

Lesson 3: The Market Environment - Study Materials

Slide 1: Overview



Professor's Comments (audio)

Lesson's Key Topics

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">▪ The Market Environment (slide 2)▪ Companies and Real Estate (slides 3-6)▪ Advantages and Disadvantages of Owning Real Estate (slide 7) | <ul style="list-style-type: none">▪ The Real Estate Pricing Puzzle (slides 8-12)▪ Conclusion (slide 13) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|

Assigned Reading

None.

Slide 2: The Market Environment

Definition

The **market environment** is one of four environments that need to be analyzed in order to assess the investment climate and market conditions. Information about the market environment can be costly to obtain.



Slide 3: Companies and Real Estate

Listen to your professor's introduction to this topic (video length 00:06:05)



Slide 4: Companies and Real Estate (Cont'd)

Companies own real estate for the following reasons:

Stocks and Bonds

- There are a limited number of stocks and bonds
- Studies show that real estate outperforms stocks and bonds
- Studies show that real estate **offers** higher returns with no increase in risk compared with other investments
- Real estate provides higher overall returns with lower variance if one does not require a high level of liquidity



The Morguard Index of the Toronto Stock Exchange

- The Morguard Index of the Toronto Stock Exchange (TSX) indicates high returns and low risk
- The Morguard Index uses proxy data (appraisal values) which can cause inaccuracies because it fluctuates with market conditions
- The Morguard Index uses quarterly appraisal values to determine returns
- Studies on the Morguard Index show annual data, making it difficult to analyze the data

Appraisal Values and Actual Values

- Studies do not determine the relationship between appraisal values and actual values
- If appraisal values are understated or overstated, they will cause errors in returns

Slide 5: Companies and Real Estate (Cont'd)

Appraisers

- If, for example, an appraiser deliberately understates the value of a house, he or she indirectly increases the rate of return for the client. If he or she overstates the value of the house, it decreases the rate of return. The following example illustrates this.
- **Example:**

Cash Flow = \$10,000

True Market Value = \$100,000

If you hire an **honest appraiser**, he or she will inform you that your rate of return is 10.00% (simply divide the cash flow by the market value: $\$10,000/\$100,000$).

A **dishonest appraiser** will downplay the market value and inform you that your property is only worth \$90,000, and by doing so he or she has increased your rate of return to 11.11% ($\$10,000/\$90,000$).

A **bad appraiser** who overvalues the property decreases your rate of return. If he or she states that the value is \$105,000, your rate of return is only 9.52% ($\$10,000/\$105,000$).



Slide 6: Companies and Real Estate (Cont'd)

Information Costs

- The real estate market is segmented (residential, commercial (retail and office), industrial, special purpose and others) which increases information costs
- The real estate market is also segmented based on local market conditions
- Information costs increase the cost of operating real estate portfolios
- Information is difficult to find (commercial, industrial, special purpose) because of low turnover or low number of transactions given in a special period, compared to residential
- Information on real estate (if low turnover) is available through proxy (the use of appraisal values) which increases information costs



Capital Gains

- Capital gains make up a large portion of estimated returns (capital gains equal selling price minus original costs)
- Miles and McCue's study for a regional real estate portfolio indicates that only 14% is market related (not diversifiable), whereas 86% is diversifiable

Slide 7: Advantages and Disadvantages of Owning Real Estate

Advantages	Disadvantages
<ul style="list-style-type: none"> Real estate segmented geographically: different cities, municipalities, priced/reacts differently to market conditions. It increases information costs (different markets and tenants). This characteristic of real estate permits the investor to diversify his portfolio in two possible ways: Invest in one type of real estate in different cities, e.g. invest only in residential in Anjou, Cote-Saint-Luc, NDG, DDO, etc. Invest in different types of real estate such as residential, commercial and industrial in only one city. By diversifying, the investor can reduce his information costs significantly. Real estate is segmented by asset type: residential, commercial, industrial, special purpose (e.g. old people's home), and others (land). Segmented market implies disequilibrium, i.e. costs (price) not equal to value. Market segmentation suggests the possibility of lowering risk through diversification. 	<ul style="list-style-type: none"> Diversification benefits and information costs. Barrier to entry (large amount of money required). Real estate segmented by wealth (approximately 25% down payment). Different type of expertise required. Imperfect competition (barrier to entry) and information costs (paid prior to investing) i.e. inefficient market which creates opportunities. Higher information costs if investing in different segments.

Slide 8: The Real Estate Pricing Puzzle

Listen to your professor's introduction to this topic (video length 00:09:48)



Slide 9: The Real Estate Pricing Puzzle (Cont'd)

Why Is Real Estate a Puzzle?

- The present model (Capital Asset Pricing Model – CAPM) being used to value real estate is doing a poor job because it does not consider cash payments.

Performance Justifies the Development of New Models

The market should develop new models because:

- The performance of real estate compared to the other investments in the market justifies this
- Studies show that companies are including large amounts of money in real estate in their portfolios
- The performance of real estate investments outperforms other investments in the market as many studies have indicated
- There is enough order in the financial market to justify this
- Companies hire specialists in real estate for consulting services and to write reports on how good the market is for real estate investments. The companies know that the report will favour investing in real estate prior to acquiring the professional services; they simply need a professional's name on the report. This is what "studies are done only in good times" implies; it is very rare to find any study conducted when markets are down. Furthermore, inefficiency also exists due to appraisers manipulating the numbers to their advantage and thus increasing rates of return as the above-mentioned example illustrates. Finally, current models do not capture the qualitative aspects that are taken into consideration during a real estate transaction. As mentioned earlier, they only consider risk and return, which is not sufficient.



Slide 10: The Real Estate Pricing Puzzle (Cont'd)

Problems with Data

- Appraisal values estimated by the appraiser are not the same as the actual values (actual selling price). True market value can only be found when the property is sold; we hire an appraiser to determine a property's value prior to selling. The value they return is known as a proxy. Appraisers have the habit of downplaying numbers so that when a buyer offers a bid near the true market value one will be pleased with this work.
- Short-run evaluation when real estate investments are long-term investments.
- Sample size will cause sampling errors; i.e., 1/100 compared to 1/99 does not contain much estimation error; however, in real estate the sample size is smaller and therefore the difference between $\frac{1}{4}$ and $\frac{1}{2}$ is quite significant.



- Un-levered basis (assumed no leverage or debt, 100% down payment). Unlevered property is that which is purchased with cash only (no loan used).
- Data problems, in addition to the conclusion that real estate gives higher returns and has lower risk compared with other investments, are questionable.

Slide 11: The Real Estate Pricing Puzzle (Cont'd)

Reasons for Lower Variance

Three possible reasons for lower risk (or variance)

- Rent income is less risky than other income because of contractual agreements or leases
- Stocks and bonds are affected by other factors such as human resources, lumpy investments, immobility and market segmentation
- Management costs are not accounted for in the analysis

So, less risk or variance would be expected. However, less risk or variance does not mean excess return.



Slide 12: The Real Estate Pricing Puzzle (Cont'd)

Portfolio Implications

- Real estate is negatively correlated compared to the stock market.
- Data problems versus high percentage of portfolio: problems with appraisal values should not stop you from investing in real estate.
- Diversification benefits possible within same market (to reduce information costs), i.e. do not have to evaluate different classes of real estate such as residential, commercial and office.
- Price should reflect mean evaluation of investors.



- Prices should reflect highest and best use, but not true in real estate because a) there is no short selling; b) price adjustment is slower; and c) optimistic opinion (pessimistic will not buy).
- Prices are biased upwards because of the sequential bidding process.
- Real estate prices vary between the average value of potential buyers and the best use of the property.
- Some price inefficiency exists: markets are segmented and not everyone has the capital required to conduct a feasibility study; therefore, inefficiency arises.

Slide 13: Conclusion

- Historical models used in the stock market such as the Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Model (APM) have proved to be unsuccessful in real estate.
- The Summation approach still works best.
- A gap exists (market price versus mean expected).
- Optimists buy and no short selling, i.e., price estimate less than market price.
- The studies provide a balanced view of current issues.
- There is a need for redefined models.
- Future studies should show or explain how a qualitative variable (i.e., a house is on a corner, pay is in cash, etc.) affects the property value.

Lesson 4: The Legal Environment - Study Materials

Slide 1: Overview



Professor's Comments (audio)

Lesson's Key Topics

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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ The Legal Environment (slide 2) ▪ The Law of Agency (slides 3-6) ▪ Listing Agreements (slides 7-9) | <ul style="list-style-type: none"> ▪ Critical Issues in Entering a Listing Agreement (slide 10) ▪ Commissions (slide 12) ▪ Selecting a Broker (slide 13) |
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Assigned Reading

- Gray, Douglas A. "[Chapter 6: Understanding the Legal Aspects](#)" in *Making Money in Real Estate: The Canadian Guide to Profitable Investment in Residential Property*. Revised ed. Mississauga: John Wiley & Sons Canada, Ltd., 2005. pp. 169-204.
[Download the chapter here](#) .

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Slide 2: The Legal Environment

Listen to your professor's introduction to this topic (video length 00:03:10)



Slide 3: The Law of Agency

The legal environment in real estate transactions includes two parties: principal and agent. They are governed by the **law of agency**.

Definition

The law of agency entails rules set forth when another individual is doing something on one's behalf. In real estate, a principle hires an agent to sell his house, or a principal can hire an agent to purchase a house on his behalf.

Slide 4: The Law of Agency

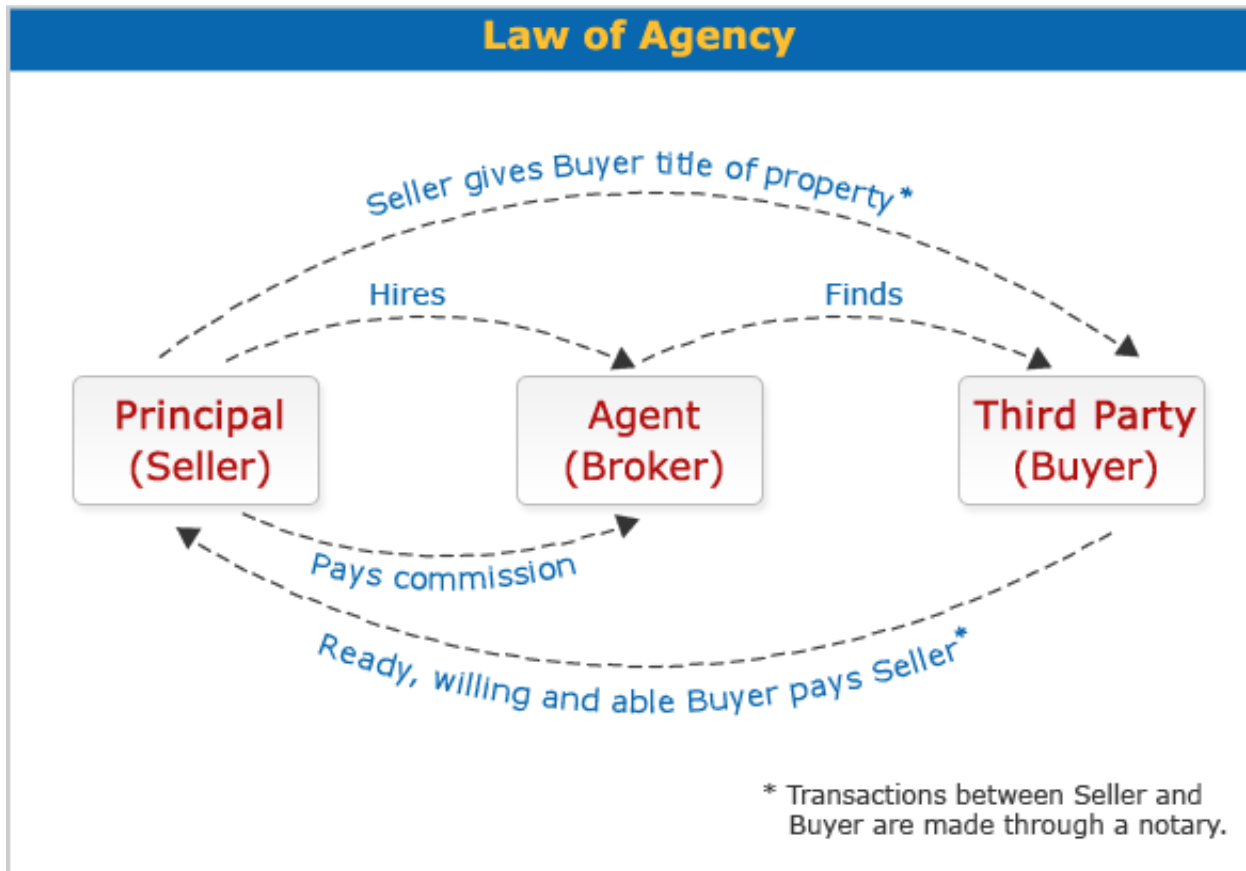
Agency is created when one person is given the right to act on behalf of, or under the control of, another. The law of agency concerns the legal rights, duties, and liabilities of the principal (P), the agent (A) and a third party (TP), based on contracts and/or the relationship between them.

