This thesis aims to give a comprehensive account of some of the most recent methods of a change point estimation. The literature on the change point estimation shows a variety of approaches to deal with this subject. Among them, tests based on the popular CUSUM process, likelihood ratio tests, wild binary segmentation and some of the most recent techniques on the change point estimation in panel data are all covered by this paper. The case of dependent panels is discussed as well. The practical part of the study is focused on application of the wild binary segmentation method on weekly log-returns of the Dow Jones stock index. Firstly, we fit a GARCH model to the analysed time series. We next use the wild binary segmenatation method to detect structural changes in the mean of the original time series. Next, we apply the same method to the residuals from the GARCH fit. We analyse several penalization criteria proposed by previous studies and evaluate their effects on the estimated number and locations of the change points in the given data set.