

Tutorial 1, Week 2 SOLUTIONS

This tutorial is designed to introduce some of the concepts that will be developed and discussed over the course of the semester.

1. Discussion question – organizational design.

Read the article: “The holes in holacracy” from *The Economist*.

Now consider the following questions:

- In terms of modelling behaviour of workers in a firm (see Brickley pp. 32-35), which would work best with the principles of holacracy?
- What might be the benefits and limitations of holacracy? Why?
- What organisations might such an approach work for?

Holacracy – Discussion points.

- *This most likely fits in with the ‘Happy-is-productive’ model that we noted in week 1. Recall that in that model the goal was to provide a work environment that pleased workers. Why is this? Consider the approach of Zappos – the firm identified in the article. It believes that ‘happy workers are productive workers.*
- *How does it achieve this – it is a more democratic and less bureaucratic or autocratic form of business structure. There is more ‘teamwork’ in this model (at least the way it is described in the article) with the notion that circles or groups of workers come together to work on tasks and or solve problems.*
- *Benefits – by giving employees or workers a voice you potentially create opportunities for new ideas to come to the forefront, and remove the rigidity associated with top down decision making. This provides the opportunity of ideas to spring up in a more uninhibited manner.*
- *Limitations – perhaps these are all too apparent. It is likely to create confusion if there are not clear well-defined decision making and action protocols. Reports suggest that some employees were not sure how to get things done. It is easy to think there will be too many chiefs and not enough Indians. The problem is that by giving individuals a free rein, balloons will be floated irrespective of the value they may have. See the discussion in the article about a looser form of management structure that was adopted at Oticon – the Danish hearing aid maker. the ‘innovation’ there proved wasteful and there was a lack of clarity about the career paths for workers.*
- *For which organisations might such an approach work? In the article they talk about the benefits of such an approach “for the firms that have adopted it so far: relatively small, fast growing ones, full of creative types who would shun a more conformist workplace.” It is less suited to ‘more conventional firms’. note that we will discuss in more detail later in the semester what types of*

organisational structure works best, and when. This may reflect the nature of information, who has it and who can best use it to the firm's strategic advantage. Moreover, it may also depend on the strategic environment the firm faces – this form of management structure might be less suited to an environment in which a firm must respond decisively to a decision or action of a rival in a way that sends a clear signal about its intention. For example, it might be a decision about advertising, capital expenditure or market entry/exit. In these situations, it may be better for the firm to speak as one in which case a more hierarchical or even dictatorial approach is better.

- As a final note, we may wish to consider some recent reports about the success of holocracy at Zappos. It suggests that among many staff it has not been a resounding success. A NYT blog from 2016 indicated that

“The exodus began after the chief executive, Tony Hsieh, announced that the company was going to adopt Holacracy, which is supposed to promote collaboration and abolish hierarchy. Anyone who did not accept the change could take a generous buyout, Mr. Hsieh said at the time. Within weeks, about 14 percent of the company, or 210 employees, had left the company,..” (The Zappos Exodus Continues After a Radical Management Experiment by David Gelles)

2. Discussion question – monitoring and performance evaluation.

Read the article: “Memo to Workers: The Boss Is Watching --- Advances in Tracking Technology Are Shaking Up the Workplace” from the *Wall Street Journal*.

Now consider the following question:

- Why might firms wish to monitor employees?
- Will monitoring always be effective and achieve the desired outcomes? Why or why not?

Monitoring – Discussion points.

- This is pretty obvious – think about the classic principal-agent problem. A boss and his workers, the team manager and members of the team, shareholders and the senior management of a company. In each case one party is taking actions in the interest of the other, but their interests diverge. Shareholders want the management to maximise profit (in general), though bosses might aspire to a variety of goals – ask what some of these might be. Workers want to ‘goof off’ or slack (think of it as time spent catching up with friends on Facebook), bosses want them to work as productively as possible.
- The problem is that when we look at the outcomes that are generated it is not always clear why. A farmer who produces a good harvest could have been lucky with the weather or the batch of seed; a salesperson could have been unlucky that the days they were working people were out enjoying themselves

at the beach rather than shopping; the poor performance of a new product might be caused by inadequate testing in the development stage. That is, there is information asymmetry in this relationship which inferring effort from results impossible.

