

Quiz: Applied Standard Deviation and Variance

Investment Data

Consider we have two investment opportunities:

			Returns			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment 1	5%	5%	5%	5%	5%	5%
Investment 2	12%	-2%	10%	0%	7%	3%

The returns for 6 consecutive years for each investment are shown above. Use this information to answer the questions below.

What is the mean return for Investment 1? (Write your answer as a percentage without the percentage sign - Ex: 9% should be reported as 9 or 93% is reported as 93.)

Enter your response here

Submit

What is the mean return for Investment 2? (Write your answer as a percentage without the percentage sign - Ex: 9% should be reported as 9 or 93% is reported as 93.)

Enter your response here

Submit

Investment Data

In the previous two questions, you should have found that these investments have the same mean! That is, regardless of which investment opportunity you choose, you are expected to earn the same amount. So how are they different? Let's look at some additional questions to see if we can find some differences.

The same data as above is provided again (to minimize scrolling).

			Returns			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Investment 1	5%	5%	5%	5%	5%	5%
Investment 2	12%	-2%	10%	0%	7%	3%

The returns for 6 consecutive years for each investment are shown above. Use this information to answer the questions below.

Quiz Question

Using the information above, mark all of the below that are **true** statements.

- ☐ The risk associated with investment 1 is lower than the risk associated with Investment 2.
- ☐ The standard deviation associated with Investment 1 is smaller than the standard deviation associated with Investment 2.
- ☐ Knowing the mean return amount across all the years for each investment provides us with all of the information necessary to understand which investment we should choose.

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Quiz Question

Based on the observed data, which of the above two investments has the best opportunity of earning more than 7%?

- ☐ Investment 1
- ☐ Investment 2
- ☐ Neither.
- ☐ We cannot tell.

Submit

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The above example is a simplified version of the real world, but does point out something useful that you may have heard before. Notice if you were not fully invested in either **Investment 1** or fully invested in **Investment 2**, but instead you were diversified across both investment options, you could earn more than either investment individually. This is the benefit of diversifying your portfolio for long term gains. For short term gains, you might not need or want to diversify. You could get lucky and hit short term gains associated with the upswings (12%, 10%, or 7%) of Investment 2. However, you might also get unlucky, and hit a down term and earn nothing or even lose money on your investment using this same strategy.

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