2ND EDITION

FINANCE SIMPLIFIED

BeiChen Lin

Ramis Najam

DECA ONTARIO

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ABOUT THE PROJECT LEADERS

BeiChen Lin is a third year undergraduate student at the NYU Stern School of Business. He is enrolled in the BS/MS Dual Degree (CPA Track) Program, concentrating in Accounting and Finance. Prior to attending NYU Stern, BeiChen attended Richmond Hill High School (RHHS). He was a member of RHHS DECA from grade 9 through grade 12, having competed in the categories of Principles of Marketing (PMK) and Accounting Applications (ACT). He is a three time ICDC trophy winner, most recently having won 1st place at the 2015 DECA ICDC Competition.

BeiChen has extensive experience in training DECA members for competition. He served on the RHHS DECA executive team, where he designed and implemented a new cluster-based training program. BeiChen has also lectured at the DECA GRIT Summer Conference, delivering a workshop on Business Strategy. In addition, he was a member of DECA Ontario Master's Club during the 2015-2016 school year, and was actively involved in training the 2016 DECA Ontario ICDC ACT delegation. For BeiChen, the best prize in DECA is the satisfaction of seeing fellow Ontario competitors reach their goals. In writing this textbook, BeiChen hopes that DECA Ontario continues its strong legacy, and wishes everyone the best of luck at their competition!

Ramis Najam is a third year Rotman Commerce student at the University of Toronto. He went to Stephen Lewis Secondary School in Mississauga. His passion in investments led him to join his high school's DECA chapter in grade 11. He also served as his chapter's President in grade 12. In grade 11 he competed in BFS and managed to get to Provincials, but did not qualify for Internationals. Disappointed, yet undeterred, he followed a training regimen in grade 12 and spent countless hours trying to perfect his role play and exam. This time, he qualified for ICDC 2015 – where he placed first.

When BeiChen introduced the idea of writing a finance textbook to help train DECA Ontario competitors, Ramis thought it would be a great way to share his insight. He had previously shared his preparation technique to some friends who went on to qualify for ICDC in 2016. He encourages competitors to read the first two chapters of the book where he discusses strategies for the role play and exam. He wishes the best to everyone in DECA Ontario!

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- **Lorie Guest** is the Director of Business Studies at Bluevale Collegiate Institute. She has more than 25 years of teaching experience and is the author of four high school business textbooks. She offered valuable advice on how to write an effective textbook, and we benefitted tremendously from her mentorship.
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Despite their busy schedules, these educators and industry professionals were willing to sacrifice their time to help make the book more relevant and reliable. We express our sincerest gratitude.

We would also like to thank the many wonderful DECA advisors and teachers we have had over the years, who have always motivated and inspired us. Finally, we are incredibly grateful to the DECA Ontario Board of Directors, as well as the DECA Ontario Provincial Officer Team of 2016-2017 for their continuing support of our publication. Without these people, this book would not have been possible. We are forever grateful for everything they have done.

As you continue your DECA journeys, we hope you take the time to reflect on how you can make DECA Ontario even better than it already is. Perhaps one day you will even write your own textbook. Indeed, it is the innovation, spirit, and enthusiasm that makes DECA Ontario an incredible organization. DECA Ontario truly feels like a family to us, one that we are incredibly proud to have been a part of. With this book, we pass the torch on to you and hope that you excel in everything you do.

Dedicated to the 2016 DECA Ontario ICDC ACT delegation.

-BeiChen Lin

Dedicated to the 2016 DECA Ontario ICDC BFS delegation.

-Ramis Najam

LETTER TO THE READER

Dear DECA Ontario Member,

On behalf of our entire team, we would like to welcome you to the 2ND edition of *Finance Simplified. Finance Simplified* is the first-ever student produced textbook intended to help DECA Ontario members achieve competitive success in Finance related categories. If you are in ACT, BFS, FTDM, PFN, or PFL, then this book is for you.

Unlike other textbooks, this textbook is specifically geared towards DECA members. Our content coverage is linked to performance indicators that you are expected to understand as a DECA competitor. In addition, our book is written in an easy-to-understand format so that you'll be able to self-study.

Finance Simplified covers a wide array of topics designed to increase your success at competitions. We start by giving you an overview of written exams and roleplays, and provide strategies to help you achieve a high score in both aspects of the competition. Then, we spend several chapters covering business fundamentals, including Law, Business Strategy, and Economics. The final part of the book will cover topics more specific to the Finance industry, such as Accounting, Auditing, Corporate Finance, and Investments. We will also examine the impact of technology in Finance. Often, we will address topics that do not receive sufficient coverage in your high school classes, but are still nonetheless crucial for your competitive success.

We recommend that you read the chapters of the book in sequence, as each chapter builds on material covered in previous chapters.

We released the 1st edition of this book in April 2017, and we are now pleased to provide you with this 2nd edition of our book. We are grateful to the readers of our 1st edition for their insightful feedback.

To help you make the most out of your studying experience, this book offers the following features:

"Worked Examples" illustrate how to solve computational and conceptual questions. Each Worked Example is paired with a "Your Time to Shine" that gives you the chance to practice your skills on a similar question.

End-of-chapter "Questions for Comprehension" assess your understanding of chapter content. Question types include multiple choice, true/false, fill-in-the-blank, short answer, and mini-case analyses. Some of the questions are memorization based, whereas others are designed to test your ability to make connections between different concepts.

In addition, the *Finance Simplified* textbook comes with a suite of accompanying resources. The *Finance Simplified Solutions Manual* provides in-depth solutions to textbook questions.

The *Finance Simplified Case Studies* book presents competitors with 12 real-world case studies. These case studies examine challenges facing actual companies, and give students a chance to apply the concepts taught in the book in a relevant and meaningful way. The case studies are complete with discussion questions to help invigorate students' critical thinking skills.

We wish you all the best as you continue your DECA journeys, and look forward to hearing about the continued success of DECA Ontario!

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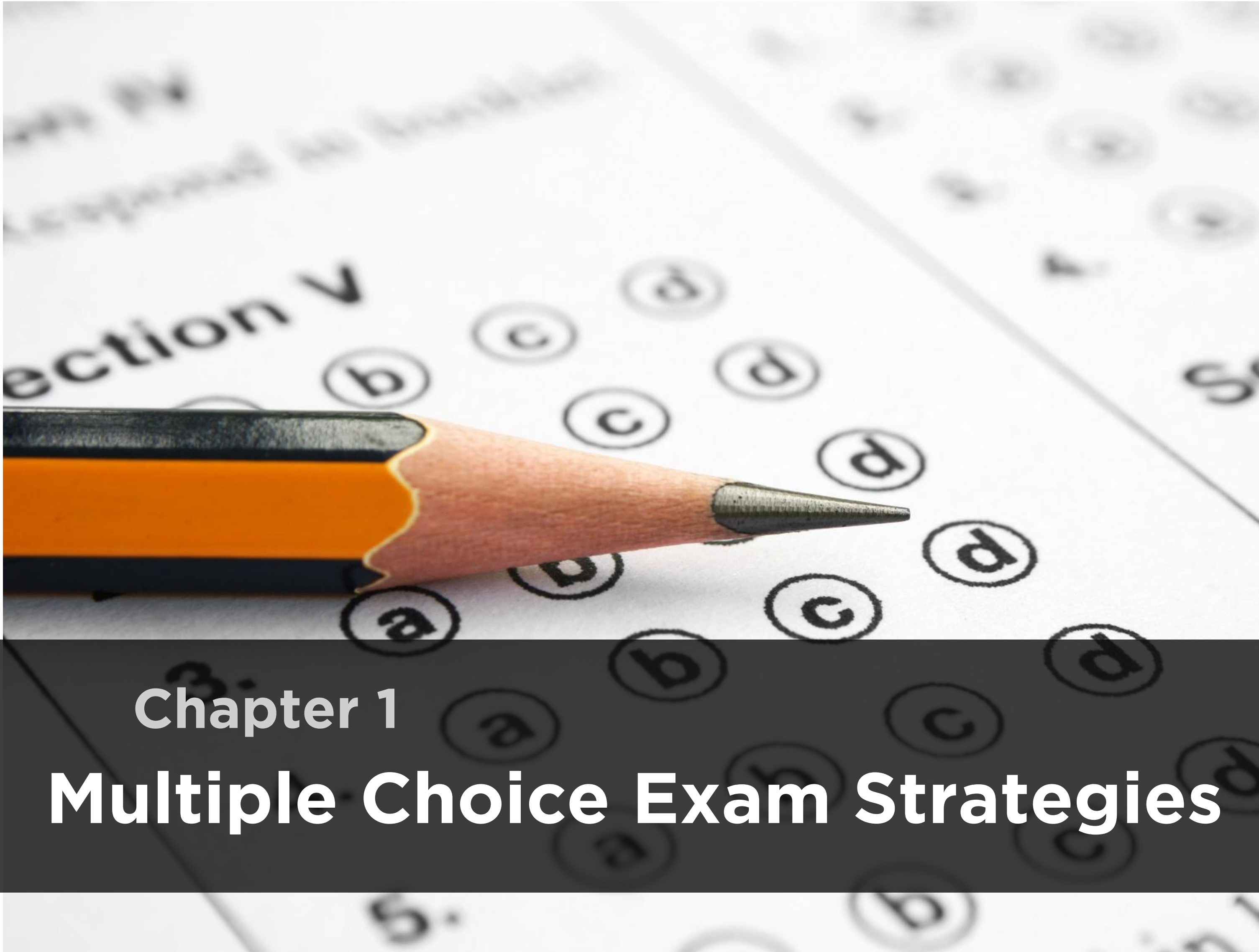


Chapter 1

Multiple Choice Exam Strategies

There are two components to your score: the role play and the exam. A high score in both these components is what is required for you to succeed. In order to accomplish this, you need to know how to *best* prep for them. You do not have to be the smartest; you need to be the most prepared. Many people are intimidated by the exam, and it generally is the weakest part of the scores of most competitors. The mentality among many competitors is often, “I’ll get a high score on the role play to make up for the exam,” or, “I’ll just try as hard as I can when I get around to doing the actual exam.” The reasoning behind this is that a high score on the role play can make up for a bad score on the exam. However, in order to advance (especially in higher levels of competition), decent scores must be obtained in both the exam and the role play to perform well. This chapter will go through how to prepare for the exam. As always, you should personalize everything to work for you.

1.1 Overview

The simple answer to performing well on the exams is this: do every exam available to you. And then repeat them until you consistently score 90% or higher. Everything else taught in this chapter builds upon the assumption that time and effort will be put into doing every single exam available to you.

The depth of the events assumes that you have *at least* a high school knowledge of the subject matter. As such, by Grade 12, you might have already learned a considerable portion of the required knowledge required for your event. If you have not taken sufficient business related courses, or if you are in a lower grade, you may find the competition to be quite difficult.

One recommendation is to find the relevant course books pertaining to your event at school and ask to borrow the textbooks. This is often the most effective method as course books are a rich and highly relevant source of information for your category. Another method is to go through the complete list of Performance Indicators ("PI's) that pertain to your event. You can find this information from the DECA website, or your chapter may have some resources that you can use to learn the performance indicators. Spend some time going through the PIs. Skip through any concepts that you already know, and then search the performance indicators that you do not know on the internet. This method of self-learning will allow you to efficiently cover all the required knowledge required for your category. Again, the single most important way to prepare for both the exam and role play is through practice. You should spend the vast majority of your time doing practice exams, even if you do not feel very proficient in the subject matter. Also, emulate practice exams under competition circumstances – in other words, do not peek at Google, and finish within the allotted time.

Once you finish each exam, identify the questions you got wrong and then read the correct answers to these questions. This will explain why the answer is what it is and is an excellent way to learn the content that you may not be familiar with. After that, go through all the practice exams a second time. Keep repeating this process until you consistently score above 95. A score like this is achievable only through a lot of practice, but it is enough to get a top ten exam score in most, if not all, categories at ICDC.

Most people get a score anywhere from the mid-50s to the low 70s on their first exam. Regardless of how low your exam score may currently be, it is definitely possible to achieve a 95+. Also, the scores you achieve on practice exams are very predictive of your score in competition: you will most likely score within three points of the scores on your last five practice exams at competition. Since the exam is the most predictable part of your score, use it as a reliable way to gain a competitive edge over the others.

1.2 The First Step: Gathering Resources

Your chapter will have many resources available for your use. DECA Ontario also provides chapters with past exams and role plays, as well as various other training resources at the annual fall symposium. Many of the resources are also available online on the DECA Ontario website. Your job, as a competitor, is to go through *all* the resources available, and create a separate folder which contains every exam, role play, and prep document which is relevant to you. Once you have done this, you can rest assured that you have more than enough prep material required for every level of competition, including Internationals.

1.3 Familiarize Yourself with “Those” Questions

There are some questions that appear very frequently in the exams. Every competitor knows and fears them. These include the questions on databases, the various types of queries, types of contracts, data management, data mining, different kinds of logic, etc. As you come across these questions, it may be helpful to read the sources that they came from in order to understand these concepts.

1.4 Strategies for Multiple Choice

The type of strategies you will want to use depends on the nature of the multiple choice questions. Easier questions can be answered using a relatively direct approach, whereas challenging questions may require the use of creative thinking. In this section, we present several multiple choice strategies.

A. Basic Questions

The first strategy, and the one used for the majority of the questions, is to read through the questions and then read each of the answers. If the answer is obvious, or if you are proficient in the PI being tested, it will be easy to pick out the correct answer. For answers that require specific answers or require calculations, it is helpful to first try to find the answer, and then try to see if that is one of the solutions. Often, if words like ‘always’ or ‘never’ are used, they are probably the wrong answer.

1. How can a financial planner maintain a positive reputation with his/her clients?
    a) Informing customers about new products that may benefit them
    b) Putting client money into assets with the highest growth potential
    c) Ensuring clients understand and accept the potential risks and rewards for each decision
    d) Working diligently to ensure that clients are able to retire comfortably

Solving Using This Method

a) This may be good thing, but does not necessarily build trust.
b) Assets with the highest growth potential also carry higher risk, which may not match the client's objectives.
c) This seems like the intuitive answer because in order to build trust, the client must not feel that they do not know all material information relevant to their financial decisions.
d) Although this is one part of financial planning, this may not be the objective that all clients seek when consulting with financial planners.

Correct Answer: C

2. If/then scenarios are best used to:
    a) Organize information
    b) Examine the outcomes of different decisions
    c) Make a chronological list of events
    d) Compare situations that occurred in similar circumstances

Solving Using This Method

a) Although an if/then scenario organizes information, it is not the primary purpose.
b) As the name implies, an if/then scenario is used to model the different outcomes that can occur.
c) It does not seem like time is of primary relevance to if/then scenarios.
d) Other analysis methods, like Venn diagrams, are better suited to compare and contrast information.

Correct Answer: B

3. In a market economy, what is the primary role of government in business?
    a) Help distressed businesses
    b) Provide financing to businesses to boost the economy
    c) Regulate business
    d) Run successful businesses to boost the economy

Solving Using This Method

a) Although this may occur from time to time, it is not a primary function.
b) The government does not directly provide financing to businesses.
c) The government passes laws to ensure that business is conducted fairly and sustainably; this seems like the answer.
d) Running businesses is not a primary government role in a market economy.

Correct Answer: C

B. Look at the Question from the Author's Perspective

When you read a question whose answer is not immediately clear, try to put yourself in the author's shoes and ask, "What were they thinking of when they wrote this question?" Look at the question once again, and pretend as if you wrote it yourself. Imagine what kind of answer you would be looking for. Next, look through each of the answers and try to gauge which one best matches that question you (thinking as the author) have written.

1. The place in which money is exchanged:
    a) Currency market
    b) Forex market
    c) Derivatives market
    d) Money market

Solving Using This Method

When money is exchanged, it refers to the trade of one country's money for another. Although 'currency market' seems like an intuitive answer, foreign exchange ('forex') is the correct term.

Correct Answer: B

2. Which investment vehicle tends to have the highest return over the long run?
    a) Government bonds
    b) Corporate bonds
    c) Stocks
    d) Certificates of Deposit

Solving Using This Method

In an efficient market, investments with the highest return tend to carry the greatest amount of risk. The riskiest investment of all the choices are stocks, which is likely the correct answer.

Correct Answer: C

3. What are the primary reason(s) index funds tend to outperform actively managed funds over the long run?
    a) Lower fees and efficient markets
    b) Tax advantages and greater diversification
    c) Larger companies are represented more often in index funds
    d) Fund managers may have perverse incentives

Solving Using This Method

The question provides the information that index funds outperform actively managed funds. The answer for this is likely linked to the drawbacks of actively managed funds. Namely, these are higher fees and efficient markets.

Correct Answer: A

C. Create a Question for Each Answer

This is another method useful in situations where you are not entirely sure of the answer. Multiple choice questions are generally made in two ways: (1) formulating a question and then creating four answers or (2) Making a question to match a specific answer, and then adding in the other answers. This second method is used to tailor multiple choice questions to specific concepts that the author wants to test. In this method, you will once again have to think as if you are the author of the question. Go through each of the answers, and think of a question that would have that answer, even if you do not know what it means. This helps you approach the question in new ways that may provide new insight to figure it out. If you cannot think of a creative question, do not worry: a simple definition of the answer suffices. In the following examples, it is not necessary to use this strategy. The questions are chosen to be simple to illustrate how the strategy works.

1. What term describes the situation in which a trader buys shares on one exchange and then sells them on another for a profit?
    a) Arbitrage
    b) Insider trading
    c) High-frequency trading
    d) Algorithmic trading

Solving Using This Method

a) A question to describe 'arbitrage' could be: What is it called when a trader buys shares on one exchange and sells them on another for a profit?
b) A question to describe 'insider trading' could be: What is it called when a person trades on information not yet made publically available?
c) A question to describe 'high-frequency trading' could be: What is it called when a firm trades a large volume of shares for a small profit?
d) A question to describe 'algorithmic trading' could be: What is it called when computers are programmed to make trades on behalf of human traders?

Correct Answer: A

This strategy becomes useful when definitions are unknown and you are making intuitive guesses as to what each answer could mean.

2. What is the primary responsibility of the Securities and Exchange Commission (SEC)?
    a) To regulate the securities market
    b) Carry out the execution of IPOs
    c) Ensure stocks are traded at a fair value
    d) Provide market information to brokers

Solving Using This Method

a) A question to describe this could be: What is the responsibility of the Securities and Exchange Commission?
b) A question to describe this could be: What is one of the functions of investment banks?
c) A question to describe this could be: What is not a responsibility of the Securities and Exchange Commission?
d) A question to describe this could be: What is one of the functions of a stock exchange?

Correct Answer: A

3. What are the three C's of credit?
    a) Cost, collateral, credit
    b) Cost, collateral, character
    c) Credibility, confidentiality, collateral
    d) Character, capacity, collateral

Solving Using This Method

a) A question to approach this could be: Are these intuitive measures of one's credibility?
b) A question to approach this could be: Is cost a relevant component of credibility?
c) A question to approach this could be: Is confidentiality a relevant component of credibility?
d) A question to approach this could be: Is cost a relevant component of credibility?

Correct Answer: D

This question demonstrates that it is not always possible to make a question for each answer. Instead, it may be possible to question certain elements of a question to see if it has any relevance to the original question being asked.

D. True or False

A characteristic of multiple choice questions is that unless the question is asking for a very specific idea or calculation, there can be multiple answers that seem correct. This creates a sense of ambiguity and clogs the mind with many "what ifs" in situations where the reader does not know the concept being tested. Choosing an answer becomes very difficult as the test-taker struggles to determine which of the answers is more "correct". This method helps cut through some of the ambiguity and make a decisive decision. In this method, go through the first answer and assume it is correct. Justify why it would be correct, no matter how absurd it may seem. Then assume it is false and justify why it would be false, no matter how absurd it may seem. Repeat this process mentally for each of the other answers and hopefully it will help you gain clarity and help "break the tie" between two or more potential answers.

1. Which of the following statements regarding high-frequency trading (HFT) are true?
    a) The HFT industry is becoming more profitable as capital markets continue to grow
    b) The HFT industry is becoming less profitable due to increased competition
    c) HFT decreases market volatility
    d) HFT trades make up a small percentage of market volume

Solving Using This Method

a) This could be intuitively true as larger markets would have more trading opportunities. This could be false because as more firms enter an industry, profits tend to decrease to zero.
b) The true and false assumptions for B are the converse of A.
c) This could be true as HFT firms increase market volume. This could be false because traders generally tend to increase market volatility.
d) This could be true because HFT firms are not as large as other market players (like large mutual funds). This could be false because HFT firms tend to have very high turnover.

Correct Answer: B

2. What of the following best describes a hostile takeover?
    a) A company illegally acquiring the assets of another
    b) A company that acquires a controlling stake against the wishes of the target company
    c) A company that uses violence and intimidation to acquire another company
    d) A company that uses underhand tactics to take over the market share of another company

Reasoning Using This Method

a) This could be true because ‘hostile’ potentially implies an illegal action. This could be false because not all forms of ‘hostility’ are illegal.
b) This could be true because it seems like an intuitive definition. This could be false because a takeover of another company does not necessarily entail hostility.
c) This could be true because some corporate takeovers are messy affairs. This could be false because violence and intimidation could be prosecuted, making hostile takeovers difficult by this definition.
d) This could be true because ‘takeover’ can imply taking over anything from another company. This could be false because ‘takeover’ does not seem to imply taking over another company’s market share.

Correct Answer: B

3. What are dividends?
    a) Profits paid out to shareholders
    b) Excess profits that a business reinvests
    c) Large, profitable companies
    d) Tax breaks issued to holders of securities

Reasoning Using This Method

a) This could be true because it is the familiar definition. This could be false because in mathematics it refers to division, which does not necessarily translate to a 'payout'.
b) This could be true because profits are divided into multiple uses, so this division may have a relation to the use of reinvestment. This could be false because it does not seem intuitive that reinvested profits would be called 'dividends'.
c) This could be true because 'dividends' is a plural noun and companies are nouns as well. This could be false because nothing in the name seems to imply anything about companies.
d) This could be true because 'dividends' seem to carry a positive connotation, and most people would take tax breaks positively. This could be false because it does not seem likely that 'dividends' have a direct connection to taxes.

Correct Answer: A

This specific question was used to demonstrate that no matter how absurd it may be, it may be possible to justify any answer if one does not know the correct one. This sometimes helps identify the correct answer, especially when one justification seems more likely than another.

E. Technical Analysis

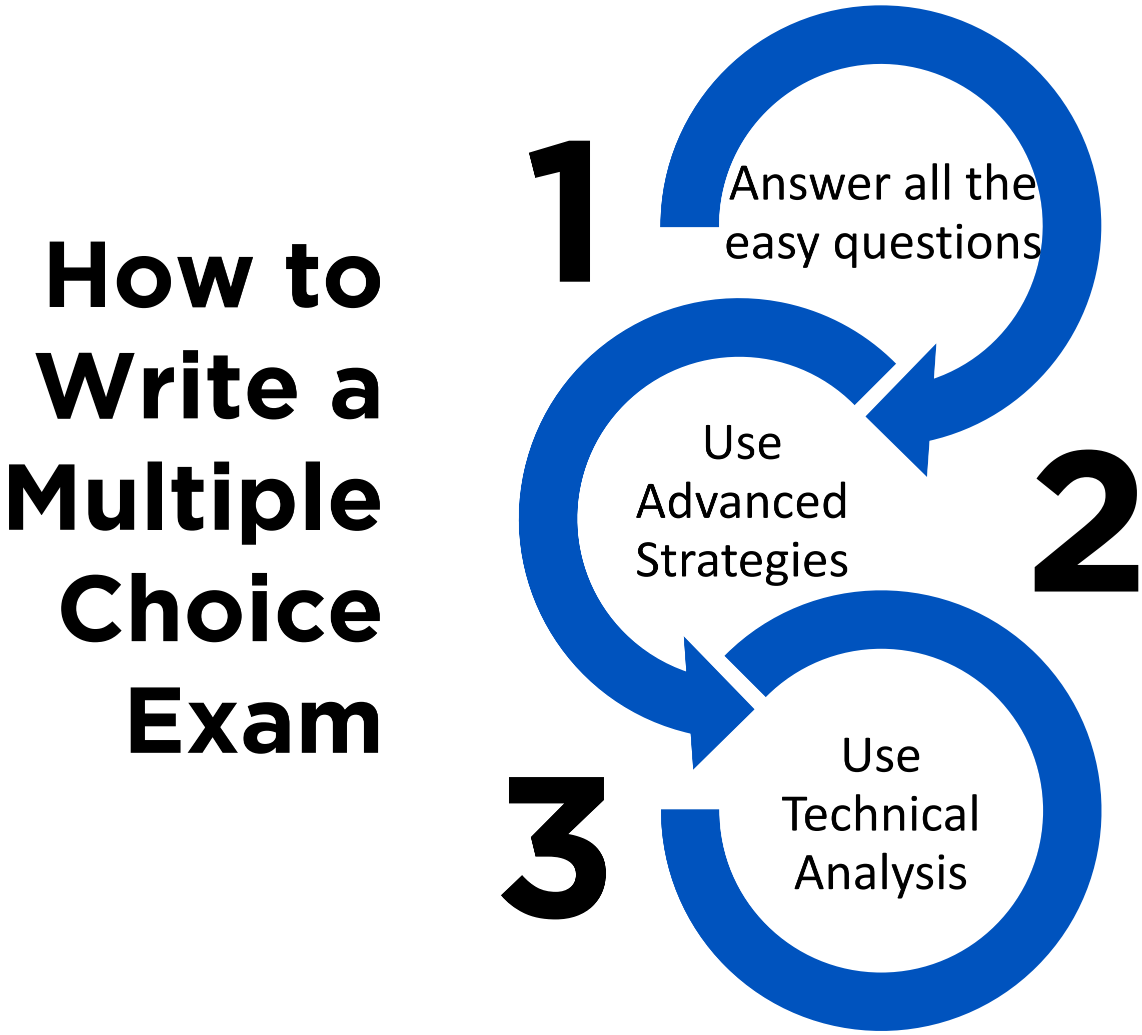
Even for the most practiced test-takers, there are often questions in which the test-taker has very little or no idea about what the answer is. They might be able to narrow the choices down to two or three answers, but after that it is a guessing game. A last resort option, before randomly picking an answer, is to use a technique that here dubbed as "Technical analysis". The reasoning for this technique is as follows: there are 100 multiple choice questions, each with four possible answers. Assuming that the answers are randomly shuffled, each of the four answers – A, B, C and D, will tend to have a distribution of appearing approximately 25 times each. In reality however, this varies significantly. To give an example of how skewed it may be, there are some exams in which there are 11 'A' answers and 36 'D' answers that occur in total. When you are in a situation in which your choice is a *purely* random decision, picking the letter that has occurred with the least frequency may have higher odds of being correct. This is a last resort option and it does not guarantee that you will pick the right answer because it is impossible to know the distribution of the letters beforehand. It is based on the assumption that the letters should tend to be evenly distributed.

