# Module 3 Quiz

14 questions

Correct  
1 / 1 points

1. Suppose a company is trying to decide whether to speed up collection of accounts receivable. The risk is that demand may go down since credit is important to customers. You estimate the following numbers:

* Expected annual sales = 2.5 billion (forever)
* In the existing collection system you receive 90% immediately and 10% after one year
* Firm can move to a new system with 98% immediate collection and 2% after one year
* Firm expects revenue to go down 1% if it moves to the new collection system
* Ignore costs, taxes, etc.

The existing collection system generates the following cash flows:

1. **2.25 billion immediately and 2.5 billion every year starting next year**
2. 2.5 billion every year
3. 2.5 billion immediately and 2.25 billion every year starting next year
4. 2.25 billion every year

Correct  
1 / 1 points

2. Suppose a company is trying to decide whether to speed up collection of accounts receivable. The risk is that demand may go down since credit is important to customers. You estimate the following numbers:

* Expected annual sales = 2.5 billion (forever)
* In the existing collection system you receive 90% immediately and 10% after one year
* Firm can move to a new system with 98% immediate collection and 2% after one year
* Firm expects revenue to go down 1% if it moves to the new collection system
* Ignore costs, taxes, etc.

The new collection system generates the following cash flows:

1. 2.42 billion immediately and 2.5 billion every year starting next year
2. 2.5 billion every year
3. **2.42 billion immediately and 2.475 billion every year starting next year**
4. 2.35 billion every year

Correct  
1 / 1 points

3. Suppose a company is trying to decide whether to speed up collection of accounts receivable. The risk is that demand may go down since credit is important to customers. You estimate the following numbers:

* Expected annual sales = 2.5 billion (forever)
* In the existing collection system you receive 90% immediately, and 10% after one year
* Firm can move to a new system with 98% immediate collection, and 2% after one year
* Firm expects revenue to go down 1% if it moves to the new collection system
* Ignore costs, taxes, etc.

The incremental cash flows are:

1. **175 million today and then a loss of 25 million every year thereafter**
2. You lose 25 million every year.
3. 150 million today and then a loss of 20 million every year thereafter
4. 2.42 billion immediately and 2.475 billion every year starting next year

Correct  
1 / 1 points

4. Suppose a company is trying to decide whether to speed up collection of accounts receivable. The risk is that demand may go down since credit is important to customers. You estimate the following numbers:

* Expected annual sales = 2.5 billion (forever)
* In the existing collection system you receive 90% immediately and 10% after one year
* Firm can move to a new system with 98% immediate collection and 2% after one year
* Firm expects revenue to go down 1% if it moves to the new collection system
* Ignore costs, taxes, etc.

Assume the discount rate is 15%. The net present value (NPV) of the decision to change the collection system is \_\_\_\_\_\_\_\_\_\_\_.

1. 16 million
2. -8.83 million
3. -16 million
4. **8.83 million**

Correct  
1 / 1 points

5. Suppose I offer you an investment that requires 25,000 today and pays back 18,500 in a year's time. What is the (IRR) rate of return on this investment?

1. 16.67%
2. **-26%**
3. 26%
4. -16.67%

Correct  
1 / 1 points

6. An investment requires 20,000 today and produces an yearly cash flow of 1200 in perpetuity. Cash flow is expected to grow at 2% a year. What is the rate of return of this investment?

1. 7.5%
2. **8%**
3. 5.8%
4. You need the discount rate to solve this problem.

Correct  
1 / 1 points

7. Which of the following two assets offers a greater rate of return (IRR)?

* Asset 1 costs 30,000 today and pays 21,000 in one year and 21,000 in two years.
* Asset 2 is a growing perpetuity that costs 20,000 today, pays a first cash flow of 7000 next year, and grows at a 3% rate.

1. Asset 1
2. **Asset 2**
3. They both have the same IRR
4. You cannot compute the IRR for Asset 2

Correct  
1 / 1 points

8. Consider the following data

* A machine costs $1200 and is depreciated using the straight line method over 5 years. That is, depreciation is 240 every year.
* The machine will generate operating profits before depreciation of $500 per year for 5 years. The first cash flow happens at the end of the first year after the machine is put in place.
* The tax rate is 20%
* Working capital needs will increase by $280 when the machine is placed in service and will be recaptured at the end of the life of the machine.
* There is no salvage value at the end of the five years (the machine is worthless).

The initial investment on the machine is \_\_\_\_\_\_\_\_\_.

