An example of a consistent bank rate using policy functions and dynamic regressors

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Abstract

In this paper, I describe an example of a consistent bank rate
using policy functions and dynamic regressors.
The paper ends with "The End"

Introduction

In a previous paper, I've described policy functions, dynamic regressors and a consistent bank rate.
Knowledge has been demanded of me of an example of a consistent bank rate
using policy functions and dynamic regressors.
In this paper, I describe an example of a consistent bank rate using policy functions and dynamic regressors.

An example of a consistent bank rate using policy functions and dynamic regressors

We have

$$b = r_f + p_b$$

where
b is the bank rate
r_f is the risk-free rate
p_b is the bank premium

We have

$$\phi_1(b,t) = r_f$$

$$\phi_2(b,t) = b - r_f$$

$$\phi_3(b,t) = t - \tau$$

and

$$a_1(b,t) = 1$$

$$a_2(b,t) = e^{-(t-\tau)}$$

$$a_3(b,t) = e^{-t}$$

where
τ is the time of an event of interest

Then

$$b = r_f + p_b = \sum_{i=1}^{3} a_i(b,t)\phi_i(b,t)$$

$$\iff$$

$$b = r_f + (b - r_f)e^{\tau - t} + e^{-t}(t - \tau)$$

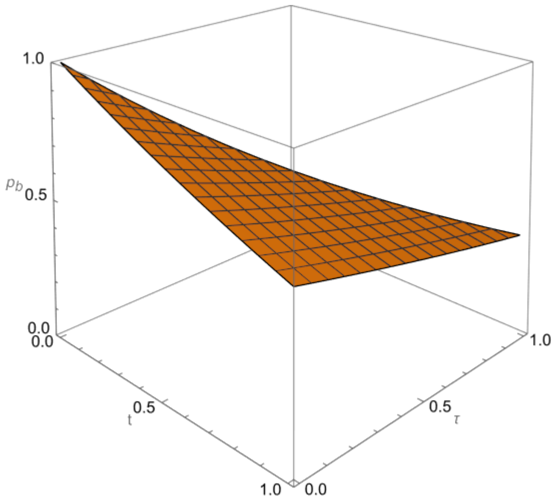
$$\iff$$

$$b = r_f + \frac{t - \tau}{e^t - e^\tau}$$

$$\iff$$

$$p_b = \frac{t - \tau}{e^t - e^\tau}$$

Plot of the bank premium



The End