

# Pseudo Presentation

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November 2021

# Capital Asset Pricing Model

## Theory

### Theorem

*The Capital Asset Pricing Model (CAPM) describes the relationship between systematic risk and expected return for assets, particularly stocks.*

CAPM is widely used throughout finance for pricing risky securities and generating expected returns for assets given the risk of those assets and cost of capital.

# Capital Asset Pricing Model

## Formula

$$ER_i = R_f + \beta_i(ER_m - R_f) \quad (1)$$

where,

$ER_i$  = expected return of investment

$R_f$  = risk-free rate

$\beta_i$  = beta of the investment

Example: Imagine an investor is contemplating a stock worth \$100 per share today that pays a 3% annual dividend. The stock has a beta compared to the market of 1.3. Also, assume that the risk-free rate is 3% and this investor expects the market to rise in value by 8% per year.

Solution:

The expected return of the stock =  $3\% + 1.3 \times (8\% - 3\%) = 9.5\%$

# A Heatmap Table

## Climate Change

Table 1. Switzerland Temperature - Monthly Average

|           | Jan   | Feb   | Mar  | Apr   | May   | Jun   | Jul   | Aug   | Sep   | Oct   | Nov  | Dec   |
|-----------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1871-1880 | -1.70 | 0.30  | 4.00 | 8.00  | 10.80 | 15.70 | 17.90 | 17.40 | 13.70 | 8.10  | 2.50 | -1.50 |
| 1881-1890 | -2.00 | -0.30 | 2.80 | 7.40  | 12.20 | 15.30 | 17.30 | 16.30 | 12.80 | 6.90  | 3.40 | -1.10 |
| 1891-1900 | -2.40 | 0.00  | 3.50 | 8.00  | 11.40 | 15.80 | 17.40 | 16.90 | 13.80 | 8.40  | 3.60 | -0.30 |
| 1901-1910 | -1.70 | -0.50 | 3.40 | 7.50  | 11.90 | 15.50 | 17.30 | 16.60 | 12.80 | 8.40  | 2.80 | 0.20  |
| 1911-1920 | -0.60 | 0.60  | 4.40 | 7.10  | 13.00 | 15.20 | 16.50 | 16.40 | 12.90 | 7.40  | 3.10 | 1.30  |
| 1921-1930 | -0.10 | 0.30  | 4.10 | 7.60  | 12.20 | 15.30 | 17.70 | 16.40 | 13.60 | 8.90  | 3.50 | 0.40  |
| 1931-1940 | -0.70 | 0.10  | 3.40 | 7.70  | 11.90 | 15.70 | 17.00 | 16.50 | 13.40 | 8.00  | 4.20 | -0.90 |
| 1941-1950 | -1.80 | 0.60  | 4.80 | 9.30  | 12.90 | 16.00 | 18.10 | 17.70 | 14.40 | 9.10  | 3.30 | 0.20  |
| 1951-1960 | -0.60 | 0.00  | 4.70 | 8.00  | 12.40 | 15.40 | 17.40 | 16.50 | 13.50 | 8.30  | 3.50 | 1.50  |
| 1961-1970 | -1.20 | 0.80  | 3.40 | 8.30  | 11.80 | 15.50 | 17.30 | 16.10 | 13.90 | 9.50  | 4.00 | -1.00 |
| 1971-1980 | 0.10  | 1.70  | 4.50 | 7.20  | 12.00 | 14.90 | 17.10 | 16.70 | 13.30 | 8.30  | 3.80 | 0.90  |
| 1981-1990 | -0.20 | 0.30  | 4.60 | 8.10  | 12.50 | 15.40 | 18.40 | 17.40 | 14.30 | 10.00 | 4.00 | 1.80  |
| 1991-2000 | 0.70  | 1.80  | 5.80 | 8.70  | 13.50 | 16.10 | 18.40 | 18.60 | 14.00 | 9.40  | 4.10 | 1.60  |
| 2001-2010 | 0.50  | 1.80  | 5.30 | 9.70  | 13.90 | 17.70 | 19.00 | 18.10 | 14.00 | 10.20 | 5.00 | 0.90  |
| 2011-2020 | 1.60  | 1.80  | 6.10 | 10.50 | 13.40 | 17.70 | 19.50 | 19.20 | 15.10 | 10.40 | 5.60 | 2.60  |

# A Line Plot

## Stock Performance

Johnson & Johnson Quarterly Earnings Per Share 1960–1980