1. Through which intermediary does a company become a publically-traded corporation?
   a) Hedge fund
   b) Investment bank
   c) Stock exchange
   d) IPO

Reasoning Using This Method

Assume this hypothetical situation: you have answered 94 questions, and that the remaining six questions would have to be answered by guessing. You have narrowed down your choices to B and C, and it is a 50/50 chance for you as to which of the answers is correct. Currently, you have answered with 23 A's, 14 B's, 27 C's and 30 D's. Instead of randomly picking between B and C, this method advocates picking B, based on the assumption that the distribution of each letter should tend towards 25 each. In this case, the question was designed such that the guess would prove correct (the answer is in fact B) but this does not always occur.

Correct Answer: B



1.5 Summary

In order to succeed, it is recommend you do all the practice exams available to you. Start incorporating the above concepts into your exam preparation, and add any ideas of your own. It may take you only thirty exams to start getting scores above 90. Or it may take you one hundred. Regardless of what your exam score is now, you have the potential to become the first in your category simply by out-practicing your competition.

Chapter 2
Role Play Strategies

In the role play, you are given a case study to solve and present to your judge. You are awarded your score based on how effectively you answer the PIs, as well as a holistic evaluation of your communication, creativity, problem solving, and reasoning skills. Thus, you are evaluated not only on providing the “right” answer, but also on how well you deliver it, your composure, and overall confidence. The main component of your score at the Provincial and International levels is made up by the role play. At competition, especially at the International level, most people are able to answer the PIs with a decent amount of proficiency. Therefore, having a strong role play is a prerequisite to being competitive at Internationals. Further, it is absolutely essential that you stand out from your competition as much as you can to leave a lasting impression on your judge. This is what will put you into the top. The tips described below apply to all levels of competition.

2.1 Overview

Think back to when you did your first role play. It may have been an intimidating experience, and it is likely that the ten minutes (thirty for team events) given to prepare ran out sooner than you were ready. However, with greater practice it became possible to finish sooner – and often with time to spare. As with the exam, mastering your role play score is mainly dependent on how many practice role plays you do. As you do more role plays, you learn some shortcuts and tricks. For example, you realize that the instructions are the same for all role plays, so it is unwise to spend anything more than a second to scan them. Further, it is futile to attempt to scribble down a ten minute script in the ten minute preparation time. One will only have enough time to jot down key points and arguments, so being able to confidently improvise during the role play is vital. Also, tackling role plays is tough when one does not know how to approach them. Having a clear strategy to complete role plays beforehand saves time and helps ensure a solid role play. After having mastered all these things, the next issue is developing a role play that stands out every time. At competition, most people are able to perform well on the role plays. In order to win, one must make sure that they stand out from the other competitors. This chapter seeks to address all of these concepts and help the reader establish a role play that is strong and memorable for the judges.

2.2 The Six-Box Method

This is the go-to method taught by many schools. In this method, a page is divided into six sections to provide a section for each performance indicator, plus a box for the introduction. This is a solid strategy. However, it is quite archaic and, depending on the role play, sometimes ineffective. If you find that you are more comfortable with this strategy, it would be wise to keep using it. This chapter outlines a more fluid strategy that can be more easily adapted to any role play.

2.3 The Add-On Strategy

The following setup, hereby dubbed as the “add-on” strategy, is designed to be more fluid and adapt to all role plays. The trick is to first solve the role play ‘as is’ before organizing the solution into PIs. Through this, you do not have to force your ideas into the performance indicators and it does not interrupt your train of thought. The second step it to make extensions to the concepts in the role play and talk about things that enhance your presentation in order to stand out. The fact of the matter is that there is simply not enough time to come up with strong extensions during preparation time. As a result, you have to create a pre-set list of concepts/ideas/analyses that you can talk about to create a powerful role play.

2.4 Performing the Role Play

1. This setup is designed for the individual oral events. However, it can be adapted for the team role plays as well.
2. Read the first paragraph of the role play only, and then write a quick sentence describing who you are at the top of the page. This will help you stay in character and aid your introduction.
3. Before reading the rest of the role play, list the five PIs, in order, right below your introduction. Use abbreviations and shorthand to save time. These first two steps should be completed within the first 2 minutes.
4. Give the rest of the role play a quick yet comprehensive read. Without going back to the performance indicators, solve the role play by doing the required tasks/analyses. Jot down whatever comes to your mind and let any ideas that come to your mind be freely noted onto the page as they occur. Once you have done this, match the parts of your response to the performance indicators by writing the number of the performance indicator next to the relative part of the response. If you find that you have not fully answered all the PIs, expand on them now. This should take you about five minutes.
5. Write your add-on acronym (to be explained below) beside your performance indicators and underline/checkmark the parts of the acronym that you intend to utilize. This should take you about a minute

6. At the bottom, draw a quick chart or diagram that relates to your role play. The vast majority of role plays will not require a chart, but you can almost always come up with a relevant relationship to enhance your role play. Some go-to charts are bell curves, break-even graphs, or other economics charts like the law of diminishing returns. This should take about a minute to sketch.
7. Aim to have about a minute leftover at the end. When you first start your role plays, ten minutes of preparation will barely suffice. With more practice, however, you will find that you can prepare for a role play within seven minutes. You can use your minute to review your role play and do a mental run-through of what you will say.

2.5 The Add-Ons

Completing the required elements of the role play well will get you a decent score. However, at Internationals, doing well is not always enough; you need to stand out from the rest of your competition. For example, in the first round of Internationals, the 200 contestants are divided into ten groups of 20 competitors. The top two from each of the ten groups advance to the final round, making 20 finalists. In the final round, a judge will see the top 20 finalists. It is safe to assume that most of the top 20 finalists will do a good job at the role play. In order to stand out from the competition, all that is required is a strong set of extensions ('add-ons') to be added to the role play. The following add-ons are tailored towards finance; if you have other add-ons in mind (or a different category entirely), feel free to make your set. The following topics are all covered in this book.

Core Business Concepts

Finance
- Stocks -
- Bonds -
- Risk & Reward –

Economics
- Optimization-
- Law of Diminishing Returns –

Marketing
- 4 Ps and 2 Cs of Marketing -
- Unique Selling Point –

Management
- Styles: Authoritarian, Laissez-Faire, etc -
- Incentives -

Organizational SWOT

Strengths

Weaknesses

Opportunities

Threats

Environmental Scan

Political Concepts that can be related to the Role Play (If Appropriate)

Economic conditions that may affect the business

Social Considerations

Technological Impacts

Legal Impacts

Environmental Considerations

Other Things to Discuss

Game Theory

Michael Porter's Five Forces Analysis

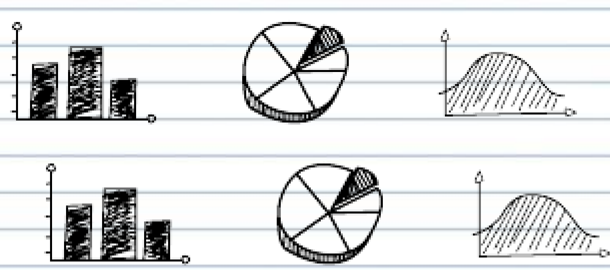
Using the bolded letters, one can create the acronym "FEMM SWOT PESTLE GM". During the preparation time, write down the acronym and draw a small line under the parts of the acronym thought would fit the role play. The FEMM part of the acronym stands for the core business concepts. The SWOT and PESTLE are two analysis methods that really strengthen the role play. They help provide context, make the presentation seem more informed, and help bring out other ideas. Briefly talking about each of these four business concepts adds depth to the presentation. Further, when talking about decisions to take in the presence of competitors, it is impressive to bring up game theory. For your own role plays, create an acronym that you are comfortable with. Given that you will not have time to think of interesting things to explore during the preparation time, your acronym will save you time and provide a strong list of interesting concepts that can be expand upon during the role play. It is not necessary to have a large number of add-ons. In fact, it is much better to have a limited amount of thoughtful, relevant add-ons, than to have a large number of random add-ons. As such, you should really familiarize yourself with the parts of your add-ons because you will not have time to think about them during the preparation time. In reality, there will only be enough time to checkmark the parts of the acronym that are applicable. Connecting them to the role play is largely an improvisation exercise.

2.6 A Sample Set-Up

I am the **FINANCE DIRECTOR** at **GUARDIAN LOCK CORP**, presenting to the **CHAIRMAN** an **ANALYSIS + RECOMMENDATION OF A STOCK BUYBACK PLAN**

1. First Performance Indicator
2. Second Performance Indicator
3. Third Performance Indicator
4. Fourth Performance Indicator
5. Fifth Performance Indicator

F E M M
S W O T
P E S T L E
G M



2.7 Holistic Thinking

In the revised DECA rubric, an increasing amount of points have been allocated to things such as creativity, communication skills, problem solving, critical thinking, and overall impression. Thus, you should try to see how the PI's relate to one another, and to the case as a whole. Ask why the role of the judge would care about the PI. For example, why might the owner of the business care about the factors affecting business profit? Thinking in this holistic manner can help you stand out. It will show the judges that you are able to draw connections between concepts. While ICDC competitors routinely view their cases through a holistic lens, competitors at all levels should be able to master this important skill.

2.8 Preparing for the Role Play

The role play, just like the exam, requires a lot of practice. Get familiar with a method, and then do many role plays using it. As you do more role plays, you will become more efficient. This will boost your confidence as well. If you are unsure of an answer, do not let the judge sense your hesitation. Sell your idea with confidence and it will convince the judge that what you are saying is correct and makes sense.

It is important to always have someone judge you when you do your role plays. No matter how well you perform, there is always room for critical feedback and improvement. As well, you should also judge your peers' role plays. This will help you see things from a judge's perspective, and it will show you the judges' thought processes when marking you on the PIs. Try judging as many role plays as you can, because it will strengthen your own.

Another very powerful technique is visualization. This helps the mind prepare to do well and ensures that you do not subconsciously sabotage yourself. Moreover, it creates an expectation of victory which boosts your own confidence and overall performance. Essentially, this becomes a self-fulfilling prophecy. Write down your goal of winning and describe how you will feel once you achieve it, in the present tense. It is an excellent confidence booster.

2.9 Performing the Role Play

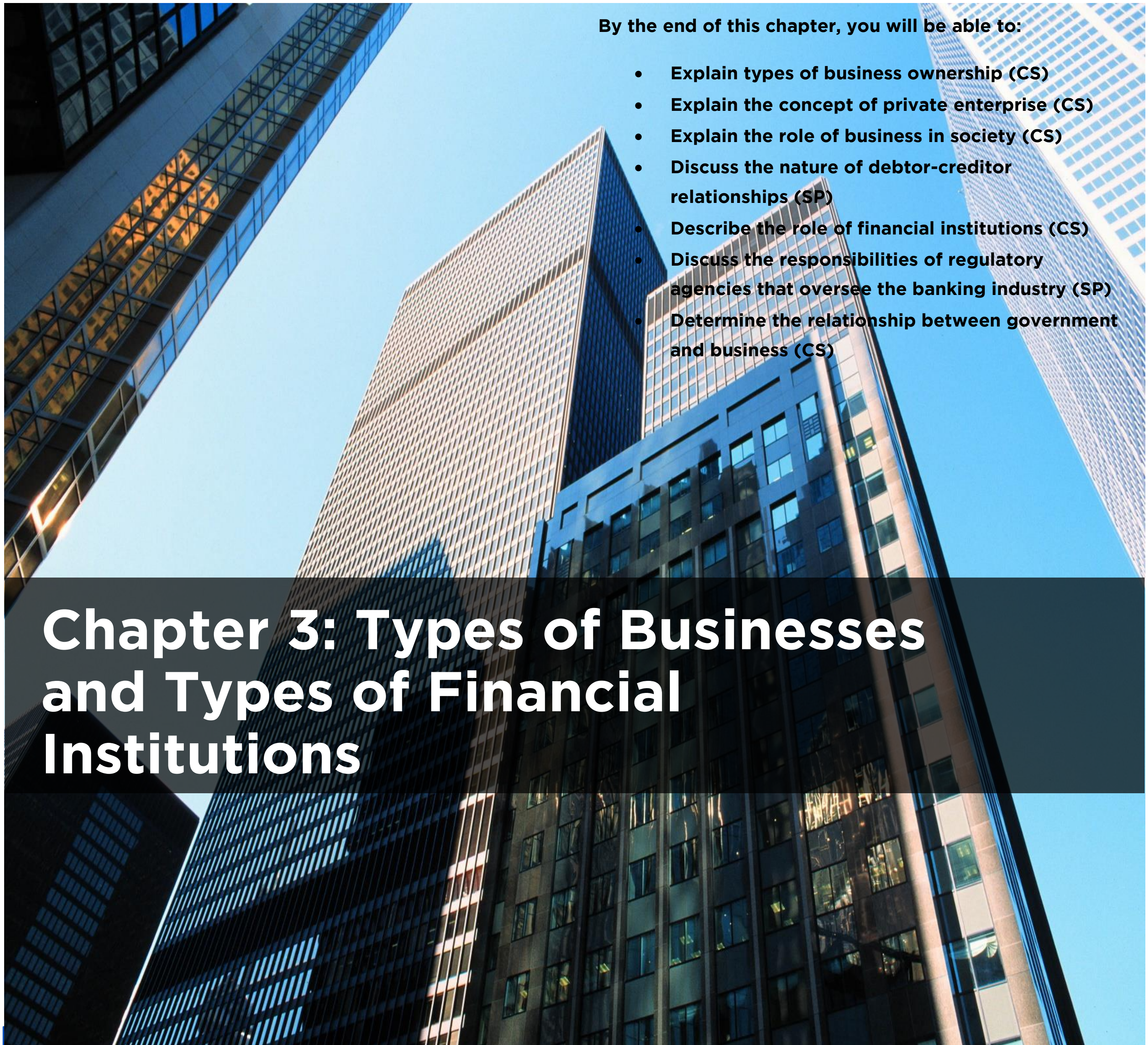
The role play begins as soon as you enter the judge's line of sight. They will begin to subconsciously judge you based on how you carry yourself. Next comes the introduction, in which you shake the judge's hand and explain the purpose of the meeting. Create a pre-set introduction and conclusion that you can adapt for each of the role plays. This will save you time and will ensure that you have an effective couple of lines to say to get a smooth transition into and out of the role play.

Go through the role play according to the order of the PIs. Make sure you explicitly state the PI you will be talking about. After you have thoroughly talked about that PI, make sure you make it very clear that you will be moving onto the next PI. Once you have finished the PIs (or during them, if it fits), show the judge the chart at the bottom to describe a relationship in your role play. Having a visual really takes your role play to a higher level. Next, talk about any of the add-ons you have not already talked about in the PIs.

Once you are done, use your pre-set transition into your conclusion and then ask the judge(s) if they have any questions. After you are done, thank the judge(s) for their time, and then walk out as confidently as you walked in. Practice the process until it becomes second nature. Above all, make sure that you are confident. It is not explicitly stated on the judging sheet, but it is the most important aspect of the role play.

2.10 A Final Note about Role Plays

While we have given you some basic suggestions on how to approach the role play, ultimately, no two people present their role plays in the same manner. You will need to find what works for you. Your ability to be true to yourself will help you stand out from the competition.



By the end of this chapter, you will be able to:

- **Explain types of business ownership (CS)**
- **Explain the concept of private enterprise (CS)**
- **Explain the role of business in society (CS)**
- **Discuss the nature of debtor-creditor relationships (SP)**
- **Describe the role of financial institutions (CS)**
- **Discuss the responsibilities of regulatory agencies that oversee the banking industry (SP)**
- **Determine the relationship between government and business (CS)**

Chapter 3: Types of Businesses and Types of Financial Institutions

"I started eBay as an experiment, as a side hobby basically, while I had my day job." On Labour Day weekend, in 1995, Pierre Omidyar launched the now internationally popular online service as a product of his intrigue with the idea of person-to-person auctions of collectible items. With his work, the business bloomed as a sole proprietorship. As the quantities and variety of his sales soared, he was prompted to incorporate the business. The small portion he collected from the auctions and sales allowed him to expand further, becoming the commercial giant we see eBay as now. These changes in business ownership structure are common and can be necessary for success. This chapter will examine the different types of businesses and financial institutions and the choices and opportunities behind them.

Quote Source: http://www.achievement.org/autodoc/page/omi0bio-1

3.1 The Role of Business in Society

Businesses are an integral part of society. Businesses play a role in shaping nearly every aspect of our lives, whether it's when you're walking down the street to your local grocery store or going about daily life at work and school. Businesses participate in the creation and distribution of **goods** and **services** in society, inherently playing a crucial role in how society functions and the way we live our lives. While businesses come in all shapes, sizes, and purposes, they also have elements in common.

Goods
the tangible, consumable items produced in the economy

Services
the intangible activities performed or provided by others

Profit and Wealth

For one, the vast majority of businesses are united with the end goal of creating wealth. From the sidewalk lemonade stand to the multinational corporation, this is often an expectation of a business's stakeholders. The purpose of this wealth-creation can vary widely. While many businesses may withdraw the profits as income or reinvest them into the company, a charity may choose to contribute to social causes with little in return.

Societal Function

Most adults are employed for a large portion of their lives. These individuals work for businesses and rely on their employers for income. Sometimes, they can reinvest into the economy through spending on other businesses' products and services, or choose to save. Businesses shape what people can do for entertainment, their choices, and their way of life. They participate in the creation of essential elements to life in society.

Change

Businesses drive change through innovation, creating many of the new products and other developments that integrate into our everyday lives. The products and services businesses create continuously respond to and fill in the ever-changing gaps in society's needs and wants.

Social Role

Businesses fill a social role. Some can advocate for changes in society, such as environmental awareness, policy change, or better standards across the world. They have the ability to effect and reflect society's changing values through a proactive or reactive role. Businesses have a **corporate social responsibility,** the responsibility of businesses to society and the environment beyond basic laws and regulations.

Corporate Social Responsibility
the responsibility of a business to society and the environment beyond basic laws and regulations

3.2 Sole Proprietorships & Partnerships

An important consideration when starting a business is the type of ownership structure. From a sole proprietorship to a corporation, different businesses are established with different goals in mind.

A **sole proprietorship** is owned and operated by one individual with **unlimited liability**.

A **partnership** is established when two or more people own and run the business. There are three key types of partnerships. **General partnerships** and **limited partnerships** are distinguished by the former having all partners share the expenses, profit, and liability while the latter has at least one but not all partners with unlimited liability. The less common **limited liability partnership** has **limited liability** for all partners but is often limited to licensed professional occupations, such as medical and accounting professions.

Sole Proprietorship
a business owned and operated by one person

Unlimited Liability
when the owner(s) are entirely responsible for the debts of the company, which can go beyond their ability to pay

Partnership
a business owned and operated by two or more partners; there are three main types of partnerships

General Partnership
a partnership where all partners have unlimited liability for the business

Limited Partnership
a partnership where at least one or more partners is a general partner with unlimited liability and the other partners have limited liability

Limited Liability
where individuals are limited in the amount of liability they have for the business's acquired debts

Sole Proprietorship	Partnership
Advantages	
- Easy to establish and run - Simple to establish - Sole control over all decision-making - Owner keeps all the profits - Income taxed only once	- Easy to establish and run - Risk and rewards are shared - Easier access to capital (banks, partner investment, etc) - Excellent access to different skill sets
Disadvantages	
- Owner has unlimited liability - Limited access to funding - Owner may have a limited skillset (example: have both financial and marketing expertise) - Business lifespan limited to owner's involvement	- One or more owners may have unlimited liability - Potential conflicts in decision-making between partners - Partners responsible for poor decisions of other partners - Business lifespan limited to owners' involvement
Examples	
- One barber starting his own barber shop - A family restaurant solely managed by the mother	- Two barbers starting a barber shop together - A group of accountants starting a small firm

Worked Example

You and your best friend are starting your own grocery store in a partnership. You're considering bringing on a third partner as a limited partner for their business connections and expertise.

If you split all profits equally:

a) Should you take on this additional partner?
b) What if you and your partner each get 40% share of profits, and the limited partner gets the remaining 20%?

	General Partnership (2 General Partners)	Limited Partnership (2 General, 1 Limited Partner)
Revenue	\$450,000	\$740,000
Expenses	\$120,000	\$200,000

Solution:

	General Partnership (2 General Partners)	Limited Partnership (2 General, 1 Limited Partner)
Total Profit	\$330,000	\$540,000
Profit per Partner (Even Split)	$\frac{\$330{,}000}{2}$ = \$165,000	$\frac{\$540{,}000}{3}$ = \$180,000
Profit per Partner (40/40/20 Split)	$\frac{\$330{,}000}{2}$ = \$165,000	General Partner: $\$540{,}000 \times 0.4$ = \$216,000 each Limited Partner: $\$540{,}000 \times 0.2$ =\$108,000

You may want to take on the new partner, because under both profit sharing scenarios, you and your friend would have higher income by taking on the additional partner.

Your Time to Shine

You are planning to start your own lemonade stand this summer as a sole proprietorship. You're considering bringing on two other partners as limited partners to help you advertise your stand and expand your business. If you split all profits equally:

a) Should you take on this additional partner?
b) What if the new partners each get a 40% share of the profits?

	General Partnership (2 General Partners)	Limited Partnership (2 General, 1 Limited Partner)
Revenue	$200	$900
Expenses	$15	$40

3.3 Corporations

One of the most visible types of businesses is a corporation. A corporation is created when a business becomes a legal entity separate from its owners**.** A **corporation** is a registered at the provincial or federal level in Canada and at the state level in the U.S. Corporations have a board of directors directing their operations. Instead of owners or partners, a corporation has **shareholders** who each owns part of the company. Ownership is stipulated by the types and number of **shares** each person owns.

Corporation
a business that is a legal entity separate from its owners, who own shares of the business

Shareholders
individuals who own shares of the corporation, and thus are partial owners of the company

Shares
denotes partial ownership of the corporation, in the form of stock

Advantages of incorporation include:

1. Limited Liability – Shareholders can only lose as much as they invest in the corporation
2. Transferable ownership – Shareholders can transfer their ownership by buying and selling stock
3. Continuous existence – The business doesn't stop existing once one shareholder gives up their ownership of a certain share
4. Acting as separate legal entity – A corporation's assets and debts are separate from a shareholder's assets and debts
5. Fewer barriers to raising capital – Corporations have access to large sources of funds, through equity or debt
6. Tax advantages over sole proprietorships and partnerships

Disadvantages of incorporation include greater legal, financial and procedural barriers, as well as tighter regulations on activities and record-keeping, which may also result in greater costs.

The process of incorporation can be procedurally and financially difficult for many businesses to navigate. Some important steps to follow include:

Step 1: *Naming the corporation* and making sure the name is available for use. For example, you could not start a store in Canada called Walmart because it has already been taken.

Step 2: *Completing the articles of incorporation* which establish the corporate structure, including share structure, a board of directors, restrictions, to name a few.

Step 3: *Establishing a public registered office address* where documents can be served and *a board of directors* who meet eligibility requirements.

Step 4: *Filing required paperwork and paying the incorporation fee*.

Step 5: *Processing the application* and receiving the *certificate of incorporation.*

Private Corporation
a corporation owned by a select group of people, such as the founders and private investors

Public Corporation
a corporation with stock that is sold to and traded openly with the public on the stock market

Initial Public Offering (IPO)
a type of public offering where shares of the corporation first become public, and the corporation becomes a public corporation

A business can incorporate to be either a publicly-traded corporation or a privately-traded corporation. A **private corporation** is owned by a select group of people, such as the founders and private investors, while a **public corporation** has stock that is sold to and traded with the public after an **initial public offering (IPO)**, meaning the shareholders get a partial ownership of the company and proportional access to the profits. While it may seem that a publicly traded company may be bigger and better known than private ones, this is a myth. For example, PricewaterhouseCoopers and Dell are among the top 10 privately owned companies in the United States, respectively had 35.9 and 54.9 billion USD in revenue in 2016.

Securities and Exchange Commission (SEC)
an agency of the United States government responsible for regulating the securities industries as well as creating and upholding regulations relating to securities

Private companies have fewer obligations to the public in decision-making and face fewer disclosure requirements from the U.S. **Securities and Exchange Commission (SEC)** since their stocks are not available publically. However, they are limited to private sources of funding, which can inhibit growth.

Public companies have greater obligations to their shareholders and regular obligations to disclose financial information to the public. However, in exchange, they have access to larger sources of funding from the public. Some well-known examples of publicly traded companies include Facebook, who recently had its IPO in 2012, Apple and Alphabet.

With the increased complexity of running a corporation, many roles need to be filled in the corporate structure. Many corporations use a two-tiered organizational structure, with the first tier being the **board of directors** elected by the stakeholders and the second tier, composed of the **upper management** hired by the board. With the changing landscape of business, these corporate roles have become more flexible and increasingly, corporations are straying from traditional structures.

Board of Directors
group of individuals elected by the shareholders to represent the shareholders in the organization, and make appropriate decisions in line with the shareholder interests

Upper Management
the second tier of management, including the CEO, the CFO, and the COO

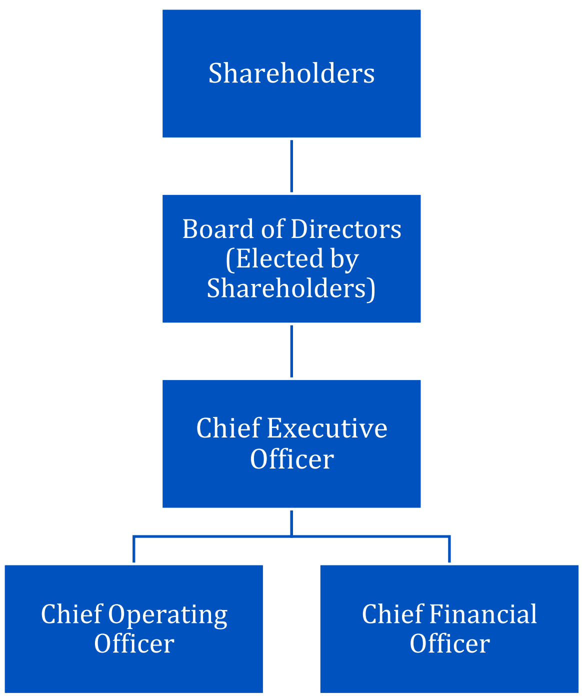


Figure 3.3.1
A sample corporate structure

Shareholders are the individuals who own shares of the company and thus are partial owners of the company, although they reap the benefits of corporate successes, they are not typically involved in decision-making.