- *Of course in the article there are other examples of slacking off!.*
- *Monitoring provides a mechanism via which the efforts of individuals can be checked to ensure that they are acting in the interests of the principal.*
- *Will it be effective and achieve the desired outcomes? maybe – it really depends on the situation. Monitoring is generally costly (though the article suggests that the cost of some types of monitoring are being reduced substantially). hence, the decision about how much monitoring and the type of monitoring needs to be weighed up against the benefits (in terms of increased effort) that it generates.*
- *Monitoring is often imperfect or difficult. Is it possible, other than ex post, to know whether a management decision about advertising, an investment or a pricing decision is correct and was made with all the correct due diligence? Probably not – it really depends on where the information about such decisions is made. Even then there may be a subjective component to the decision which makes it difficult or impossible to assess from an objective point of view. The mere fact that somebody is where they say they are (and this is being verified by the GPS tracking device), doesn't mean they are actually working hard.*
- *Also, there is the issue raised that monitoring can be intrusive and make employees (or any agent) less satisfied. Maybe this makes for unhappy workers who are not as productive. moreover, it is almost certainly the case that workers, if determined, will adjust their behaviour to ensure that monitoring indicates they are working hard – perhaps by being logged on all the time, or being at the desk all the time. What needs to be taken into account is how informative the monitoring actually is about what you are concerned with and the implications for worker effort.*

3. Discussion question incentives.

Read the article: “Is it time to end tipping” from the *WSJ*.

Now consider the following question:

- What might be the benefits of a policy that allows and encourages tipping?
- What might be the implications of the ‘no tipping policy’?

Tipping – Discussion points.

- *First note that the tipping policy here is not necessarily purely voluntary – it involves a possible ‘mandatory service charge’.*

- *There are a number of economic aspects of this story that can be explored. These include the pure incentive issues, along with the notion of the public good aspect of tipping.*
 - *This is really a question about incentives. It is pretty clear that tipping provides high incentives. The service level that one provides will be closely related to the amount of tips that are earned. Moreover, this is an accepted fact in the US, far less so in Australia where minimum wages are relatively high.*
 - *The disadvantages of such an approach are made clear in the article – it potentially leaves a good part of the staff in the hospitality business out of pocket – though to be fair this really depends on the policy regarding how tips are shared. Of course, once tips go into a common pool there is an immediate impact on the incentives provided by tips. Effectively providing good service or a fine meal if you are the chef becomes a public good and this invites free riders.*
 - *What might the no tipping policy might mean? Again, some of the answers are spelt out in the article. For example, it is 'fairer' because the opportunity for higher wages to be paid to all staff by removing the mandatory service charge. This it is argued reflects the team aspect of the dining experience.*
 - *From a strategic point of view there might be better customer view about the restaurant, though there are costs involved – higher wages require taxes and other on costs are paid. This was not the case with tips or gratuities. There is the possibility that some workers will be worse off, and if they are the good ones, they will take their skills / resources elsewhere.*
4. Consider Joe, an analyst at a major investment bank. Assume that Joe works for 50 weeks each year. Analysts at the bank earn a base salary of \$100,000 and bonuses that depend on the sales of investment products they sell to clients. For each extra \$100,000 of sales, they receive a bonus of \$2000. That is Joe receives a 2 percent commission. Joe likes his job and takes pride in exercising diligence (D) when advising clients. Diligence, however, requires time spent checking the credentials of firms and leaves less time for analysts to sell to clients.

Assume that Joe has 40 hours per week to spend on diligence or selling. Assume that if Joe spends all his time each week selling, then he expects to make sales of \$200,000. If he spends all his time in undertaking diligence, Joe will make no sales.

Show Joe's budget constraint in a set of axis with monetary rewards on the vertical axis and time spent in 'diligence (D)' on the horizontal axis. What is the opportunity cost of each hour of diligence? Alternatively, what is the price of a unit of diligence?

Suppose that Joe's utility function is given by the following:

$$U(M, D) = M^{0.5} D^{0.5}$$

If Joe maximises his utility, how much time will he spend on diligence each week and what will his earnings be?

