This paper analyzes how cost asymmetry will influence the effectiveness of the leniency program. When a cartel survives it, the leniency scheme will enable the high cost firm to credibly threaten its low cost partner by self-reporting. As a result, the low cost firm will be worse off in the bargaining game and a larger market share will be assigned to the less efficient firm, increasing both production and allocative inefficiency. In the subgame perfect equilibrium, however, the low cost firm will foresee this hold-up problem and becomes more reluctant to be engaged in the cartel. The use of leniency program therefore raises a basic tradeoff between ex-ante deterrence and ex-post efficiency.