

FINM3407 - Behavioral Finance**Tutorial 2 Questions/Answers**

Note: This topic has more questions than can be covered in a 2-hour session. The questions to be covered by your tutor are indicated by an asterisk (*); the rest questions should be viewed as extra practice problems.

In this tutorial, we are going to cover the following relevant topics: Prospect Theory and Agency Theory and Corporate Governance.

There are a few references reading for these two relevant topics:

Ackert/Deaves Chapters 3

Investments, 12th Edition, By Zvi Bodie and Alex Kane and Alan Marcus Chapter 11

Corporate Finance, 5th edition, Pearson. By Jonathan Berk and Peter DeMarzo Chapter 29

- **Part ONE: Prospect Theory**

1*. Differentiate the following terms/concepts:**a. Lottery and insurance**

A lottery is a prospect with a low probability of a high payoff. Many people buy lottery tickets, even with negative expected values. These same people buy insurance to protect themselves from risk. Normally, insurance is a hedge against a low-probability large loss. These choices are inconsistent with traditional expected utility framework but can be explained by prospect theory.

b. Segregation and integration

Integration occurs when positions are lumped together, while segregation occurs when situations are viewed one at a time.

c. Risk aversion and loss aversion

A person who is risk averse prefers the expected value of a prospect to the prospect itself, whereas for a person who is loss averse, losses loom larger than gains.

d. Weighting function and event probability

Event probability is simply the subjective view on how likely an event is. The weighting function is associated with the probability of an outcome, but is not strictly the same as the probability as in expected utility theory.

2*. Give an example of a decision where loss aversion could lead an investor to make an irrational choice. How could this situation be mitigated?

An investor might be hesitant to sell an underperforming stock due to loss aversion - the fear of realizing a loss is psychologically impactful. However, holding onto the stock could lead to even greater losses. This could be mitigated through setting predetermined selling points (stop-loss orders) to limit potential losses and remove emotional decision-making.

3*. Consider an individual who is risk averse. How might this person behave differently in investment scenarios compared to a risk-seeking individual?

A risk-averse individual would prefer investments with lower but more certain returns, such as bonds or index funds. On the other hand, a risk-seeking individual might invest more heavily in high-risk, high-reward assets, like individual stocks or cryptocurrencies.

4. In your own words, explain how loss aversion and risk aversion might influence a company's financial decision-making.

Both loss aversion and risk aversion can lead a company to conservative financial decision-making. Loss aversion might prevent a company from discontinuing a failing product line or from investing in a promising but uncertain venture. Risk aversion might lead a company to retain excess cash reserves or avoid taking on debt, even when those resources could be invested profitably.

5. Can a person be both risk-averse and loss-averse? Give a practical example of how these two characteristics might interact.

Yes, a person can be both risk-averse and loss-averse. For example, an investor might choose a low-risk investment portfolio to avoid the potential for large losses (risk aversion) but might also hold onto an underperforming stock to avoid realizing a loss (loss aversion).

6*. How might an understanding of loss aversion and risk aversion influence the strategies of a financial advisor when advising clients?

A financial advisor, understanding these principles, might recommend diversified portfolios to risk-averse clients to spread the risk, and might use methods like dollar-cost averaging to mitigate the emotional impact of market fluctuations and loss aversion. The advisor might also prepare clients for the inevitability of market downturns to help them avoid panic selling due to loss aversion.

7*. According to prospect theory, which is preferred?

a. Prospect A or B?

Decision (i). Choose between:

A(0.80, \$50, \$0) and B(0.40, \$100, \$0)

Prospect A is preferred due to risk aversion for gains. While both have the same expected change in wealth, A has less risk.

b. Prospect C or D?

Decision (ii). Choose between:

C(0.00002, \$500,000, \$0) and D(0.00001, \$1,000,000, \$0)

Prospect D, with more risk, is preferred due to the risk seeking that occurs when there are very low probabilities of positive payoffs.

c. Are these choices consistent with expected utility theory? Why or why not?

Violation of EU theory because preferences are inconsistent. The same sort of Allais paradox proof from Chapter 1 can be used. It is also necessary to make the assumption of preference homogeneity, which means that if D is preferred to C, it will also be true that D is preferred to C* where these are:*

C*:(0.00002, \$50, \$0) and D*:(0.00001, \$100, \$0)

8*. Consider a person with the following value function under prospect theory:

$$\begin{aligned} v(w) &= w^{.5} && \text{when } w > 0 \\ &= -2(-w)^{.5} && \text{when } w < 0 \end{aligned}$$

a. Is this individual loss-averse? Explain.

This person is loss averse. Losses are felt twice as much as gains of equal magnitude.

b. Assume that this individual weights values by probabilities, instead of using a prospect theory weighting function. Which of the following prospects would be preferred?

P1(0.8, 1000, -800)
P2(0.7, 1200, -600)
P3(0.5, 2000, -1000)

We calculate the value of each prospect:

$$V(P1) = 0.8(1000^{.5}) + 0.2(-2)(-800)^{.5} = 0.8(31.62) + 0.2(-2)(28.27) = 13.982$$

$$V(P2) = 0.7(34.64) + 0.3(-2)(24.49) = 9.55$$

$$V(P3) = 0.5(44.72) + 0.5(-2)(31.62) = -9.265$$

Therefore, prospect P1 is preferred.