1. -1184
2. -840
3. -1200
4. **-1480**

Correct  
1 / 1 points

9. Consider the following data

* A machine costs $1200 and is depreciated using the straight line method over 5 years. That is, depreciation is 240 every year.
* The machine will generate operating profits before depreciation of $500 per year for 5 years. The first cash flow happens at the end of the first year after the machine is put in place.
* The tax rate is 20%
* Working capital needs will increase by $280 when the machine is placed in service and will be recaptured at the end of the life of the machine.
* There is no salvage value at the end of the five years (the machine is worthless).

The cash flows are \_\_\_\_\_\_\_\_\_.

1. 448 every year until year 5
2. **448 every year from year 1 to year 4 and 728 in year 5**
3. 208 every year from year 1 to year 4 and 592 in year 5
4. 312 every year from year 1 to year 4 and 592 in year 5

Correct  
1 / 1 points

10. Consider the following data

* A machine costs $1200 and is depreciated using the straight line method over 5 years. That is, depreciation is 240 every year.
* The machine will generate operating profits before depreciation of $500 per year for 5 years. The first cash flow happens at the end of the first year after the machine is put in place.
* The tax rate is 20%
* Working capital needs will increase by $280 when the machine is placed in service and will be recaptured at the end of the life of the machine.
* There is no salvage value at the end of the five years (the machine is worthless).

If the discount rate is 15%, the project's NPV is \_\_\_\_\_\_\_\_.

1. 289
2. **161**
3. 62
4. 85

Correct  
1 / 1 points

11. A company currently operates a machine that generates cash flows of 35,000 a year for the next five years (machine 1). You are considering whether to replace this machine today with another more powerful machine that will produce cash flows of 50,000 a year for the same period of five years (machine 2). Both machines will be worthless at the end of the five years. Replacing machine 1 with machine 2 will require an initial investment of 40,000 today. This investment already takes into account the cost of machine 1 and today’s resale value of machine 2. In addition, you paid 100,000 for machine 1 last year.

Suppose the discount rate is 15%. The NPV of replacing machine 1 with machine 2 is \_\_\_\_\_\_\_\_\_\_\_.

1. 12,457
2. **10,282**
3. 8,654
4. 6,223

Correct  
1 / 1 points

12. You are the CFO of a drug company, and you must decide whether to invest 70M dollars in R&D for a new drug. If you conduct the R&D, you believe that there is a 10% chance that the research will produce a useful drug. If the research is successful, investment in the drug will require an outlay of 1.5 billion dollars. The drug will likely generate annual profits of 300 million for 10 years until the patent expires. After that, it will generate a cash flow in perpetuity equal to 30 million. The discount rate is 10%.

If the research is successful, the net present value of the drug cash flows is \_\_\_\_\_\_\_\_\_\_\_.

1. **459**
2. 223
3. 623
4. 347

Correct  
1 / 1 points

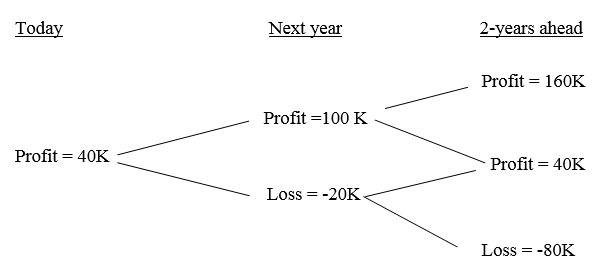
13. You are the CFO of a drug company, and you must decide whether to invest 70M dollars in R&D for a new drug. If you conduct the R&D, you believe that there is a 10% chance that the research will produce a useful drug. If the research is successful, investment in the drug will require an outlay of 1.5 billion dollars. The drug will likely generate annual profits of 300 million for 10 years until the patent expires. After that, it will generate a cash flow in perpetuity equal to 30 million. The discount rate is 10%.

If you invest in R&D, you estimate that it will take 2 years to know whether the drug is successful or not. What is the NPV of the R&D investment?

1. **-32 million**
2. -12 million
3. 15.74 million
4. 16.21 million

Correct  
1 / 1 points

14. Consider the gold mine problem we solved in Module 3 but assume that the parameters change such that the profits you make in each state of the world if the mine is open are now:



Notice that these values correspond to a case in which the volatility in the price of gold is higher than in the lecture notes. The discount rate is still 5%, and the cost of opening the mine is still 70 as in the lecture notes.

The NPV of waiting to open the mine tomorrow is now \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. 55,423
2. **59,637**
3. 52,223
4. 50,340