.39		0.27
rsize_RC6	0.75	1.73	0.61	1.44	3.7	
rsize_US	1.23	2.83		2.35	6.05	1.64
spill_EA6	0.02211	0.07452	0.01876	1	0.01827	0.026
spill_EU	1	0.01888	0.01563	0.06556	0.02519	0.0945
spill_JA	0.006287	1	0.007622	0.05025	0.007934	0.01154
spill_LA6	0.005814	0.005424	0.01523	0.01566	1	0.005947
spill_RC6	0.08326	0.01909	0.03044	0.05605	0.02618	1
spill_US	0.03004	0.03742	1	0.09653	0.09449	0.06486
tau	0.0289	0.0375	0.0274	0.03	0.03	0.03
theta	0.3	0.3	1.071	0.9977	0.9929	1.008
trade_EA6	0.2198	0.2519	0.2859		0.04215	0.2006
trade_EU		0.04445	0.1577	0.196	0.0432	0.5588
trade_JA	0.1186		0.2167	0.4945	0.0308	0.1396
trade_LA6	0.128	0.04315	0.5544	0.1525		0.1217
trade_RC6	0.4707	0.04625	0.2881	0.158	0.03695	
trade_US	0.1612	0.08025		0.2525	0.163	0.3427
xrat	0.1244	0.1491	0.0744	0.2014	0.1648	0.1709
zeta	0.22	0.18	0	0.36	0.24	0.4

Parameter Values (Second Part)

beta_fact	0.7303
beta_fact_res	1
dot_lz_bar_EA6_ss	0
dot_lz_bar_LA6_ss	0
dot_lz_bar_RC6_ss	0
growth_EA6_ss	6
growth_EU_ss	2.261
growth_JA_ss	1.444
growth_LA6_ss	6
growth_RC6_ss	6
growth_US_ss	2.273
pietar_EA6_ss	4
pietar_EU_ss	1.9
pietar_JA_ss	1
pietar_LA6_ss	3.5
pietar_RC6_ss	4.5
pietar_US_ss	2.5
rr_bar_EA6_ss	2
rr_bar_EU_ss	1.984
rr_bar_JA_ss	1.379
rr_bar_LA6_ss	2
rr_bar_RC6_ss	2
rr_bar_US_ss	1.728

Table 3: Root Mean Square Errors

	1 Ahead			4 Ahead			8 Ahead			12 Ahead		
	Act.	Th.	N	Act.	Th.	N	Act.	Th.	N	Act.	Th.	N
GROWTH_US	2.3	1.8	67	2.6	2	64	3	2.1	60	3.1	2	56
GROWTH4_US	0.56	0.46	67	1.7	0.98	64	2.2	1.3	60	2.3	1.3	56
UNR_US	0.2	0.14	67	0.74	0.46	64	1.5	0.74	60	2	0.86	56
PIE_US	2.2	1.7	67	2.2	1.7	64	2.2	1.7	60	2.3	1.6	56
PIE4_US	0.56	0.42	67	1.2	0.99	64	1.1	1.1	60	1.2	1.1	56
RS_US	0.4	0.48	67	1.2	0.99	64	1.9	1.2	60	2.3	1.3	56
BLT_US	8	7.8	67	18	14	64	22	14	60	24	14	56
GROWTH_EU	2.2	1.7	67	2.4	1.8	64	2.5	1.8	60	2.5	1.7	56
GROWTH4_EU	0.6	0.42	67	1.9	0.95	64	2	1.1	60	2	1.1	56
UNR_EU	0.19	0.073	67	0.56	0.27	64	0.84	0.43	60	0.92	0.52	56
PIE_EU	1.3	0.86	67	1.5	1	64	1.2	1.1	60	1.1	1.1	56
PIE4_EU	0.34	0.22	67	1.2	0.69	64	0.91	0.85	60	0.75	0.85	56
RS_EU	0.4	0.39	67	1.2	1	64	1.5	1.3	60	1.7	1.3	56
BLT_EU	26	6.6	67	35	11	64	38	12	60	35	12	56
GROWTH_JA	4.5	3.4	67	4.6	3.3	64	4.7	3.2	60	4.7	3	56
GROWTH4_JA	1.1	0.84	67	3.2	1.7	64	3.1	1.6	60	3	1.6	56
UNR_JA	0.13	0.1	67	0.43	0.27	64	0.82	0.47	60	1	0.6	56
PIE_JA	1.5	0.83	67	1.5	0.92	64	1.9	0.94	60	2	0.9	56
PIE4_JA	0.37	0.21	67	0.9	0.59	64	1.2	0.68	60	1.5	0.67	56
RS_JA	0.17	0.24	67	0.64	0.66	64	1.7	0.88	60	2.3	0.9	56
BLT_JA	10	5.3	67	24	8.1	64	25	8.7	60	25	8.4	56
GROWTH_EA6	3.9	2.1	67	3.2	2.2	64	3.1	2.2	60	3.1	2.2	56
GROWTH4_EA6	1	0.52	67	2.2	1.1	64	2	1.3	60	2.1	1.3	56
PIE_EA6	2.3	1	67	3.6	1.3	64	4.2	1.4	60	4.6	1.4	56
PIE4_EA6	0.57	0.26	67	2.5	0.92	64	3.6	1.1	60	4.1	1.1	56
RS_EA6	1.1	0.57	67	1.5	1.1	64	2.7	1.3	60	3.6	1.3	56
GROWTH_LA6	9.1	2.3	67	12	2.4	64	5.7	2.6	60	4.7	2.5	56
GROWTH4_LA6	2.4	0.58	67	11	1.3	64	7.1	1.6	60	3.8	1.6	56
PIE_LA6	19	1.3	67	27	1.9	64	35	2.3	60	39	2.4	56
PIE4_LA6	8.8	0.34	67	25	1.3	64	33	1.9	60	38	2.1	56
RS_LA6	9.8	0.82	67	17	1.6	64	28	2.3	60	35	2.5	56
GROWTH_RC6	5.7	2.4	67	6.6	2.6	64	5.7	2.6	60	3.7	2.6	56
GROWTH4_RC6	3.1	0.59	67	5.9	1.3	64	5.3	1.6	60	3.7	1.6	56
PIE_RC6	3.5	1	67	6.3	1.4	64	8.5	1.6	60	9.9	1.7	56
PIE4_RC6	0.95	0.26	67	4.4	1	64	7.6	1.4	60	9.3	1.5	56
RS_RC6	2.1	0.55	67	3.5	1.1	64	6	1.5	60	7.7	1.6	56