Principal	<p>The person for whom an agent acts is a principal; therefore, in signing a listing agreement an owner becomes a principal.</p> <ul style="list-style-type: none"> ▪ A disclosed principal is identified to the third party. ▪ An undisclosed principal is secretly represented by an agent who appears to be acting in self-interest. ▪ A partially disclosed principal is not identified to the third party, although the agent acknowledges that a principal is involved.
Agent	The person acting for, or representing, another with the latter's authority is an agent, i.e. a broker acts as an <i>agent</i> under a listing agreement.
Third Party	The third party often refers to a potential buyer.
Fiduciary Relationship	When buying, selling, or leasing, trust and faith should exist between the parties involved; these traits are both expected and necessary.

Slide 5: Diagram of the Law of Agency



Professor's Comments (audio)



Slide 6: Duties, Liabilities and Rights of Principals and Agents

Principal	Agent
<p>Compensation. A principal's main duty is to compensate the agent in accordance with the contract of employment.</p> <p>Accuracy. A principal must also give the broker/agent complete and accurate information when listing a property.</p> <p>Liability. A principal is liable on all agreements or contracts made by an agent within the authority given the agent.</p> <p>Agents are personally liable for their own acts.</p>	<p>Care. An agent must be diligent and reasonable and act in good faith in any representation. Agents are personally liable for their own acts.</p> <p>Obedience. An agent should obey instructions that pertain to the purpose of the principal-agent relationship. This includes keeping within the authority granted; any agent who exceeds his or her authority will incur personal liability, unless such acts are affirmed by the principal.</p> <p>Accountability. An agent should keep adequate records concerning funds or property. It is illegal for a broker to commingle or mix personal funds with the funds of a principal.</p> <p>Loyalty. An agent must not benefit from the relationship except through compensation from the principal unless otherwise agreed. This is also known as</p>

faithful performance.

Communication. Any information given to the agent must be communicated immediately to the principal.

Any agent who exceeds his or her authority will incur personal liability, unless such acts are affirmed by the principal.

An agent has the right to enforce a contract between a principal and a third party if an interest is held in this contract, such as the collection of an anticipated commission.

Most listing agreements provide that a broker may engage salespersons as agents. In this instance the broker/agent acts as the principal.

Slide 7: Listing Agreements

Listen to your professor's introduction to this topic (video length 00:06:45)



Slide 8: Listing Agreements

Definition

A listing agreement is an oral or written contract of employment between a principal and a broker/agent to buy, sell, or lease real estate. The broker/agent needs this agreement in order to enforce his or her right to a commission. This agreement also creates the traditional principal-agent relationship discussed earlier.



- This is the foundation of a broker's business as it provides the basis of a broker's trust and confidence in the principal and addresses the right to compensation.
- A typical "listing" is not a contract. Rather, it is a unilateral contract that becomes bilateral upon performance by the broker and is therefore revocable by either party at any time prior to performance.
- Listing agreements may be reached orally, but written agreements are needed in order to collect a commission. Therefore, most brokers refuse to handle a property without a written agreement.
- Most listing agreements provide that a broker may engage salespersons as agents. In this instance the broker/agent acts as the principal.

Slide 9: Types of Listings

Open	An owner offers several brokers an equal chance to sell realty; the broker who arranges the sale receives compensation. The owner may receive the right to personally sell the property without becoming liable for a commission. The sale of the property terminates an open listing.
Exclusive Agency	Engaging one broker to sell realty with a right retained by the owner to sell the property without the obligation of a commission. Usually contains words "exclusive agency". The purpose is to give the broker holding the listing the opportunity to apply their "best efforts" without interference or competition from other brokers.
Exclusive Right-to-Sell	Engaging a broker to sell realty with commission to be paid to the broker regardless of who sells the property, owner included.
Multiple	A special version of exclusive right-to-sell agreement, it involves multiple listing service groups wherein all members agree to share listings with others in the group. This is advantageous to the owner as the property gets wider exposure, a higher price and a likely shorter selling time.
Net	Engaging a broker to sell realty at a fixed or minimum price, with any excess to be considered as the broker's commission.

Slide 10: Critical Issues in the Listing Arrangement

Asking Price

- In his or her own self-interest, an owner wants the highest possible price and therefore prefers a high asking price.
- A broker prefers a low listing price for a quicker sale.
- A fiduciary relationship requires that the broker provide the owner with the market value of the property and document that any suggested listing price is not too low.

Reservation of Right-to-Sell

- An owner may retain a right-to-sell without a commission being required, even in an exclusive right-to-sell agreement, by reserving in the contract as exceptions the names of parties with whom negotiations have previously or are currently being conducted.

Broker Compensation

- Commission rates are largely set by local area customs.
- Brokers are prohibited from collusion in setting commission rates.
- The amount of commission or method of determining commission should be included in a listing agreement. Many commission methods are possible.

Flat Commission Fixed dollar amount, regardless of sale price.

Percentage Commission	Fixed percentage of sale price.
Split Commission	Different percentages, higher percentage up to a certain amount of the sale price and a lower percentage for the balance.
Net Listing/Residual Commission	The owner sets the asking price; anything above it is commission.

Slide 11: Critical Issues in the Listing Arrangement (Cont'd)

The Termination and Duration of an Agreement

Termination by actions of the parties:

- Mutual consent of the parties
- Completion of the contract by sale
- Time expiration or running-out
- Revocation by the principal
- Revocation or abandonment by the agent

Termination by law:

- Destruction of the property, as by fire
- Death of the principal or agent
- Insanity of principal or agent
- Bankruptcy of the principal or agent

Broker Proof of Performance

- A broker's obligation is to find a buyer who is "ready, willing, and able" (RWA).
- Failure to complete a sale through fault of the owner (due to title defects, refusal of spouse to sign deed, fraud, the owner changing their mind or requiring terms not included in the listing agreement) does not cancel commission. If a qualified RWA buyer is found, the broker is entitled to commission.
- The owner may include a "no-closing, no commission" clause, which means unless the transaction results in a conveyance of title, no commission need be paid.

Slide 12: Commissions

General Rules on Earning Commissions

To get commission, the broker must:

- Show an agreement or contract of employment
- Be the procuring cause in the sale
- Bring about the deal on the terms of the employer
- Act in good faith

- Produce a purchaser who is “ready, willing and able”
- Arrive at a completed transaction

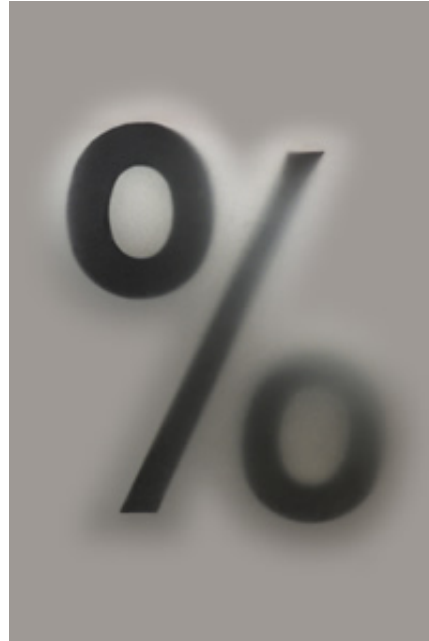
The employer is liable and must pay commission in every case where performance has occurred.

Commission on Installment Sales

- Owners use installment sales to spread property payments over time in order to keep tax payments low.
- A broker may agree to accept commission in proportion to principal cash payments received by the seller.

Commission on Exchanges, Loans, and Leases

- All parties in an exchange pay a commission based on the value or price of their respective properties. In some instances the broker may receive double commission.
- A broker is entitled to a commission for producing a mortgage loan only if the loan is approved.
- A lease broker is not entitled to compensation unless a lease or a complete agreement on their terms is obtained.



Slide 13: Selecting a Broker



Important considerations in selecting a broker are:

- Office and agent specialization
- Office location and procedures
- The firm’s attitude and reputation
- A positive track record evidenced by satisfied clients

Lesson 5: The Financing Environment - Study Materials

Slide 1: Overview



Professor's Comments (audio)

Lesson's Key Topics

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ The Financing Environment (slide 2) ▪ Mortgage (slides 3-9) | <ul style="list-style-type: none"> ▪ Effective Cost of Borrowing (ECB) (slides 10-16) ▪ Financing Decision to Choose a Lender (slide 17) |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Assigned Reading

- Gray, Douglas A. "[Chapter 5: Understanding the Financing Aspects](#)" in *Making Money in Real Estate: The Canadian Guide to Profitable Investment in Residential Property*. Revised ed. Mississauga: John Wiley & Sons Canada, Ltd., 2005. pp. 129-168.
[Download the chapter here](#) .

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Slide 2: The Financing Environment

Definition

The **financing environment** exists when a buyer does not have sufficient cash to purchase the property in question; he resorts to his bank to obtain a mortgage to cover the portion that is missing.



Slide 3: Mortgage



Professor's Comments (audio)

Definition

Mortgage is the term used for a loan on a real estate transaction.

It may also go under the name Loan-To-Value ratio.



The following are important terms used to perform financing calculations:

Mortgage Payments

Usually refer to monthly instalments made to your bank in order to reduce your outstanding loan and eventually pay it off entirely.

$$\text{Mortgage Payment} = \text{Interest portion} + \text{Principle portion}$$

$$\text{Principle portion} = \text{Mortgage Payment} - \text{Interest portion}$$

Mortgage Loan Balance

The portion of the loan that is still outstanding at any point in time.

$$\text{Mortgage Loan Balance} = \text{Mortgage Loan} - \text{Principle portion}$$

Loan-To-Value (LVR) Ratio

The loan expressed as a percentage. In other words, it is the mortgage value that the bank is willing to give you.

Outstanding Loan Balance

Refers to mortgage loan balance.