Chairperson
the chair of the board of directors, who plays a leadership role in the board's operations

Internal Directors
members of the board of directors who have experience with the organization and are able to provide insight on, and make decisions about operations

Outside Directors
members of the board of directors who are consulted for an external perspective on the organization's operations, and are not part of the organization's day-to-day operation

Chief Executive Officer (CEO)
a upper level manager responsible for the entire corporation's operations, and is often also on the board of directors

Chief Operating Officer (COO)
the executive vice-president responsible for operations (including marketing, sales, employees, etc)

Chief Financial Officer (CFO)
the executive vice-president responsible for finances

The Board of Directors is composed of individuals elected by the shareholders. Their role involves advocating for and meeting shareholders' interests. There are three key roles within the board. The **chairperson** is elected from the board of directors and is responsible for running the board's operations. The **internal directors** are providing internal insight on the company's operations and approve operations. **Outside directors** are not directly involved in company operations are provide an external, unbiased perspective to the board.

In the second tier, also known as upper management, the **chief executive officer (CEO)** reports to the chairperson and board of directors. The CEO is responsible for the entire corporation's operations and is often also on the board of directors.

The **chief operating officer (COO)** and **chief financial officer (CFO)** report to the CEO. Both are also known as the executive vice-presidents and are responsible for operations (including marketing, sales, employees, etc.) and finances respectively.

In addition to these roles, there are many other individuals involved in a company's operations. These are the people who carry out the goals and visions set up upper-level management. Supervisors, office managers, team leaders, and employees are just some of the possible crucial roles within a corporation and other businesses.

3.4 Non-Profits

Non-profit organization (NPO)
An entity whose primary focus is something other than making a profit.

A **non-profit organization (NPO)** does not have profit as its goal. Many non-profit organizations usually contribute to society for social, recreational or some public benefit. There are many examples of NPOs in the community, including amateur sports organizations, hospitals, and universities.

Advantages a non-profit receives over for-profit organizations include potential income tax exemptions and tax rebates on purchases. However, they cannot always issue charitable receipts for donations, and cannot personally benefit members with their income.

Staff can be volunteers, but there are typically also paid employees. While some employees may receive lower pay than at for-profit organizations, others including university CEOs may receive very competitive salaries.

Under the Internal Revenue Code (IRC), **Section 501(c)(3)** outlines the tax-exempt status of certain non-profits on income generated from operations directly related to the purpose of the organization. Donors can receive tax deductions for donations. Although many organizations which fulfill requirements for Section 501(c)(3) are non-profits, not all non-profits are exempt, and status is granted through an application.

Section 501(c)(3)
a section of the Internal Revenue Code which outlines the tax-exempt status of certain non-profits on income generated from operations directly related to the purpose of the organization

A **cooperative** is a business owned and operated for the benefit of its members, such as to cut costs or increase influence. For example, a group of farmers who band together to sell their crops is a cooperative.

Cooperative
a business owned and operated for the benefit of its members

Cooperatives are easy to establish and encourage member participation in business operations, and democratic decision-making. As a result, members all have equal votes. Member participation has shown to increase their economic resilience, making them more likely to survive than other business structures.

Disadvantages include limited or no financial return, and a lack of incentive to contribute more than necessary.

3.5 The Financial System Environment

Financial Institution
provides financial services to clients, including investment services, banking services, currency exchange, and acts as a financial intermediary

Financial Intermediary
an entity that acts as the middleman between two parties in a financial transaction

Financial System
connects lenders, investors, and borrowers together within the economy, and allows for commercial activity to take place

A **financial institution** provides financial services to clients, including investment services, banking services, currency exchange, and especially acting as a **financial intermediary** to keep the financial system strong. The role of the financial institution has become essential in developed economies such as the United States and Canada, affecting everything from day-to-day transactions to taking out loans to start a business or purchase a home. The operations of financial institutions are often overseen by governments.

The **financial system** is composed of the interactions of financial institutions, financial markets financial instruments, and more from the local to the global level. A financial system connects lenders, investors, and borrowers together within the economy, and allows for commercial activity to take place. For example, a commercial bank allows a typical user with extra money to save for emergencies, while loaning out those same funds by the bank to someone who might need a loan to buy a car, thereby fulfilling the needs of both parties.

Financial systems operate from the firm to the global level:

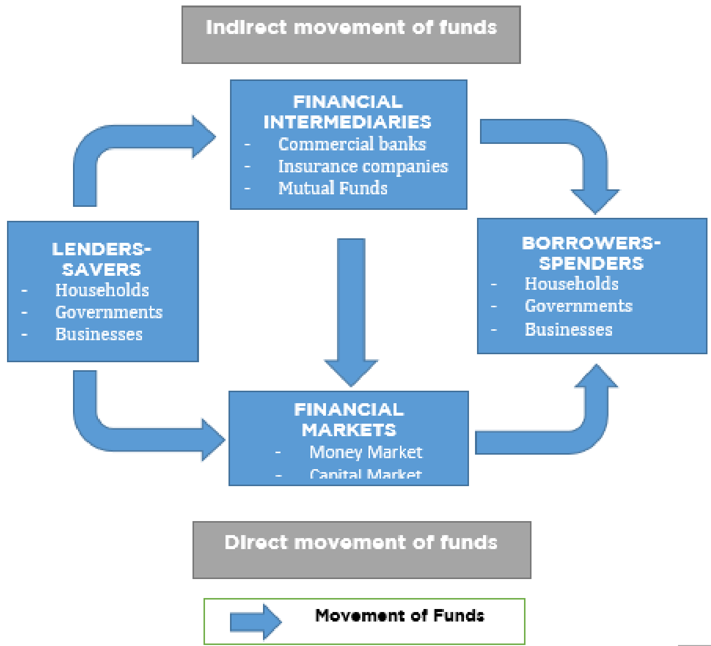
Table 3.5.1

Firm	Regional	Global
• Revenue • Expense Schedules	• Financial Institutions • Financial Markets	• Central Banks • World Banks

There are both direct and indirect ways funds are transferred from those who have the funds (lender-savers) to those who need it (borrowers-spenders). It can be done directly in the **financial markets**, where financial instruments like stocks and bonds are traded, or indirectly using a financial intermediary such as a bank.

Financial Markets
where financial instruments like stocks and bonds are traded

Table 3.5.2



Households, governments, and businesses can be either lenders-savers or borrowers-spenders, depending on the situation.

In our economy, almost every individual will be in some debtor-creditor relationship. Even as children, when you borrow a $10 from your friend to buy yourself lunch, you have an obligation to pay them back that $10 (the principal), and maybe with a cookie on top (the interest!). In this case, you are the **debtor**, while your friend is the **creditor.** In the case of the individual getting a loan for the car, he is the debtor, while the bank is the creditor.

Bank Regulation

Although supply and demand dictate a lot of what happens within financial systems, regulators are needed to keep the entire system in check and operational. The names of these regulators differ based on country, and economic system. In the United States, bank regulators include the **Office of the Comptroller of the Currency (OCC),** the **Federal Deposit Insurance Corporation (FDIC)**, **the National Credit Union (NCUA)** and the **Federal Reserve Board (FRB).** Many of these

Debtor
a debtor is an individual or other entity who owes money to another party

Creditor
a creditor is an individual or other entity to whom money is owed

Office of the Comptroller of the Currency (OCC)
supervises and regulates national banks to ensure effective function in the banking system

Federal Deposit Insurance Corporation (FDIC)
provides federal insurance on deposits in both chequing and savings accounts made at federal and state banks in case of bank failure

National Credit Union (NCUA)
regulates and insures savings and loans at credit unions, and also serve as a lender during liquidity shortfalls

Federal Reserve Board (FRB)
monitors and regulates banks by supervising and monitoring their operations, with significant powers to affect monetary policy and interest rates, stabilize the financial system, and provide banking services to member banks

bank regulators regulate the financial institutions and their operations with the goal of protecting the system and its users.

The *OCC*, established in 1863, supervises and regulates national banks to ensure effective function in the banking system.

The *FDIC* provides federal insurance on deposits in both chequing and savings accounts made at federal and state banks in case of bank failure. It currently insures up to $250,000 per individual to encourage public confidence and banking stability.

The *NCUA* regulates and insures savings and loans at credit unions, and also serve as a lender during liquidity shortfalls.

The *FRB* regulates banks by supervising and monitoring their operations. They also develop federal laws for banks to follow, to protect the public interest. The Fed has significant powers to affect monetary policy, interest rates, etc. to stabilize the financial system, and also provide banking services to member banks.

3.6 Banking

At some point, your wallet and piggy bank probably stopped being enough to store your money in, and you needed to make your first bank account. When you made it, you were probably presented with a few different options. You might have been asked about how much money you wanted to deposit, how much you wanted to spend or save, or how much risk you wanted to take with your money. Your answers to these questions and needs will likely change with age, creating the demand for different products which may be offered by various banks.

Commercial Banks
a financial institution that provides many basic financial services such as depositing and withdrawing of money, making loans and making basic

Commercial banks provide many basic financial services and are used by most people. Services include depositing and withdrawing money, making loans, and making basic investments. An important role of these commercial banks is the transfer of money from those who want to save to those who want to borrow. Examples include CIBC and Citibank.

While most commercial banks are still **brick and mortar**, there are increasingly also online banks which can pay higher interest rates and charge lower fees due to lower operating costs. Tangerine is one popular example of exclusively online banking.

Brick and Mortar
companies with a physical location, such as a retail store, for doing business

Commercial banks can offer many different products. Two primary ones are **chequing** and **savings accounts**. Suppose you were working at a part-time job, and you wanted to save up to buy a new laptop at the end of the year. With every paycheck, you might want to put some away toward the laptop, but you also want to make sure you have enough to spend on things like food and bussing every week.

Chequing Account
a type of bank account for daily use with few limitations on deposits and withdrawals, but typically pays no interest

Savings Account
a type of bank account for saving money for the long or short term, which typically pays a moderate interest rate

To save for the laptop, you would probably put money into the *savings account,* where it could earn interest, and you would not need to withdraw often. For your daily use, you would deposit into your *chequing account*, where the money would be easily accessible, although the interest rate would be at or near zero. Often, people have both saving and chequing accounts and divide their money between the two according to their needs.

Commercial banks also offer loans, which can either be unsecured or secured**.** An **unsecured loan** means you don't need **collateral** to get a loan, so the approval process is faster, although the size of the loan is usually smaller than a **secured loan**, which is secured against certain assets (the collateral), such as a house, which means you can borrow more and more cheaply. However, if you cannot pay back the loan, those assets may be sold to raise the money instead.

Unsecured Loan
a loan which can be given without collateral

Collateral
An asset used to guarantee a loan. If the borrower cannot repay the loan, the bank can seize this asset and sell it

Secured Loan
a loan which is secured by the lender with collateral such as the debtor's home

There are various types of loans which vary by purpose and size which can be taken out. A mortgage is a loan for the purchase of a house, a commercial loan is a loan to a business, an individual loan is a loan to an individual for personal purchases, and a **line of credit** is a credit arrangement, where a limited amount of money can be taken out at any time for any purpose. Almost all loans will charge **interest** on the original amount of money loaned out until the money is repaid.

Line of credit
a credit arrangement where a limited amount of money can be taken out at any time for any purpose

Interest
money paid, usually on at a regular interval, to pay for money borrowed

The **Glass-Steagall Act** in 1933 caused investment banks to become separate entities from commercial banks to restore belief in the U.S. banking system after the Great Depression,

Glass-Steagall Act
a law which caused investment banks to become separate entities from commercial banks

although the act was later repealed in 1999. Investment banks are more specialized financial institutions that provide investment services usually for businesses and governments. Services include **underwriting**, participation in **mergers** and **acquisitions**, and assistance with initial public offerings (IPOs).

Underwriting
when investment bankers raise capital from investors on behalf of companies issuing securities, such as bonds or stocks

Mergers
when two companies are combined into one entirely new company

Acquisition
when one company buys another company, which becomes a part of the purchasing company

Online Banks
a bank which allows consumers to do banking typically done in person to be done online, and has few, if any brick-and-mortar locations

Online Banks

While many banks provide online services such as balance checking or account management, as technology becomes a greater part of banking, exclusively **online banks** have become more widely known and used.

Often they are used because of their attractive interest rates, low fees, and convenience, which is a huge advantage to online banking. Many have around the clock customer service, as well as no-fee checking. Their websites also tend to be more comprehensive, reducing the need for appointments or in-person discussion about basic services. Online banks are also better for the environment, operating typically paperless and eliminating travel. Without a brick-and-mortar building to maintain, there are significantly fewer operating costs, savings which usually transfer to consumers.

However, there can also be many disadvantages. For example, many people enjoy the face-to-face interactions and perhaps relationship building that a brick-and-mortar business provides. More complicated problems may be difficult to resolve without discussion. Many people also worry about the security of doing banking exclusively online.

Mortgages
a legal agreement that allows a lender to use an individual's personal property as collateral for the loan

Forward Mortgage
provides a large sum of money to the potential home buyer using the home as collateral; this line is paid back regularly over time

Principal
the original amount of money loaned or borrowed

Reverse Mortgage
provides older homeowners with a large amount of money up-front where interest payments become part of the principal, with the home as the collateral

Mortgages

Many banks will issue mortgages, which is a large loan with real estate as collateral. While most students are familiar with the typical mortgage, also known as the forward mortgage, the reverse mortgage is less well known, and more restrictively used. A **forward mortgage** is commonly used to finance the purchase of a home. Regular payments are regularly made throughout several years until both the **principal** and interest are paid off, and the purchaser now owns the home. A **reverse mortgage** is restricted to older individuals who are looking to take out a loan against the house they currently own.

Factor	Forward Mortgage	Reverse Mortgage
Purpose	- known as just a regular mortgage - provides a large sum of money to the potential home buyer, which is paid back over time.	- provides a large amount of money up-front to a homeowner without regular interest or principal payments, as long as other financial obligations to the house are met (repairs, property taxes, etc)
Interest Rate	- fixed or adjustable, depending on preference - lower rates than rates for mortgages	- high, but interest payments are added to total loan amount, increasing the loaned amount
Repayment	- owner pays back part of the principal and interest fees until the full amount is paid off - individual then truly owns the home	- mortgage is only due when the owner dies or moves, or the house is sold - capped at the retail market value of home
Who Is It For?	- any age - with steady incomes - looking to purchase a home	- those who cannot afford or do not want regular interest payments and have a home * limited to seniors (over age 62) with preference for older individuals
Advantages	- lower interest rates and flexible repayment schedules (up to 30 years) - individuals own the home after the loan is paid off	- no regular payments - no possibility of defaulting on the loan - the owner will never need to pay more than the home is worth - homeowner's credit score is often irrelevant because the home is the collateral
Disadvantages	- regular payments need to be made, meaning unstable income prospects can be a hindrance - you do not own the home until the full amount is paid off - credit score can limit the size of the loan and interest rate charged	- high interest rates - several added sunk costs including appraisal fees, legal costs, etc - - huge lump-sum repayment at the end (home needs to be sold or another method of repayment)

Central Banks

You might know it as "The Fed," or the Federal Reserve System if you live in the United States. This central bank was established in 1913 and like most other central banks, has a monopoly on the creation and distribution of money and of credit. They usually have the power to regulate other private banks and formulate the monetary policy. As a body independent from the government, one of the reasons it exists is to guide and manage the economy free from political influence.

What other roles does the central bank have?

In addition to printing money, the central bank is also known as the lender of last resort in times of economic crisis and a shortage of money supply. It helps stabilize the monetary system and makes decisions to regulate it, such as by controlling interest rates and creating steady prices and inflation rates. The central bank dictates many things, including consumer and producer behaviors. For example, setting the interest prices low might encourage people who otherwise would have put off buying a house, to buy it now, and consequently drive up demand for housing.

Worked Example

Marianna White wants to get a reverse mortgage on her home, but does not want to accumulate too much interest on the principal at the end of 10 years, at which point she hopes to sell her home to move into a retirement home. Her home is worth $500,000 currently. The maximum loan she can take out is 50% of her home's current value. Initially she also has to pay a $3000 home appraisal fee and $1500 to cover other fees, such as the application fee. She wants to a get a fixed mortgage fee at 4.8% per year. Should she get the reverse mortgage if she hopes to …

a) Have at least $100,000 of equity left in her home after 10 years?
b) Pay less than 60% in interest on her principal after 10 years?

Solution:

Given Information: Value of Home - \$500,000

Amount of loan - \$250,000

Interest rate - 4.8%

Term - 10 years

Total Cost after 10 Years = (Principal)(1 + Interest Rate)(# of Terms) + Fixed Costs

= (\$250000)(1 + 0.048)(10) + \$3000 + \$1500

= \$399,533.16 + \$4500

= \$404,033.16

$$\% \text{ of Principal} = \frac{\text{Total Cost}}{\text{Principal}}$$

$$= \frac{\$404{,}033.16}{\$250{,}000}$$

= 161.61%

She will be paying 61.6% in interest after 10 years, which also leaves her with less than \$100,000 in equity. Therefore, she should not take the reverse mortgage.

Your Time to Shine

Stephen Jim has recently been approved for a reverse mortgage. His wife wants to make sure they don't lose their home, which is currently valued at \$600,000. They expect to need to pay off the mortgage after 8 years, when they will move in with their children. They expect their children to be able to repay \$400,000 of the mortgage cost at that time. They will also need to pay a \$2,000 home appraisal fee and \$1000 to cover other fees, such as the application fee.

He has been offered a fixed reverse mortgage fee at 4.5% per year, for up to 50% of the cost. Should he get the reverse mortgage if he hopes to:

a) Keep his home after his children pay the \$400,000?
b) Pay less than 50% in interest?

3.7 Other Financial Institutions

Credit Unions

Within the idea of a member-owned cooperative business, there are **credit unions**, which are member-owned cooperatives, non-profits that specialize in providing financial services. The people who deposit money in the credit union are members, and also partial owners in the business. Like other cooperatives, credit unions can be tiny with just a few people involved or have hundreds and thousands of members who all share part of the profit, and all have a vote in decision-making.

Credit Union
member-owned cooperatives, non-profits that specialize in providing financial services

Advantages of Credit Unions

Service at credit unions has a reputation for more friendly and service-oriented compared to multinational commercial banks. They also have different goals – the credit union operates for the benefit of its users, not to make a profit from them. Many also have more competitive rates for loans, returns and more, all despite offering many of the same services as a commercial bank and sometimes additional ones.

Disadvantages of Credit Unions

Although credit unions appear attractive, there are several reasons not to go with one. Not all credit unions are well run or established. Some only have a limited number of in-person locations, limited services, and many don't have technologically advanced services such as mobile banking or electronic cheque depositing. Furthermore, rates may not always be competitive, depending on how the credit union is run.

The **Caisse Populaire** is a francophone equivalent of the credit union. They are primarily found in the province of Quebec, in Canada. There are approximately 1000 of these francophone credit unions in Canada. They sometimes target specific demographics or ethnic groups.

Caisse Populaire
a francophone equivalent of the credit union

Insurance Companies

Insurance Company
a company which charges a premium from clients in exchange for providing them with financial security against a pre-specified risk

Insurance companies protect clients against risk. By paying a premium, you transfer the majority of the risk of financial loss in case of disaster or other undesirable events to the insurance company. Insurance companies operate on the basis that of their total sum of customers, only a small portion will experience an event that will need compensation.

As we go about our daily lives, we experience all types of risk. There are separate insurance policies to cover these different risks. Some prominent examples include life insurance, property insurance, health insurance, liability insurance and workers' compensation insurance.

Life insurance provides family members with financial protection after the insured individual dies.

Property insurance protects the homeowner against damages or losses that occur in the home.

Health insurance covers medical costs in case of illness or accidents.

Liability insurance protects the individual against accidental damages to someone else, such as their property.

Worker's compensation insurance is offered by many workplaces and provides the worker with financial and medical support if they get hurt on the job.

Brokerages

Brokerage
financial institution that facilitates the purchase and sale of stocks and bonds, and may also provide other financial services to their clients

Full-service Brokerage
a brokerage which provides a wide variety of investment services, but typically charge higher prices

Discount Brokerage
a brokerage which typically charges less but offers fewer services and no investment advice

Online Brokerage
a brokerage which operates using the web, earns little commission and performs trades over the internet

A **brokerage** is a financial institution that facilitates the purchase and sale of stocks and bonds, and may also provide other financial services to their clients. In return for their service, brokers will often receive a commission or other transaction fees.

Brokerages come in all shapes and sizes. Some brokerages, called **full-service brokerage** provide a variety of services, but typically charge higher prices. **Discount brokerages** typically charge less but offer fewer services and no investment advice. **Online brokerages** earn even less commission and perform trades over the internet.

3.8 Crowdfunding & Globalization of the Industry

Doing business has changed significantly with the integration of technology and social media. New platforms are available in the financial services industry, which are creating new ways of raising capital, making loans and more, with individuals from across the world.

Crowdfunding websites like Indiegogo and Kickstarter have been making financing possible for anything from a small project to a larger venture. Crowdfunding relies on the global reach of the internet to access a large number of investors online. There are numerous examples of success stories supporting social issues, with one fundraiser for a bullied bus monitor, whose original $5,000 fundraising target was overshot by almost $700,000. The ease of access and flexibility of the contribution has made financing easier than ever.

Crowdfunding
a way to raise capital by relying on the global reach of the internet and the large number of potential investors online

Two important forms of crowdfunding are **equity-based** and **non-equity based** crowdfunding. Equity-based crowdfunding offers investors shares of the company in exchange for their investment, while non-equity based crowdfunding may offer rewards for investment, such as a copy of the product, or other "thank-you" gestures. It is often used to pre-sell products before production. Indiegogo has only just started offering equity-based crowdfunding, adding on to its previously popular but solely rewards-based platform.

Equity-based Crowdfunding
a type of crowdfunding which offers investors shares of the company in exchange for their investment

Non-equity based Crowdfunding
a type of crowdfunding which may offer investors rewards for their investment, such as a copy of their product, or some other thank-you gesture

Microfinancing is another rising movement in the financial services industry, especially in developing nations. For low-income individuals who may not be able to access or afford conventional bank loans, microfinancing provides lower cost loans for them to achieve their goals. Many people who require are small-scale farmers or operate other small self-run businesses. Many are at or near the poverty line, and this is one way for them to become self-sufficient. KIVA is one prominent example of a microfinance service that operates in over 80 countries, with a 97.2% repayment rate.

Microfinancing
a type of financial service which lends money to low-income individuals for productive activities such as starting small businesses

Advantages include typically lower interest rates, access to financing for those who may not qualify through other means, and there are very high repayment rates, even higher than conventional financing. Microfinancing has allowed many individuals the possibility of becoming successful business owners and providing their children with better futures.

One disadvantage is that despite greater access, many people who need it still do not qualify for these loans. Furthermore, the total amount loaned is typically small, and may not be sufficient to make a significant change.

3.9 E-Commerce

E-commerce
a "virtual" business which conducts many of the same operations as a regular business, but done primarily online

Electronic Retail
the sale of goods and services over the internet

Electronic Tickets
the sale of tickets online, such as airplane or concert tickets

The idea of **e-commerce**, or a virtual business, has become more popular and practical as the world enters an increasingly technology-dependent era. E-commerce has made buying and selling merchandise and services more convenience and possible than ever before. Two prominent examples of e-commerce include **electronic retail** (E-tail) and **electronic tickets** (E-tickets).

Many stores now have *electronic retail components*. While some stores offer only brick-and-mortar locations, a significant portion has including e-tail options in their sales platform. Clothing stores especially, like Banana Republic, offer both online purchasing options in addition to the typical in-store experience.

There are many advantages to E-tail, including a boost in sales by offering greater choice without having to stock them at every retail store. Customers will find no restrictions on store hours, and a more efficient shopping experience (with features to filter by color, price, etc.) Disadvantages for customers include additional charges (tax, shipping, etc.), having to wait for the product to arrive, and inability to see and feel the item being purchased before buying.

Online ticket sales or E-tickets have become a significant source of revenue in the entertainment and travel industry, and have resulted in their products and services becoming more accessible for purchase. Online ticketing options allow customers greater choice and easier price comparison, ultimately with the goal of cheaper and easier purchasing experience. When going to a movie, online ticketing can save themselves time, and the theater resources by allowing customers to skip the line. However, accidentally deleting a ticket or other technological issues are concerns which may prevent some people from adopting it.

As a whole, e-commerce has created possibilities of choice and convenience that were never previously possible. As technology becomes increasingly integrated into our lives, we will undoubtedly see more businesses provide an even greater selection of online services, geographically diverse shipping locations, and lower prices.

Questions for Comprehension

Multiple Choice

1. Which of the following is not a possible role of business in society?
   a) Producer of goods and services
   b) Source of employment
   c) Innovation and development
   d) Raise awareness for social issues
   e) All of the above are possible roles of businesses in society

2. Which of these individuals has limited liability in a business ownership role?
   a) Limited partner in a limited liability partnership
   b) Shareholder holding common stock in a corporation
   c) Sole proprietor
   d) Both a) and b)
   e) All of the above

3. The easiest form of business to start would be:
   a) A sole proprietorship
   b) A general partnership
   c) A public corporation
   d) A private corporation
   e) Any business is extremely difficult to start and requires a business degree or higher

4. If a business wanted to raise a significant amount of capital, which of the following types of business ownership would be most effective?
   a) A general partnership
   b) A limited liability partnership
   c) A public corporation
   d) A private corporation
   e) All of the above

5. The Chief Executive Officer reports directly to:
   a) Nobody but him/herself
   b) The Chairperson
   c) The Shareholders
   d) The Chief of Operations
   e) The Chief Financial Officer

6. The vice-president of a corporation is also known as:
   a) The CEO
   b) The CFO
   c) The COO
   d) Both a) and b)
   e) Both b) and c)

7. Which of the following is a charitable organization?
   a) Cubs Children's Hockey League
   b) SEVA Community Food Bank
   c) Deloitte
   d) Joe Joe's Groceries
   e) None of the above

8. An example of where co-operatives are common is in:
   a) Retail stores
   b) Manufacturing
   c) Agriculture
   d) Both b) and c)
   e) None of the above

9. Benefits of a co-operative business include:
   a) Having influence in the business proportional to the number of shares owned
   b) Having equal influence in the organization compared to other members
   c) Usually being more profitable than a for-profit company
   d) Benefitting from cross-national connections and business partnerships
   e) All of the above

10. Financial systems can operate from the _____ to the _____.
    a) Local; national level
    b) Regional; global level
    c) Upper management; lower management level
    d) Monetary; systematic
    e) Intermediary; end-user

11. This organization provides deposit insurance of up to $250,000 for money deposited at licensed banks.
    a) Office of the Comptroller of the Currency (OCC)
    b) Federal Deposit Insurance Corporation (FDIC)
    c) National Credit Union (NCUA)
    d) Federal Reserve Board (FRB)

12. This organization provides monitors and regulates bank operations. They are the most significant body affecting monetary policy, interest rates, and other components of the financial system.
    a) Office of the Comptroller of the Currency (OCC)
    b) Federal Deposit Insurance Corporation (FDIC)
    c) National Credit Union (NCUA)
    d) Federal Reserve Board (FRB)

13. Which of the following is <u>not</u> a goal of a central bank?
    a) Maintain stable interest rates
    b) Sustain economic growth
    c) Print and distribute currency
    d) Lend to and supervise member banks
    e) Provide loans for individuals and small businesses

Short Answer

1. Label the following as a good (G) or service (S).
    a) Life Insurance ______
    b) New House ______
    c) Notebook ______
    d) Housekeeping ______
    e) Running Shoes ______
    f) Car Repair ______
    g) Groceries ______
    h) Teaching ______

2. What is an example of a business demonstrating corporate social responsibility?

3. Bob wants to start a small-scale grocery store, but doesn't feel like he has the skills to run it by himself. He feels like he is especially lacking in terms of marketing knowledge. What is a possible alternative business ownership structure he could consider and why?

