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Graded quiz on the content of Module 1

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1. Suppose the aggregate earnings of the companies that are part of an index fall more than the price of the index (which is an aggregation of the stock prices of these same companies). Which of the following statements is/are true?

1 / 1 point

- ☐ The index is now "more expensive" because its Price/Earnings ratio is lower.
- ☐ The index is now "cheaper" because its Price/Earnings ratio is lower.
- ☒ The index is now "more expensive" because its Price/Earnings ratio is higher.
- ☐ The index is now "cheaper" because its Price/Earnings ratio is higher.

✓ **Correct**

Correct! If the earnings of the companies that constitute the index fall more than the price of the index, then the Price/Earnings ratio of the index is higher than before.

In terms of valuation, a higher Price/Earnings ratio means that you are now paying a higher price per unit of earnings generated by the companies. Hence we say that the index has become "more expensive".

2. Which of the following statements about market valuation is/are true?

1 / 1 point

- ☐ Market valuation can be assessed by just looking at the price of a stock index
- ☒ A "cheap" market can always become "cheaper"

✓ **Correct**

Correct! To evaluate the "value" of a market or an index, we divide its price by some metric that is supposed to give some information about the fair value of this market. A typical example is the earnings of the companies that constitute an index, if we are trying to value a stock index.

Basically, this ratio can always decrease meaning that the market (or index) can always become "cheaper". The lower bound of this ratio would be 0 if the price of the index reaches 0. But in such an apocalyptic scenario where all the companies in the index are worth nothing, the index would simply not exist anymore.

- ☐ Market valuation can be assessed by just looking at the aggregate earnings of the companies that constitute a stock index
- ☒ An "expensive" market can always become "more expensive"

✓ **Correct**

Correct! To compute the value of a market or an index, we divide its price by some metric that is supposed to give some information about the fair value of this market. A typical example is the earnings of the companies that constitute an index, if we are trying to value a stock index.

Basically, this ratio can always increase meaning that the market (or index) can always become "more expensive". Indeed, there is no upper bound on the price of an index (or any asset) so the sky is the limit.

3. A stock has a price of 100. Over the following two months, its monthly returns are 20% and 10% respectively. Among the following expressions, which is/are equal to the price of the stock after these two months?

1 / 1 point

- ☒ Stock price after two months = $100 * (1.2) * (1.1)$

✓ **Correct**

Correct! In the first month, the stock price increases by 20% meaning it went from 100 to 120. We can write it as: $100 * (1 + 20\%) = 100 * 1.2 = 120$. In the second month, the stock price increases further by 10%. So it went from 120 to $120 * (1 + 10\%) = 120 * 1.1 = 132$.

Writing the whole thing together (from the beginning of the 2 months):

$$100 * (1 + 20\%) * (1 + 10\%) = 100 * 1.2 * 1.1 = 132.$$

☒ Stock price after two months = $100 * (1 + 20\%) * (1 + 10\%)$

 **Correct**

Correct! In the first month, the stock price increases by 20% meaning it went from 100 to 120. We can write it as: $100 * (1 + 20\%) = 100 * 1.2 = 120$. In the second month, the stock price increases further by 10%. So it went from 120 to $120 * (1 + 10\%) = 120 * 1.1 = 132$.

Writing the whole thing together (from the beginning of the 2 months):

$$100 * (1 + 20\%) * (1 + 10\%) = 100 * 1.2 * 1.1 = 132.$$

☐ Stock price after two months = $100 * (0.02) * (0.01)$

☐ Stock price after two months = $100 * (1 + 15\%) * (1 + 15\%)$

☐ Stock price after two months = $100 * (20\%) * (10\%)$

4. When talking about an histogram, what does "skewness" refer to?

1 / 1 point

- ☐ The thickness of the tails, i.e. whether extreme events (good or bad) are likely or not.
- ☒ The asymmetry of the histogram, i.e. whether one tail (the left one or the right one) is "longer" than the other.
- ☐ The interval of returns (say between 0% and 5%) that has the highest bar, i.e. the one that contains the most observations.
- ☐ The scale, i.e. whether the histogram is very spread out (say between -50% and +50%) or very narrow (say between -10% and +10%)

 **Correct**

Correct! Skewness is indeed a measure of the asymmetry of a probability distribution (i.e. what we estimate and plot when building a histogram).

5. Who are the main participants in financial markets?

1 / 1 point

☒ Investors

 **Correct**

Correct! Investors participate in financial markets mainly to fulfill their need to transfer money through time (i.e. invest the money they have today to guarantee a certain living standard in the future when they might not be earning as much money as they are now).

☐ Tax collectors

☐ Journalists

☒ Firms

 **Correct**

Correct! Firms participate in financial markets for many reasons but the more salient one is probably to fulfill their need for capital to be able to invest in new projects.

☒ The government

 **Correct**

Correct! The government has a prominent role in financial markets because it guarantees that some market participants do not get abused by other more powerful participants. For example, this can take the form of ensuring that every participant gets access to a certain level of information and at the same time, or at least prevent participants with privileged information to trade on it.

☒ Financial intermediaries

 **Correct**

Correct! Financial intermediaries act as an interface between buyers and sellers to facilitate transactions. They play a vital role in financial markets.

☐ Academics

6. You hold some shares of company XYZ and you would like to sell them to pay a speeding ticket you just received. Which of the following markets will you turn to?