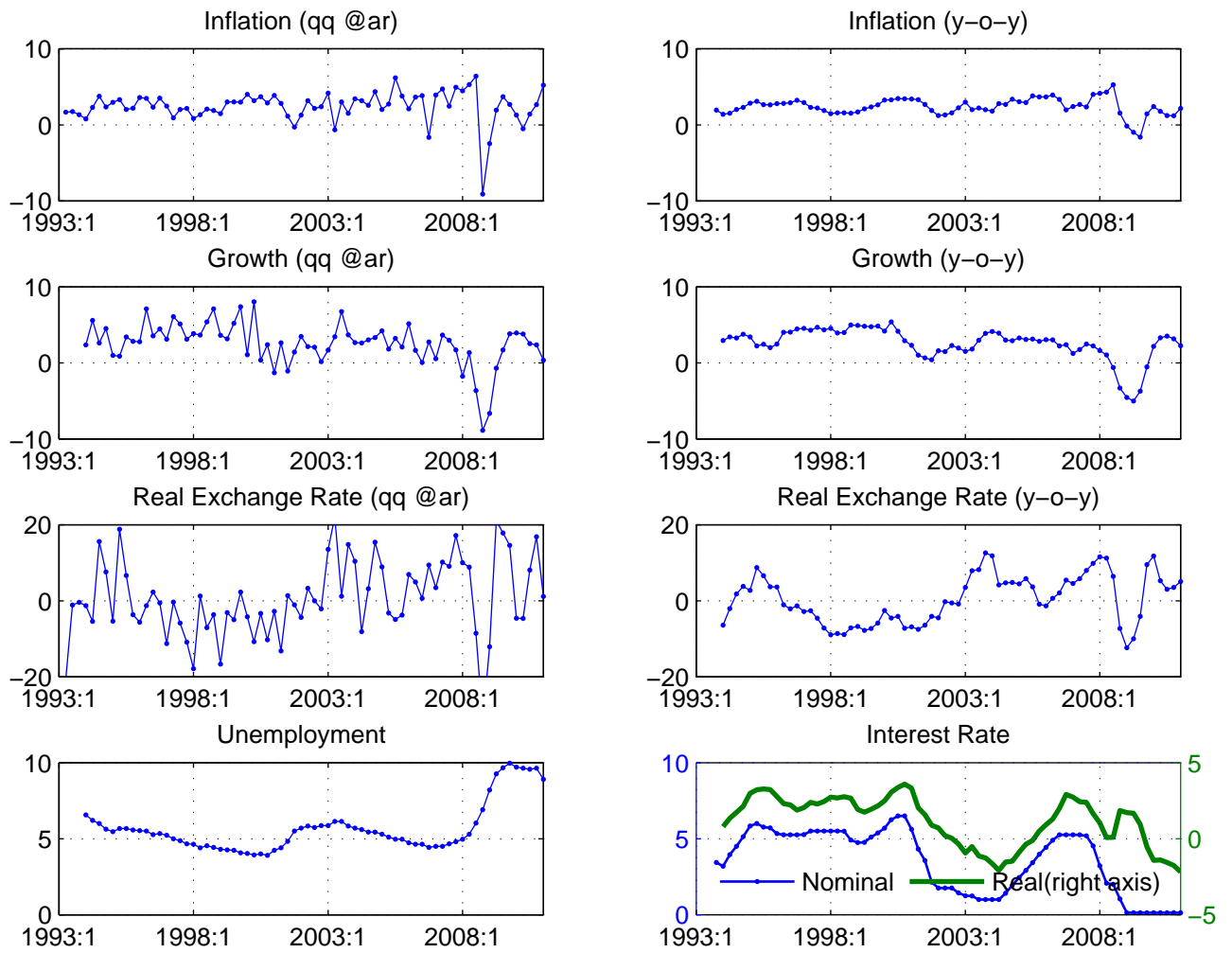


Figure 1: Historical Variables US

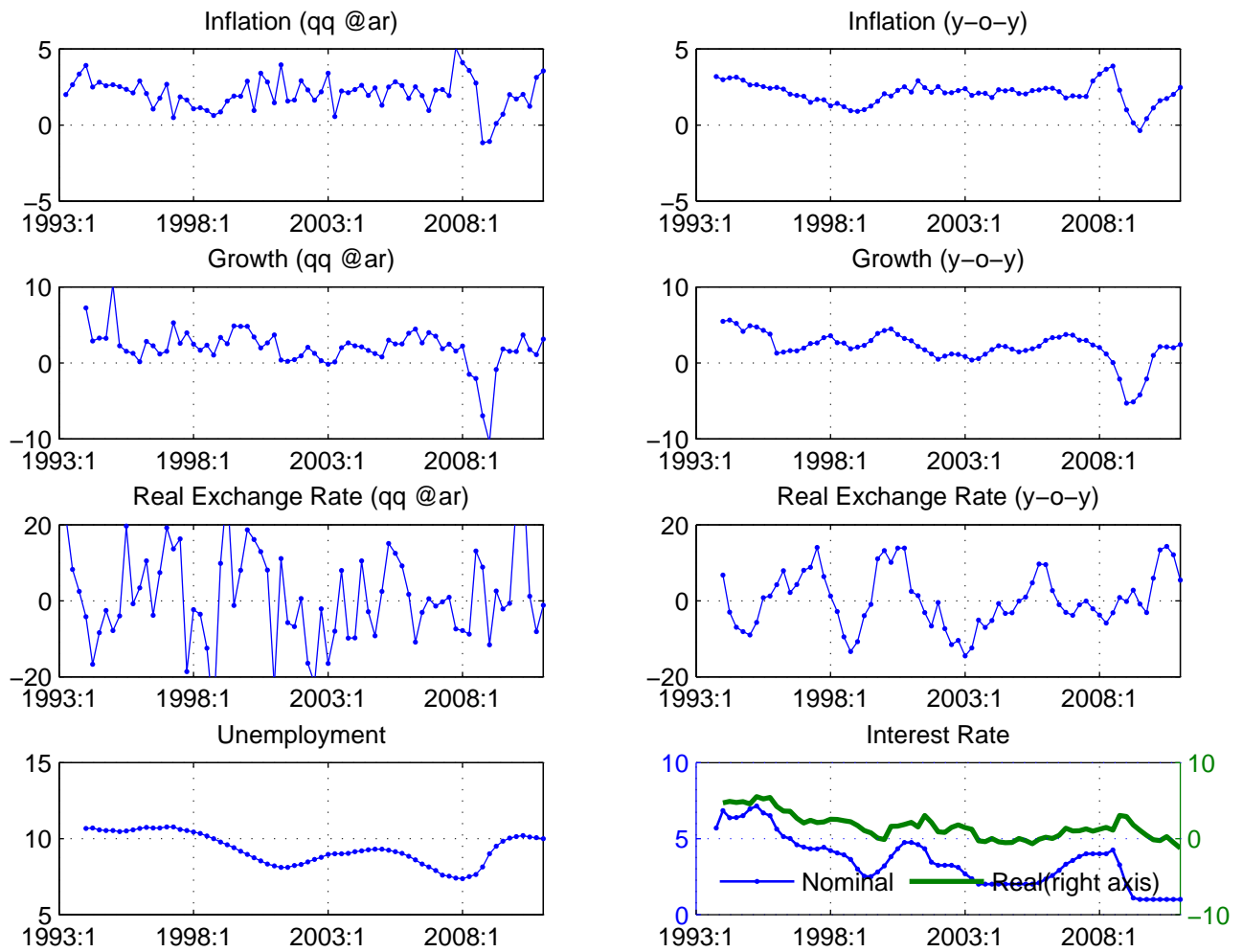


Figure 2: Historical Variables EU

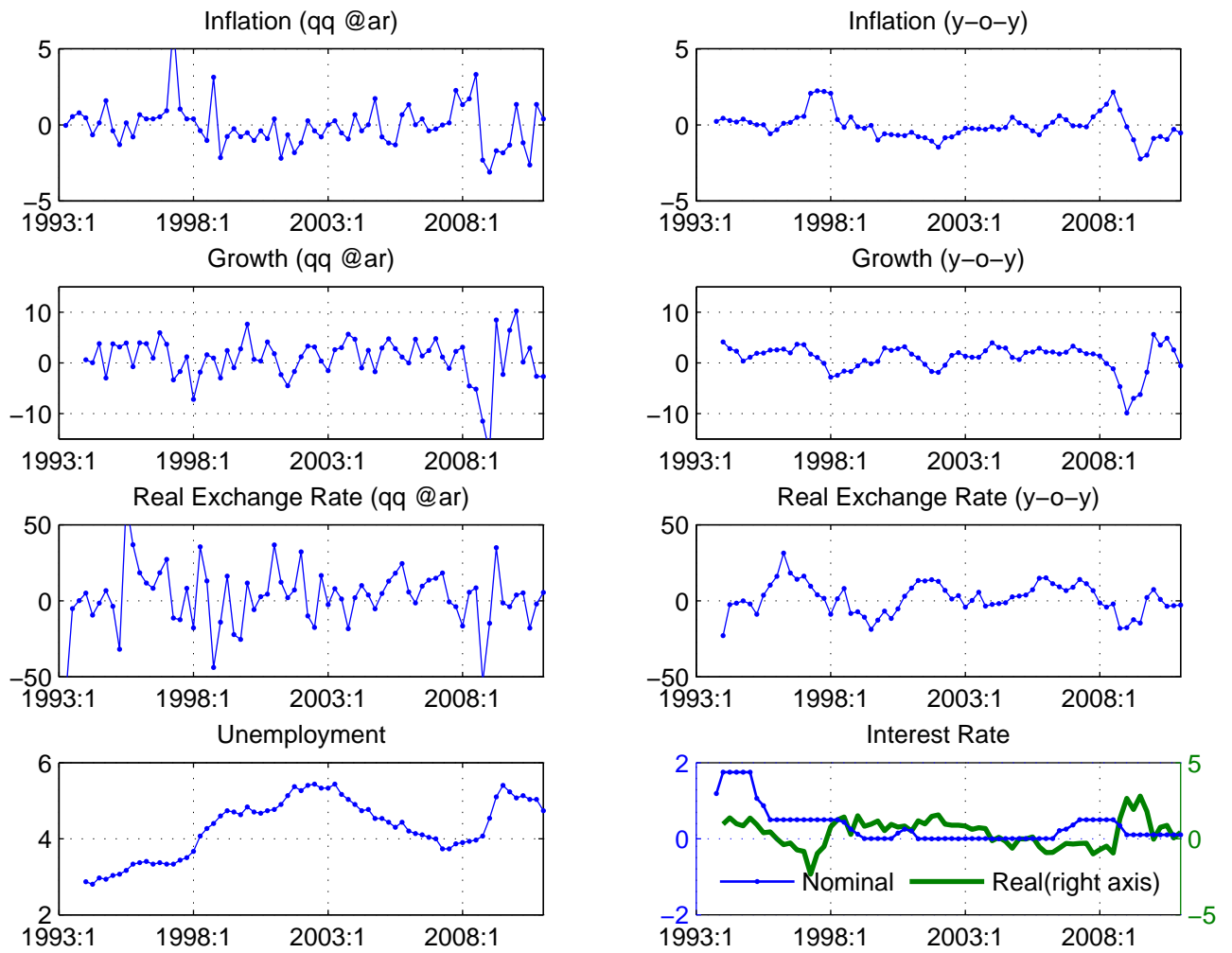


Figure 3: Historical Variables JA

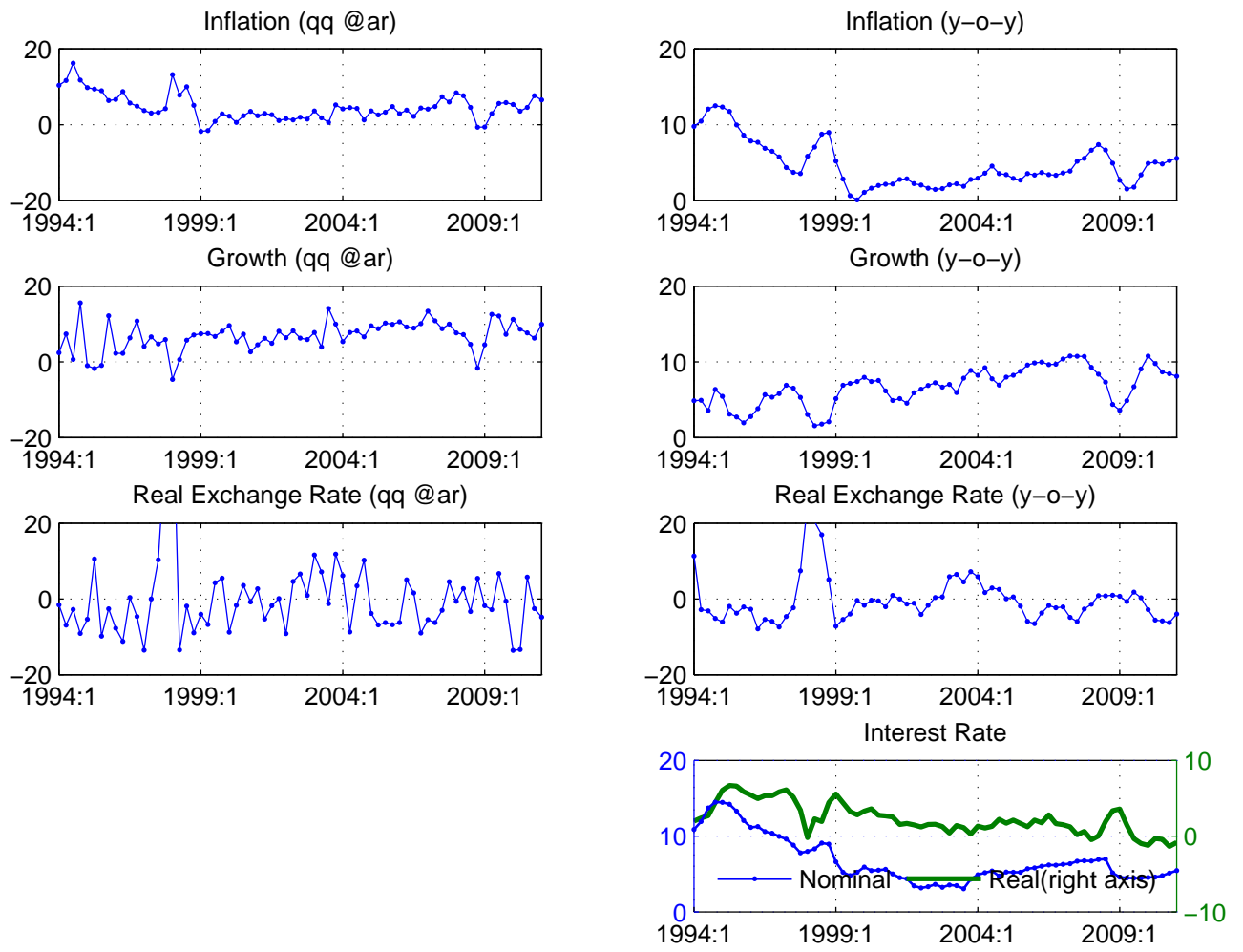


Figure 4: Historical Variables EA6

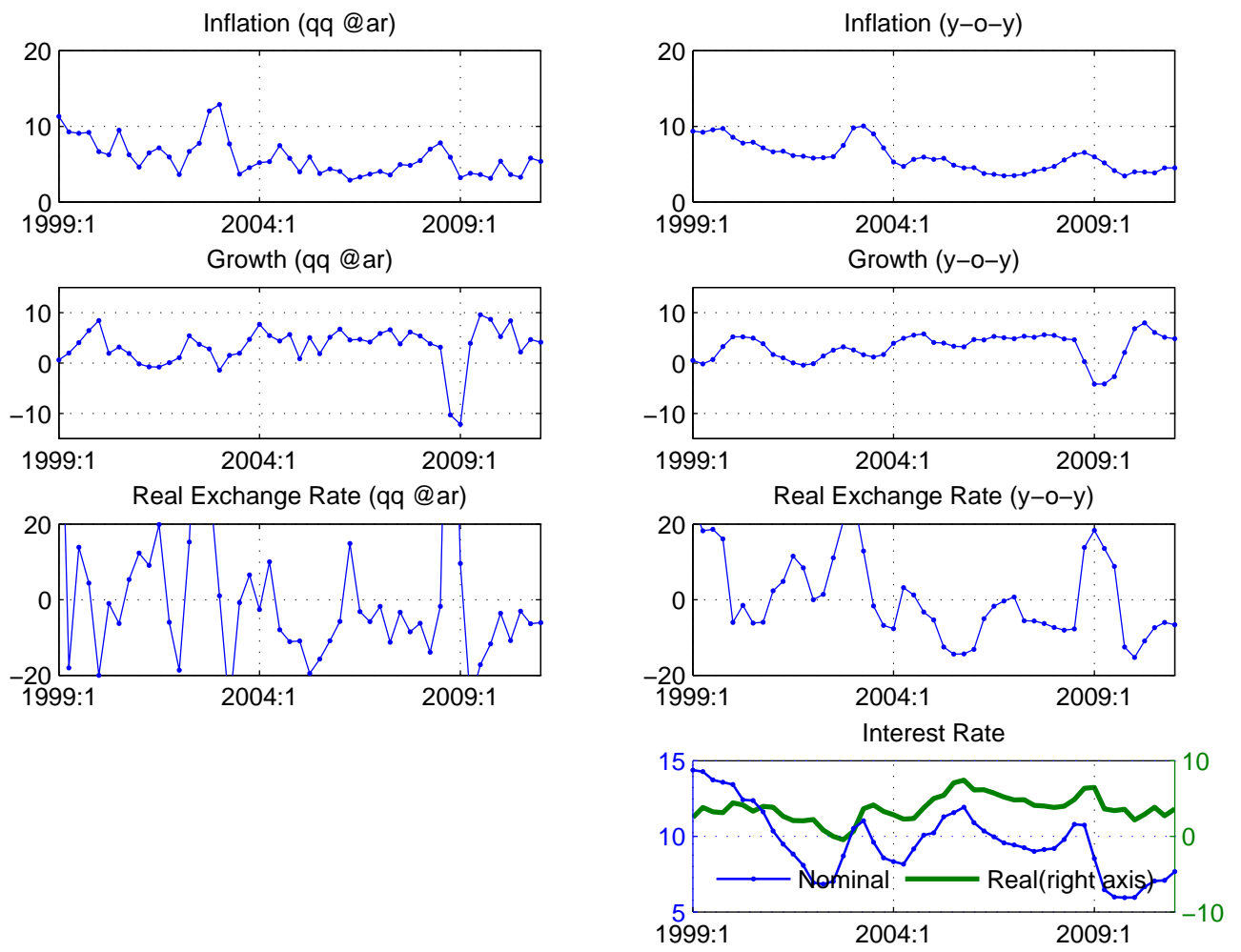


Figure 5: Historical Variables LA6

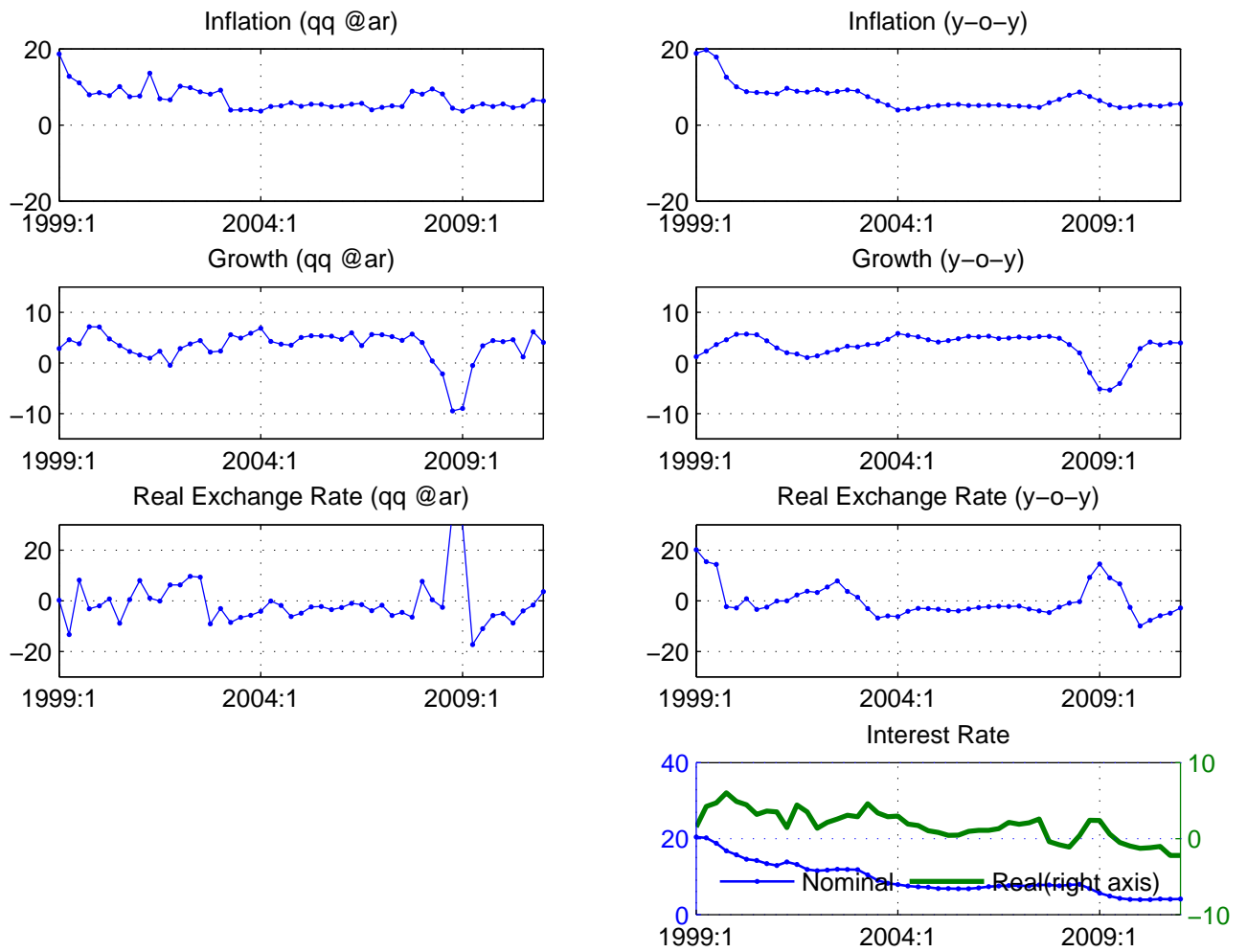


Figure 6: Historical Variables RC6

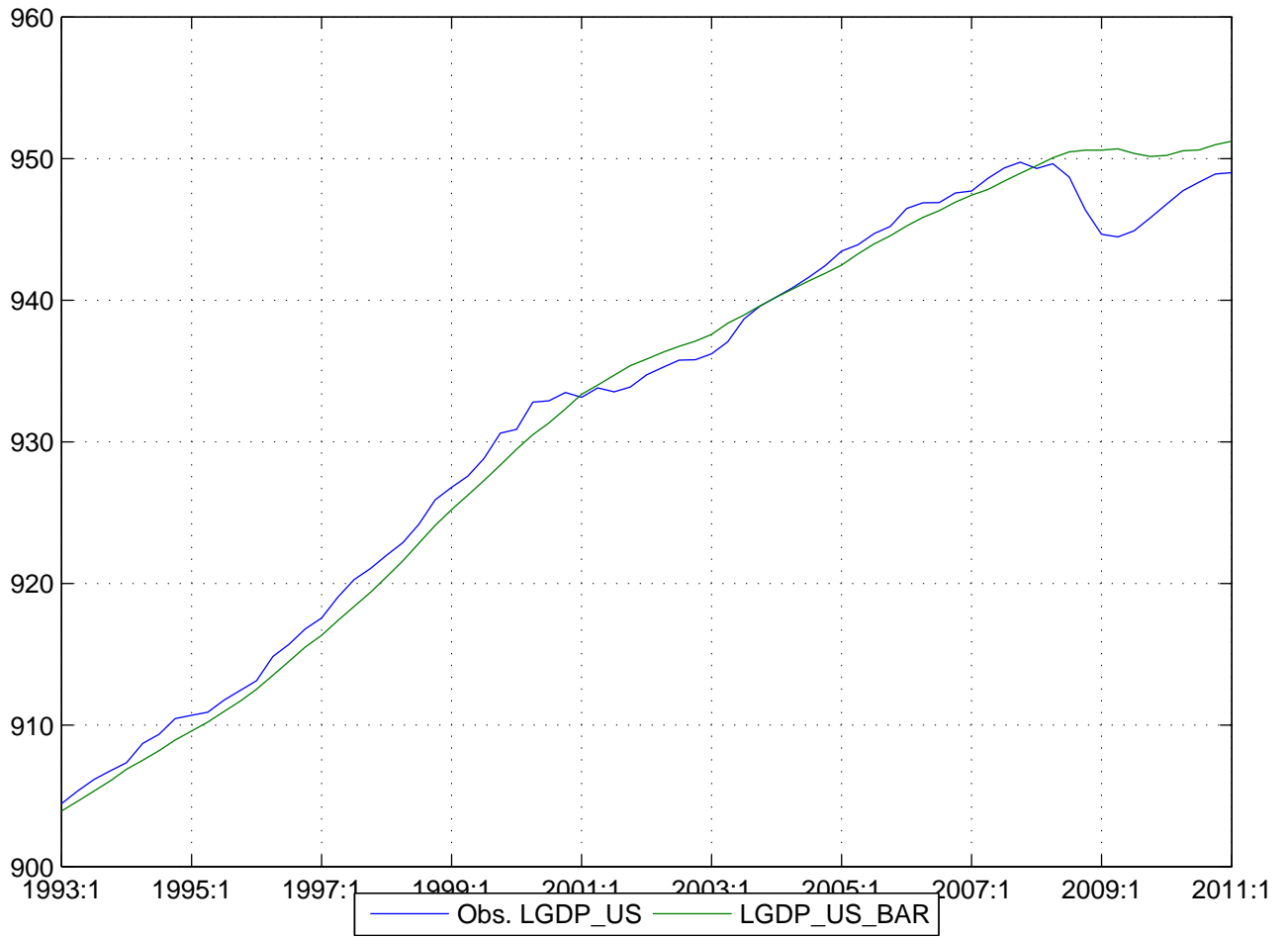


Figure 7: US GDP level

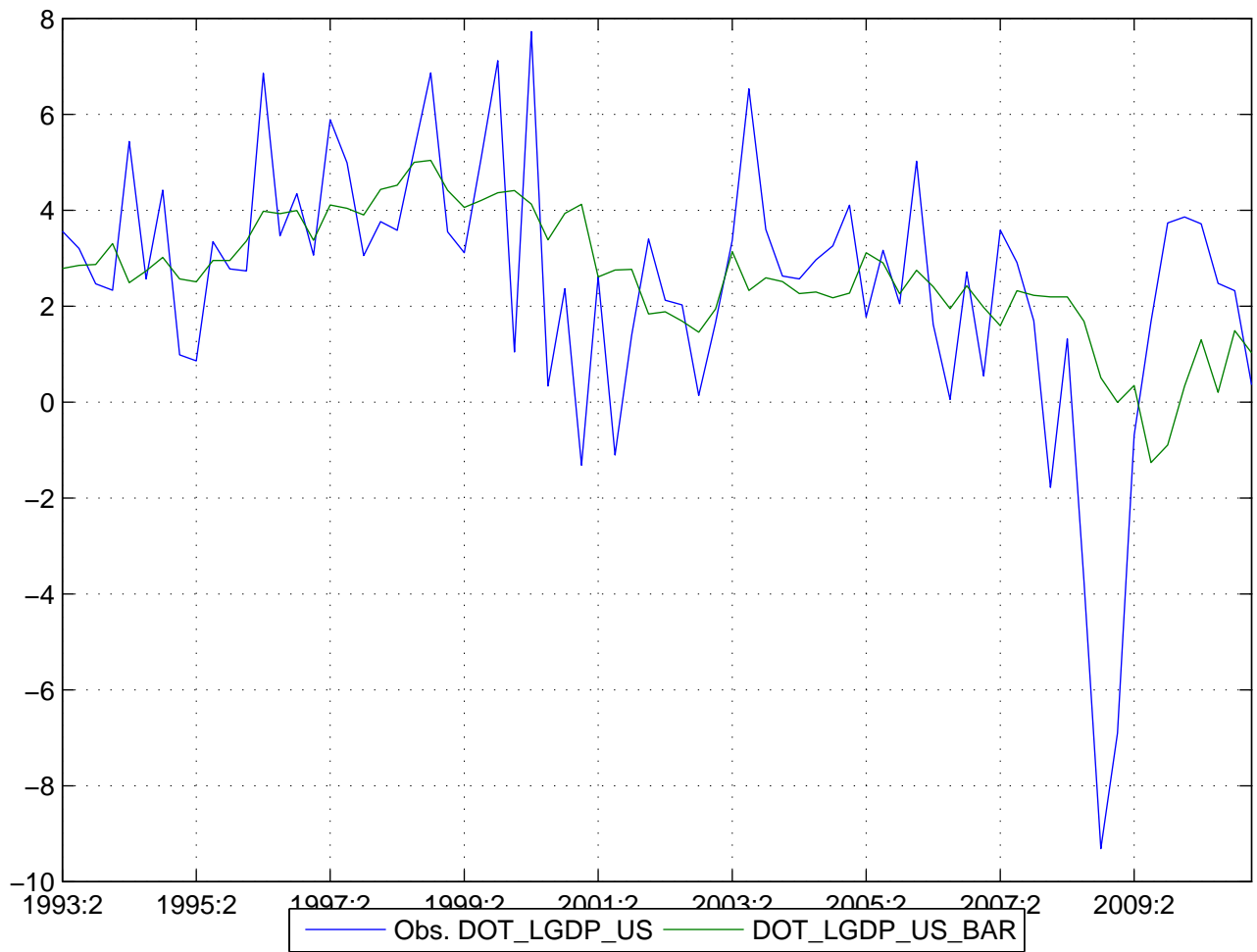


Figure 8: US GDP growth

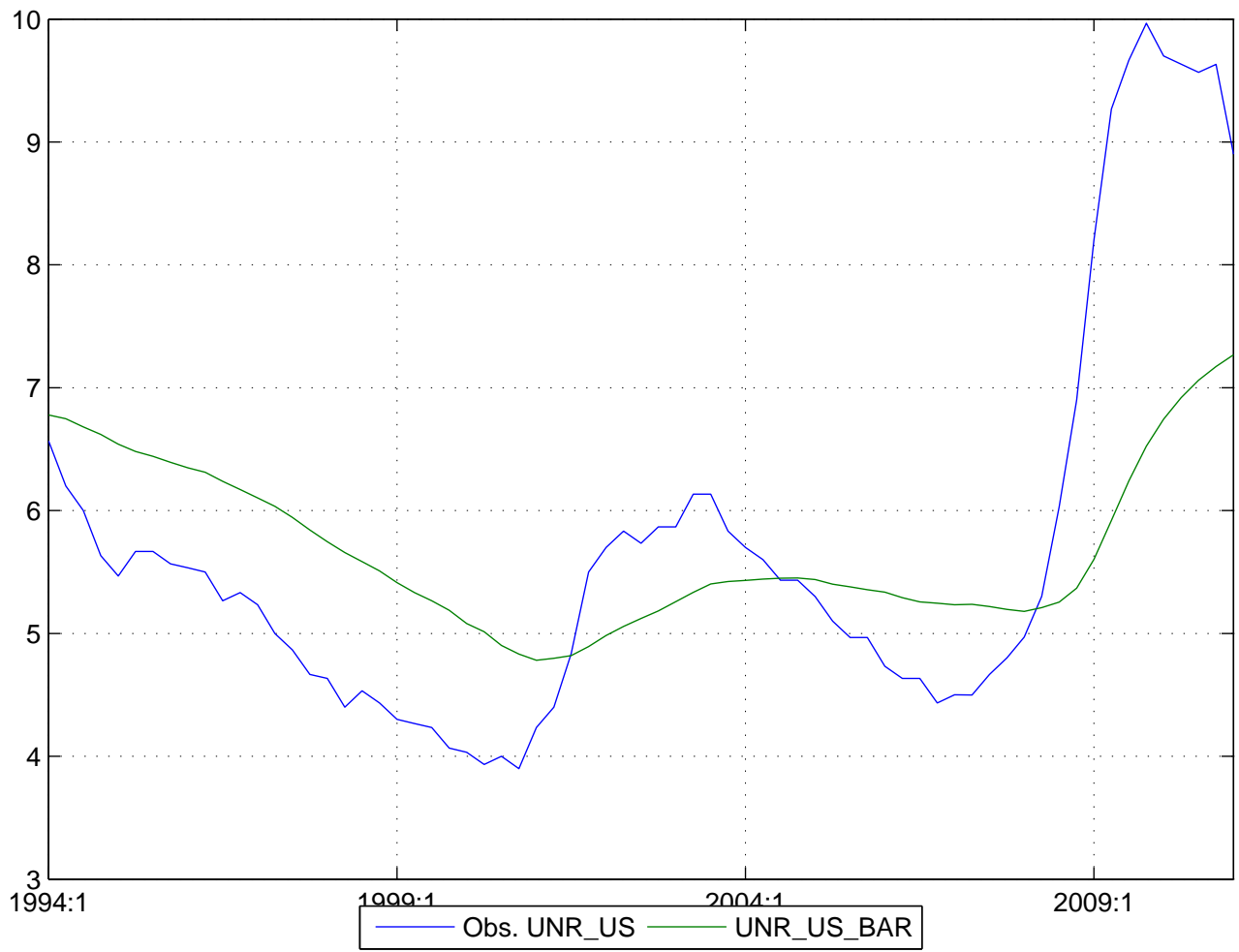


Figure 9: US Unemployment

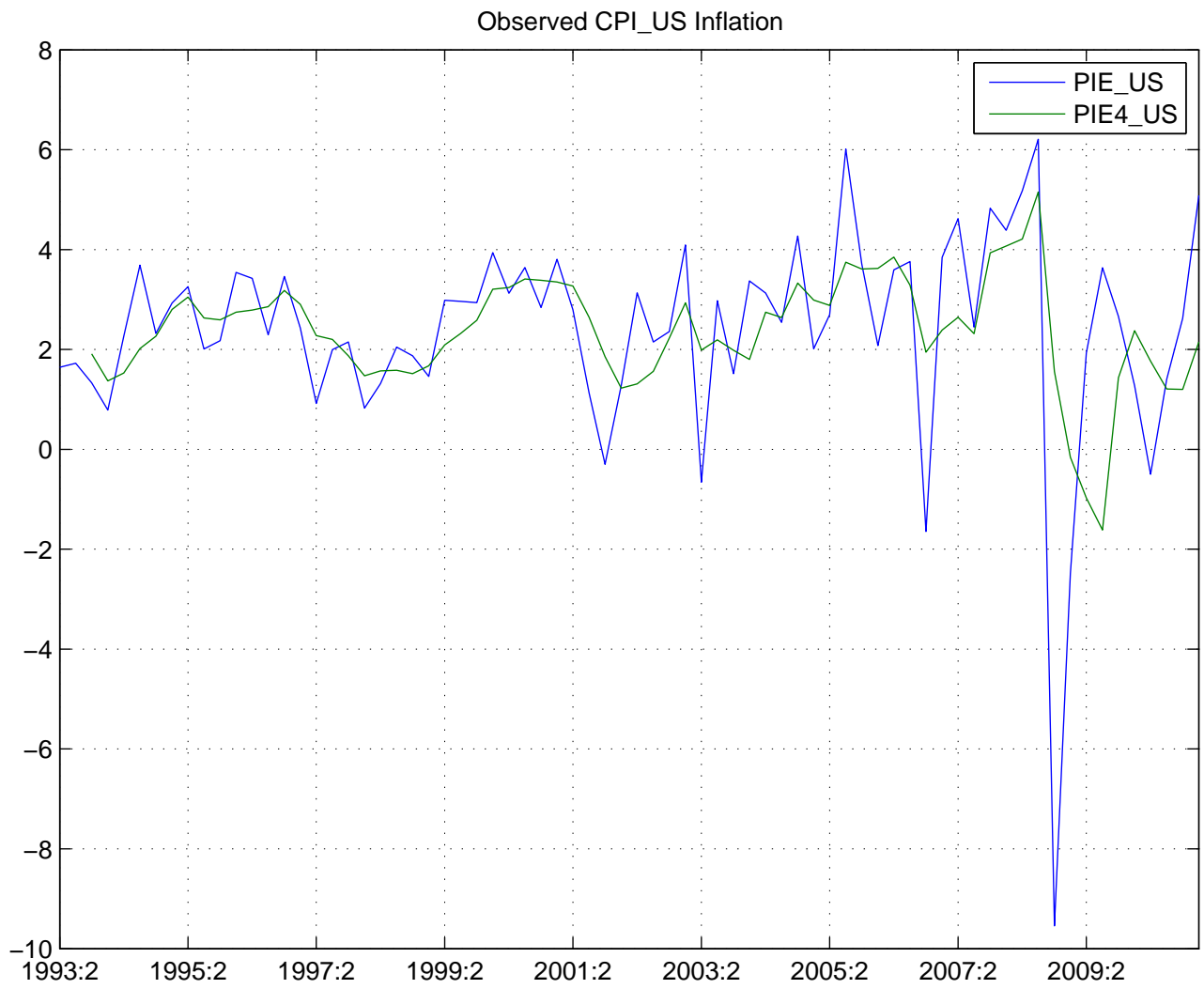


Figure 10: PIE_US

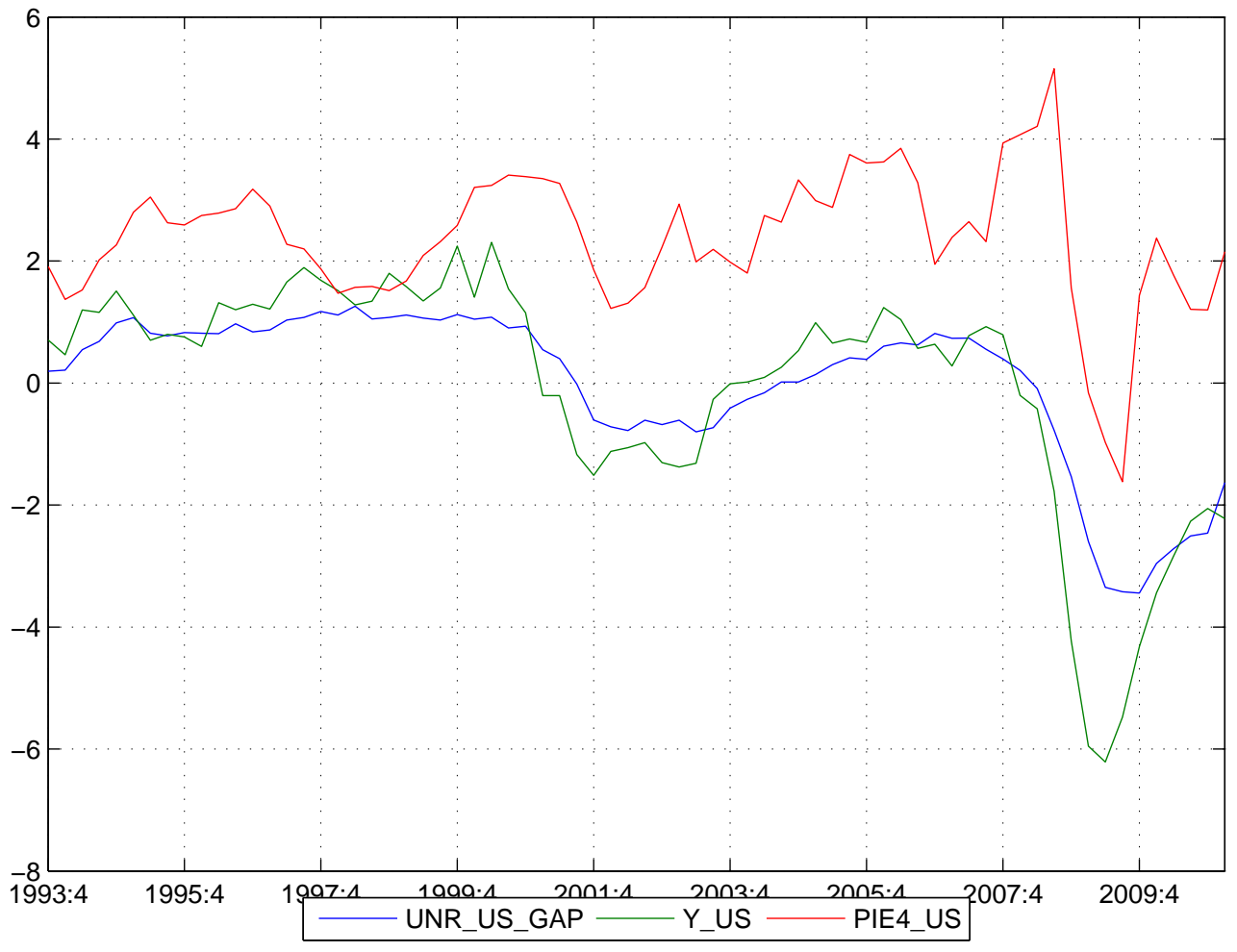


Figure 11: US_GAP

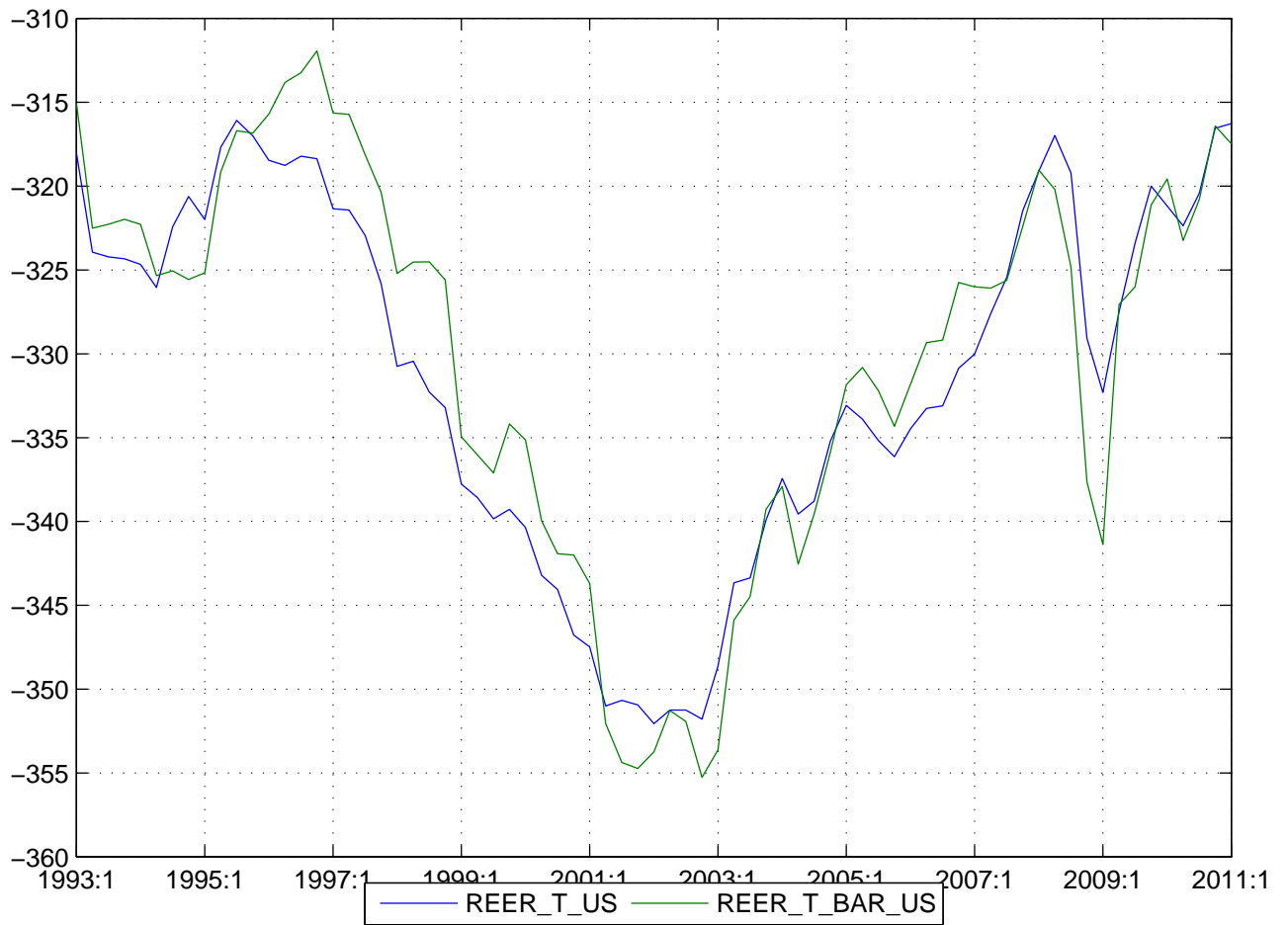


Figure 12: REER_T_US

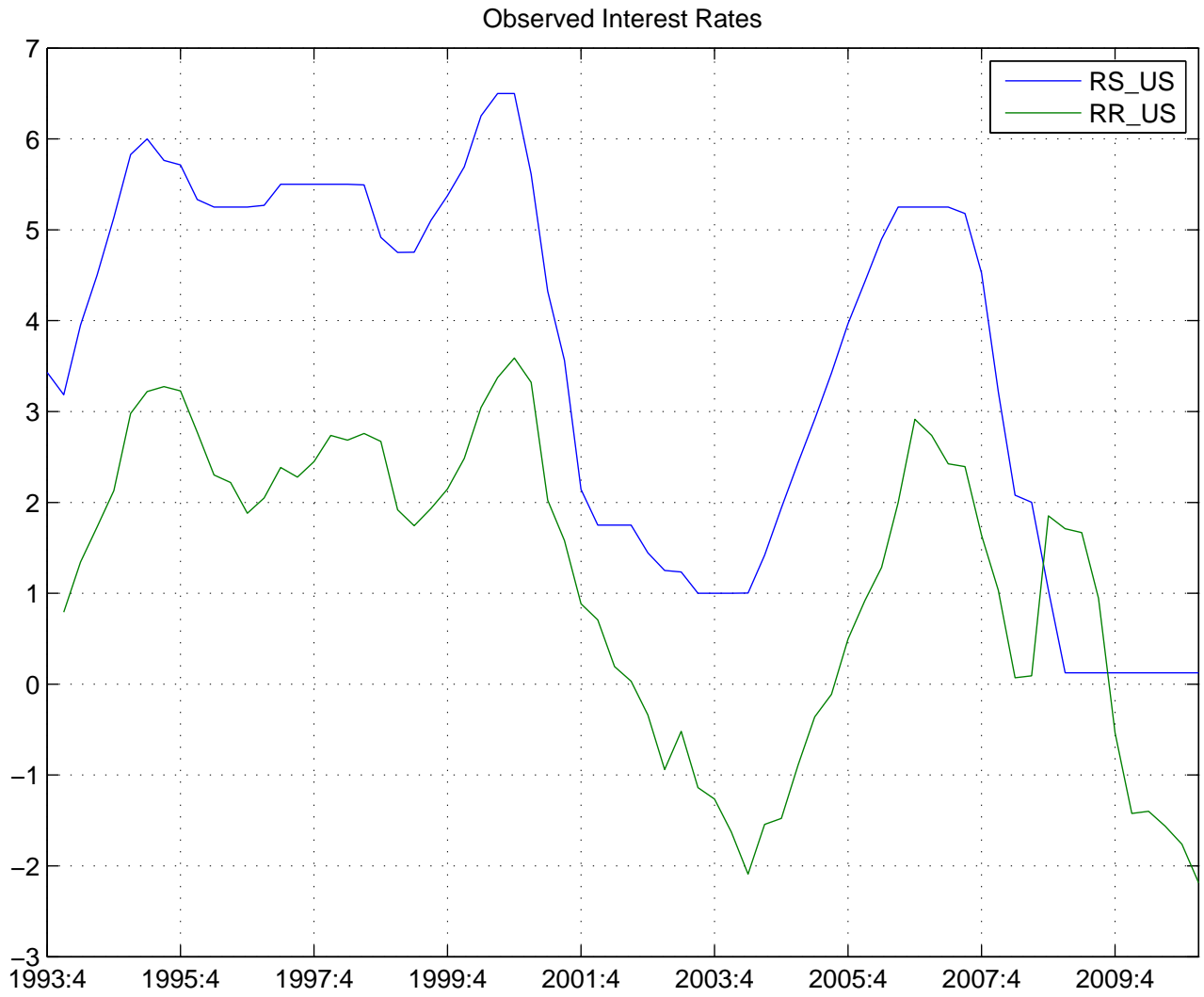


Figure 13: RR_US

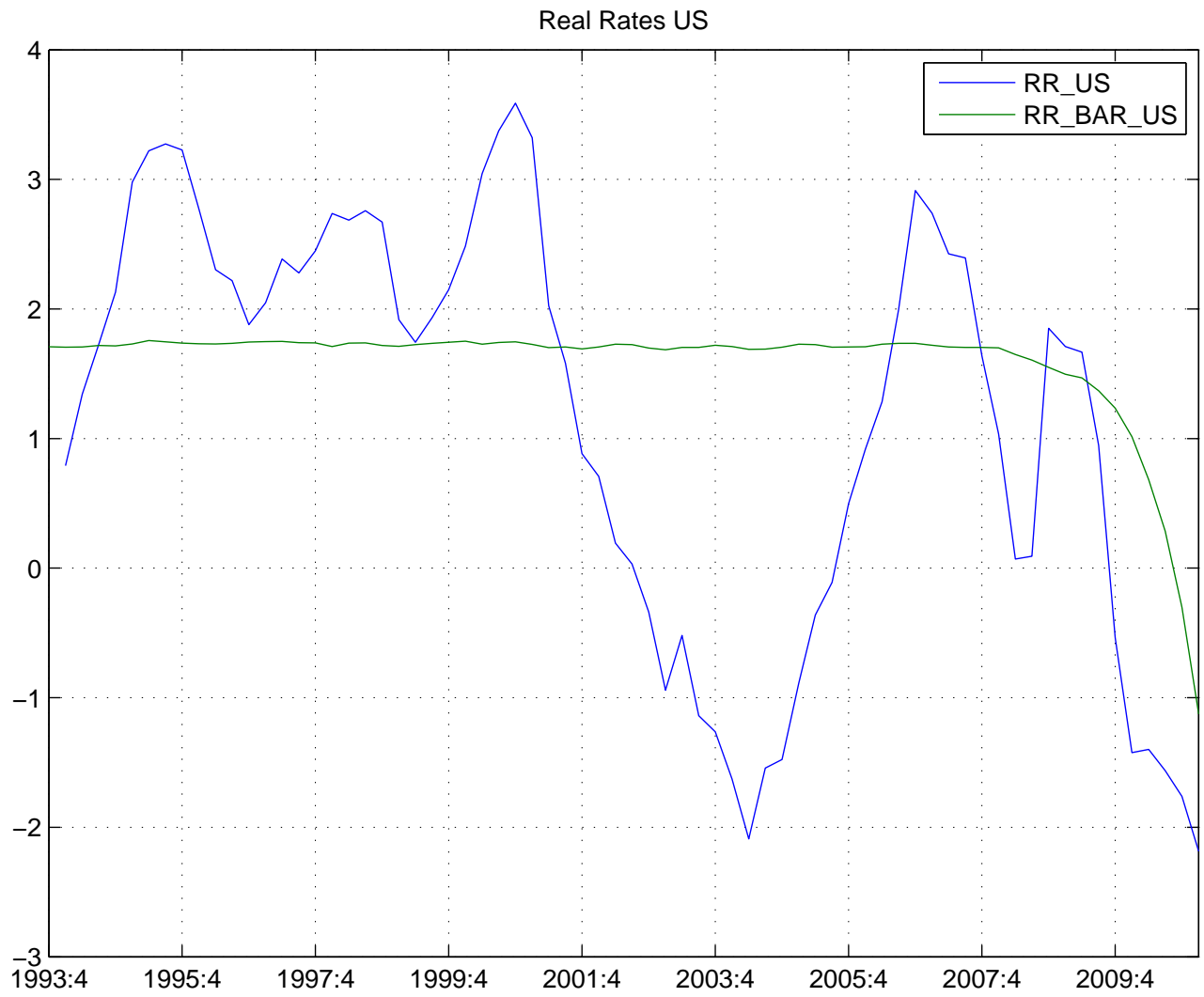


Figure 14: Real Rate And Equilibrium US

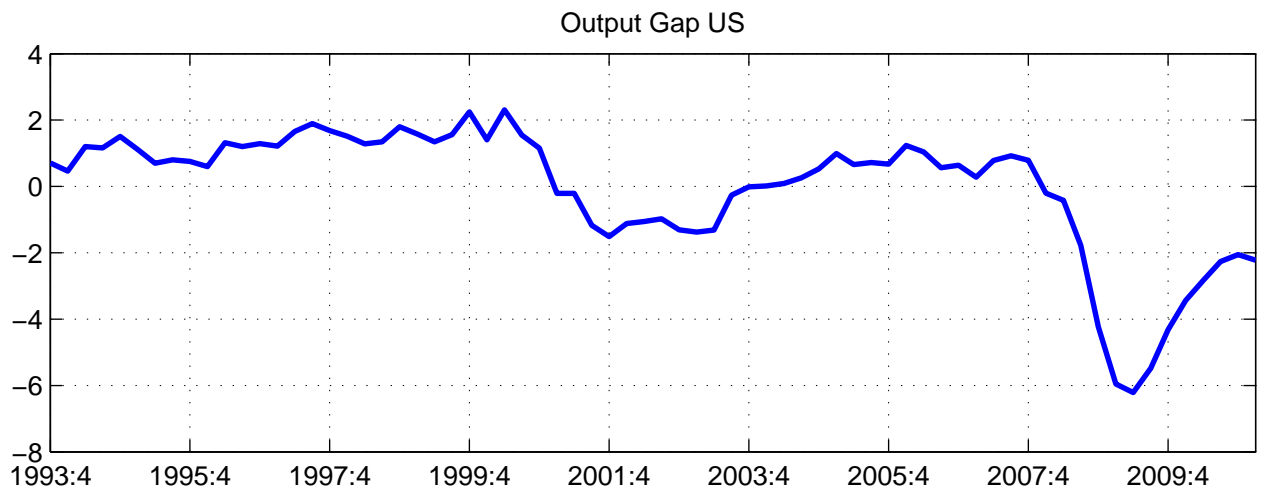
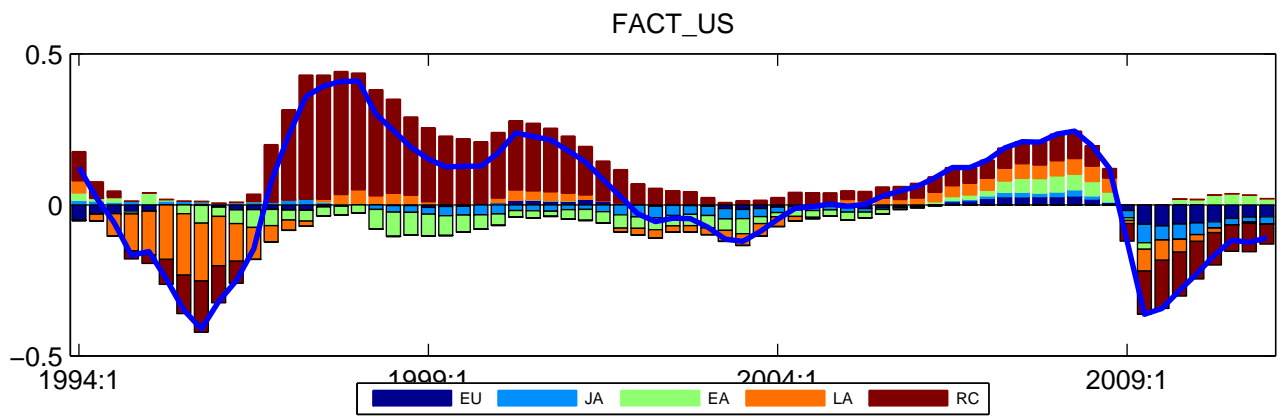


Figure 15: FACT_US

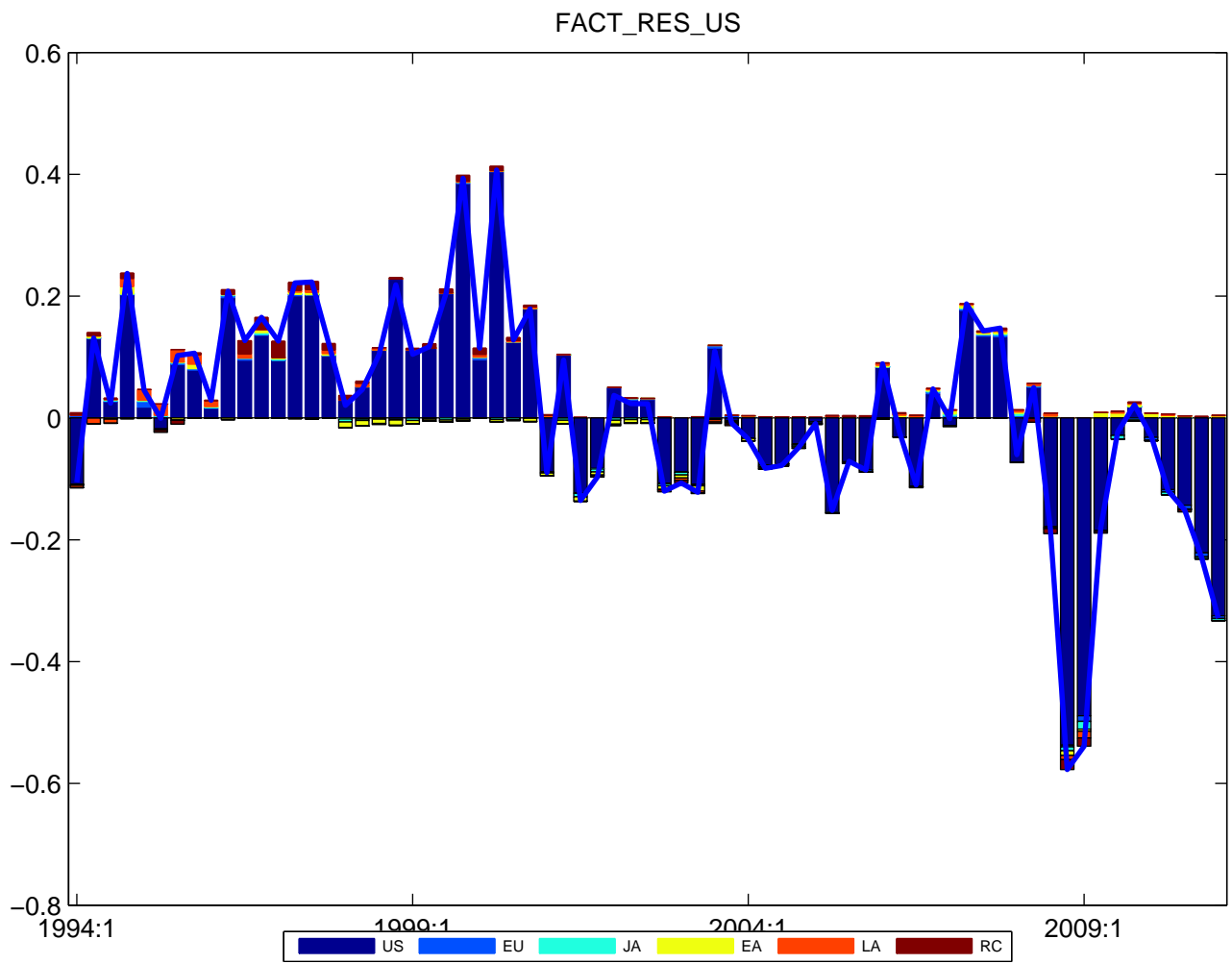


Figure 16: FACT_RES_US

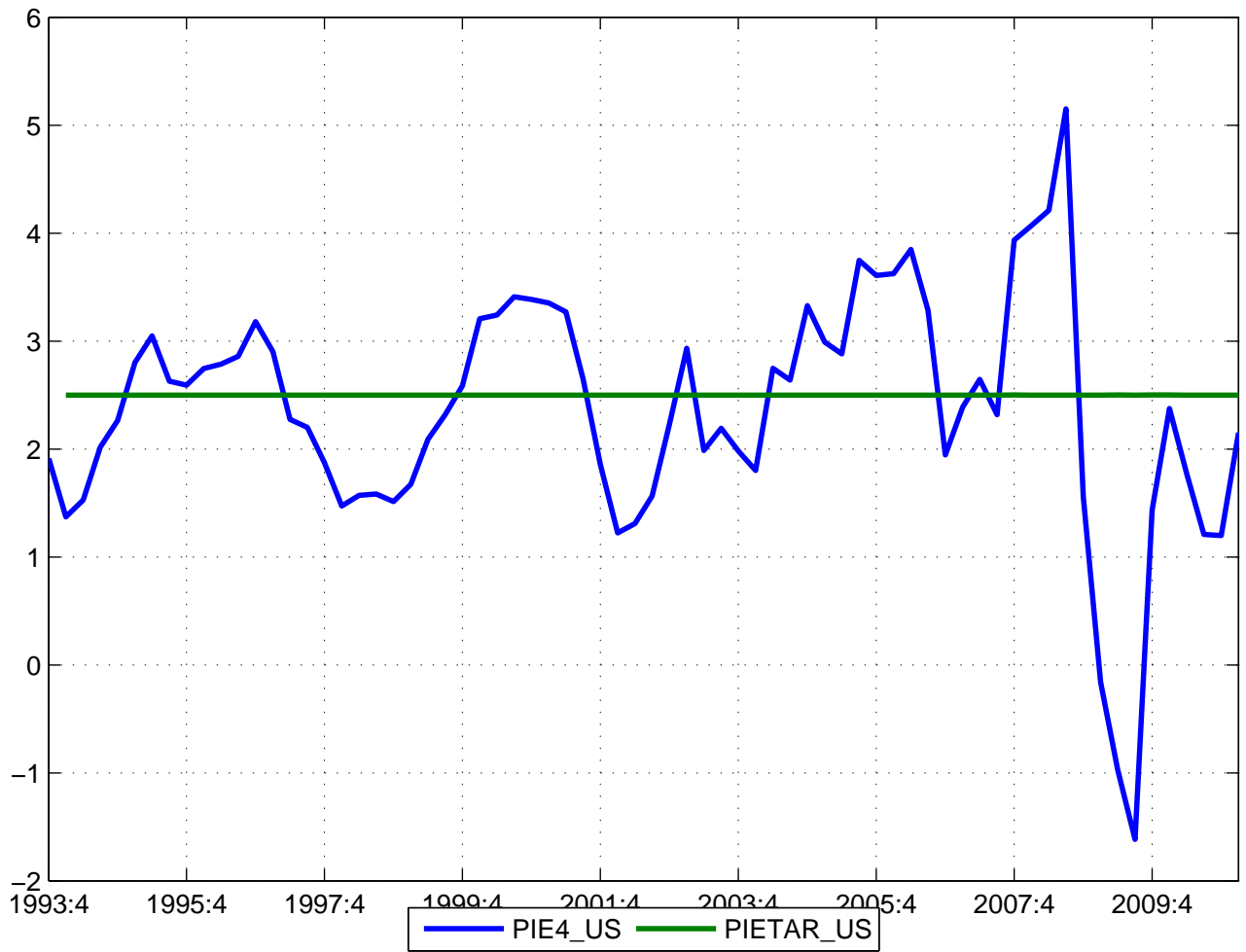


Figure 17: Inflation and Target US

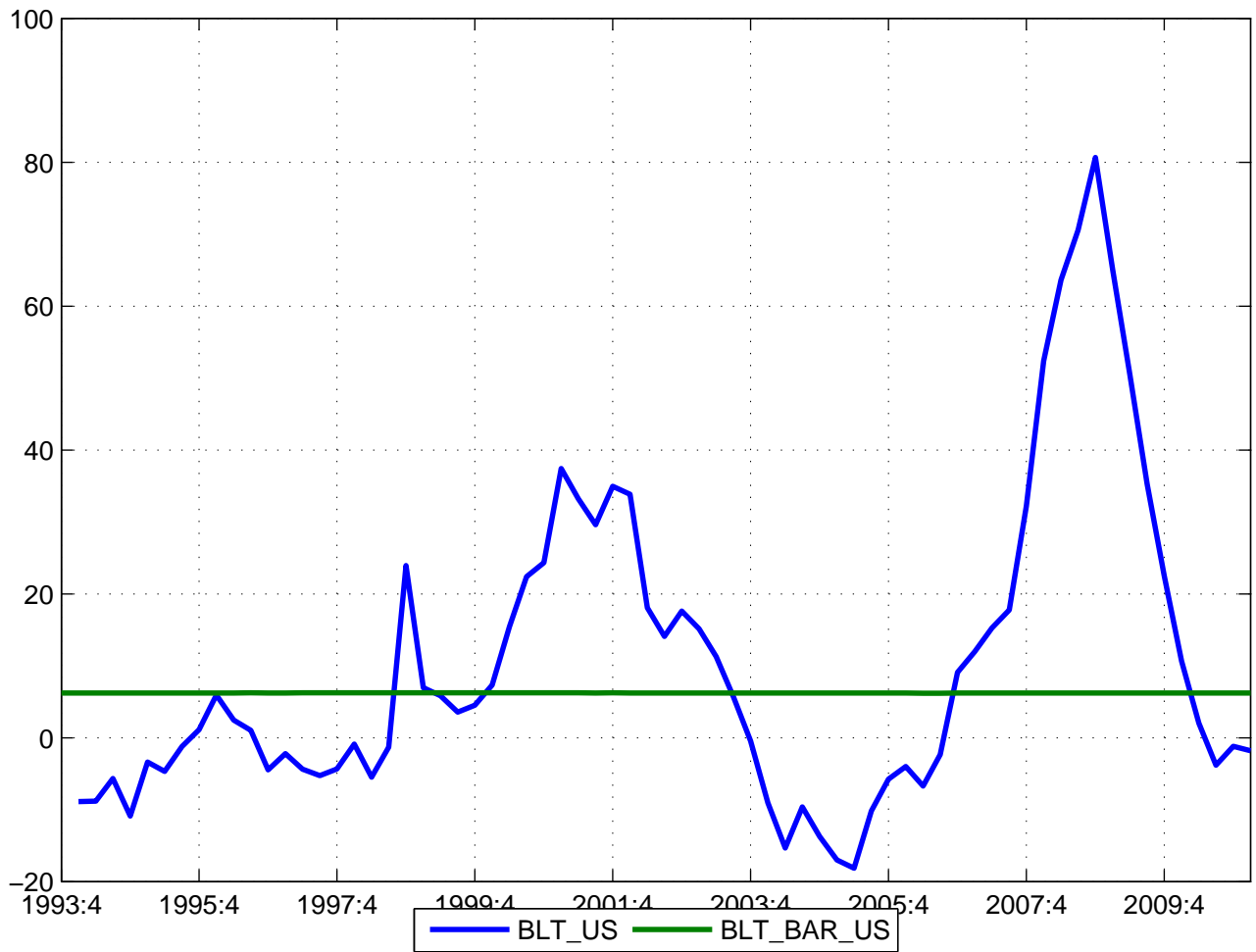


Figure 18: BLT_US

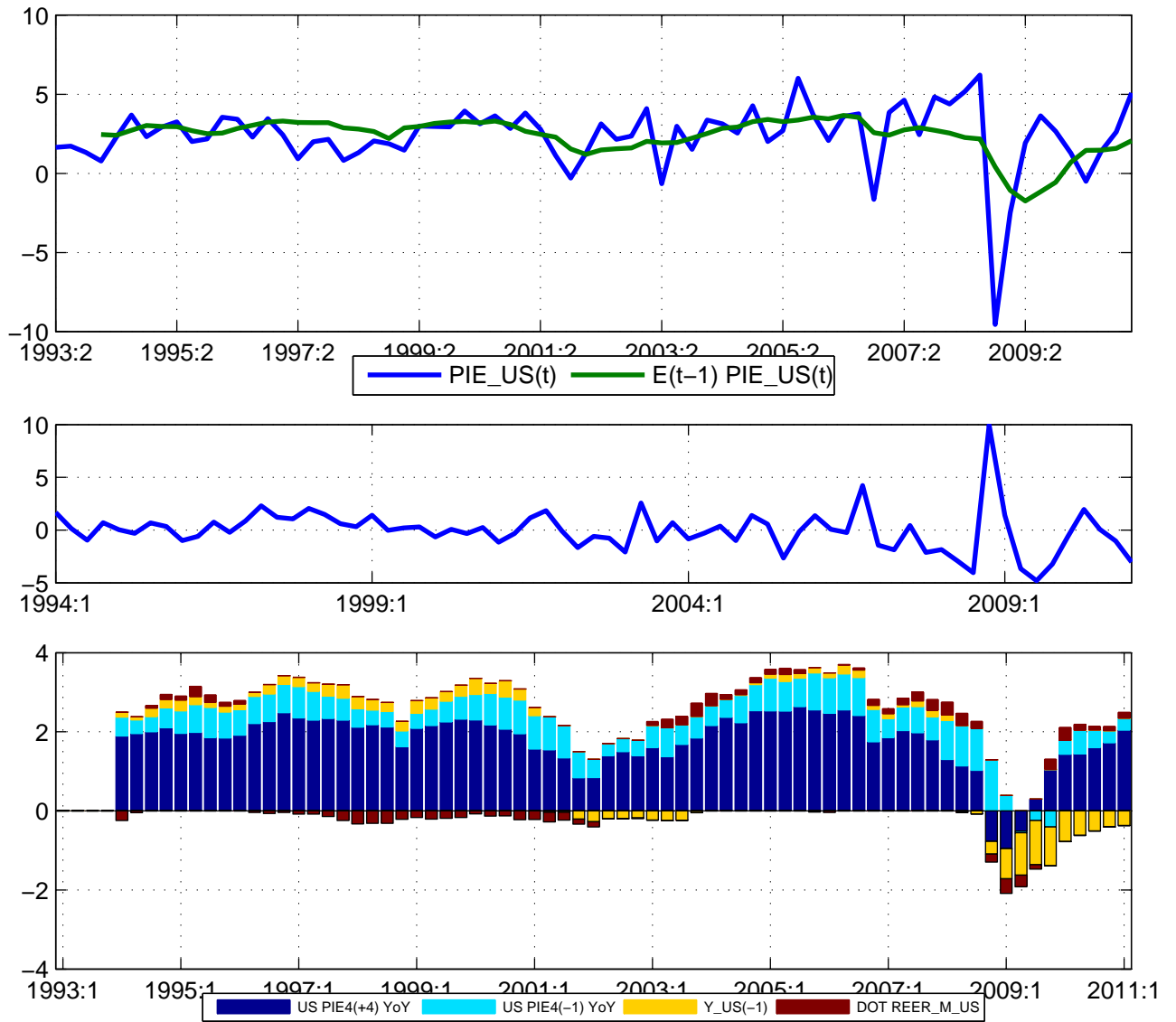


Figure 19: PIE_US_fit

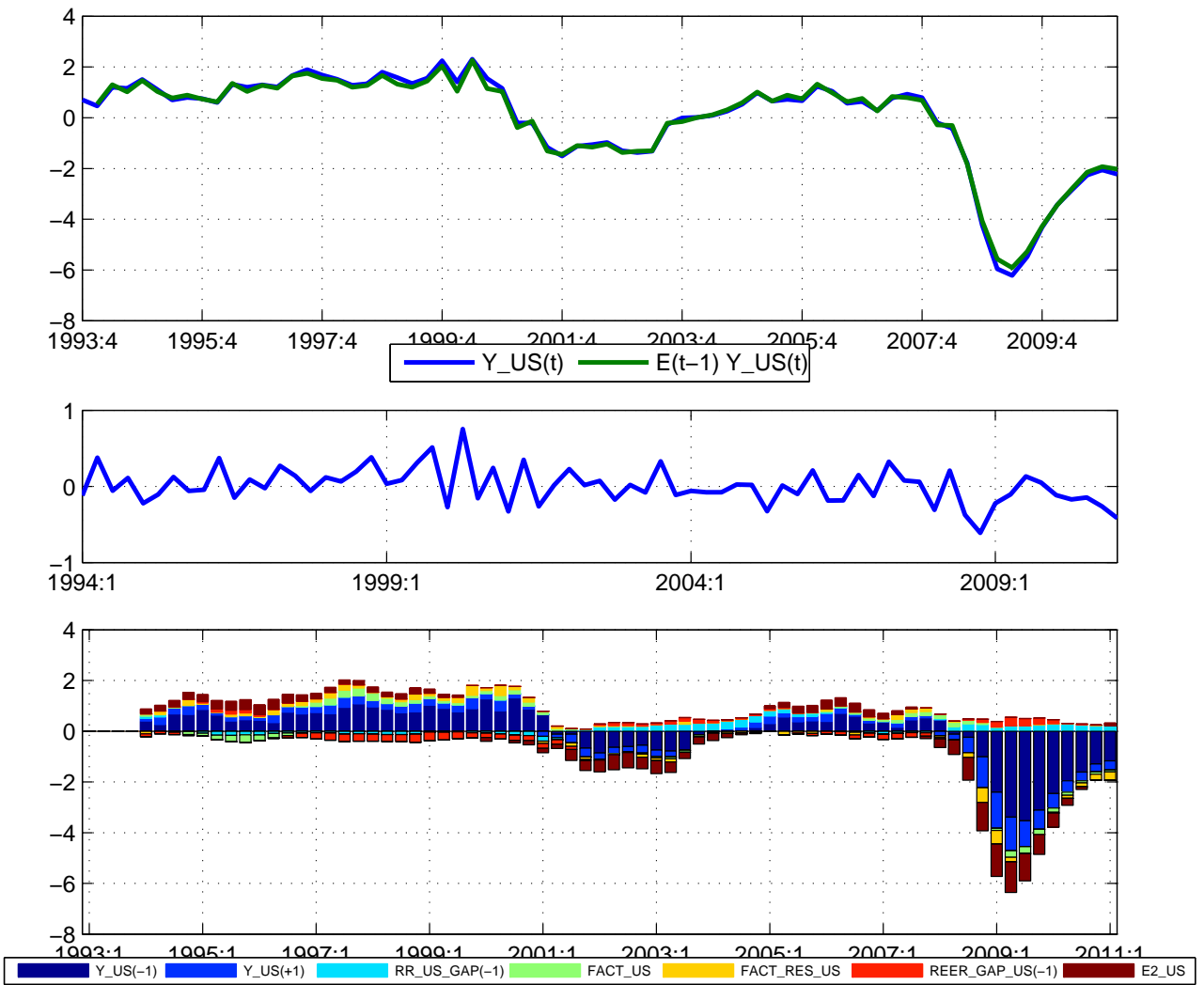


Figure 20: Y_US_fit

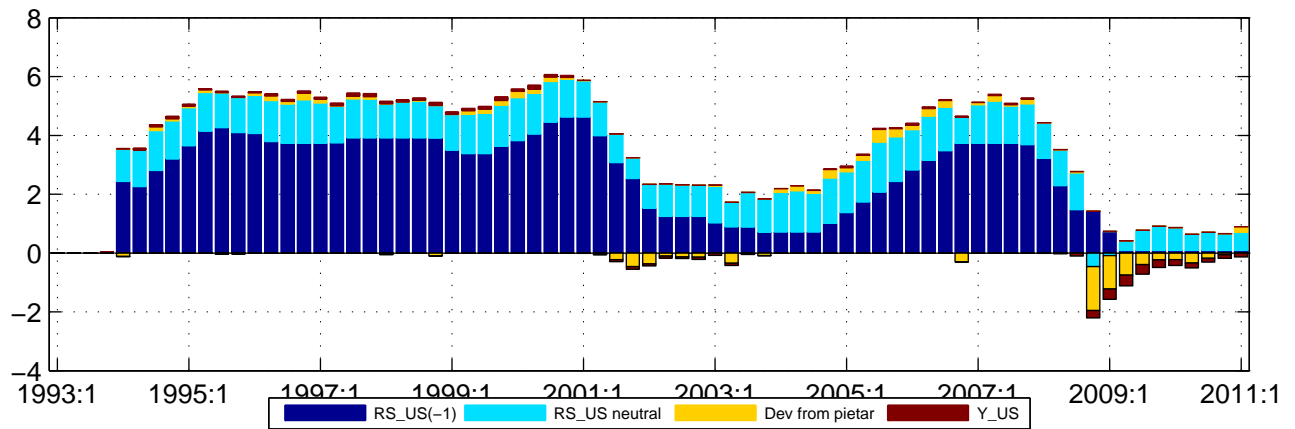
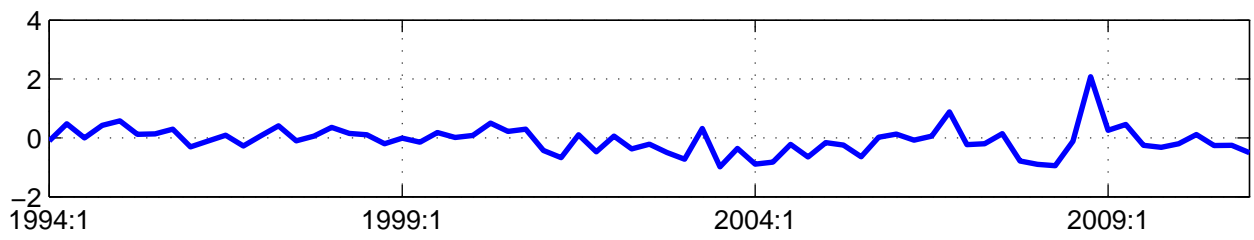
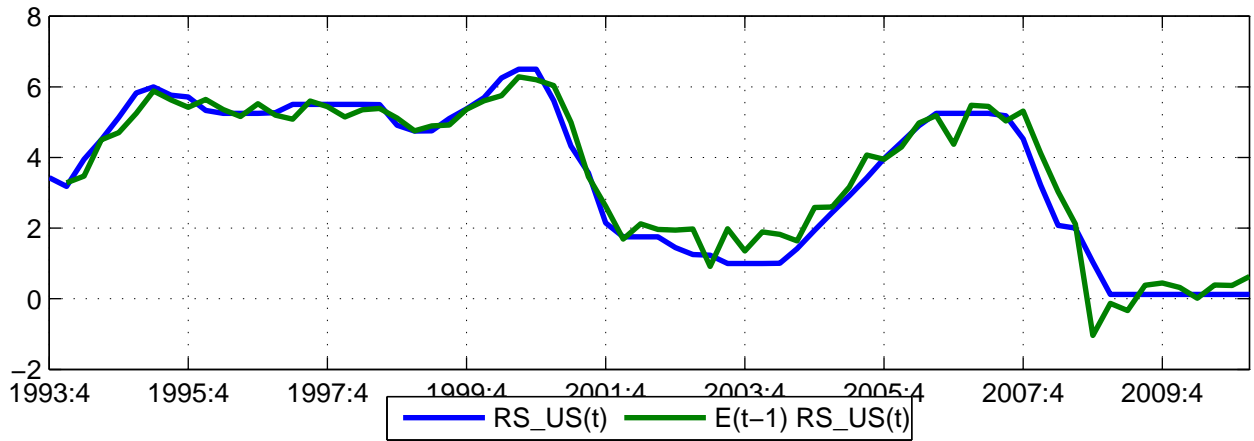


Figure 21: RS_US_fit

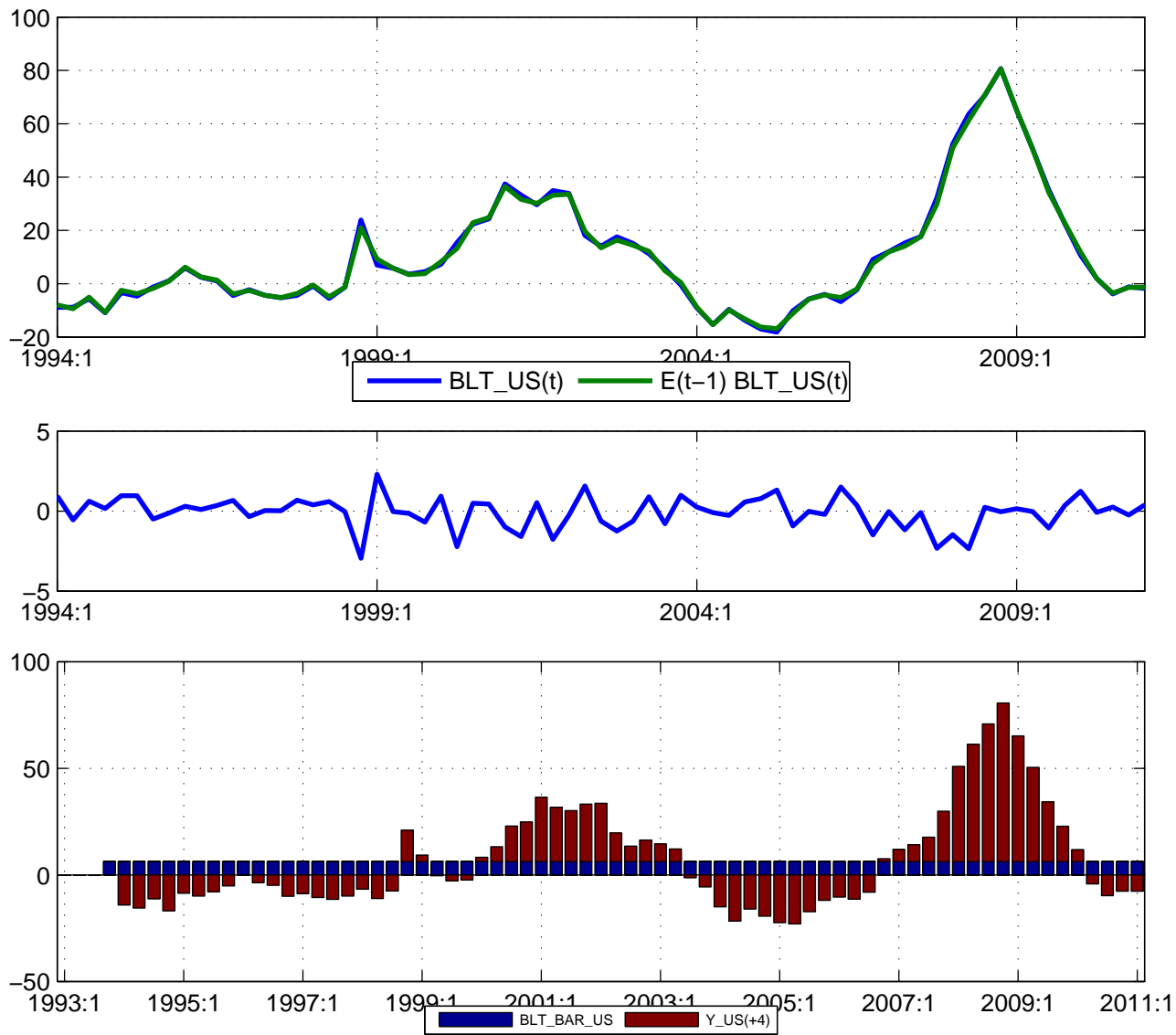


Figure 22: BLT_US_fit

File for TP_US_fit not found

File for US Long Rate and Term Premium not found

File for TP_US_all not found

File for TP1_US_fit not found

File for US 1-year Rate and Term Premium not found

File for TP3_US_fit not found

File for US 3-year Rate and Term Premium not found

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File for US 5-year Rate and Term Premium not found