4. What is one reason why a general part might me more risk adverse than a limited partner?

5. What are some advantages of a public corporation, as opposed to a private corporation?

6. A financial institution co-operative as a co-operative is called a ______ and is owned by ______.

7. Describe briefly the link between financial intermediaries, financial markets, borrowers-spenders and lenders-savers.

8. You lend your friend a $10-dollar bill, and your friend lends her sister a $5-dollar bill. Who are the creditors and debtors in this situation?

9. As a healthy adult, why might you want to get health insurance early on?

Mini-Case

You are a financial advisor at T&A Banking Solutions, a commercial bank. An elderly woman has been brought in by her granddaughter, who claims that her grandmother, who distrusts technology, has only ever used cash, and has never owned a bank account. She is worried because of the large sums of cash the elderly woman keeps at home, both of the risk for theft, as well as decreasing worth of the money over the years.

Required: The woman would like you to advise her about the benefits of using financial services, including chequing and savings accounts and insurance. Discuss the impact on finances and risk management as well as the role of the FDIC in providing security on deposits.

Chapter 4: Business Strategy

Why are you reading this book right now? Probably because you want to win 1st place at ICDC. You know that the path towards victory is not easy. There are so many talented competitors from all across the world. In order to win, you will need to carefully devise a strategy.

Just as DECA competitors need effective strategies to be successful, so too do businesses. In this chapter, you will understand what business strategy is and why it is so integral to a business's success. You will also learn various frameworks for analyzing a business's current strategic position. You will discover how businesses evaluate strategic alternatives and the various choices businesses can make to try to improve their chances of prosperity. You will understand how strategy works within a dynamic business landscape, and how business strategy and innovation are interrelated. Finally, you will recognize how the actions of a company's management contribute to the success or failure of an organization, and find out what makes an effective leader.

4.1 An Overview of Business Strategy

Before we can understand the importance of business strategy, we should remember why businesses exist. Regardless of whether a business is a for-profit or a non-profit enterprise, businesses exist in order to satisfy the needs and wants of consumers. For example, McDonald's provides a quick lunch to time-strapped students. Boeing provides state-of-the art airplanes to a wide variety of global airlines. The Red Cross delivers water to impoverished children.

In providing these services, the businesses also receive benefits. For profit businesses benefit because they receive money in exchange for providing goods/services. Non-profits benefit because they get the intangible satisfaction of being one step closer to solving a pressing social need. Because both businesses and consumers benefit when they deal with one another, we say that businesses and consumers have a **symbiotic relationship**.

Symbiotic Relationship
A mutually beneficial relationship

Business strategy is closely related to this idea of symbiotic relationships. Dr. Michael E. Porter, a distinguished Harvard professor who has written extensively about business strategy, reminds us that the word strategy does not refer to a particular, isolated action. Rather, Porter equates strategy to value creation. In his view, a business will be successful if it is able to create a **unique value proposition**, that is, if the business is able to fulfill a previously unfulfilled need or want, or if it is able to fulfill a need or want better than its competitors can.

Unique Value Proposition
The means by which a company can fulfill its customers' needs and wants that cannot be fulfilled by competing firms

Thus, business strategy is vital to a business's success. If a company can develop a successful strategy, it will thrive and generate great returns for its shareholders. On the other hand, if it fails to implement a good strategy, it will languish and may end up bankrupt.

Worked Example

Each of the following scenarios describes a successful business product/service. In each case, identify the unique value proposition:

a) Lipitor is the world's first cholesterol medication. Being able to lower bad cholesterol levels is crucial to preventing heart disease, which is one of the leading causes of death among humans.
b) Netflix is an online video streaming service provider. Prior to its creation, people had to go to a movie theatre in order to watch their favorite feature films. Now, they can watch new releases online in a location and time of their choice.
c) Domestic flights in China are frequently delayed. Thankfully, China has introduced a modern high speed rail network. These trains provide fast, convenient, and reliable connections between major urban hubs.

Solution:

a) The unique value proposition is being able to control cholesterol levels through the use of medicine. In the past, the only way to manage cholesterol was through diet and exercise, which may be impractical for some people.
b) The unique value proposition is being able to watch movies on demand. This creates time and place utility.
c) The unique value proposition is being able to travel between commercial hubs quickly and punctually.

Your Time to Shine

Each of the following scenarios describes a successful business product/service. In each case, identify the unique value proposition:

a) Google Glass is a major advancement in eyewear. These special glasses enable users to access a wide variety of features, including navigation and camera, all while providing the benefits of regular glasses.
b) The Model T is a paragon of innovation in transportation. This was the first mass-produced automobile that could be afforded by the middle class.
c) People enjoy diving and visiting beautiful underwater coral reefs. Now they can document their travels thanks to the compact GoPro camera, which can function underwater.

While the process of formulating a business strategy varies from company to company, in general, a business needs to consider the following three questions when designing its strategy:

1. Where am I?
2. Where do I want to be?
3. How do I get there?

In this chapter, we will explore how a business can address each of these three questions.

4.2 Situational Analysis

A company starts the strategic planning process by identifying its current strategic position. In order to do this, it will use a framework known as a **situational analysis framework**. There are three major situational frameworks: SWOT, PESTLE, and Porter's Five Forces.

Situational Analysis Framework
a tool that enables a company to analyze its current strategic position

A SWOT analysis considers four elements that effects a business's strategic position: strengths, weaknesses, opportunities, and threats.

A strength is an internal factor that would give a business an advantage over its competitors. For example, suppose Xu Corporation has developed a process that enables it to extract 20% more juice from lemons. This increased efficiency represents Xu Corporation's strength.

A weakness is an internal factor that represents a shortcoming or flaw in a business. For example, suppose Erickson Ltd. has a high employee turnover rate. Talented employees want to quit their jobs and go to another firm. This would be a weakness that Erickson Ltd. has to deal with.

An opportunity is an external factor that could possibly lead to greater prosperity for the business. For example, when the *Affordable Care Act* was first introduced, companies hired legal experts to help them understand their rights and obligations. To the law firms, the *Affordable Care Act* represented an opportunity; a brand new source of income.

A threat is an external factor that could cause harm or loss to a business. For example, suppose the US government decides to promote green energy by banning the sale of gasolines. Oil refineries would lose a significant amount of business. Thus, the new regulations represent a threat to oil refineries.

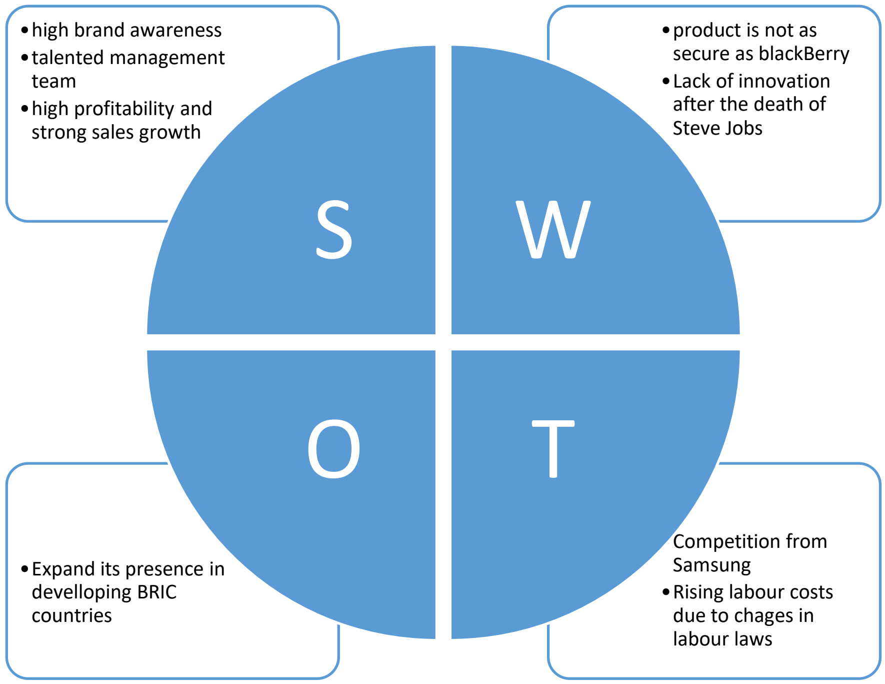
Typically, the results of a SWOT analysis are summarized in a matrix like the one shown below:

Worked Example

Conduct a SWOT analysis of Apple Inc. You may use the Internet to help you in your response.

Solution

We are asked to conduct a SWOT analysis. It will be helpful to present our findings in a matrix form.



While the SWOT analysis offers a very focused perspective on the company's operations, it is sometimes helpful to zoom out and look at broad business environment. The PESTLE analysis, also known as an environmental scan, enables us to do this. PESTLE means looking at the Political, Economic, Social, Technological, Legal, and Environmental factors that impact a business.

Examining political factors often means looking at the stability of the government in which the business operates. If the government is democratically elected, then there tends to be less risk to the business. On the other hand, if there are constant, violent coups, or if the government is corrupt, then there is a significant amount of **geopolitical risk**, also known as **sovereign risk**. You will learn more about various types of business risks in Chapter 9.

Geopolitical Risk/ Sovereign Risk
a business risk caused by political instability in a country or region

Strong economic conditions in the locations where a business operates are crucial to the business's success. Companies should consider things such as the rate of inflation and unemployment present in the society. You will learn more about economics in Chapter 6.

Demographics
the physical attributes that define a consumer base or target market

Psychographics
the behavioral attributes that define a consumer base or target market

Social factors can often be grouped into two broad themes. **Demographics** involve the physical attributes of a consumer base, such as age, gender, race, and physical condition. **Psychographics** on the other hand involve behavioral attributes, such as whether consumers care more about price or quality.

Changes in technology can have a profound impact on a business's well-being. Advancements in social media have made it much easier for companies to connect with consumers. However, technological changes can also have adverse impacts. Businesses such as Blockbuster, a movie rental store, have gone bankrupt thanks to the advent of the internet. You will learn more about how technology impacts the finance industry in Chapter 12.

Businesses and individuals alike need to be aware of local laws. Laws can vary significantly across municipalities, states, and countries. You will learn more about the relevance of business law in Chapter 5.

Sustainable Development
operating in a manner which enables you to meet present societal needs without compromising the ability to meet future societal needs

Businesses need to respect the physical environment in which they operate. With consumers becoming increasingly environmentally conscious, companies need to take steps to ensure that they are operating in a sustainable manner. **Sustainable development** occurs when society is able to produce goods/services in such a way that meets the needs of the present generation without impairing the ability to meet the needs of future generations.

Porter's Five Forces
a situational analysis framework developed by Michael E. Porter that emphasizes the examination of a company's strategic position relative to its industry.

Sometimes, companies need a tool that is broader than the SWOT analysis, but narrower than the environmental scan. In this case, they may use a situational analysis framework known as **Porter's Five Forces.** The *Five Forces* framework was developed by Michael E. Porter in 1962, then an associate professor of economics at Harvard Business School.

When people think about competition, they tend to think of two businesses competing head-to-head, each trying to undercut the other and steal market share. Dr. Porter argues that this definition of competition is too narrow. Instead, Dr. Porter opines that businesses should consider five competitive forces: the nature of competitive rivalry, threat of new entrants, threat of substitutes, powerful buyer groups, and powerful supplier groups. Let us expand on each of these factors in turn:

The nature of competitive rivalry examines the relationships between existing competitors in the industry. Here the term *competitor* is used in its traditional sense, referring to companies that produce similar goods/services. In some industries, there is so much competition that companies are forced to undercut one another in order to gain market share. Porter calls this **zero-sum competition**, because market share gained by one competitor is market share lost by another. For example, consider the competition between Air Canada, WestJet, Delta, American Airlines, Porter, and United Airlines on the Toronto-New York route. If a person chooses to fly with WestJet on a particular trip, then all the other airlines have lost that fare. As a result, airlines will aggressively lower their prices in an effort to capture market share.

Zero-Sum Competition
a destructive form of competition where the gains to one company are offset and attributable to the losses of another.

Alternatively, some industries are characterized by **positive-sum competition**. In this case, there is less of a focus on price competition and more of a focus on **product differentiation**. Consequently, consumers are able to choose the products that most suit their needs. In some cases, consumers may even be able to choose products from different providers. Consider the social media industry. Many people have Facebook, Twitter, and LinkedIn accounts. If a person chooses to join Instagram, it will not result in less market share for the other firms.

Positive-Sum Competition
a form of competition in which all industry players benefit

Product Differentiation
when companies are able to offer products/services with attributes that distinguish them from products/services offered by competing firms.

The next factor to consider in the *Five Forces* analysis is the threat of new entrants. New companies may face a wide variety of hurdles when they attempt to enter an industry. These hurdles are known as **barriers to entry**. In general, there are three main sources of barriers to entry:

Barriers to Entry
obstacles that make it difficult for a new company to enter a particular industry

1. *Cost*
   In some industries, companies face substantial start-up costs. These industries are known as **capital intensive industries**. Often, the start-up costs relate to the development of infrastructure. For example, it takes billions of dollars for a company to build a new theme park. These costs may be prohibitively expensive for potential new entrants.

Capital Intensive Industries
an industry in which businesses require a large initial investment in order to be successful

2. *Regulation*
   Have you ever looked at a cell phone bill and noticed how expensive it was? Perhaps after seeing the price, you might want to start your own telecommunications company. Unfortunately, it is not that simple. In order to start a telecommunications company, you need to be granted a license by the government. These licenses may be difficult to obtain, and thus, make it difficult for potential new entrants.
3. *Learning Curve*
   Some industries require very specialized technology and/or skills. Thus, companies that are less experienced in operating in these industries may find it difficult to survive and thrive.

Worked Example

Identify if each industry would most likely have high barriers to entry or low barriers to entry.

a) Airline industry
b) Restaurants

Solution:

a) High. There are large start-up costs associated with purchasing airplanes. In addition, airlines need to obtain certification from a regulatory body such as the Federal Aviation Administration (FAA).
b) Low. Start-up costs are minimal. Although there are some regulations, they are not a significant barrier to entry. Also, the learning curve is not very steep, unless the restaurant offers very difficult to make meals.

Your Time to Shine

a) Car Leasing Company
b) Microchip manufacturer

You might be tempted to conclude that high barriers to entry are necessarily a bad thing. That, however, is not always the case. If an industry has high barriers to entry, it is difficult to enter, but after the company is established, it is well-protected from other potential entrants. Conversely, an industry with low barriers to entry is easy for your company to enter, but other companies may also find it easy to enter.

The threat of substitute products limits a company's **pricing power**. The greater the amount of substitute products, the less pricing power the company has. In Chapter 6, you will learn how the change in price of substitutes affects the price of the product/service in question.

Pricing Power
the ability of a company to set favorable prices to enhance its profitability

At first, the phrase "powerful buyer groups" may sound illogical to you. After all, when was the last time you could negotiate a good price when you walked into the local Loblaw's store? Yet, there are two ways for a buyer group to be powerful. If the buyer group buys a large quantity of your product, they might be in a better position to negotiate prices. For example, many companies can negotiate hotel discounts for their employees on business trips because of the large amount of hotel rooms they reserve each year. A second way for a buyer group to be powerful is if the buyers are able to produce the product you supply to them. In that case, if you raise your price too much, they will stop buying from you and produce the product themselves.

If your supplier group is large in size relative to the size of your company, then you probably have very little influence over prices. Also, if there are many customers who purchase from those suppliers, then the supplier groups have more customers to "choose from," and can therefore charge higher prices.

Understanding these five competitive forces and how they influence your business is a vital part of creating a good business strategy. In later parts of this chapter, you will learn how businesses can position themselves strategically to benefit from helpful competitive forces and shield themselves from harmful competitive forces.

4.3 Root Cause Analysis Techniques

Root Cause
the underlying cause of a problem

5 Why's
A root cause analysis technique

While the situational analysis frameworks are useful starting points, they have their limitations. Take the SWOT analysis, for example. While it provides information about the company's weaknesses, it does not offer insight into the causes of the weaknesses. In order to improve, a company must fully understand the underlying issues (**root causes)** that have led to the shortcomings. Consequently, the company needs to employ root cause analysis techniques.

One of the most popular root cause analysis tools is known as the **5 Why's**. This method involves starting with a scenario, and asking the question "Why?" repeatedly. By the time the question "Why" has been asked five times, usually the root cause will be found.

Let's see an example of a Five Why's analysis. Suppose PDG is a large seller of consumer electronics (ie cell phones). PDG has recently been experiencing sluggish sales growth. A 5 Why's inquiry may be done as follows:

1. PDG is experiencing sluggish sales growth. Why?
2. The company's products are more expensive than those of its rivals. Why?
3. The company incurs more production costs than its rivals. Why?
4. The company insists on producing products locally. Why?
5. The company wants to maintain its reputation as being socially responsible. Why?

Root cause: The company believes that being socially responsible will lead to strong, long-term financial performance.

In this case, the root cause was a belief by management that being socially responsible will lead to enhanced profits. However, the reality is that PDG's policy has resulted in sluggish sales growth. In light of the identified weakness, management needs to reconsider whether or not it should outsource its production. Perhaps it can still maintain its socially responsible image while outsourcing, by implementing other initiatives to counteract any negative publicity it might obtain from outsourcing.

As you can see, the 5 Why's is truly a powerful tool. It can be used to diagnose a wide array of problems, from market share issues, to organizational structure issues, to poor internal controls.

4.4 Stakeholders & the Balanced Scorecard

The PDG example in the previous section raises several important issues. How does a company measure whether or not it is successful? Is profit the only goal of a company? How does the company prioritize competing and potentially conflicting priorities?

In a free-enterprise system, businesses are driven by profit incentive. This is the view that managers have traditionally taken. Yet, the impact of a business stretches far beyond its shareholders. Customers are impacted by the value created by the business. Employees are impacted by the jobs the business is able to create. Communities are impacted by the manner in which the business operates. All of these entities, and many more, have an interest in how the business runs its affairs. We call these entities **stakeholders.**

Stakeholder
any entity that is affected by the operations and decisions of a business

Each stakeholder has its own priorities and objectives. Shareholders wish to earn the highest possible amount of profit on their investment. Customers wish to obtain the highest quality products and services at the lowest possible price. Employees wish to have stable jobs that provide adequate remuneration.

Over the years, an ideological shift has started to occur. In the past, the focus on profits was focused on the immediate term. This narrow outlook often involved satisfying the desires of shareholders at the expense of other stakeholders. Eventually, businesses realized that they could not ignore the needs of other stakeholders. In fact, the success of a business is linked to how well a business is able to satisfy the desires of a broad range of stakeholders.

Some businesses started adopting a philosophy known as the **triple bottom line**, also sometimes referred to as the **three-legged stool.** This philosophy measures a business's success across three dimensions: people, profit, and planet.

Triple Bottom Line / Three-Legged-Stool
a model that measures a business's success across three dimensions: people, profit, and planet.

People refers to employees, customers, and the local communities in which a business operates. A business needs to respect the wishes of each of these groups if it wants to be successful.

Profit was the traditional metric of business success. Shareholders want companies to generate as much profit as possible.

Planet refers to the environment. As was mentioned earlier, people have become increasingly concerned with being able to protect the environment. Thus, businesses need to consider their **ecological footprint**, that is, what are the effects of their operations on the well-being of the physical environment.

Ecological Footprint
the environmental effects of a business's operations

It has become evident that companies need to focus on multiple dimensions in measuring their success. In 1992, Drs. Robert Kaplan and David Norton of the Harvard Business School introduced a paradigm known as the Balanced Scorecard. The Balanced Scorecard gave businesses a way of measuring performance across different metrics, and formalized the link between business strategy and multi-faceted thinking.

The balanced scorecard considers four measures:

1. The *financial* perspective focuses on traditional measures of financial performance, such as profit, return on sales, return on equity, and return on assets. You will learn more about the significance of each of these financial ratios in Chapter 7.

2. The *customer* perspective considers how the perception of the business held by customers. It takes into account factors such as whether or not customers believe that the business is operating in a socially and environmentally conscious manner.

3. The *internal business* perspective focuses on core operational metrics, such as the length of the production process, and the rate of productivity.

4. The *innovation and learning* perspective examines how businesses can continuously improve in the efforts to generate value. You will learn more about the need for innovation later in this chapter.

The Balanced Scorecard reinforces the idea that there is not one single metric that can be used to measure business performance. Rather, managers must look at a multitude of indicators to determine how well a business is performing.

4.5 Thinking about the Future

Earlier, you learned that in addition to thinking about what the company's current strategic position is, the company also needs to think about its ideal strategic position. The ideal strategic position is where the company wants to be, from a strategic perspective, in the future. In order to formulate an ideal strategic position, a company will often develop three things. Let's examine each of these in detail.

A **mission statement** is a statement that illustrates a company's mandate/purpose. For example, McDonald's mission is to "be our customers' favorite place and way to eat and drink."

Mission Statement
the mandate/objective of a company

A **vision statement** is a statement of the company's aspirations. McDonald's vision is to "To be the best quick service restaurant experience."

Vision Statement
a statement of a company's aspirations

Mission statements and vision statements are both very broad. While they are not examples of strategy per se, they can help guide the company in determining its unique value proposition, which is the driving force behind the company's strategy.

Sometimes, it is helpful to break these broad statements into smaller, more manageable pieces. **Goals** are specific objectives that a company tries to meet. These are narrower in

Goals
the specific objectives which a company seeks to achieve

scope compared to mission statements and vision statements. Often, we say that a company should try to set a SMART goal: Specific, Measurable, Attainable, Results-oriented, and Time-bound.

Being specific means having a concrete description of what you want to achieve. It isn't enough to say that "our company wants to do well." Instead, a specific goal might be to "grow revenues by 15% year over year."

Measurability goes hand in hand with specificity. In general, the more specific your goal is, the easier it will be to see if you have met it. Also, quantitative goals tend to be easier to measure than qualitative goals.

Of course, goals need to be attainable and realistic. If the goal is impossible to achieve, then you are not goal-setting, you are daydreaming.

Finally, goals need to be time-bound. You should clearly define a time frame in which the goal is to be met.

When companies are thinking about the future, expected financial performance is often a major consideration. One useful tool for the company is a **budget**. A budget is a projection or forecast of how resources (be it money or otherwise) will be used in the future. After a budget is set, companies will compare their expectations to the actual results. They will conduct an analysis to see why there was a discrepancy between their projections and the actual results. This type of analysis is known as **variance analysis**.

Budget
a statement showing how the company expects to use its resources in the future

Variance Analysis
an analysis examining the difference between actual performance versus budgeted results and the reasons underlying the discrepancies

Worked Example

D. Chan Enterprises sells multivariable calculus textbooks. The owner has given you data pertaining to its fiscal 2015 year of operations:

D. Chan Enterprises

Budget vs Actual—2015 Income Statement (Partial)

For the year ended August 31st, 2015

	Actual	Budget
Revenue		
Textbook Sales	$200,000	$180,000
Expenses		
Cost of Goods Sold	$115,000	$90,000
Selling, General & Administrative	$65,000	$20,000
Depreciation	$30,000	$20,000
Asset Impairment	$100,000	---

1. Compute the variance of each line item in the above Income Statement.
2. Which one of the following conclusions cannot be drawn from the data?
   a) Sales were better than expected.
   b) The company acquired another entity whose assets were not worth the amount the company had paid.
   c) The company had received a $500,000 loan.
   d) The company suffered a net loss.

Solution:

1. Variance = Actual – Budget
   Therefore, the variances are:

Textbook Sales	$20,000	*(Favourable)*
Cost of Goods Sold	$25,000	*(Unfavourable)*
Selling, General & Administrative	$40,000	*(Unfavourable)*
Depreciation	$10,000	*(Unfavourable)*
Asset Impairment	$100,000	*(Unfavourable)*

2. We do not know how much interest expense the company incurred, or the amount of debt the company has. Consequently, conclusion c) cannot be drawn from the data.

Your Time to Shine

D. Chan Enterprises sells multivariable calculus textbooks. The owner has given you data pertaining to its fiscal 2016 year of operations:

D. Chan Enterprises

Budget vs Actual—2016 Income Statement (Partial)

For the year ended August 31st, 2016

	Actual	Budget
Revenue		
Textbook Sales	$150,000	$200,000
Expenses		
Cost of Goods Sold	$120,000	$90,000
Selling, General & Administrative	$65,000	$20,000
Depreciation	$10,000	$20,000

Compute the variance of each line item in the above Income Statement.

By thinking about the company's future, the company is one step closer towards developing a good business strategy.

4.6 Choose between Strategic Alternatives & the Strategic Planning Process

At the beginning of this chapter, you learned that a strategic plan should answer three questions:

1. Where am I now?
2. Where do I want to be?
3. How do I get there?

We have already talked about how businesses deal with the first two factors. Now, let us explore the third factor. Just as there are many paths to a destination, a business has several different routes it can take in order to get to its ideal strategic position. Each of these "routes" are known as **strategic alternatives** for the business. Of course, a business needs to decide which of these strategic alternatives is the best.

Strategic Alternative
A course of action that a company may consider pursuing

The analysis needed to choose between strategic alternatives is part of the process of formulating a sound business strategy. Here are the steps involved in formulating business strategy:

1. Identify the current strategic position
2. Identify the ideal strategic position
3. Identify the possible strategic alternatives
4. Analyze the benefits and risks of each alternative, considering:
    a) Financial factors
    b) Non-financial factors
    c) Shareholder preference
5. Based on the analysis, choose the best strategic alternative
6. Implement the strategic alternative and monitor progress towards goals
7. Conduct a post-mortem.

