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Fixed income securities

Definition of bonds

- A bond is a security that promises to pay a well-defined amount per time period and at maturity to pay the bondholder a fixed amount
- The regular payments are called coupons and are either fixed or determined using a benchmark interest rate
- The final payment at maturity is typically the face value of the bond
- Given the pre-determined nature of the payments, they are referred to as fixed income securities

Risk-free and risky bonds

- Bonds are often regarded as risk-free with the assumption that all payments due will be always be made
- This is true for bonds issued by most of the major developed countries and international organisations
- Bonds issued by companies, banks, insurance companies and less developed countries are classed as risky
- The issuer might not be able to make payments in these cases
- We neglect such default risk in the subsequent analysis

Explaining different yields

- Bonds are available in a range of maturities, typically ranging from 1 month to 50 years
- Despite being risk-free, the yield of these bonds vary considerably and this variation changes over time
- We will seek to explain how these differences in yields and their changes are emerging

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Yield curves

Yield curves as predictors

- The term structure of interest rates reflects expectations about future short-term interest rates
- The slope of the yield curve can be used to predict the future macroeconomic performance of an economy

? Is investing in bonds really risk-free, provided the issuer will not default?

! The value of the bond will change over time as the interest rate changes, but this will affect investors only if they sell their bond; if they retain the bond until maturity their payments are fixed

The risk of changing interest rates

- Yields of bonds do not only change in the predictable manner implied by the yield curve, but might be subject to changes due to market forces and unexpected macroeconomic events
- Such changes in the interest rates will affect the value of bonds and we will develop a measure to assess the magnitude of this change
- With bond values changing, investors are exposed to risk and we will see how these risks can be managed

Interest rate risk

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Duration risk

- We can use the duration of a bond to measure its interest rate risk
- Using portfolios of bonds, interest rate risk can be eliminated

? Is eliminating interest rate risk using bonds of different durations always feasible?

! Having to obtain short positions will not be realistic for many investors and will incur additional costs

Summary

- We can use the yield curve to gain information about expected future short-term interest rates
- These short-term interest rates can then be used to predict the macroeconomic performance of an economy
- Even risk-free bonds are exposed to changing interest rates and this risk can be managed using the duration of bonds

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