Figure 1: Standard Errors for $\hat{\beta}$ Using All Stocks or Portfolios

Two Standard Error Bounds of Beta with 25 Portfolios

Two Standard Error Bounds of Beta with 5 Portfolios
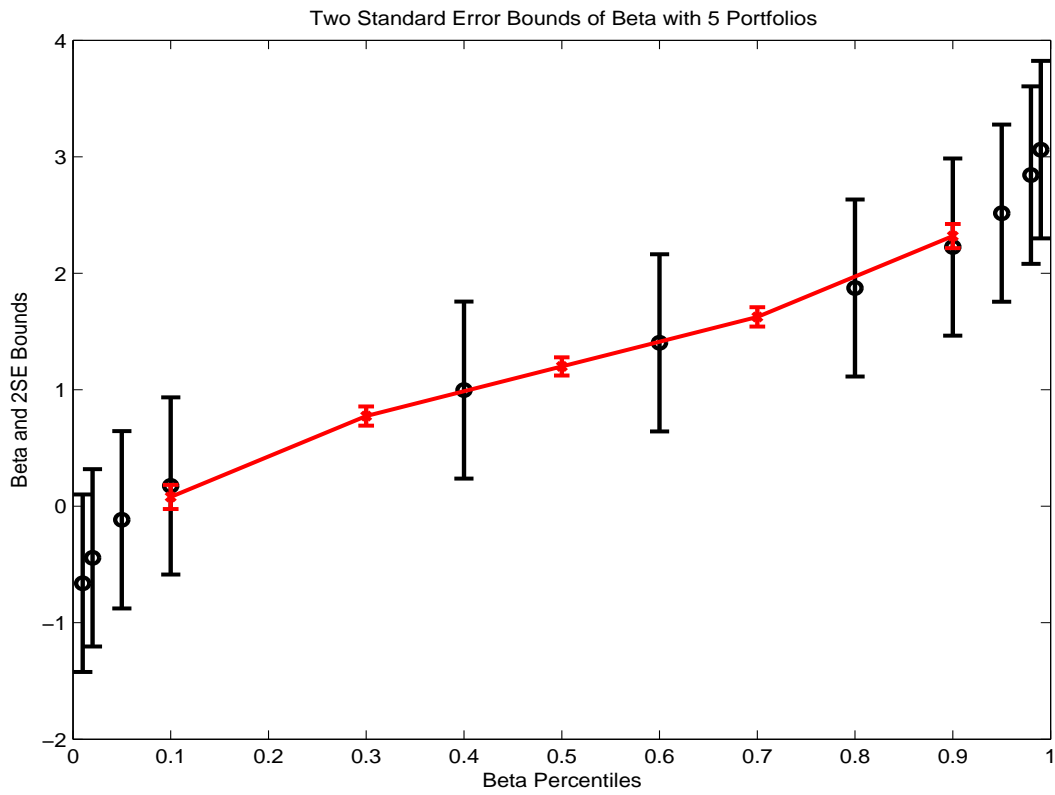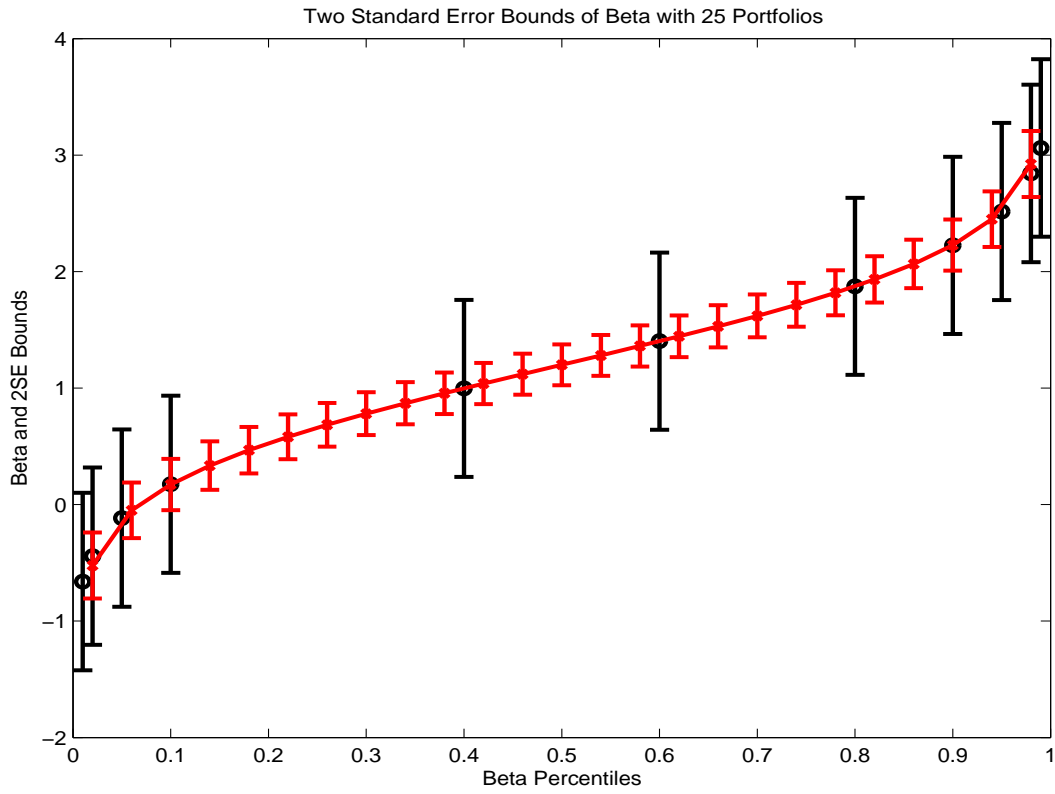
Note to Figure 1

We assume a single factor model where $F_t \sim N(0, (0.15)^2/12)$ and the factor risk premium $\lambda = 0.06/12$. Betas are drawn from a normal distribution with mean $\mu_\beta = 1.1$ and standard deviation $\sigma_\beta = 0.7$ and idiosyncratic volatility across stocks is constant at $\sigma_i = \sigma = 0.5/\sqrt{12}$. We assume a sample of size $T = 60$ months with $N = 1000$ stocks. We graph two standard error bars of $\hat{\beta}$ for the various percentiles of the true distribution marked in circles for percentiles 0.01, 0.02, 0.05, 0.1, 0.4, 0.6, 0.8, 0.9, 0.95, 0.98, and 0.99. These are two-standard error bands for individual stock betas. The standard error bands for the portfolio betas for $P = 25$ portfolios (top panel) and $P = 5$ portfolios (bottom panel) are marked with small crosses and connected by the red line. These are graphed at the percentiles which correspond to the mid-point mass of each portfolio. The formula for $\text{var}(\hat{\beta})$ is given in equation (23) and the computation for the portfolio moments are given in Appendix D.