File for TP10.US.fit not found

File for US 10-year Rate and Term Premium not found

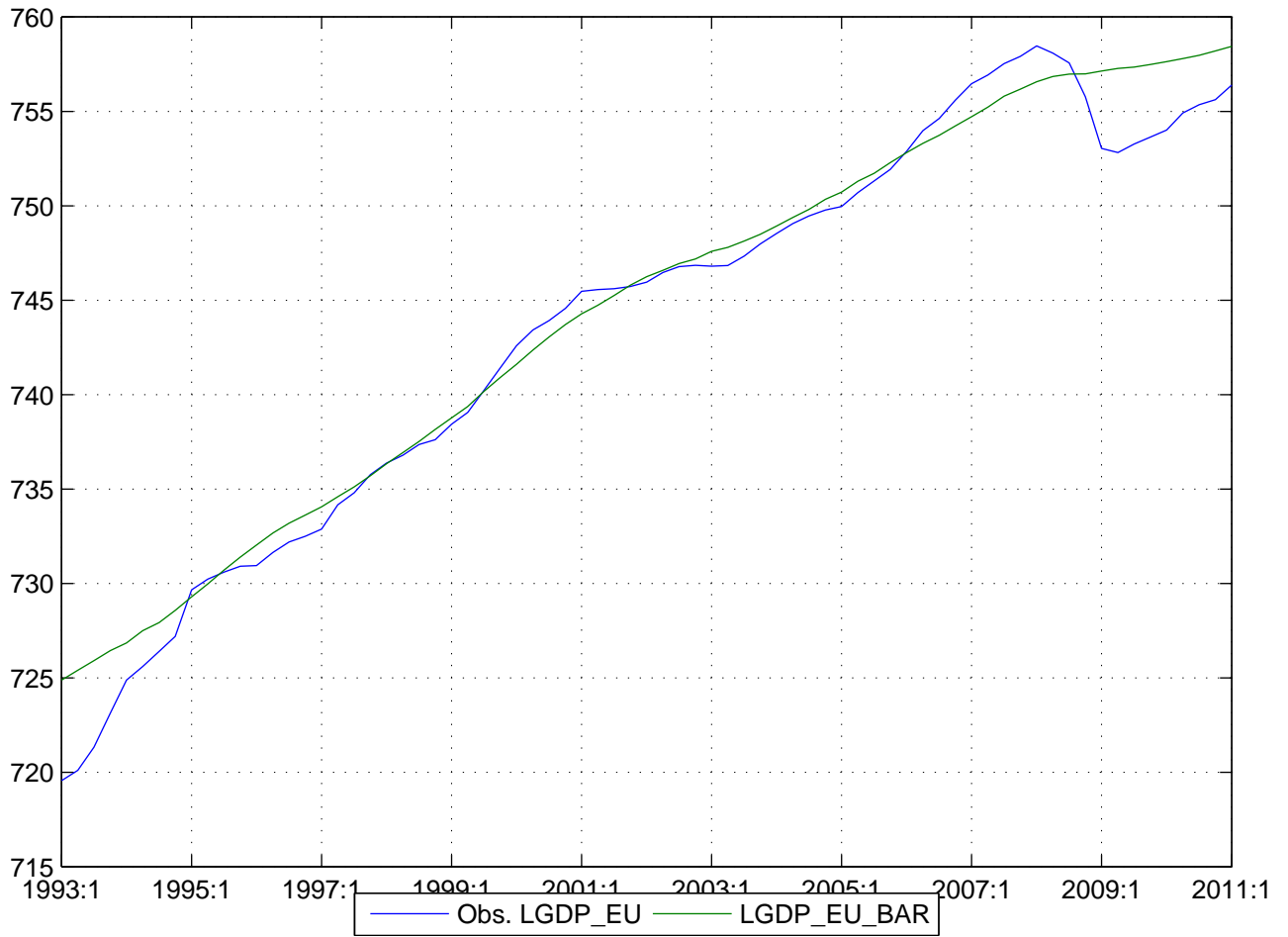


Figure 23: EU GDP level

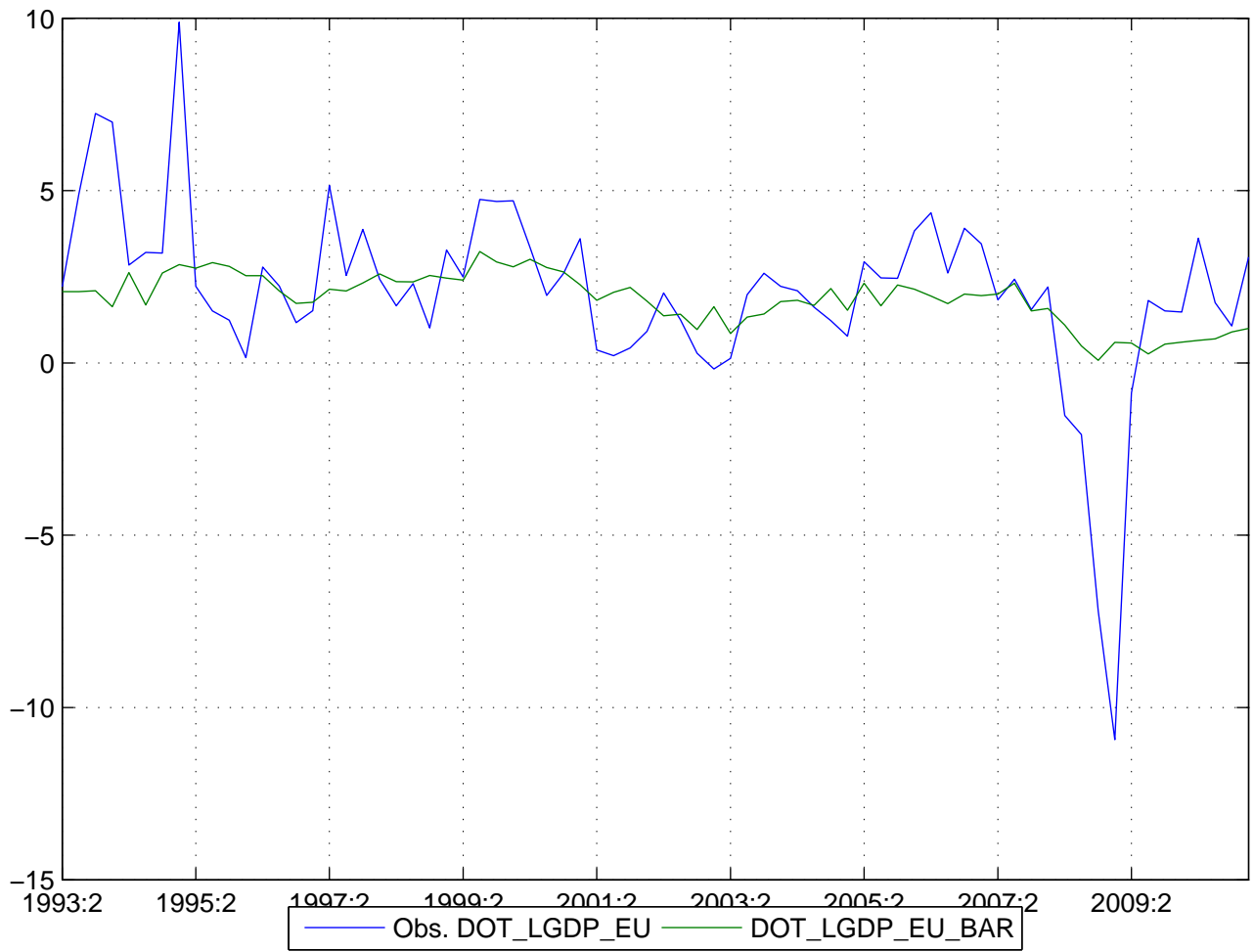


Figure 24: EU GDP growth

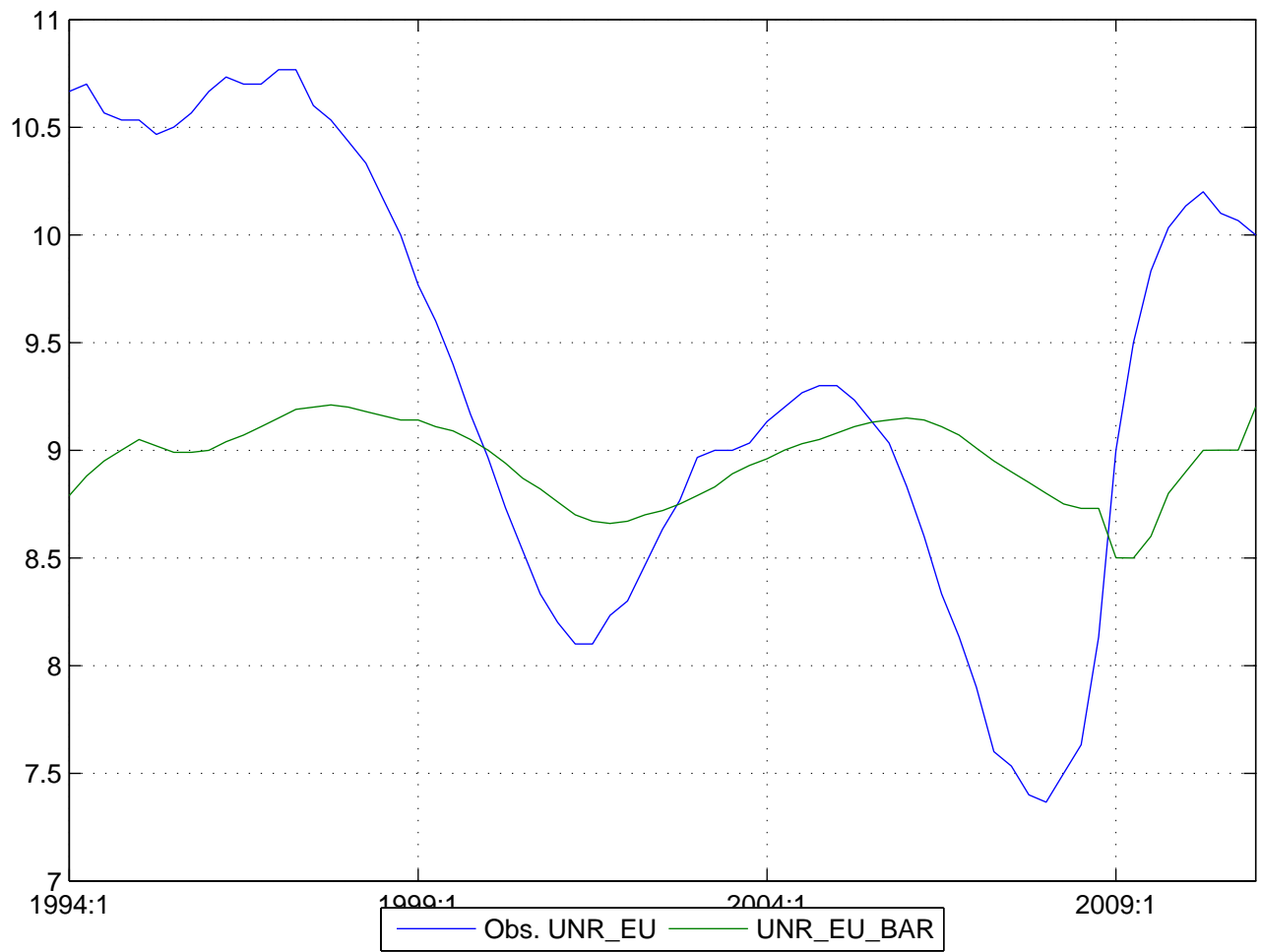


Figure 25: EU Unemployment

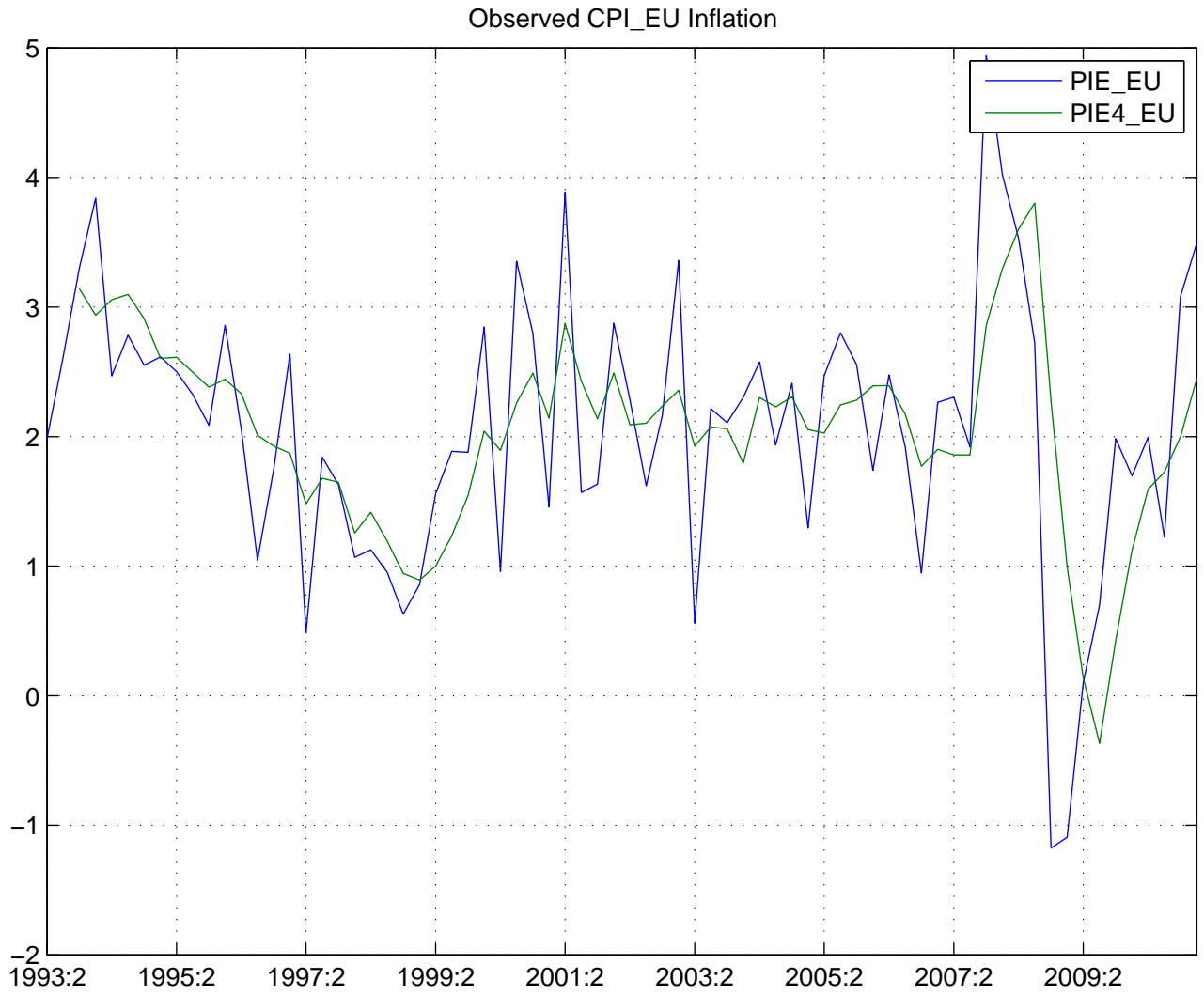


Figure 26: PIE_EU

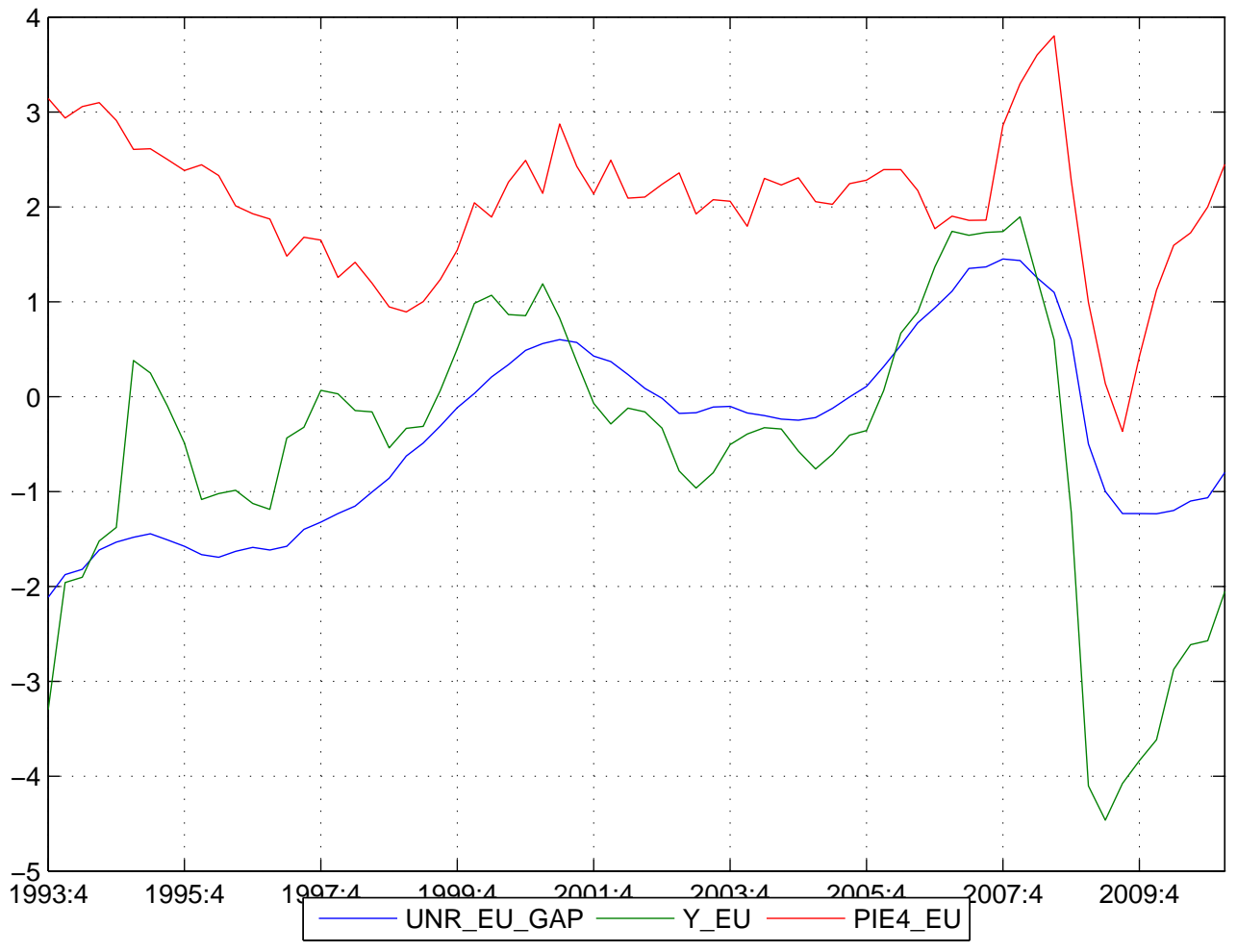


Figure 27: EU_GAP

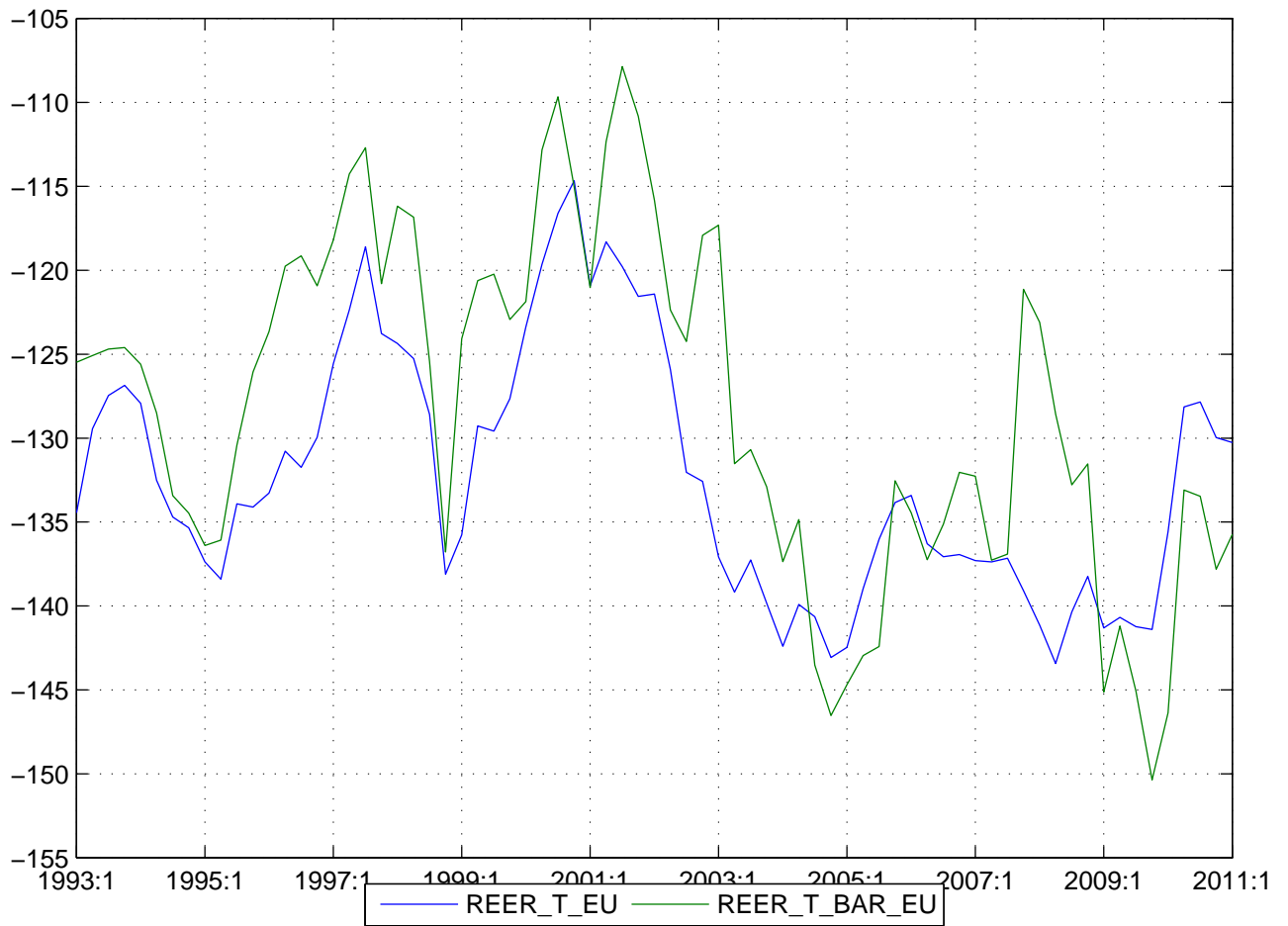


Figure 28: REER_T_EU



Figure 29: RR_EU

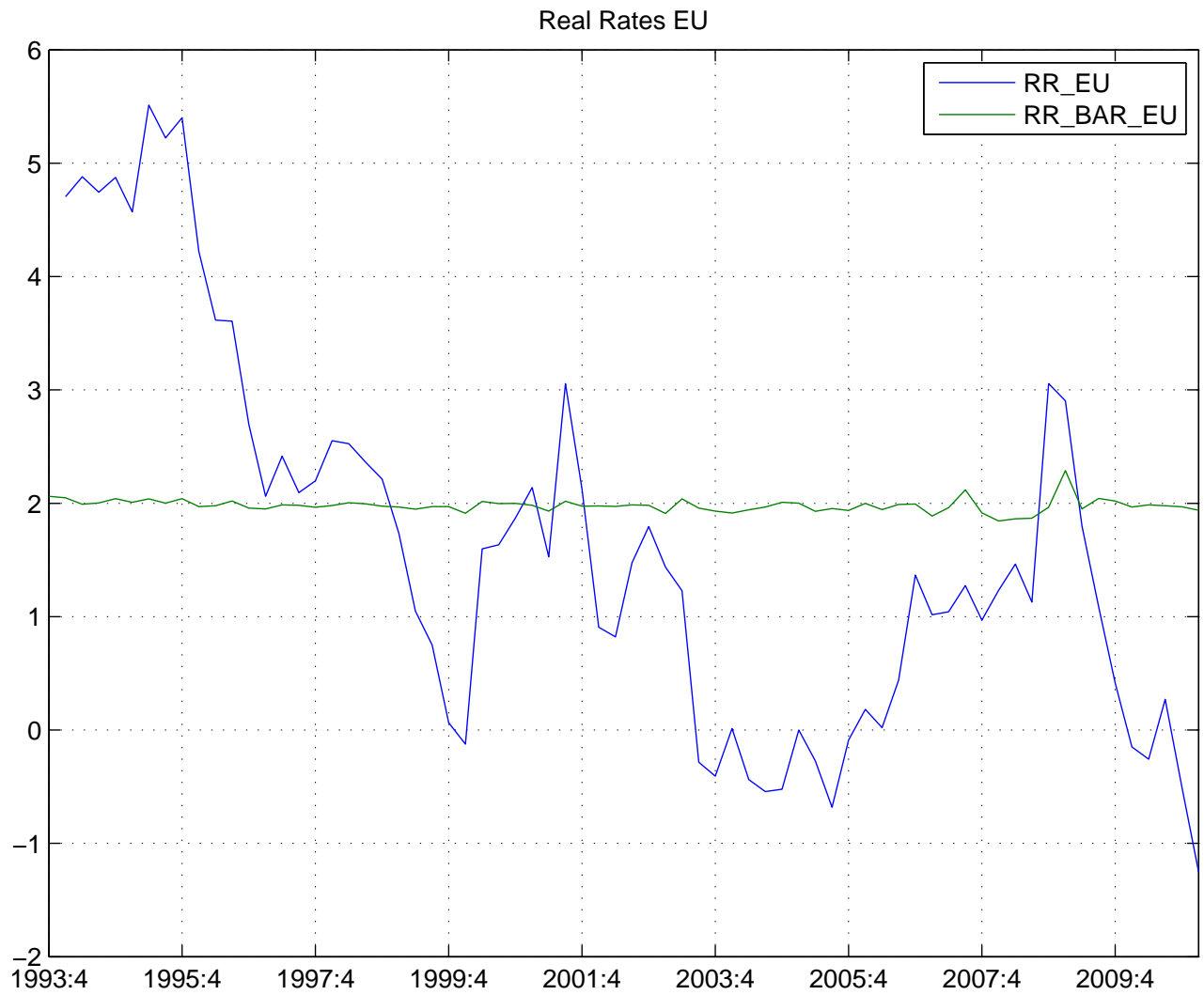


Figure 30: Real Rate And Equilibrium EU

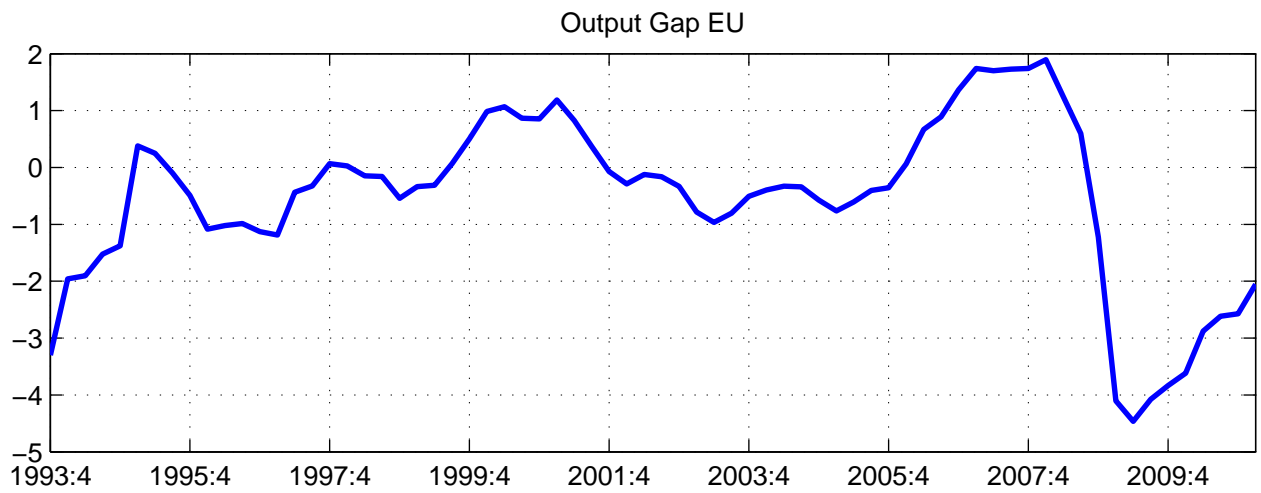
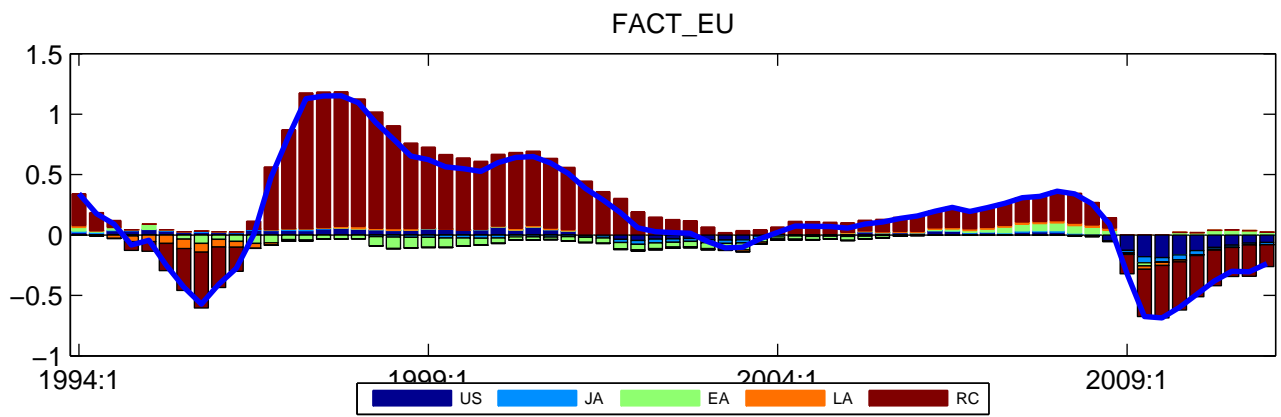


Figure 31: FACT_EU

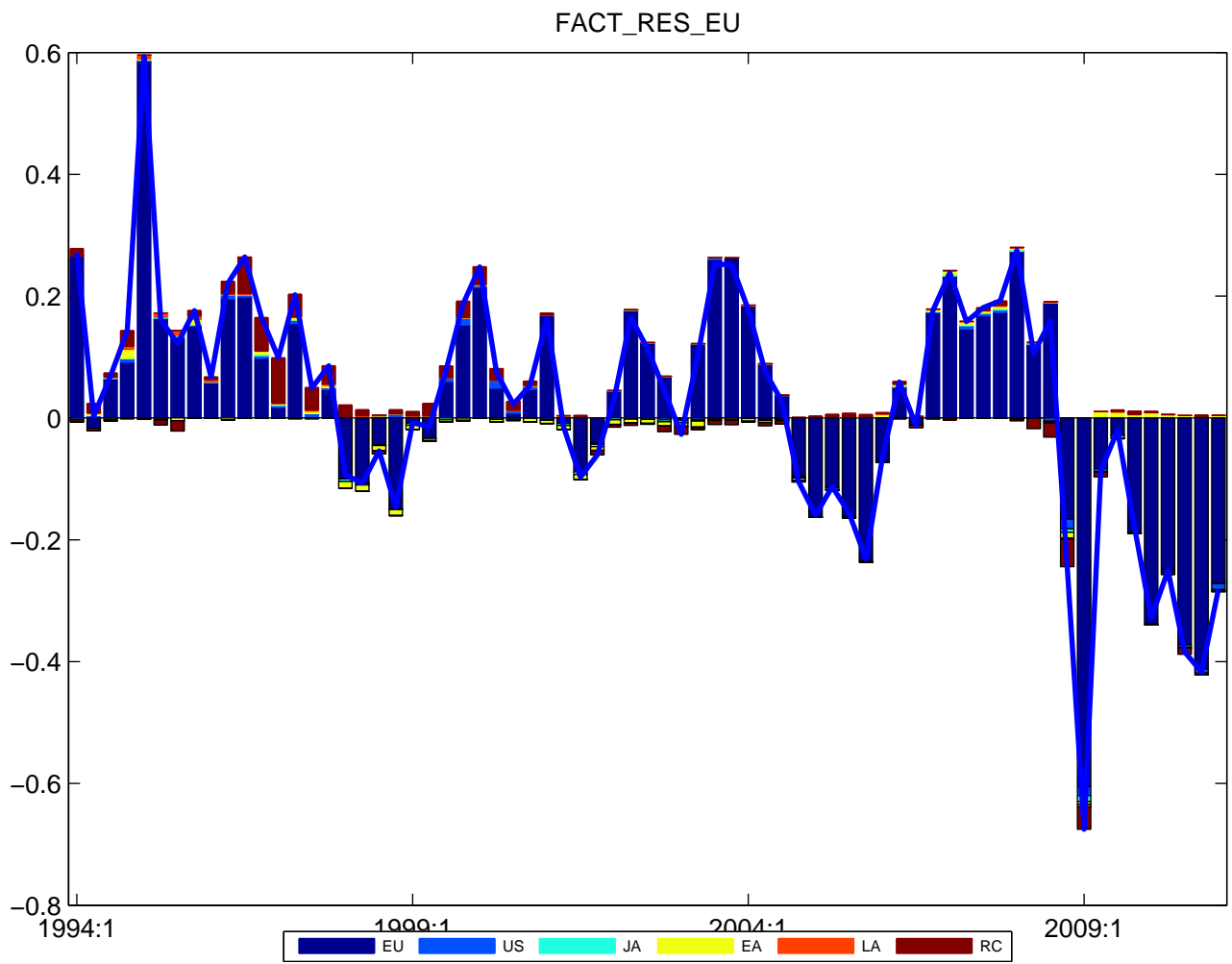


Figure 32: FACT_RES_EU

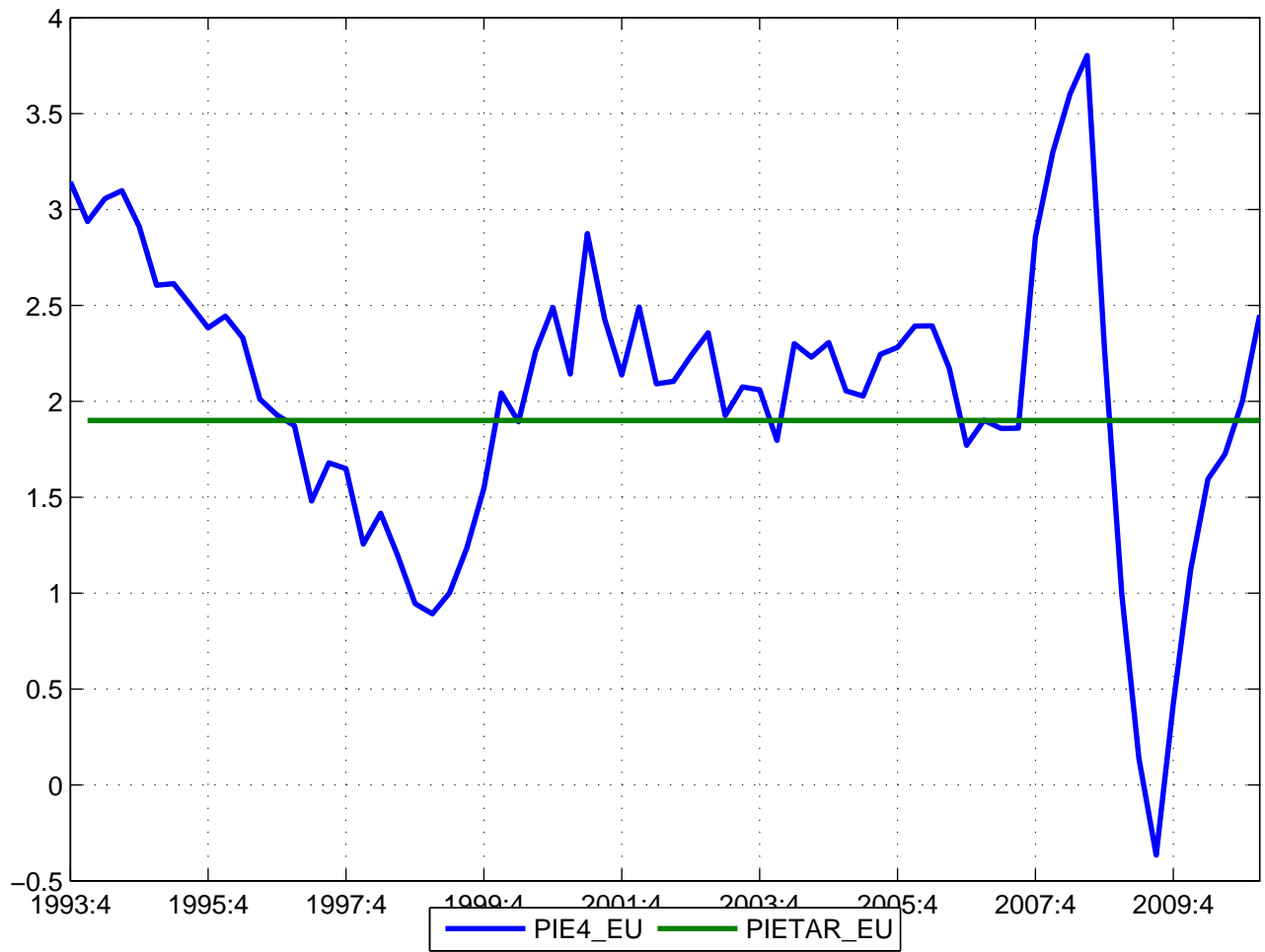


Figure 33: Inflation and Target EU

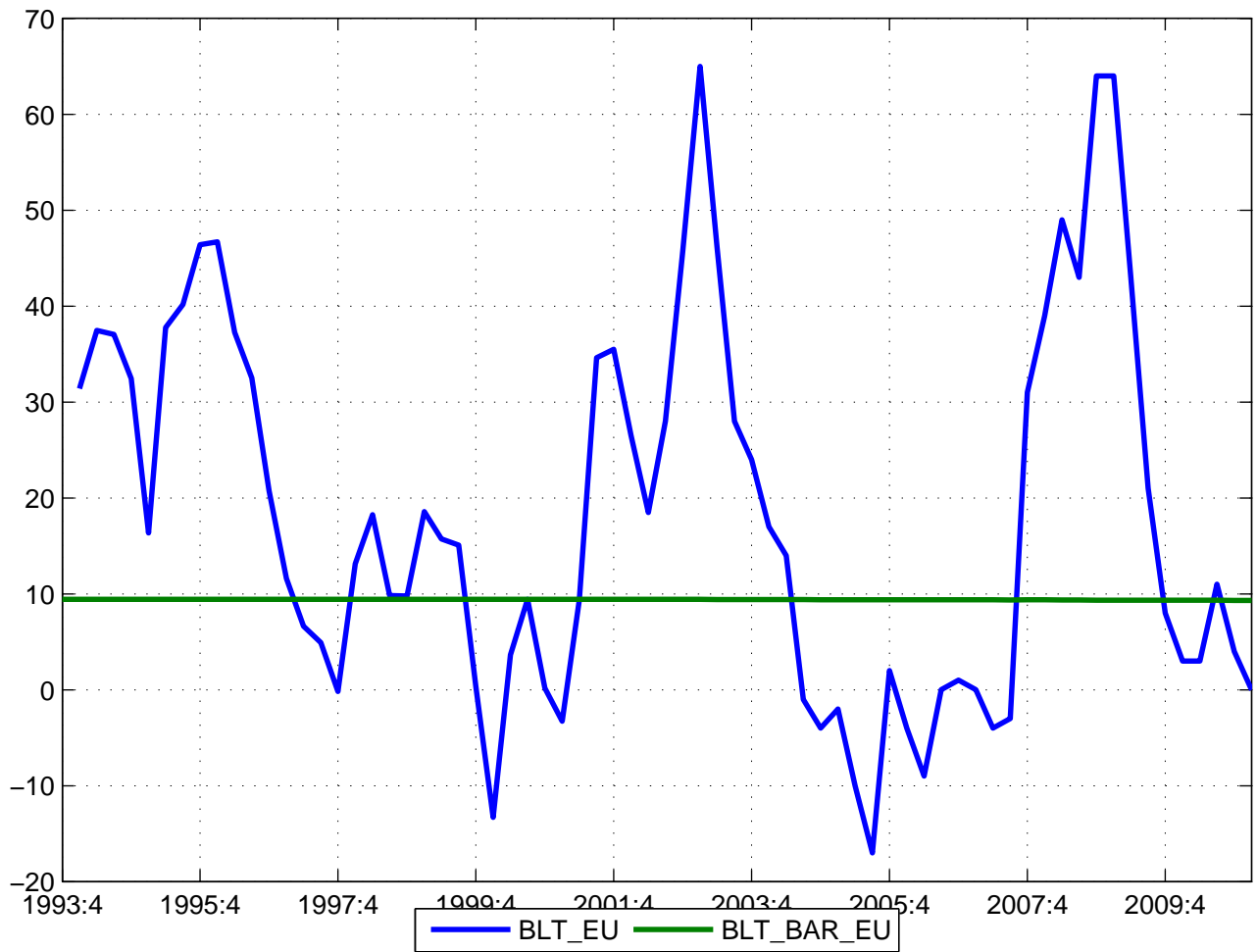


Figure 34: BLT_EU

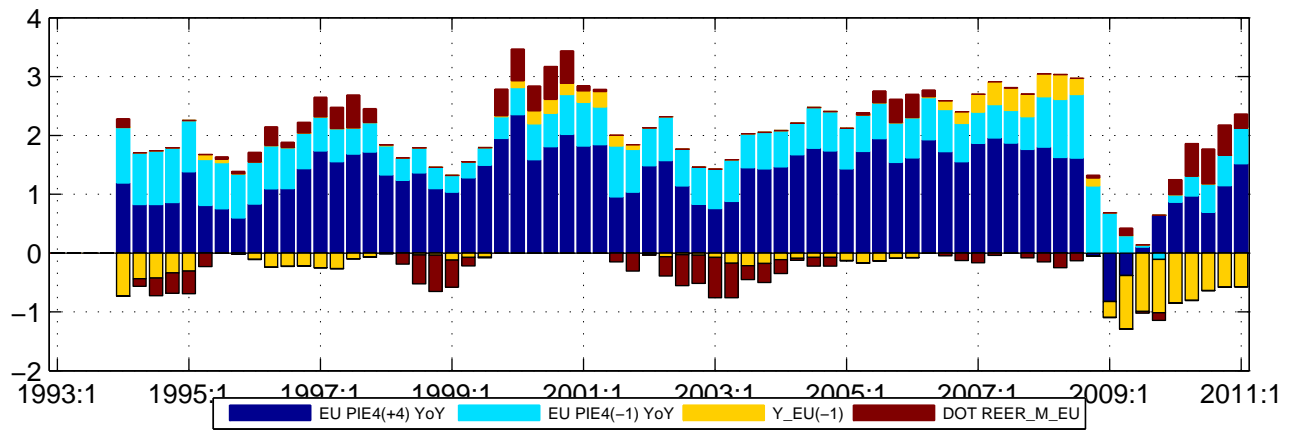
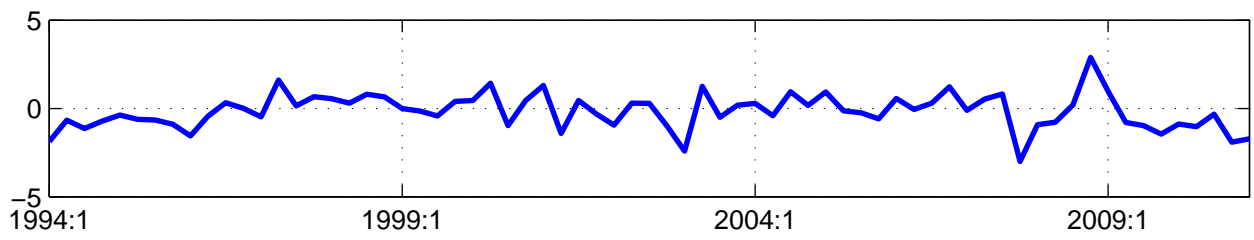
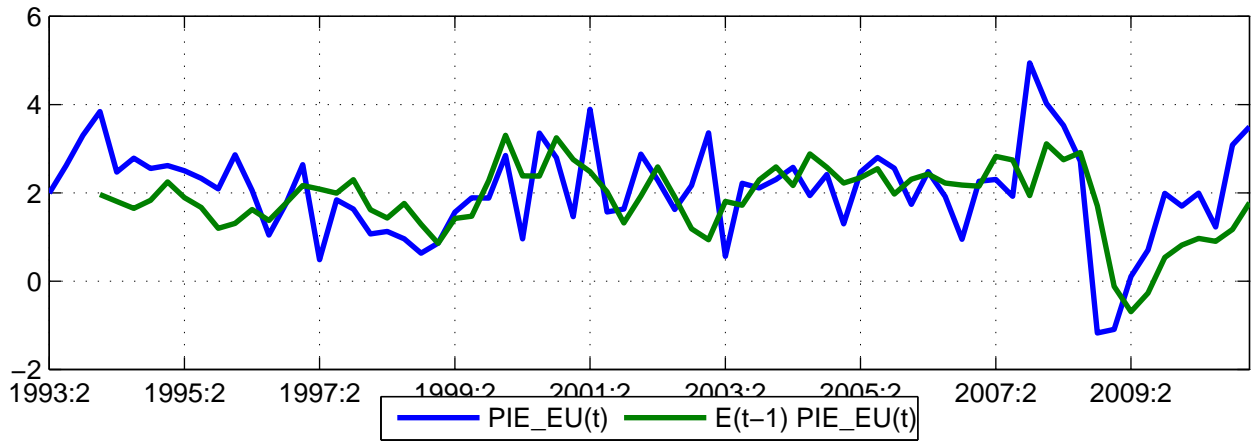