Slide 4: Mortgage (Cont'd)

Listen to your professor's introduction to this topic (video length 00:03:29)

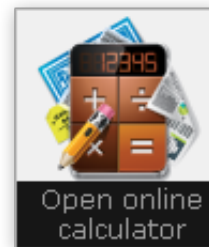


Slide 5: Mortgage (Cont'd)

Exercise 1: Mortgage

Given the following information:

	Property A	Property B
Asking of Property (AP)	\$500,000	\$800,000
Property sold for Selling Price (SP)	90% of AP	88% of AP
Loan-to-Value Ratio (LVR)	80%	70%



Answer the following questions. Some questions have been answered for you to help you complete this exercise:

1. What is the expected seller's price for Property A?

Answer: \$500,000

2. What is the expected seller's price for Property B?

Answer: \$800,000

3. What is the selling price of property A?

Answer: \$450,000

4. What is the selling price of property B?

Answer: \$704,000

5. If the buyer needs a loan (mortgage), and LVR is the maximum the bank will lend you, how much is the mortgage loan?

Answer: \$360,000

6. If the buyer needs a loan (mortgage), and LVR is the maximum the bank will lend you, how much is the mortgage loan?

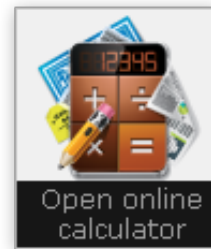
Answer: \$492,800

Slide 6: Mortgage (Cont'd)

Exercise 2: Mortgage Loan Amortization

Given the following information:

	Property A	Property B
Asking of Property (AP)	\$500,000	\$800,000
Property sold for Selling Price (SP)	90% of AP	88% of AP
Loan-to-Value Ratio (LVR)	80%	70%
Interest rate (Nominal rate) per annum	8%	10%
Nominal rate compounded	Annually	Annually
Mortgage payment mode	Annually	Annually
Term	15	25



Answer the following questions. Some questions have been answered for you to help you solve this exercise:

1. Using the Effective Annual rate formula, what is the EAR for property A?

Answer: 8%

2. Using the Effective Annual rate formula, what is the EAR for property B?

Answer: 10.00%

3. How many mortgage payments do you have for Property A?

Answer: 15

4. How many mortgage payments do you have for Property B?

Answer: 25

5. How much is the mortgage payment per annum for A?

Answer: \$42,059 (rounded)

6. How much is the interest portion for property A of the first year?

Answer: \$28,800

7. How much is the principle portion for property A of the first year?

Answer: \$13,259

8. How much is the mortgage payment per annum for B?

Answer: \$54,291

9. How much is the interest portion for property B of the first year?

Answer: \$49,280

10. How much is the principle portion for property B of the first year?

Answer: \$5,011

11. How much do you owe the bank after the first mortgage payment for property A?

Answer: \$346,741

12. How much do you owe the bank after the first mortgage payment for property B?

Answer: \$487,789

13. How much is the interest portion for property A of the second payment?

Answer: \$27,739

14. How much is the principle portion for property A of the second payment?

Answer: \$14,319

15. How much is the interest portion for property B of the second payment?

Answer: \$48,779

16. How much is the principle portion for property B of the second payment?

Answer: \$5,512

17. How much is the loan balance after the second mortgage payment for loan A?

Answer: \$332,422

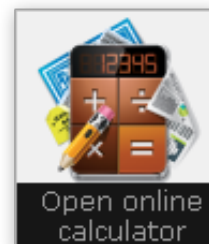
18. How much is the loan balance after the second mortgage payment for loan B?

Answer: \$482,277

Slide 7: Mortgage (Cont'd)**Exercise 3: Loan Amortization**

Using the data found in [Exercise 2](#), prepare the Loan Amortization Schedule (or Debt Service Schedule) for Loan A.

Period	Mortgage Pmt.	Interest	Principle	Loan Balance
Year 0				\$360,000
1	\$42,059	\$28,800 *	\$13,259 *	\$346,741
2	\$42,059	\$27,739		
3				
4				
5				



6				
7				
8				
9				
10				
11				
12				
13				
14				
15				0

Complete the above table and you will end up with a zero balance or almost zero (rounded).

* Year 1 Interest = $8\% \times \$360,000$ (loan balance)

* Year 1 Principle = Mortgage Payment - Interest

Answer

Period	Mortgage Pmt.	Interest	Principle	Loan Balance
Year 0				\$360,000
1	\$42,059	\$28,800 *	\$13,259 *	\$346,741
2	\$42,059	\$27,739	\$14,319	\$332,422
3	\$42,059	\$26,594	\$15,465	\$316,957
4	\$42,059	\$25,357	\$16,702	\$300,255
5	\$42,059	\$24,020	\$18,038	\$282,217
6	\$42,059	\$22,577	\$19,481	\$262,736
7	\$42,059	\$21,019	\$21,040	\$241,696
8	\$42,059	\$19,336	\$22,723	\$218,973
9	\$42,059	\$17,518	\$24,541	\$194,432
10	\$42,059	\$15,555	\$26,504	\$167,928
11	\$42,059	\$13,434	\$28,624	\$139,304
12	\$42,059	\$11,144	\$30,914	\$108,389
13	\$42,059	\$8,671	\$33,388	\$75,002
14	\$42,059	\$6,000	\$36,059	\$38,943
15	\$42,059	\$3,115	\$38,943	0

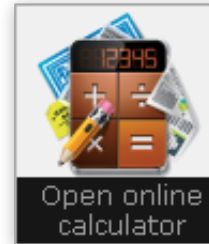
Slide 8: Mortgage (Cont'd)

Exercise 4: Loan Amortization

Using the data found in [Exercise 2](#), prepare the Loan Amortization Schedule (or Debt Service Schedule) for Loan B.

Answer

Period	Mortgage Pmt.	Interest	Principle	Loan Balance
Year 0	-	-	-	\$492,800
1	\$54,291	\$49,280	\$5,011	\$487,789
2	\$54,291	\$48,779	\$5,512	\$482,277
3	\$54,291	\$48,228	\$6,063	\$476,214
4	\$54,291	\$47,621	\$6,669	\$469,545
5	\$54,291	\$46,954	\$7,336	\$462,208
6	\$54,291	\$46,221	\$8,070	\$454,138
7	\$54,291	\$45,414	\$8,877	\$445,261
8	\$54,291	\$44,526	\$9,765	\$435,497
9	\$54,291	\$43,550	\$10,741	\$424,756
10	\$54,291	\$42,476	\$11,815	\$412,940
11	\$54,291	\$41,294	\$12,997	\$399,944
12	\$54,291	\$39,994	\$14,296	\$385,647
13	\$54,291	\$38,565	\$15,726	\$369,921
14	\$54,291	\$36,992	\$17,299	\$352,622
15	\$54,291	\$35,262	\$19,029	\$333,594
16	\$54,291	\$33,359	\$20,931	\$312,662
17	\$54,291	\$31,266	\$23,025	\$289,638
18	\$54,291	\$28,964	\$25,327	\$264,310
19	\$54,291	\$26,431	\$27,860	\$236,451
20	\$54,291	\$23,645	\$30,646	\$205,805
21	\$54,291	\$20,580	\$33,710	\$172,095
22	\$54,291	\$17,209	\$37,081	\$135,013
23	\$54,291	\$13,501	\$40,790	\$94,224
24	\$54,291	\$9,422	\$44,868	\$49,355
25	\$54,291	\$4,936	\$49,355	\$0



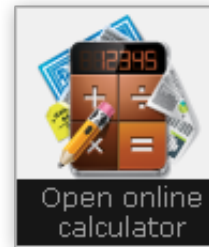
Slide 9: Mortgage (Cont'd)

Exercise 5: Mortgage Loan Amortization

Given the following information:

- **Value of Property** = \$500,000
- **Loan-Value-Ratio** = 80%, therefore **Loan** = 80% × 500,000 = \$400,000
- **Term** 10 Years
- **Interest rates** (variable) are as follows:

Year 1 = 8% per annum	Year 2 = 10%
Year 3 = 9%	Year 4 = 7%
Year 5 = 12%	Year 6 to 10 = 11% per annum



Prepare a Loan Amortization Schedule.

Answer

Period	Mortgage Pmt.	Interest	Principle	Loan Balance
Year 0				\$400,000
1	\$59,612	\$32,000	\$27,612	\$372,388
2	\$64,662	\$37,239	\$27,423	\$344,965
3	\$62,326	\$31,047	\$31,280	\$313,686
4	\$58,205	\$21,958	\$36,247	\$277,438
5	\$67,480	\$33,293	\$34,188	\$243,251
6	\$65,816	\$26,758	\$39,059	\$204,192
7	\$65,816	\$22,461	\$43,355	\$160,837
8	\$65,816	\$17,692	\$48,124	\$112,712
9	\$65,816	\$12,398	\$53,418	\$59,294
10	\$65,816	\$6,522	\$59,294	\$0

Solution

Using mathematical formula, solve for pmt Year 1:

Pmt 1 (PVA 8%, 10) = 400000

Using PVA formula, PVA = 6.710081

Therefore, Pmt × 6.710081 = 400000

Pmt Year 1 = 59612

Using financial calculator:

In Calculator
400000
PV
10

N
8
I/Y
0
FV
CPT
PMT
59612

Note:

- Mortgage Payment Year 1 = 59612
- Interest for Year 1 = $8\% \times \text{Outstanding Loan balance} = 32000$
- And Principle = Mortgage Payment minus Interest = $59612 - 32000 = 27612$
- And New Loan Balance = Outstanding loan balance minus Principle = 372388

Using mathematical formula, solve for pmt Year 2:

Pmt 2 (PVA 10%, 9) = 372388

Using PVA formula, PVA = 5.759024

Therefore, $\text{Pmt} \times 5.995247 = 372388$

Pmt Year 2 = 64661

Using financial calculator:

In Calculator
372388
PV
9
N
10
I/Y
0
FV
CPT
PMT
64661

Note:

- Mortgage Payment Year 2 = \$64,662
- Interest for Year 2 = ? % \times Loan balance = \$37,239
- And Principle = Mortgage Payment minus Interest = \$27,423
- And New Loan Balance = Old Loan balance minus Principle = \$344,965
- Repeat and complete the above table for Year 3 through Year 10.

Slide 10: Effective Cost of Borrowing (ECB)**Professor's Comments (audio)**



Definition

Effective Cost of Borrowing (ECB) is a rate expressed in percentage form which takes into consideration the effects of processing fees, cancellation penalties, and so on. Processing costs are fees many banks charge in order to process your mortgage, due to the extensive paperwork and efforts on their behalf.



Slide 11: Effective Cost of Borrowing (Cont'd)

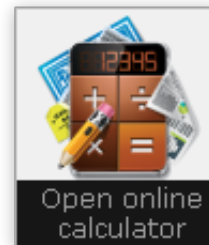


Professor's Comments (audio)

Exercise 6: No processing fees

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for the entire term
- Value of Property = \$300,000
- LVR = 70%
- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 0
- Cancellation penalty = 0



Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$0

3. What is the net amount you receive?

Answer: \$210,000

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate (EAR)?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Effective Cost of Borrowing (ECB)?

Note: Solve this exercise using your financial calculator (Recommended Versions: Sharp 733A/735 or TI BA II Plus)

Answer: 5%, because there are no processing fees (see calculations below)

$$\text{MPmt}(\text{PVA}_{10, \text{EAR}}) = \text{Loan}$$

$$\text{MPmt}(\text{PVA}_{10, \text{ECB}}) = \text{Loan}$$

Therefore,

$$\text{ECB} = \$27,196(\text{PVA}_{10, \text{ECB}}) = \$210,000$$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

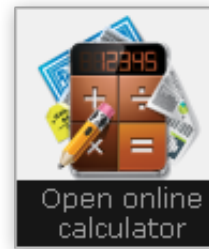
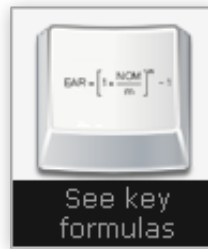
In Calculator	
210000	
PV	
10	
N	
-27196	
PMT	
0	
FV	
CPT	
I/Y	
5	

Slide 12: Effective Cost of Borrowing (Cont'd)**Exercise 7: With processing fees**

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for the entire term
- Value of Property = \$300,000
- LVR = 70%

- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 2% of Loan
- Cancellation penalty = 0



Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$4,200

3. What is the net amount you receive?

Answer: \$205,800

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Effective Cost of Borrowing (ECB)?

Answer: More than 5%, because of processing fees (see calculations below)

$$\text{MPmt}(\text{PVA}_{10, \text{EAR}}) = \text{Loan}$$

$$\text{MPmt}(\text{PVA}_{10, \text{ECB}}) = \text{Loan} - \text{processing fees}$$

Therefore,

$$\text{ECB} = \$27,196(\text{PVA}_{10, \text{ECB}}) = \$210,000 - \$4,200$$

$$\text{ECB} = \$27,196(\text{PVA}_{10, \text{ECB}}) = \$205,800$$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
	205800
PV	
	10
N	
	-27196

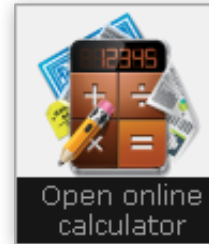
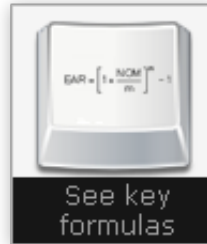
PMT
0
FV
CPT
I/Y
5.418198%

Slide 13: Effective Cost of Borrowing (Cont'd)

Exercise 8: No processing fees, no cancellation fees

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for 3 years
- Value of Property = \$300,000
- LVR = 70%
- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 0
- Cancellation penalty = 0



Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$0

3. What is the net amount you receive?

Answer: \$210,000

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Mortgage Balance after 3 payments?

