

Figure 1: Scatterplots of simulated return moments according to changes in dependence structures,  $\alpha$ , of Clayton copula. The solid lines represent sample return moments of U.S. returns. The dotted lines are the estimated dependence structure from constant decomposition model.

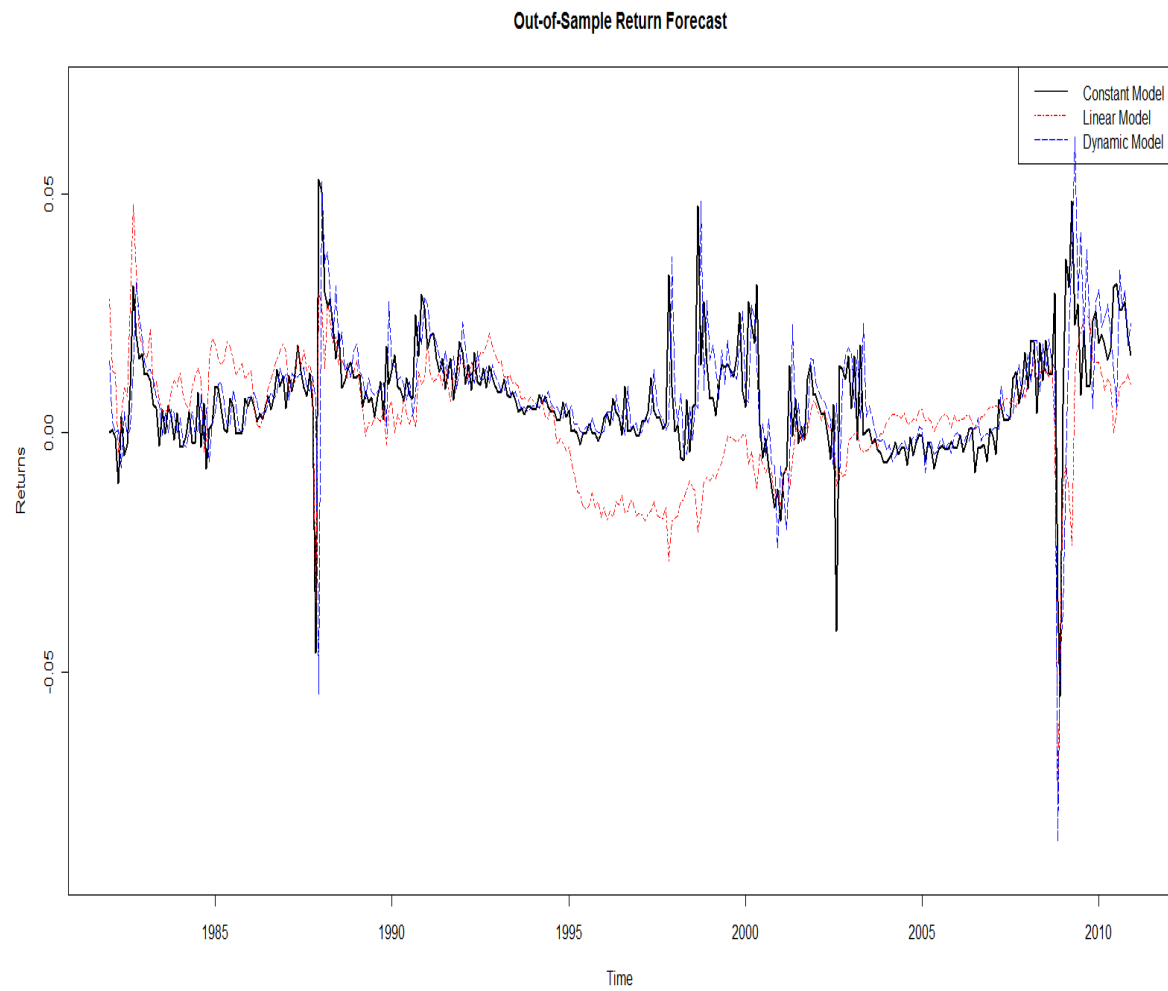


Figure 2: Plot of Out-of-Sample Forecasts from Constant decomposition model (solid line), linear model (dash-dotted line), and dynamic decomposition model (dash line). The out-of-sample forecast period is 1982:01-2010:12.