Figure 35: PIE_EU_fit

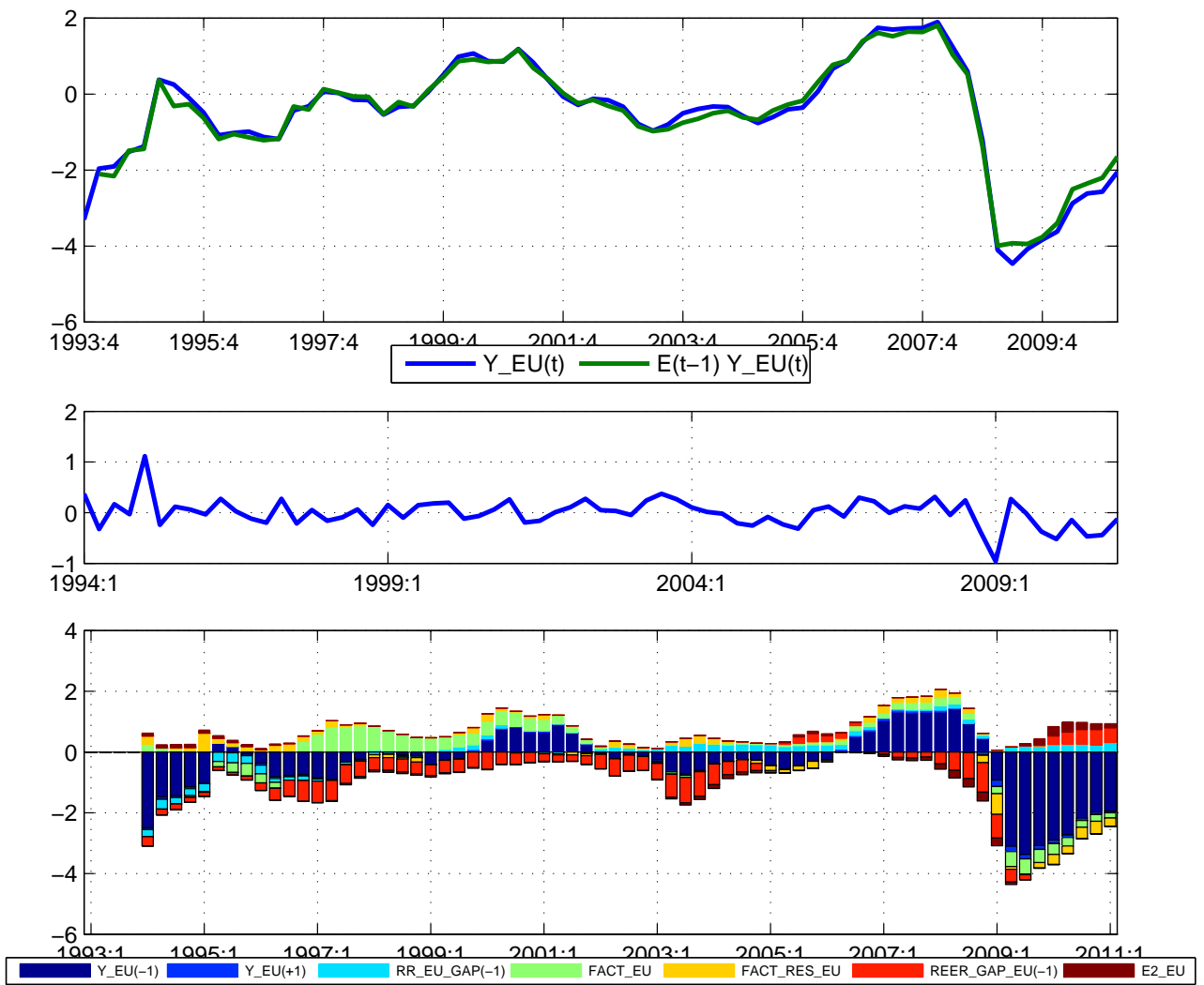


Figure 36: Y_{EU_fit}

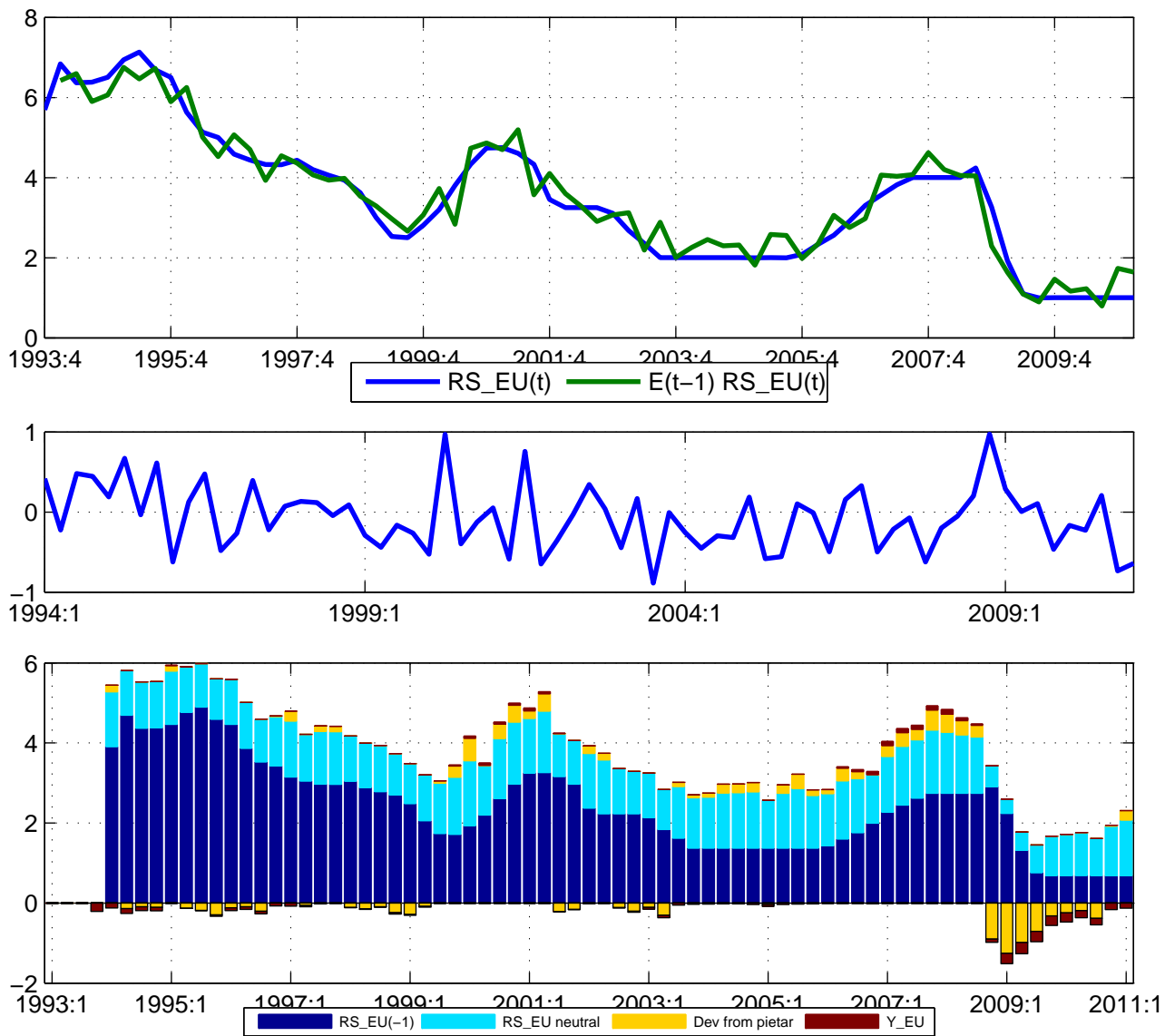


Figure 37: RS_EU_fit

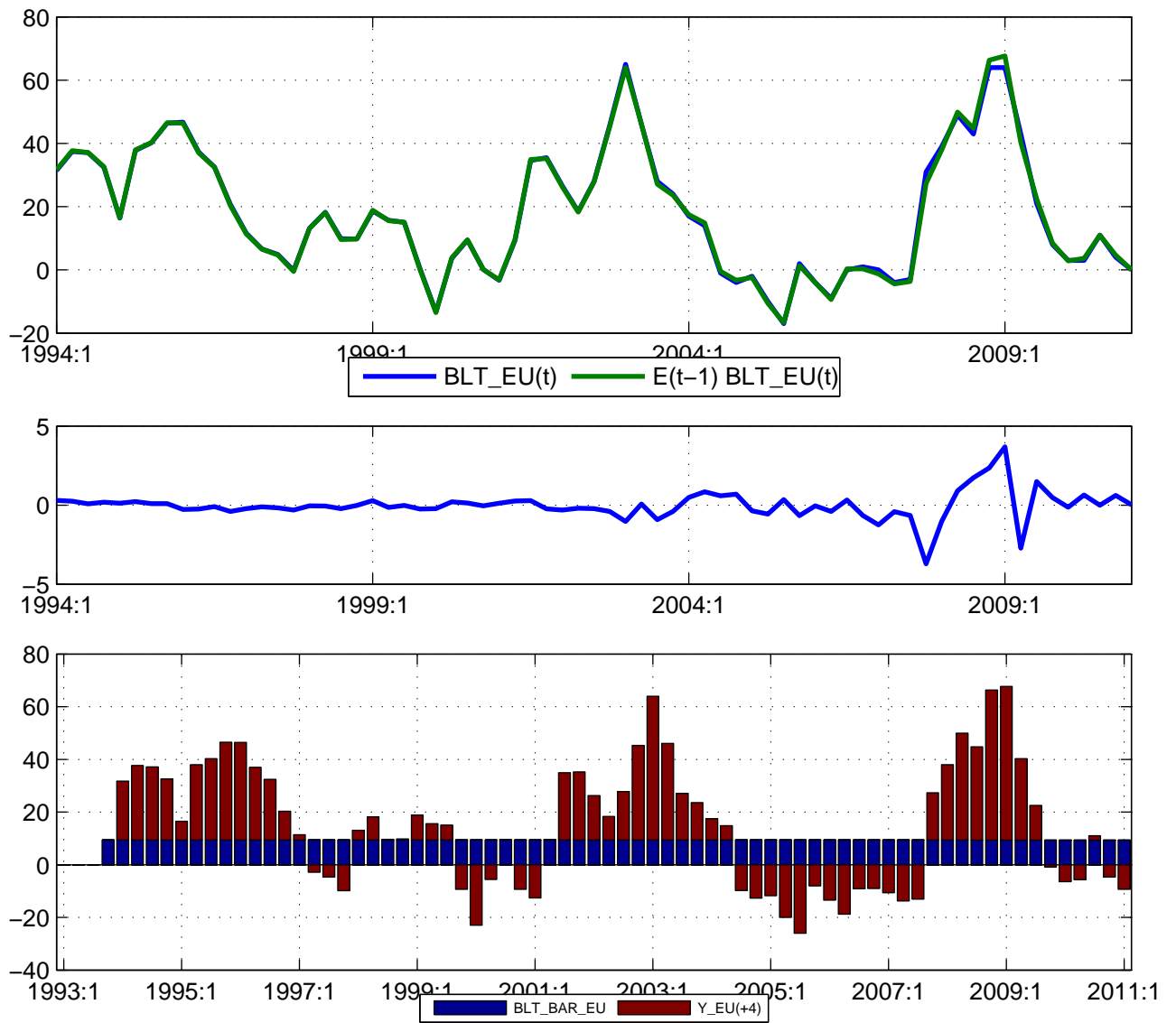


Figure 38: BLT_EU_fit

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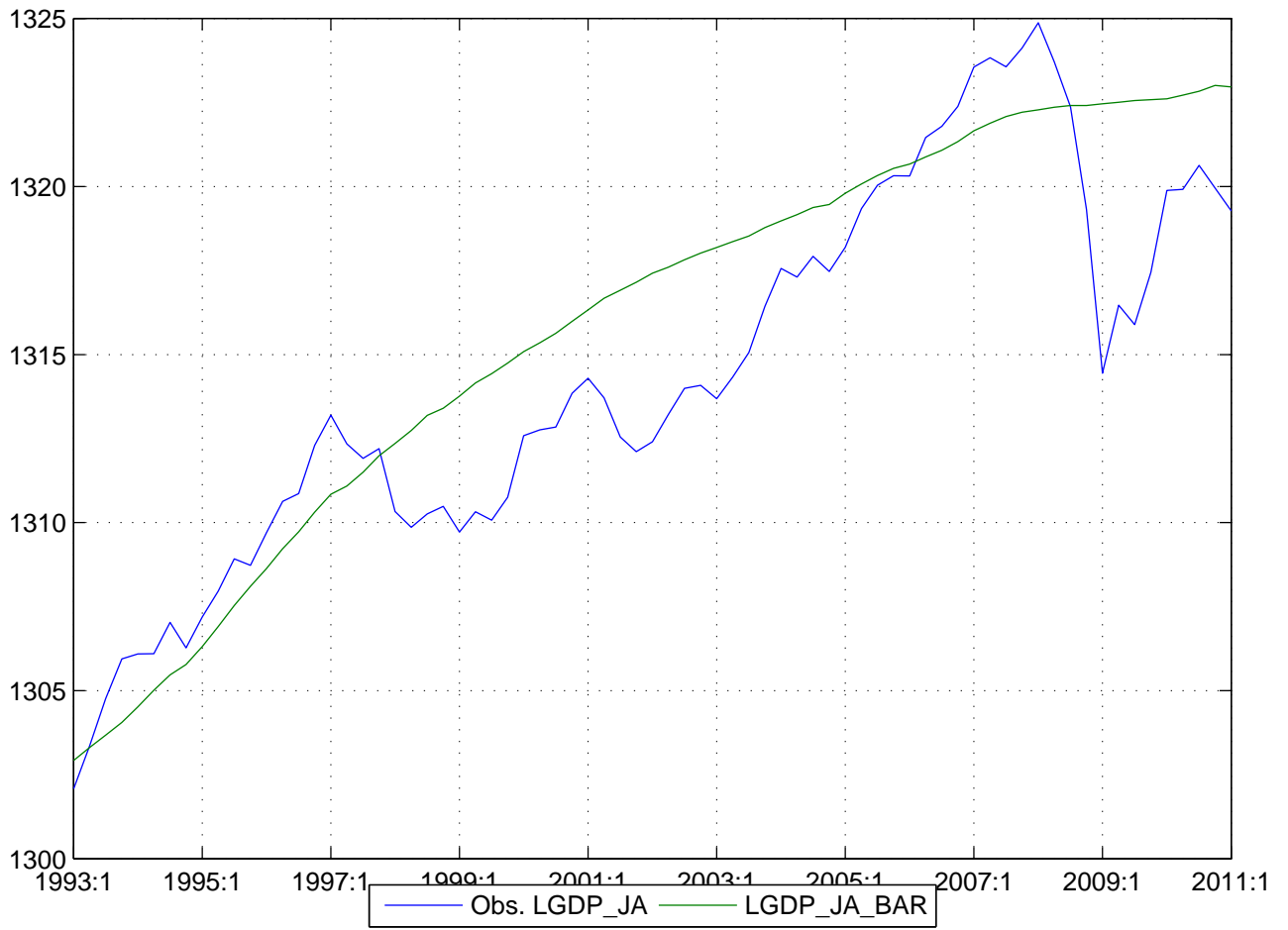


Figure 39: JA GDP level

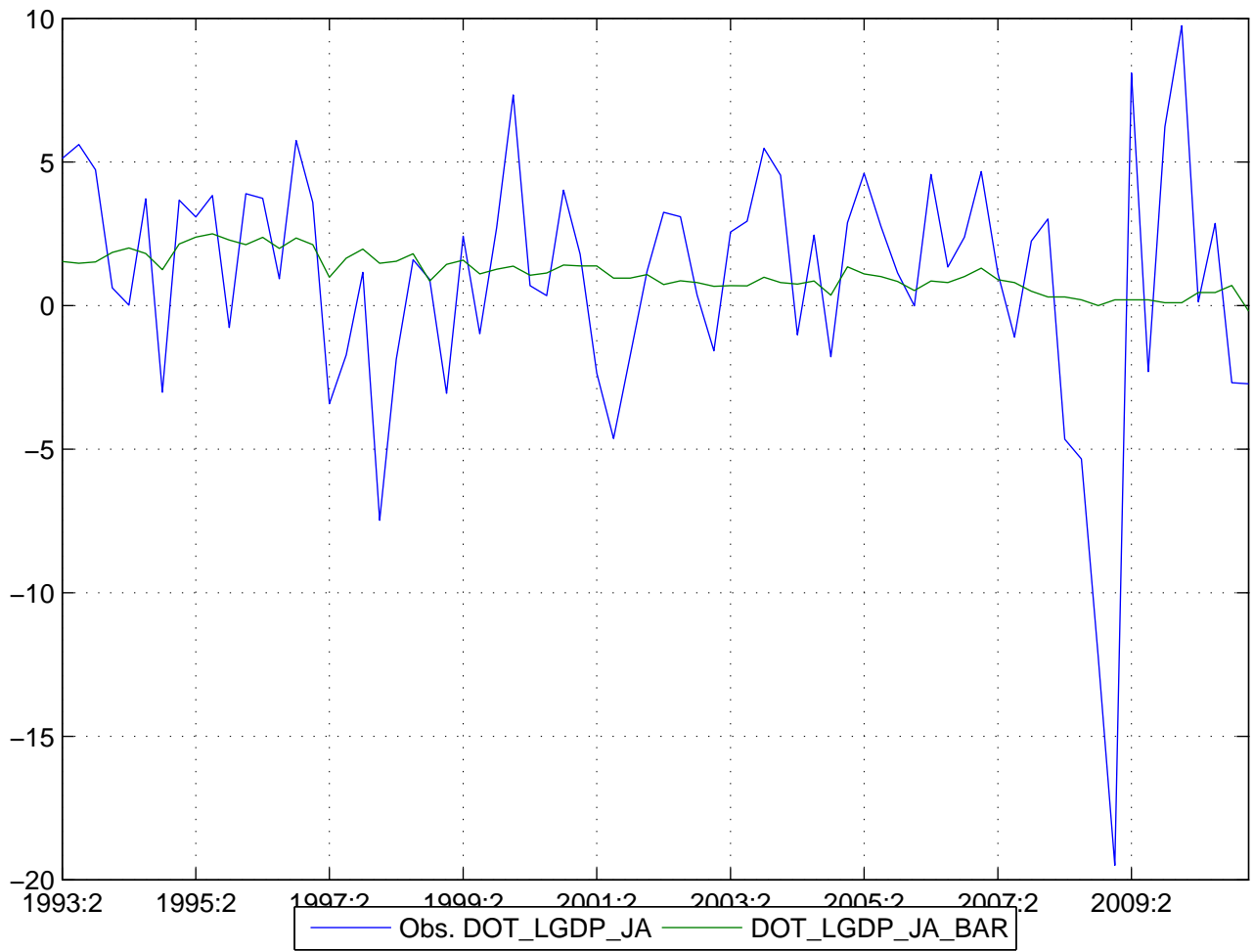


Figure 40: JA GDP growth

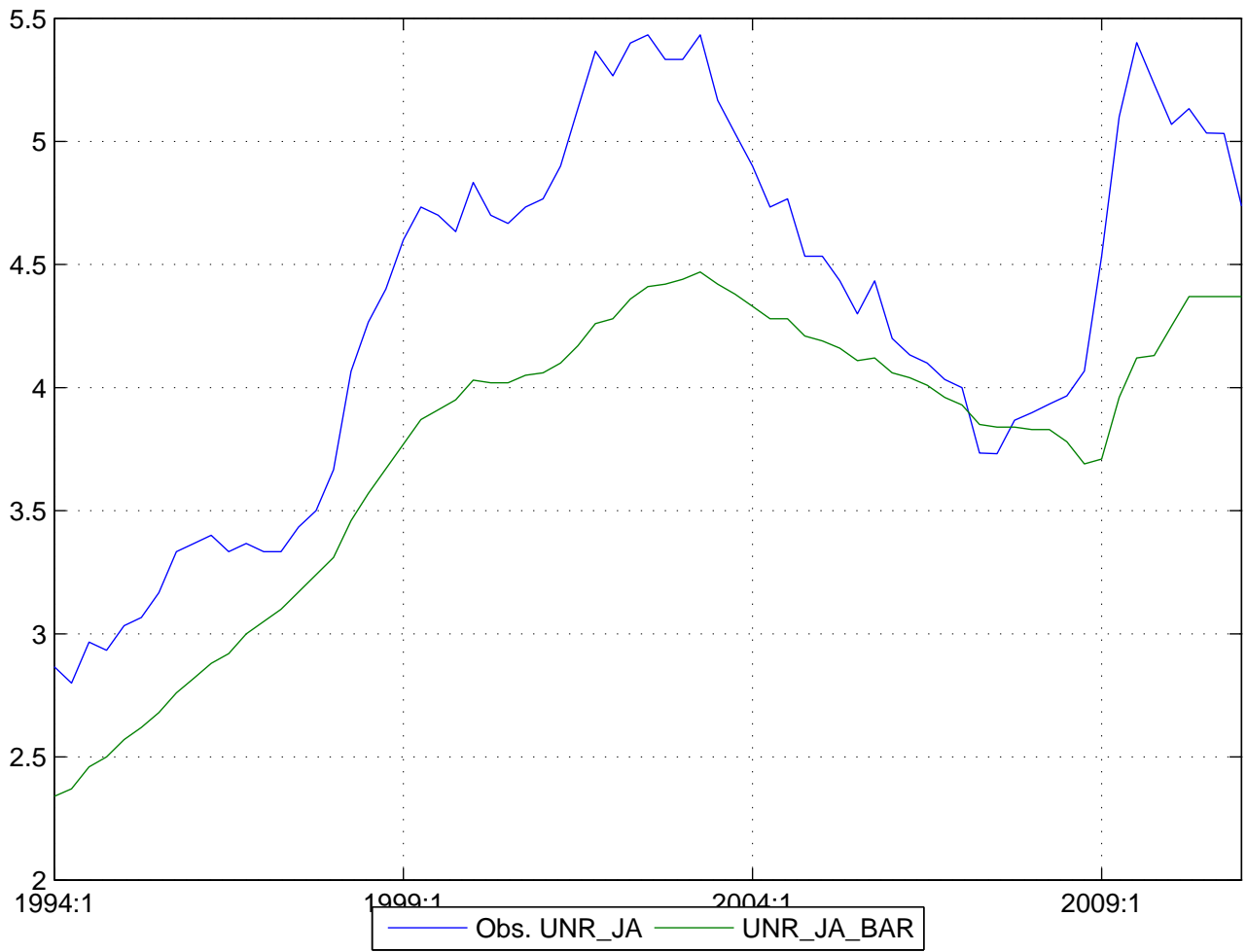


Figure 41: JA Unemployment

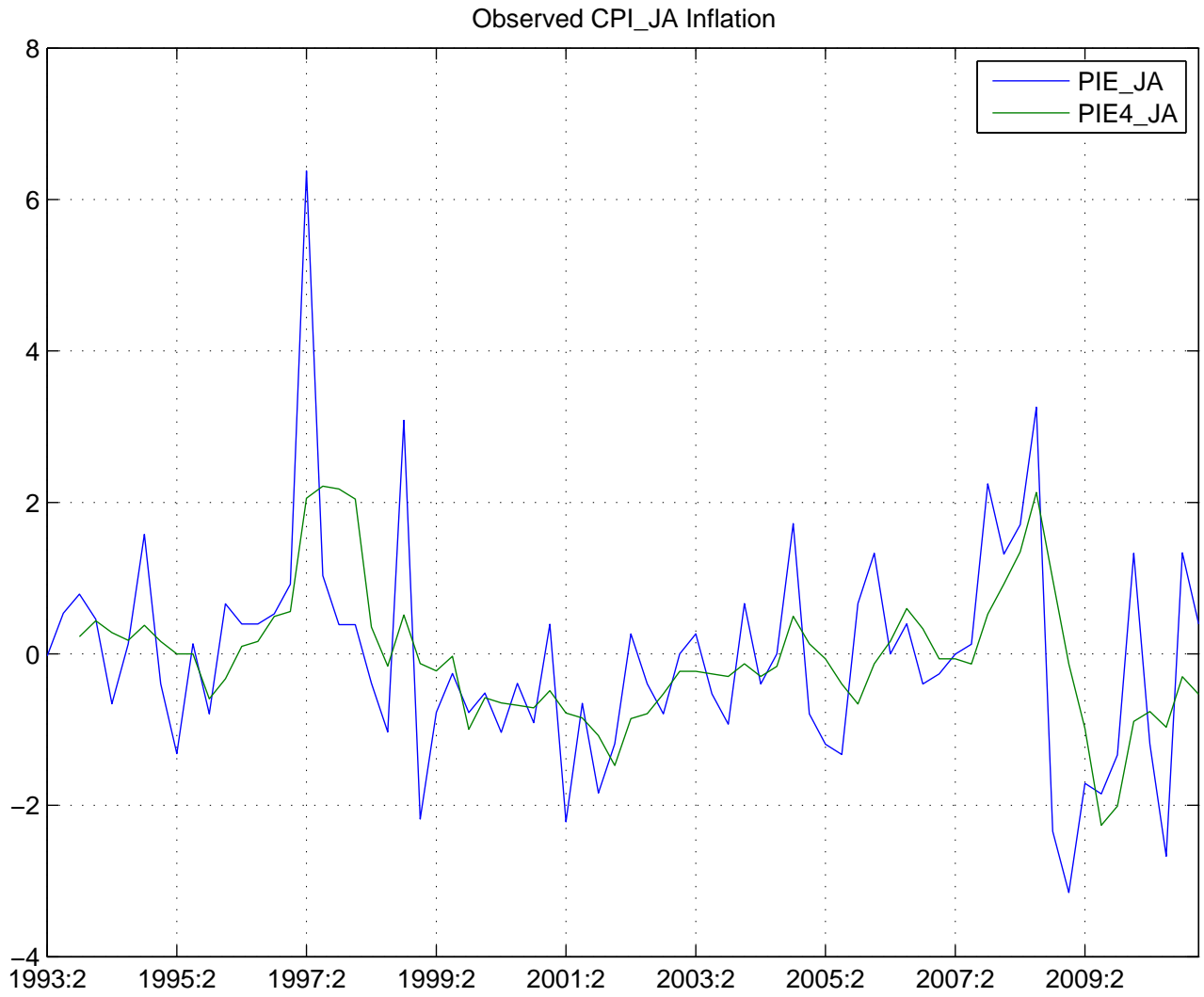


Figure 42: PIE_JA

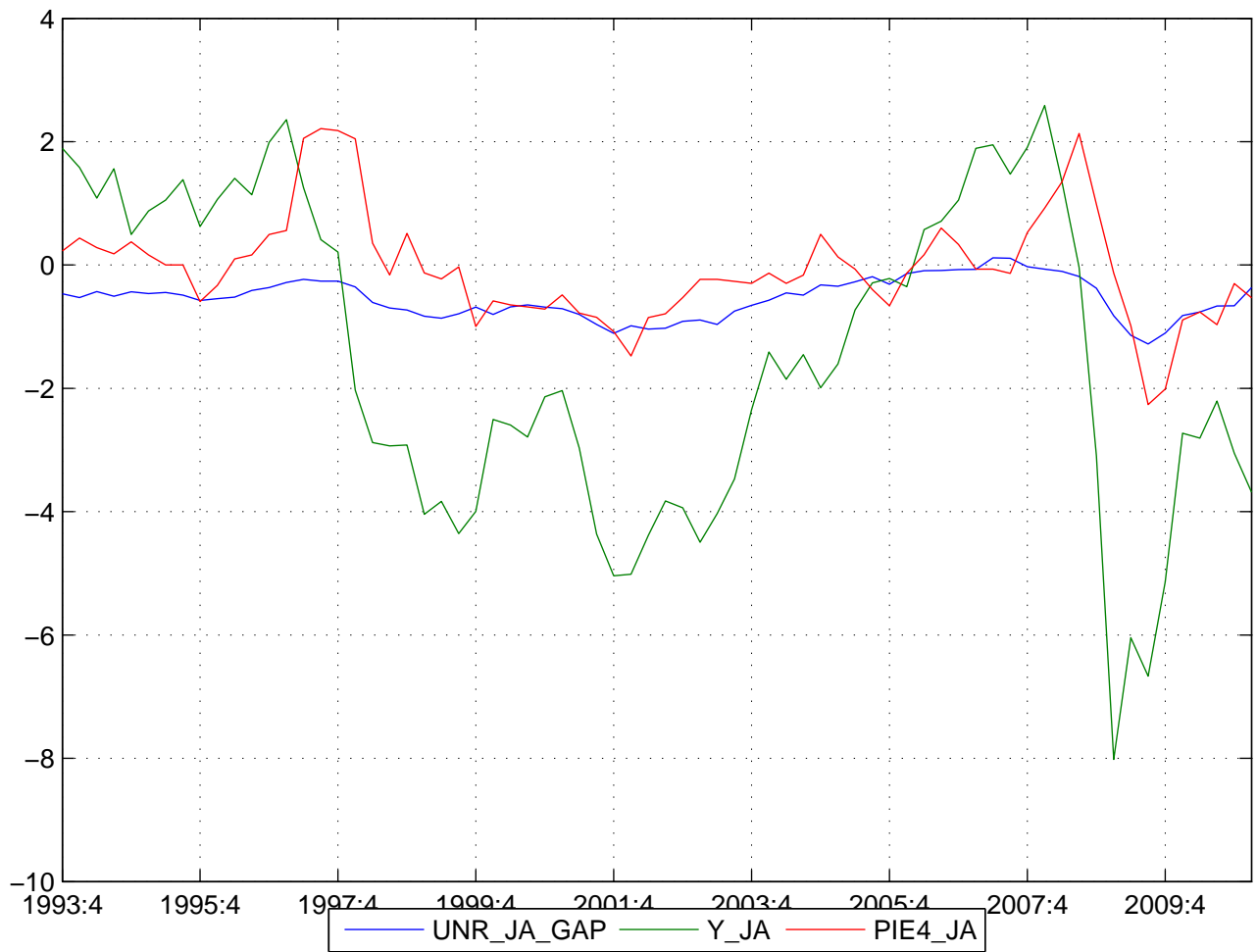


Figure 43: JA_GAP



Figure 44: REER_T_JA

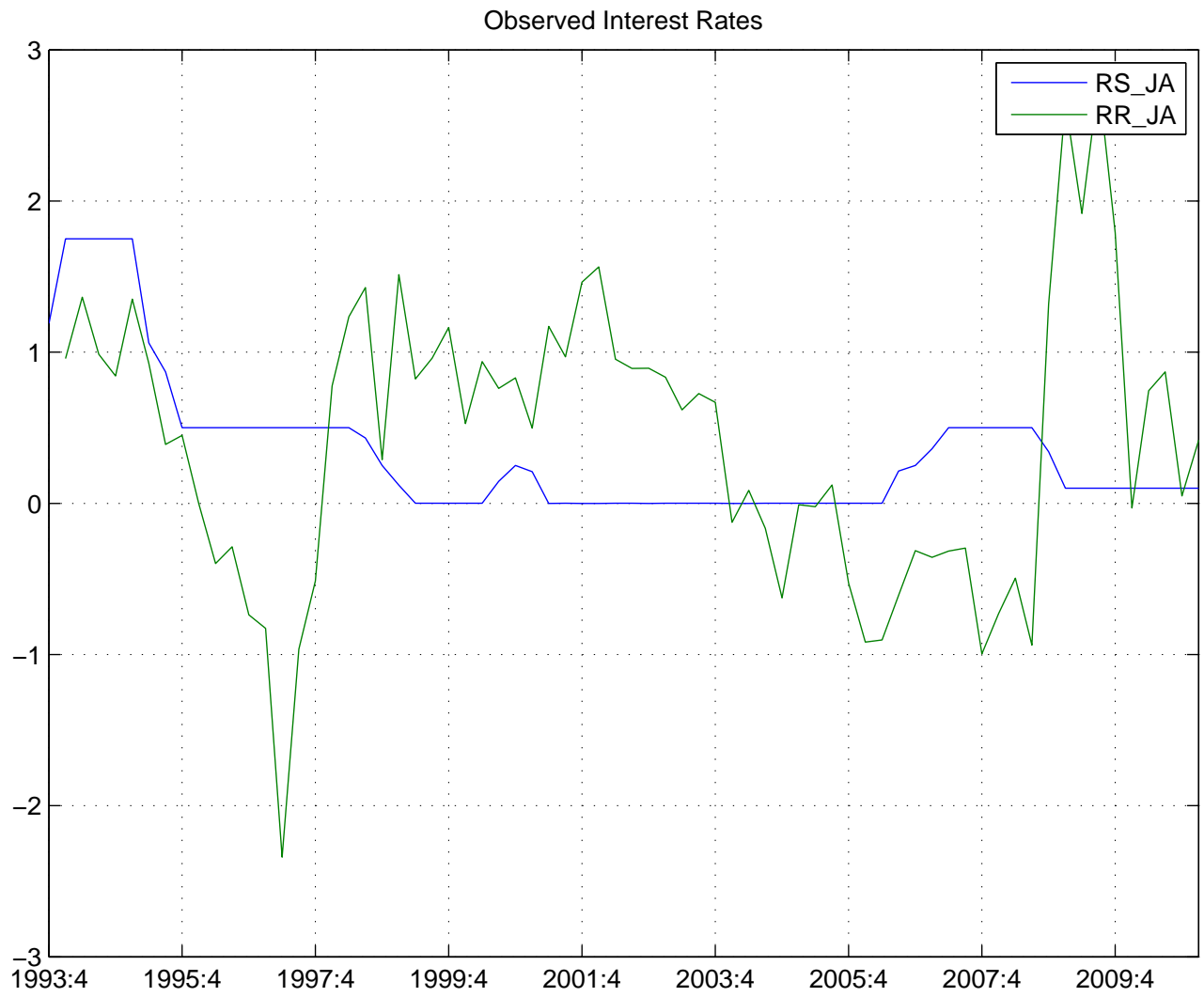


Figure 45: RR_JA

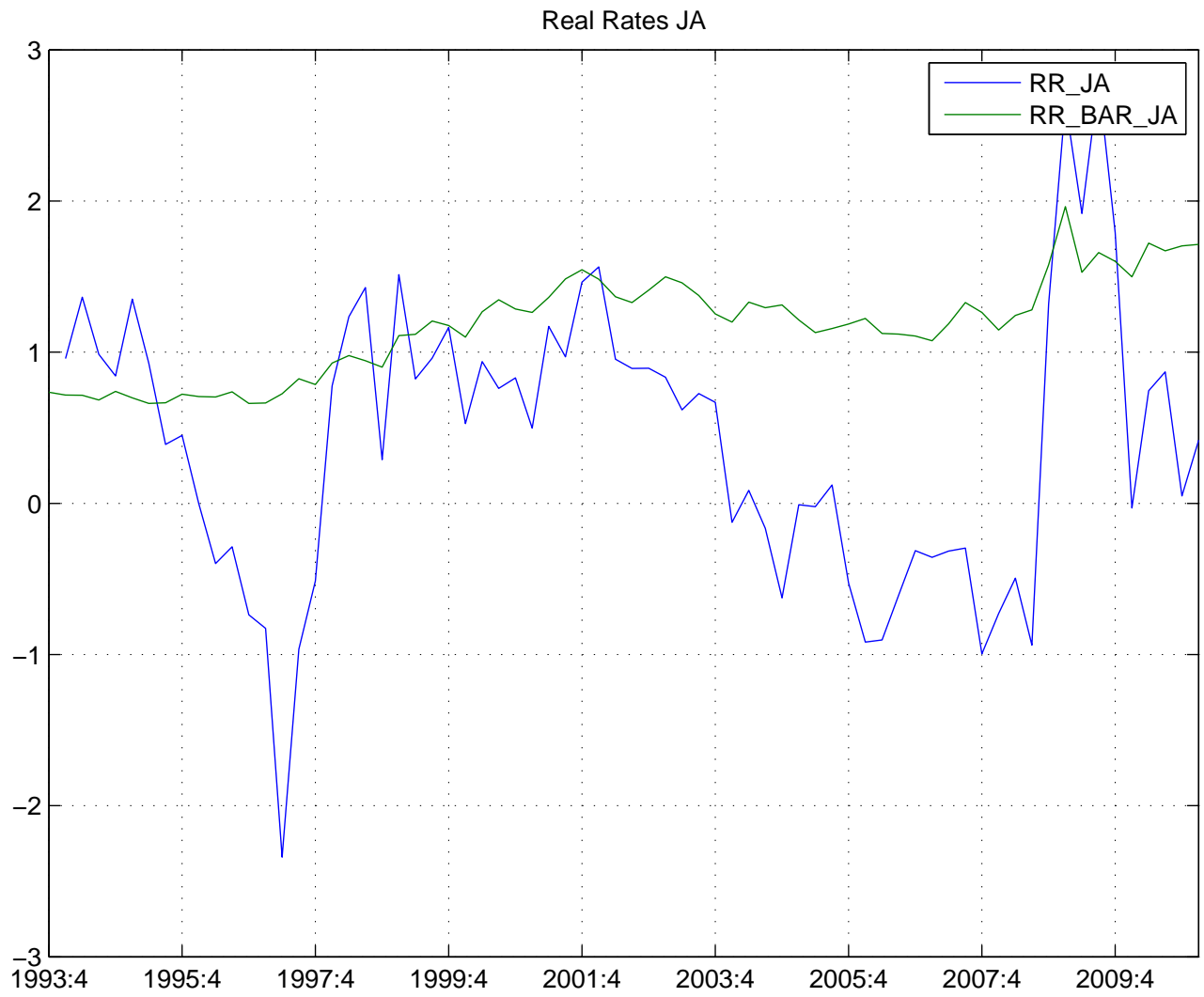


Figure 46: Real Rate And Equilibrium JA

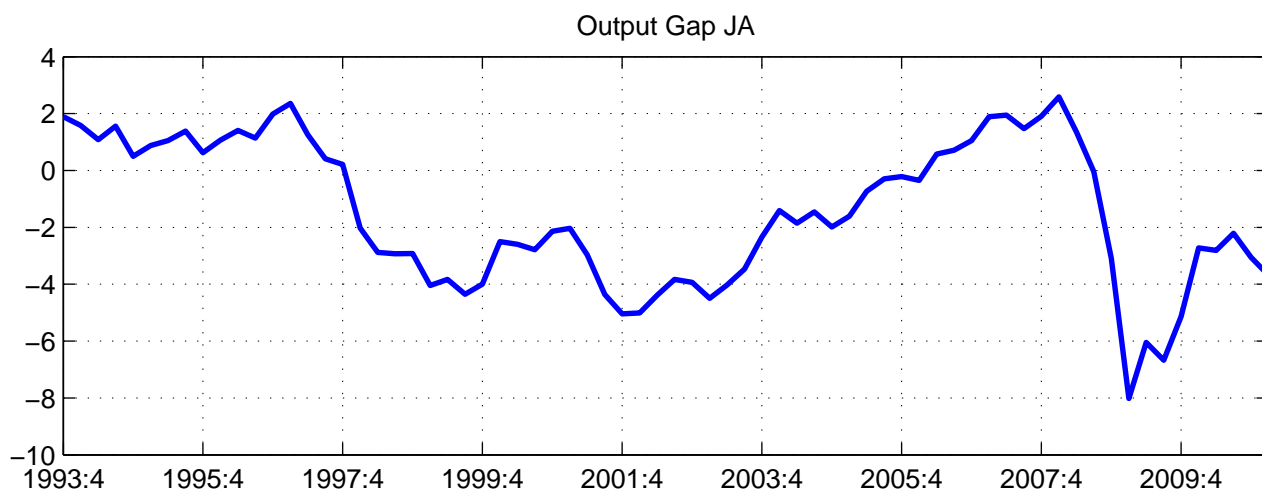
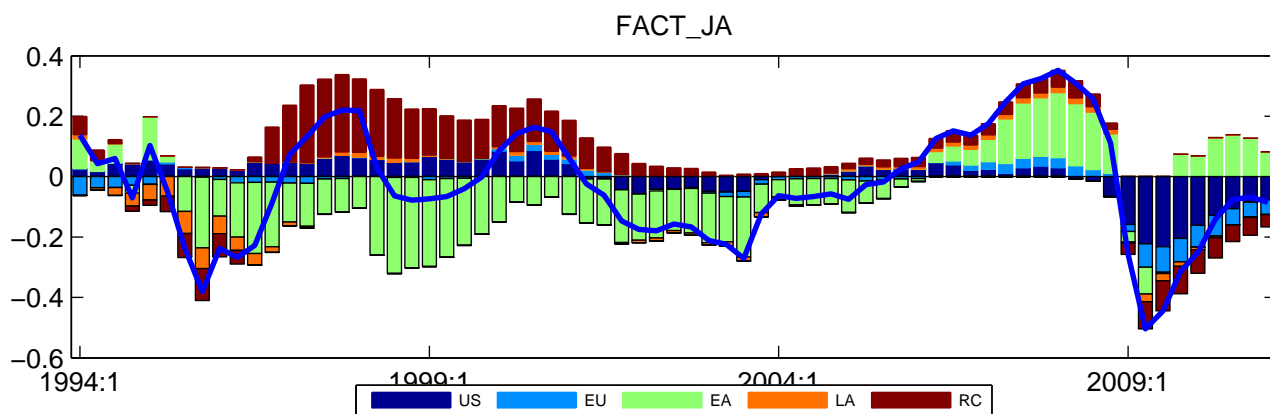