Answer: \$157,366

$$MPmt(PVA_{10, EAR}) = \text{Loan}$$

$$\$27,196 (PVA_{7, 5.00\%}) = \$157,366$$

Note: $7 = 10 - 3$ [Loan Period – Years stayed]

Using financial calculator to find mortgage balance after 3 years

In Calculator	
0	
FV	
7	
N	
-27196	
PMT	
5	
I/Y	
CPT	
PV	
157366	

8. What amount is the cancellation penalty?

Answer: \$0

9. What is the Effective Cost of Borrowing (ECB)?

Answer: 5%, because there are no processing fees and no penalty fees (see calculations below)

$$MPmt(PVA_{3, ECB}) + [\text{Mortgage Balance} + \text{penalty}] (PV_{3, ECB}) = \text{Loan} - \text{processing fees}$$

Therefore,

$$ECB = \$27,196(PVA_{3, ECB}) + \$157,366(PV_{3, ECB}) = \$210,000$$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

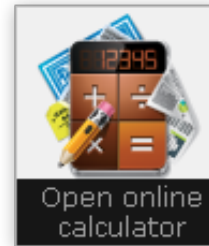
In Calculator	
-157366	
FV	
3	
N	
-27196	
PMT	
210000	
PV	
CPT	
I/Y	
5	

Slide 14: Effective Cost of Borrowing (Cont'd)

Exercise 9: With processing fees, no cancellation fees

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for 3 years
- Value of Property = \$300,000
- LVR = 70%
- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 2% of Loan
- Cancellation penalty = 0



Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$4,200

3. What is the net amount you receive?

Answer: \$205,800

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Mortgage Balance after 3 payments?

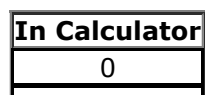
Answer: \$157,366

$$\text{MPmt}(\text{PVA}_{10, \text{EAR}}) = \text{Loan}$$

$$\$27,196 (\text{PVA}_7, 5.00\%) = \$157,366$$

Note: 7 = 10 - 3

Using financial calculator to find mortgage balance after 3 years



FV
7
N
-27196
PMT
5
I/Y
CPT
PV
157366

8. What amount is the cancellation penalty?

Answer: \$0

9. What is the Effective Cost of Borrowing (ECB)?

Answer: More than 5%, because there are processing fees and no penalty fees (see calculations below)

$$MPmt(PVA_{3, ECB}) + [\text{Mortgage Balance} + \text{penalty}] (PV_{3, ECB}) = \text{Loan} - \text{processing fees}$$

Therefore,

$$ECB = \$27,196(PVA_{3, ECB}) + \$157,366(PV_{3, ECB}) = \$210,000 - \$4,200$$

$$ECB = \$27,196(PVA_{3, ECB}) + \$157,366(PV_{3, ECB}) = \$205,800$$

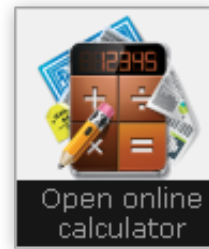
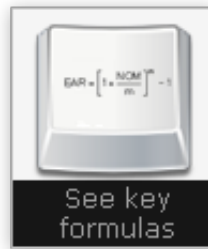
NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
-157366	
FV	
3	
N	
-27196	
PMT	
205800	
PV	
CPT	
I/Y	
5.808460	

Slide 15: Effective Cost of Borrowing (Cont'd)**Exercise 10: No processing fees; with cancellation fees**

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for 3 years
- Value of Property = \$300,000
- LVR = 70%
- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 0
- Cancellation penalty = 2.5% of outstanding mortgage balance



Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$0

3. What is the net amount you receive?

Answer: \$210,000

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Mortgage Balance after 3 payments?

Answer: \$157,366

$$\text{MPmt}(\text{PVA}_{10, \text{EAR}}) = \text{Loan}$$

$$\$27,196 (\text{PVA}_7, 5.00\%) = \$157,366$$

Note: 7 = 10 - 3

Using financial calculator to find mortgage balance after 3 years

In Calculator	
0	
FV	
7	
N	
-27196	
PMT	

5
I/Y
CPT
PV
157366

8. What amount is the cancellation penalty?

Answer: $2.50\% \times \$157,366 = \$3,934$

9. What is the Effective Cost of Borrowing (ECB)?

Answer: More than 5%, because there are penalty fees (see calculations below)

$MPmt(PVA_{3, ECB}) + [\text{Mortgage Balance} + \text{penalty}] (PV_{3, ECB}) = \text{Loan} - \text{processing fees}$

Therefore,

$$ECB = \$27,196(PVA_{3, ECB}) + \$157,366 + \$3,934(PV_{3, ECB}) = \$210,000$$

$$ECB = \$27,196(PVA_{3, ECB}) + \$161,300(PV_{3, ECB}) = \$210,000$$

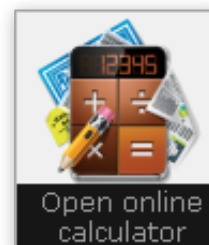
NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
-161300	
FV	
3	
N	
-27196	
PMT	
210000	
PV	
CPT	
I/Y	
5.640387	

Slide 16: Effective Cost of Borrowing (Cont'd)**Exercise 11: With processing fees; with cancellation fees**

Given the following information:

- You have CASH ON HAND to complete the transaction
- You stay for 3 years
- Value of Property = \$300,000
- LVR = 70%



- Term = 10 years
- Payable = Annually
- Interest rate = 5% per annum (compounded annually)
- Processing fees = 2% of Loan
- Cancellation penalty = 2.50% of Loan

Answer the following questions.

1. What amount is the maximum loan?

Answer: \$210,000

2. How much are the processing costs?

Answer: \$4,200

3. What is the net amount you receive?

Answer: \$205,800

4. What is the term?

Answer: 10 years

5. What is the Effective Annual Rate?

Answer: 5.00%

6. What is the Mortgage payment per annum?

Answer: \$27,196

7. What is the Mortgage Balance after 3 payments?

Answer: \$157,366

$$MPmt(PVA_{10, EAR}) = \text{Loan}$$

$$\$27,196 (PVA_7, 5.00\%) = \$157,366$$

Note: 7 = 10 – 3

Using financial calculator to find mortgage balance after 3 years

In Calculator	
0	
FV	
7	
N	
-27196	
PMT	
5	
I/Y	
CPT	
PV	
157366	

8. What amount is the cancellation penalty?

Answer: $2.50\% \times \$157,366 = \$3,934$

9. What is the Effective Cost of Borrowing (ECB)?

Answer: More than 5%, because of processing and penalty fees (see calculations below)

$$\text{MPmt}(\text{PVA}_{3, \text{ECB}}) + [\text{Mortgage Balance} + \text{penalty}] (\text{PV}_{3, \text{ECB}}) = \text{Loan} - \text{processing fees}$$

Therefore,

$$\text{ECB} = \$27,196(\text{PVA}_{3, \text{ECB}}) + \$157,366 + \$3,934(\text{PVA}_{3, \text{ECB}}) = \$210,000 - \$4,200$$

$$\text{ECB} = \$27,196(\text{PVA}_{3, \text{ECB}}) + \$161,300(\text{PVA}_{3, \text{ECB}}) = \$205,800$$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
-161300	
FV	
3	
N	
-27196	
PMT	
205800	
PV	
CPT	
I/Y	
6.452849	

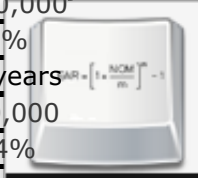
Slide 17: Financing Decision to Choose a Lender (Bank)**Professor's Comments (audio)****Exercise 12: Choose a Bank**

Given the following information:

- Mortgage is payable annually
- You stay for the entire term

Bank A		Bank B	
Value of Property	\$200,000	Value of Property	\$200,000
Loan-to-Value Ratio	60%	Loan-to-Value Ratio	60%

Loan	\$120,000	Loan #1	\$100,000
Interest Rate	11%	Interest Rate	9%
Term	20 years	Term	20 years
Processing fees	0	Loan #2	\$20,000
		Interest	14%
		Term	20 years
		Processing fees	0



See key formulas



Open online calculator

Which bank should you choose for the \$120,000 mortgage loan?

Find the following information to answer the question.

Alternative 1

1. What is the Mortgage Payment per annum for Loan A?

Answer: \$15,069

$$\text{MPmtA}(\text{PVA}_{20,11\%}) = \text{Loan}$$

$$\text{MPmtA}(\text{PVA}_{20,11\%}) = \$120,000$$

$$\text{Mortgage Payment for Bank A} = \text{MPmtA} = \$15,069$$

In Calculator	
0	
FV	
20	
N	
11	
I/Y	
120000	
PV	
CPT	
PMT	
15,069	

2. What is the Mortgage Payment per annum for Loan B?

Answer: \$13,975

Loan #1

$$\text{MPmtB}(\text{PVA}_{20,9\%}) = \text{Loan \#1}$$

$$\text{MPmtB}(\text{PVA}_{20,9\%}) = \$100,000$$

$$\text{MPmtB \# 1} = \$10,955$$

In Calculator	
0	
FV	
20	
N	
9	
I/Y	

100000
PV
CPT
PMT
10955

Loan #2

$$\text{MPmtB}(\text{PVA}_{20,14\%}) = \text{Loan \#2}$$

$$\text{MPmtB}(\text{PVA}_{20,14\%}) = \$20,000$$

$$\text{MPmtB \# 2} = \$3,020$$

In Calculator
0
FV
20
N
14
I/Y
20000
PV
CPT
PMT
3020

Loan #1 + Loan #2

$$\text{Total Mortgage Payment} = \text{MPMT B1} + \text{MPMT B2}$$

$$\text{Total Mortgage Payment} = \$10,955 + \$3,020$$

$$\text{Total Mortgage Payment} = \$13,975$$

$$\text{Total Mortgage Payment for the two loans of Bank B} = \text{MPmtB} = \$13,975$$

3. Choose the lower Mortgage Payment.

Answer: Loan B

Alternative 2**1. What is the Effective Cost of Borrowing (ECB) for Loan A?**

Answer: 11.00%

$$\text{MPmtA}(\text{PVA}_{20, \text{ECB}}) = \text{Loan} - \text{processing fees}$$

$$\text{ECB}_A = \$15,069(\text{PVA}_{20, \text{ECB}}) = \$120,000$$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
	0
FV	
	20
N	
	-15069
PMT	
	120000
PV	
CPT	
I/Y	
	11

2. What is the Effective Cost of Borrowing (ECB) for Loan B?

Answer: 9.874909%

$MPmtB(PVA_{20, ECB}) = \text{Loan} - \text{processing fees}$

$ECB_B = \$13,975(PVA_{20, ECB}) = \$120,000$

NB: The eConcordia online calculator is not designed to calculate ECB. The procedure that you would follow with most hand-held financial calculators to calculate ECB can be found below.

In Calculator	
	0
FV	
	20
N	
	-13,975
PMT	
	120000
PV	
CPT	
I/Y	
	9.874909

3. Choose the lower ECB.

Answer: Loan B

Note: Your choice is the same whether you use Alternative 1 or 2.

Lesson 1: Real Estate Investment - Study Materials

Slide 1: Overview

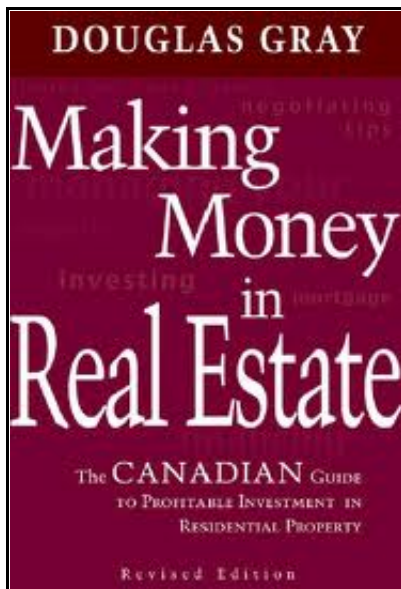


Professor's Comments (audio)

Lesson's Key Topics

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ The Real Estate Investment (slides 2-3) ▪ Major Participants in REI (slides 4-9) | <ul style="list-style-type: none"> ▪ Relationship between REI Participants (slides 10-11) ▪ The Real Estate Investment Process (slides 12-19) |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Course Readings



Your textbook for this course is:

Making Money in Real Estate

The Canadian Guide to Profitable Investment in Residential Property.