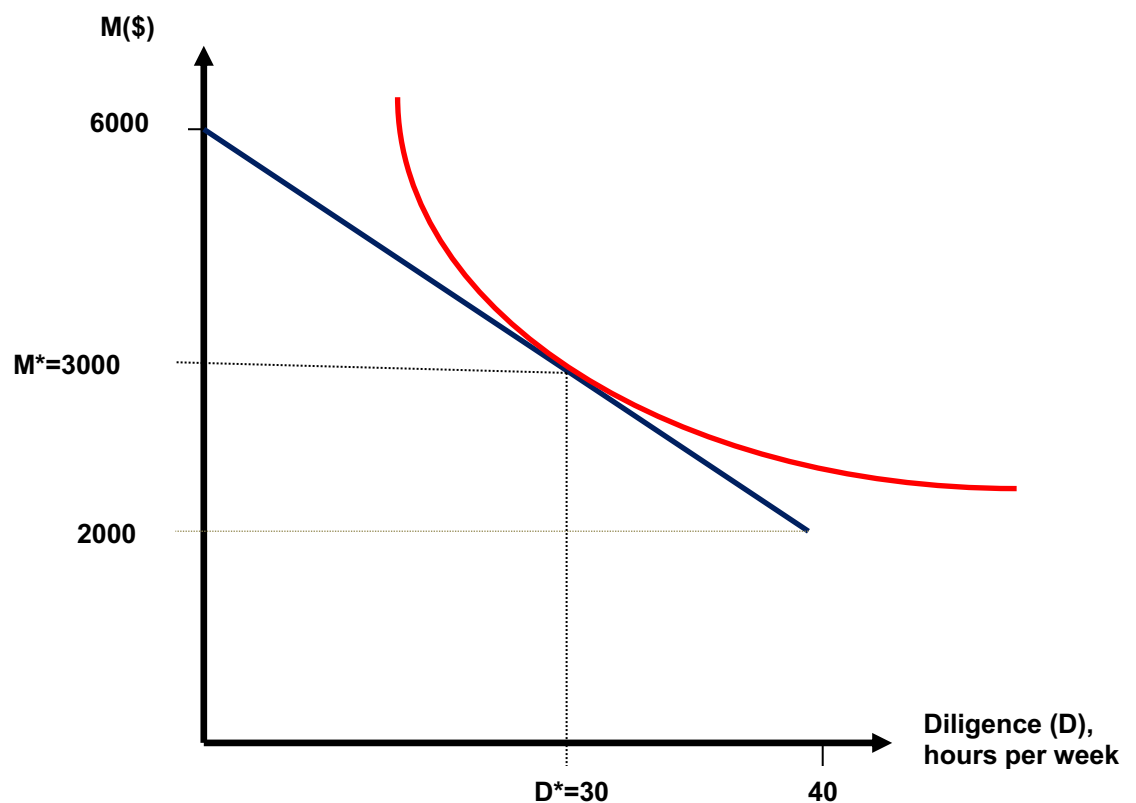
Concerned that analysts are making poor decisions, suppose that the bank decides to increase the base salary to \$150,000 per annum and reduce the commission so that each \$100,000 in sales now generates a bonus of \$1500. How will Joe's behaviour change? Is this a good outcome for the bank? Why or why not? Which scheme does Joe prefer? Why?

Show your answer in a well labelled diagram.

How would your answer to the questions above change if Joe was only concerned about money?

Solution:

Joe's problem is depicted in the diagram below.



With 50 weeks work per year his base salary is \$2000 per week. Initially he can earn up to \$4000 per week on commission if he spends all his time selling (so no time in D). The \$4000 is based on a 2% commission on the sales of \$200,000. His budget constraint is shown in blue. The slope of the constraint is -100. Note that the opportunity cost of each hour of diligence is \$100 – this is what it costs Joe if he forgoes making sales and engages in diligence.

Joe's indifference curve is shown in red. Recall he will go to the highest possible indifference curve subject to his constraint.

Algebraically Joe's problem can be described as follows:

Please note that I do not expect you to solve a problem like this mathematically. Rather, this is just for those who are mathematically inclined and wish to see the answer.

$$\underset{M, D}{\text{Max}} \quad M^{0.5} D^{0.5} \quad \text{subject to } M = 6000 - 100D$$

