



Measuring the risk of a single investment

1. Determine the expected rate of return on each investment, variance and standard deviation according to the data in the table.

Variant no.	Economic growth	Probability to reach returns	Returns of project A (v %)	Returns of project B (v %)
1	Recovery	0,3	28	12
2	Average growth	0,4	20	15
3	Stagnation	0,2	14	14
4	Recession	0,1	9	16

2. From the table, select only one investment that is most profitable for a rational investor. The criterion is the value of the coefficient of variation.

Investment	Expected rate of return (%)	Standard deviation (%)
X	17	15,5
Y	10	9
Z	14	13

3. Consider Asset A with an expected rate of return of 14.5% and a standard deviation of 2.75% and Asset B with an expected rate of return of 17.4% and a standard deviation of 5.25%. Determine which of them is more suitable for investment, justify your answer and support the calculation.



4. Determine the expected rate of return of each investment, variance and standard deviation according to the data in the table and select only one of the investments that is most beneficial for a rational investor. The criterion is the value of the coefficient of variation.

Variant no.	Economic growth	Probability to reach returns (%)	Returns of investments (%)		
			A	B	C
1	Recovery	20	25	19	20
2	Average growth	40	21	18	15
3	Stagnation	30	15	14	10
4	Recession	10	9	12	10

Measuring the risk of a portfolio investment

5. Calculate the expected rate of return on the portfolio and the risk associated with the portfolio consisting of the above assets (we invest CZK 500,000 in Asset A and CZK 250,000 in Asset B) and determine whether these assets are suitable for building the portfolio. Proof your claim by calculation.

Variant no.	Economic growth	Probability to reach returns (%)	Returns of investments (%)	
			A	B
1	Positive	10	20	12
2	Stable	60	15	10
3	Negative	30	5	15



6. At a given probability, the following returns (in%) are assumed for the listed shares A, B, C:

Probability to reach returns (%)	Expected returns in selected economic situations (%)		
	A	B	C
13	25	25	10
47	20	15	15
32	15	20	20
8	10	10	25

- a) Calculate the expected return, standard deviation and variation coefficient for each share.
- b) What is the covariance and the correlation coefficient for each pair of shares?
- c) Calculate the expected return and standard deviation of the portfolio of 60% asset A and 40% asset B.
7. Calculate the risk associated with the portfolio of Assets A and B, with CZK 1 million invested in each asset. Determine whether these assets are suitable for building a portfolio, and calculate your answer.

Probability to reach returns	Economic growth	Expected returns (%)	
		A	B
0,25	Positive	20	5
0,5	Stable	10	10
0,25	Negative	0	15



8. Calculate the risk associated with the portfolio consisting of assets A and B when CZK 70,000 is invested in A and CZK 160,000 in asset B. Determine whether these assets are suitable for building a portfolio, and calculate your answer.

Probability to reach returns (%)	Economic growth	Expected returns (%)	
		A	B
0,4	Positive	32	5
0,3	Stable	16	12
0,3	Negative	5	25