Each lesson contains a digital version of the assigned chapters, but you may also download all the chapters you need to read here:

Download the textbook here.

- You may buy your textbook at the [Concordia University Bookstore](#).

Purchasing a printed version of your textbook:

Digital Store: This printing service allows students registered in eConcordia courses with online textbooks to purchase a printed version of the book for a nominal fee.

- Go to:
<http://www.econcordia.com/home/Store/PrintingService.aspx>

Assigned Readings for Lesson 1

- Gray, Douglas A. "[Chapter 1: Understanding Real Estate Investment](#)" in *Making Money in Real Estate: The Canadian Guide to Profitable Investment in Residential Property*. Revised ed. Mississauga: John Wiley & Sons Canada, Ltd., 2005. pp. 1-30.
[Download the chapter here](#) .
- Gray, Douglas A. "[Chapter 4: Selecting Your Advisory Team](#)" in *Making Money in Real Estate: The Canadian Guide to Profitable Investment in Residential Property*. Revised ed. Mississauga: John Wiley & Sons Canada, Ltd., 2005. pp. 101-128.
[Download the chapter here](#) .
- [Top 10 Reasons to Use a Broker](#) .

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Slide 2: The Real Estate Investment

Definition

The purpose of Real Estate Investment (REI) is to buy land and all physical properties attached to it, such as houses, trees, fences, and so on, in order to generate income by selling or renting it. For example, some people might buy a house to sell it in 10 years when property value has increased; others might buy an apartment building and rent the apartments to create profit.

As other investments, REI comes with risk and return that depend on the market's cycle. **The REI cycle** experiences excess when supply of properties is high; this results in a decrease in property values and indicates a good time for you to buy, but not to sell. Understanding the REI market and being able to assess the cycle's stage is crucial to real estate investments.

Several factors affect the real estate market, such as interest rates, taxes, legal restrictions, local or provincial economy, population mobility, vacancy, property location, and public opinion of the property. We will discuss these factors in this and following lessons in the course.



Slide 3: The Real Estate Investment (Cont'd)



Professor's Comments (audio)

The REI has advantages and disadvantages:

Advantages	Disadvantages
<ul style="list-style-type: none"> ▪ Risk in REI is low. Compared to other types of investment, REI is stable and secure. ▪ Appreciation of real estate increases annually. The Canadian Real Estate Association found that residential real estate is increasing in value an average of 5% per year. ▪ Down payment is accessible. REIs are of low risk because the property is used as security; therefore, financing can cover up to 90% of the amount needed to buy a property. ▪ Net return will most likely be high. Real estate value increases with time. Thus, by the time you sell a property you will be receiving more than what you spent. ▪ Tax rates are beneficial to REI. Canadian laws allow contributors several advantages that go from tax-free to tax savings on capital gains. ▪ REI builds up on equity. Payments on mortgage mean acquiring equity, the part of the property that becomes yours, and that is clear of debts. 	<ul style="list-style-type: none"> ▪ Basic knowledge is essential to make sound decisions. Although some REIs do not require that you be an expert on real estate, you will need to allocate time to research and planning to reduce investment risks and ensure the expected outcomes. ▪ Cash is not available immediately. Despite having a big real estate investment, you will need to find a buyer or borrower to turn your investment into cash and this process might take some time. ▪ REI is a long-term investment. You might have to wait 5 to 10 years before selling the property to see the expected return. ▪ Advice from experts is necessary. Suggestions from legal, accounting, insurance, and real estate experts will help you plan to reach your REI objectives and avoid any potential problem that any investment might involve.

Slide 4: Major Participants in the Real Estate Investment Process

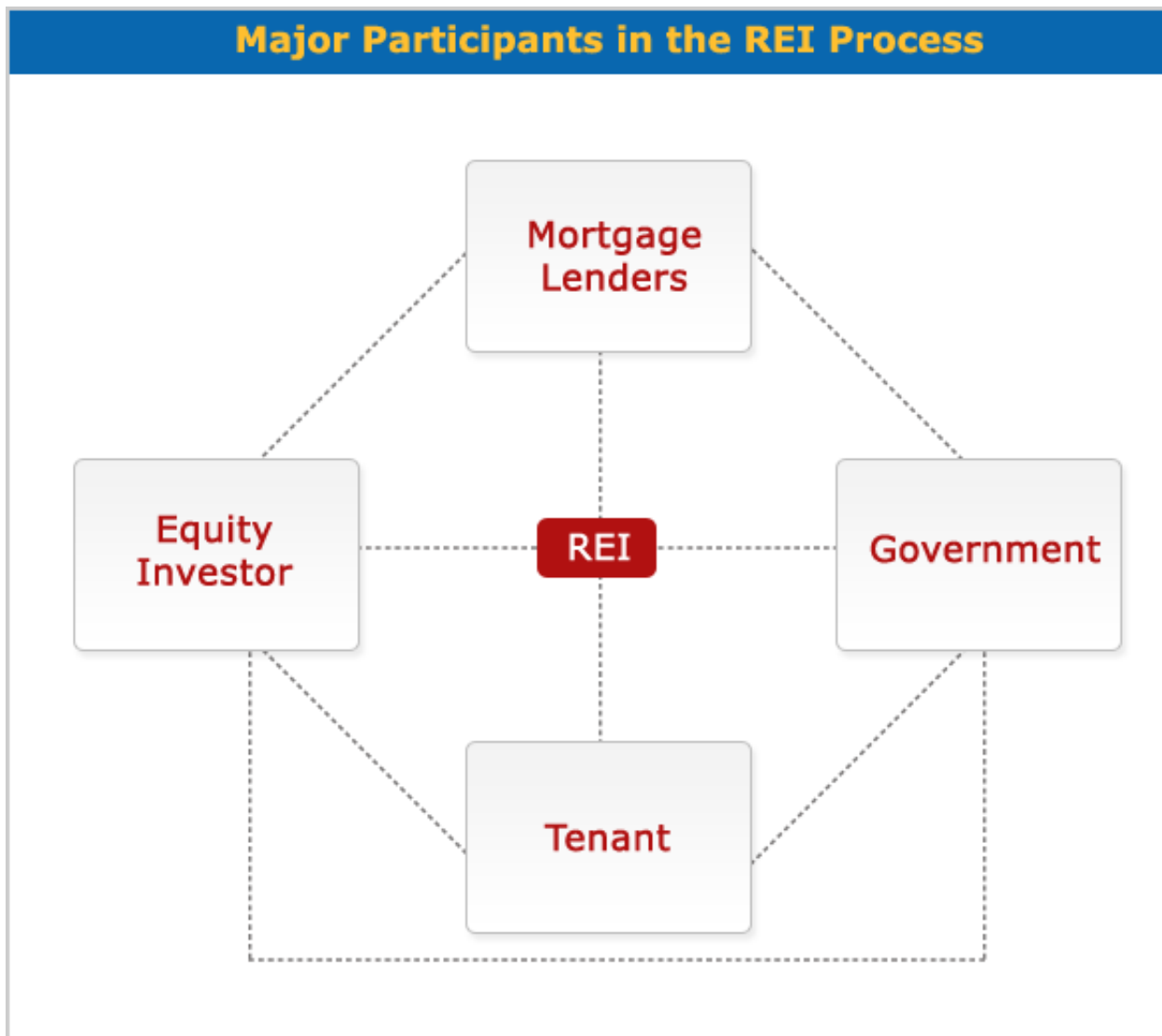
Listen to your professor's introduction to this topic (video length 00:11:10)



Slide 5: Major Participants in the Real Estate Investment Process



Professor's Comments (audio)



Slide 6: Major Participants in REI



Equity Investor

The equity investor or landlord is the person or entity that acquires the real estate investment. The equity investor assesses how the REI will be taken, as an individual or as an organization. To make a decision, the equity investor will analyse questions such as how the organization will be created and how marketable it is, who the partners will be, how each partner will share liabilities, and what the taxation opportunities and constraints for the specific organization are.

The most common forms of equity investors are:

- Individual
- Corporation
- Partnership

- Real Estate Investment Trust (REIT)



Slide 7: Major Participants in REI (Cont'd)



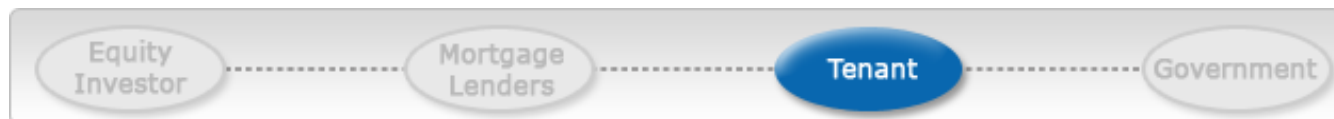
Mortgage Lender



The mortgage lender is the entity that lends the money that the equity investor needs to start a real estate investment. Among the most common mortgage lenders are:

- Another individual
- Insurance companies
- Banks
- Real Estate Investment Trust (REIT)

Slide 8: Major Participants in REI (Cont'd)



Tenant

The tenant is the one who buys the right of possession and use of a property from the equity investor. The object of possession could be used for different purposes:

- Residential
- Commercial
- Industrial
- Special purposes (theatre, sports, reception halls, etc.)



Slide 9: Major Participants in REI (Cont'd)



Government

The government regulates the relationship between participants, and restricts participants with the imposition of taxes. Government participation in the process takes place on different levels:

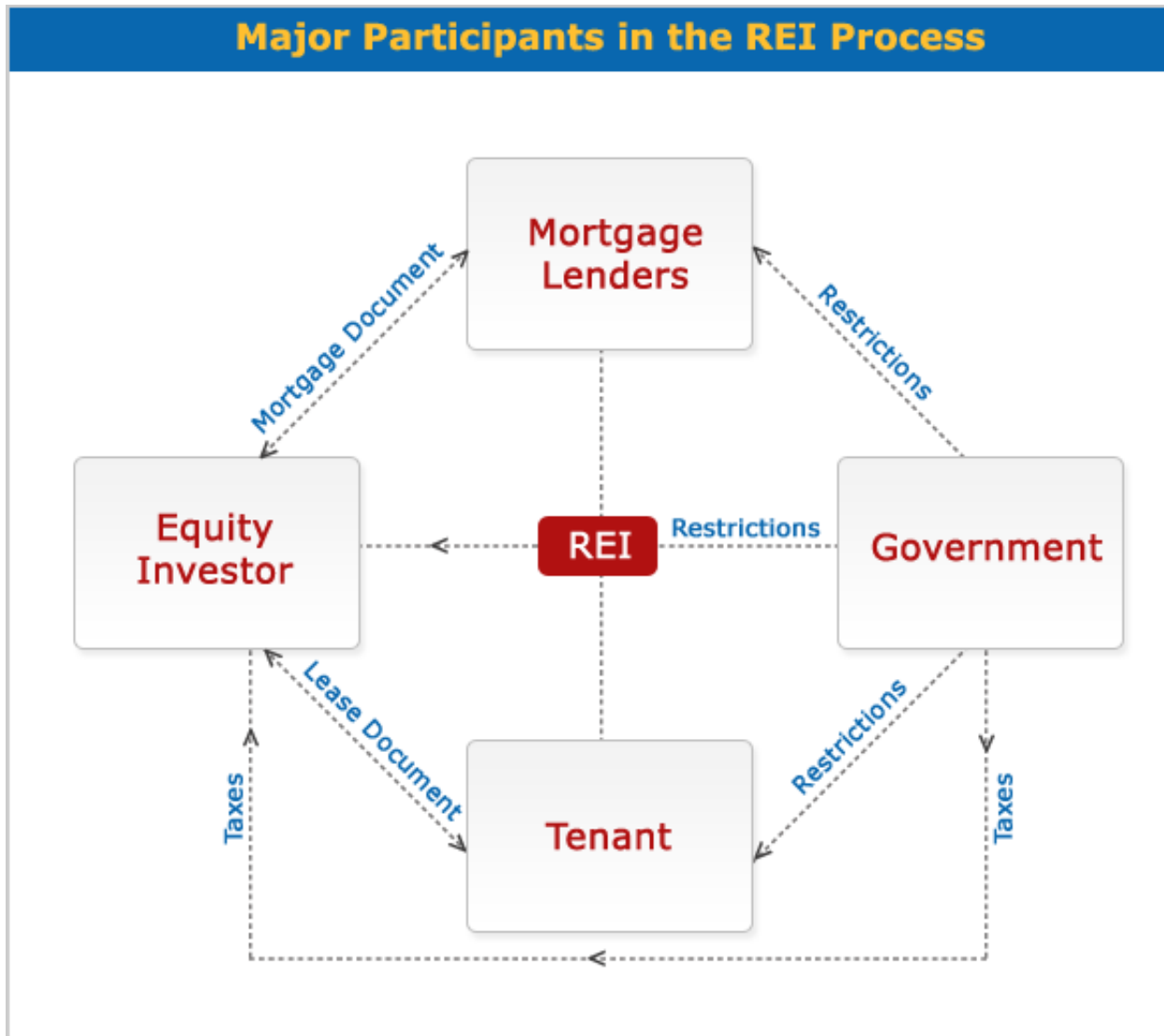
- Federal
- Provincial
- Municipal



Slide 10: Relationship between REI Participants



Professor's Comments (audio)