We can write out the Lagrangian and the first order conditions:

$$L = M^{0.5} D^{0.5} - \lambda [M - 6000 + 100D]$$

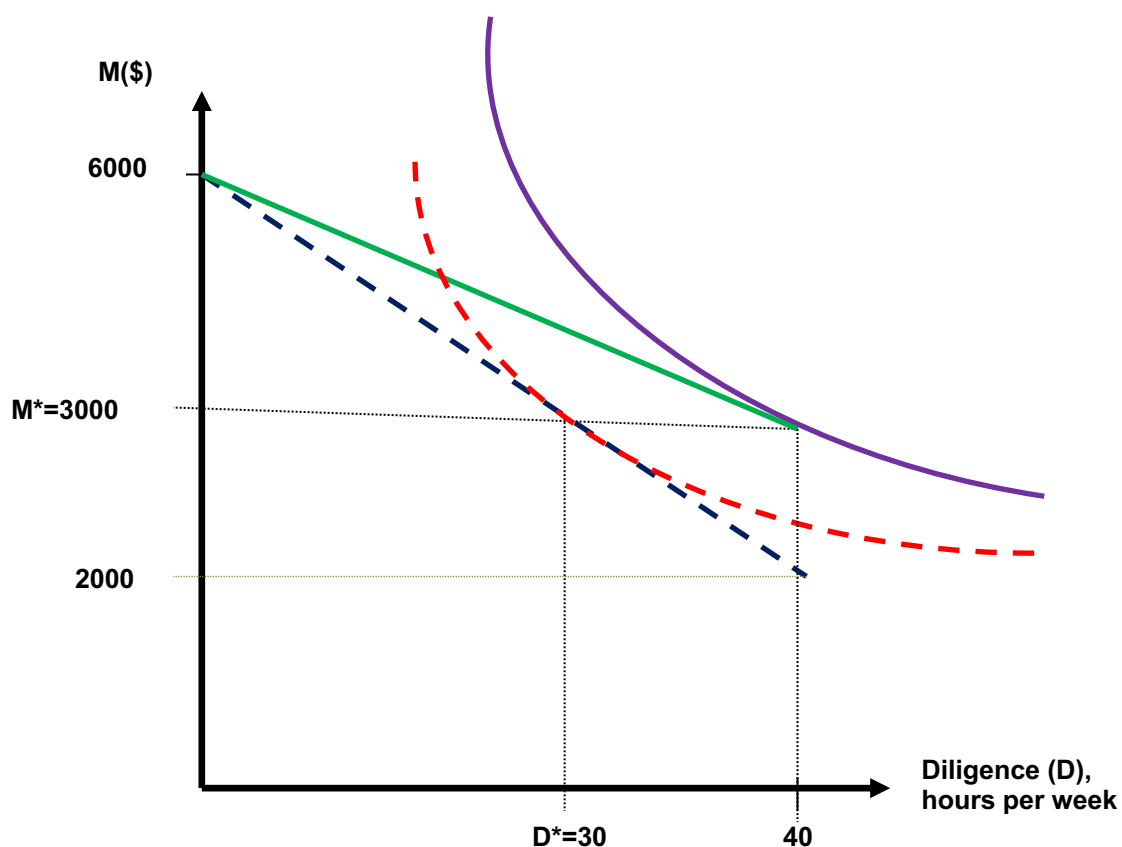
$$\frac{\partial L}{\partial M} = 0.5 M^{-0.5} D^{0.5} - \lambda = 0 \quad (1)$$

$$\frac{\partial L}{\partial D} = 0.5 M^{0.5} D^{-0.5} - 100\lambda = 0 \quad (2)$$

$$\frac{\partial L}{\partial \lambda} = M - 6000 + 100D = 0 \quad (3)$$

Substitute (1) into (2) and use (3) to give $D^*=30$ and $M^*=3000$. (see diagram)

Next you are asked what happens if the pay schedule changes. Now Joe gets a base salary of \$150000 per year (\$3000 per week) and a commission that is smaller - \$1500 for every \$100000 in sales. In the diagram below I have put Joe's new budget constraint in green:



Joe's new problem is as follows:

$$\underset{M, D}{\text{Max}} \quad M^{0.5} D^{0.5} \quad \text{subject to } M = 6000 - 75D$$

We can write out the Lagrangian and the first order conditions:

$$L = M^{0.5} D^{0.5} - \lambda [M - 6000 + 75D]$$

$$\frac{\partial L}{\partial M} = 0.5 M^{-0.5} D^{0.5} - \lambda = 0 \quad (1)$$

$$\frac{\partial L}{\partial D} = 0.5 M^{0.5} D^{-0.5} - 75\lambda = 0 \quad (2)$$

$$\frac{\partial L}{\partial \lambda} = M - 6000 + 75D = 0 \quad (3)$$

Substitute (1) into (2) and use (3) to give $D^*=40$ and $M^*=3000$. (see diagram).
The new optimum is shown with the purple indifference curve.