1 / 1 point

☐ The primary market

☒ The secondary market

✓ Correct

Correct! The secondary market is a market where market participants trade with each other securities that were previously issued. In the case of shares of a company, these are the traditional stock exchanges you hear about in the media (e.g. NYSE, NASDAQ, EURONEXT, ...). This is where you would sell your shares to another participants in order to pay for your speeding ticket.

7. Which of these examples **best** illustrates "insider trading"?

1 / 1 point

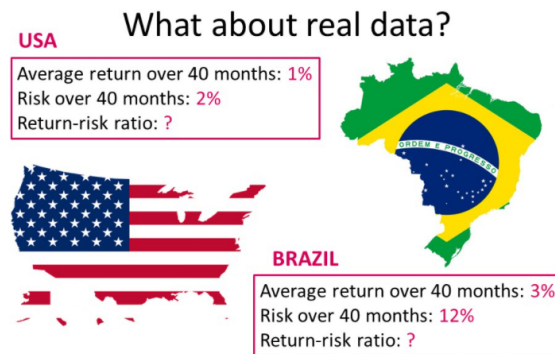
- ☐ Some investors using very modern and sophisticated computer-intensive systems to execute orders on exchanges right before "normal" investors.
- ☐ Some powerful investors colluding with each other to manipulate the price of an asset.
- ☐ Some intermediaries that are supposed to execute trades for their clients but actually take advantage of the situation to execute trades for themselves before doing it for their clients.
- ☒ Some investors benefiting from privileged information about a company and illegally taking advantage of it by trading shares of the company.

✓ Correct

Correct! This illustrates insider trading. The term "insider" reflects the fact that people working inside the company generally are better informed about its true performance than "outsiders" and may be tempted to benefit from it, although this is illegal.

8. You have gathered the following information about the performance of the American and Brazilian stock indices:

1 / 1 point



Which of the following statements is/are true?

- ☒ With no access to additional data, an investment opportunity with a higher return/risk ratio should be preferred to another investment opportunity with a lower return/risk ratio.

✓ Correct

Correct! A higher return/risk ratio should be preferred over a lower one because it indicates that (historically) one would have gotten more reward per unit of risk.

- ☐ The return/risk ratio is higher for Brazil than the USA.
- ☐ There is not enough information to compute the return/risk ratios for both countries.
- ☒ Based on this data alone and using the return/risk ratio as the decision tool, one should invest in the American index rather than the Brazilian index.

✓ Correct

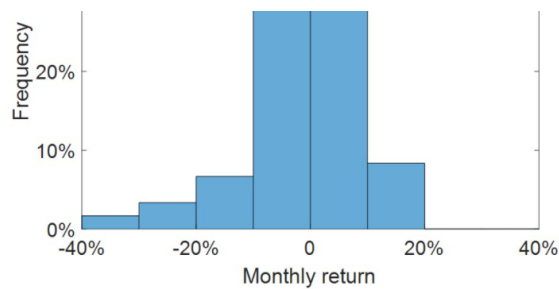
Correct! The return/risk ratio is equal to $1\% / 2\% = 50\%$ for the USA and $3\% / 12\% = 25\%$ for Brazil. Moreover, we know that a higher return/risk ratio should be preferred over a lower one because it indicates that (historically) one would have gotten more reward per unit of risk.

- ☐ Based on this data alone and using the return/risk ratio as the decision tool, one should invest in the Brazilian index rather than the American index.

9. Based on the data you gathered, you were able to plot the following histogram:

1 / 1 point





Which of the following statement is/are true about this histogram?

- ☒ Over this time period, there was a 80% chance of observing a monthly return between -10% and 10%.

✓ **Correct**

Correct! There was a 40% chance of observing a monthly return between -10% and 0% but also a 40% chance of observing a monthly return between 0% and 10%. Together, that makes a 80% chance of observing a monthly return between -10% and 10%.

- ☐ The distribution is skewed to the right (i.e. the right tail is "longer").

- ☒ Over this time period, there was a greater chance of observing extremely bad monthly returns (more negative than -20%) than extremely good monthly returns (more positive than 20%).

✓ **Correct**

Correct! The vertical axis indicate the frequency (or probability) of observing returns falling into the intervals delimited on the horizontal axis. We see in this histogram that there was 0 probability of observing returns higher than 20% while there was some probability of observing returns below -20% (about 4% chance between -20% and -30% and about 2% chance between -30% and -40%).

- ☐ Over this time period, there was a 30% chance of observing a monthly return between 0% and 10%.

10. What are the 3 advantages that private investors enjoy over their professional counterparts?

1 / 1 point

- ☐ The fact that they don't have expenses, the ability to take a much longer term view than professional investors and the fact that they do not have to track or try to beat a particular benchmark.
- ☐ The ability to deal with illiquidity, a better reactivity when faced with short term moves in the market and the fact that they do not have to track or try to beat a particular benchmark.
- ☒ The ability to deal with illiquidity, the ability to take a much longer term view than professional investors and the fact that they do not have to track or try to beat a particular benchmark.
- ☐ The ability to deal with illiquidity, the ability to take a much longer term view than professional investors and an access to a greater set of information.

✓ **Correct**

Correct! These are the 3 advantages that private investors enjoy over their professional counterparts.