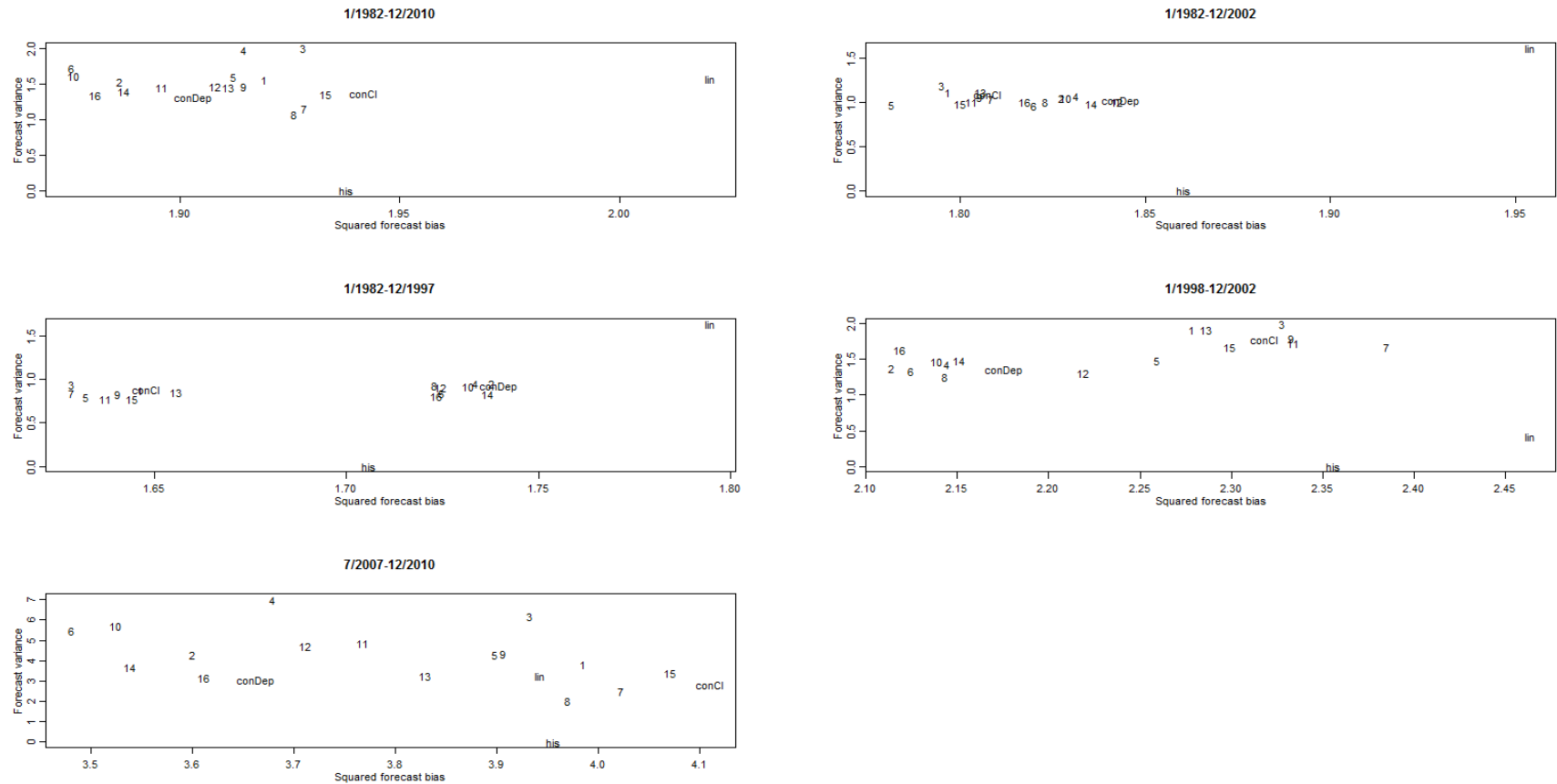


Figure 3: Scatterplot of forecast variances and squared forecast biases: 1982:01-2010:12. The integer numbers are assigned to dynamic models in Table 3. Note that all even numbers represents the dynamic models from conditional dependence, and all odd numbers are those from conditional independence. The forecast variance is scaled by  $10^4$  and the squared forecast bias is scaled by  $10^3$ . The labels of 'lin' and 'his' denote the conditional linear and historical average models, respectively. ConCI represents the constant model from conditional independence and ConDep is the constant model from conditional dependence.