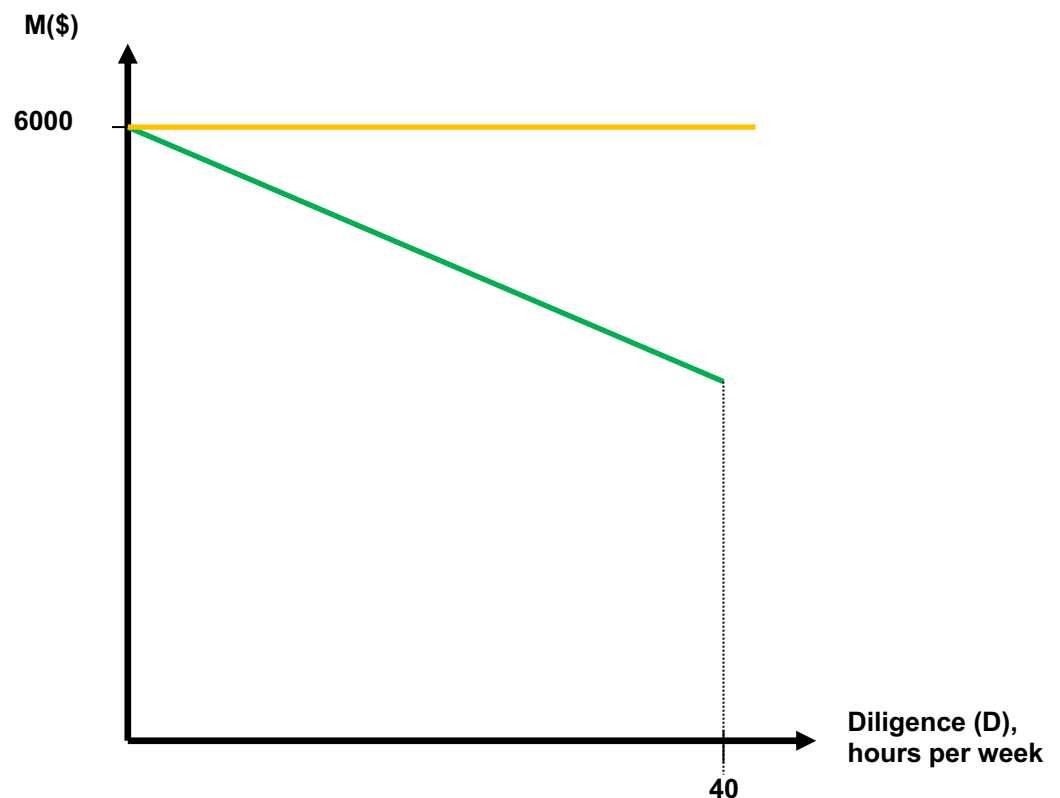
Is Joe better off – yes. Just substitute his and diligence that he undertakes into his utility function:

Initially: $U = 3000^{0.5} 30^{0.5} = 300$

Post change: $U = 3000^{0.5} 40^{0.5} = 346$

Is the bank better off – at least not initially? Joe is now spending less time in sales but he is taking more diligence. Presumably this would have some long run payoffs for the bank.

How would the problem change if Joe was only concerned about money? In this case his indifference curves would be horizontal straight lines (see yellow line in diagram below). He will always go to a corner solution where he does no diligence and simply maximises his monetary payoff M .



5. Answer question 2-17 on p. 46 of Brickley et al.

Suppose that an investment can yield three possible cash flows: \$5,000; \$1,000; or \$0. The probability of each outcome is 1/3.

- What is the expected value and standard deviation of the investment?
- How much would a risk-neutral person be willing to pay for the investment?
- How much would a risk-averse person be willing to pay for the investment?

Solution:

Expected value = $\text{Prob}(x=X_1) \cdot X_1 + \text{Prob}(x=X_2) \cdot X_2 + \text{Prob}(x=X_3) \cdot X_3$

Variance = $\text{Prob}(x=X_1) \cdot (X_1 - \bar{X})^2 + \text{Prob}(x=X_2) \cdot (X_2 - \bar{X})^2 + \text{Prob}(x=X_3) \cdot (X_3 - \bar{X})^2$

So, expected value of $X = 2000 = \bar{X}$

Variance of $X = 4,667,000$

Standard deviation of X is the square root of the variance or 2160.

A risk-neutral person would be willing to pay the expected value of 2000 for the investment.