You are already familiar with how to identify the current and ideal strategic positions. So, let's talk about the other steps of the strategic planning process.

When you are identifying strategic alternatives, it is important to keep an open mind. At this stage, you want to brainstorm as many alternatives as possible. In almost every instance, "status quo" or "doing nothing" is a potential strategic alternative.

Only once you have identified several possible strategic alternatives should you begin the process of analyzing the advantages and disadvantages of each alternative. As you go into the analysis, you want to be objective. A difficulty that many strategists encounter is **confirmation bias**. Confirmation bias arises from our natural tendency to look for evidence to support our belief. Think of the video game you wanted to buy for your

Confirmation Bias
the notion that humans seek evidence to support their hypothesis and ignore evidence that opposes it

birthday when you were younger. When you did your research, you tried to focus on the positive elements, in order to persuade your parents to buy the game. You might have quoted a fellow gamer's review of how amazing the graphics are, while ignoring an online forum which noted the game had too many pricy add-ons.

While your parents might be able to reduce the harmful impact confirmation bias can create during the shopping process, business strategists do not have the benefit of deferring to their parents' expertise. Thus, business strategists must not formulate an opinion on which alternative is the best until after their analysis is complete.

When doing the analysis, start by analyzing the financial impact of each alternative. What is the effect of choosing this alternative on the company's cash flows? In addition, you should see how each alternative will impact your company's profitability, liquidity, and solvency. These concepts will be explored in further detail in other chapters in this book.

Then, you should consider the non-financial factors associated with each alternative. For example, you know that deciding to offshore your operations will likely anger your employees, causing talent to leave the company.

As you look through the advantages and disadvantages of each strategic alternative, you will probably notice that there is no option that is completely advantageous or disadvantageous. Instead, you will have to decide whether the advantages of each options outweigh the disadvantages, and ultimately, which alternative is the best for the company.

In weighing the advantages against the disadvantages, consider the extent to which each strategic alternative fits in with your business's overall strategy. How will the proposed strategic alternative enable your business to get to its ideal strategic position?

After the business has decided which strategic alternative is the best, it can implement the proposed strategic alternative. The implementation often involves accomplishing a series of smaller projects, each of which is intended to help the business carry out the proposed strategic alternative. Goals should be set, and the business should monitor its progress towards these goals by examining clearly defined performance indicators.

Once the projects are finished, the business should conduct a **post-mortem**. Although it sounds morbid, a post-mortem analysis is an essential component of business strategy. This type of analysis involves looking back at a project or decision. The business identifies what went well, and what hurdles it faced during the implementation of the strategic alternative. In this way, the business can learn from its past experiences, and use this knowledge to help it be more successful in implementing future projects.

Post-Mortem
an analysis conducted after a project to see what went well, what didn't go well, and what lessons can be applied to future projects

4.7 Common Strategic Alternatives

In a capitalist system, one of the primary purposes of a business is to make a profit. There are various strategic options by which a business can achieve this objective, and some methods are better suited for certain environments than others. As such, each business' methods vary according to its industry. For example, a well-known restaurant brand may wish to expand through franchising. A manufacturing company, on the other hand, may wish to merge with a competitor in order to take advantage of economies of scale. As a rule of thumb, if the benefits of a strategy outweigh its opportunity cost, a company should engage in it. The following is a list of common strategic decisions.

Expansion

As the name implies, expansion is the process by which a business invests resources to operate on a larger scale. Most companies are continuously engaged in some form of expansion as it leads to greater profits. There are many ways in which a business may expand, and these vary by the type of business. A manufacturing company might expand by constructing another factory. A retail chain may expand by opening another store. An insurance company might expand by increasing its product offerings. Expansions require capital to be invested, for which a business must find sources to obtain it from. The three ways a business obtains the capital to expand are: reinvesting profits, taking loans, and selling equity to investors.

When a company expands by increasing its output and operations (as outlined in the examples above), it is known as organic growth. This is beneficial because organic growth leads to increased future profits, which increases the value of a company's shares. A drawback of an organic growth strategy is that it takes time to expand, and there is a risk that the growth opportunity may not be as profitable as projected. On the other hand, if a company expands by acquiring and merging with other companies, it is known as inorganic growth. Inorganic growth is advantageous because it is faster and involves less uncertainty. However, this is only advantageous to the acquiring company if its own valuations are relatively more expensive than the company it seeks to acquire, or if acquiring the new company will create a synergy that will increase profitability.

Example

Starbucks plans to have 5000 stores operating in China by 2021. Its CEO Howard Schultz has said that the China could one day surpass the United States as its largest market. Such an expansion strategy is beneficial to shareholders because it increases shareholder value and future profitability.

Outsourcing or Offshoring

Outsourcing describes the transaction in which a business gives another business a contract to carry out some of its operations. This relationship usually occurs when the other business can perform the same operations at a lower cost, thereby increasing the original business' profits. For example, if company A can produce a widget at $5 per piece while company B can produce the same widget at $3 per piece, it makes economic sense for company A to outsource the production of the widget to company B. Offshoring describes the scenario in which a company outsources its operations to a foreign country. Common offshoring destinations include China and India, where lower wages can be used to reduce production costs.

Example

Foxconn is a major manufacturer that produces electronics at a low cost for various multinationals. Apple has outsourced its iPhone production to Foxconn, which produces them at a low cost in China.

Merger

A merger is a business transaction in which two or more companies join to form a single entity. This generally occurs where there is opportunity for synergy. Synergy in this context describes the phenomenon in which the joint value of two or more businesses is greater than the sum of each business' value individually. One of the most common reasons for this is an increase in returns to scale, which is the economic concept describing the situation whereby a business' marginal profit increases as it expands. Other times, mergers may occur in companies with different product offerings so that there is a synergetic relationship between the product lines of the two companies. For example, an investment company may merge with a commercial bank to found a new entity that can sell both product lines to their shared customer base.

Example

On November 30, 1999, two oil giants, Exxon and Mobil, merged to form ExxonMobil. As a result of the merger, the company is the largest publically-traded producer of oil and controls a large share of the US oil market.

Acquisition

An acquisition is similar to a merger, except that in an acquisition one company purchases control of another. When a company purchases another to improve the profitability of its own operations, it can be classified as either horizontal or vertical integration. In horizontal integration, a company with a similar business model is acquired so as to benefit from an economy of scale. An example would be a smelting company that purchases another smelting company. In vertical integration, a company purchases another company that operates at a different stage of the production process. An example would be of a smelting company that purchases the mining companies that supply it. Other times, acquisitions are made as investments into companies with high growth potential but without a direct link to the core operations of the acquiring company. Acquisitions are also made when a target company can be purchased at a discount relative to the valuation of the larger one. Larger corporations practice this more often, and it is an important method of growth.

Example

On October 9, 2006, Google purchased YouTube for $1.65 billion. YouTube's growth has proven the investment profitable for Google, and its integration with Google+ provides valuable user information that Google can use for marketing purposes.

Joint Venture

A joint venture is a form of partnership in which two companies combine their resources to create a separate, jointly owned entity. This arrangement often takes place when the combined resources and expertise of two companies open up new business opportunities unavailable to each individually. One common situation is when a business established in one country seeks to expand to another. Lacking the expertise to expand into the foreign country independently, a joint venture may be formed in which the expanding company invests the business model and resources while a local company handles the operations.

Example

In January 2012, Starbucks entered into a 50:50 joint venture with Tata Global Beverages to form Tata Starbucks Limited. This joint venture will expand the Starbucks chain into the Indian market. It is beneficial to both parties: Starbucks can expand its operations into the Indian market, and Tata Global Beverages can benefit from the use of the Starbucks brand name.

Franchising

Franchising is the process by which one entity obtains the right to operate using another entity's brand and business model. From the perspective of the franchisor (i.e. owner of the brand), franchising is a cost-effective way to expand their business. On the other hand, the franchisee (i.e. the acquirer of the right to the brand) can benefit from the established brand and proven business model, which is less risky than trying to establish a new brand. Given that both parties have a strong incentive to ensure the success of this agreement, franchising has become a popular option for small, fast-growing businesses.

Example

Subway is one of the largest growing franchises in North America; in the one-year period from July 2013 to July 2014, it added 532 retail stores in Canada and the United States. The franchising model has allowed Subway to expand rapidly at low cost, and franchisees are provided with a proven business model.

Bancassurance & Assurfinance

Bancassurance, also known as the bank insurance model, is a form of cooperation between an insurance company and a bank. In this arrangement, the bank sells the insurance company's products to its client base, and receives a commission in return. This model has gained legality and popularity in many parts of the world, particularly Europe. It is advantageous because banks have large customer bases, and these customers are also in the market for insurance. Therefore, by using its customer base to sell the insurance products, both the bank and the insurer make a profit.

Assurfinance is a concept very similar to bancassurance. In bancassurance, a bank sells insurance products to its customer base. In assurfinance, the insurance company sells banking products to its customer base.

Example

TD Canada Trust has both banking and insurance operations. This is beneficial to customers because it makes TD a one-stop shop for the various financial and insurance products they require. For instance, a customer who gets a mortgage with TD can also get mortgage insurance from TD. Further, that customer can bundle their home and car insurance with TD to get a discounted rate. This model is beneficial for TD because the insurance business is synergetic to its banking operations. As a result, TD can capture more business by offering insurance products along with its banking products.

Divestiture or Spinoffs

A divestiture is the act of selling off a portion of a company's business. There are many situations in which it is advantageous to do so. For example, a company can sell off an underperforming division and use the proceeds to invest in a department with greater profitability. Other times, firms divest as a result of social and ethical pressures against certain types of business activities. More often, firms divest from businesses that are not critical to their core operations so that they can focus on their main business. Buyers of the divested portions of a company are often able to run them more profitably and are thus willing to pay more than these portions are worth to the parent company.

A spinoff is a company that was formed by splitting from a parent company. The shareholders, and often even the management of the spinoff are the same. Spinoffs tend to occur when management believes that the value of a division would be higher if it was turned into a separate company. This is captured in the concept of the Conglomerate Discount, which states that sometimes a diversified business is worth less than the sum of its individual businesses. Other times, spinoffs occur when management believes that a business would have better opportunities for growth as a separate entity.

Example: In 2006, Bell announced a divestiture of Aliant, which is a telecom operator operating primarily in the smaller market of Atlantic Canada. In the terms of the agreement, Aliant would receive Bell's stable, low-growth and high-yielding operations while the parent company would retain control of the higher-growing wireless and cable operations. 28.5% of the shares of the new Bell Aliant were given as dividends to shareholders of Bell Canada Enterprises. Since shareholder control did not change significantly, it can be thought of as a spinoff as well. This divestiture/spinoff was beneficial to the corporation because it allowed Bell Canada to focus on its high-growth operations. From the perspective of shareholders, this divestiture was beneficial because it gave them the option to move their equity between the higher-yielding and higher growth companies based on their own preferences.

4.8 How to Defend Against Hostile Takeovers

Many corporations are publicly traded, meaning that investors can buy and sell the company's shares on the stock exchange. Given this fluid nature of ownership, a corporation can be taken over by any investor who acquires a controlling stake (usually 50%) by buying a large percentage of the company's common shares. In most situations, investors applaud a takeover because their stakes are generally bought out at higher-than-market prices. Generally speaking, this is because the acquirer is able to run the business more profitably. When management agrees to the takeover, it is known as a friendly takeover. However, if management opposes the takeover, then it is known as a hostile takeover. For example, management may oppose takeovers if it has ulterior motives that are not in line with the motives of the owner. Other times, management may oppose the takeover if the entity initiating the takeover is perceived to be a corporate raider. The latter is the focus of the chapter.

Hostile takeovers gained significant notoriety in the 1970s and 1980s, when a number of hedge funds were able to successfully raid many corporations at the time. One example is Carl Icahn's hostile takeover of Trans World Airline in 1985. He financed his takeover through debt financing, and then liquidated the company's prized assets to pay off his debt. This is known as a leveraged buyout. Formally, a leveraged buyout is when the cash flow and assets of the company being acquired are used as collateral to secure debt for the takeover. This was a profitable move for Icahn, but forced the company into bankruptcy a few years later. In order to prevent such occurrences, companies began to adopt defensive measures to protect the interests of their shareholders. These are known as Shareholder Rights Plans, which are frequently called "poison pills". Other times, management may use other strategies not covered in the Shareholder Right Plans to prevent a hostile takeover. The following is a list of some of the most common measures used by corporations to thwart such hostile takeovers.

Flip-In

A flip-in provision is triggered when one shareholder acquires a large percentage in the corporation, generally above 20%. This provision allows all other shareholders to purchase additional shares, usually at a discount. This dilutes the stake of the acquirer and makes it much more difficult and expensive to take over the company.

Targeted Repurchase or Greenmail

A targeted repurchase is the practice of buying back shares from a large shareholder in order to reduce that shareholder's equity. The shares are generally repurchased at a significant premium if agreed to by the shareholder. Although this option is expensive and loses the company a lot of equity, it prevents the shareholder from launching a hostile takeover.

Leveraged Recapitalization

A leveraged recapitalization describes the situation whereby a company takes out a lot of debt to either purchase its shares from the market or to pay its shareholders cash dividends. In the case of using the money to buy shares, the company is able to increase its share price and reduce its outstanding float, making it difficult for an outside party to buy enough shares to launch a takeover. In the case of using the money to pay cash dividends, the company becomes unattractive to potential acquirers because the heavy debt that is taken on to pay the dividend takes away much of the incentive for an outsider to acquire the company.

People Pill

A "People Pill" describes the situation in which the management of a company threatens to quit simultaneously if the company is taken over. This strategy is often used to negotiate better takeover deals, and is only effective if the acquiring company actually wants to keep the company's current management.

Golden Parachute

A golden parachute describes a clause that gives a company's management significant compensation in case their employment in the company is terminated. This mechanism serves two main purposes, namely: (1) it creates a disadvantage for a potential acquirer to come in and fire a company's management due to the high cost of the golden parachute, and (2) it takes away management's fear of being dismissed due to a change in ownership. Although this helps protect the interests of management, it may create a perverse incentive for management to induce a takeover even if it is against the best interests of shareholders. This is especially true if the golden parachute is very large because management may stand to gain large benefits in the event that there is a change in ownership.

Voting Plans

A company's voting structure may be designed in order to protect the interests of its original shareholders. For example, a company may issue a class of common shares with a large number of votes to its initial shareholders. Thereafter, it may issue a different class of shares with less voting rights to new shareholders. This ensures that in the event that a potential acquirer is able to gain a significant stake in the company, the company's original owners will still retain control.

Staggered Elections for the Board of Directors

The board of directors of a corporation are elected each year by shareholders at the annual meeting. This gives a lot of control to the larger shareholders as they have much greater voting power in choosing management. A hostile bidder can therefore takeover a company by acquiring at least fifty percent of the company's shares before the elections. In order to prevent such a takeover, the elections for the board of directors may be staggered. For example, only a quarter of all board seats may be up for elections in any given year. This requires a hostile bidder to hold and maintain a large enough position in the company over a number of years in order to successfully take over the board. This hurdle creates an unconducive environment for a hostile takeover.

Crown Jewels Defense

The crown jewels defense is a tactic used by companies to protect their core assets if a takeover is threatened. A company may sell its most valuable assets to a friendly third-party, which would discourage a hostile takeover. Or, it could spinoff the core assets into a new corporation, which would then make the original company unattractive to acquire.

White Knight

A white knight is a friendly investor that launches a friendly takeover of a company in order to prevent a hostile takeover. A white knight is generally favoured by management because it does not threaten to replace them, or because the white knight is perceived to act in the best interests of all shareholders.

Pac-Man Strategy

The "Pac-Man" strategy is a relatively extreme measure in which a company that is being taken over launches a counter takeover of the company seeking to acquire it. In situation where a company is able to harness enough capital to do so, this strategy not only prevents the takeover, but gives shareholders control of the acquiring corporation as well. This strategy is most effective if a counter takeover will add value to shareholders; most of the time, however, more moderate measures are taken.

4.9 Innovation & Business Strategy

Heraclitus, a Greek philosopher, is quoted as saying, "The only constant is change." This phenomenon can be observed clearly in the business world. Major innovations of the past have shaped the world as it is today. For example, Henry Ford utilized the assembly line to great effect to produce the Model T. Not only did this make him a wealthy man, it brought family vehicles to ordinary Americans. More recently, Larry Page and Sergey Brin began Google as a simply internet directory based on a search-based algorithm. Today, the company is worth hundreds of billions of dollars. Another example is Facebook, which began as a social network for students at Harvard. It expanded rapidly and like Google, it is also now worth hundreds of billions of dollars. All of these companies were innovative in their fields and were able to capitalize massively on the competitive advantage that they gained from these innovations. In this section, various innovation and business strategy concepts will be explored.

Six Sigma

In manufacturing, Six Sigma is a concept which seeks to limit the number of defects in production. It works off of the assumption that there will be small variances in quality within manufactured products, and this variance in quality must be narrowed. More specifically, it calls for 99.9996% of manufactured output to fall within the specified bounds (ie within six standard deviations of the mean). It was developed by an engineer at Motorola named Bill Smith in 1986. The process gained widespread recognition, and by the 21st century most of the companies in the Fortune 500 were using it to improve manufacturing quality. There are two methods of Six Sigma: one for improving an existing process, and one for creating a new process. The first method will be examined in detail here. In order to improve an existing process, a Six Sigma process utilizes the DMAIC acronym:

- *Define*: This first step seeks to clearly identify the problem/objective to be achieved. All information and available resources need to be clearly defined, and a team is to be put together.
- *Measure*: At this step, a baseline is determined for performance. This allows for comparisons at the end of the DMAIC process.
- *Analyze*: At this stage, various techniques of root cause analysis are applied to identify potential problems that are causing the deficiencies to take place. Statistical tests are to be taken wherever possible to determine the relative contribution of each root cause to the problem until an adequate number of root causes can be successfully identified.

- *Improve*: Once the root causes have been identified, the team is to brainstorm and test solutions to the problems until they are solved. This is to be done until an adequate number of solution(s) are found.
- *Control*: Once solutions have been implemented, it is important to control these solutions by standardizing them and ensuring that all other processes that are affected by these changes are updated to sustain the gains made.

This process is to be repeatedly until desired, or, in accordance with the principles of Six Sigma, until 99.99966% of products are within the acceptable-quality range.

One of its most memorable uses occurred in 1995 when Jack Welch brought the concept over to General Electric in his capacity as CEO. Six Sigma was one part of a wide-range of quality-enhancing measures he instituted at General Electric. All of these quality-enhancing measures had the Six Sigma principle in heart: there must be constant improvement in all aspects of the business. For example, Welch believed in continuously improving production standards while cutting costs. He was known for firing the bottom ten percent of managers every year while rewarding the top 20%. This created a culture of high standards and constant improvement at GE. In fact, his philosophy was that a company must be the best or second-best in an industry. If it is not, then it should exit that industry. This philosophy drove him to aggressive downsizing, cutting low-margin departments, and making hundreds of acquisitions in companies deemed to complement General Electric. Although Jack Welch has been criticized for his tactics, his implementation of extremely high standards proved worthwhile: during his tenure as CEO, he increased General Electric's value by 4000%.

Kaizen

In Japanese, Kaizen translates as "improvement". In business, it is the philosophy of continual improvement by all workers of an organization. Given its broad meaning, it can be applied to mean the continual improvement of anything related to an individual, business, or society as a whole. Like Six Sigma, Kaizen seeks to improve standards and cut costs and was widely implemented in

Japanese culture after the devastation of World War 2. Various businesses would cooperate together in groups known as keiretsu in order to achieve various objectives. Cooperation with other businesses and friendly business regulations created a conducive environment for rapid economic growth. The Japanese economy grew at a fast rate, and became the world's second largest economy within twenty years.

An interesting point to note is that during the same time, Japanese culture provided for guaranteed lifetime employment for most workers. This is in sharp contrast to the management practices of Jack Welsh during his time at General Electric. Both examples demonstrated robust growth despite some major differences. To reconcile these differences, one can observe that the common denominator between these two processes is the philosophy of continual improvement. This implies that an entity that continuously adapts to changing market dynamics and is able to perpetually improve its productivity is likely to perform much better than its peers.

Porter's Generic Strategies

In 1980, Michael Porter wrote that there are three strategies that companies use to gain a competitive advantage. Namely, these are (1) Cost Leadership, (2) Differentiation, and (3) Focus. Porter argues that a business must focus on one strategy if it is to remain profitable. However, while he only recommends using one strategy, larger companies may engage in multiple strategies simultaneously as part of their marketing efforts.

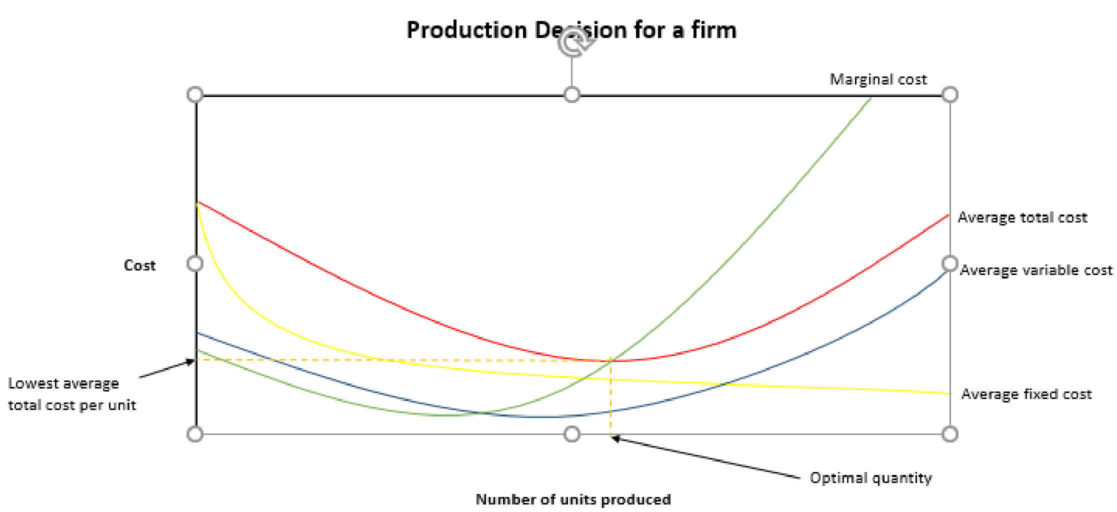
Cost Leadership

Cost leadership describes the strategy in which a firm uses low prices to gain market share. There are three main aspects to this strategy: (1) high asset utilization, (2) minimizing operating costs, and (3) control over all steps in the value-adding process.

The first element, which is high asset utilization, relies primarily on employing the economies of scale phenomenon in large businesses. In production, costs are generally classified as fixed costs or variable costs. Fixed costs are those that are independent of the number of units produced (factory maintenance, lease on the land, etc) while variable costs are those that are dependent on the number of units produced (purchase of raw materials, shipping of finished goods, etc). As a firm increases its production its fixed costs remain constant, resulting in a lower average fixed cost per unit. Variable expenses tend to decrease until a certain point causing a lower average variable cost per unit. At some point, variable expenses begin to climb back up again. In order to minimize costs, a firm must minimize the average total cost per unit, which is a combination of fixed and variable costs.

The graph below shows this production decision for a firm. The yellow line represents the average fixed cost and it is declining as the number of units produced increases. The blue line representing average variable cost declines until a certain point, after which it begins to increase. The red line representing the average total cost is the summation of the average fixed cost and average variable cost. The green line is the marginal cost (i.e. the cost to produce one more unit).

The minimum point of the average total cost always intersects the marginal cost, and economists have established that this is the point which leads to the lowest cost per unit. Larger firms are generally able to achieve the lowest total costs because they are able to really minimize their average fixed costs through the economies of scale principle.



The second element of cost leaders, which is minimizing operating costs, essentially dictates that costs should be cut wherever possible. Companies can offer a standardized product, pay low wages, outsource expensive tasks, and find ways to streamline its production processes to minimize operating expenses.

The third element is controlling the steps of the value-added process. This entails techniques such as using efficient inventory systems, buying products in bulk, and instituting an effective distribution network. This option is easier for larger firms as they have greater control over the steps of the production process due to their scale.

One of the most effective cost leaders is Walmart, which is the largest public company by revenue. Walmart began as a small retail store in 1962, but it expanded rapidly in the past few decades. Today, there are over 11000 stores in dozens of countries. Walmart maximizes its asset utilization by keeping its stores densely stocked and making full utilization of its floor space. Depending on the location, it may also rent out some of its store area to other businesses to gain rent and attract more customers by the synergies created with the other businesses. Walmart minimizes its operating costs wherever it can: employees who work in-store receive close to the minimum wage, stores are standardized with an efficient distribution network, and suppliers are paid as little as possible, often forcing them to outsource production to remain competitive. While Walmart's tactics have been criticized, it is a prime example that displays the sheer potential a cost leadership strategy can have in the mass market.

Differentiation

The second strategy is product differentiation. This strategy generally occurs in situations where customers are not very sensitive to prices, innovation is a selling point, and customer service is essential. Companies that employ this strategy are often able to charge premiums for their products and retain brand loyalty among their customers. An example of a company that successfully employs the differentiation strategy is Apple. Its marketing strategy reflects the main principles of the differentiation strategy. For example, its products are designed unique and stylish to get a premium look. Further, its products follow a premium pricing strategy: by having a high price for its products it creates an aura of exclusivity, thereby increasing demand. As well, Apple aims to stay innovative and appear as a leader in the industry by instituting changes before competitors deem it necessary. For example, in 2016 Apple took out the headphone jacks on its iPhone line and the standard USB slot in favour of the more advanced USB-C Port. These actions have helped Apple's image of being perceived as "ahead of the curve" and further enhances its premium image among consumers. Finally, Apple is known for strong customer service. Apple stores do not have cash registers; instead, their representatives have check-out devices which they carry to the customer and provide a personalized service. It also has Genius Bars in its stores, which are used to service its products. The combination of these approaches have helped Apple become the most valuable brand in the world.

Focus

The focus strategy is generally employed by smaller companies seeking to avoid competition by larger and more efficient companies. Companies that employ this strategy generally seek to fulfill a niche in a small target market. By the nature of this strategy, companies using the focus strategy tend to be highly customized for their target market, and in areas where there is not significant competition. This strategy is also described as highly segmented as these companies tend to have a competitive advantage in providing goods and services to their target segment. In marketing, the main segments are: geographic, demographic, psychographic and behavioural.

For example, a resident of a small town seeking to open a grocery store would be using geographic segmentation as part of their focus strategy. Since it may not be economical for a larger, more efficient grocery chain to take up shop in the town, the resident will not face significant competition and will be able to successfully run their store. One example of demographic segmentation is a law firm that positions itself to cater to certain ethnicities. For instance, a law firm may provide immigration counselling geared towards members of that particular group.