9*. Now consider a person with the following value function under prospect theory:

$$v(z) = z^8 \quad \text{when } z \geq 0$$

$$= -3(-z)^8 \quad \text{when } z < 0$$

This individual has the following weighting function:

$$\pi(p_i) = \frac{p_i^\gamma}{(p_i^\gamma + (1 - p_i)^\gamma)^{\frac{1}{\gamma}}}$$

where we set $\gamma = .65$.

a. Which of the following prospects would he choose?

PA (0.001, -5000)
PB (-5)

Compare the value of each prospect:

$$V(PA) = 0.983(0) + (-3)(910.28)(0.011) = -30.15 \text{ (note use of weights)}$$

where:

$$910.28 = [-(-5000)]^{0.8}$$

$$0.983 = (1 - 0.001)^{(0.65)} / [(0.999^{(0.65)} + (1 - 0.999)^{(0.65)})^{(1/0.65)}]$$

$$0.011 = 0.001^{(0.65)} / [(0.001^{(0.65)} + (1 - 0.001)^{(0.65)})^{(1/0.65)}]$$

$$V(PB) = 3 * 1 * -3.62 = -10.87$$

Therefore, you would prefer B.

b. Repeat the calculation but using probabilities instead of weights.

What does this illustrate?

$$V(PA) = 0.999 * 0 + 3 * 0.001 * -910.28 = -2.73 \text{ (note use of probability)}$$

$$V(PB) = 3 * 1 * -3.62 = -10.87$$

Therefore, you would prefer A. The reason for the switch is that risk seeking is maintained in the domain of losses (implying rejection of losses) if probabilities are used instead of weights.

10*. Why might some prefer a *prix fixe* (fixed price) dinner costing about the same as an *a la carte* one (where you pay individually for each item)? (Assume the food is identical.)

*Payment decoupling is encouraged with *prix fixe*. You only face the loss of money once rather than multiple times (occurring if you have to face the cost of each item individually using an *à la carte* scheme).*

- **Part Two: Agency Theory and Corporate Governance**

11*. Corporate managers work for the owners of the corporation. Consequently, they should make decisions that are in the interests of the owners, rather than their own. What strategies are available to shareholders to help ensure that managers are motivated to act this way?

Shareholders can do the following:

1. Ensure that employees are paid with company stock and/or stock options.
2. Ensure that underperforming managers are fired.
3. Write contracts that ensure that the interests of the managers and shareholders are closely aligned.
4. Set up a monitoring mechanism (such as boards) to ensure that managers work in the best interest of the shareholders.

12*. What inherent characteristic of corporations creates the need for a system of checks on manager behaviour?

In most modern corporations there is a separation between management (control) and ownership. On the one hand, the managers of the company, who usually do not have direct ownership, manage and control the firm. On the other hand, the shareholders, who are the owners, are not involved in the management of firm. This creates a clear conflict of interest and this conflict between the investors and managers creates the need for investors to devise a system of checks on managers - the system of corporate governance.

13*. What is the role of the board of directors in corporate governance?

There are several key roles of the board of directors. The main role of the board is to monitor the management to reduce agency costs and to ensure that the managers work in the best interest of the shareholders. In addition to monitoring, the board also provides guidance and support to the CEO and the management of the firm. Furthermore, the board also play a vital role in setting the main vision and strategy of the company. It is responsible for approving and keeping track of the company's strategy as well as annual budgets and investment programs established in the action plan prepared by the executive officers.

14. What role do securities analysts play in monitoring?

Securities analysts produce independent valuations of the firms they cover so that they can make buy and sell recommendations to their clients. They usually collect a great deal of information on the firm as well as its competitors through the company's financial statements and filings. They also often ask difficult and probing questions of CEOs and CFOs during quarterly earnings releases. As a result of all this information gathering, they are usually in a good position to uncover irregularities in the firm.

15. How are lenders part of corporate governance?

Lenders are exposed to the firm as creditors and so are motivated to carefully monitor the firm. They often include covenants in their loans that require the company to maintain certain profitability and liquidity levels. Breaking these covenants can be a warning sign of deeper trouble.

16*. Is it necessarily true that increasing managerial ownership stakes will improve firm performance?

No. There are two counterarguments here. First, as Demsetz and Lehn (1985) argue, there is no reason to expect a simple relation between ownership and performance. There are many dimensions to the corporate governance system and a one-size-fits-all approach is too simplistic; the correct ownership level for one firm may not be the correct level for another. Second, some studies have shown a non-linear relationship between firm valuation and ownership—specifically that increasing ownership is good at first, but that in a certain range, managers can use their ownership level to partially block efforts to constrain them, even though they still own a minority of the shares. In this “entrenching” range, increasing ownership could reduce performance.

17*. What are a board's options when confronted with dissident shareholders?

When confronted with a dissident shareholder, a board can:

- Ignore the shareholder, which will result in either the shareholder going away or launching a proxy fight, in which case the board will need to expend resources in an attempt to convince shareholders not to side with the dissident; or
- Negotiate with the dissident shareholder to come to a solution on which the board and the shareholder can agree.

18. What is the essential trade-off faced by government in designing regulation of public firms?

The government should be trying to maximize societal welfare. Thus, in designing regulation, it must trade off the effects of direct and indirect enforcement, compliance

and other costs associated with regulation against the aggregate benefits that accrue to shareholders and the economy as a whole.