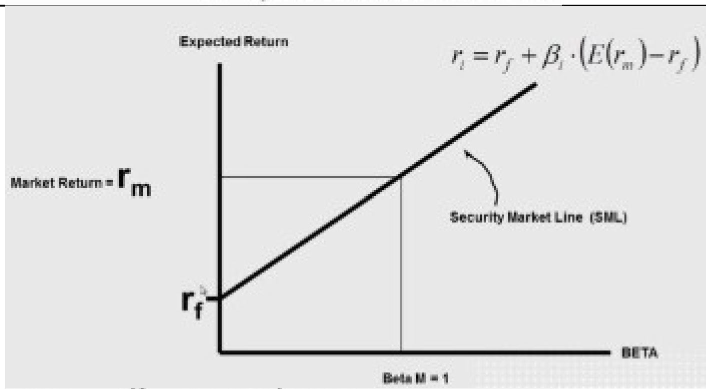
Formuleblad week 6

Expected return	$E[R] = \sum_R P_R \times R$ met P is probability en R is return Dus stel P = 40% en R = 100%, dan doe je 0.4 x 100, dan is de expected return in procenten
Measures of the risk of a probability distribution: - Variation - Standard deviation (volatility) of the variance	$Var(R) = E\left[(R - E[R])^2\right] = \sum_R P_R \times (R - E[R])^2$ $SD(R) = \sqrt{Var(R)}$
Historical returns of stocks and bonds	$R_{t+1} = \frac{Div_{t+1} + P_{t+1}}{P_t} - 1 = \frac{Div_{t+1}}{P_t} + \frac{P_{t+1} - P_t}{P_t}$ = Dividend Yield + Capital Gain Rate
R quarter to annual	$1 + R_{annual} = (1 + R_{Q1})(1 + R_{Q2})(1 + R_{Q3})(1 + R_{Q4})$
Average annual return	$\overline{R} = \frac{1}{T}(R_1 + R_2 + \cdots + R_T) = \frac{1}{T}\sum_{t=1}^{T} R_t$ met R is de realized return of security in year t for the years 1 through T
Variance estimate using realized returns (steekproef)	$Var(R) = \frac{1}{T-1}\sum_{t=1}^{T}(R_t - \overline{R})^2$
Sensitivity to systematic risk: beta	$\beta_i = \frac{Cov(r_i, r_m)}{\sigma_m^2}$
Expected return E(R) by Capital Asset Pricing Model	$E[R] = \text{Risk-Free Interest Rate} + \text{Risk Premium}$ $= r_f + \beta \times (E[R_{Mkt}] - r_f)$ Rf = risk-free rate, B = beta, E(Rmkt) = chance% x market return% $r_i = r_f + \beta_i \times \underbrace{(E[r_{Mkt}] - r_f)}_{\text{Market Risk Premium}}$ $r_i - r_f$ =Risk Premium for Security i
CAPM and security line Regressielijn (beta schatter)	 $(R_i - r_f) = \alpha_i + \beta_i(R_{Mkt} - r_f) + \varepsilon_i$ A = intercept term of regression B (Rmkt – rf) = represents the sensitivity of the stock to market risk. Market return +1% → security's return +B% E = the error term and represents the deviation from the best-

<table>
<tr><td></td><td>fitting line and is zero on average.</td></tr>
<tr><td>Market capitzalization (total market value of a firm’s outstanding shares)</td><td>MV_i = (Number of Shares of i Outstanding) × (Price of i per Share) = $N_i \times P_i$</td></tr>
<tr><td>Bonds provision summary</td><td>
<table>
<tr><th>Bond Type</th><th>Choice by</th><th>Determined by</th><th>Bond Price</th><th>Bond Yield</th></tr>
<tr><td>Callable</td><td>Issuer</td><td>Call price, Market yield</td><td>Lower than non-callable</td><td>Higher than non-callable</td></tr>
<tr><td>Convertible</td><td>Holder</td><td>Conversion ratio, share price</td><td>Higher than non-convertible</td><td>Lower than non-convertible</td></tr>
</table>
</td></tr>
<tr><td>Fairly priced loan</td><td>$PV(\text{Loan Payments}) = \text{Purchase Price}$
$M.\left[\frac{1}{r}\left(1-\frac{1}{(1+r)^N}\right)\right] = purchase\ price$
met M = monthly loan payment (end of the month)</td></tr>
<tr><td>Fairly priced lease</td><td>$PV(\text{Lease Payments}) = \text{Purchase Price} - PV(\text{Residual Value})$
$L.\left[1+\frac{1}{r}\left(1-\frac{1}{(1+r)^{N-1}}\right)\right] = Purchase\ price - \frac{residual\ value}{(1+r)^N}$
Due to beginning of period payment</td></tr>
<tr><td>Lease-equivalent loan</td><td>Free cash flow lease – free cash flow buy) / (1+r)</td></tr>
<tr><td>Buying or true tax lease: which is better?</td><td>Lease bedrag – Buy bedrag (=lease equivalent loan)
Negatief: Buying is better
Positief: True tax lease is better</td></tr>
<tr><td>Buy or non-tax lease?</td><td>Evaluating a Non-tax Lease
■ Buy or <u>non-tax lease</u>?
■ Non-tax lease is directly comparable to loan
■ Lease if:
$PV(Lease\ payments) < PV(Loan\ payments) = Purchase\ price$
<table>
<tr><th>Type of financing</th><th>Depreciation as cost for firm/lessee</th><th>Interest as cost for firm/lessee</th><th>Full lease payment as cost for firm/lessee</th></tr>
<tr><td>Loan</td><td>Yes</td><td>Yes</td><td>No</td></tr>
<tr><td>Non-tax lease (‘Financial lease’)</td><td>Yes</td><td>Yes</td><td>No</td></tr>
<tr><td>True tax lease (‘Operating lease’)</td><td>No</td><td>No</td><td>Yes</td></tr>
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