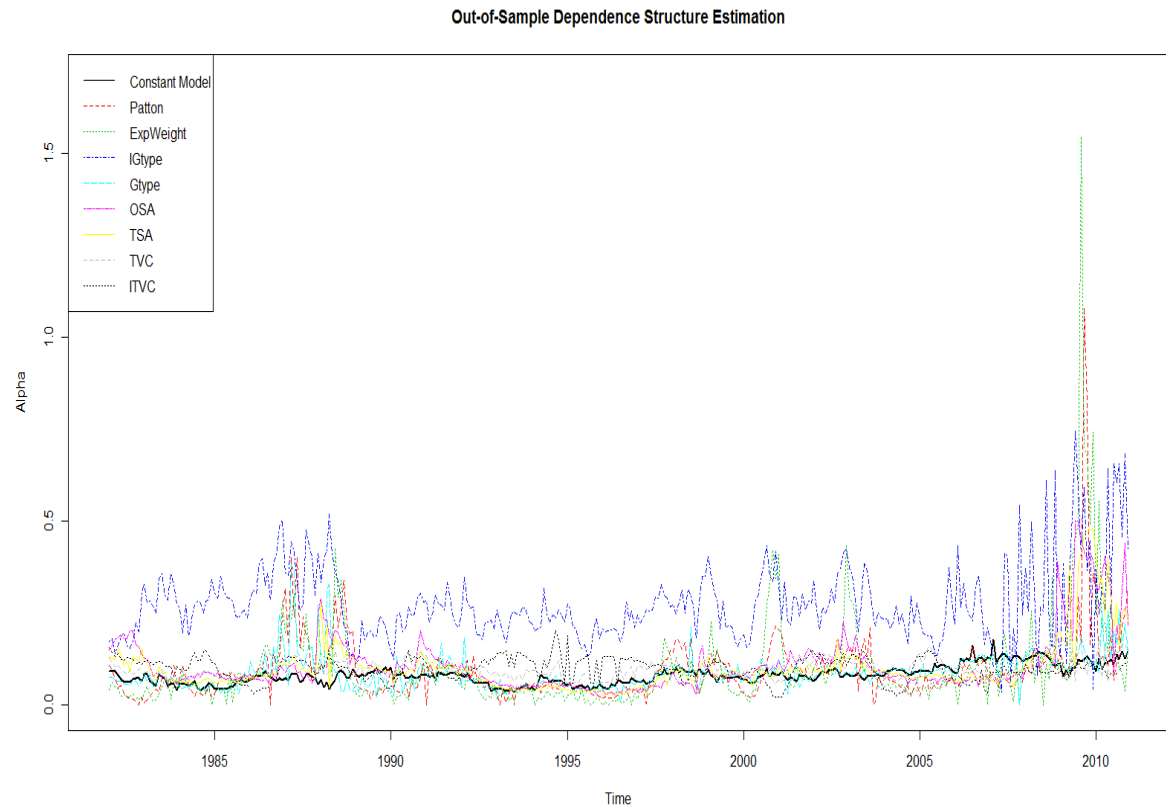


Figure 4: Out-of-sample dependence structure estimation from the constant decomposition model (solid line) and the dynamic decomposition models (non-solid lines).