Figure 47: FACT_JA

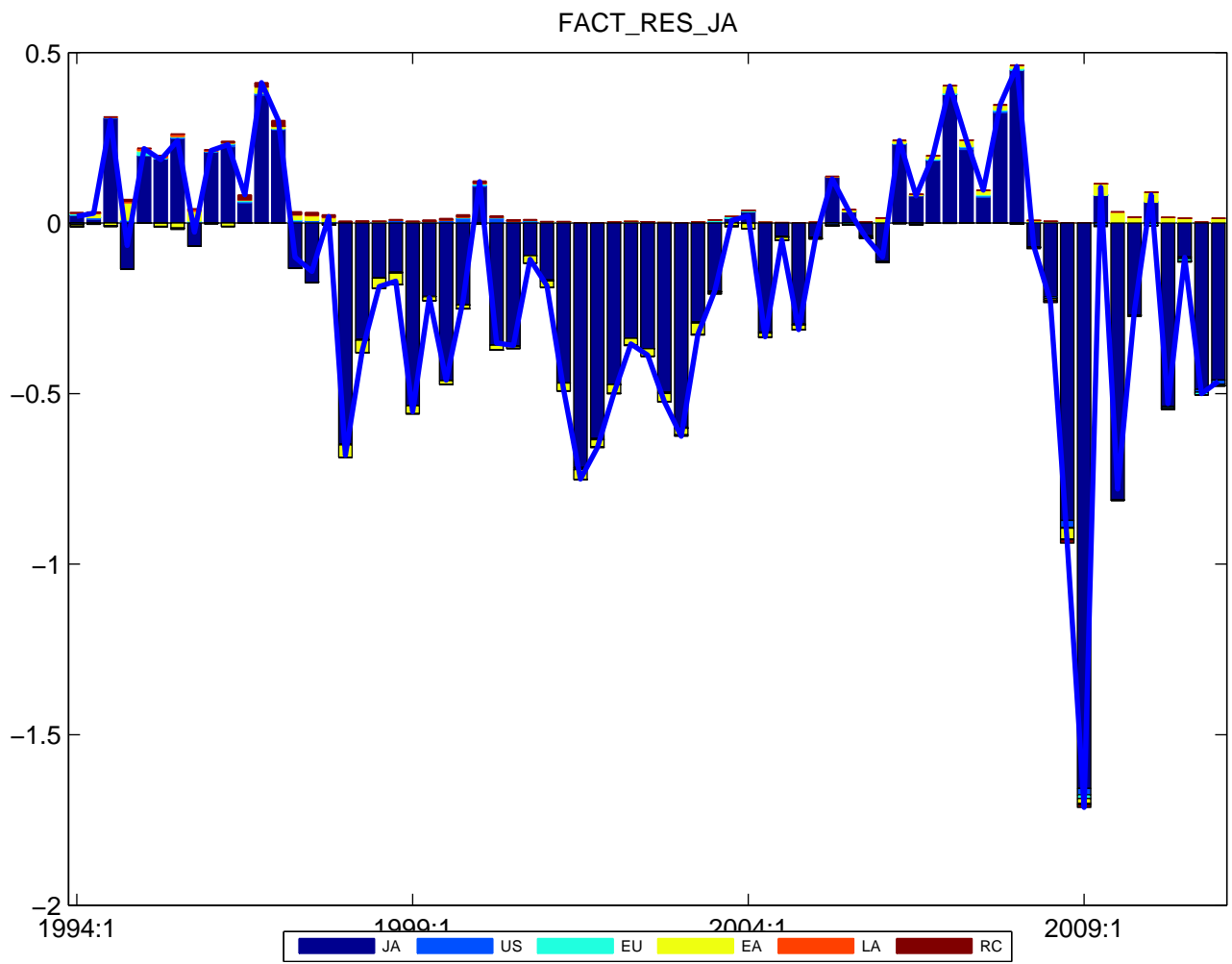


Figure 48: FACT_RES_JA

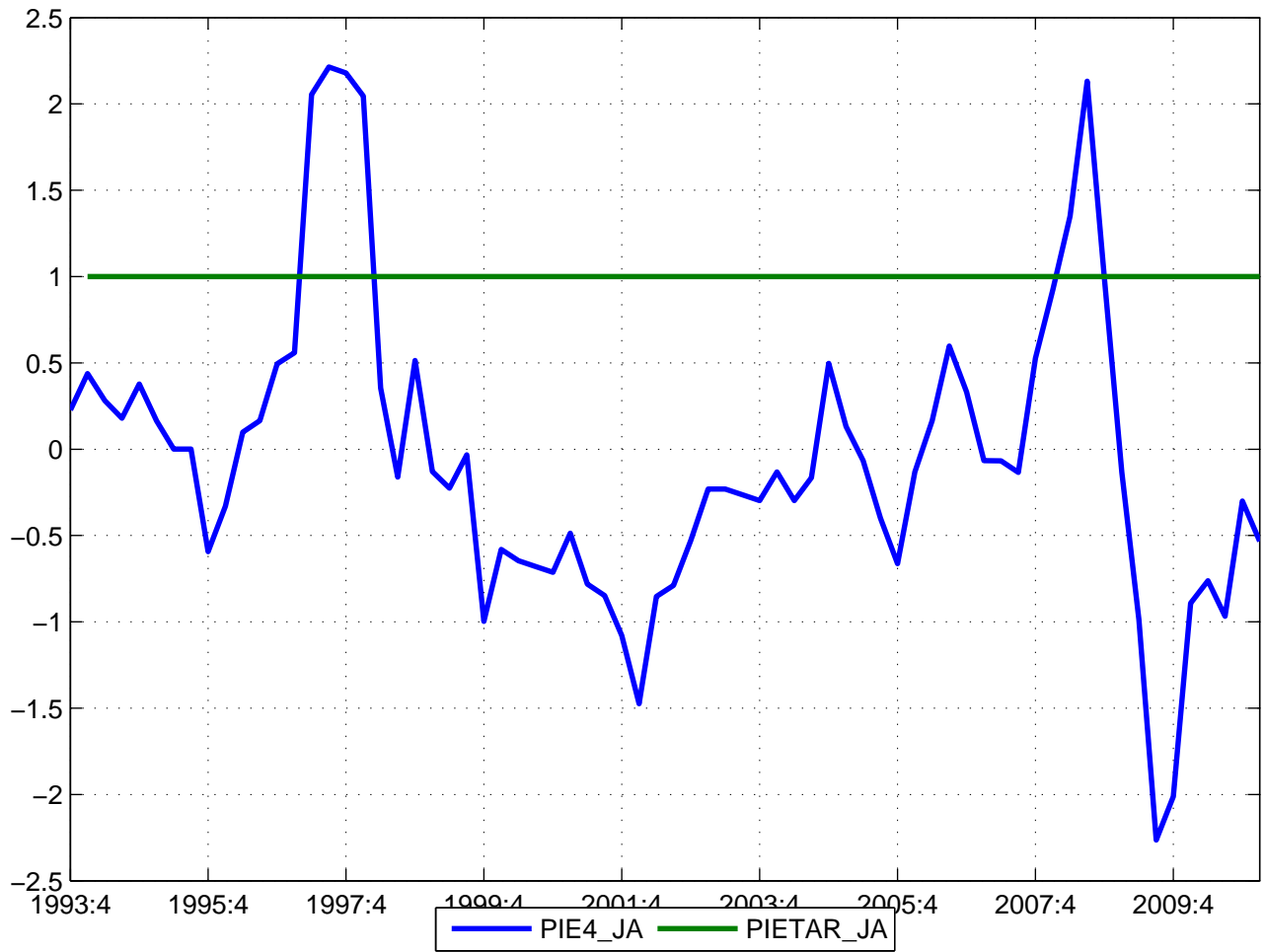


Figure 49: Inflation and Target JA

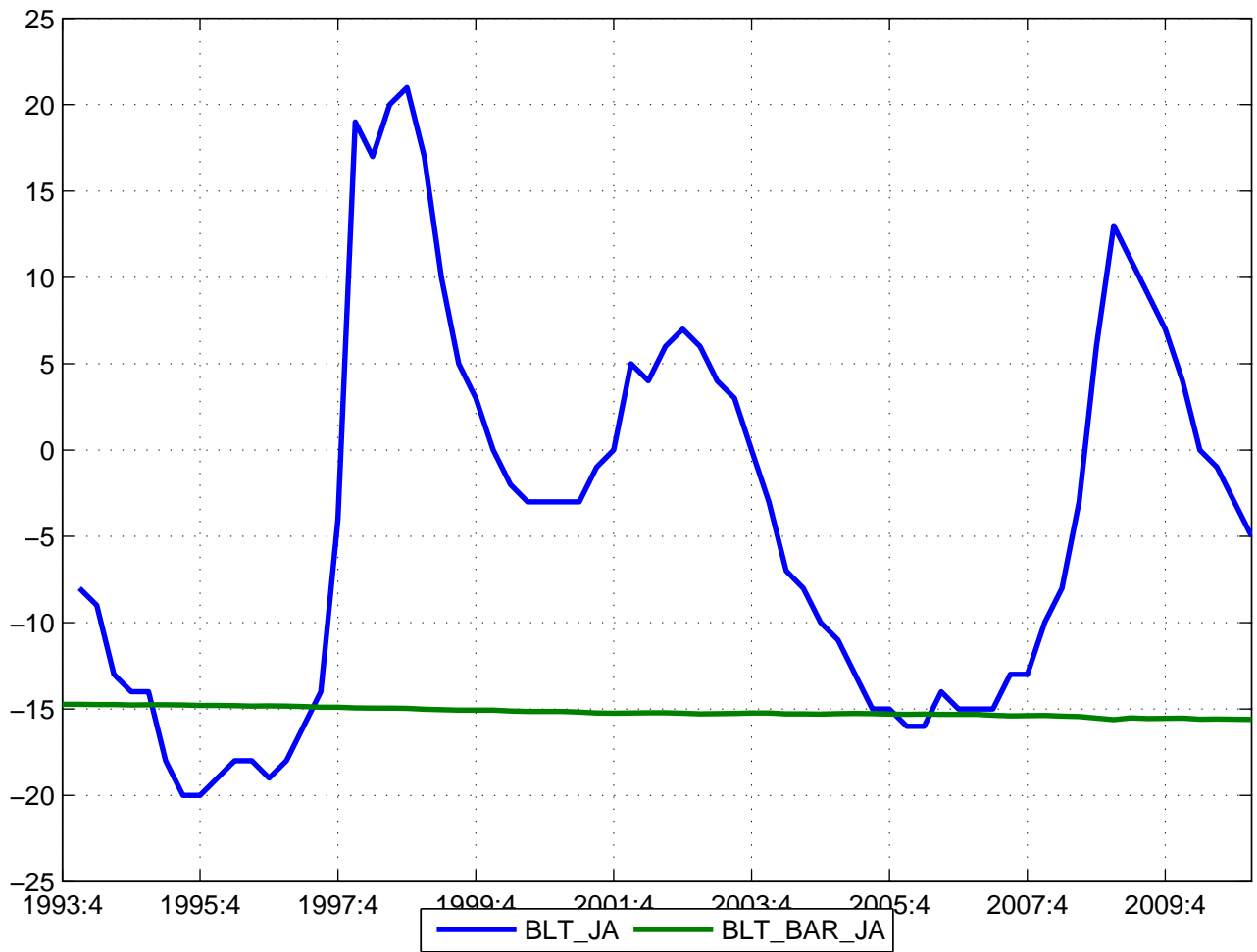


Figure 50: BLT_JA

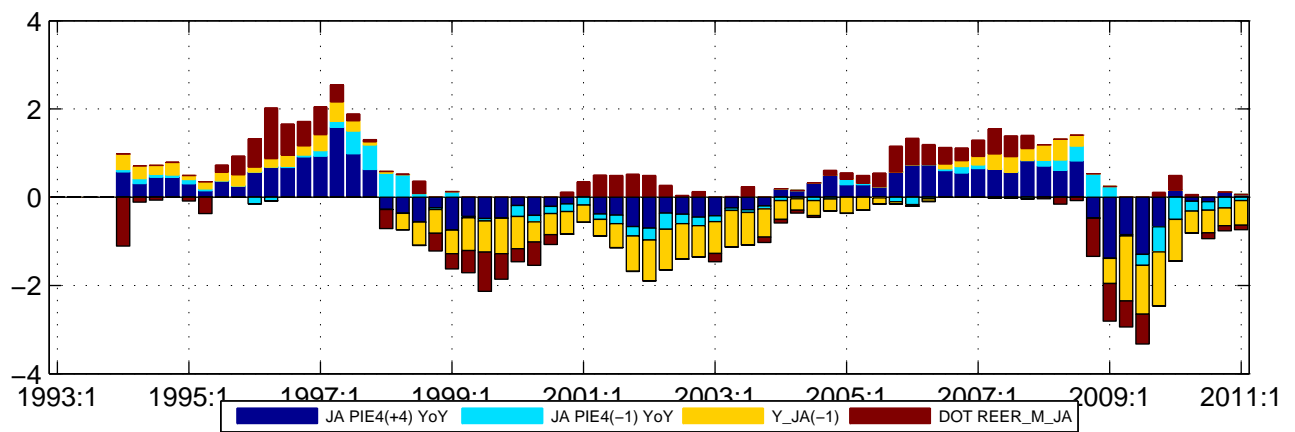
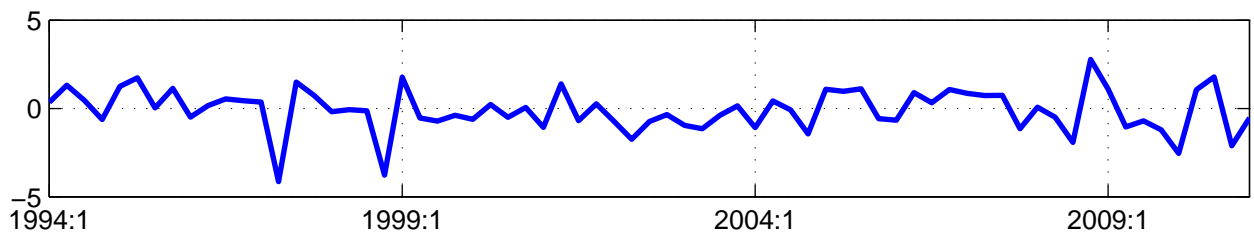
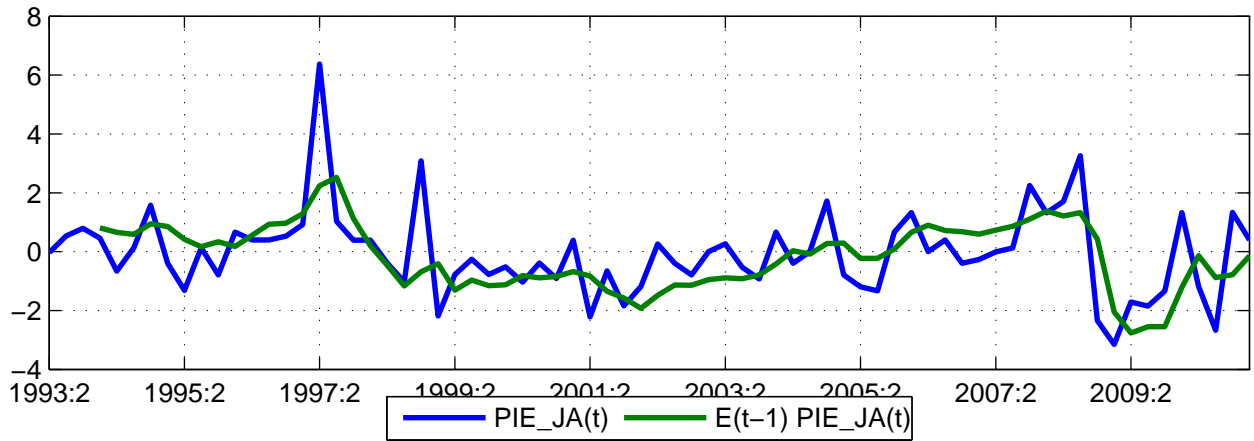


Figure 51: PIE_JA_fit

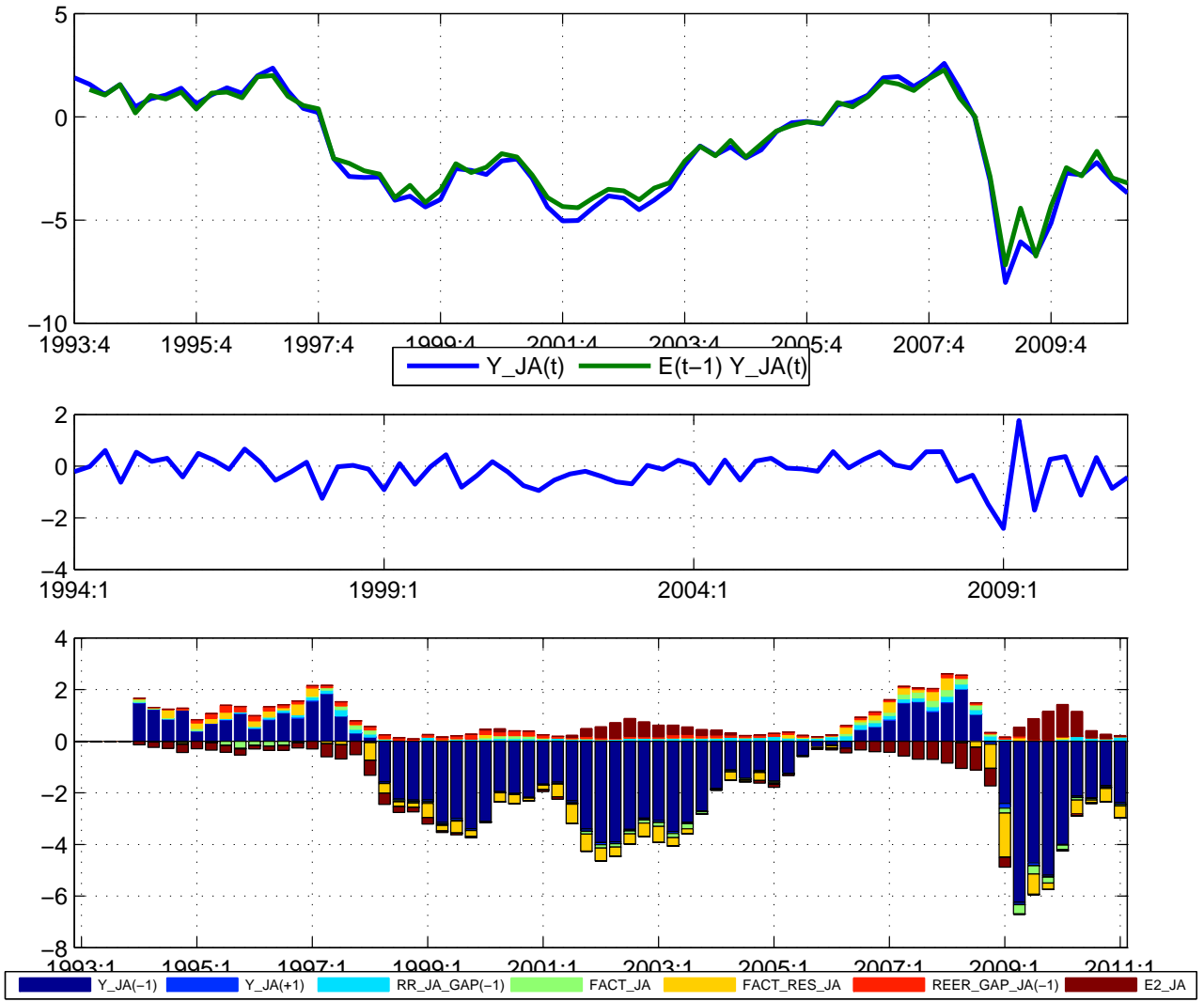


Figure 52: Y_JA_fit

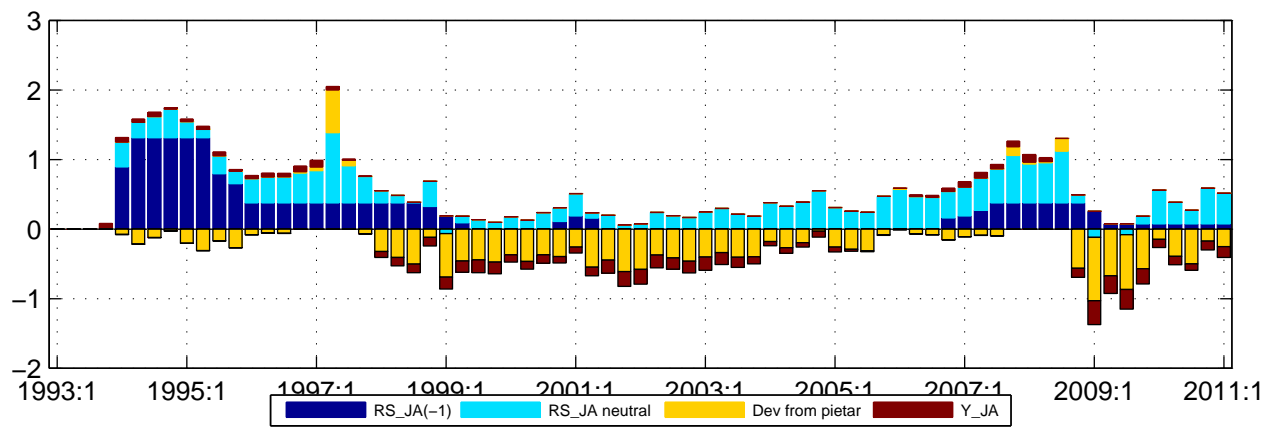
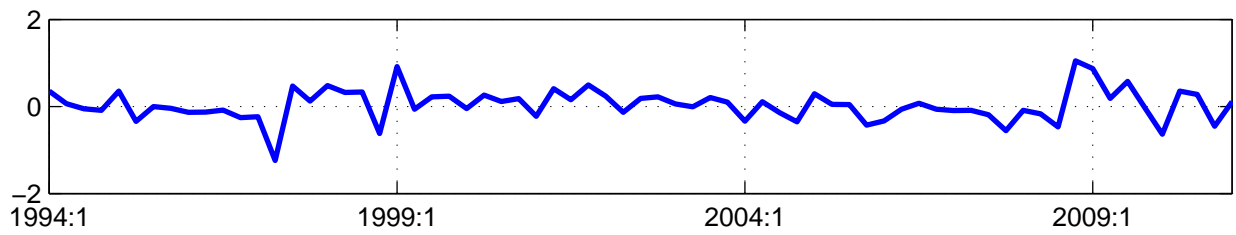
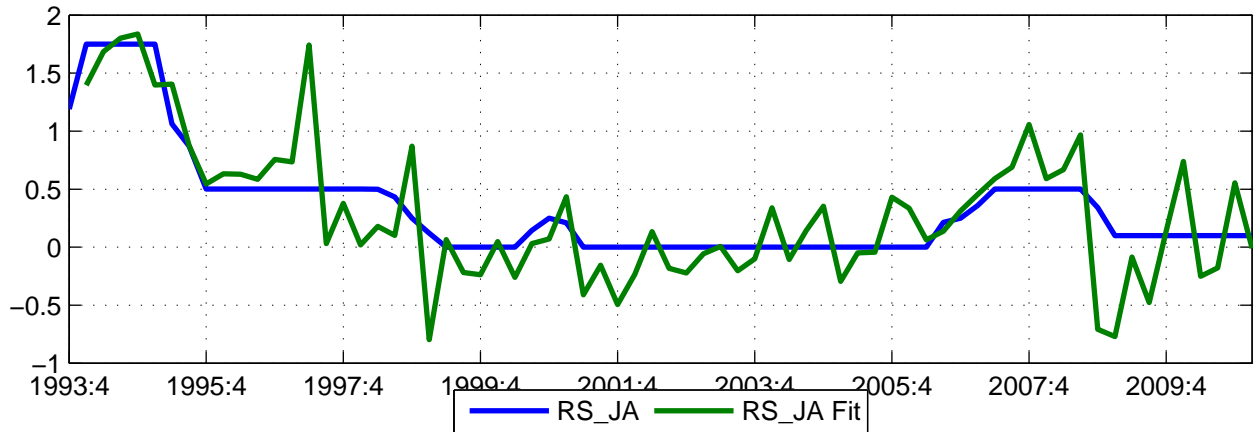


Figure 53: RS_JA_fit

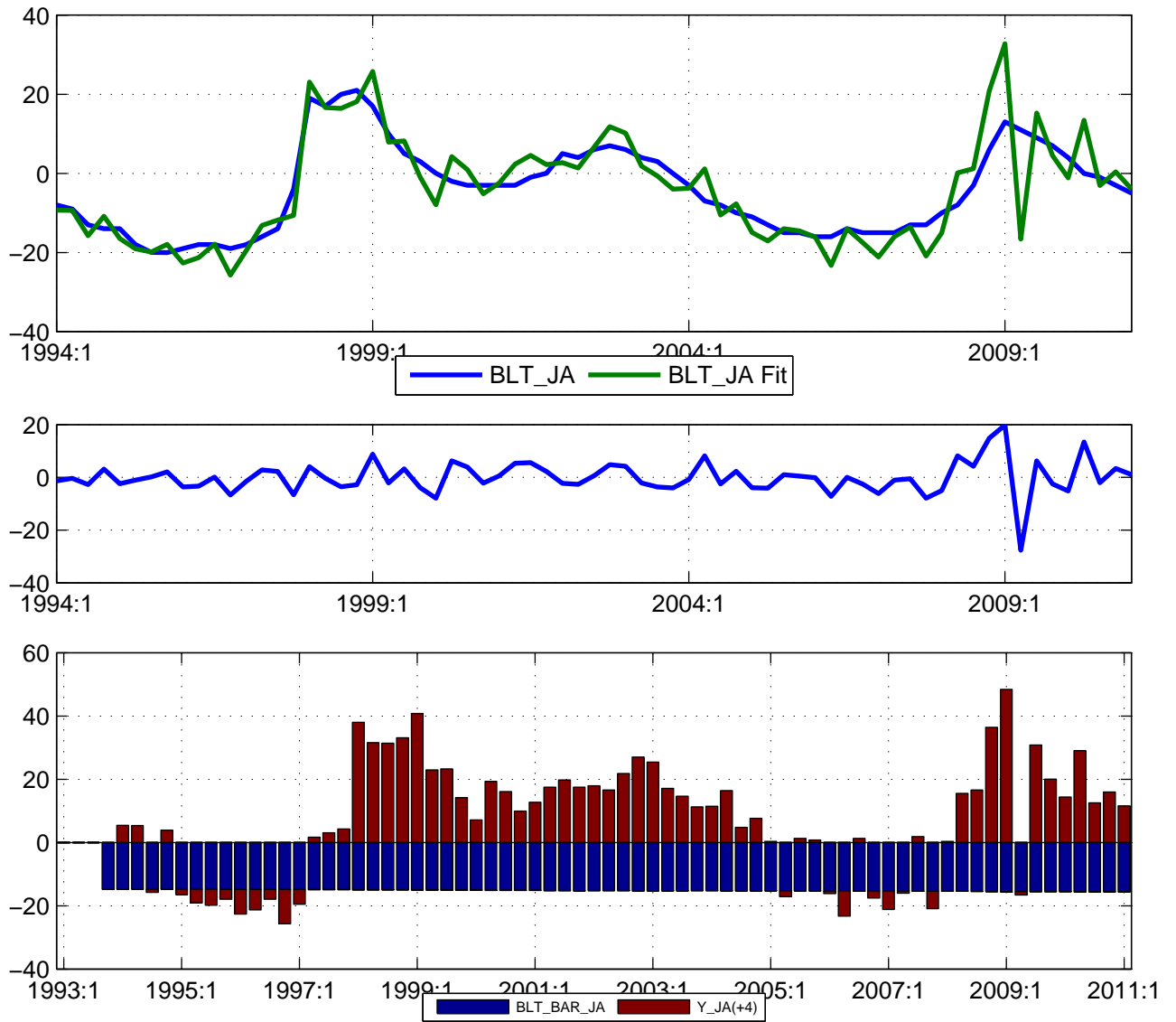


Figure 54: BLT_JA_fit

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File for TP10_JA_fit not found

