Forward Rates

- Forward rates are interest rates that can be taken in advance using term structure
- J. R. Hicks *Value and Capital* 1939

$$(1+r_2)^2 = (1+r_1)(1+f_2)$$

$$(1+r_k)^k = (1+r_{k-1})^{k-1}(1+f_k)$$

Example of Forward Rates

- Suppose I in 1925 expect to have £100 to invest in 1926, but want the money back by 1927. How can I guarantee the interest rate on the £100 investment today (1925)?
- Buy in 1925 $(1+r_2)^{2/(1+r_1)}$ 2-period discount bonds maturing at £100 in 1927. Cost: $£1/(1+r_1)$
- Short in 1925 one 1-period discount bond maturing at £100 in 1926 Receive: $£1/(1+r_1)$
- I have now locked in the interest rate $1+f=(1+r_2)^2/(1+r_1)$ between 1926 and 1927

Expectations Theory

- Forward rates equal expected spot rates
- Slope of term structure indicates expected future change in interest rates.