Slide 11: Relationship between REI Participants

Participants	Interrelation
Equity Investor and the Mortgage Lender	<ul style="list-style-type: none"> ▪ The equity investor borrows money from the mortgage lender. ▪ As a provider of debt service, the mortgage lender expects mortgage payments that will include the principal plus the interest generated through time. ▪ The mortgage lender gets a mortgage document as collateral; this document specifies the method of payment, which could consist of the repayment of interest first and principal at the end, or the repayment of both principal and interest in each amortization.
Equity Investor and Tenant	<ul style="list-style-type: none"> ▪ The equity investor leases the right to use a property to the tenant. ▪ The tenant pays rent to the equity investor to use the property.

Equity Investor and Government

- The lease document establishes the attributions and restrictions involved in using the property.
- The equity investor pays taxes to the government.
- The government sets restrictions on owners, such as police power, taxation and eminent domain.
- Police may enter a property without requiring the owner's permission.
- Most taxes are on income and capital gains. The taxes on income are for money made on rents received from tenants. The taxes on capital gains (wealth) are for gains for selling a property. The government also requests a "welcome tax" from the buyer of a property and a "goodbye tax" from the seller of a property.
- Appealing to eminent domain, the government may expropriate private property at its fair market value in order to create something that favours society in general.

Mortgage Lenders and Government

- The mortgage lender's relationship to other participants in the REI is regulated by the government.
- The government imposes restrictions on mortgage lenders which will depend on the nature of the mortgage lender; for example, restrictions on banks will be different from restrictions on corporations.
- The government also sets mortgage laws on debt service or mortgage payments for equity investors.

Government and Tenant

- The government regulates the use that the tenant can make of the property on lease.
- Landlord-tenant law has evolved to detail not only legal aspects between a landlord and tenant but also the actions that tenants should take to protect the property, such as the installment of fire alarms, smoke detectors, and so on.

Slide 12: The Real Estate Investment Process

Listen to your professor's introduction to this topic (video length 00:09:42)

**Slide 13: The Real Estate Investment Process****Professor's Comments (audio)**



The Real Estate Investment Process

Step 1: Identify investor's objectives, goals and constraints



Step 2: Analyze investment climate and market conditions



Step 3: Develop financial analysis



Step 4: Apply decision-making criteria



Step 5: Investment decision



Replay

Slide 14: The Real Estate Investment Process



Professor's Comments (audio)



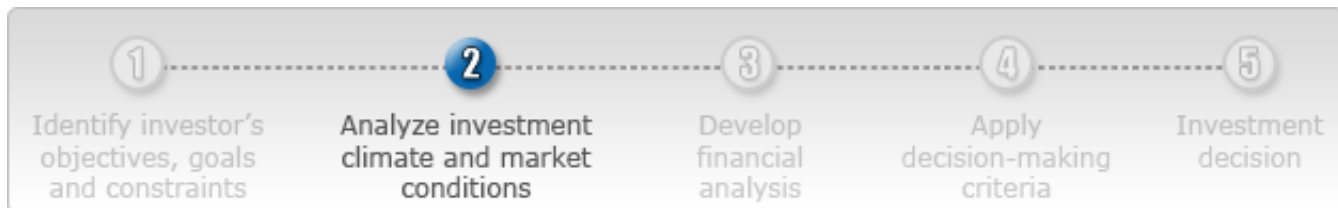
Step 1: Identify Investor's Objectives, Goals and Constraints

It is important to start the REI process by understanding that major participants (equity investor, mortgage lender, tenant and government) bring their own expectations and limitations to the REI.



- **The equity investor** is interested in the cash flow that will generate the REI.
- **The mortgage lender's** goal is to obtain a rate of return from the money lent to the equity investor.
- **The tenant** does not receive an immediate income, but will be concerned with the legal rights to use the property.
- **The government** is responsible for regulating the relationships between the other major participants in the REI process, and it also places restrictions on real estate.

Slide 15: The Real Estate Investment Process



Step 2: Analyze Investment Climate and Market Conditions

The second step in the REI process is learning about the market, legal, financing and tax environment. The result of this analysis will have a great impact on your decision making throughout the process. We will discuss these environments in detail in later lessons; here is a brief overview of what you will learn.

- **The market environment.** This analysis identifies supply and demand in the real estate market at local, provincial, and state levels and how they affect the REI.
- **The legal environment.** A complex legal system regulates REI and the relationships between its participants. Analysing the legal opportunities and limitations that a REI may entail will play an important role in the acquisition decision and also in the rest of the REI process.
- **The financing environment.** The analysis of the cost of debt or interest rate, and the cost of equity or rate of return, shows how feasible the REI is and how profitable it might be.
- **The tax environment.** Taxes decrease the REI's income; therefore, knowing the

taxation system and the impact that it will have on the expected income will help in making the right investment decision to save money or to increase gains.



Slide 16: The Real Estate Investment Process



Step 3: Develop Financial Analysis

The financial analysis deals with financial calculations that will allow you to anticipate the cash flow of the REI. At the end of the analysis you will be able to answer questions such as:

- How much is profit per year?
- How much is the mortgage payment?
- How much is the capital gain when I sell?
- How much will taxes diminish my profit?
- How much will taxes decrease my capital gains?
- What strategies should I use to reduce taxes on profits and capital gains?



Slide 17: The Real Estate Investment Process



Step 4: Apply Decision-Making Criteria

In this step, you apply decision-making criteria to decide how much you are able or willing to pay for a property to obtain the desired rate of return. To do so, you may use three criteria:

- **Rules of Thumb Techniques**, which measure the payback period necessary to regain what was invested to acquire a property, and the methods needed to achieve the highest rate of return. Techniques are: payback method, return on investment (ROI), return on equity (ROE), return on asset (ROA), gross income multiplier (GIM), net operating multiplier (NIM) and overall capitalization method (OCR).



- **Discounted Cash Flow Techniques**, which calculate the value today of the REI future cash flow. These techniques take time value of money into consideration and include discounted payback period method, net present value method, internal rate of return and profitability index method.
- **Traditional Valuation Techniques**, which estimate the value of the property that will be used in the REI. These techniques are: cost approach, net income approach and market (sales) comparable approach.

Slide 18: The Real Estate Investment Process



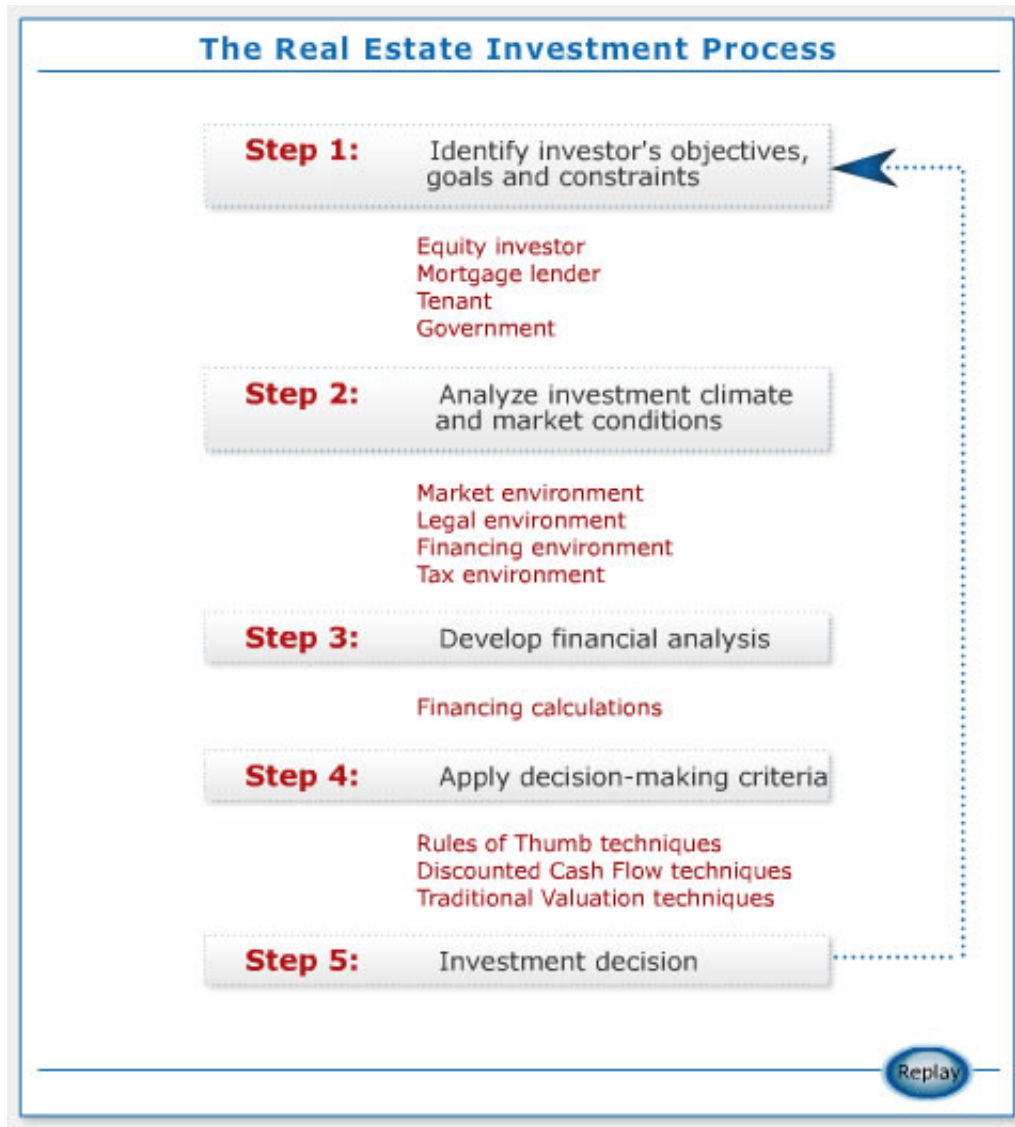
Step 5: Investment Decision

The previous steps will give you the necessary information to decide whether to acquire REI or not. If the result of the analysis is not what you expect, you will repeat the process assessing another REI until you find what meets your financial goals.

In the following lessons we will discuss each step of the process in greater detail. You will also have exercises and self-assessments to practice what you learned and to help build your confidence in order to start your real estate investment.



Slide 19: The Real Estate Investment Process



Source used to write this lesson: Jaffe, Austin J. and Sirmans, C.F. Chapter 1: "The Investment Decision" in *Fundamentals of Real Estate Investment*. 2nd.ed. New Jersey: Prentice Hall, Inc. 1989 (pp. 6-18)

Lesson 2: The Time Value of Money - Study Materials

Slide 1: Overview



Professor's Comments (audio)

Lesson's Key Topics

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> ▪ Time Value of Money (slide 2) ▪ Rate of Return (slide 3) ▪ Nominal Rate (slide 4) ▪ Effective Annual Rate (slides 5-9) | <ul style="list-style-type: none"> ▪ Time Value of Money Variables (slides 10-11) ▪ Present Value (slides 12-17) ▪ Future Value (slides 18-23) ▪ Practice Exercises (slide 24) |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Assigned Reading

None.

