

DCF: Firm income tax Debt, equity, and insolvency

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Two types of capital

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Common equity (ordinary shares)
Preferred equity (preferred shares)
Silent partnership interest
Convertible bond
Bond with warrants
Subordinated debt
Profit-participating loan
Perpetual hybrid note
Senior unsecured bond / note
Bank loan / term loan
Revolving credit facility
Secured loan
...

Equity
Debt

Capital in the real world

Capital in DCF



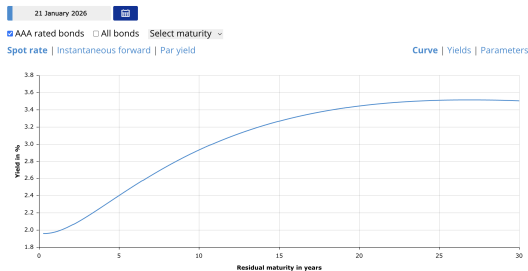
Equity is granted forever (but can be sold and bought at any t), typically risky (uncertain) and residual claim on cash flows.

Debt is granted for one period (and can be rolled over at any t), typically risk-free (certain) and requires interest payment. And it is (firm income) tax deductible.

Accordingly, the model **cannot address** the effects of debt with a maturity longer than one year, which cannot be unwound.



We denote the risk-free interest rate by r_f .



For simplicity, we assume that r_f does not change over time (flat term structure).

Euro area yield curves (ECB website); the actual term structure is not flat.



We distinguish

Financial distress loosely defined, a firm experiencing financial difficulties.

Insolvency within credit contracts precisely specified and verified.

Default an event arising after insolvency was established.

Bankruptcy legal procedure that begins with insolvency.

Default is not analyzed here: what happens depends on the contract.



Over-indebtedness Loss of equity, balance sheet showing negative equity

Illiquidity Inability to pay, obligation not paid on time

Imminent illiquidity Debtor is expected to be unable to meet due payment in the near future.

Compare US (only first trigger) and Germany (all three)!

In DCF, we will consider the **first two triggers**.



We distinguish debt and equity.

Debt is one-period.

We will discuss two insolvency triggers (illiquidity and over-indebtedness). We will not consider default.

