

Pseudo Presentation

Yue Min, Second Author

University of Zurich, Second Affiliation

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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

β_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