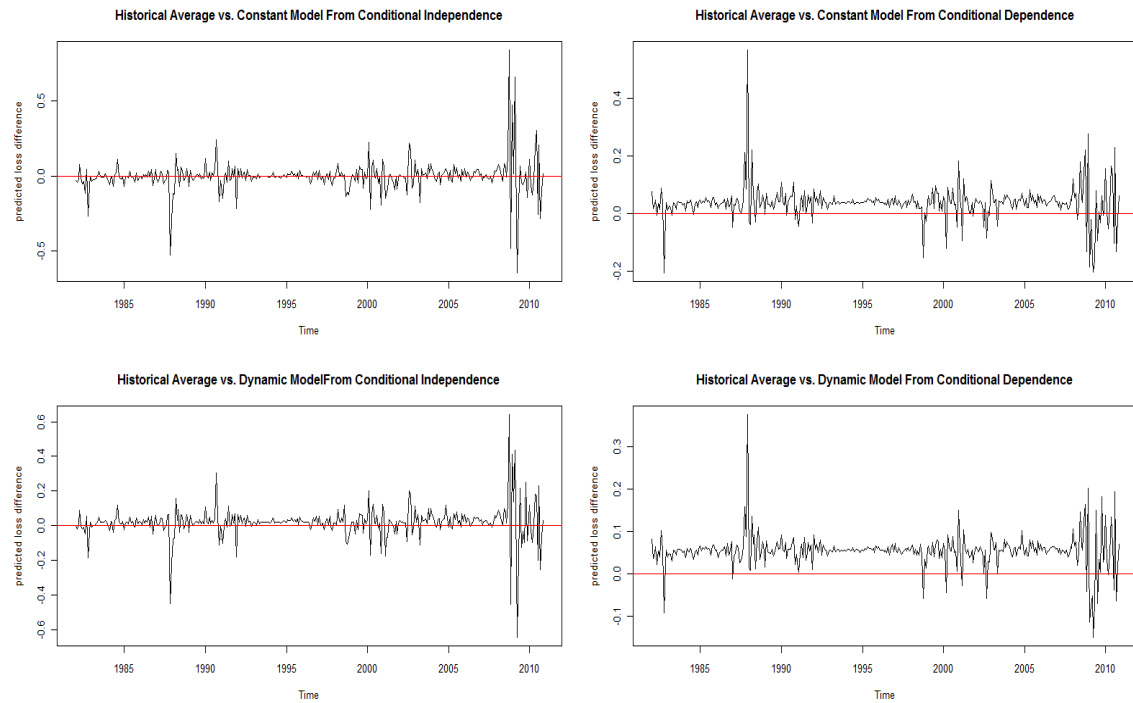


Figure 5-Panel A: Plots of predicted loss differences over the entire time path. The horizontal line denotes a zero level. Positive values represent the time periods that a competing model performs better out-of-sample than historical average

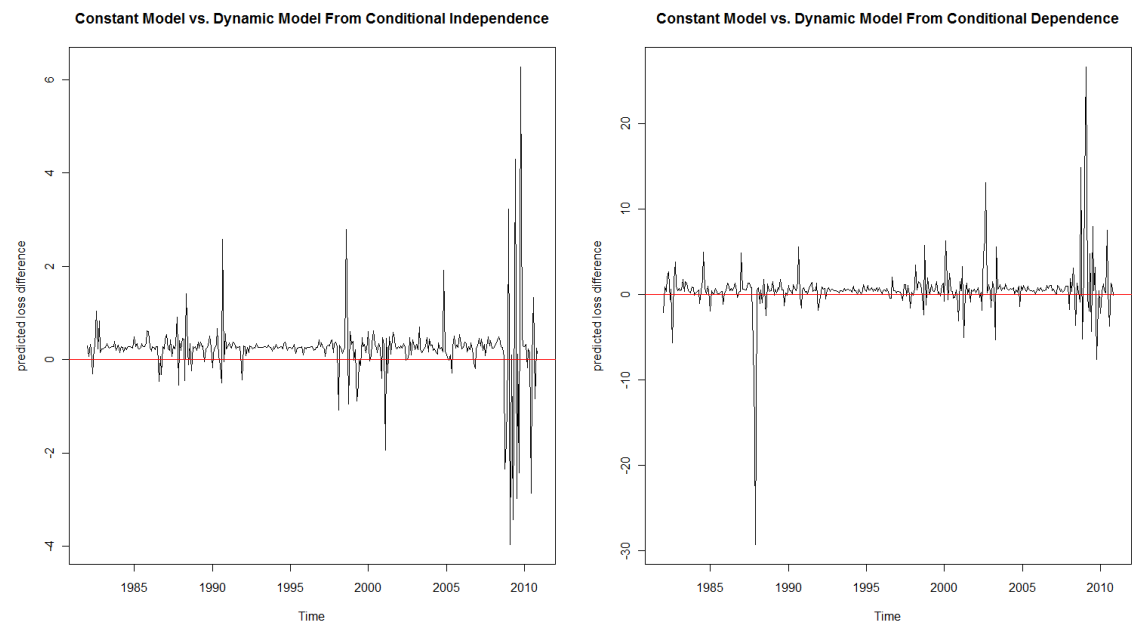


Figure 5-Panel B: Plots of predicted loss differences over the entire time path. The horizontal line denotes a zero level. Positive values represent the time periods that the dynamic decomposition model performs better out-of-sample than the constant decomposition model