File for US 10-year Rate and Term Premium not found

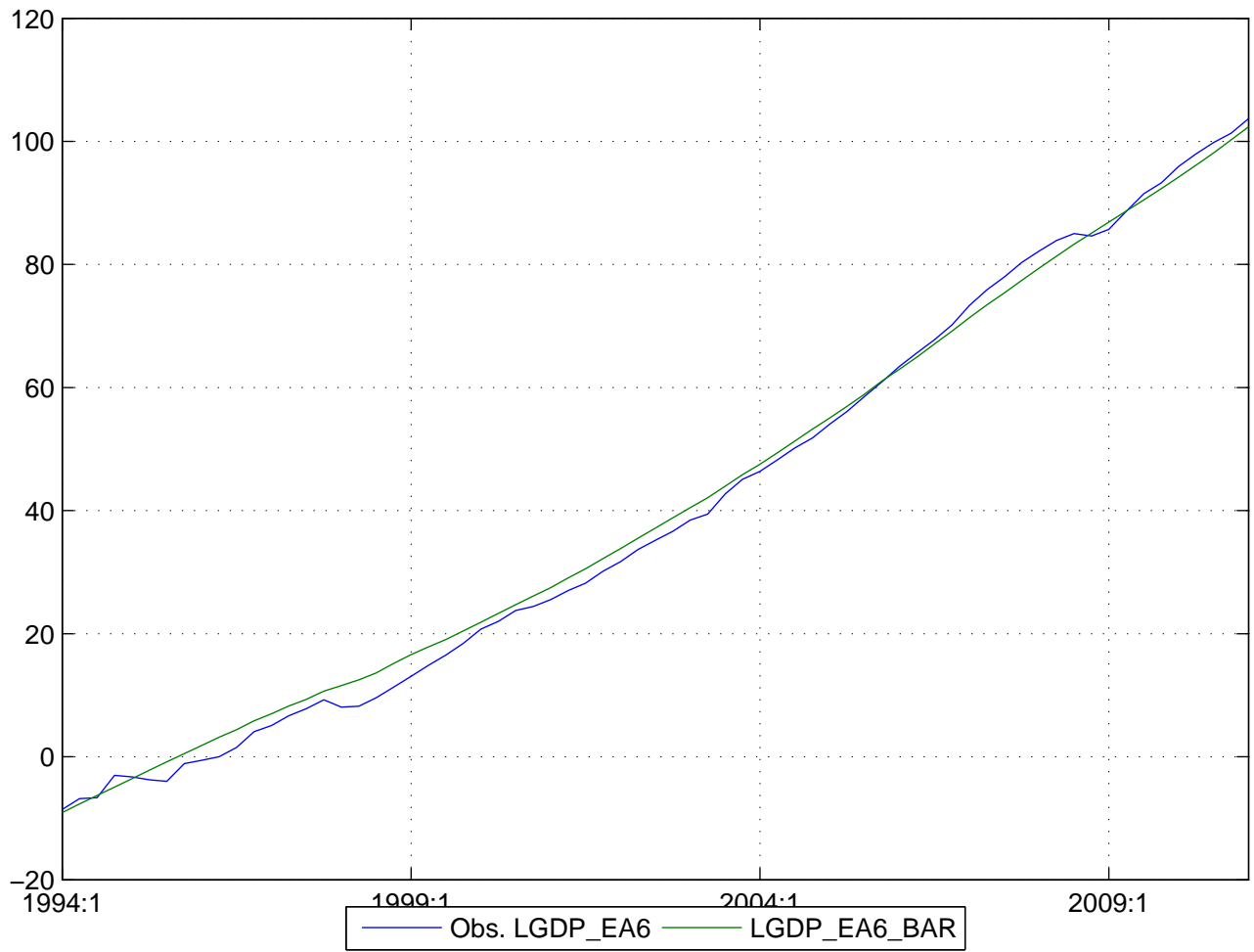


Figure 55: EA GDP level



Figure 56: EA GDP growth

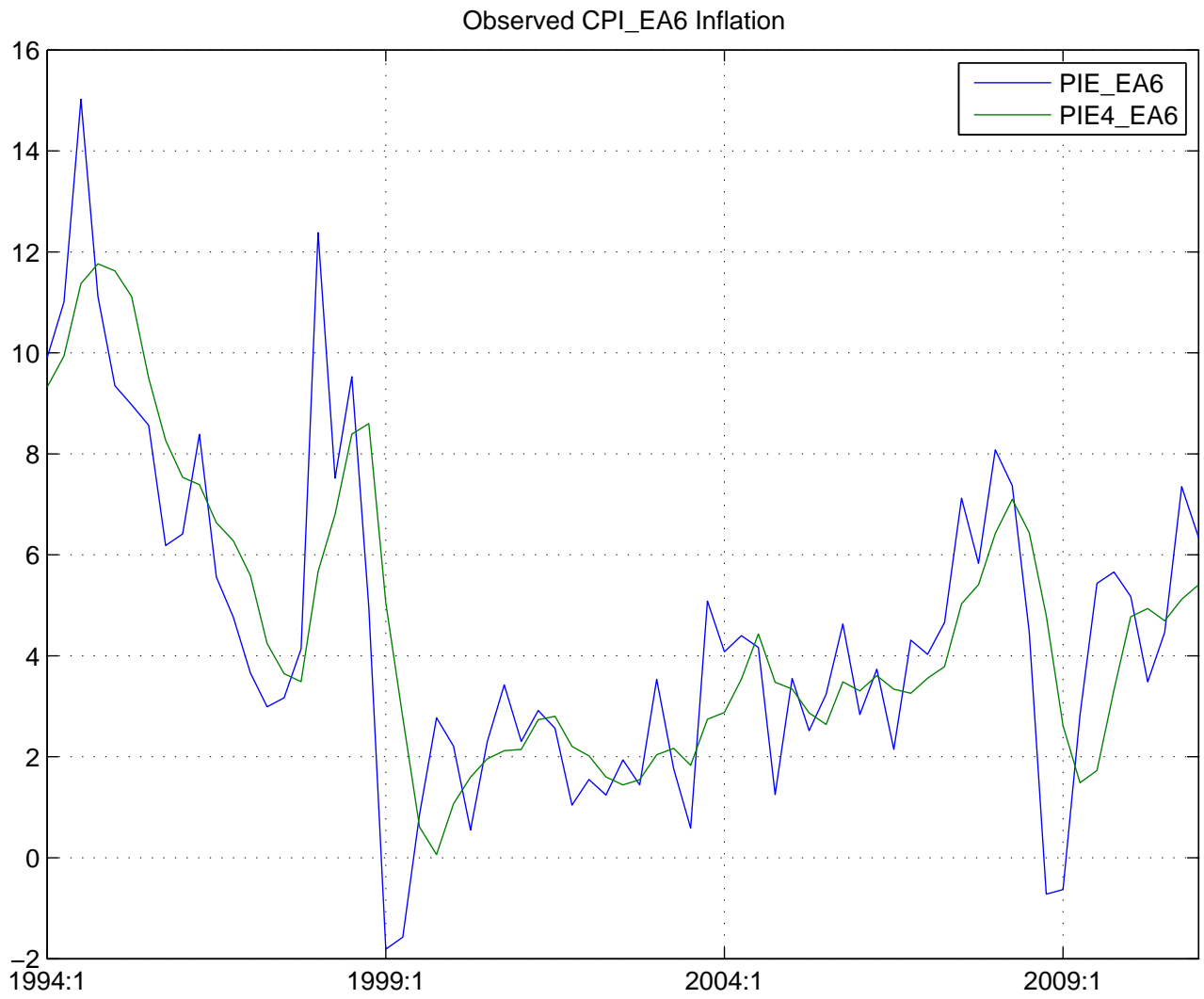


Figure 57: PIE_EA

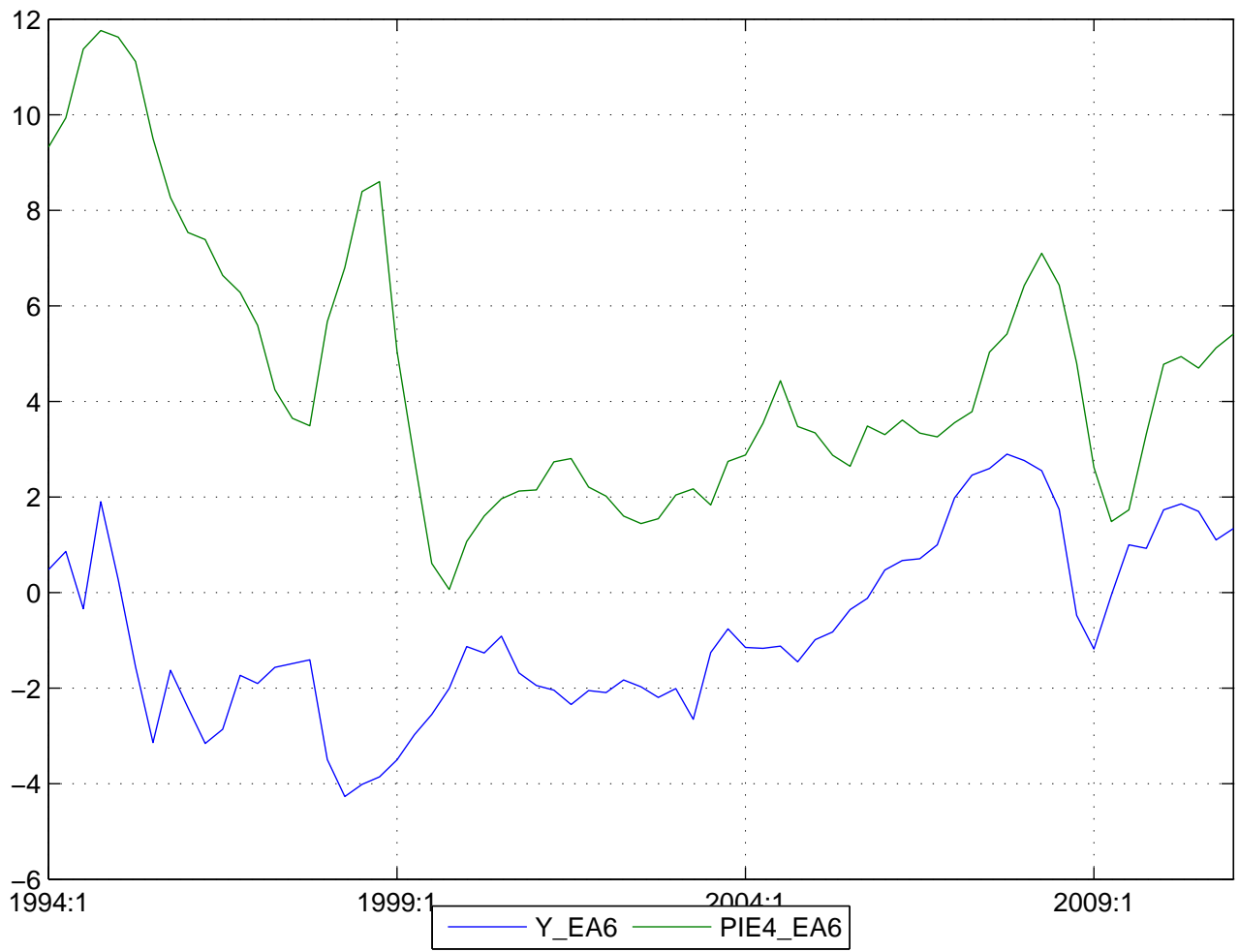


Figure 58: EA_GAP



Figure 59: REER_T_EA

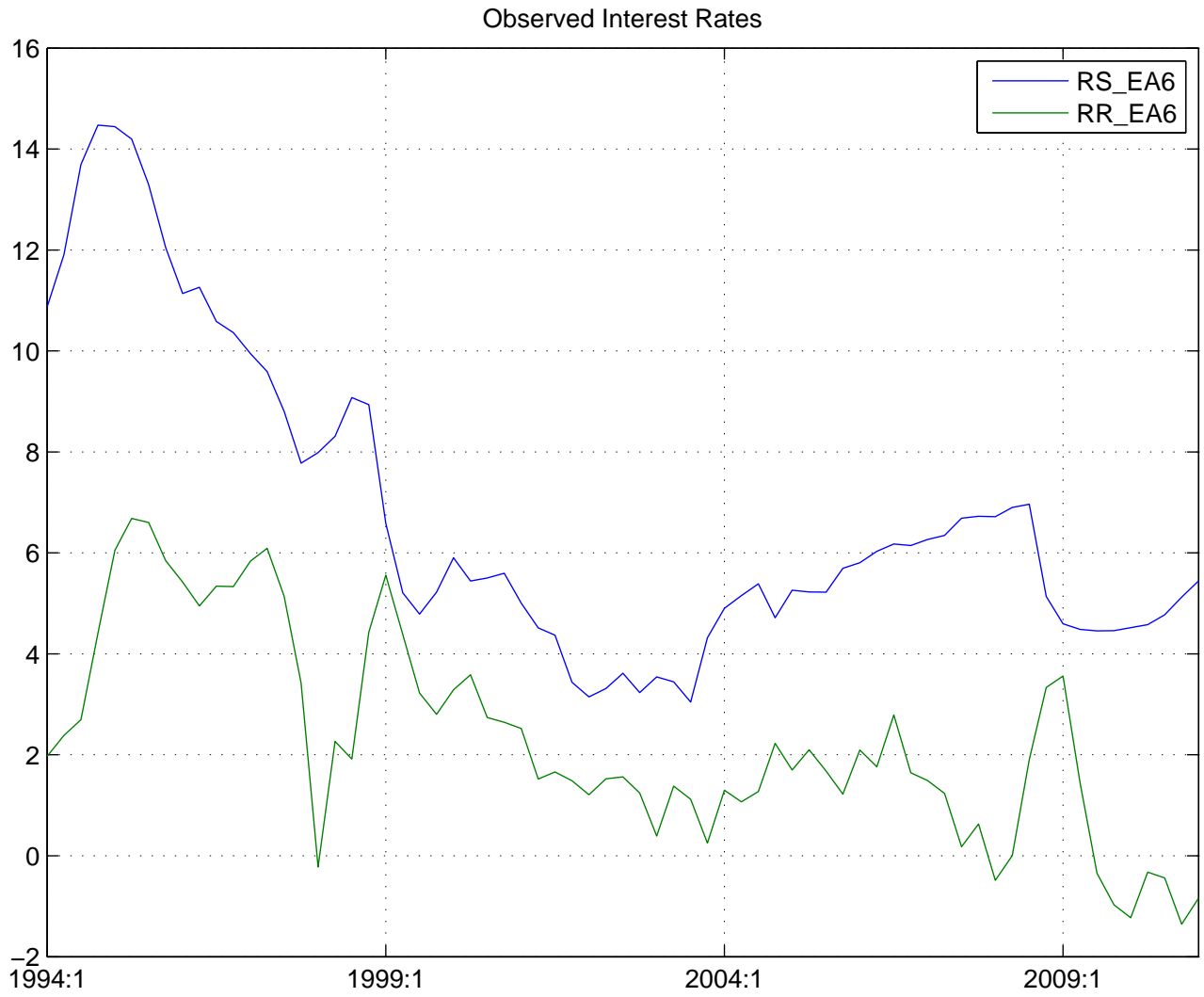


Figure 60: RR_EA

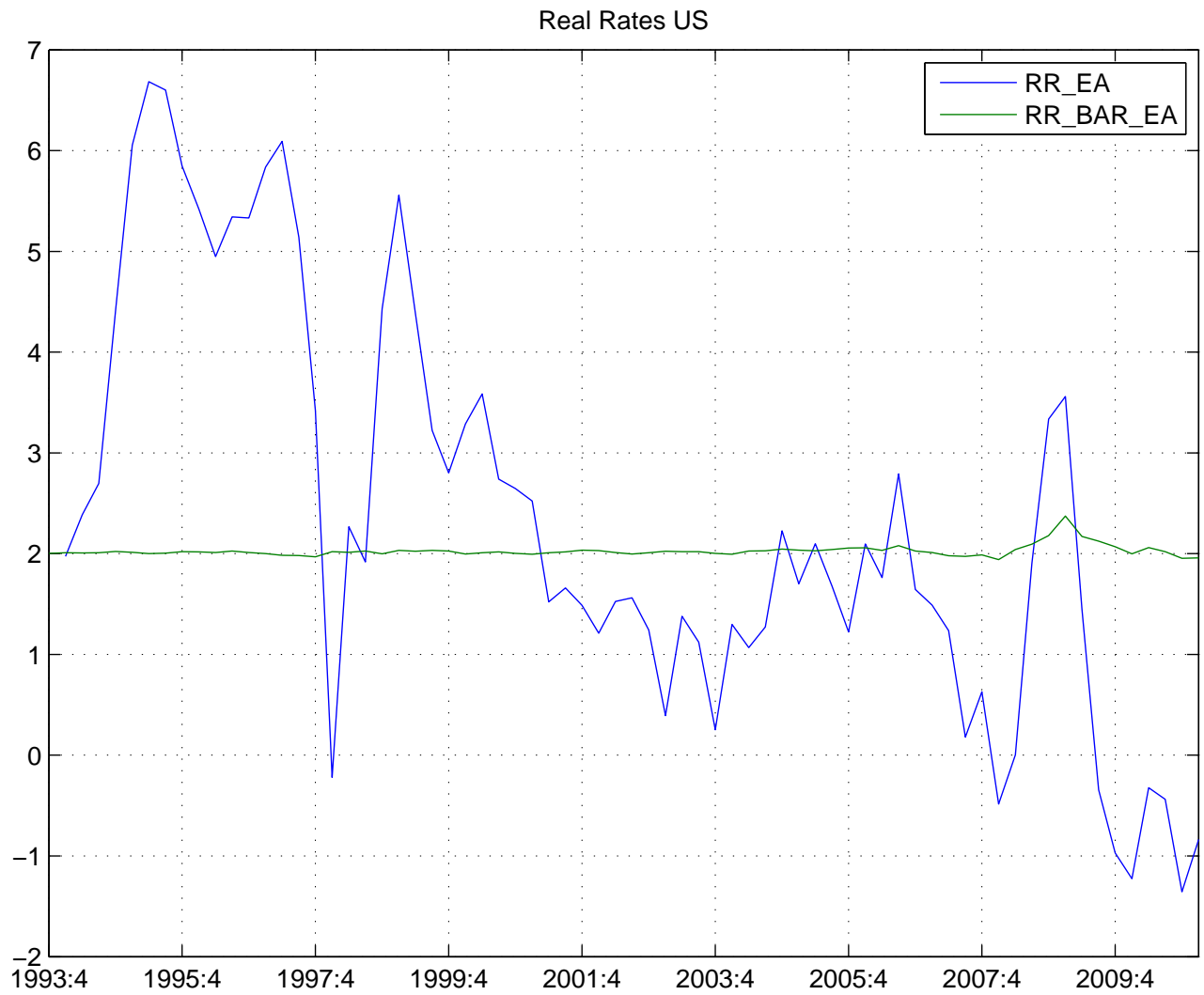


Figure 61: Real Rate And Equilibrium EA

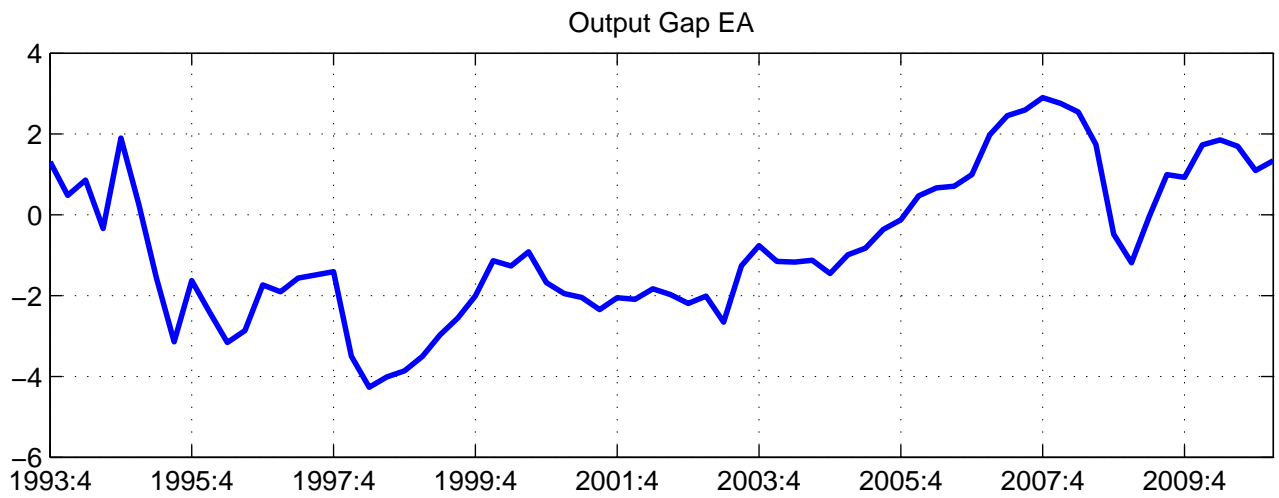
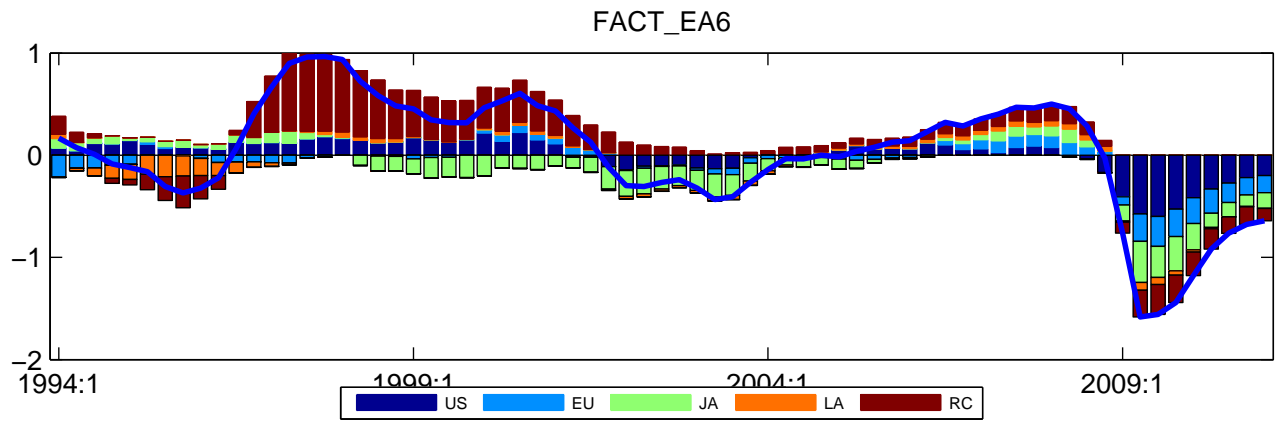


Figure 62: FACT_EA

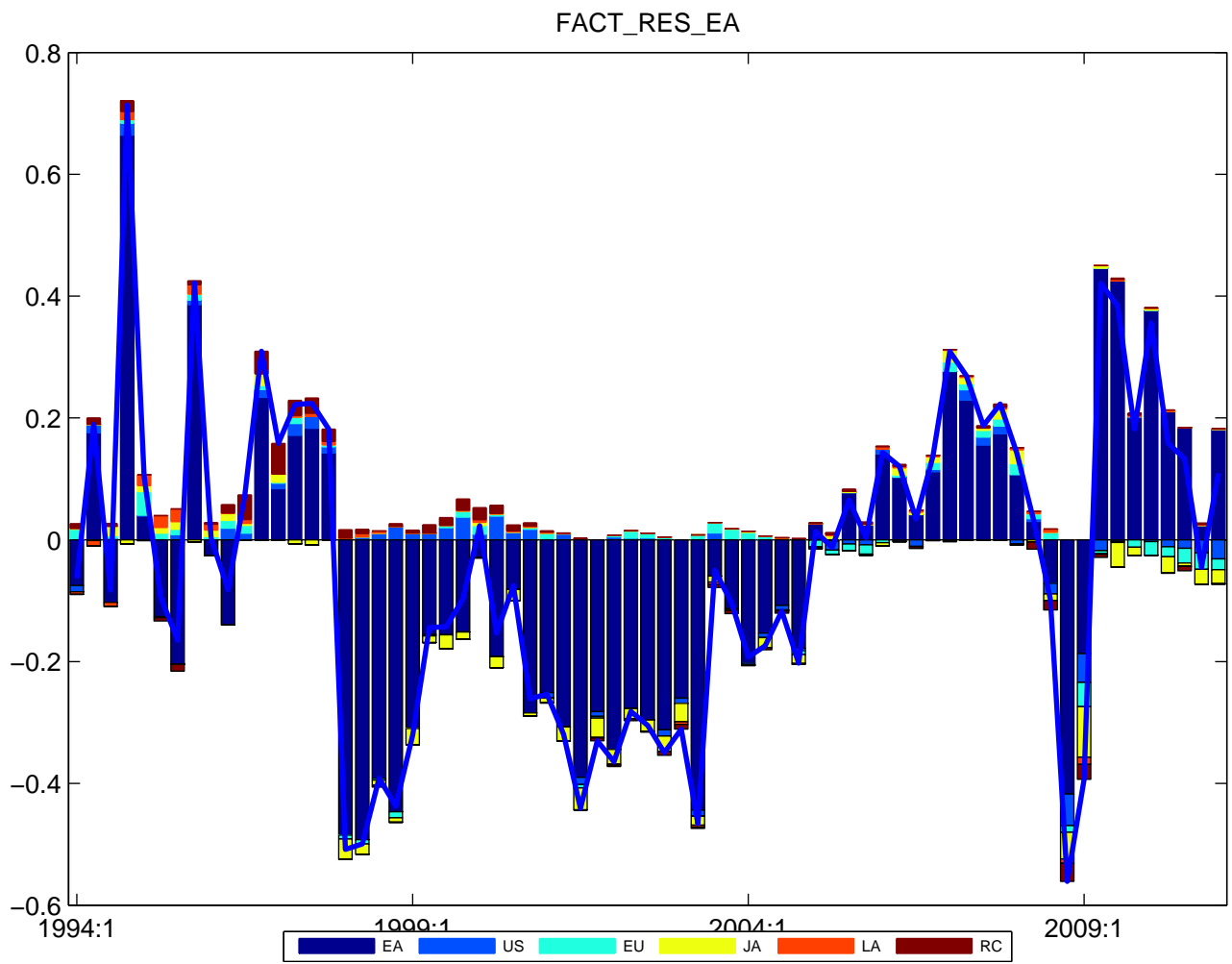


Figure 63: FACT_RES_EA

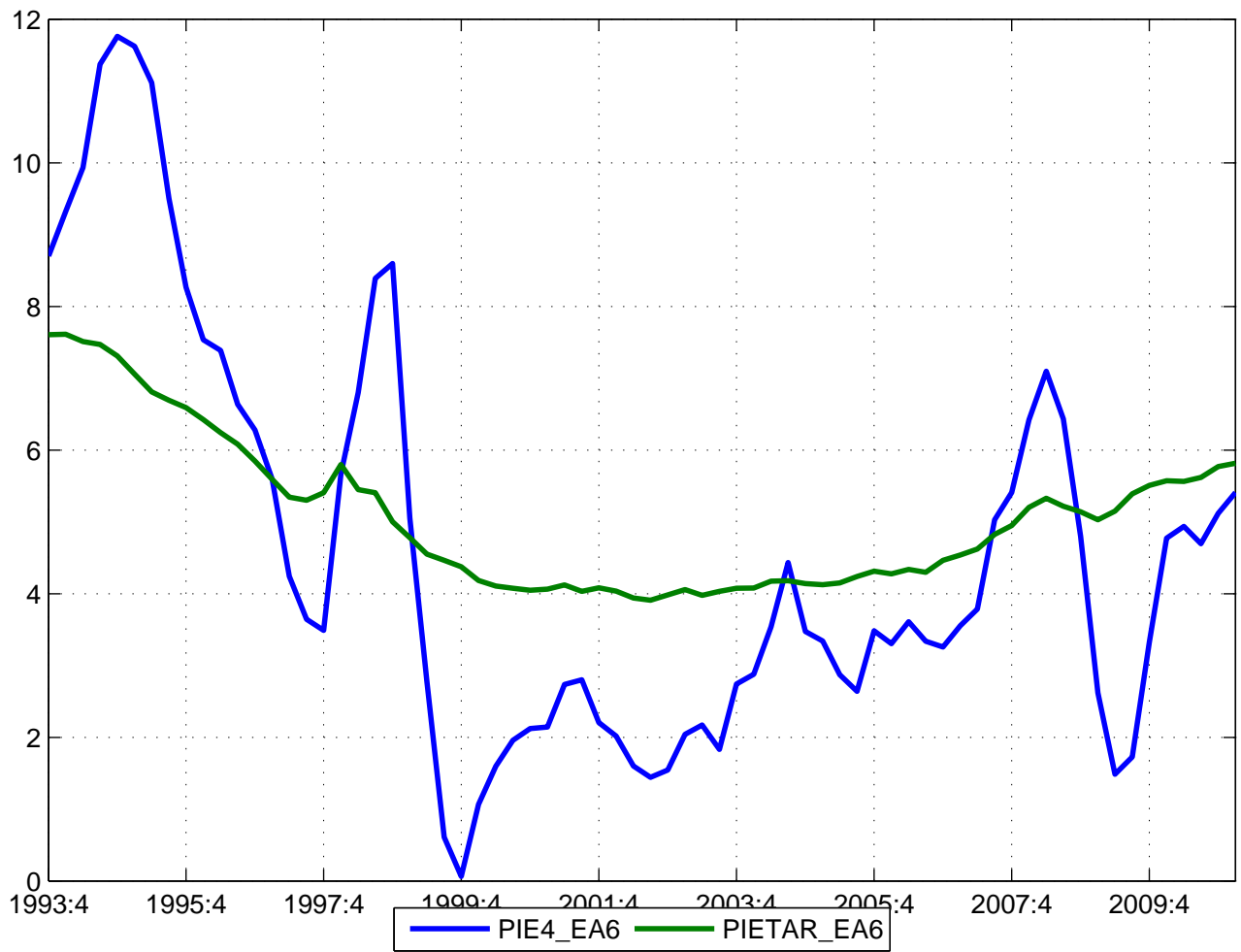


Figure 64: Inflation and Target EA

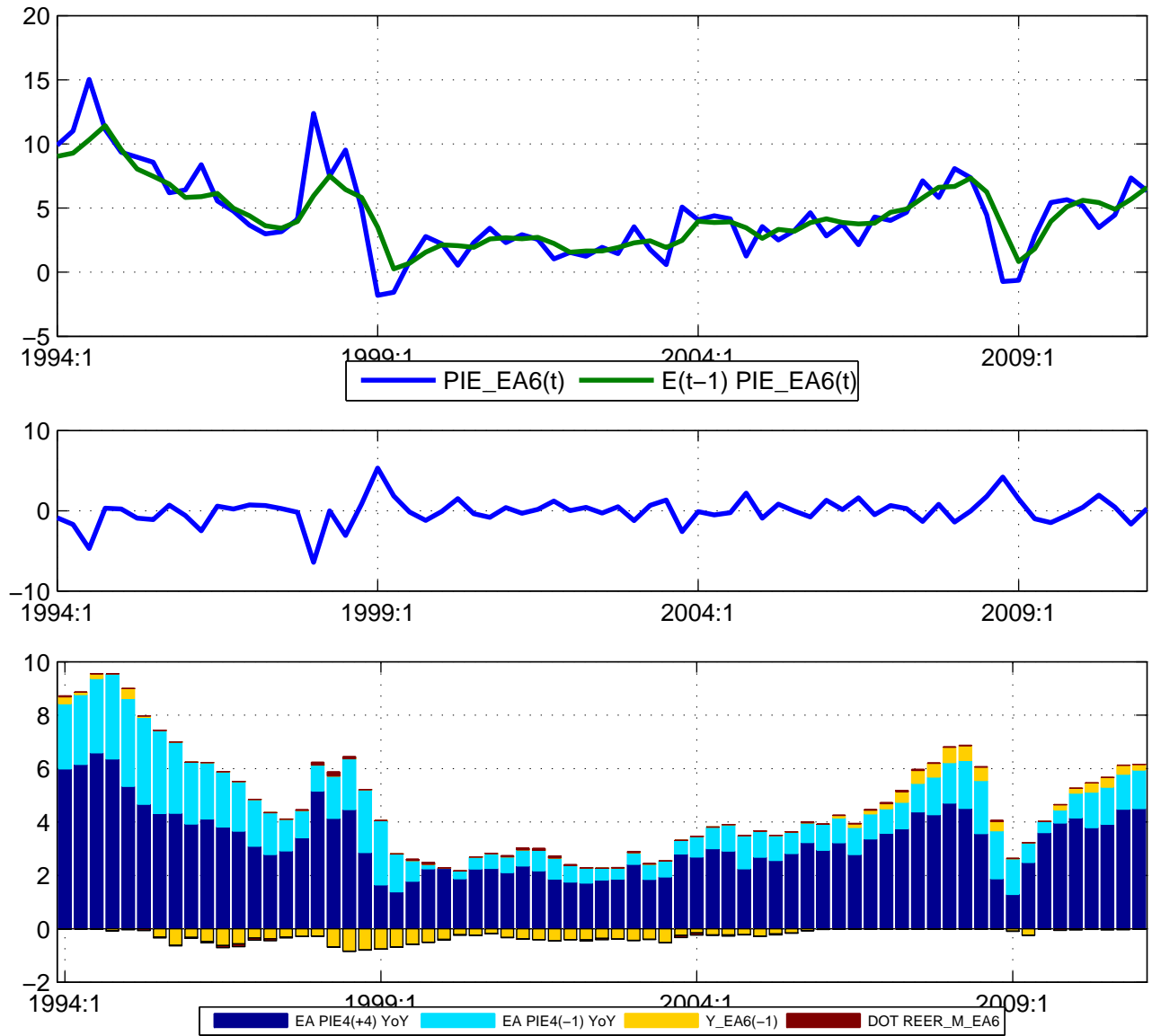


Figure 65: PIE_EA_fit

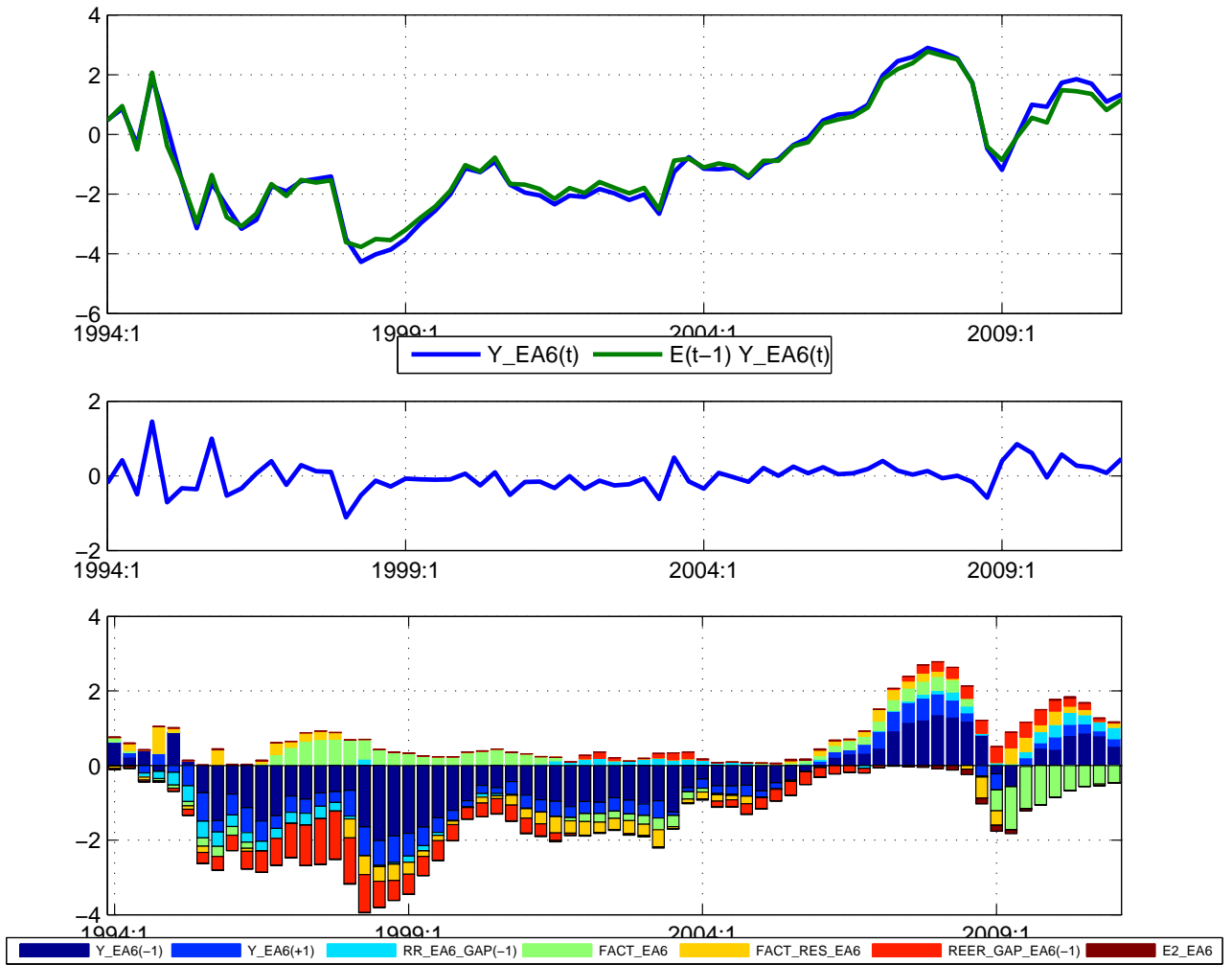


Figure 66: Y_{EA_fit}

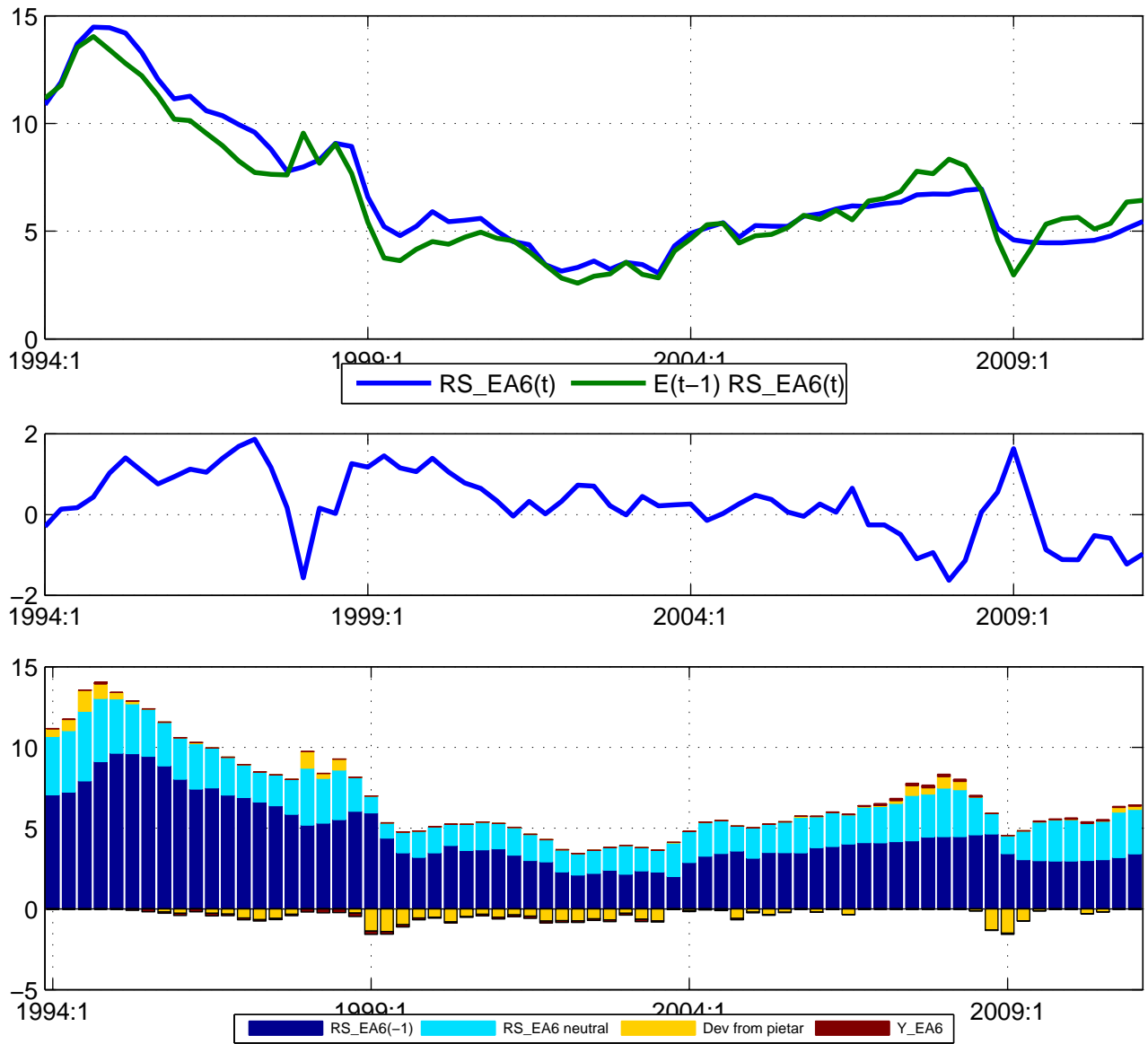


Figure 67: RS_EA_fit

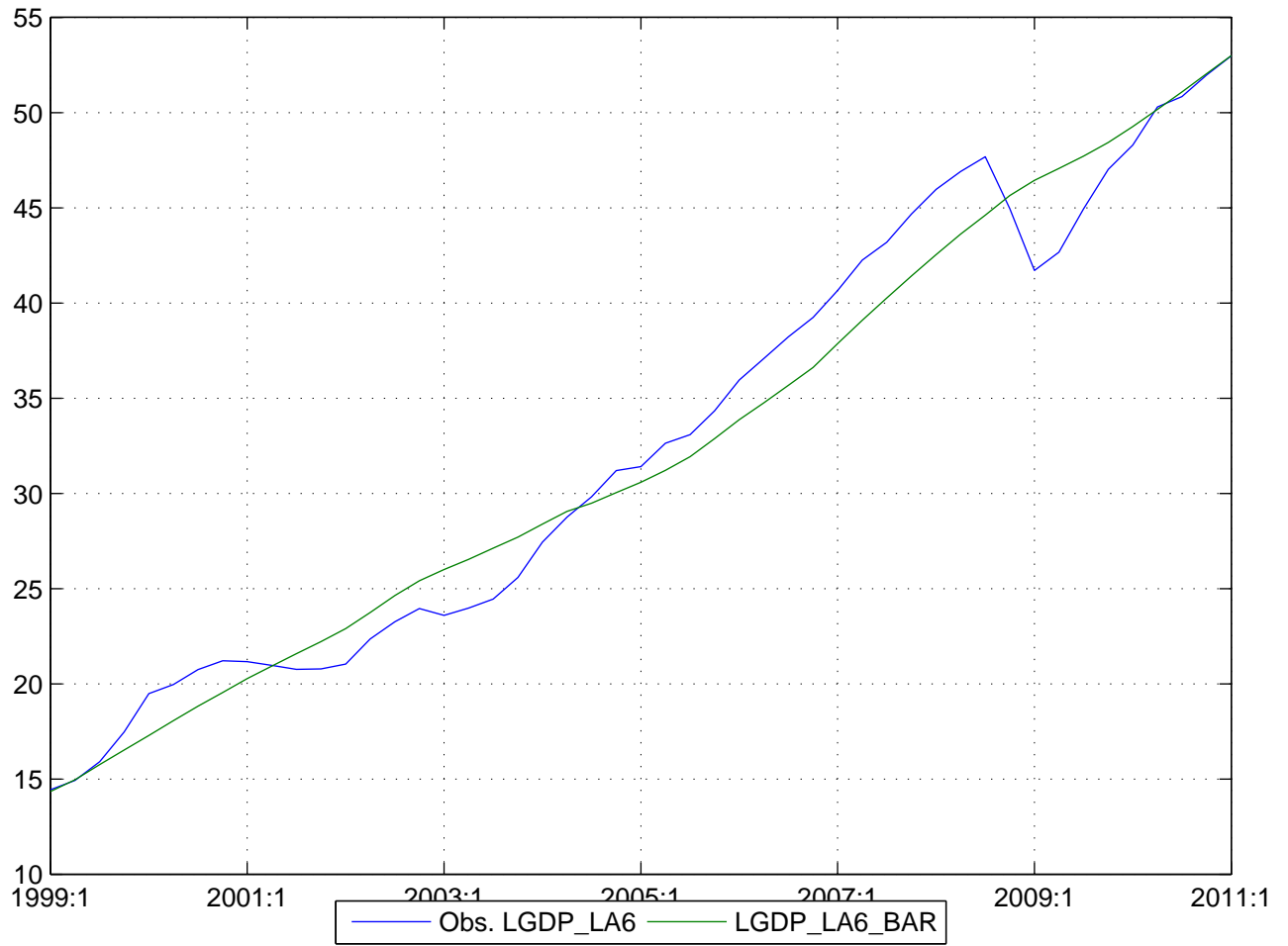


Figure 68: LA GDP level



Figure 69: LA GDP growth

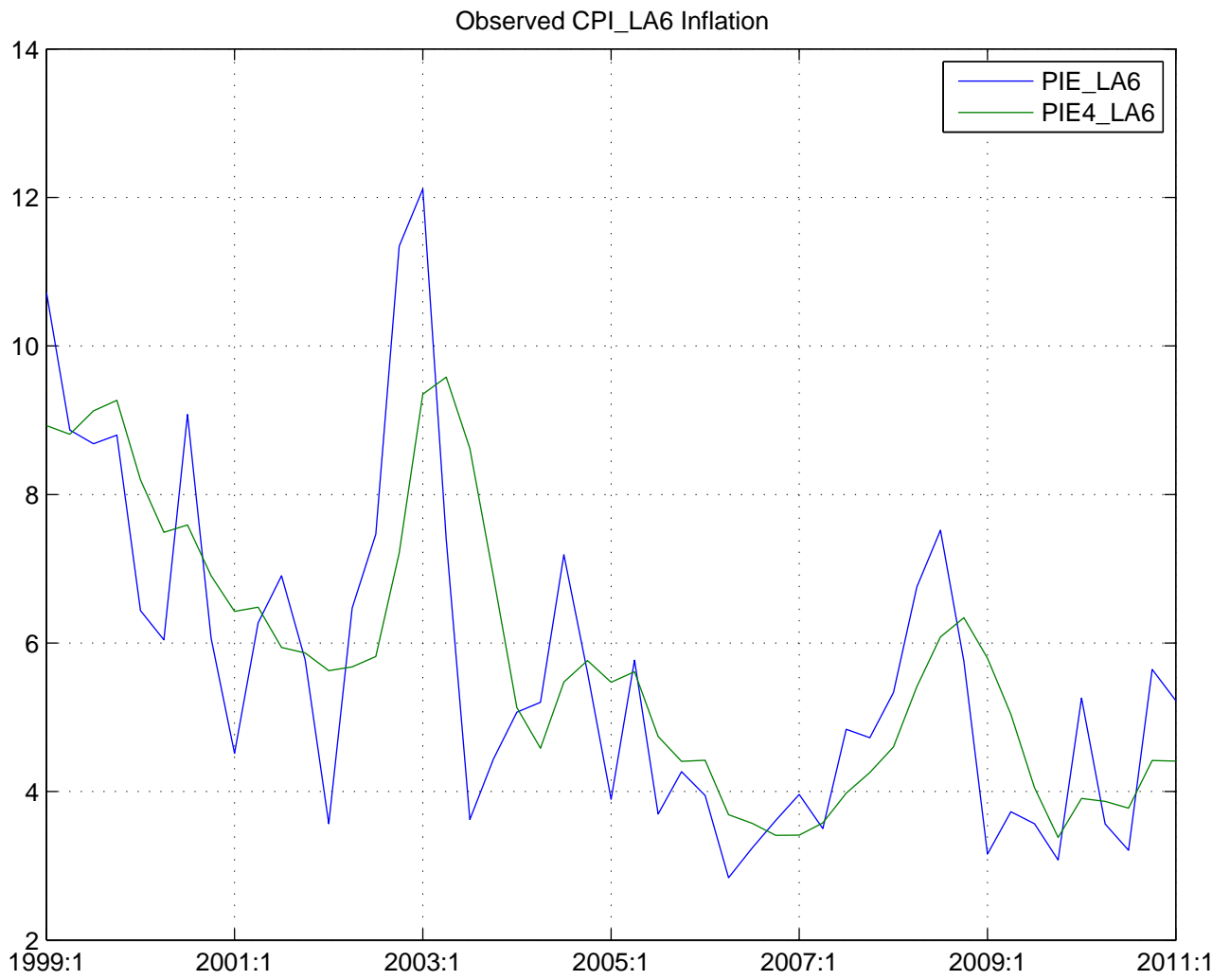


Figure 70: PIE_LA



Figure 71: LA_GAP

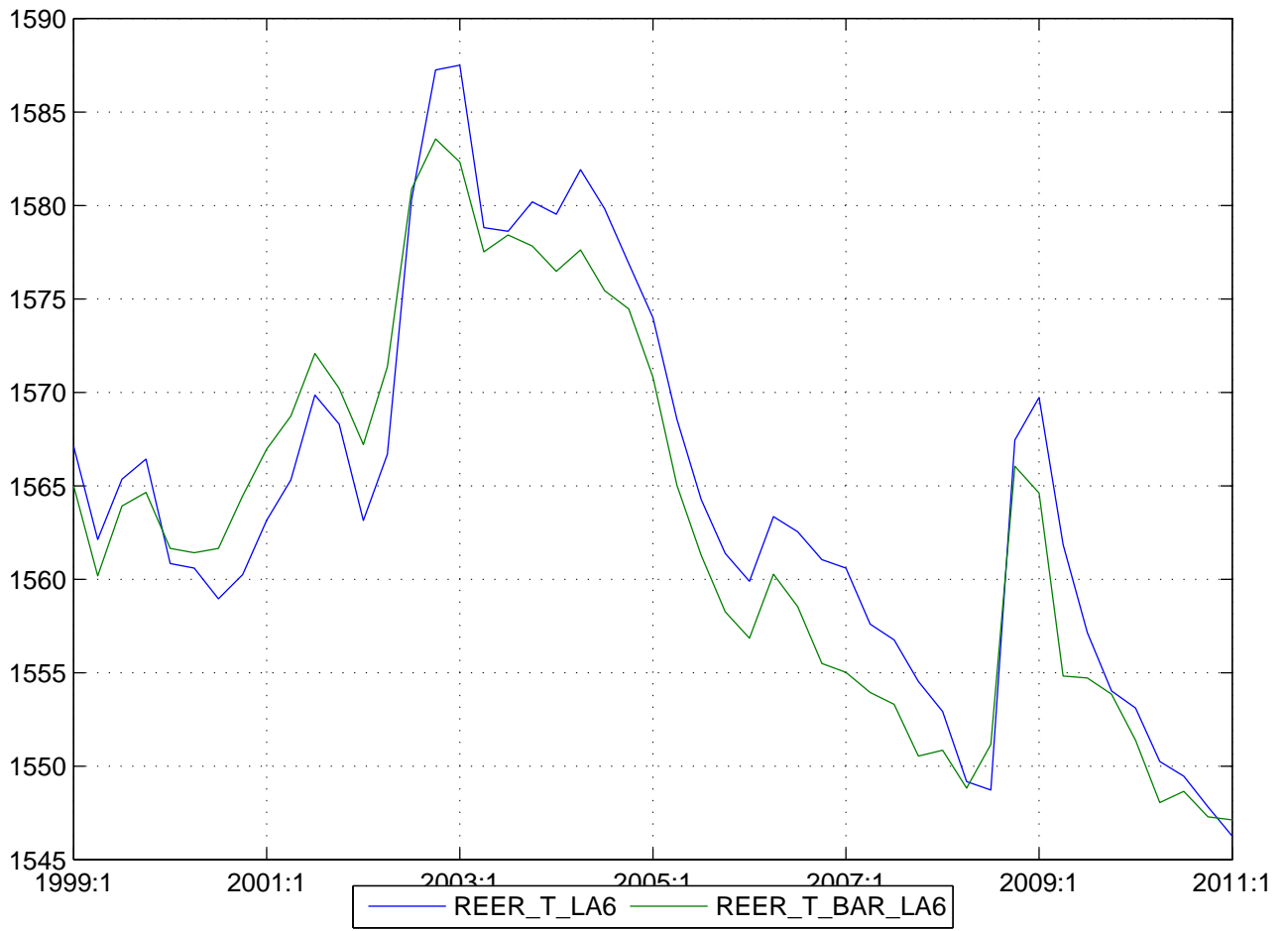


Figure 72: REER_T_LA

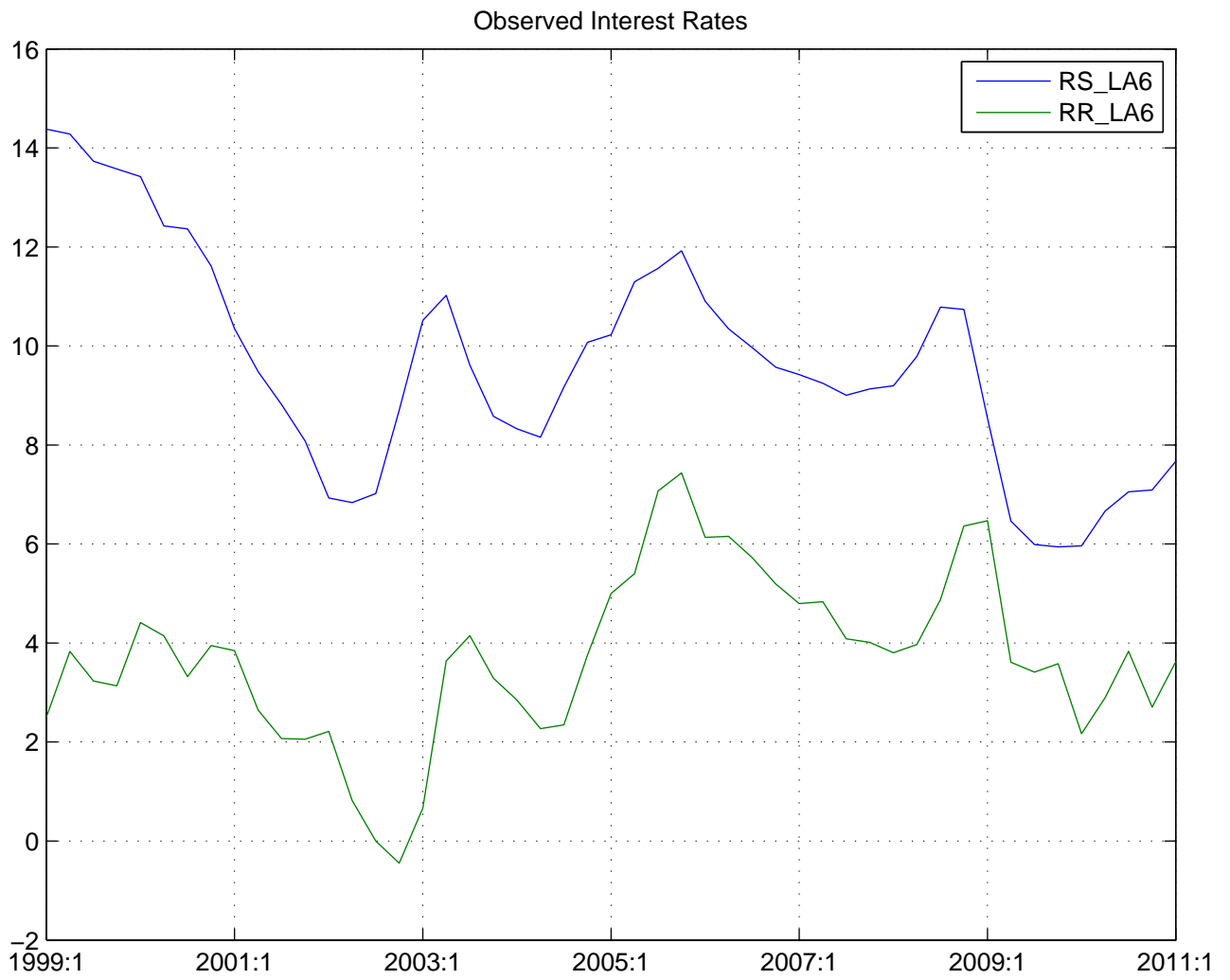


Figure 73: RR_LA

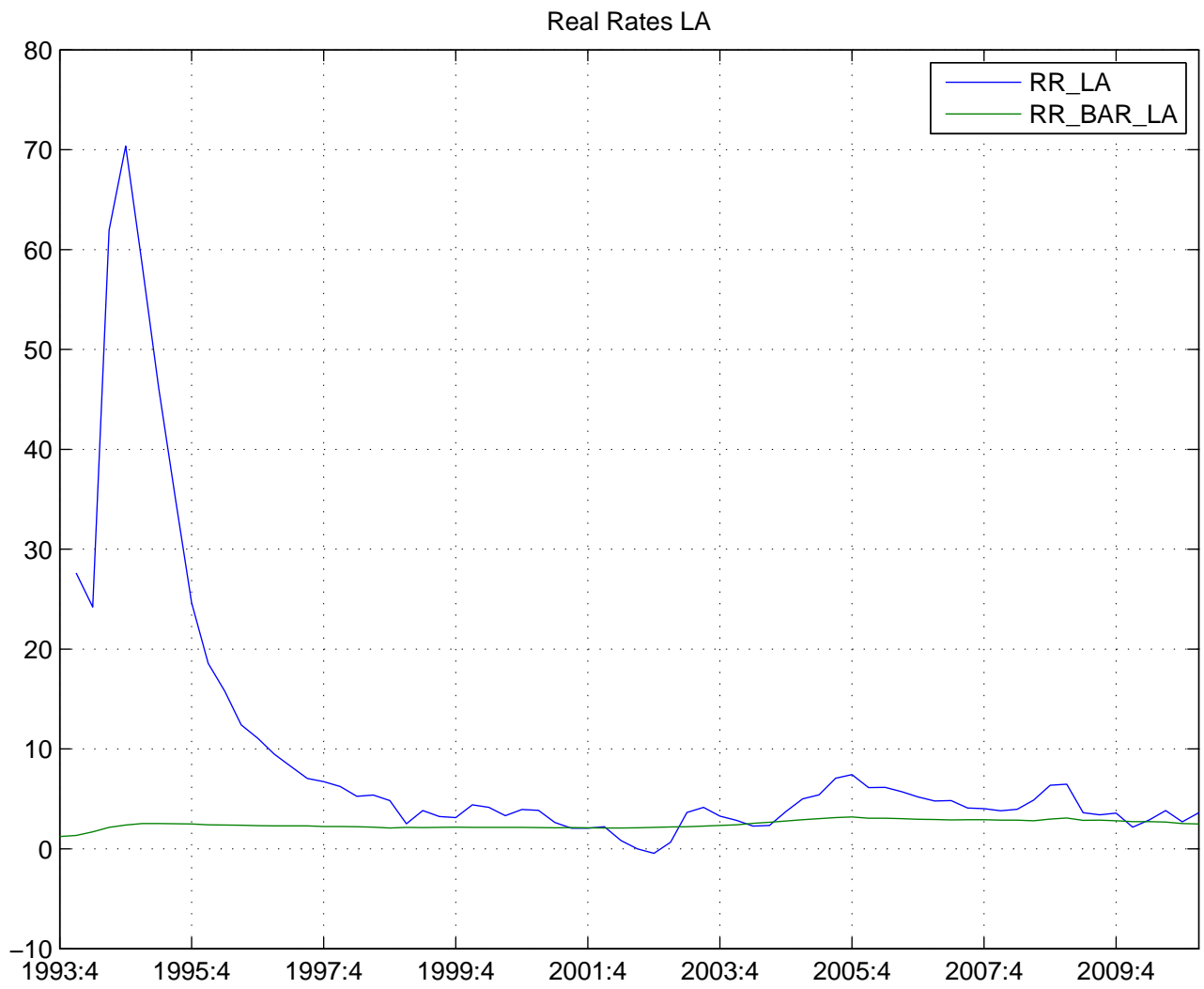


Figure 74: Real Rate And Equilibrium LA

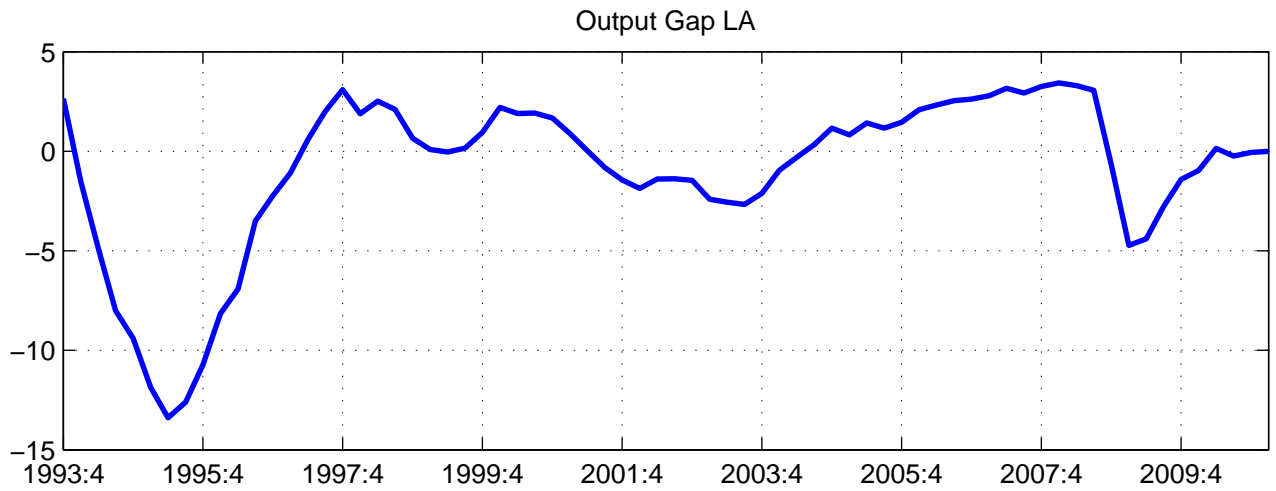
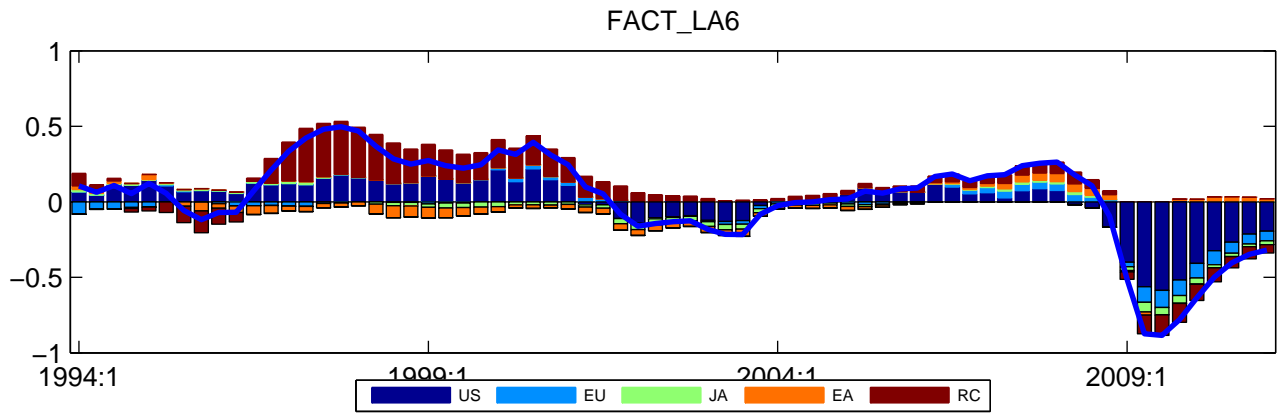