A risk-averse person would be willing to pay less than 2000 for the investment.

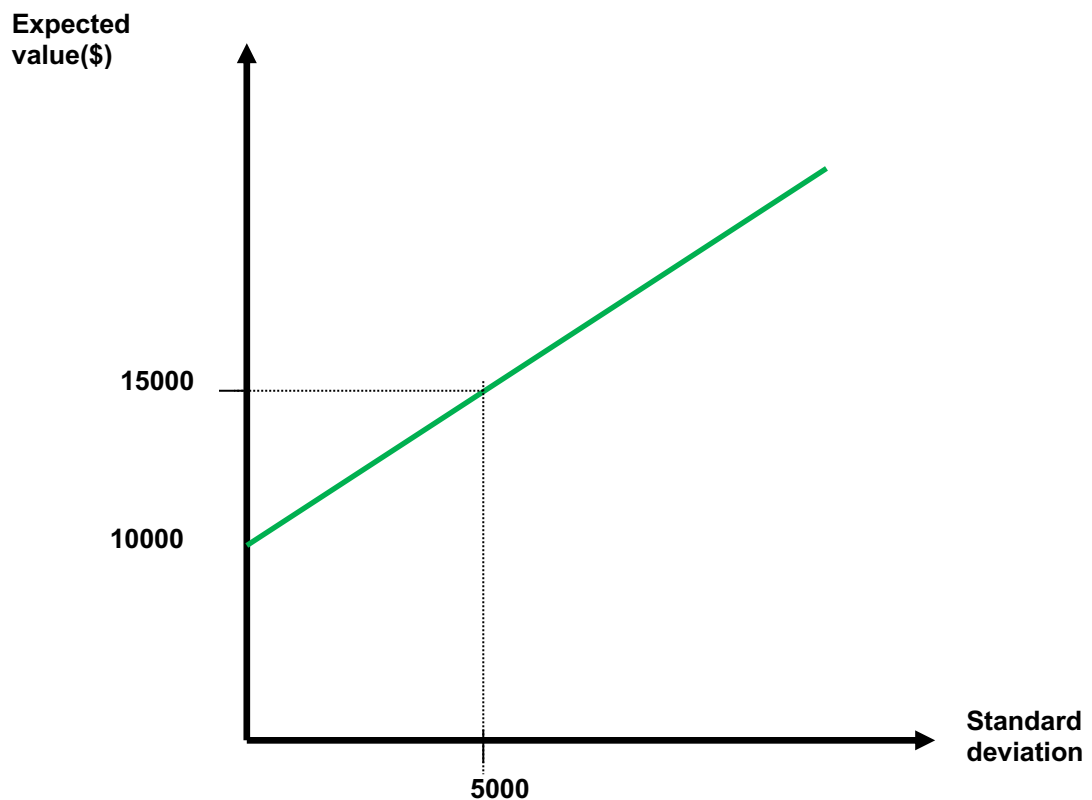
6. Answer question 2-23 on p. 47 of Brickley et al.

Jenny is an investor in the stock market. She cares about both the expected value and standard deviation of her investment. Currently she is invested in a security that has an expected value of \$15,000 and a standard deviation of \$5,000. This places her on an indifference curve with the following formula: Expected Value = \$10,000 + Standard Deviation.

- Is Jenny risk averse? Explain.
- What is Jenny's "certainty equivalent" for her current investment? What does this mean?
- What is the risk premium on her current investment?

Solution:

(a) For Jenny the question effectively says she will take on more risk if the expected value is higher. This can be seen in the following diagram – the indifference curve is shown in green. Clearly, Jenny is only prepared to take on a riskier investment (one with a higher standard deviation) if the expected payoff is higher. She is risk averse.



(b) For Jenny her CE is \$10,000, this is the amount with certainty that gives her the same expected utility as the risky investment.

(c) The risk premium is the expected value less the certainty equivalent which in this case is \$5000. This represents what you must be paid to make sure you are indifferent between the risky investment and the certainty equivalent.

7. Answer question 2-28 on p. 48 of Brickley et al.

An entrepreneur quits his job as a banker and invests \$100,000 of his savings in a new business venture that he will manage. Discuss the two most obvious opportunity costs that he will incur from this decision.

Solution:

The two obvious ones are the foregone wage which is earned and the foregone income on any financial capital that the entrepreneur forgoes from his/ her investment in the new business.