Slide 2: Time Value of Money

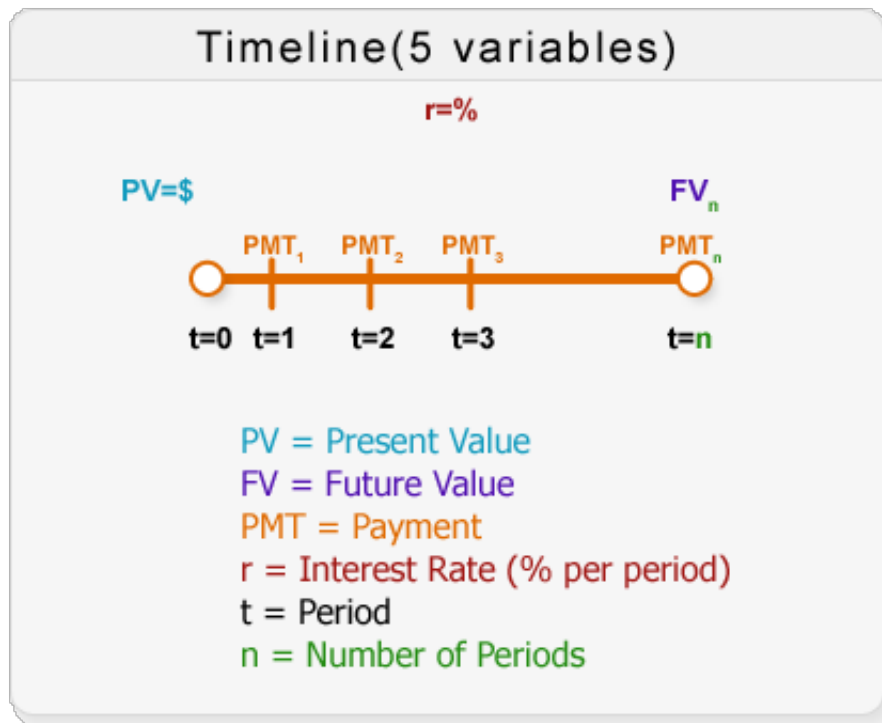
The Time Value of Money techniques enable us to compare dollars received or paid out in different time periods. This is important in making smart decisions in budgeting, investments, debt management, tax and retirement planning. Sound financial decisions are made with considerations of not only the size, but also the timing of cash flows. As it is often said, "a dollar today is not the same as a dollar tomorrow." The reason, of course, is that, everything else being equal, today's dollar can be invested to earn interest and grow to a larger sum in the future.



In the past, time value calculations were performed using formulas or tables derived from them. The development of technology and the advent of electronic calculators have made the calculations of time value easier.

In this lesson, we will discuss nominal and effective rates and we will solve the problems using formulas and the financial calculator to find Present Value (PV), Future Value (FV), Present Value of an Annuity (PVA), and Future Value of an Annuity (FVA). The [Calculator Tutorial](#) in Lesson 0 explains some of the basics of the financial calculator; you should be familiar with them before you

continue reviewing this lesson.



Slide 3: Rate of Return

Listen to your professor's introduction to this topic (video length 00:11:40)



Slide 4: Nominal Rate

Definition

The nominal rate is also known as “in name only” because it has not been adjusted for inflation. Other sources might also call it Quoted Rate, Stated Rate, Observed Rate, or Annual Percentage Rate (APR). In a given problem, when we talk about the interest rate we are talking about the nominal rate, always written on a per annum basis.

Example 1

Imagine that you borrow \$500 today and you are told that at the end of the year you will have to pay back \$550. This means that you are being charged an interest rate of 10% per annum.

Capital	Interest	Total
500	+ 50 (10% of 500)	= 550

Slide 5: Effective Annual Rate

Definition

The effective annual rate (EAR) is the interest rate compounded once per year.

Example 2

If you borrow \$500 at an interest rate of 10% but compounded semi-annually, it means that the lender is charging you 5% every six months. However, 5% every six months does not mean 10% per annum; it is 10.25% per annum (EAR). Therefore, the nominal rate of the loan is 10%, but the effective rate is 10.25%.

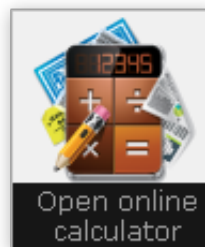
Slide 6: Effective Annual Rate (Cont'd)

Methods to Find the EAR Using the Mathematical Formula

$$EAR = \left[1 + \frac{NOM}{m} \right]^m - 1$$

Using the Calculator

1. Enter nominal rate
2. Press **NOM**
3. Enter number of compounds
4. Press **C/Y**
5. Press **CPT**
6. Press **EFF**



Slide 7: Effective Annual Rate (Cont'd)



Professor's Comments (audio)

Example 3: Finding EAR

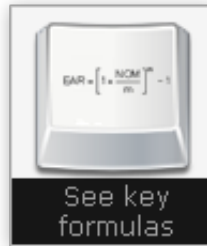
Assume that you have \$1,000 in your bank account at an interest rate of 10% per annum. Find the effective rate compounded annually and semi-annually.

Solution: Part I

1. Effective rate compounded annually

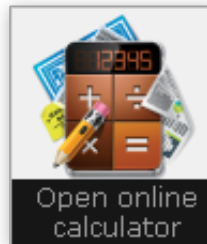
Using the Mathematical Formula

$$EAR = \left[1 + \frac{NOM}{m} \right]^m - 1 = \left[1 + \frac{10\%}{1} \right]^1 - 1 = 10\%$$



Using the Calculator

Procedure	Applying Procedure to Example 3
Enter nominal rate	10
Press NOM	NOM
Enter number of compounds	1
Press C/Y	C/Y
Press CPT	CPT
Press EFF	EFF
Result	10%



Either method provides the same result:

Period	Beginning Balance	Interest	End Balance
Year 1	1,000	100	1100

Slide 8: Effective Annual Rate (Cont'd)



Professor's Comments (audio)

Example 3: Finding EAR

Solution: Part II

2. Effective rate compounded semi-annually

Using the Mathematical Formula

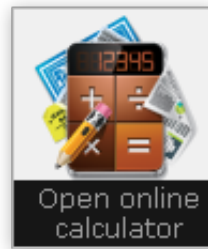
$$EAR = \left[1 + \frac{NOM}{m} \right]^m - 1 = \left[1 + \frac{10\%}{2} \right]^2 - 1 = 10.25\%$$



Using the Calculator

--	--

Procedure	Applying Procedure to Example 3
Enter nominal rate	10
Press NOM	NOM
Enter number of compounds	2
Press C/Y	C/Y
Press CPT	CPT
Press EFF	EFF
Result	10.25%



Either method provides the same result:

Period	Beginning Balance	Interest	End Balance
6 months	1,000	50	1,050
Year 1	1,050	52	1,102.50

Slide 9: Effective Annual Rate (Cont'd)

Practice Exercises



Professor's Comments (audio)

You borrowed \$1,000 at a 10% interest rate per annum. What are the nominal and effective rates if interest is calculated or compounded annually, semi-annually, quarterly, monthly, weekly and daily?

Note: Try to do this exercise on your own before viewing the answer.

Answer

# of Compounding	Nominal Rate	Effective Rate
Annually	10%	10%
Semi-annually	10%	10.25%
Quarterly	10%	10.38%
Monthly	10%	10.47%
Weekly	10%	10.51%
Daily	10%	10.52%



Slide 10: Time Value of Money Variables



Professor's Comments (audio)

The Five Variables and the Timeline



PV = Present Value

FV = Future Value

n = Number of Periods

Pmt = Payment

r = Interest Rate (% per period)

Replay

Slide 11: Time Value of Money Variables

Listen to your professor's introduction to this topic (video length 00:14:25)

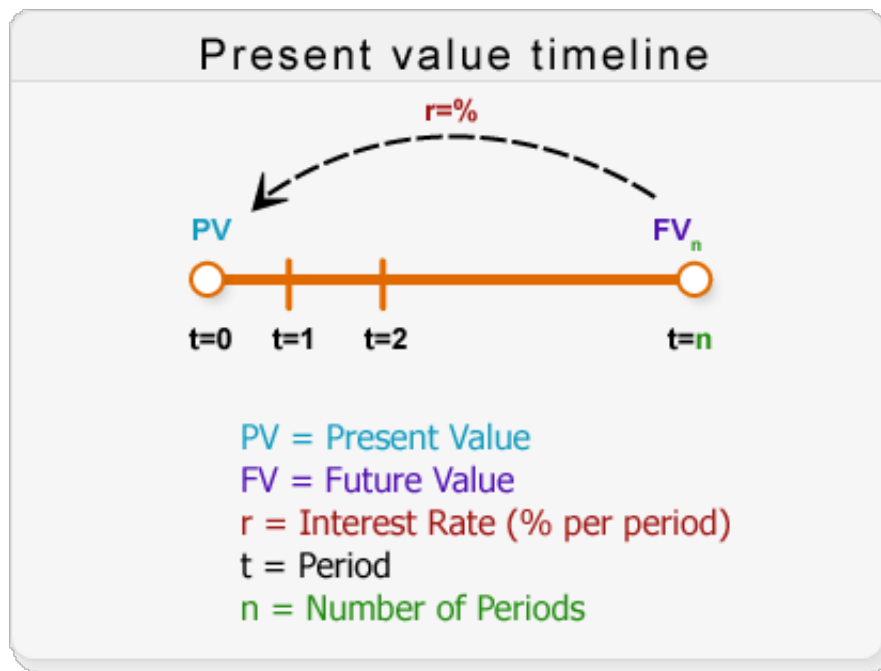


Slide 12: Present Value

Definition

The present value is the current value that a future amount of money is worth. This value is

calculated using four variables: interest rate, number of periods or compounds, future value, and payment.



Slide 13: Present Value (Cont'd)



Professor's Comments (audio)

Methods to Find the Present Value

Using the Mathematical Formula

$$PV = \frac{1}{(1+r)^n} * FV$$

Using the Calculator

1. Enter future value
2. Press **FV**
3. Enter number of compounds
4. Press **N**
5. Enter interest rate
6. Press **I/Y**



- 7. Enter payment
- 8. Press **PMT**
- 9. Press **CPT**
- 10. Press **PV**



Slide 14: Present Value (Cont'd)



Professor's Comments (audio)

Example 4: Finding Present Value

You will receive \$1,000 one year from today at an interest rate of 10% per annum (compounded annually). What is the present value of this amount?

Solution

Using the Mathematical Formula

$$PV = \frac{1}{(1+r)^n} * FV = \frac{1000}{(1.10)^1} = 909.09$$



Using the Calculator

Procedure	Applying Procedure to Example 4
Enter future value	1000
Press FV	FV
Enter number of compounds	1
Press N	N
Enter interest rate	10



Press I/Y	I/Y
Enter payment	0
Press PMT	PMT
Press CPT	CPT
Press PV	PV
Result	909.09

Slide 15: Present Value (Cont'd)



Professor's Comments (audio)

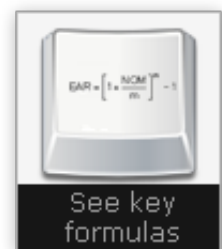
Example 5: Finding Present Value of an Ordinary Annuity

You will receive \$1,000 **at the end of each year** for 5 years. Interest rate is 10% per annum, compounded annually. What is the present value of these cash flows?

Solution

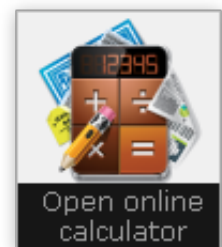
Using the Mathematical Formula

$$PVA = \left[\frac{1 - (1 + r)^{-n}}{r} \right] * PMT = \left[\frac{1 - (1.10)^{-5}}{0.10} \right] * 1000 = [3.790787] 1000 = 3790.79$$



Using the Calculator

Procedure	Applying Procedure to Example 5
Enter future value	0
Press FV	FV
Enter number of compounds	5
Press N	N
Enter interest rate	10
Press I/Y	I/Y
Enter payment	1000
Press PMT	PMT
Press CPT	CPT



Press PV	PV
Result	3790.79

Slide 16: Present Value (Cont'd)



Professor's Comments (audio)

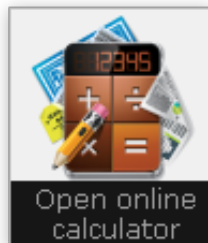
Example 6: Finding Present Value of an Annuity - Due

You expect \$1,000 per annum **at the beginning of each year** for 5 years. Interest rate is 8% per annum. What is the present value of this annuity (annuity-due)?