Figure 75: FACT_LA

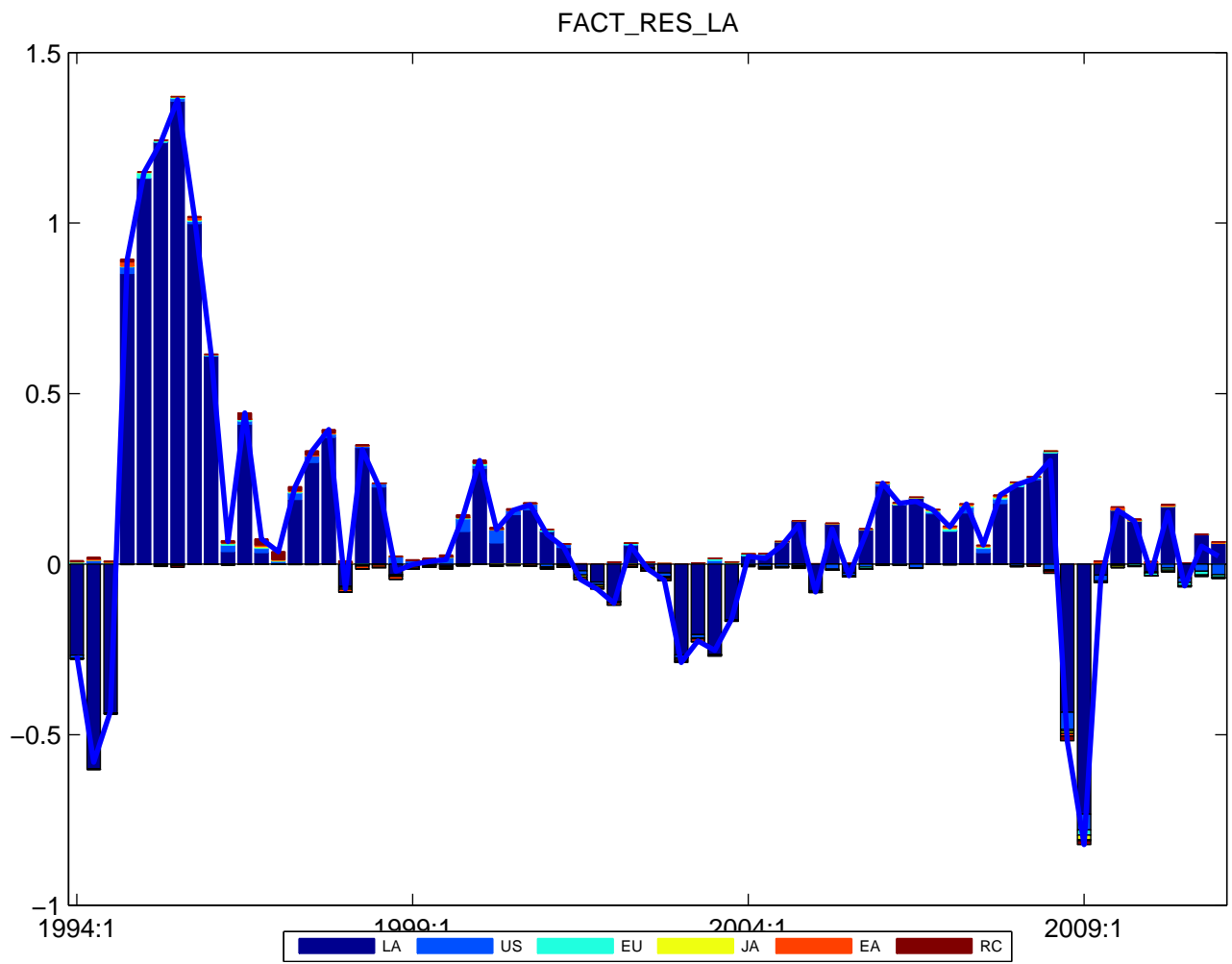


Figure 76: FACT_RES_LA

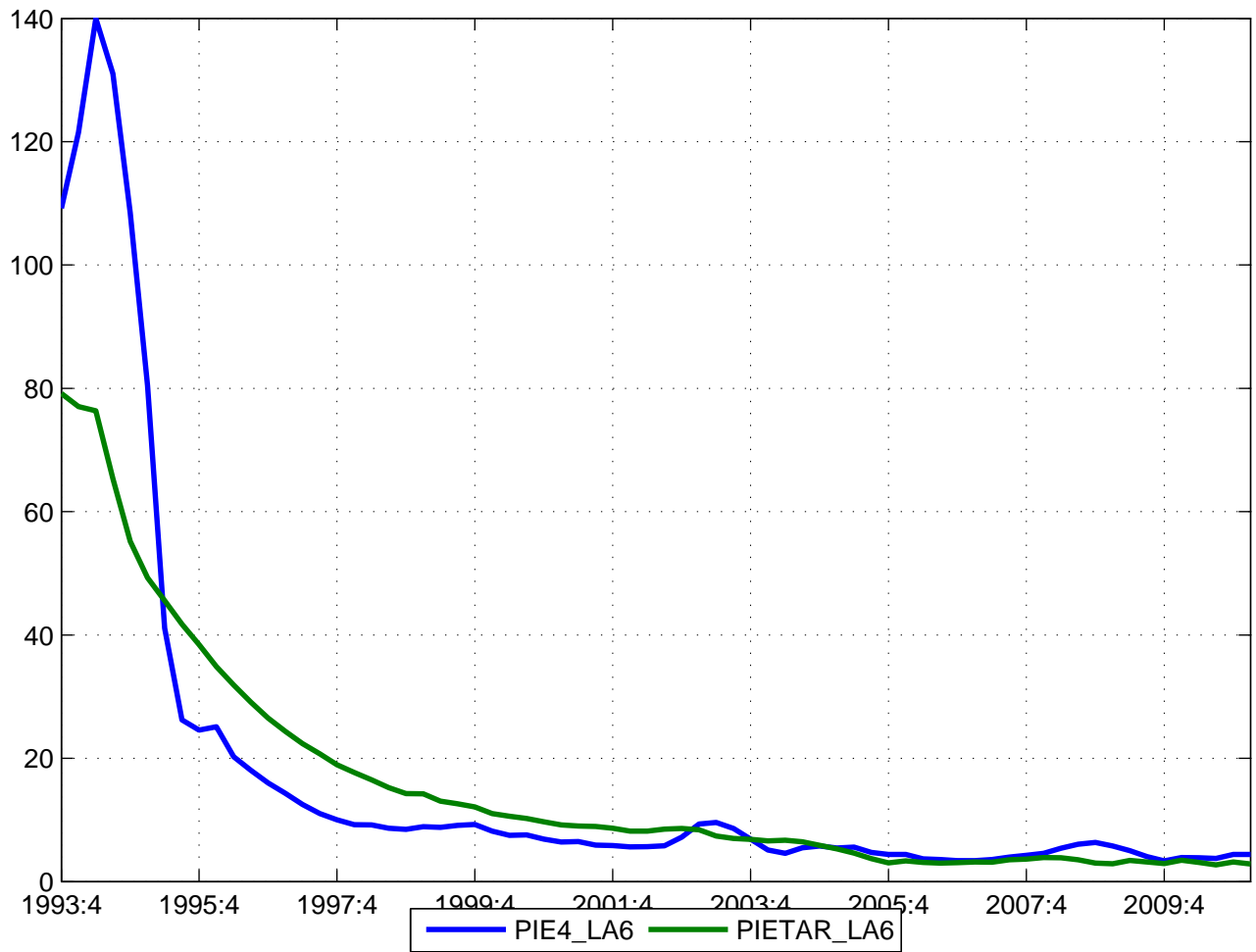


Figure 77: Inflation and Target LA

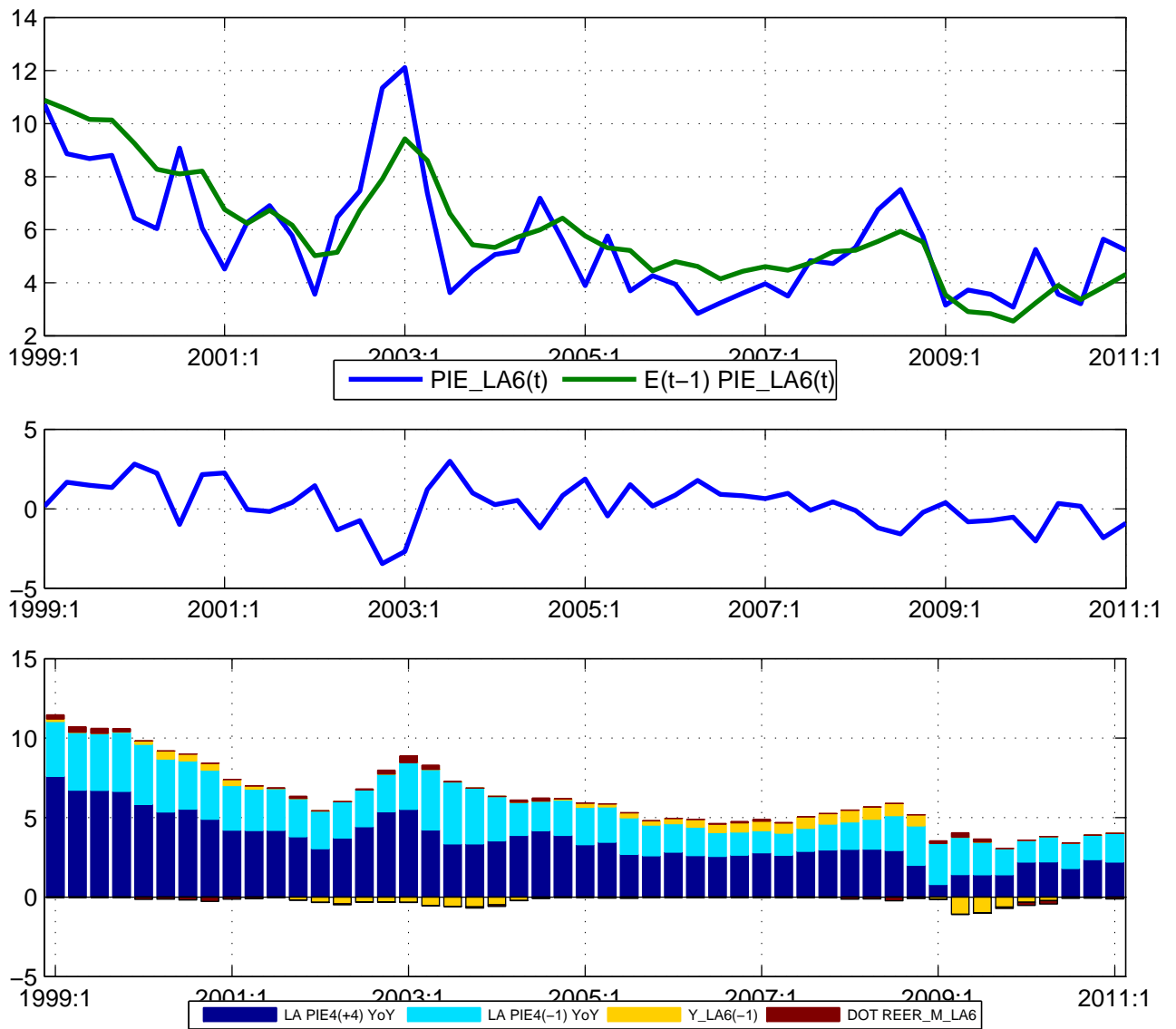


Figure 78: PIE_LA_fit

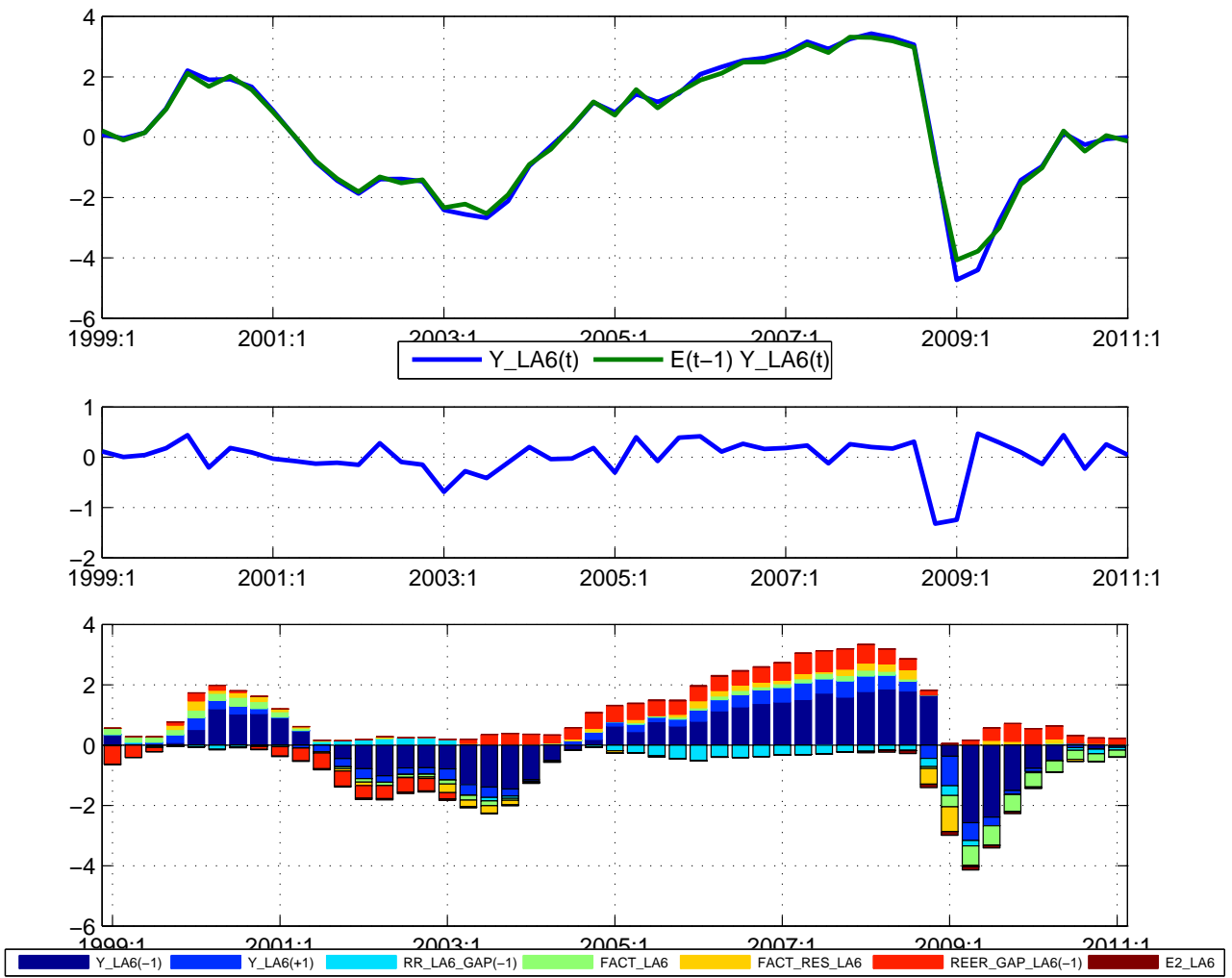


Figure 79: Y_LA_fit

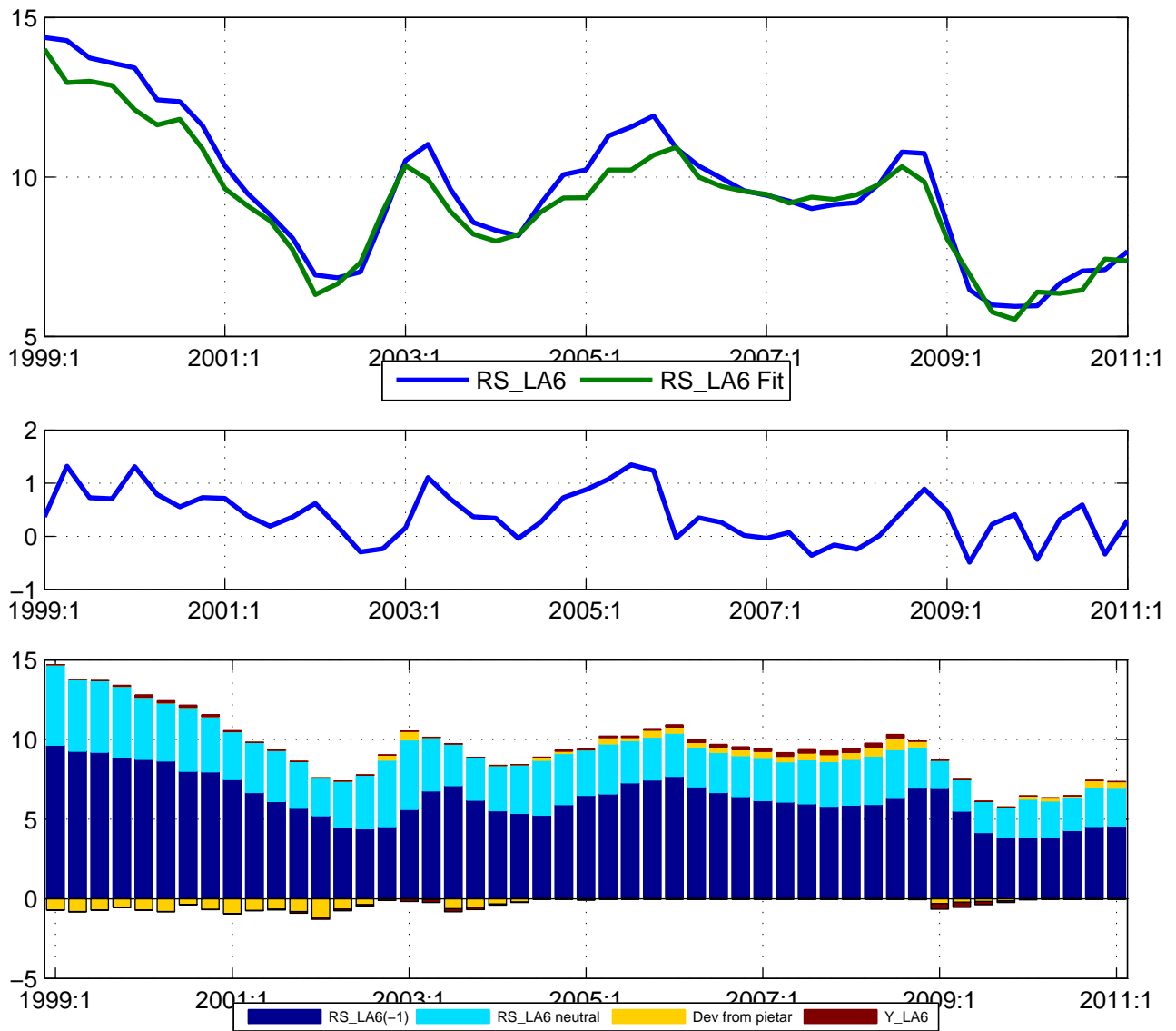


Figure 80: RS_LA_fit

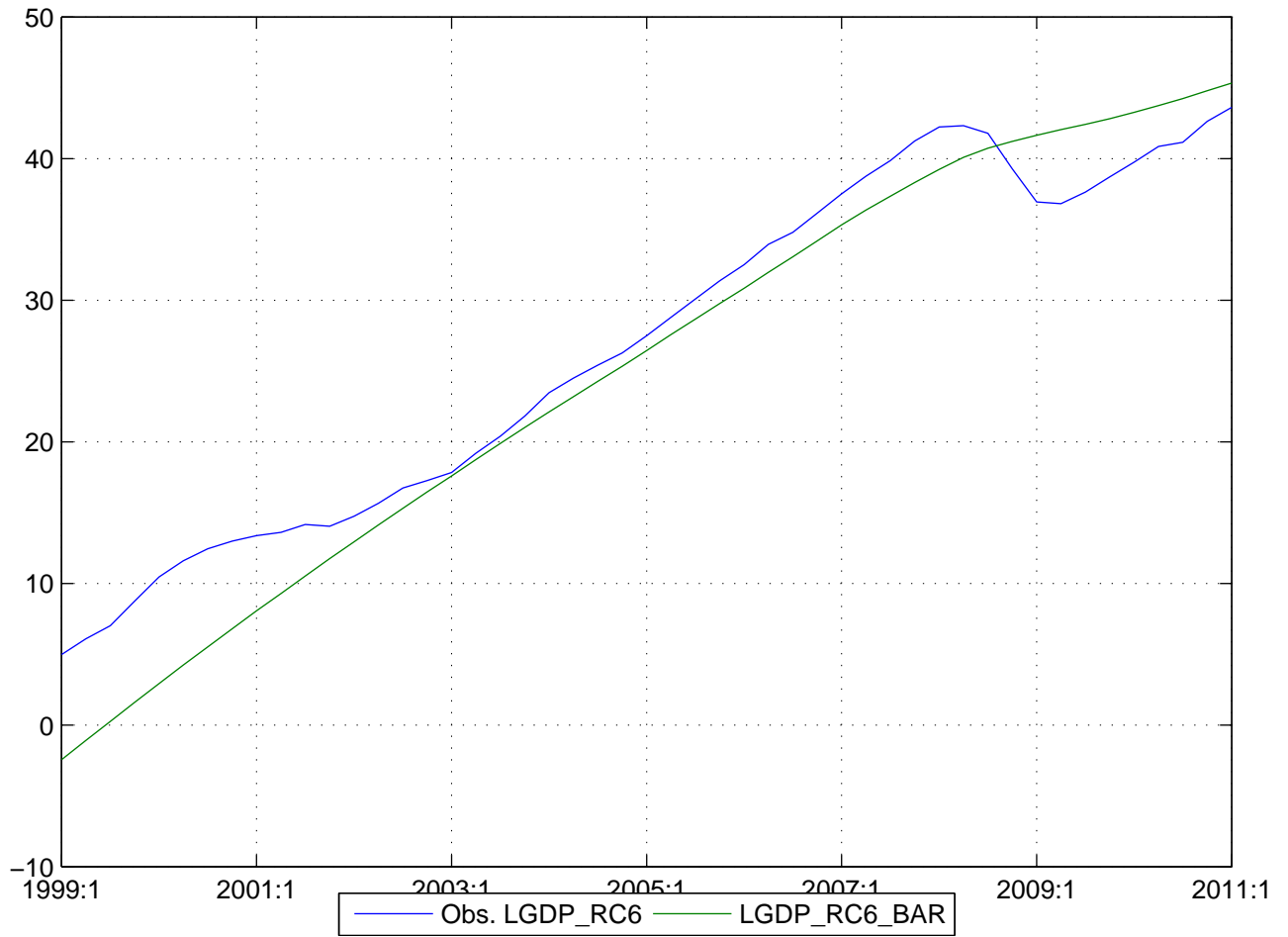


Figure 81: RC GDP level

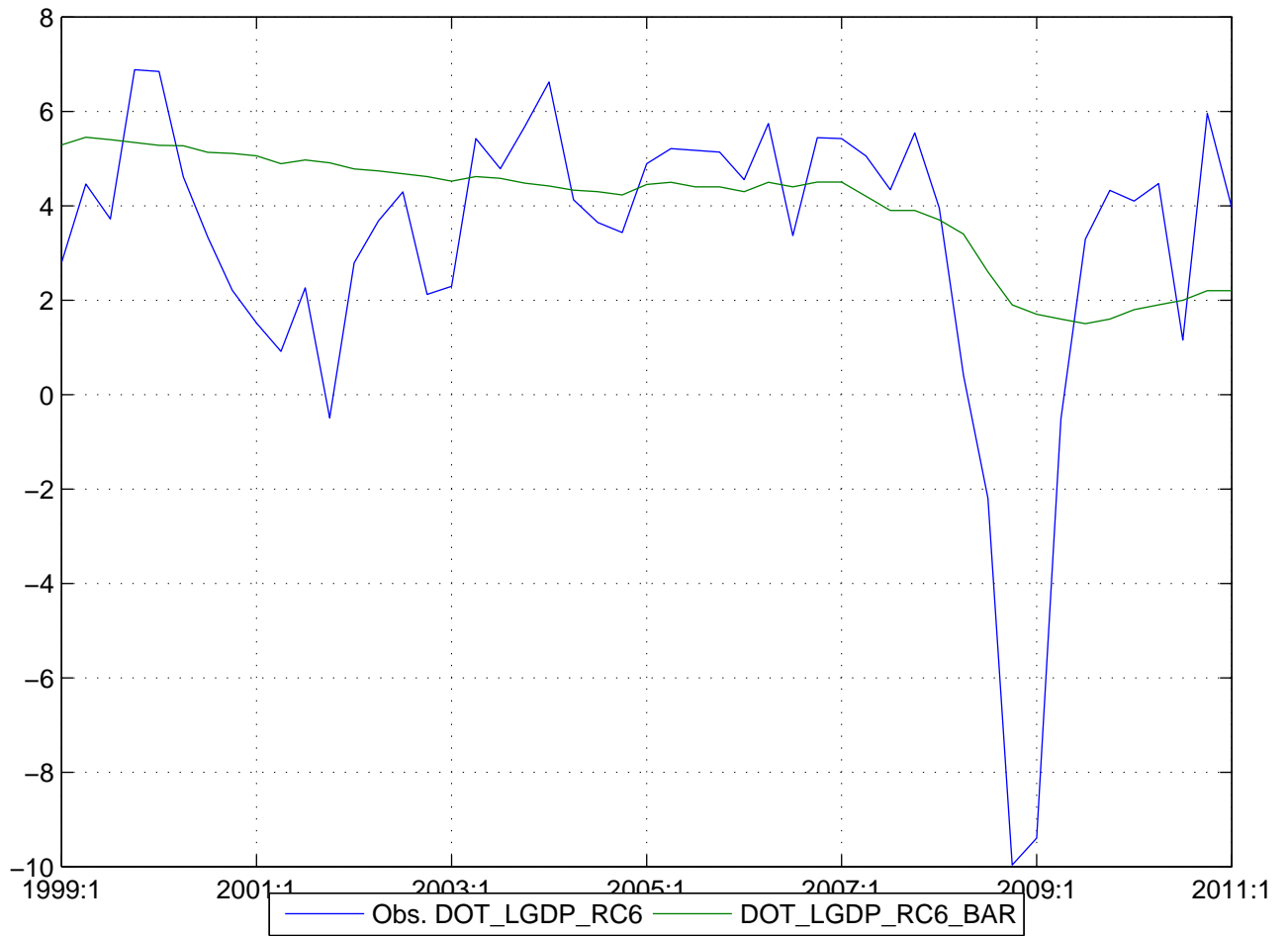


Figure 82: RC GDP growth

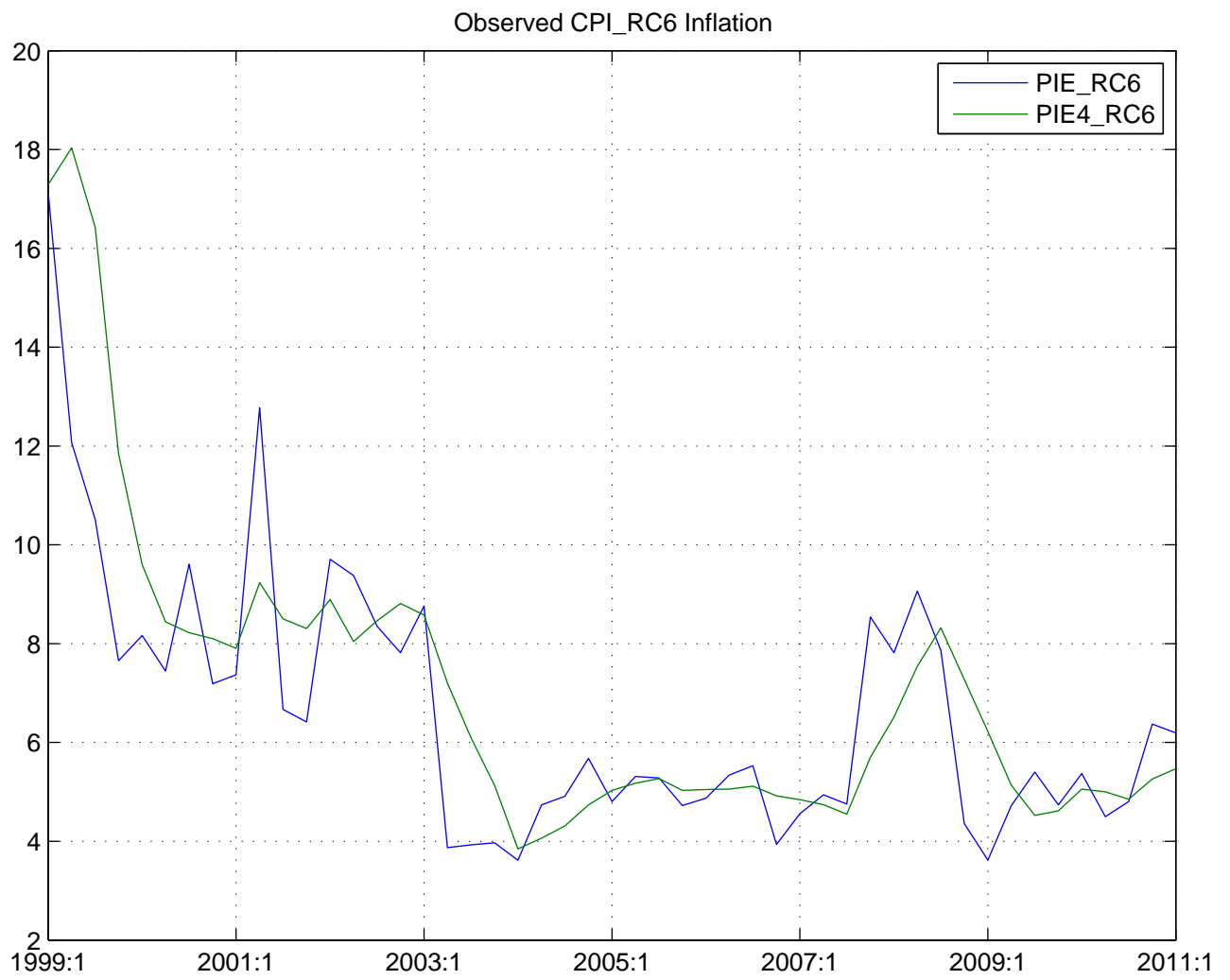


Figure 83: PIE_RC



Figure 84: RC_GAP



Figure 85: REER_T_RC

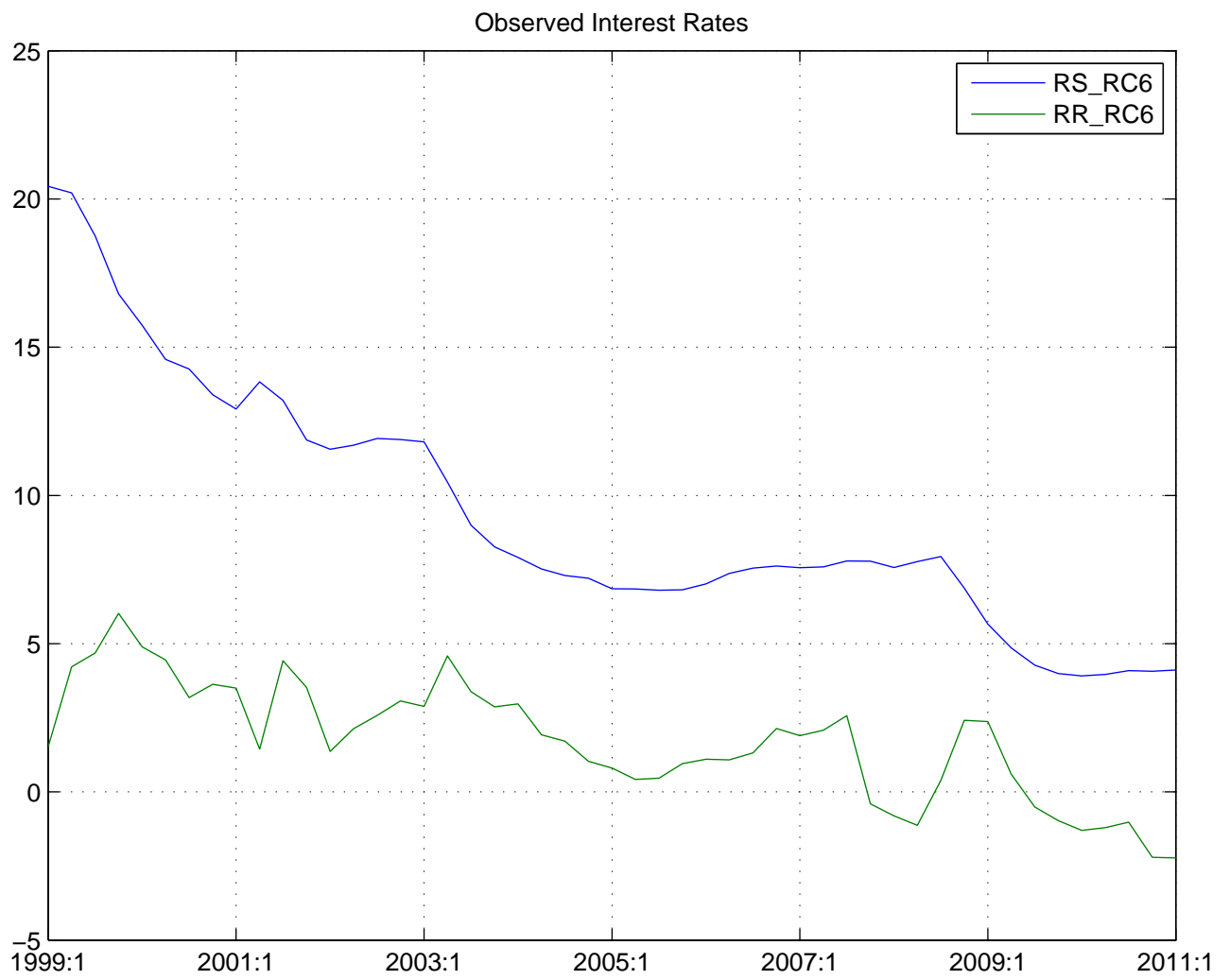


Figure 86: RR_RC

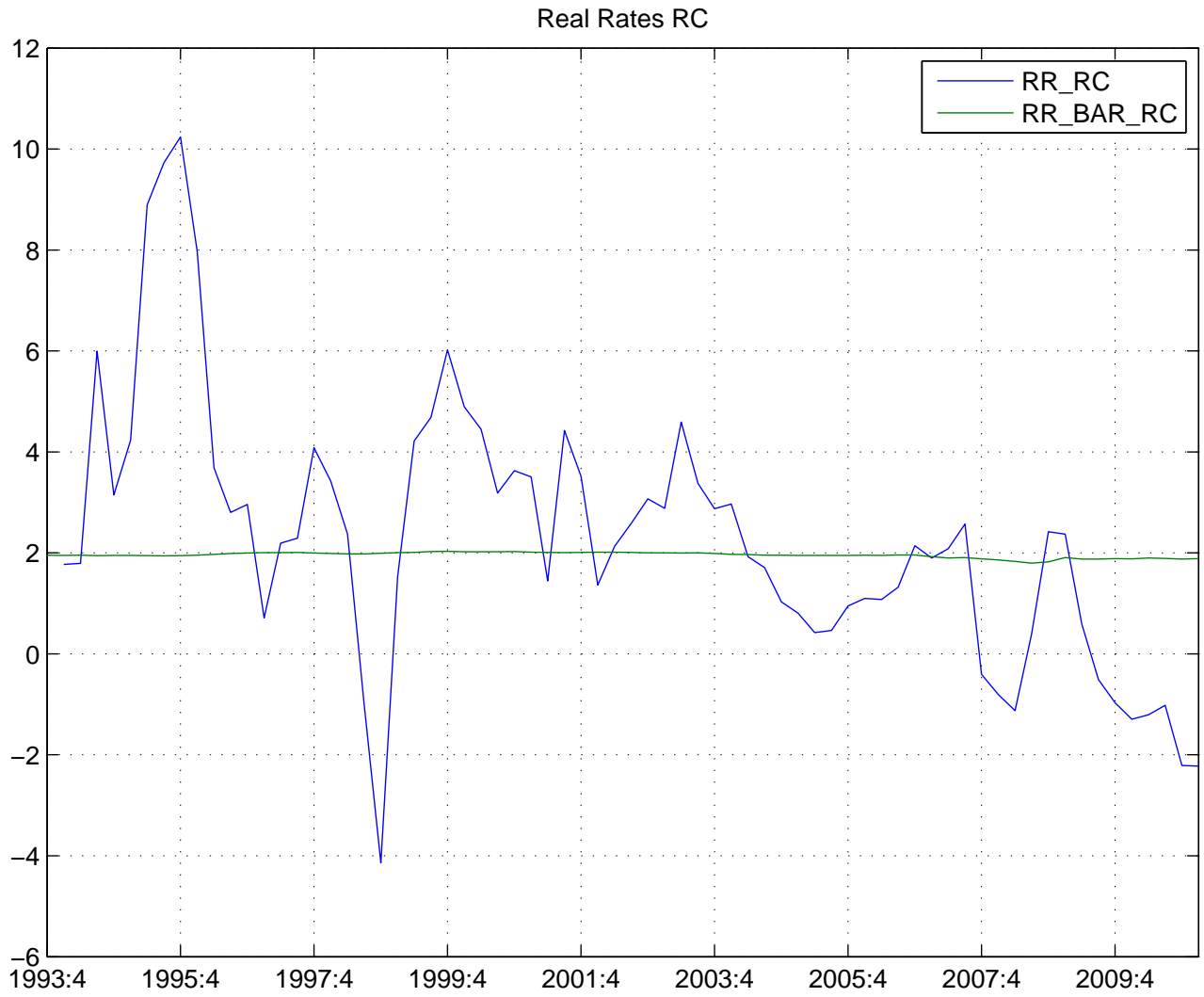


Figure 87: Real Rate And Equilibrium RC

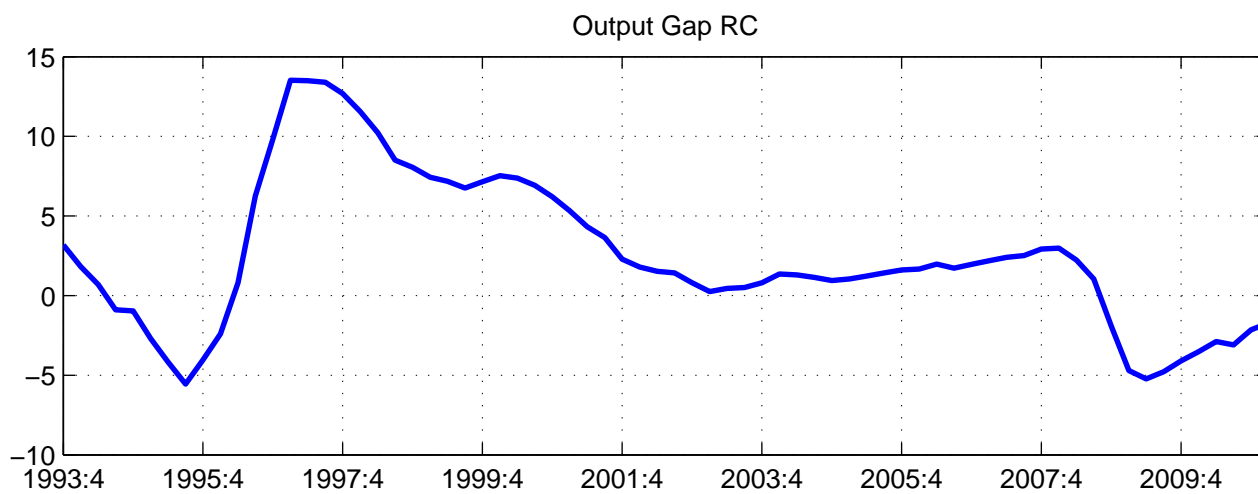
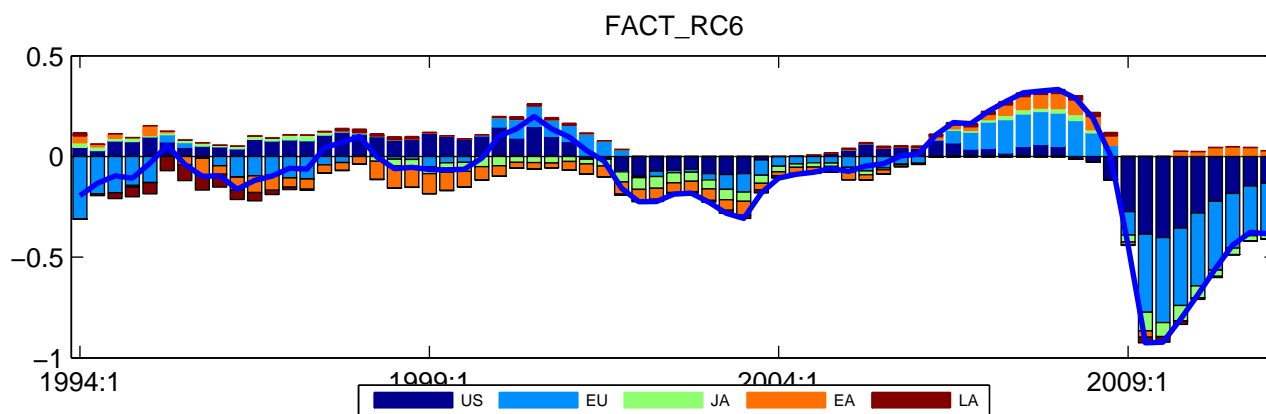