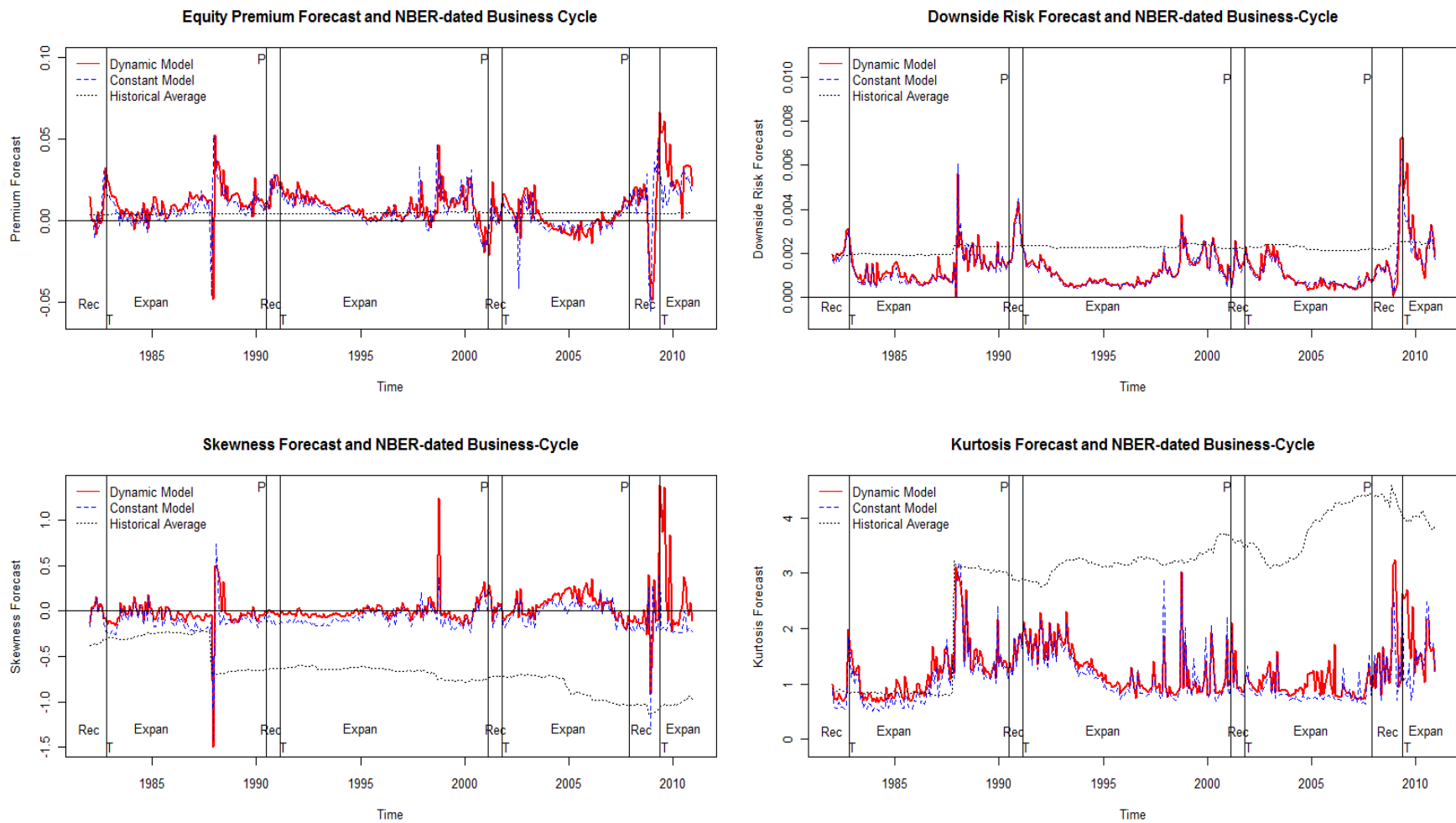


Figure 6: Plots of out-of-sample forecasts of returns, downside risk, skewness, and kurtosis along with vertical lines indicating NBER-dated business-cycle phases. “Rec” and “Expan” denote recession and expansion periods, and “P” and “T” represent a peak and a trough, respectively.

