

# Principles of finance essay sample

[Finance](#)



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Part I: This part of the assignments tests your ability to calculate present value.

A. Suppose your bank account will be worth \$15, 000. 00 in one year. The interest rate (discount rate) that the bank pays is 7%. What is the present value of your bank account today? What would the present value of the account be if the discount rate is only 4%? SOLUTION:

Formula for Present Value:

$$PV = FV_n \{ [1 / (1 + i)^n] \}$$

Where PV = the present value of the future sum of money

FV<sub>n</sub> = the future value of the investment at the end of n years

n = the number of years until the payment (or stream) will be received

i = the annual discount or interest rate in the problem:

$$FV_n = \$ 15, 000$$

$$n = 1 \text{ year}$$

$$i = 7\%$$

$$PV = \$15, 000 (1 / (1 + . 07)^1)$$

$$= \$ 15, 000 (1 / 1. 07) = \$15, 000 (. 9356)$$

$$PV = \$ 14, 019$$

At i = 4%

$$PV = \$15, 000 (1 / (1 + . 04)^1)$$

$$= \$ 15, 000 (1 / 1. 04) = \$15, 000 (. 9615)$$

$$PV = \$ 14, 422. 50$$

B. Suppose you have two bank accounts, one called Account A and another Account B. Account A will be worth \$6, 500. 00 in one year. Account B will be

worth \$12, 600. 00 in two years. Both accounts earn 6% interest. What is the present value of each of these accounts?

Solution:

$$PV = FV n \{ [1 / (1 + i) n] \}$$

Where PV = the present value of the future sum of money

FV n = the future value of the investment at the end of n years

n = the number of years until the payment (or stream) will be received

i = the annual discount or interest rate in the problem:

For Account A

$$FV n = \$ 6, 500$$

$$n = 1 \text{ year}$$

$$i = 6\%$$

$$PV = \$ 6, 500 (1 / (1 + . 06) 1)$$

$$= \$ 6, 500 (1 / 1. 06) = \$ 6, 500 (. 9434)$$

$$PV = \$ 6, 132. 08$$

For Account B

$$FV n = \$ 12, 600$$

$$n = 2 \text{ years}$$

$$i = 6\%$$

$$PV = \$ 12, 600 (1 / (1 + . 06) 2)$$

$$= \$ 12, 600 (1 / (1. 06) 2)$$

$$= \$ 12, 600 (1 / 1. 1236)$$

$$= \$ 12, 600 (. 8899)$$

$$PV = \$ 11, 212. 74$$

C. Suppose you just inherited a gold mine. This gold mine is believed to have three years worth of gold deposit. Here is how much income this gold mine is projected to bring you each year for the next three years:

Year 1: \$49, 000, 000

Year 2: \$61, 000, 000

Year 3: \$85, 000, 000

Compute the present value of this stream of income at a discount rate of 7%. Remember, you are calculating the present value for a whole stream of income, i. e. the total value of receiving all three payments (how much you would pay right now to receive these three payments in the future). Your answer should be one number - the present value for this gold mine at a 7% discount rate but you have to show how you got to this number.

SOLUTION:

Same formula of present value will be used. However, in this problem, it will be the sum of all the present values of the future stream of amounts to be received.

$$PV = FV_n \left\{ \frac{1}{(1 + i)^n} \right\}$$

Where PV = the present value of the future sum of money

FV<sub>n</sub> = the future value of the investment at the end of n years

n = the number of years until the payment (or stream) will be received

i = the annual discount or interest rate

$$PV = PV = \$ 49, 000, 000 \left\{ \frac{1}{(1 + .07)^1} \right\} + \$ 61, 000, 000 \left\{ \frac{1}{(1 + .07)^2} \right\}$$

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$$\begin{aligned}
 &+ \$ 85,000,000 \left\{ \frac{1}{(1 + .07)^3} \right\} \\
 &= \$ 49,000,000 \left( \frac{1}{1.07} \right) + \$ 61,000 \left[ \frac{1}{(1.07)^2} \right] + \$ 85,000,000 \left[ \frac{1}{(1.07)^3} \right] \\
 &= \$ 49,000,000 (.9346) + \$ 61,000,000 (.8734) + \$ 85,000,000 (.8163) \\
 &= \$ 45,794,392.52 + \$ 53,277,400 + \$ 69,385,500
 \end{aligned}$$

$$PV = \$ 168,457,292.50$$

At a discount rate of 7% ( or possibly an inflation rate of 7 %), the expected earnings for the gold mine for the three year-period as valued today will be \$ 168,457,292.50 Now compute the present value of the income stream from the gold mine at a discount rate of 5%, and at a discount rate of 3%. Compare the present values of the income stream under the three discount rates and write a short paragraph with conclusions from the computations.