Figure 88: FACT_RC

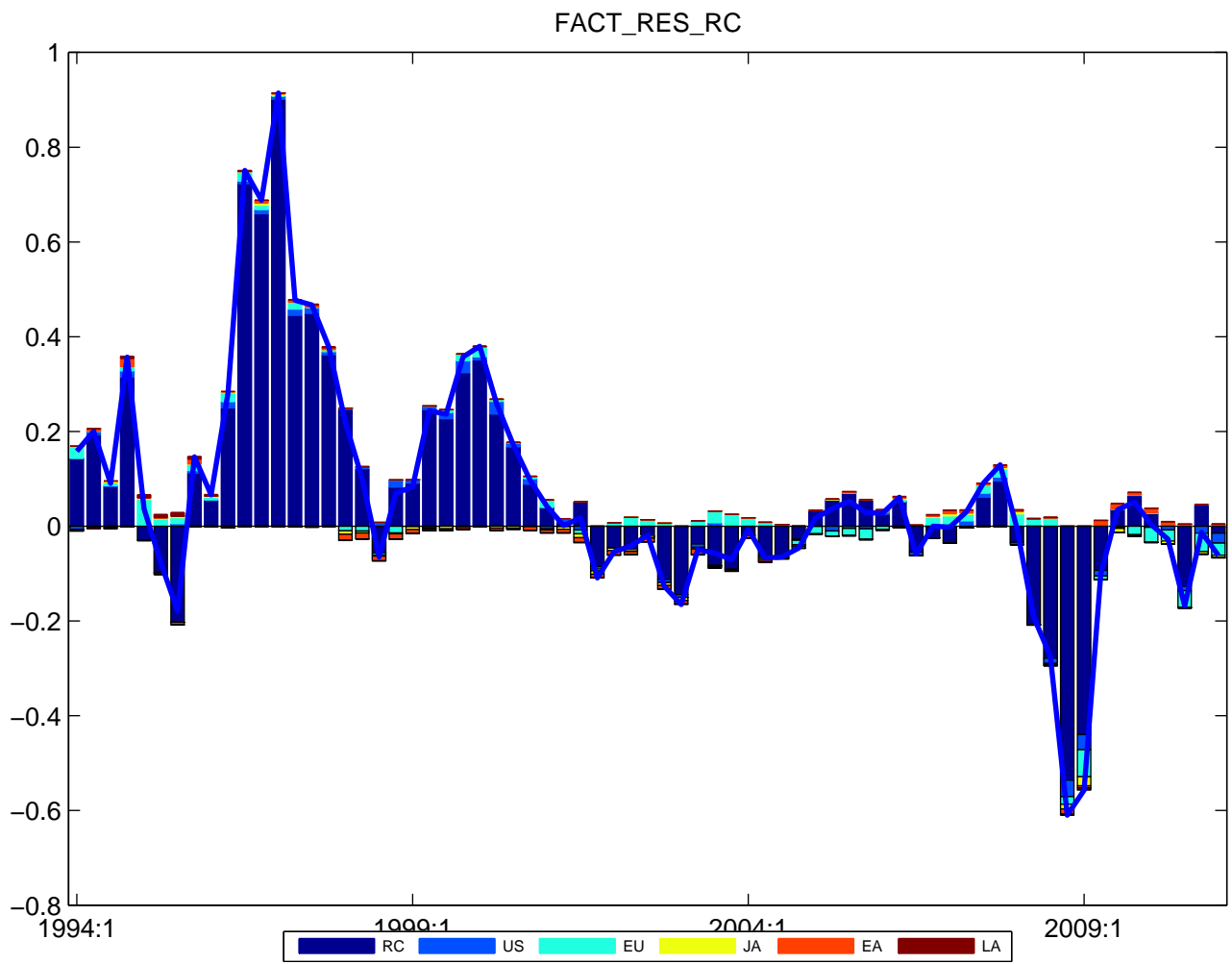


Figure 89: FACT_RES_RC

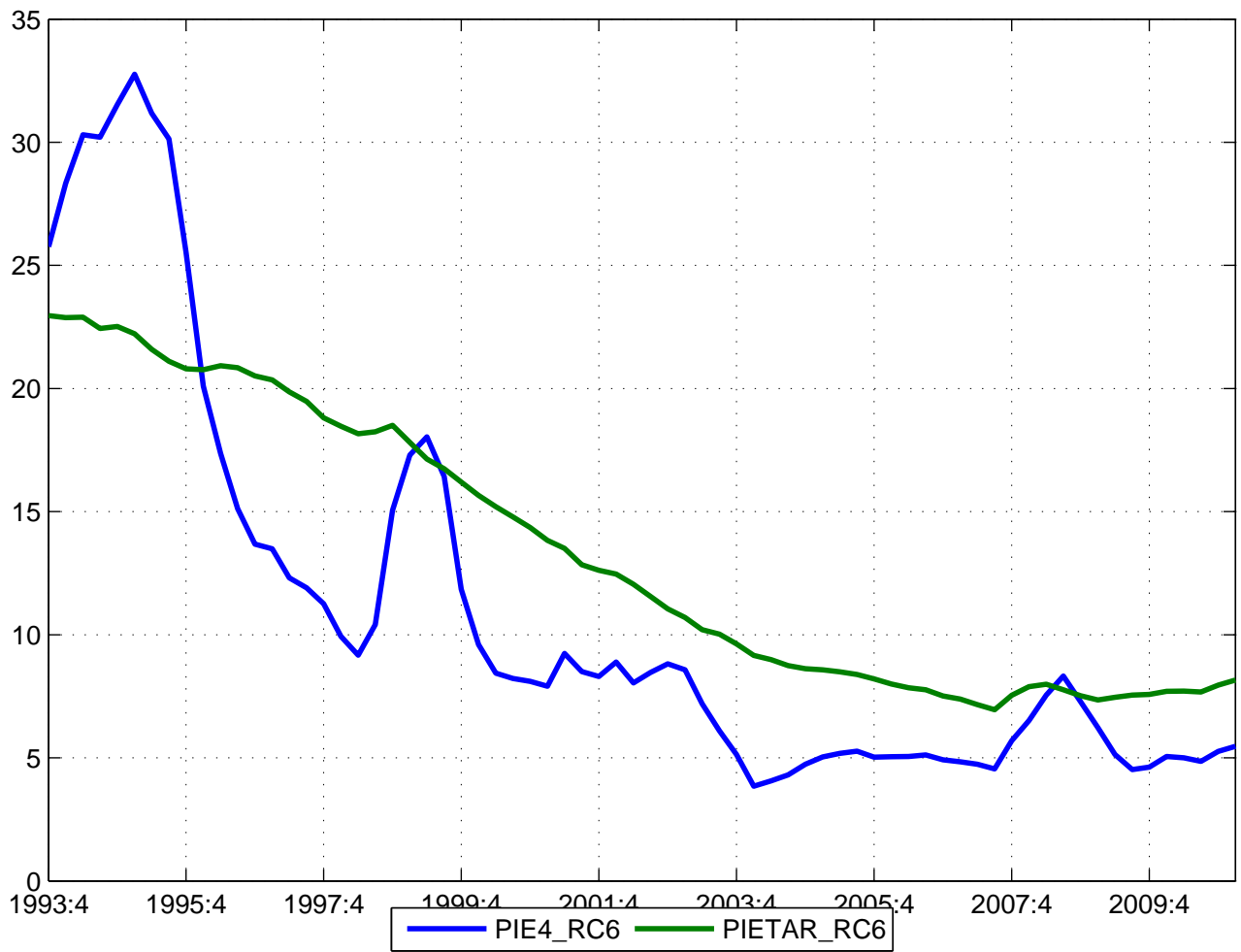


Figure 90: Inflation and Target RC

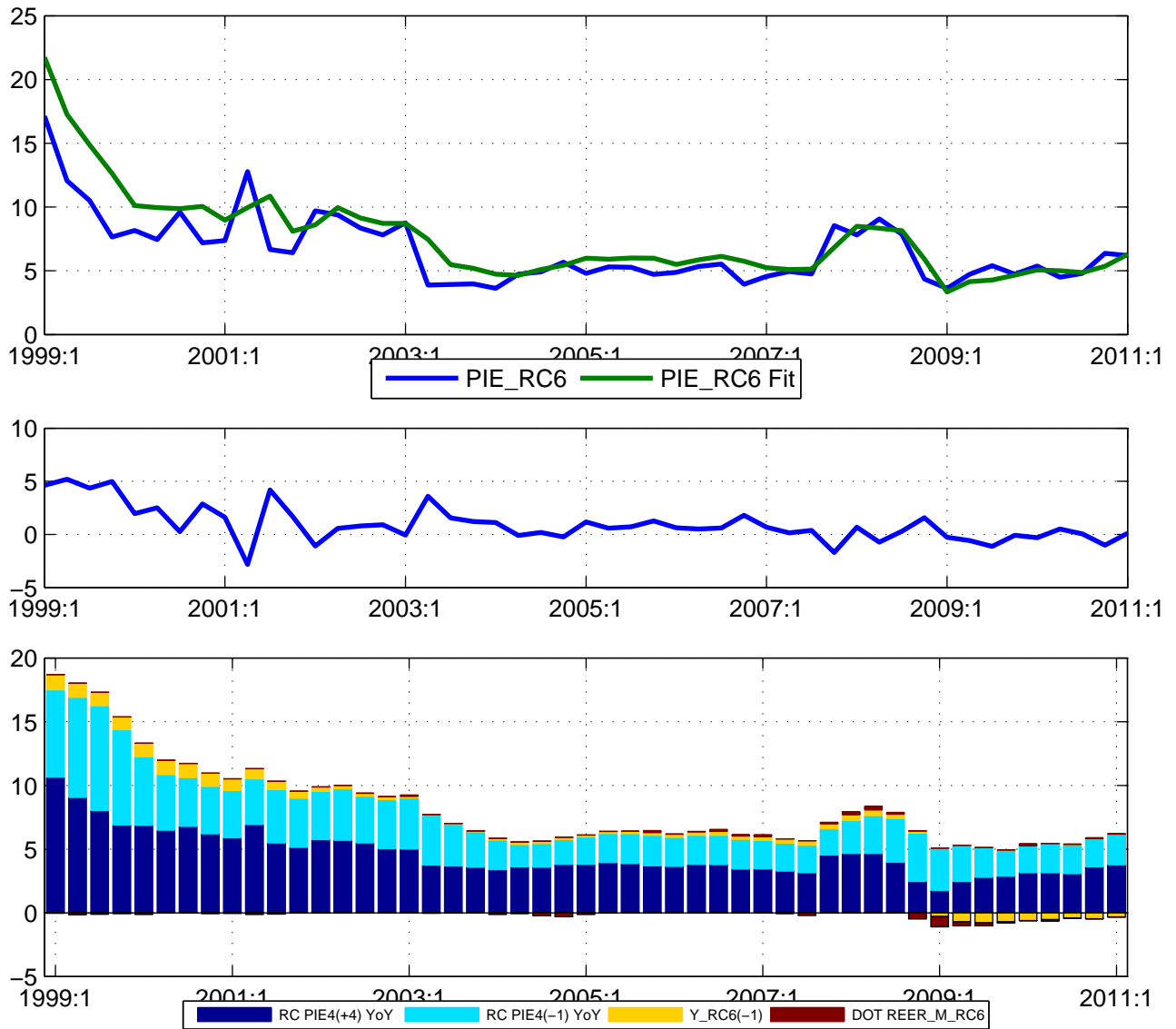


Figure 91: PIE_RC_fit

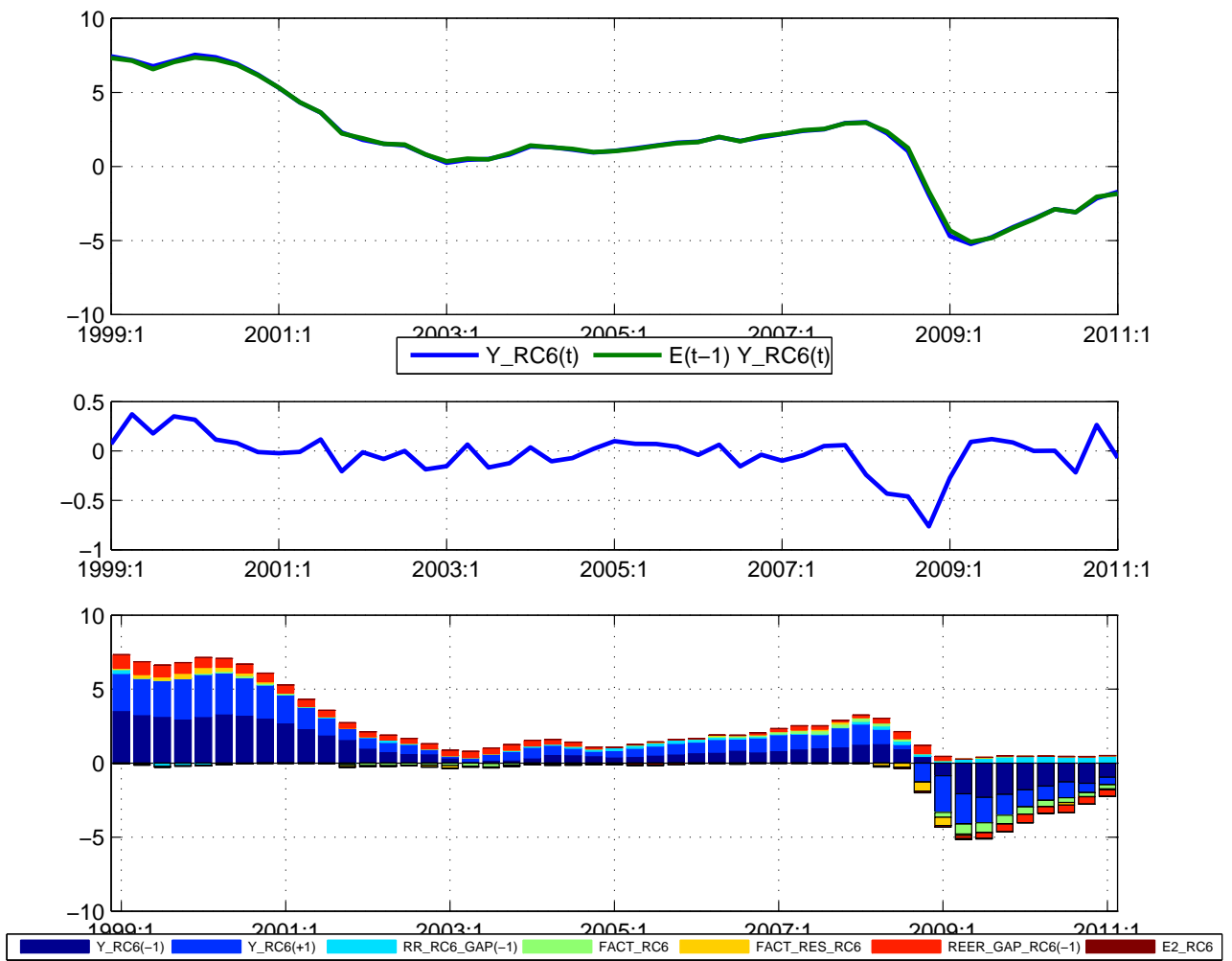


Figure 92: Y_RC_fit

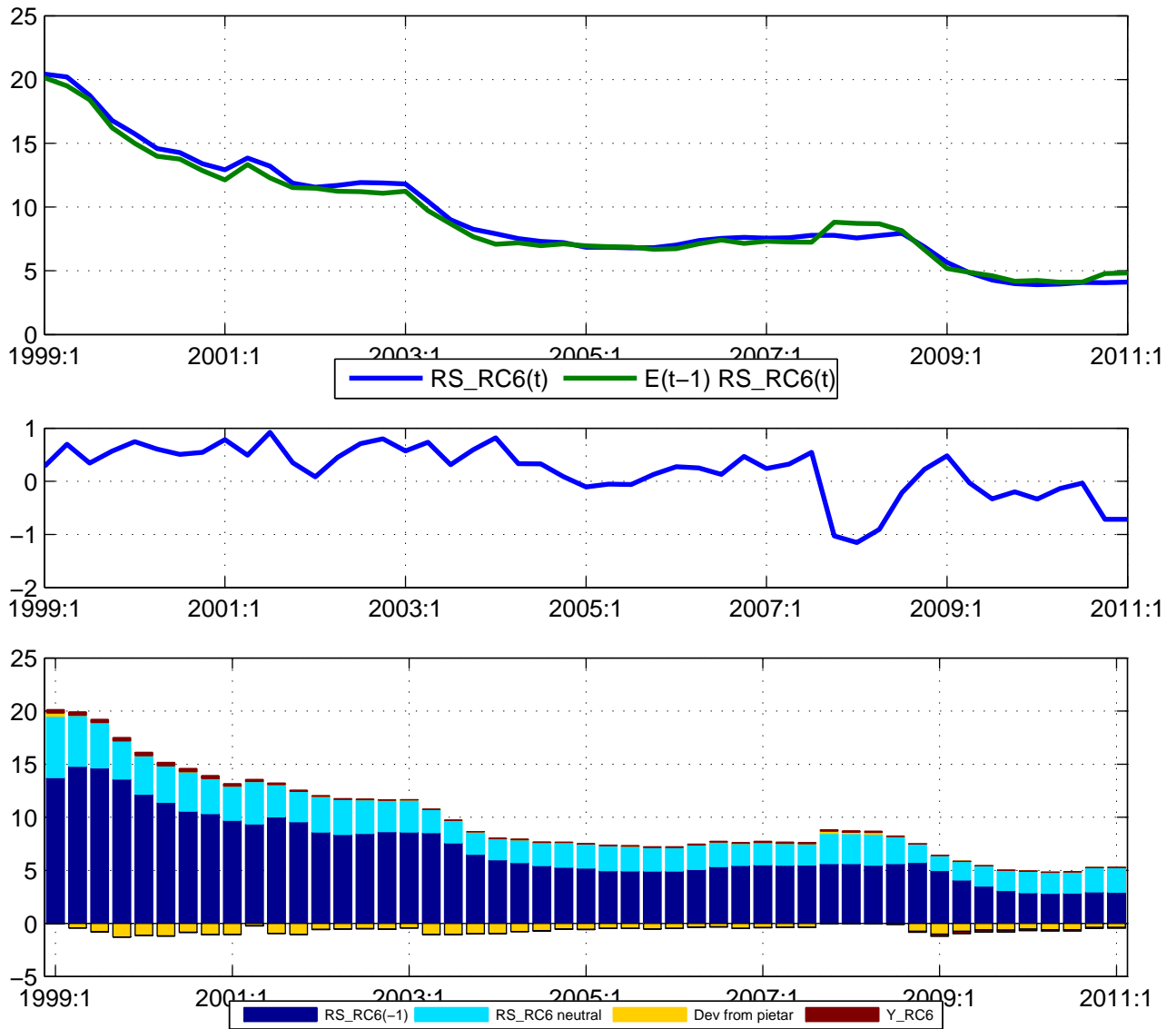


Figure 93: RS_RC_fit

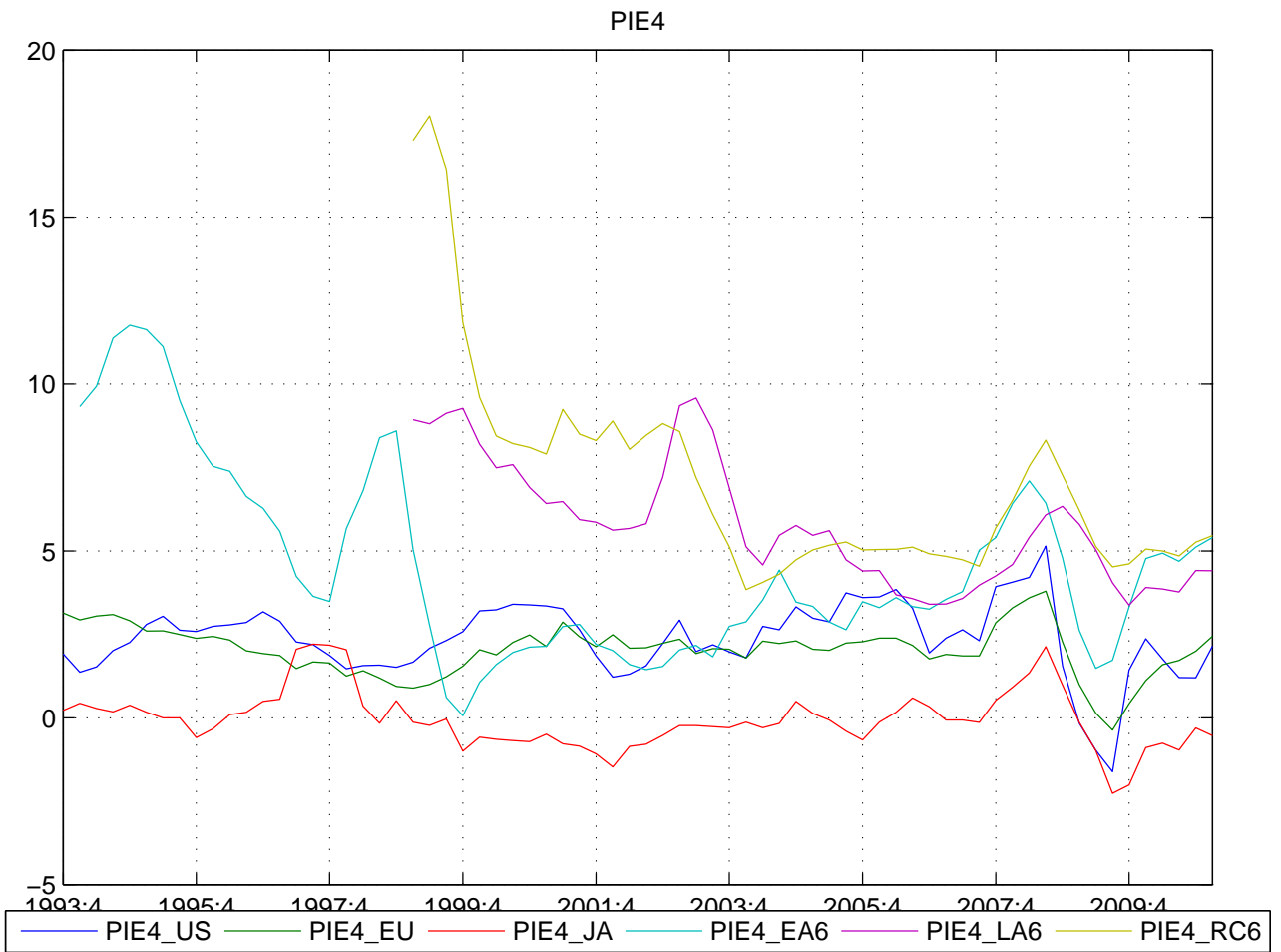


Figure 94: PIE4.comp

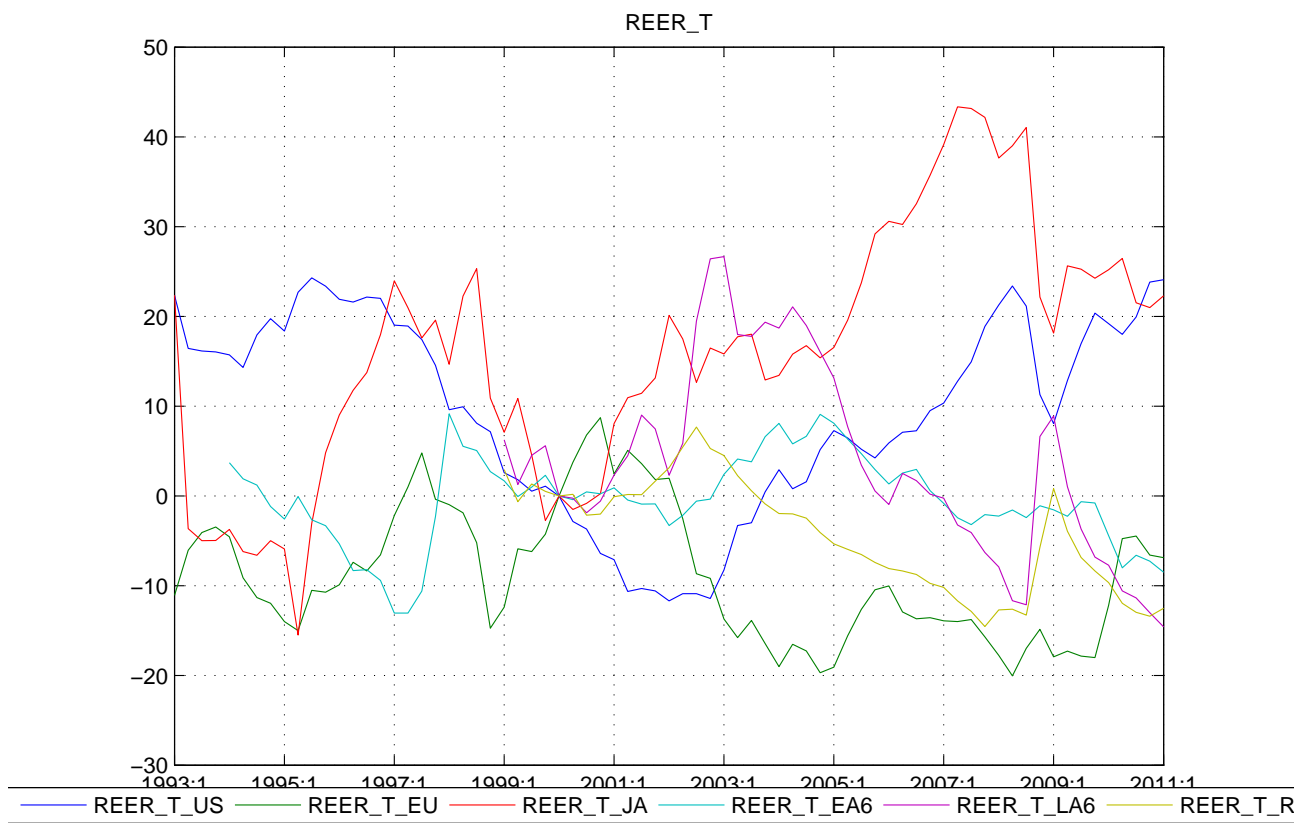


Figure 95: REER_T_comp

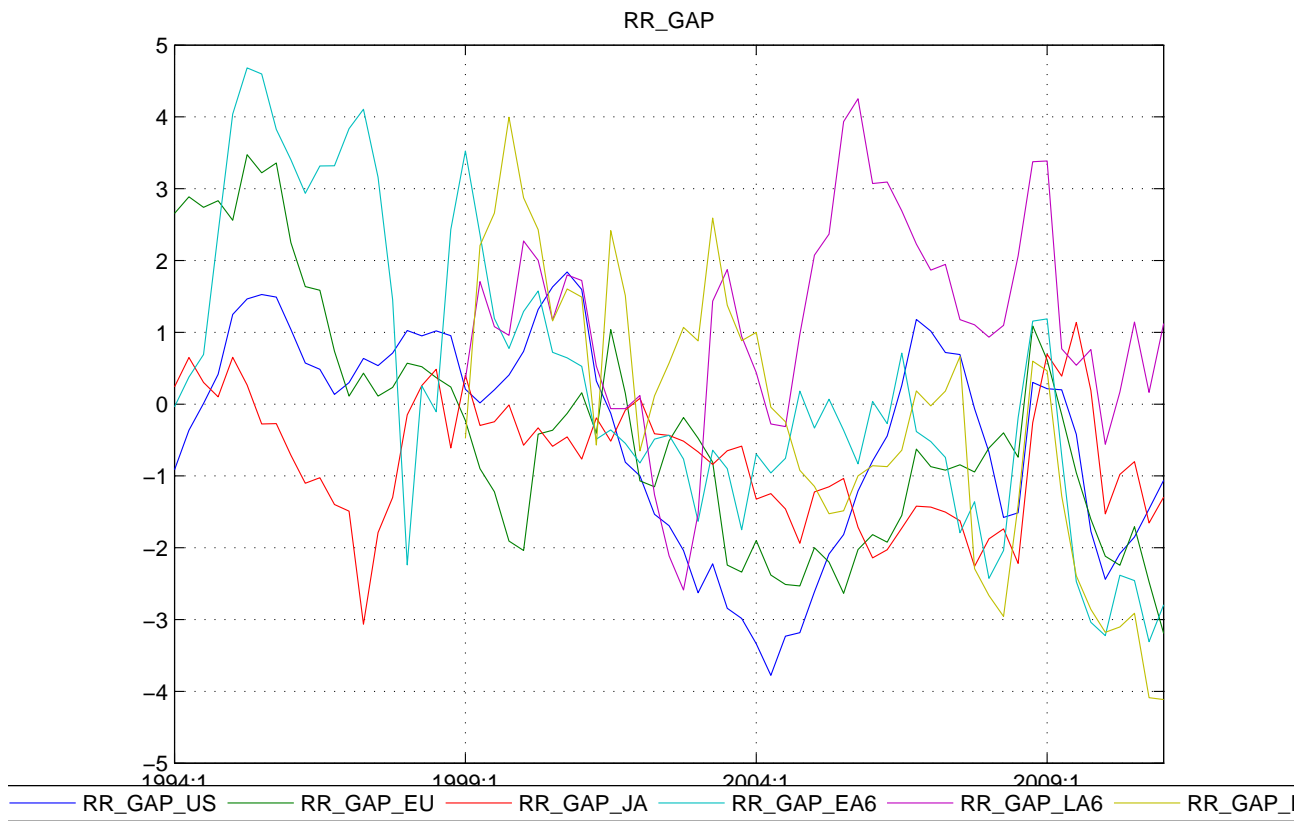


Figure 96: RR_GAPcomp

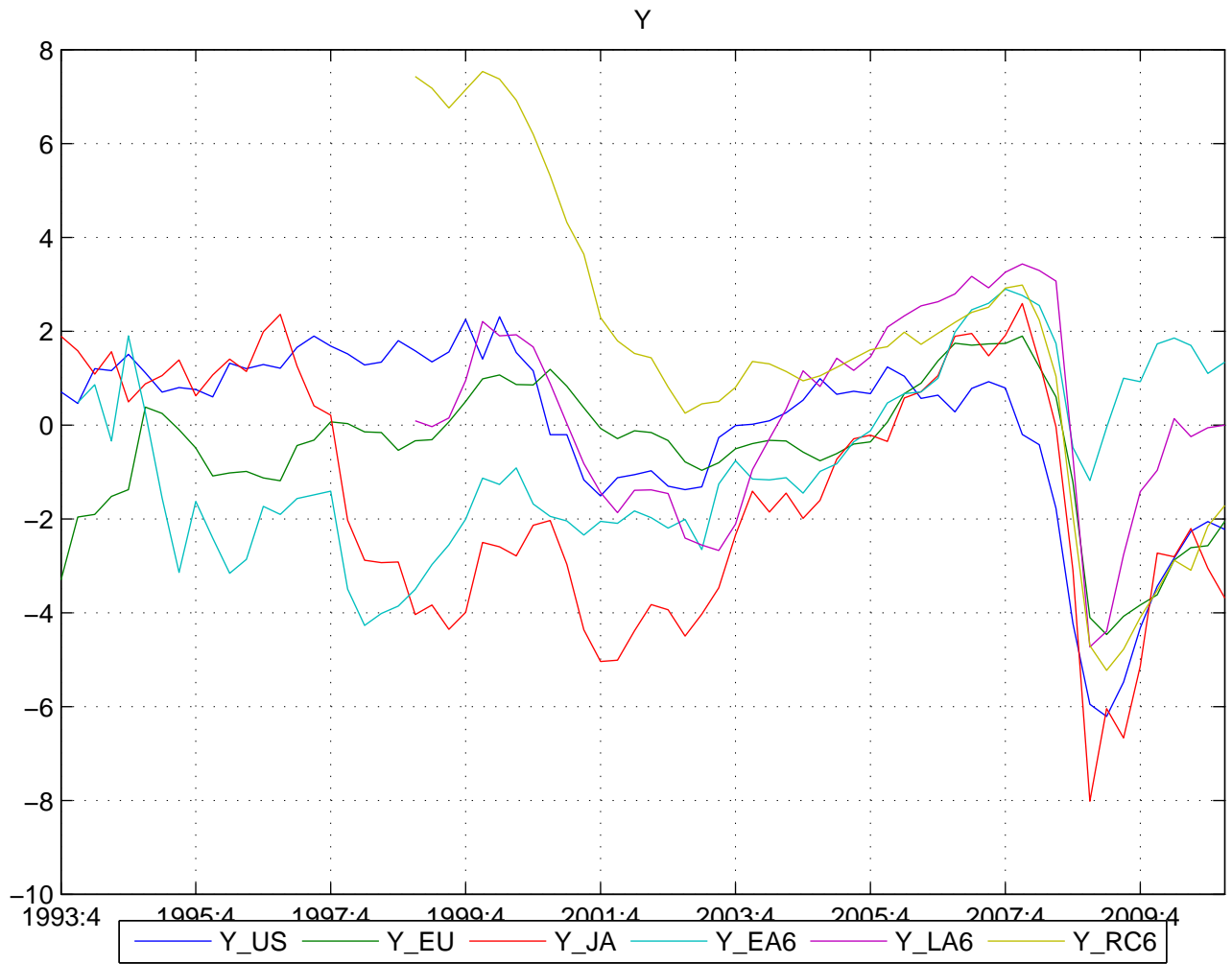


Figure 97: Y_comp

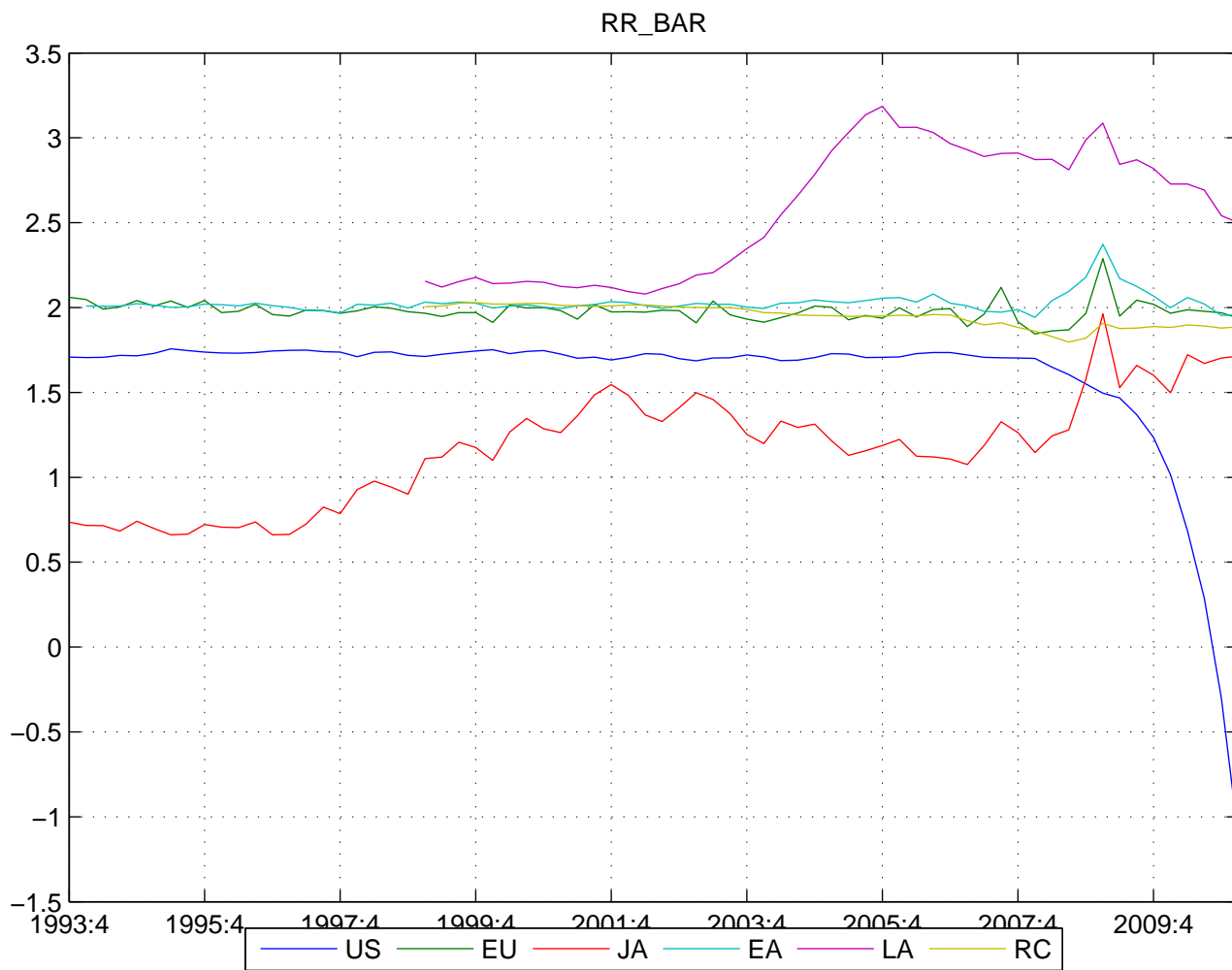


Figure 98: RR_BAR_comp

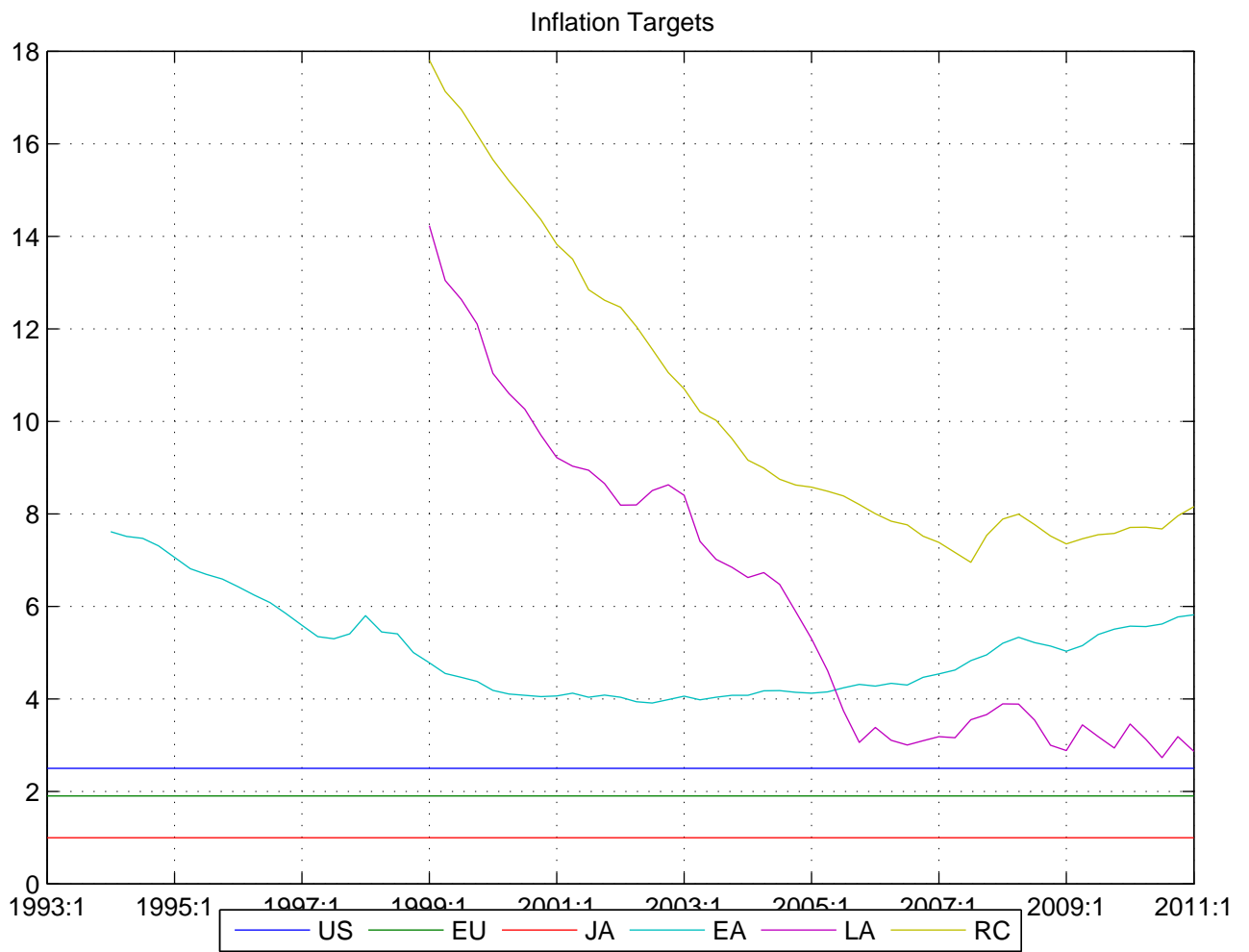


Figure 99: PIETAR_comp