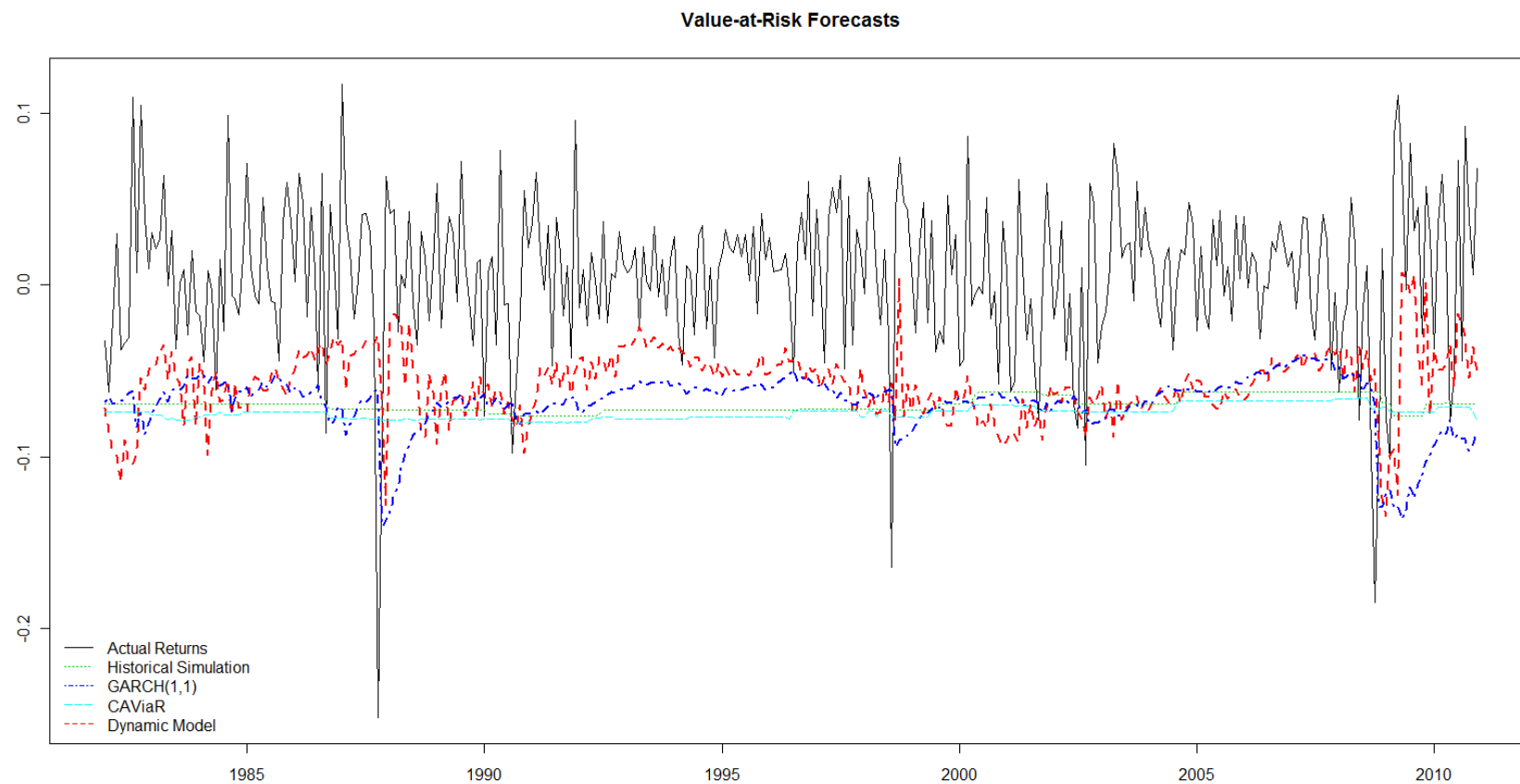


Figure 7: Plot of Value-at-Risk forecasts from historical simulation, GARCH(1,1), CAViaR, and dynamic decomposition models.