An example of psychographic segmentation is a company that targets people who follow a vegan diet by creating ethical and marketing ethical food alternatives to them. Lastly, a company that employs behavioural segmentation could target people who like to have food home-delivered on a frequent basis by running a delivery operation. These are just a few examples; in reality, there are countless segments that a business can target as part of its marketing strategy.

4.10 Leading Change: The Change Cycle

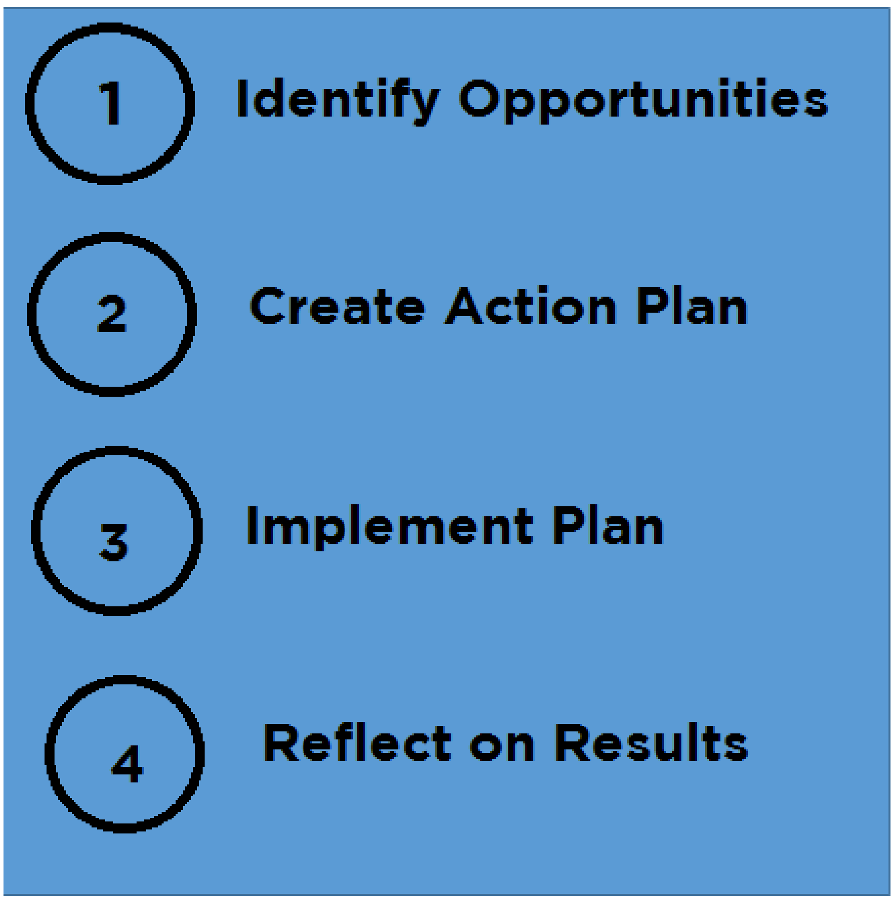
In the world of business, competitive advantages ebb and flow, economic conditions constantly change, and technological advancements open some doors while closing others. Further, competitors are always seeking to outdo the other. As a result, if a company is to remain viable over the long run, it must continually renew itself by adapting to its changing environment. There has been a great deal of research in the past few decades dedicated to studying change in businesses. Researchers have studied businesses that have had a successful transition in order to identify what led to the company's success. These researchers have devised successful change processes that organizations have used and attempted to standardize them into a single process. Most of the proposed change processes are very similar, and the following diagram below shows the four generic steps commonly found in most change cycles.

The first step to leading change is the identification of an opportunity. In order to do this, a firm must analyze its situation and identify things that may be improved. Where is the company's product on the product life-cycle? Is it closer to the growth stage or the decline? Can certain production tasks be automated? Is a certain competitive advantage waning? How is the competition evolving its business structure? Answering questions like these is essential to a company because it allows it to understand its complete position. In the earlier sections of this chapter, you were introduced to strategy frameworks such as SWOT, PESTLE, and Porter's Five Forces. These are great tools to use at this step of the process. Understanding where the company is coming from is the first step to identifying opportunities for change. At this point, the company needs to identify where it wants to go and how it can do so most effectively. How can a company generate more profits? Where is the next big opportunity? What actions will generate the greatest profits? These questions will help identify the company's targeted direction and select the opportunities for change that will be of benefit.

Having thus established the company's current position and its future objectives, the second step is to create an action plan. Managers must try to identify the best way to accomplish the company's objectives given its resources. Should it adopt a low-cost, high-volume strategy or a premium product strategy? Given the changing economy, consumer tastes and technology, what plan of action will lead to the best results? Analysing the potential implications of a variety of potential actions will allow the company to make the best plan for moving forward. An important distinction to be made here is the difference between strategy and tactics. Strategy describes the general objective of an organization while tactics are the specific steps that the organization takes to achieve that objective. The strategy of the company is to be established first, and the implementation of that strategy (tactics) should be adapted according to the changing environment.

The third step of the change process is implementation. Managers must begin to instill the required changes in the company's operations and begin measuring their outcome. The types of change to be undertaken will be unique to the company and its strategy. For example, if a company wishes to cut production costs by automating certain tasks, it will contract the appropriate firms to implement the new systems. If a company is seeking to work on its brand image, it will design its marketing strategy with this end in mind. Managers must ensure that deadlines and cost constraints are being met as much as possible as they implement the planned changes. Also, it is important to take the employees' interests into account, as it may be difficult to get them to do things that may undermine their own job security.

The fourth step of the change process is to reflect on the effects of the changes and evaluate the company's progress. This is done in a variety of ways, and usually takes the form of a cost-benefit analysis. What were the benefits and drawbacks of the change? How much did the change cost the organization? How did the change affect employee morale and the long-term viability of the organization? The answers to these questions will help determine whether or not the change was productive. If it was, it may be expanded on and continued. If not, it would be undone, and possible reasons for its failure would be analyzed. Throughout the process, the company must continually reflect on its action plan to optimize its actions and ensure that its changes are in line with the company's objectives.



4.11 Decision-Making under Uncertainty

The Theory of the Firm states that the primary purpose of a firm is to maximize profits. In order to understand, analyze and implement this concept for a company, an interdisciplinary approach must be taken: economics, mathematics and behavioural psychology are some of the many fields that must be studied. Various questions must be answered to determine how to achieve the maximization of profits. What should the company produce? How much should it produce? How will it produce? What should be the marketing strategy? How can the competition be handled? How will economic conditions affect profits? Will inflation increase? How will inflation affect profitability? How will technological advancement affect the business? In order to answer questions such as these, an organized approach must be taken to ensure that the company has a clear strategy in the face of such uncertainties. Some common decision-making concepts are examined below, and provide a framework to help organize management's decisions.

Fermi Method

Having adequate information available on a project is essential for companies to make good decisions. However, companies rarely have all the information they need to make an informed choice; therefore, they must make educated guesses to fill in the gaps. One quick and cost-effective method to do so is the Fermi method: this entails making a series of reasonable estimates and assumptions in order to find an unknown value. For example, suppose one wants to estimate how many cars there are on the streets of Toronto on a normal weekday between 12 p.m. to 1 p.m. In order to estimate this, a set of assumptions must be made. Let's assume that:

1. There are four million people who have a driver's license in the GTA.
2. Half of all people who have driver's licenses in the GTA own cars.
3. A third of all people who own cars in the GTA drive them between 12 p.m. to 1 p.m. on a typical weekday.
4. Half the number of cars on the road in the GTA are in Toronto.

Using these four assumptions, we can calculate the estimated number of cars in Toronto to be

$$\frac{\left(\frac{\left(\frac{4{,}000{,}000}{2}\right)}{3}\right)}{2} = 333{,}333$$

cars between 12 p.m. to 1 p.m. From this example, it can be seen that the accuracy of the numbers is based on the strength of their assumptions. The closer they are to their actual values, the better the estimate is.

When managers are planning a project, they must fill in the gaps by making various educated guesses by essentially using a variation of this method. This allows reliable estimates to be achieved where it may be unfeasible to calculate exact values. Questions such as this come up often in interviews for investment banking. Having a grasp of the Fermi method and its application is therefore essential to aspiring investment bankers.

Expected Value

Benjamin Franklin once said that there were only two certainties in life: death and taxes. This is true to a great extent as few things can truly be said to occur with certainty. For example, one cannot say for certain whether or not they will get into a car accident this year; however, they can predict the probability of such an occurrence and even calculate the expected costs that they may incur. For example, let's make the following assumptions:

1. There is a 95% chance that James will not get into an accident in a given year.
2. There is a 4% chance that James will get into an minor accident, with estimated damages of approximately $1000 in a given year.
3. There is a 1% chance that James will get into a major accident, with estimated damages of approximately $50000 in a given year.

Although we can say that James will most likely not get into an accident in a given year, he is most likely going to incur accident expenses over many years. By multiplying the above costs with their respective probabilities, it is possible to find the average expense that James will likely experience in regards to accidents over his lifetime.

$$\text{Expected cost} = \$0 \times 95\% + \$1000 \times 4\% + \$50000 \times 1\%$$
$$= \$540$$

In this example, even though James will not face any accident expenses 95% of the time, the expenses that he is expected to incur will average out to be $540 per year over his lifetime, assuming that the above assumptions hold throughout his life. In a very basic sense, an insurance company can make a profit by charging James over $540 per year to insure his accident related expenses. The insurance company will benefit because it will collect more insurance premiums than it is expected to pay out, and James will benefit because he will be protected from any costs in the small chance that he gets into an accident in a given year. This concept can be applied to many different scenarios, such as predicting stock returns under various economic circumstances, finding the expected returns of various financial products, and more.

Game Theory

Game theory relates to the study of independent decision-makers who are in competition with one another. It provides frameworks to understand the decision-making process of these competitors and seeks to find the actions that would best suit their interests. For example, assume that there are two oil companies, AlphaOil and BetaBarrels, and each controls 50% of the market. Currently, they are charging the same price for their oil. They can either decrease the price they charge and increase their market share, or keep their prices the same. The following coordination game shows their revenues in each scenario.

	AlphaOil Price Drop	**AlphaOil Constant Price**
BetaBarrels Price Drop	$70M $70M	$150M $60M
BetaBarrels Constant Price	$60M $150M	$100M $100M

From the perspective of BetaBarrels:

1. If AlphaOil drops the price,
    a. BetaBarrels will make $70M if it drops the price
    b. BetaBarrels will make $60M if it keeps a constant price
    c. BetaBarrels' best choice here is to drop the price
2. If AlphaOil keep a constant price:
    a. BetaBarrels will make $150M if it drops the price
    b. BetaBarrels will make $100M if it keeps the same price
    c. BetaBarrels' best choice here is to drop the price

In summary, it can be seen that regardless of what AlphaOil does, BetaBarrels is best off by dropping its price.

From the perspective of AlphaOil:

1. If BetaBarrels drops the price,
    a. -AlphaOil will make $70M if it drops the price
    b. -AlphaOil will make $60M if it keeps a constant price
    c. -AlphaOil's best choice here is to drop the price
2. If BetaBarrels keep a constant price:
    a. AlphaOil will make $150M if it drops the price
    b. AlphaOil will make $100M if it keeps the same price
    c. AlphaOil's best choice here is to drop the price

In summary, it can be seen that regardless of what BetaBarrels does, AlphaOil is best off by dropping its price.

The best response of each player is to drop the price, irrespective of what the other player does. This results in the situation in which both make $70M in revenue. This outcome is known in Game Theory as the Nash Equilibrium.

Notice also that this is not the most beneficial outcome. If both of these firms collude and agree to not drop the price, they can each make $100M in revenue. However, it is expected that such an agreement is likely to be unstable and collapse, and will eventually result in both firms reducing their prices. This unique situation is known as the prisoner's dilemma: although both firms would both be better off cooperating with one another, they are expected to not cooperate and reduce prices anyway because that is their best response function.

Risk Management Techniques

One way to think about the firm's primary objective is this: A firm wishes to maximize its rewards (i.e. profits) while minimizing its risks (i.e. losses). With regard to minimizing losses, there are various ways by which this can be done. In accounting, there are various controls that can be taken to reduce risk. In aviation, there are various controls in place to ensure flight safety. Likewise, in finance there are also various risk-management techniques that can help a business manage risk. The following is a brief list outlining some common methods:

Effective Debt Management

Generally speaking, taking too much debt can be bad for a company. Although it provides more capital for investments, it can quickly make the company insolvent if it experiences troubles. Management should first identify the level of risk that its potential investments have before it borrows money.

Diversification

This is a fancy way of saying, "Don't put all your eggs in one basket." For example: instead of loaning out one million dollars to a single customer only, it is safer to loan out one hundred thousand dollars to ten customers each. In fact, economists in the 20th century proved that diversification can reduce risk without reducing returns.

Insurance

In simple terms, a company may protect itself from financial loss by paying the expected value of losses plus a premium, spread out over the period insured. Insurance is beneficial to companies because it helps them survive financial losses and therefore helps them survive over the long run. An example of this is provided in 3.11.

Access to a capable legal team. In the world of business, it is often said that it is not a question of if, but when you get sued. As a result, it is important to have access to a capable and effective legal team. It can advise on issues related to regulations, intellectual property and disputes, and many others.

In chapter 11, the Sharpe ratio will be introduced. Simply put, it states that one should invest in a portfolio with the highest reward-to-risk ratio. While this is a concept that comes from portfolio management, its intuitive implication to invest in the highest reward-to-risk ventures has many possible applications.

4.12 Management Styles, Roles & Techniques

Leadership vs Management

In order for a company to succeed, there is a need for strong management and effective leadership. While it may seem that these terms may be used synonymously, managing is not the same thing as leading. Managers are responsible for planning, organizing, directing and controlling. Leaders, on the other hand, deal more with the human aspect of things: they manage conflicts, inspire employees, communicate the corporate vision, and lead change. Leaders must gain the trust of employees, establish a sense of loyalty, and lead by example. All this has a significant impact on the human capital of an organization, which is often difficult to measure or understand. As such, companies with effective leadership are more likely to successfully transition through change, have greater innovation, and outperform competitors. Throughout this chapter, various examples of effective leaders and how they impacted their companies have been given. Given the definitions of managers and leaders, their roles tend to go hand-in-hand. As such, great managers tend to be great leaders and great leaders tend to be great managers, although this is not always the case.

Four Functions of Management

Managers deal with the nuts and bolts of everyday operations. They analyze a company's complete situation, identify opportunities, create a plan, execute it and follow through. They perform the essential functions required to keep the company stable and functional. Since no two companies are the same, their management needs also differ. In some organizations, the management structure may be tall (with many layers of management), or flat (with few layers of management). The span of control, or authority a manager has, depends on what the firm deems to be an effective distribution of control. The same concept applies when deciding how to departmentalize a company or how management reporting processes should be implemented. Although there are many differences in management operations between companies, there are some functions that all managers do. These are known as the Four Functions of Management, and they are outlined below:

Planning & Decision Making

Planning is the first step of the management process. In this role, managers must identify the resources and capabilities of the firm that are available for use. Concurrently, they must identify the company's objectives. Most public corporations have the broad goal of profit maximization, which is generally achieved by exploiting a company's competitive advantages towards certain projects. Once managers know what they have to begin with and what they intend to accomplish, they must plan the best course of action to achieve the organization's goals. This is done with extensive consulting and cost-benefit analyses, and there is a lot of material dedicated to this field. Once the plan of action is decided, management is responsible for keeping track of progress and ensuring that time and budget deadlines are met.

Organizing

Organizing is the process whereby managers allocate and assemble the company's resources in a way to achieve their objectives. This broadly encompasses both human and capital resources. Managers must effectively create teams that will achieve certain tasks and allocate financial and technical resources to them, all while staying within the cost constraints of the project. The functions of staffing and creating the employee structure is all a part of organization. Essentially, organizing encompasses all the actions that are taken by management to prepare the company in carrying out its objectives.

Leading

Leading is a broad term that involves all the actions taken by managers to direct employees to certain tasks throughout the production process. Leadership requires effective communication within the organization and strong coordination between management and employees to ensure expectations are being met. Another key part of leading is motivation, wherein managers must keep employees committed to their tasks and efficient in their use of time and resources. In essence, the function of leading is used to ensure that the organization's action plan is being efficiently carried out by its employees.

Controlling

Controlling describes the continual monitoring of a project to ensure that standards and constraints are being met. This requires finding ways to measure productivity, project completion, spending, quality, and efficiency of the project undertaken. Once these measures are found, managers must analyze any discrepancies and seek to find causes for any variations. As this is being done, expectations must be continually renewed and changes must be implemented to correct any potential deviations or create new efficiencies that may be found. Controlling is an important management function because it ensures that the company's objectives are met by objectively measuring and maintaining the production process.

Leadership Styles

An important consideration in leadership is determining how one should interact with employees. Since the role of leaders is to maximize the efficiency of their companies' human capital, they must choose the right leadership approach to achieve this end. Should a leader take a very direct, hands-on approach with employees? Or should a leader delegate their authority down to the individuals themselves? How should decisions be made? Is the consultative process more important than making a quick decision? These are all questions that a leader must ask themselves. The answers to these questions will dictate their leadership style. A leader's personality may also play a role in determining their leadership style. Sometimes it may complement their role as a leader; other times it may lead to friction with employees. The three most common leadership styles are listed below and explain the scenarios in which each method is most effective.

Authoritarian Style

The authoritarian style of leadership occurs when there is a strong authority figure that prefers to give specific and clear-cut orders to subordinates. Generally, there is little margin for negotiation as communication is generally one-way from managers to employees. As a result, this style of leadership occurs most frequently in places where there is a rigid organizational structure and a high emphasis on employee discipline. Benefits of the authoritarian style of leadership include: quick decision-making, efficiency in delegating tasks and strong control over the company's culture. Drawbacks of this style of leadership include: suppression of ideas from employees, potential abuse of power by the manager, employees feeling disconnected from management, and bureaucratic inefficiency in some cases.

The authoritarian style of leadership works best when employee tasks are standardized, communication must be fast and there is an imperative for discipline. For example, supervisors in a factory, officers in the military and lead surgeons would find this style of leadership to be particularly effective.

Democratic Style

The democratic style of leadership is used in organizations where there is an emphasis on creativity and innovation. This occurs in situations where there are many potential courses of action that the organization may take and there is no clear-cut decision that can be made. Managers tend to use democratic principles especially when these decisions have far-reaching consequences. Advantages of this strategy include: Well thought-out courses of action crafted by lots of input, greater potential for innovation, stable and fair systems, and less potential for abuse of power. Drawbacks of this strategy are: long periods of time required for decision-making, uncertainty about roles, communication failures and the risk of groupthink (where all members agree on a particular action for the sake of seeming cooperative, even if it is not the best option). As examples, executives of a corporation, marketing teams and governments all benefit from this style of leadership.

Laissez-Faire Style

The laissez-faire style of leadership (French: “allow to do”) is one where leaders give workers a high degree of autonomy and the ability to manage work themselves. Laissez-faire leadership typically occurs when it is inhibiting to have managers constantly monitoring and providing direction to workers. As such, this style of leadership is generally found in organizations where workers are highly capable and have incentives to perform well. Benefits of this style of leadership may include: increased worker satisfaction, low bureaucratic inefficiency, and a greater degree of flexibility. Drawbacks of this style of leadership are: poorly-defined roles with little guidance, potential inefficiencies on behalf of employees and a lack of direction. Managers that would benefit from a laissez-fair approach are: sales managers with highly capable salesmen, directors with a highly effective executive team and marketing directors with a highly capable marketing team.

4.13 Applying Business Strategy to Cases & Exams

DECA role plays are done using short ten or fifteen minute cases. One characteristic of cases in the finance cluster is that they frequently require one "correct" answer through some sort of calculation. However, this is not always true, and there is usually a degree of personal recommendation required. They key to performing well is to display strong critical thinking and an orderly approach. In chapter 1, techniques to master the role play were examined. Here, we will explore specific business strategy concepts that you can apply to empower your analysis during the role play. In most cases, you will have to choose between two or more options that are presented. In order to determine what the best option, you may have to a mixture of quantitative (i.e. calculations) or qualitative (i.e. strategy concepts) analysis. The benefit of quantitative analysis is that the numbers may give a clear indication as to which option the business should choose. The benefit of qualitative analysis is that it provides an excellent framework to apply critical thinking to the case and stand out from the competition. We will examine some common types of case studies that you may encounter and provide some concepts that may fit the case well.

One type of case that you may encounter is the "business seeking to expand its operations" type. These types of cases typically present you with two options and ask you which option will lead to greater growth. This type of case will typically involve some preliminary calculations, and then require you to analyze the pros and cons of each option. It is helpful to do a SWOT analysis on each option: it allows you to organize your thoughts, thoroughly cover the scope of each option, and requires a relatively minimal amount of time to plan out. You may also seek to apply some risk-management concepts. For example, if one option has a high risk and reward while the other has a lower risk and lower reward, it may not be beneficial to pick the higher-risk option. You may back up your claims by doing an expected value calculation and demonstrating that the high risk involved in the higher reward option may lead to a lower expected value than the lower risk, lower reward option. Finding one or two strong analyses that fit the case will generally allow you to cover all the required concepts and make strong connections that will resonate with the judge.

Another type of case that you may encounter is the "failing business seeking to return to profitability" type. These types of cases require you to offer a contingency plan or choose from the options given. A wise thing to do is to think outside the box and provide answers that others may not have thought of. For example, you may propose that the company in question seek a joint venture or partnership with another company if it may prove beneficial. Or, you can advocate that the business adopt a production process like six sigma to improve quality while reduce costs. Building on that, you may use the Fermi method and attempt to make outside-the-box connections to come up with figures that improve your analysis, so long as it fits in the bounds of the case and is supported by good reasoning. The common theme of these cases is that you have to think creatively and propose strategies to increase profitability, and these may not always be apparent from the case. The specific strategy concepts that you will apply depend on the case and what you feel comfortable using.

Yet another type of case is the "business dealing with crippling competition" type. These types of cases are more qualitative and require more subjective analysis. One of the first things that you should do is to identify where the company's competitive advantage lies. For example, given Porter's Generic Strategies (seen in 4.9), should the business adopt the cost-leadership, differentiation, or focus strategy? This will help guide your thinking. Having determined the company's strategy, you may wish to do a run through of how the business should adapt using the change process (seen in 4.10). This will help lay out your idea in specific terms and will make it more compelling than just providing a general description. Next, you may wish to incorporate game theory into your case. For example, if your business is not a cost leader, it would not be wise to adopt a strategy of competing on low prices because the lower-cost competitors will be able to win in a price-war. For situations like this, differentiating the product/service will be more beneficial. An important consideration to keep in mind with these types of cases is that there is not necessarily a right or wrong answer – the judge is mainly seeking to gauge your critical thinking.

Questions for Comprehension

Multiple Choice

1. Insomnia Cookies is a bakery chain with over 100 locations across the United States. As its name suggests, Insomnia Cookies produces warm, freshly baked cookies. Insomnia offers late night delivery of its cookies to many college campuses. Insomnia's unique value proposition is that it…
   a) Sells fresh cookies as opposed to frozen cookies
   b) Provides late-night delivery of its products
   c) Targets college students and professors
   d) Operates in the United States

2. Angela is conducting a situational analysis of her pharmacy chain. She observes that the success of her business may be impacted by her ability to effectively negotiate with large pharmaceutical products companies such as Pfizer and Astra-Zeneca. She is not too worried about the potential of new pharmacy chains taking away business, as she knows that running a pharmacy requires governmental approval. Angela discovers that 20% of her sales are to retirement homes, and that these companies often demand steep discounts. Angela is most likely using…
   a) SWOT analysis
   b) PESTLE analysis
   c) Porter's five forces analysis
   d) Kaizen

3. Why is the Balanced Scorecard a useful tool in Business Strategy?
   a) It focuses on the needs of shareholders
   b) It emphasizes improving operational efficiency
   c) It recognizes that profit is not the only metric of success
   d) It rewards management for successful leadership

4. The idea that we look for evidence to support our hypotheses while ignoring evidence that refutes our hypotheses is…
   a) Confirmation Bias
   b) Response Bias
   c) Non-Response Bias
   d) Upward Bias

5. What is it called when a business sells off a portion of its business to another business?
   a) Acquisition
   b) Merger
   c) Divestiture
   d) Joint Venture

6. What is it called when a business purchases another business?
   a) Acquisition
   b) Merger
   c) Divestiture
   d) Joint Venture

7. What does the Pac-Man defense entail?
   a) When a company buys back shares from a shareholder to reduce their holding
   b) Hiding company information from corporate raiders
   c) When a company buys back its shares from the secondary market
   d) When a takeover target launches a takeover of the hostile bidder

8. What is a targeted repurchase?
   a) When a company buys back shares from a shareholder to reduce their holding
   b) Hiding company information from corporate raiders
   c) When a company buys back its shares from the secondary market
   d) When a takeover target launches a takeover of the hostile bidder

9. What does the DMAIC acronym of six sigma stand for?
   a) Define, Measure, Analyze, Improve, Control
   b) Do, Measure, Appreciate, Improve, Control
   c) Define, Modify, Analyze, Improve, Control
   d) Define, Measure, Analyze, Instigate, Control

10. What are the four functions of management?
   a) Monitoring, checking, directing, controlling
   b) Cost-cutting, hiring, reviewing, implementing
   c) Planning, Scheduling, Disciplining, Controlling
   d) Planning, Organizing, Leading, Controlling

11. What are the four steps of leading change?
   a) Propose, Action, Check, Follow-through
   b) Identify, Reflect, Create, Implement
   c) Identify, Create, Implement, Reflect
   d) Identify, Understand, Plan, Execute

12. A leader that engages in extensive consulting with employees is using what leadership style?
    a) Authoritarian
    b) Democratic
    c) Laissez-faire
    d) Controlling

13. A leader that largely delegates responsibility to their employees is using what leadership style?
    a) Authoritarian
    b) Democratic
    c) Laissez-faire
    d) Lazy

Short Answer

14. In this chapter you have learned three different situational analysis frameworks: SWOT, PESTLE, and Porter's Five Forces. How do these frameworks differ in terms of their scope?

15. Groupon is a popular business that sells vouchers to be used at stores and restaurants for a discount. For example, consumers might be able to buy a $30 voucher to use at a pizzeria for only $20. Comment on the barriers to entry in this industry. Does Groupon need to be concerned about new entrants?

16. You are enrolled in a STRAT-101, an introductory business strategy course at a local university. While studying for your final exam, your friend remarks: "Six Sigma and Kaizen are basically the same thing. They are both focused on quality improvement." Discuss the accuracy of your friend's comment.

