CFA NOTES

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Quantitative Methods

Reading 1

The Time Value of Money

1.1 Interest Rate

denoted r. Three Explanation:

Rate of Return The minimum rate of return an investor must receive in order to accept the investment.

Discount Rate Discount the future value to find its value today.

opportunity cost The value that investors forgo by choosing a particular course of action.

r = Real risk-free interest rate + Inflation premium + Default risk premium + Liquidity premium + Maturity premium

The **real risk-free interest rate** is the single-period interest rate for a completely risk- free security if no inflation were expected. In economic theory, the real risk-free rate reflects the time preferences of individuals for current versus future real consumption.

The **inflation premium** compensates investors for expected inflation and reflects the average inflation rate expected over the maturity of the debt.The sum of the real risk-free interest rate and the inflation premium is the **nominal risk-free interest rate**. Many countries have governmental short-term debt whose interest rate can be considered to represent the nominal risk-free interest rate in that country.

The **default risk premium** compensates investors for the possibility that the borrower will fail to make a promised payment at the contracted time and in the contracted amount.

The **liquidity premium** compensates investors for the risk of loss relative to an investments fair value if the investment needs to be converted to cash quickly.

The **maturity premium** compensates investors for the increased sensitivity of the market value of debt to a change in market interest rates as maturity is extended, in general.

1.2 The Time Value of Money

simple interest, Principal, compounding

$$FV_N = PV(1+r)^N \tag{1.1}$$

Test