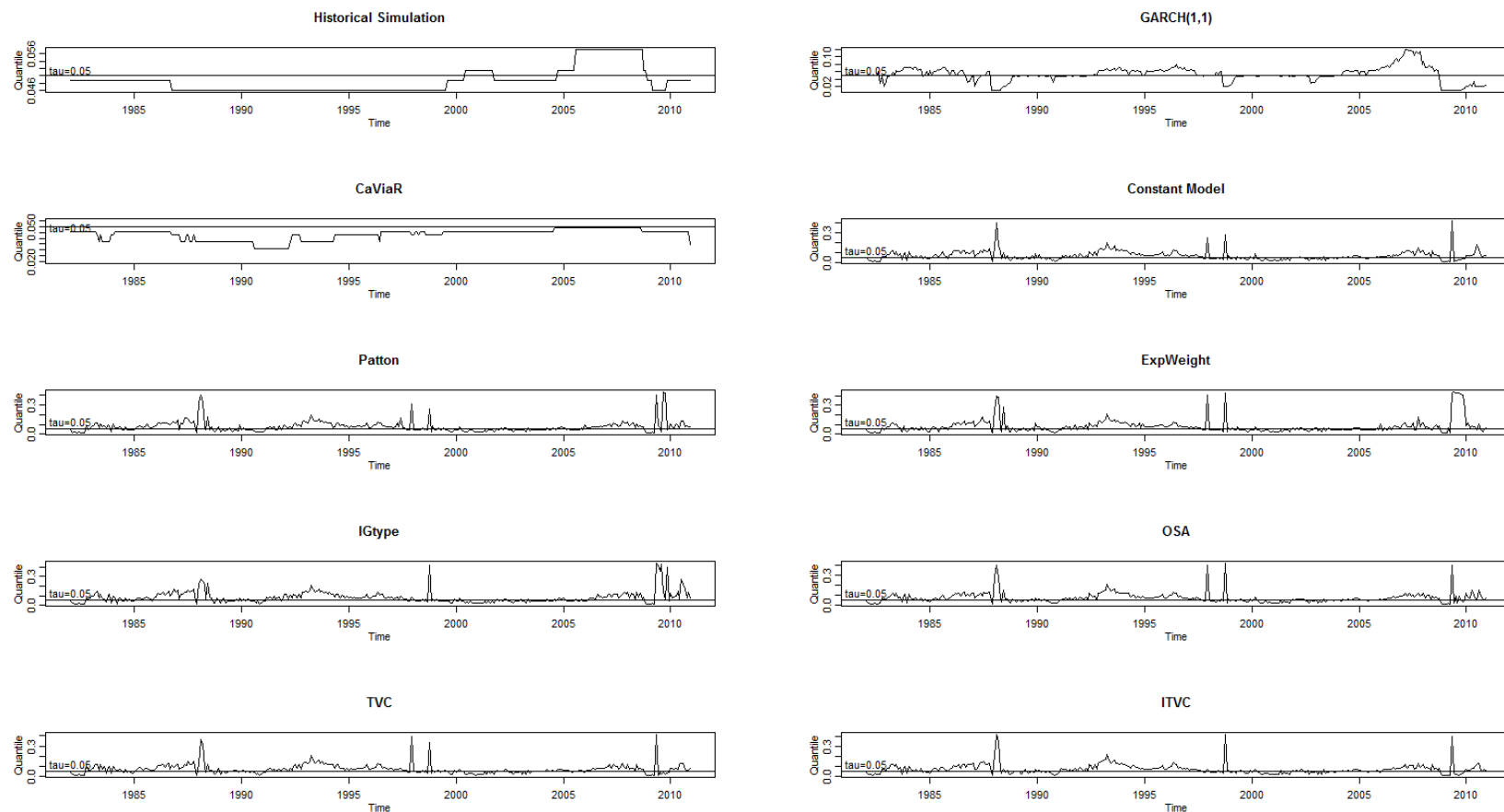


Figure 8: Plots of risk episodes. The time points with values above the quantile of 0.05 are identified as the periods with increased risk exposure.