# Profit Shifting Model

## 1 Model with Perceived Risk

Assume mean-variance utility. Two returns are uncorrelated.

$$
\begin{aligned}
E\{r_D - r_F\} &= \gamma C\{r_D - r_F, r_P\} \\
\mu_D - \mu_F &= \gamma C\{r_D - r_F, \alpha r_D + (1-\alpha) r_F\} \\
\mu_D - \mu_F &= \gamma \left[\alpha \sigma_D^2 - (1-\alpha)\sigma_F^2\right] \\
\frac{1}{\gamma}\left[\mu_D - \mu_F\right] + \sigma_F^2 &= \alpha \left[\sigma_D^2 + \sigma_F^2\right] \\
\alpha &= \frac{\frac{1}{\gamma}\left[\mu_D - \mu_F\right] + \sigma_F^2}{\sigma_D^2 + \sigma_F^2} \\
\alpha &= \frac{\frac{1}{\gamma}\left[\bar{r}_{US}(1-\tau_{US}) - \bar{r}_{FOR}(1-\tau_{FOR})\right] + \sigma_F^2}{\sigma_D^2 + \sigma_F^2}
\end{aligned}
\tag{1}
$$