Solution

Using the Mathematical Formula

$$\begin{aligned}
 PV &= \left[\frac{1 - (1+r)^{-n}}{r} \right] * PMT * (1+r) \\
 &= \left[\frac{1 - (1.08)^{-5}}{0.08} \right] * 1000 * (1.08) \\
 &= [4.312129] 1000 = 4312.13
 \end{aligned}$$



Using the Calculator

Procedure	Applying Procedure to Example 6
Enter future value	0
Press FV	FV
Enter number of compounds	5
Press N	N
Enter interest rate	8
Press I/Y	I/Y

Enter payment	1000
Press PMT	PMT
Press CPT	CPT
Press PV	PV
Multiply partial result by (1+r)	
Result	4312.13

Slide 17: Present Value (Cont'd)



Professor's Comments (audio)

Example 7: Finding Present Value of a Lump Sum Amount

You will receive \$5,000 10 years from today. Interest rate is 8% per annum, compounded semi-annually. What is the present value of this future amount?

Solution

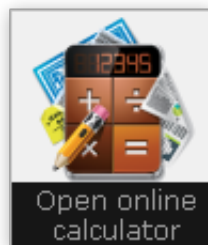
Using the Mathematical Formula

$$PV = \frac{1}{(1+r)^n} * FV = \frac{5000}{(1.04)^{20}} = 2281.93$$



Using the Calculator

Procedure	Applying Procedure to Example 7
Enter future value	5000
Press FV	FV
Enter number of compounds	20
Press N	N
Enter interest rate	4
Press I/Y	I/Y
Enter payment	0
Press PMT	PMT
Press CPT	CPT
Press PV	PV
Result	2281.93



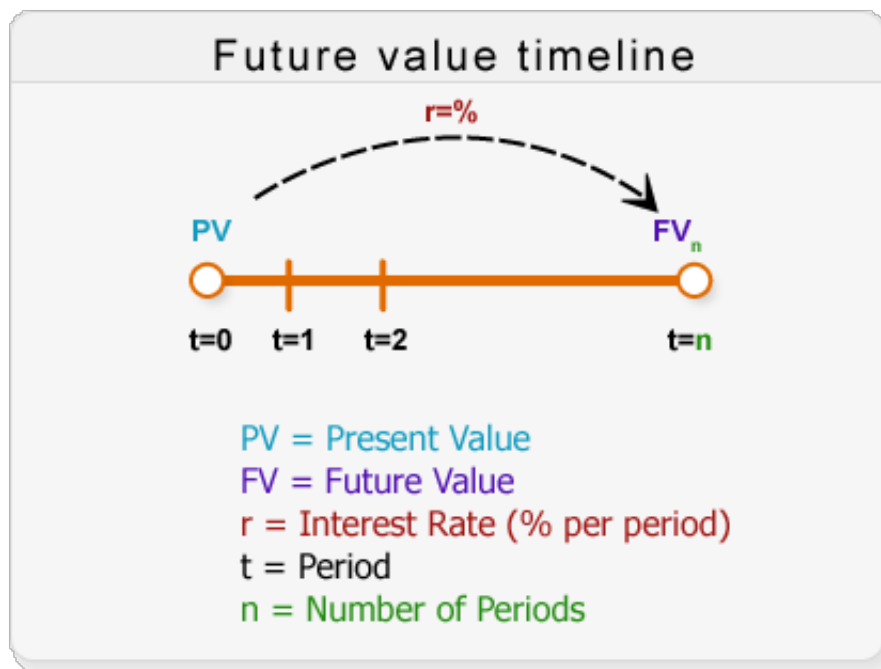
Slide 18: Future Value



Professor's Comments (audio)

Definition

The future value is the value that a current amount of money will have at a specified date in the future. This value is calculated using four variables: interest rate, number of periods or compounds, present value and payment.



Slide 19: Future Value (Cont'd)



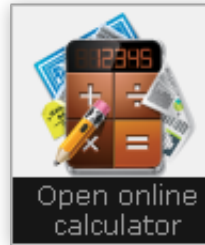
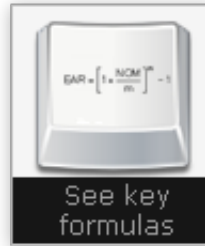
Professor's Comments (audio)

Methods to Find Future Value**Using the Mathematical Formula**

$$FV = (1 + r)^n * PV$$

Using the Calculator

1. Enter present value
2. Press **PV**
3. Enter number of compounds
4. Press **N**
5. Enter interest rate
6. Press **I/Y**
7. Enter payment
8. Press **PMT**
9. Press **CPT**
10. Press **FV**

**Slide 20: Future Value (Cont'd)****Professor's Comments (audio)****Example 8: Finding Future Value**

You deposited \$1,000 today in an account earning 10% per annum, compounded semi-annually. How much is your bank balance at the end of the first year?

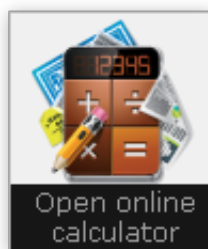
Solution**Using the Mathematical Formula**

$$FV = (1 + r)^n * PV = (1.05)^2 * 1000 = 1102.50$$

**Using the Calculator**

Procedure	Applying Procedure to Example 8
Enter present value	1000

Press PV	PV
Enter number of compounds	2
Press N	N
Enter interest rate	5
Press I/Y	I/Y
Enter payment	0
Press PMT	PMT
Press CPT	CPT
Press FV	FV
Result	1102.50



Slide 21: Future Value (Cont'd)



Professor's Comments (audio)

Example 9: Finding Future Value of an Ordinary Annuity

You plan to deposit \$1,000 in the bank **at the end of each year** for 5 years. The interest rate is 10% per annum (compounded annually). What will the future value of these deposits be at the end of the fifth year?

Solution

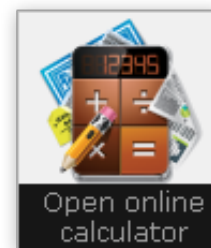
Using the Mathematical Formula

$$FVA = \left[\frac{(1+r)^n - 1}{r} \right] * PM = \left[\frac{(1.10)^5 - 1}{0.10} \right] * 1000 = [6.1051]1000 = 6105.10$$



Using the Calculator

Procedure	Applying Procedure to Example 9
Enter present value	0
Press PV	PV
Enter number of compounds	5
Press N	N
Enter interest rate	10
Press I/Y	I/Y
Enter payment	1000



Press PMT	PMT
Press CPT	CPT
Press FV	FV
Result	6105.10*

Slide 22: Future Value (Cont'd)



Professor's Comments (audio)

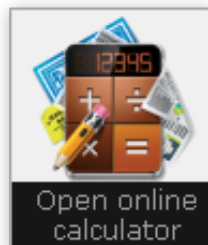
Example 10: Finding Future Value of an Annuity - Due

You plan to deposit \$1,000 **at the beginning of each year** for 5 years (5 deposits). The interest rate is 8% per annum. What is the future value of these deposits at the end of the 5th year?

Solution

Using the Mathematical Formula

$$\begin{aligned}
 FV &= PMT * \left[\frac{(1+r)^n - 1}{r} \right] * (1+r) \\
 &= 1000 * \left[\frac{(1.08)^5 - 1}{0.08} \right] * (1.08) \\
 &= 1000 * 6.335929 \\
 &= 6335.93
 \end{aligned}$$



Using the Calculator

Procedure	Applying Procedure to Example 10
Enter present value	0
Press PV	PV
Enter number of compounds	5
Press N	N
Enter interest rate	8

Press I/Y	I/Y
Enter payment	1000
Press PMT	PMT
Press CPT	CPT
Press FV	FV
Multiply partial result by (1+r)	
Result	6335.93

Slide 23: Future Value (Cont'd)



Professor's Comments (audio)

Example 11: Finding Future Value of a Lump Sum Amount

You deposit \$5,000 today, earning 8% per annum, compounded semi-annually. How much will you have at the end of the tenth year?

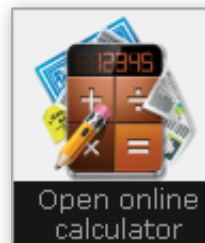
Solution

Using the Mathematical Formula

$$FV = (1 + r)^n * PV = (1.04)^{20} * 5000 = 10955.62$$

Using the Calculator

Procedure	Applying Procedure to Example 11
Enter present value	5000
Press PV	PV
Enter number of compounds	20
Press N	N
Enter interest rate	4
Press I/Y	I/Y
Enter payment	0
Press PMT	PMT
Press CPT	CPT
Press FV	FV
Result	10955.62



Slide 24: Practice Exercises



Professor's Comments (audio)

Exercise 1: Present Value

You are currently saving for a dream vacation to Hawaii when you have completed your university studies in 3 years time. The total cost of the trip will be \$6,000 (includes flight and accommodations). You have opened a savings account solely for this vacation. The accounts yields 2.25% annually. What is your current bank account balance in order to achieve your goal upon graduation?

Answer

$$N = 3$$

$$I/Y = 2.25\%$$

$$PV = ?$$

$$PMT = 0$$

$$FV = \$6,000.00$$

$$PV = \$5,612.56$$

Exercise 2: Present Value of an Annuity

Congratulations! You have just won the lottery! The terms and conditions of this lottery are as follows: you will obtain \$2,500/month for 25 years. All funds obtained from the lottery will be placed in a savings account that yields 5.00% compounded monthly. If you had the choice of receiving an equivalent lump sum today, how much would it be?

Answer

$$N = 25 * 12 = 300 \text{ months}$$

$$I/Y = 5.00\%/12 = 0.416667\%$$

$$PV = ?$$

$$PMT = \$2,500$$

$$FV = 0$$

$$PV = \$427,650$$

Exercise 3: Present Value of a Lump Sum Amount

You are currently 21 years old and wish to retire a millionaire at the age of 55. The Bank of Canada indicates that the interest rate will be constant at 3.5% per annum (extremely unlikely) from now until then. How much do you need to have in your account today to achieve your retirement dream?

Answer

$$N = 55 - 21 = 34 \text{ years}$$

$$I/Y = 3.5\%$$

$$PV = ?$$

$$PMT = 0$$

$$FV = \$1,000,000$$

$$PV = \$310,476$$

Exercise 4: Future Value

You have just inherited a painting that is worth \$100,000 from a wealthy relative. You intend to keep it for 30 years and pass it on to your children. If your children do not appreciate art and decide to sell it, how much will they get for it in 30 years? Assume a prevailing interest rate of 12.75% per annum.

Answer

$$N = 30$$

$$I/Y = 12.75\%$$

$$PV = \$100,000$$

$$PMT = 0$$

$$FV = ?$$

$$FV = \$3,660,130$$

Exercise 5: Future Value of an Annuity

You are currently saving for a new car which you want to purchase in 5 years time. Upon reviewing your budget, you have determined that you can save \$300.00 per month. This money will be invested in a savings account dedicated exclusively to your future car. This account yields 4.65% per annum. How much will your car cost?

Answer

$$N = 5 * 12 = 60 \text{ months}$$

$$I/Y = 4.65\%/12 = 0.3875\%$$

$$PV = 0$$

$$PMT = \$300$$

$$FV = ?$$

$$FV = \$20,221$$

Exercise 6: Future Value of a Lump Sum Amount

Your friend kindly asks you to lend him \$3,500 today and you both agree that the amount will be paid back in a single instalment in 4 years time. Furthermore, it is understood and agreed that a minimal amount of interest will be charged so that you (the lender) are not set back financially by this personal loan. Assume that the agreed upon interest rate is 1.75% per annum. What amount will your friend owe you in 4 years time?

Answer

$$N = 4$$

$$I/Y = 1.75\%$$

$$PV = \$3,500$$

$$PMT = 0$$

$$FV = ?$$

$$FV = \$3,751.51$$