Economics of central banking (Zentralbanktheorie und Zentralbankpolitik)

Arbitrage

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These slides present the main elements of the course 7,280; they are based on several papers and books (e.g. Walsh, 2003, Galí, 2008) whose references are given during the term; a separate reading list for the exam will be given after the term break.

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Arbitrage and term structure: example

3 markets, 2 two-year investment strategies

Investment i) market 1st year: 4%, market 2nd year: 8%

Investment ii) market 2-year investment, interest rate unknown

$$\begin{aligned}\left(1+\frac{4}{100}\right)\left(1+\frac{8}{100}\right) &= \left(1+\frac{12.32}{100}\right)\\ \left(1+\frac{?}{100}\right)^2 &= \left(1+\frac{12.32}{100}\right)\\ ? &= \left(\sqrt{1+\frac{12.32}{100}}-1\right)100 = 5.9811\end{aligned}$$

Strategy if ? $< 6\%$ (too low with respect to the 'no arbitrage condition'):
you take a 2-year loan (demand $\nearrow$, interest $\nearrow$), which you invest in markets for one and two years (supply $\nearrow$, interest $\searrow$); doing arbitrage implies a return to the the 'no arbitrage condition'