17. Why is the Focus strategy (in reference to Porter's generic strategies) best suited for smaller businesses?

18. What type of leadership strategy would the manager of assembly line employees most likely use?

19. When choosing between two options, what strategy concept can be used to organize one's thoughts and provide a comprehensive answer?

Mini-Case

KT Cats Emporium is a pet store and pet supply company located within the Greater Toronto Area. Since its inception in 2008, the company has expanded tremendously. At the company's peak in 2014, pet sales totaled nearly $30 million, and pet accessories (pet supplies, pet food, etc) sales have totaled nearly $24 million.

Unfortunately, the company's performance has waned in recent years. The company saw sales decline by 10%, driven in part by the shrinking popularity of pets in the Greater Toronto Area. In addition, the City of Toronto recently implemented Bylaw 1000, which requires pet owners to buy comprehensive medical and liability insurance for their pets, therefore making pet purchases more expensive.

The company's CEO, Katelyn, has been thinking of ways to improve the company's profitability. She has noticed that consumers are becoming more health conscious, and prefer foods that are organic and made without artificial ingredients/preservatives. She wonders whether launching a line of organic pet food could help to restore sales. She recently spoke to Meow-Meow Foods, a large food distributor in Canada. Meow-Meow is the 3rd largest pet food provider in Canada, and has expressed interest in providing organic pet food to KT Cats Emporium.

Katelyn has hired a consultant to help her assess the strategic position of the business and make recommendations.

Required: As Katelyn's consultant, answer the questions that follow:

1. What is a SWOT analysis? Can you conduct a SWOT analysis of my company?

2. Meow-Meow has been around for 10 years and they are one of the largest pet food providers. I am sure they can create a wonderful line of organic pet foods. Is there any downside to choosing a supplier like Meow-Meow?

3. My friend mentioned something called the "conglomerate discount." How does that affect my business?

4. How could I estimate the demand for organic pet food within the Greater Toronto Area?

5. What other factors should I consider before launching this line of organic pet food?

6. Last year Proud Pet Food Company offered to acquire my company. What does that mean and why might they have offered to do that?

By the end of this chapter you will be able to:

- Explain the nature of business ethics (SP)
- Discuss the nature of law and sources of law in the United States (SP)
- Describe legal issues affecting businesses (SP)
- Identify the basic torts relating to business enterprises (SP)
- Describe the nature of legally binding contracts (SP)
- Discuss legal considerations in the finance industry (SP)

Chapter 5: A Legal View

It is often said that the two certainties in life are death and taxes. While that may be true, chances are that at some point in life you will come into contact with the legal system. The law has a profound impact on individuals, businesses, and companies. This chapter gives an overview of the legal system in the United States, with an emphasis on business law. It highlights how businesses operations are affected by specific statutes. In addition, this chapter also outlines the distinction between laws and

5.1 Law vs Ethics

Laws and ethics are similar in many respects. They both help to guide the behavior of individuals and organizations within society. However, there are also some key differences between the two terms. As a DECA competitor who wants to win at ICDC, it is vital that you understand the difference between the two terms.

Laws are rules of conduct that are established by government to govern behavior. There are a wide variety of laws, and individuals and businesses alike need to abide by these laws. When a company follows the laws, the company is said to be "in compliance." Later sections in this chapter will explore the nature of business law in more depth.

Laws
binding rules established by local/municipal, state/provincial, and national governments in order to govern the behavior of individuals and organizations

Ethics on the other hand reflect a series of voluntary rules that are adopted by an organization or individual to guide their behavior. Ethics try to reflect a sense of what is "right" or "just." While it is important for entities to behave ethically, government cannot enforce ethical behavior.

Ethics
voluntary rules of conduct based on an individual or organization's belief of what is "right"

From a business ethics perspective, the behavior of any entity can fall under three categories:

Moral (ethical) behavior focuses on doing the "right" thing. Examples of ethical behavior may include businesses being transparent about the ingredients that they use in their products. Another example of ethical behavior is treating employees with kindness and compassion.

Moral (Ethical) Behaviour
behaviour that is regarded as morally righteous or just

Amoral behavior falls into a "grey area." While some may consider the behavior acceptable, others may find the behavior repugnant. An example of amoral behavior is animal testing.

Amoral Behaviour
behaviour that is regarded as neither being morally righteous nor morally wrong, or behavior of which the morality is contested

Immoral (unethical) behavior occurs when an entity is doing something that would be perceived by the most observers to be unfair. For example, an employee who steals money from the cash register is committing unethical behavior.

Immoral (Unethical) Behaviour
behaviour that is regarded as morally wrong or unjust

Worked Example

Read the case scenario, then answer the questions that follow:

Lyle was an accountant at Frozen Ice Cream Ltd. His responsibilities included reconciling bank statements and approving invoices. One day, he decided to set up a phony invoice, listing himself as the vendor. He billed the company for $4,000 in services that were never rendered. He pocketed the money himself and used the proceeds to buy an HDTV.

1. Is Lyle's behavior ethical, amoral, or unethical? Explain your reasoning.
2. Is Lyle's action legal or illegal?

Solution:

1. Lyle's behavior was clearly unethical. By setting up phony invoices, Lyle "cheated" the company out of money. Lyle's actions would be considered by most observers to be unfair.
2. Lyle's action is illegal. By setting up phony invoices, Lyle committed fraud; a felony offence punishable by imprisonment.

Your Time to Shine

Read the case scenario, then answer the questions that follow:

As CEO of Fast Fashion Inc, Delilah oversees all aspects of the company's business strategy. Recently, the company has decided to outsource its manufacturing operations to a foreign country which has no minimum wage laws. The workers are paid less than a dollar per day.

1. Is Fast Fashion's behavior moral, amoral, or immoral? Explain your reasoning.
2. Using this scenario, distinguish between laws and ethics.

Different people may have different values and beliefs, and hence differing notions of what constitutes ethical behavior. In order to address this issue, many organizations adopt a **code of ethics** which indicates what type of behavior the organization deems appropriate.

Code of ethics
a written set of rules established by a group/organization that indicates which behaviors it deems ethical and which behaviors it deems unethical

It is possible for an action to be considered "unethical" but not illegal. For example, while some believe that employees need a minimum level of pay to assure an adequate standard of living, many developing countries do not have minimum wage legislation.

In recent years, consumers have rewarded companies that act ethically by patronizing those businesses instead of patronizing businesses that act unethically. As a result, being ethical is not only beneficial for a company's image, but also beneficial for its bottom line!

5.2 Ethical Analysis Frameworks

In the previous section, you learned that employees can look to an organization's code of ethics to determine whether or not their behavior is ethical. Yet, sometimes, the code of ethics does not offer clear guidance on every ethical dilemma that an employee can encounter. How can the employee decide what to do? This section discusses an ethical analysis framework that can be used to help an individual or organization make the ethical decision.

The first step is to identify the **stakeholders** in the situation. A stakeholder is any individual or organization who is affected by the situation. Stakeholders can include customers, employees, management, government, local communities, competitors, and the general public.

Stakeholder
any entity who is impacted by a particular situation or decision

After identifying the stakeholders, the decision maker should identify the different alternatives available. In essence, the decision maker needs to identify the courses of action that are available to him/her. In most cases, a "status quo" or "do nothing" option is an alternative that needs to be considered.

Once the alternatives have been identified, the decision maker should consider how each of the courses of actions could potentially impact the stakeholders. It is possible for an action to benefit all stakeholders, to hurt all stakeholders, or to benefit some stakeholders while hurting other stakeholders.

After the decision maker has assessed the benefits and risks, he/she needs to weigh the benefits and risks in order to select the best alternative. This is often the hardest part of ethical analysis. There are two commonly used approaches to evaluate alternatives. One approach, pioneered by Jeremy Bentham, is known as **utilitarianism**. Utilitarianism says that decision makers should select the approach that maximizes the total happiness for all stakeholders. A different approach, **libertarianism**, also exists. Libertarianism underscores that we cannot actively infringe on the rights of any entity, even if such an infringement may maximize total happiness.

Utilitarianism
established by Jeremy Bentham, this belief reflects the idea that the "ethical" think to do is to maximize utility (satisfaction) for the greatest number of people

Libertarianism
this ethical view emphasizes the importance of individual rights and liberties

After completing the analysis, the decision maker can select the best option and implement it.

Having learned a framework for ethical analysis, you can now apply it to various situations. Consider for example, the classic ethical dilemma known as the "Trolley Problem." In this scenario, you are the station manager at a subway station. There are two tracks in the crowded subway station. During rush hour, six passengers have unfortunately fallen onto the tracks. Five passengers have fallen onto the main track, while a single passenger has fallen onto the secondary track.

You get a radio call from dispatch. It's urgent. The next train has faulty brakes, and cannot stop in time. There will be casualties. If you do nothing, the train will run over the five people on the main track, killing them in the process. On the other hand, you can divert the train onto the secondary track. Such an action would spare the lives of the five individuals, but would kill the lone individual on the secondary track. What should you do?

1. *Identify the stakeholders involved*: The stakeholders involved include you, the passengers that have fallen onto the tracks, and the transit company that operates the transit system, to name a few.

2. *Identify the alternatives*; In this case there are only two options available to you. You can let the subway train run over the individuals on the main track, or let it run over the individual on the secondary track.

3. *Identify the benefits and harms to stakeholders associated with each course of action*: Whichever track the train is sent to, the individuals stuck on that track will be killed. For now, assume that all individuals on the tracks want to live. Thus, leaving the train on the main track harms the five individuals on the main track, while diverting the train would harm the individual on the secondary track.

4. *Evaluate the ethical implications of the alternatives*: A utilitarian approach would recommend diverting the train, since then only 1 person is killed as opposed to 5. A libertarian approach would recommend not diverting the train, because it would argue against actively infringing upon the lone individual's right to life.

5. *Make a decision*: On the basis of the analysis, a decision can be made as to what is appropriate.

While ethical analysis frameworks are not the focus of finance cluster events, they are nevertheless an important tool to have at your disposal.

5.3 Sources of Law within the United States

Now that you know more about business ethics, it is time to look at the concept of law in more depth. Earlier in this section, laws were defined as rules that are established by government in order to regulate behavior. But how exactly do these laws come about? In order to understand the sources of law within the United States, one must first look at history.

When early civilizations first contemplated the concepts of law, they believed that laws reflect certain universal truths or moral values. Such a belief is the central tenet behind **natural law**. In many cases, philosophers who believed in the principles of natural law thought that laws came from a divine source. For instance, some early civilizations passed laws based on the Ten Commandments of the Bible.

Natural Law
the philosophy stating that laws reflect certain "universal" truths" and shared values

Over time, governments became more **secular**. As the push for separation of religion and government began, people began changing their attitudes towards the purpose of law. People started believing that laws are human-established guidelines that are implemented in order to prevent society from descending into a state of anarchy. This view towards law is known as **positive law**, or **legal positivism**.

Secular
to be non-religious in nature

Positive Law/ Legal Positivism
the philosophy stating that laws are human constructions and are not based upon any "universal truths" or shared values

Another important historical pattern that emerged was the development of two separate law systems. Today, laws in the U.S. and Canada have evolved from the **common law** system used in Great Britain. Common law systems emphasize looking at **precedent**. In making decisions, judges will refer to previous cases that have had similar circumstances, and use those cases to guide their decision making.

Common Law
a system of law where decisions are made by looking at precedent cases

Precedent
a previous case which has similar factual circumstances to the current case

Meanwhile, other parts of the world, such as France, rely on a **civil law** system. The civil law system emerged from the Napoleonic code. Civil law systems tend to allow less room for interpretation. Rather, judges apply a strict series of guidelines in order to determine the outcome of the case. As DECA focuses on US law, the remainder of the chapter will discuss the legal system within the US. However, it may be useful for you to know the key differences between common and civil law systems.

Civil Law
a system of law based on the Napoleonic Code

Today, there are four main sources of law within the United States.

Constitutional Law

After declaring independence from Great Britain in 1776, the United States Government passed the Constitution. The Constitution is considered the backbone of the legal system. Any new laws that are passed today must not contradict the Constitution. If they do, then they may be struck down.

Struck Down
a law that is struck down is declared to be invalid. Laws are usually struck down because they are unconstitutional.

In 1794, the United States Government realized that it needed to make some changes to the Constitution. These changes are known as Constitutional amendments. While there are many different Constitutional amendments, you only need to focus on some of them for DECA purposes. The first 10 amendments to the US Constitution are known collectively as the "bill of rights." This is because these amendments protect some of the most basic rights that are valued deeply by Americans:

Amendment	Rights
1st	- Freedom of expression - Freedom of religion
2nd	- Right to bear arms
4th	- Right to be free from unreasonable search and seizure
5th	- Protection against self-incrimination during trial
6th	- Rights pertaining to accused individuals (ex: right to speedy trial)
8th	- Right to be free from cruel and unusual punishment

Table 5.3.1
a few of the Constitutional amendments and the rights granted with each one

In addition, businesses are also commonly affected by the 14th amendment of the US Constitution. The 14th amendment is known as the **Equal Protection Clause**. It states that all US persons are entitled to the same constitutional rights and protections. Note that Corporations are recognized as persons under the law, and thus, they are afforded the same rights as individuals.

Equal Protection Clause
the 14th amendment to the Constitution is sometimes referred to as the "Equal Protection Clause." This amendment states that all US persons are entitled to the same Constitutional rights and guarantees.

Worked Example

In each scenario, identify the Constitutional right that may have been violated:

1. Dylan is an environmentalist. He is very concerned about his school's overuse of printer toner, and started a protest. Later, he was suspended from his school.

2. As she was walking to her law firm, Sandra was frisk-searched by the police. She felt she didn't do anything wrong; she was just commuting to work.

3. It's been 21 years and Morgan's case still hasn't gone to trial. Morgan is very upset about the stress this has inflicted.

Solution:

1. 1st amendment - freedom of expression

2. 4th amendment - protection against unreasonable search and seizure

3. 6th amendment - right to speedy trial

Your Time to Shine

In each scenario, identify the Constitutional right that may have been violated:

1. George is a proud historian. He recently bought a Civil War era musket. One day, the police seized the gun from him, claiming it was unlawful for him to own the weapon.

2. During police questioning, Aaron was deprived of sleep for more than 80 hours. Aaron subsequently confessed to a crime he didn't commit, because he could no longer bear not being allowed to sleep.

3. Thomas put up a sign in his backyard that reads: "animals have rights too." The town forced Thomas to remove the sign.

Of course, none of these rights are absolute. For example, making statements that are injurious to others can cause you to get into trouble. This concept will be explored in further detail later in the Chapter.

Statutory Law

This is perhaps the source of law that most people think about. Statutory Law refers to written laws ("statutes") that are passed by the US Congress or State Legislatures. As mentioned earlier, statutes should not contradict the US Constitution. Later on you will learn about some specific statutes that are of particular importance to businesses in the Finance industry.

Administrative Law

Sometimes, the US Government will establish particular government agencies to oversee specific industries or perform specific functions. These government agencies get their powers from specific statutes. For example, the Securities and Exchange Act of 1934 established the Securities and Exchange Commission. However, these statutes concentrate primarily on setting the **jurisdiction** of the government agency. Each agency will then establish more specific guidelines to be followed, known as **regulations**.

Jurisdiction
the scope of a court or other judicial body's authority

Regulations
legal guidelines set by a government agency

If a particular area/function is within the jurisdiction of the government agency, we say that the area/function is ***intra vires*** the particular agency. For example, the stock markets are *intra vires* the Securities and Exchange Commission. On the other hand, if a particular area/function lies outside the jurisdiction of a particular agency, we say that the area/function is ***ultra vires*** the particular agency. For example, pharmaceutical products are *ultra vires* the Securities and Exchange Commission. You will learn more about the SEC in Chapter 10.

Intra Vires
within an agency's jurisdiction

Ultra Vires
beyond an agency's jurisdiction

Logically, it may be useful to know about some common government agencies and what they are responsible for.

Government Agency	Rights
Securities & Exchange Commission (SEC)	regulates publicly traded companies and oversees activities in the stock market
Federal Reserve ("The Fed")	establishes monetary policy of the US government; regulates financial institutions with the US
Internal Revenue Service (IRS)	responsible for collecting taxes and overseeing the US taxation system
Environmental Protection Agency (EPA)	responsible for setting standards related to the environment (ex: pollution tolerance levels)
Food & Drug Administration (FDA)	approves medicines and sets standards relating to food products

Case (Common Law)

Recall that in common law systems, judges use decisions of past cases with similar circumstances to make decisions about the current case ("**the case at bar**"). This is in accordance with the principle of **stare decisis**, which means to stand by the precedent.

The Case at Bar
the case currently under consideration

Stare Decisis
a legal principle which means "to stand by the precedent"

Worked Example

Presented below are four items. Identify which source of law each represents:

1. The Celler-Kefauver Act is an antitrust law.
2. *Brown v. Board of Education* ended segregation in schools.
3. The Public Company Accounting Oversight Board is an agency that is responsible for regulating/overseeing audit firms. PCAOB passes many regulatory guidelines known as Generally Accepted Audit Standards (GAAS).
4. The 19th amendment granted women the right to vote.

Solution:

1. Statutory Law
2. Case Law
3. Administrative Law
4. Constitutional Law

Your Time to Shine

Presented below are four items. Identify which source of law each represents:

1. The RICO act imposes criminal penalties for certain behaviours. It is an antitrust law.
2. The Federal Aviation Administration publishes Airworthiness Directives that instructs airlines of mandatory repairs that have to be undertaken on their airplanes.
3. The 13th Amendment abolished slavery.
4. In *State v. Casey Anthony*, a mother was charged with killing her child.

5.4 Contracts

Did your parents ever promise to buy you a Ferrari? Are they obligated to keep such promises? Such are the types of questions that can be answered by a contract. A contract is an agreement by one or more parties to undertake a certain action. Contrary to popular belief, contracts don't necessarily have to be in writing in order to be legally binding. That being said, verbal contracts are harder to enforce, since there is no evidence of what was agreed upon.

Bilateral Contract
a contract in which both parties are required to undertake a particular set of actions

First, let's discuss the two types of contracts. A **bilateral contract** is what people often think of when they hear the term contract. In a bilateral contract, two parties each agree to do something. For example, if Joe enters into an agreement to pay Barbara $45 to mow his law, Joe and Barbara have a bilateral contract.

Unilateral Contract
a contract in which only one of the parties is required to undertake a particular set of actions

A second type of contract is a **unilateral contract**. In a unilateral contract, only one party is required to undertake an action. An example of a unilateral contract is a reward for finding a lost pet. Citizens are under no obligation to find the lost pet, but if they find it, then the owner is contractually obligated to pay the reward.

Now that you have learned about the types of contracts, it is important to know what constitutes a valid contract. A valid contract has certain key elements that must be fulfilled:

- *Offer*: This is just as it sounds. For a contract to be valid, a party has to make an offer to undertake a specific action. For example, you might offer to repair someone's garage.

- *Acceptance*: The other party must accept the offer in order for the contract to be valid.

- *Consideration*: Something of value that is being exchanged. For example, if someone signs a contract to buy a house, the house is the "consideration".

- *Capacity*: If a contract is to be binding, the parties entering into the agreement must have the capacity to give informed consent. This means that they must be of sound mind, and have reached the age of majority.

- *Genuine Assent*: The contract must have been entered into voluntarily and in good faith. If someone signs a contract under duress, then the contract is deemed void.

- *Legality*: The terms of the contract must be legal. For example, a contract for a controlled narcotic would not be valid.

Of course, the law is a very nuanced subject. Here are four nuances to keep in mind:

1. *Offer versus invitation to treat*: Remember the time you walked into a store because an IPhone was listed as being $5.00? And just as you were ready to buy it, the store owner tells you that she made a mistake and the IPhone is actually being sold for $500. Can you sue her for breach of contract? No. Courts have held that advertisements *do not constitute offers*. Instead, an advertisement is considered an "**invitation to treat**." Since no offer has been made with an advertisement, it is not a binding contract. Therefore the shopkeeper is not contractually obligated to sell you the IPhone for $5.00.

2. *Contracts with* minors: In general, minors are deemed to lack the mental capacity necessary to enter into contractual agreements. Therefore, contracts signed with minors are not usually valid. However, there is an exception. If the contract is for goods/services that are **necessaries**, then the contract with the minor is valid, assuming all other required elements of the contract are present.

3. *The legality of oral contracts*: Oral contracts are still legally binding, although their existence may be harder to prove. Yet, there are certain types of contracts that are required to be in writing in order to be legally binding. The **Statute of Frauds** sets out four types of contracts that are required to be in writing:

Invitation to Treat
invitations to treat do not constitute valid "offers" under the law

Necessaries
also sometimes referred to as "necessities," these are goods/services that are essential for survival

Statute of Frauds
the law that requires certain contracts to be set out in writing in order to be legally binding

a) Contracts pertaining to marriages
b) Contracts where the performance (fulfilling of obligations) will take more than 1 year
c) Contracts pertaining to the sale/transfer of land/real estate.
d) Contracts pertaining to the administration of a person's estate (ex: wills)

In addition, the Uniform Commercial Code requires that contracts pertaining to transactions for the sale of goods with a value exceeding $500 must be made in writing.

4. *Ambiguity in* contracts: In the ideal world, contracts will be written to be free of ambiguity. However, if any part of a contract is ambiguous, it shall be interpreted against the offeror of the contract. For example, suppose Ann offered to sell her car to Bill, and Bill agreed. There was an ambiguity in the contract pertaining to what sort of warranty Ann offered to Bill. The terms of the warranty that are ambiguous will be interpreted against Ann.

Of course, promises get broken, and so too do contracts. If one party to a contract breaks the terms of the contract, the other party may be entitled to one or more of the following remedies:

Rescission
when a contract is declared void and the parties are placed in the positions they were in prior to the signing of the contract

Rescission refers to the voiding of a contract, and placing the parties in the positions they were in prior to the signing of the contract. For example, suppose Timothy signs a contract to sell a $150 cell phone to Edmund. Timothy gives Edmund the phone, and Edmund has to pay within 30 days. Unfortunately, Edmund does not. In this case, it may be possible for Timothy to ask for rescission. If the courts grant rescission, the contract is voided, and Edmund must return the cell phone to Timothy.

Money Damages
a monetary award for losses incurred by one party as a result of another party's breach of contract

Money damages are awarded for losses incurred as a result of breach of a contract. For example, suppose Michael enters into a contract to sell his 2002 Toyota Camry to David. As a result of the sale, Later, David refuses to pay for the Toyota Camry, and so Michael has to sell the car at a $5,000 discount to market value to Samantha instead. In this case, Michael may be entitled to sue David for the $5,000 loss he incurred.

Additionally, the court can also impose **punitive damages;** a monetary amount in excess of the loss in order to punish the offender for his breach of contract. In any case, the party that suffered a loss has a **duty to mitigate**, that is, he/she must take all reasonable steps to minimize the amount of loss incurred.

Punitive Damages
a monetary penalty against the party that breached a contract in order to deter future breaches of contracts

Duty to Mitigate
a party that suffers a loss has an obligation to try to minimize the amount of his/her loss

Equitable Relief occurs when the courts orders someone to do something, or the court prohibits someone from doing something. One common type of equitable relief in breach of contract cases is **specific performance**. This means that the court will force a party to fulfill his/her obligations under the contract, or face a contempt of court charge, which has an associated penalty of imprisonment. As an example, suppose that Hugh enters into a contract to sell his puppy to Francis for $150. If Hugh breaches the contract by not offering the party, Francis might be able to request specific performance, meaning that Hugh would have to give him the puppy, or risk imprisonment.

Equitable Relief
when a court gives an order forcing someone to do something, or prohibiting someone from doing something. If the person does not comply, he/she may be found in contempt of court.

Specific Performance
when a court orders someone to fulfill his/her obligations under the contract, or risk being found in contempt of court.

It should be noted that just because one party breaks a contract does not mean that the other party is necessarily entitled to any remedies. Courts will consider a variety of factors, including the extent of the breach. If the term breached was minor **("breach of warranty"**), then it is less likely that a remedy will be available. If on the other hand, the term breached was a major term **("breach of condition"**), then it is more likely that a remedy will be available.

Breach of Warranty
a breach of a minor term in a contract

Breach of Condition
a breach of a major/key term in a contract

5.5 Torts

The French expression *avoir tort* means "to be wrong." **Torts** in a legal sense are examples of civil wrongs that have been committed by a **tortfeasor** against another party. The genesis of the concept of torts was a British legal case known as *Donoghue v. Stevenson*. Mrs. Donoghue was at a bar with her friend. Her friend purchased a bottle of ginger beer for her. When Mrs. Donohue drank the beer, she realized that there was a dead snail at the bottom of the beer bottle. Yuck! Mrs. Donoghue got ill and suffered a loss.

Tort
A civil wrong

Tortfeasor
a person who commits a tort

However, she had a problem. Since she did not have a contract with the defendant, Mr. Stevenson, she couldn't sue for breach of contract. Instead, she made the argument that manufacturers and retailers have to assume liability for defective products. She submitted that the defendants should have taken reasonable steps to ensure that her drink was safe.

Duty of Care
An obligation to consider how our actions impact other, and to avoid acting in a way that we know or ought to know will cause harm to them

Neighbor Principle
a legal doctrine that explains to whom we owe a duty of care

At trial, the judge, Lord Atkin, ruled in her favor. Atkin wrote that people owe **a duty of care** to their "neighbors" under the law. Who, then, in law, is my neighbour? The answer seems to be—"persons who are so closely and directly affected when I am directing my mind to the acts or omissions which are called in question." This principle of owing a duty of care is known as the **neighbor principle**, and forms the basis of modern tort law.

Today, if an entity wants to sue another under tort law, the plaintiff must prove three things:

1. *Duty of* care: The plaintiff must prove that the tortfeasor owed a duty of care to the plaintiff.

2. *Standard of* care: The plaintiff must prove that the tortfeasor fell below a reasonable standard of care given the circumstances. Note that some people in positions of authority may be held to a *higher* standard of care than an ordinary person would be subjected to.

3. *Proximate* cause: There must be a direct causal relationship between the tortfeasor's actions and any losses the plaintiff incurred. In determining whether or not a proximate cause exists, the courts apply the **But For Test**. This involves asking, "but for the tortfeasor's actions, would the plaintiff have incurred the loss?" Only if the answer is yes can the tortfeasor be held liable.

But For Test
a legal test to determine if proximate cause exists

Unintentional Torts
torts that the tortfeasor did not deliberately commit

Negligence
the reckless behavior of an entity that results in another entity sustaining injury, damage, and/or loss

Broadly speaking, torts can be divided into two major categories: *intentional* and *unintentional*. An **unintentional tort** occurs when the tortfeasor did not deliberately commit a tort. The most prominent example of an unintentional tort is **negligence**.

