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Taxation and the optimal constraint on corporate debt finance: why a comprehensive business income tax is suboptimal

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5% of corporate tax revenue. The welfare gain would arise mainly from a fall in the social risks associated with corporate investment, but also from the cut in the corporate tax rate made possible by a broader corporate tax base.



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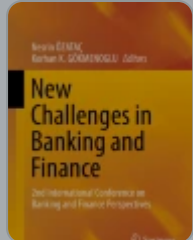
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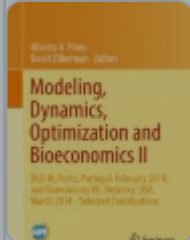
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bonds from 1995 to 2003 was 146.27 basis points. For AAA-rated corporate bonds, the yield spread was 82.44 basis points, and for A-rated bonds, it was 177.68 basis points.

5. This value of η is higher than the user cost elasticity found in most of the empirical studies surveyed by Hassett and Hubbard (2002), but as we shall see in the next section, the quantitative results from our model are not very sensitive to the value of η .
6. To derive the optimal constraint on debt finance from formula (21) and the resulting welfare gain from formula (30), I use an iterative solution algorithm implemented in an Excel spreadsheet available on request.

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(32)

A second-order Taylor approximation of this expression around $(\beta = \bar{\beta})$ yields

$$\begin{aligned} p(\beta) &\approx p(\bar{\beta}) + \frac{1}{d} p'(\bar{\beta}) (\beta - \bar{\beta}) + \frac{1}{2} p''(\bar{\beta}) (\beta - \bar{\beta})^2 \\ &\quad + \frac{1}{6} p'''(\bar{\beta}) (\beta - \bar{\beta})^3 + \dots \end{aligned}$$

(33)

where

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$$\begin{aligned}
 & p_{\mathrm{s}}(\beta) \equiv (1-\beta) p_{\mathrm{e}}(\beta) + \beta p_{\mathrm{d}}(\beta) . \\
 & \end{aligned}$$

(36)

In the absence of tax ($\tau = 0$), private and social risk premiums would coincide, and firms would minimize their cost of finance by minimizing the expression in (36), implying the first-order condition

$$\begin{aligned}
 & \frac{d p_{\mathrm{s}}(\bar{\beta})}{d \bar{\beta}} \equiv 0 \quad \rightarrow \quad p_{\mathrm{d}}(\bar{\beta}) - p_{\mathrm{e}}(\bar{\beta}) + (1 - \bar{\beta}) p_{\mathrm{e}}'(\bar{\beta}) + \bar{\beta} p_{\mathrm{d}}'(\bar{\beta}) = 0 .
 \end{aligned}$$

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$$\begin{aligned}
 p(\beta) &\approx p(\bar{\beta}) - \tau a(\beta - \bar{\beta}) + \frac{b}{2}(\beta - \bar{\beta})^2, \\
 \end{aligned}
 \tag{40}$$

as stated in (6) in Sect. 2. Further, by using (37), we can write the second-order Taylor approximation to the social risk premium (36) around $(\beta = \bar{\beta})$ as

$$\begin{aligned}
 p_{\mathrm{s}}(\beta) &\approx p_{\mathrm{s}}(\bar{\beta}) + \frac{1}{2} \frac{d^2 p_{\mathrm{s}}(\bar{\beta})}{d\beta^2} (\beta - \bar{\beta})^2 \\
 \end{aligned}$$

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In Sect. [5.1](#), we introduced the second-order approximation

$$\begin{aligned} p_{\mathrm{d}}(\beta) &\approx \frac{k}{2} \beta^2. \end{aligned} \quad (44)$$

Using [\(43\)](#) and [\(44\)](#), we may therefore write [\(41\)](#) as

$$\begin{aligned} p_{\mathrm{s}}(\beta) &\approx p_{\mathrm{s}}(\bar{\beta}) + \frac{b_{\mathrm{s}}}{2} (\beta - \bar{\beta})^2, \quad b_{\mathrm{s}} \equiv b + 3\tau k \bar{\beta} \end{aligned} \quad (45)$$

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$$p_{\mathrm{d}}\left(\bar{\beta}\right)\}^{\mathrm{p}\left(\bar{\beta}\right)}\right).\nonumber\&\left.{-\tau a\left(\beta-\bar{\beta}\right)+\frac{b}{2}\left(\beta-\bar{\beta}\right)^2}\right],\end{aligned}}\tag{47}$$

$$\begin{aligned}\frac{\partial c}{\partial \beta} &= \frac{b\left(\beta-\bar{\beta}\right)-\tau\left(r+\pi+a\right)\left(1-\tau\right)}{\end{aligned}}\tag{48}$$

$$\begin{aligned}\frac{\partial c}{\partial \tau} &= \frac{c-\beta\left(r+\pi+a\right)+a\left(\bar{\beta}-0.5k\bar{\beta}^3\right)\left(1-\tau\right)}{\end{aligned}}\tag{49}$$

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