SOLUTION:

$$PV = FV_n \left\{ \frac{1}{(1 + i)^n} \right\}$$

Where PV = the present value of the future sum of money

FV<sub>n</sub> = the future value of the investment at the end of n years

n = the number of years until the payment (or stream) will be received

i = the annual discount or interest rate

At 5%:

$$\begin{aligned}
 PV &= \$ 49,000,000 \left\{ \frac{1}{(1 + .05)^1} \right\} + \$ 61,000,000 \left\{ \frac{1}{(1 + .05)^2} \right\} \\
 &+ \$ 85,000,000 \left\{ \frac{1}{(1 + .05)^3} \right\} \\
 &= \$ 49,000,000 \left( \frac{1}{1.05} \right) + \$ 61,000 \left[ \frac{1}{(1.05)^2} \right] + \$ 85,000,000 \left[ \frac{1}{(1.05)^3} \right]
 \end{aligned}$$

$$05) 3] = \$ 49,000,000 (.9524) + \$61,000,000 (.9070) + \$85,000,000 (.8638) = \$ 46,667,600 + \$55,327,000 + \$73,423,000$$

$$PV = \$ 175,417,600$$

At a discount rate of 5% (or possibly an inflation rate of 5%), the expected earnings for the gold mine for the three-year period as valued today will be \$ 175,417,600.

At 3%:

$$PV = \$ 49,000,000 \left\{ \frac{1}{(1 + .03)^1} \right\} + \$ 61,000,000 \left\{ \frac{1}{(1 + .03)^2} \right\} + \$ 85,000,000 \left\{ \frac{1}{(1 + .03)^3} \right\}$$

$$= \$ 49,000,000 (1/1.03) + \$61,000 [1/(1.03)^2] + \$85,000,000 [1/(1.03)^3] = \$ 49,000,000 (.9709) + \$61,000,000 (.9426) + \$85,000,000 (.9154) = \$ 47,572,815.53 + \$57,498,350.46 + \$77,787,041.04$$

$$PV = \$ 182,858,206.04$$

At a discount rate of 3% (or possibly an inflation rate of 3%), the expected earnings for the gold mine for the three year-period as valued today will be \$ 182,858,206.04. The lower the discount rate (or possibly inflation rate), the higher will be the present value of future streams of earnings of a particular investment.

## Part II: Evaluation of Business Plans

Ice Dreams

R J Wagner & Associates Realty

## Interstate Travel Centre

Which of these three projects do you think should have the highest risk from the point of view of investors (potential providers of funds) and would therefore be evaluated using the highest discount rate? Which one do you think should have the lowest? Write a paper explaining your reasoning. Risk is the prospect of unfavourable outcome (Keown, 2002). Hence, risk is the possibility that an expected outcome will not be attained. It can be considered as a gap between expected and actual returns. The wider the gap, the higher the degree of risk. In a layman's term, risk is a possible chance of a business failure. This could be brought about by uncertainties. A person would not fully know what will happen tomorrow, next week, next month, or next year. An investor would not also be totally certain on the outcome of his investment. There is a possibility that he will gain. There is also a possibility that he will lose from the investment.

There is also a possibility that he will break even, or he will have no gain, and no loss. To have an idea of future outcomes of an investment, investors predict or forecast possible future events and these include future demand, future behaviour of competitors, future changes in the value of money, among others. However, these are only estimates that were arrived at under certain assumptions of the investor or the forecaster. The assumptions are very critical in predicting future outcomes because they will form the basis in determining whether there will be profit or loss in a particular investment. Assumptions that are formulated should be realistic enough in order to come up with realistic forecasts. They should be realistic enough also in order to have a way of evaluating the degree of risk in a potential investment. Risk in <https://assignbuster.com/principles-of-finance-essay-sample/>

a particular investment is normally brought by: changes in the purchasing power of buyers, changes in their tastes and preferences, changes in the price of raw materials/facilities/equipment/rentals, changes in the value of money or inflation rates, unemployment rates, population rates, and several others. Some may be quantified, but some can only be qualified or described.

Hence, no matter how expert a person is in forecasting future outcomes, there will always be subjectivity which means that the amounts can be influenced by type of person the forecaster is. An optimist may foresee that everything will turn out right and therefore has the tendency to assume higher figures. A pessimist would be very conservative in his assumptions and therefore would have the tendency to assign lower figures to important entries. The three business plans will be evaluated basically in terms of the selected main sources of risk. These include: 1. Systematic risk refers to those factors that affect the returns of the investment 2. 1 market risk ( associated with the fluctuation in prices) 2. 2 purchasing power risk ( associated with the value of money) 2. Unsystematic risk, also referred to as undiversifiable risk, is caused by factors that are unique in a particular investment. 3. 3 Business Risk( the risk associated with the nature of the business) 3. 4 financial risk ( associated with the firm's sources of financing

The comparison of the three business plans on the above sources of risk is shown in Table 1.

TABLE 1. COMPARISON OF THE THREE BUSINESS PLANS  
ACCORDING TO BASIC SOURCES OF RISK



1. Systematic risk refers to those factors that affect the returns of the investment

2. 1 market risk ( associated with the fluctuation in prices)

2. 2 purchasing power risk ( associated with the value of money)

2. Unsystematic risk, also referred to as undiversifiable risk, is caused by factors that are unique in a particular investment.

3. 3 Business Risk( the risk associated with the nature of the business)

3. 4 financial risk ( associated with the firm's sources of financing)

#### REFERENCES:

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