Intentional torts occur when the tortfeasor deliberately engaged in behavior injurious to another party. There are certain intentional torts that you should be familiar with:

Intentional Torts
torts that the tortfeasor deliberately committed

Defamation: This occurs when a tortfeasor makes a wilful statement (oral or written) that maligns the reputation of someone or causes him/her a loss. For example, if someone Vicki calls Bob a "fat pig," Bob can potentially argue that he is the victim of defamation. Under the law there are two types of defamation. **Libel** is a written defamatory statement, whereas **slander** is an oral defamatory statement.

Libel
written defamatory statement

Slander
oral defamatory statement

Does this mean that every negative statement is automatically consider defamation? No. In fact, if any of the four criteria are met, then a statement is not considered defamation.

1. *Truth*: Remember the scrooge from Dickens' *A Christmas Carol*? If someone called him a "rude cheapskate," that person would not have committed defamation. This is because the statement that he/she made was truthful.

2. *Fair comment*: If a statement was made without malicious intent, then even if it is harmful to the victim, it is not treated as defamation.

3. *Absolute privilege*: Statements made during the course of legal trials and congressional proceedings are protected by absolute privilege. People cannot be sued for defamation for having made negative statements in these contexts.

4. *Qualified privilege*: Suppose your boss gives you a negative performance evaluation. Or a teacher writes a comment on your report card that says you are not working hard enough. These statements are protected by qualified privilege.

Another example of an intentional tort is **appropriation**. Appropriation means using someone's name, likeness, or image without their permission. Finally, the tort of **conversion** occurs when you take something of value and "convert it" into something that is no longer useful. For example, if you break into

Appropriation
using someone's name, likeness, or image without their permission

Conversion
when something of value is converted into something that is no longer useful

a friend's car, the friend can sue you for conversion because the car is badly damaged and no longer driveable.

While there are many examples of torts, the purpose of this section is to familiarize yourself with the ones that are most likely to be tested in your respective categories.

5.6 Statutes

In section 5.3, you learned that statutes are an important source of law within the United States. In this section you will examine some specific statutes that are important to businesses operating in the finance industry.

1. *Antitrust legislation*: The purpose of antitrust legislation is to ensure that businesses operate in a fair and level playing field. The first antitrust legislation was the *Sherman Act.* This law is aimed at preventing monopolies. The *Sherman Act* also prohibits price fixing and collusion. After several years, Congress realized that some businesses were still engaging in uncompetitive behavior. As a result, Congress passed the *Clayton Act*. This law prohibits **tying agreements** and **interlocking directorates**. Eventually, the *Clayton Act* was strengthened by the provisions of the *Celler-Kefauver Act.*

Tying Agreements
an agreement stating that if a company purchases certain products from a supplier, the company must also purchase other products from that supplier and only from that supplier

Interlocking Directorates
when a director sits on the board of two different companies. Note that GLB only prohibits interlocking directorates occurring within the same industry.

2. *Laws governing the granting of and reporting of credit*: When you sign up for a bank loan, you are receiving credit. The *Truth in Lending Act* stipulates that lenders must disclose material information about the terms of the loans to consumers in order to help them make an informed borrowing decision. A similar law is the *Fair Credit Reporting Act*. This law enables consumers to challenge errors on their *credit reports*, as well as obtain a free copy of their credit report each year from the three major credit bureaus: Equifax, Experian, and Transunion.

3. *COBRA.* The *Consolidated Omnibus Budget Reconciliation Act* (COBRA) was a major law that addressed a number of issues. One of the most important aspects of COBRA was that it granted employees the right to continue obtaining benefits under their employer's health benefits plan for a fixed period after losing their jobs.

4. *Laws affecting the financial services industry.* Some laws targeted the financial services industry specifically. The *Glass-Steagall Act* was introduced during the Great Depression and prevented the mergers of financial institutions. The *Gramm-Leach-Bliley Act* of 1990 eliminated the restriction on mergers of financial institutions. In recent years, the US government passed the *Dodd-Frank Wall Street Reform and Consumer Protection Act* after the Great Recession of 2007-2008. Dodd-Frank sets limits on executive compensation, and prevents financial institutions from taking excessive risk by prohibiting banks from engaging in **proprietary trading.**

Proprietary Trading
when a financial institution makes trades with its own money instead of making trades on behalf of clients

5. *Sarbanes-Oxley Act of 2002.* After the Accounting scandals of Worldcom, Enron, and MCI, congress passed the *Sarbanes-Oxley Act* of 2002 to enhance the reliability of financial reporting. You will learn more about this law later.

6. *Foreign Corrupt Practices Act.* The FCPA is designed to punish executives and businesses that bribe foreign officials.

This is not an exhaustive list of the laws that exist within the United States. There are too many laws to memorize, that not even lawyers can pull it off. However, it is important to understand the purpose of the statutes mentioned in this book. Questions about particular statutes have come up in the past, and you may run into them in your competition.

Questions for Comprehension

Multiple Choice

1. Which of the following statements concerning laws and ethics is true?
   a) Laws are voluntary rules established by the government
   b) Ethical standards are universal
   c) Companies publish codes of ethics for their employees
   d) Behavior that is lawful must also be ethical

2. Potential stakeholders can include…
   a) Employees
   b) Customers
   c) Shareholders
   d) All of the above

3. The principle of maximizing happiness for the greatest number of people is known as…
   a) Utilitarianism
   b) Libertarianism
   c) Kantianism
   d) Darwinism

4. St. Thomas Aquinas believed that laws came from a divine source. His beliefs most closely resemble the concept of…
   a) Natural Law
   b) Positive Law
   c) Trade Law
   d) By-law

5. Which of the following is true concerning the Common Law system?
   a) It is used in Great Britain, France, US, and Canada
   b) It enables judges to write statutes
   c) It applies the principle of *stare decisis*
   d) It is a fictitious term

6. Lawyers have argued that forcing students to recite the Pledge of Allegiance (which includes a reference to God) violates the students' right to freedom of religion. The students' right to freedom of religion is protected by which amendment to the US constitution?
   a) 1st
   b) 2nd
   c) 3rd
   d) 4th

7. The 2010 *Citizens United* case held that corporations also have the right to freedom of speech, because all US person are granted the same constitutional protections. This assurance of equal protection is guaranteed by which amendment to the US constitution?
   a) 10th
   b) 11th
   c) 12th
   d) None of the above

8. Which of the following is *intra vires* the Federal Reserve?
   a) Establishing monetary policy for the US
   b) Establishing fiscal policy for the US
   c) Regulating publically traded companies within the US
   d) Regulating monopolies within the US

9. ABC Company advertises a watch for $5.00. Robin enters the store and is excited by this deal. However, just as she is about to pay, the store clerk notifies her that the watch's price should actually be $5,000. "After all, this is a one-of-a-kind Rolex," the clerk proclaims. Does Robin have a valid contract with the store to buy the watch at a price of $5.00?
   a) Yes because a watch is a legal item to sell.
   b) Yes because there was consideration
   c) No because this was a unilateral contract
   d) No because the advertisement was an invitation to treat

10. The neighbor principle was established by which case?
   a) Donohue v. Stevenson
   b) Brown v. Board of Education
   c) Roe v. Wade
   d) Plessy v. Ferguson

11. In Steele v. McDonald's, McDonalds contended that defendant Steele's printing of pamphlets with information linking the company's products to obesity as being injurious to the company's reputation. Steele has allegedly committed which tort?
    a) Appropriation
    b) Conversion
    c) Libel
    d) Slander

12. Which law prohibits people from engaging in proprietary trading?
    a) Sherman Act
    b) Gramm-Leach Bliley Act
    c) Dodd-Frank Wall Street Reform and Consumer Protection Act
    d) Consolidated Omnibus Budget Reconciliation Act

Short Answer

13. Canada and the US are neighboring countries, yet the laws that are in place in each of these countries can differ substantially. Why do you think laws vary from country to country?

14. Although the US Constitution grants individuals a wide variety of rights, these rights are not absolute. Why might it sometimes be necessary to limit the rights of individuals? Give an example of limitations to a constitutional right.

15. Describe different remedies that a court may order for a breach of contract.

16. Frank Adams entered into a contract to buy stolen credit cards from Miles Thompson. He paid $20,000 to Miles, but Miles refused to uphold his end of the contract. Frank filed a lawsuit against Miles claiming breach of contract. As the judge assigned to this case, would you allow or dismiss this lawsuit? Give a legal justification for your decision.

Mini-Case

The following description outlines the facts of the precedent setting case *MacPherson v. Buick Motor Company*. Read the description, then answer the questions that follow:

"The defendant is a manufacturer of automobiles. It sold an automobile to a retail dealer. The retail dealer resold to the plaintiff. While the plaintiff was in the car, it suddenly collapsed. He was thrown out and injured. One of the wheels was made of defective wood, and its spokes crumbled into fragments. The wheel was not made by the defendant; it was bought from another manufacturer. There is evidence, however, that its defects could have been discovered by reasonable inspection, and that inspection was omitted. There is no claim that the defendant knew of the defect and willfully concealed it. The case, in other words, is not brought within the rule *of Kuelling v. Lean Mfg. Co.* (183 N. Y. 78). The charge is one, not of fraud, but of negligence."

1. What is meant by "negligence?"

2. Negligence is an example of a tort. Define the term "tort."

3. As CEO of Buick, you have just learned that MacPherson was injured while he was driving a Buick automobile. As of yet, MacPherson has not filed the lawsuit against your company. Use the ethical analysis framework introduced in section 5.2 to determine what steps Buick should take.

4. As a judge, you have been assigned to hear this case. Based on the information in the case facts and the applicable legal principles, decide whether or not MacPherson should succeed in his lawsuit.

5. Research the case to find out how the court ruled.

By the end of this chapter you will be able to:

- **Explain the types of economic systems (CS)**
- **Explain the principles of supply and demand (CS)**
- **Explain the impact of the law of diminishing returns (SP)**
- **Determine economic utilities created by business activities (CS)**

Chapter 6: Economics

There is a popular saying that regardless of the task, it is not about the destination but the journey. With economics in mind, the journey is especially important. Economics is about exploring the journey to a company's or country's success. This chapter will provide a general idea of how companies are run and why they react to different situations the way they do. It will cover various theories and ideas that have shaped businesses and governments over time.

6.1 Basic Principles of Economics

Economics is the study of how limited resources are allocated to meet an unlimited amount of competing needs and wants. For instance, the simple action of reading this book is an example of economics. Instead of choosing to go out with friends or surf the web, you chose to read this book. Economics involves analyzing why you chose to read this book instead of doing something else. Perhaps you chose this book because you knew it would be beneficial and help you succeed in DECA.

Economics
the study of consumption and resource allocation decisions of individuals, households, firms and society as a whole

But with DECA case studies and the real world, there is not always a clear answer to what choice is better. For example, which choice is better: buying a new laptop or buying a new phone? Now there is no one choice that is evidently better than the other.

But why do you have to pick one option? Why can't you pick both the laptop and the phone? This is the idea of **scarcity**. People have unlimited needs and wants but unfortunately, there are limited resources. You can't have both the laptop and the phone because you have a limited amount of money. Going back to the previous example: you must choose between your unlimited wants of going out with friends and surfing the web because of the limited time you have in a day.

Scarcity
when there are not enough resources to satisfy all needs and wants

An economic system addresses how resources will be allocated. It must answer three key questions:

1. *What*: What goods and services should be produced?
    - With limited cash, do you produce the laptop or the phone?
    - Should the government increase education funding but, in turn, decrease public transit funding?

2. *How*: How should the goods and services be produced?
    - More labor intensive or capital intensive production?
    - More domestically produced goods or more outsourcing?

3. *Who*: Who consumes the goods and services?
    - There are different types of people with varying incomes, interests, and lifestyles.
    - Can the target market afford your good? Is the targeted audience large enough to support your business?

6.2 Microeconomics vs Macroeconomics

Now that you know the basic idea of economics, we can break economics down into its two main branches: microeconomics and macroeconomics. Throughout this chapter, we will be spending more time with microeconomics, but it is important to recognize that macroeconomics is equally important.

Microeconomics
the study of the interaction between people and individual companies

Microeconomics, like the prefix "micro" suggests, focuses on how individuals affect companies and how each company deals with scarcity. It answers questions like: Why do certain companies specialize in selling phones over laptops? How do companies know how much to sell their goods for?

Macroeconomics
the study of the interaction between countries and economies as a whole

Macroeconomics, the opposite of micro, looks at the economy as a whole, sometimes referred to as the aggregate economy. It answers questions like: Why are certain countries doing better than others? What is the effect of the US elections on other countries? Common concepts include, but are not limited to: unemployment rates, economic systems, and monetary and fiscal policy. We will not be covering some macroeconomic concepts, since many DECA cases examine individual business decisions rather than global interactions.

Despite the differences between the two branches, there is an interdependent relationship. How the economy is performing on a macroeconomic scale directly relates to the performance of companies on a microeconomic scale. Similarly, many microeconomic decisions are reflected on the macroeconomic scale.

When studying economics, it is important to separate the fact from the opinion. Factual statements are known as **positive statements**. For example, saying that the supply curve is upward sloping would be an example of a positive statement. Note that a positive statement does not necessarily have to be true. For example, suppose the rate of inflation was 5%, but someone made a claim that the rate of inflation was only 2%. While the statement is incorrect, it can easily be tested for accuracy, and thus, is a positive statement.

Positive statement
a statement expressing an economic fact

Normative statements express judgements or values. They deal with what *ought* to be or what *should* be. For example, an economist who believes that the minimum wage should be increased from $10/hr to $15/hr is making a normative statement.

Normative statement
a statement expressing an opinion, value, or judgement

In this book, we will examine economics from a positive (factual) perspective.

6.3 Types of Economic Systems

Recall the three basic economic questions we learned at the beginning of this chapter. The way that a particular country answers those questions determines the country's economic system. An economic system determines how a nation operates and allocates its scarce resources. Economists have grouped countries into four main economic systems.

Traditional Economy

Traditional Economy is an uncommon system. People produce exactly what is needed, and thus, there is no surplus or leftovers. Today, the countries that continue to farm and produce raw materials use the traditional economy. Even though these countries operate as a traditional economy, they will often interact and trade with the countries that have adopted other economic systems. This suggests that our society would not be as effective if all countries adopted the traditional economy. For instance, India is a mixed economy. Half of India relies on agriculture as part of the traditional economy while the other half work in the service industry as part of the market economy.

Traditional Economy
an economic system where people produce exactly what is needed and trade any surplus; an uncommon system

Advantages:

- No waste / leftovers
- Less environmentally damaging as there is no excess waste
- Strong sense of community
- Each person has a vital role in supporting each other and the country

Disadvantages:

- Lower standard of living
- People focus on meeting basic necessities and live a basic lifestyle
- Unpredictable problems
- Weather, bad crops all create a big impact on society

Command Economy

Command Economy
an economic system that is controlled by a centralized source (often the government); used in countries with many valuable resources

Command Economy is best known for its centralized control and power source, and oftentimes this is the government. This system is usually adopted when a country has a large amount of valuable resources. Today, well-known countries that have adopted the command economy include Cuba, North Korea, and the former Soviet Union.

Advantages:

- No disagreements
- Ability to move quickly with large-scaled projects
- Increase wealth
- Allocate resources to maximize profit

Disadvantages:

- Inefficiency in goods
- Many shortages/surpluses because individual demand and voice is not heard
- Limited opinions and voices heard
- Individual rights are given up in order to pursue a more efficient and profitable economy

Market Economy

Market Economy (Free Economy) is the buying and selling of goods through private businesses. There is no government intervention. Individual businesses base decisions on the law of supply and demand, a concept which you will learn more about later in the chapter. A pure market economy does not exist. But when referring to a free economy, countries such as Hong Kong, Singapore, and United States are brought up and considered the most economically free. Although there aren't any pure market economies in existence, there are some advantages to a pure market economy.

Market Economy
an economic system operated entirely by private businesses and no government intervention; a pure market economy does not exist

Advantages:

- Maximized profits and minimal waste
- Businesses increase profits by decreasing waste and provide customers with that they want

Disadvantages:

- Negative side effects on society (externalities)
- No regulations to prevent companies from behaving unethically (ex: pollution)
- Inequality
- Prices affordable by the middle to high class is not affordable to the lower class

Mixed Economy

Mixed Economy refers to a mix between two of the economies listed above. Most of the time it refers to a mixture of a command and free market economy. Private businesses are allowed to run a majority of their company with the government only intervening on some aspects of how the business is run, such as taxes, inflation protections, or regulations. Many countries have adopted the mixed economy including Canada, China, France, and United States.

Mixed Economy
an economic system that combines two types of economic systems; often the command and market economy

Advantages:

- Good balance
- Decisions won't all be from one dominant power
- Companies will be encouraged to cut costs and increase profits

Disadvantages:

- Finding the balance in the amount of government intervention
- Too many parties at play that can lead to no decisions being made
- Difficult to find balance of not too much or too little government intervention

Even though there are four main types of economic systems listed, most developed countries tend to fall into the mixed economy, which suggests that some economic systems can be more effective than others.

Worked Example

Alpha World has many different countries that have each adopted an economic system. Based on the policies of each country, identify which economic system each country has adopted.

1. Country A's economic decisions are made by many individuals and businesses whose ultimate goal is to earn the most revenue. There is a big wage gap between the rich and the poor and often small companies are unable to establish itself and grow.

2. Country B has a lot of natural resources that are controlled and owned by the government. All decisions are made quickly and efficiently with no second opinions or individual rights being heard. Many people want to live in Country B because of how fast the country's economy is growing, and the tremendous profits made from the country's natural resources.

3. Country C is known for its equal, welcoming environment. But many of the citizens pay high tax rates and have less of an incentive to work hard since everything is made equal. There are private businesses whose main goal is to increase profit but they are controlled by regulations and policies put in place by the government.

Solution:

1. Country A is an example of a market economy (free enterprise). The key factor is that the country is run by many individuals rather than a central power.

2. Country B is an example of a command economy. The key factor is that the natural resources are owned by the government and there are minimal individual rights or second opinions.

3. Country C is an example of a mixed economy. The key factor is the equality amongst citizens as well as the existence of private businesses regulated by a central power: the government.

Your Time to Shine

Beta World is an alternate planet with many different countries and types of economic systems. Jenny has visited three countries in Beta World and based on her experiences in each country, identify which economic system each country has adopted.

1. The first country Jenny visited had a lot of land and agriculture space. The farmers were especially friendly in taking Jenny on a tour, and she even joined their neighbors for dinner. Right after dinner, the power went out and everyone said that power outage is a common occurrence in their neighborhood.

2. The second country was a big change from the first visit. There was no sense of community or friendliness from the citizens. Jenny saw many portraits being hung around the country and many government officials walking around and yelling at people.

3. The last country was a good balance between the first two countries: it was friendly but was more developed than the first country. There were a lot of posters advocating for many different groups: human rights, environmentalists, LGBTQ, and the list goes on!

6.4 Supply & Demand

In the previous section, we learned that a pure market economy is based on the law of supply and demand. But what exactly is that? Why is it that when you first buy a vehicle the price is high, but the moment you drive the vehicle out of the dealership the price drops 20%? On the other hand, why do luxury vehicles increase in price the older they are?

There are two basic laws that help businesses determine the quantity of a good that should be sold and the price it should be sold at.

Law of Supply
a direct relationship applicable to the supply curve where a price increase results in an increase in quantity supplied

The **law of supply** states that if the market price of a good increases, the amount of the good supplied will also increase. This is a direct relationship. Thus, if the market price of good falls, the amount of goods supplied will also fall. Think about it this way, if the price of a good increases, companies can earn more money for that particular good. Thus, they will supply more of that good in order to maximize profits. Below is a common visual representation:

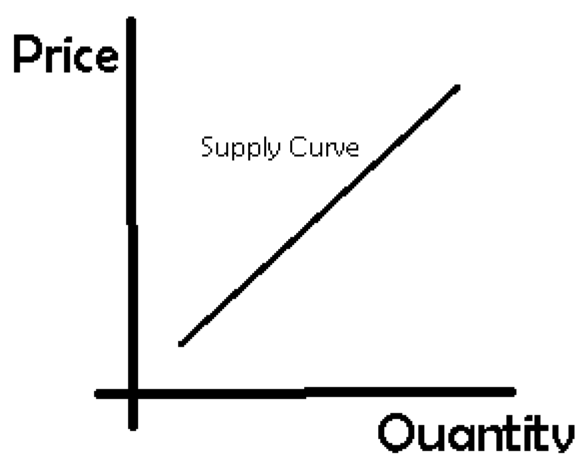


Figure 6.4.1

A movement further to the right of the supply curve results in both an increase in price and quantity supplied. Similarly, a movement to the left of the curve results in both a decrease in price and quantity supplied.

The **law of demand** states if the price of a good increases, the amount of goods that are demanded will decrease. This is an inverse relationship. As a consumer, if a good costs more, you will be less likely to purchase that particular good. A visual representation of the law of demand is shown below.

Law of Demand
an inverse relationship applicable to the demand curve where a price increase results in a decrease in quantity demanded

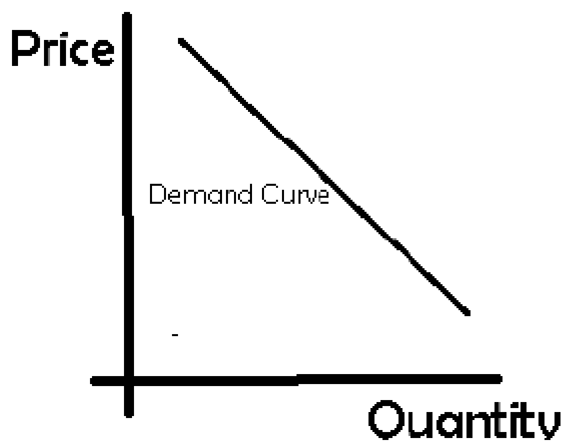
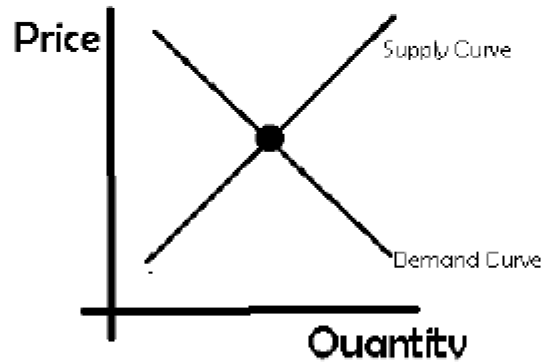


Figure 6.4.2

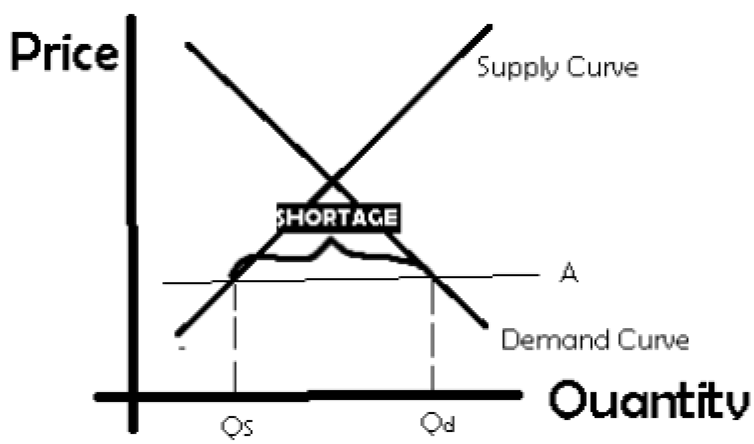
Notice that the demand line moves in the opposite direction of the supply line. Let's look at this example, when you go shopping for clothes and you see a sale going on, you are more likely to buy the clothes since they are being sold at a discounted price. This lower price caused an increase in demand for that good; however, if the good was priced at the regular price, there is less of a change that you would buy that good since your demand is lower.

A movement further to the left of the demand curve, results in an increase in price and a decrease in quantity demanded. Similarly, a movement further to the right of the demand curve results in a decrease in price and increase in quantity demanded.

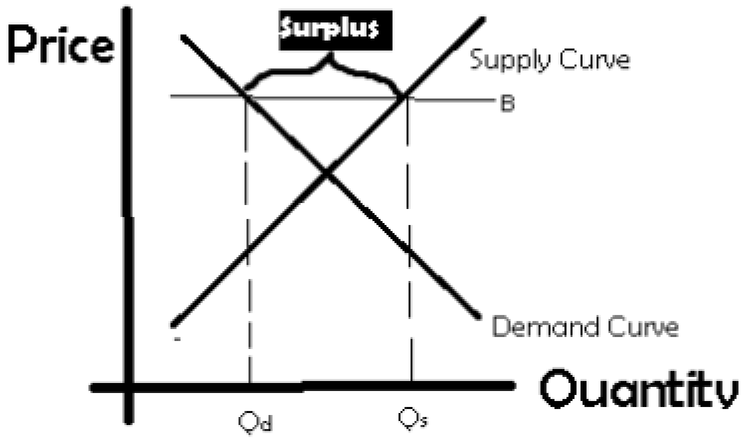
These are two separate graphs from two different perspectives: the business and the consumer. Individually, these graphs are simply visual aids for concepts. Put the two graphs together, and they become a helpful tool for business decisions.



The point of intersection between the supply and demand curve is called the *equilibrium point.* This is the point where businesses experience neither shortages nor surpluses. The quantity supplied is equal to the quantity demanded. This is what businesses want to achieve. But it's not easy finding exactly how much consumers demand, and so oftentimes businesses will experience either a shortage or surplus of goods as shown below.



The goods are being sold at point A. Businesses are producing Qs on the supply curve, but at such a low price, consumer's quantity demanded is at Qd. Customers demand more since the price is so low. As a result, the gap is a shortage in goods.



The goods are being sold at point B. Since the price is so high, consumers demand less (point Qd) but businesses are supplying more (point Qs). As a result, the gap is a surplus in goods.

Keep in mind that this is a simple model and that there are many other factors that could result in a shift in either or both curves. Below are some of the main determinants that would cause a shift in the curves.

Supply Determinants	**Demand Determinants**
Production Costs • more capital or resources required = supply decrease	Buyer's Want • less income, out of fashion = demand decrease
Profits of Alternative Goods • other goods sold for more = supply decrease	Costs of Alternative Goods • other goods sold for cheaper = demand decrease
Seller's Expectations • predict to sell less (season, more competition) = supply decrease	Buyer's Expectations • predict will decrease later, less buyers = demand decrease
Number of Sellers • less sellers of a particular good (season) = supply decrease	

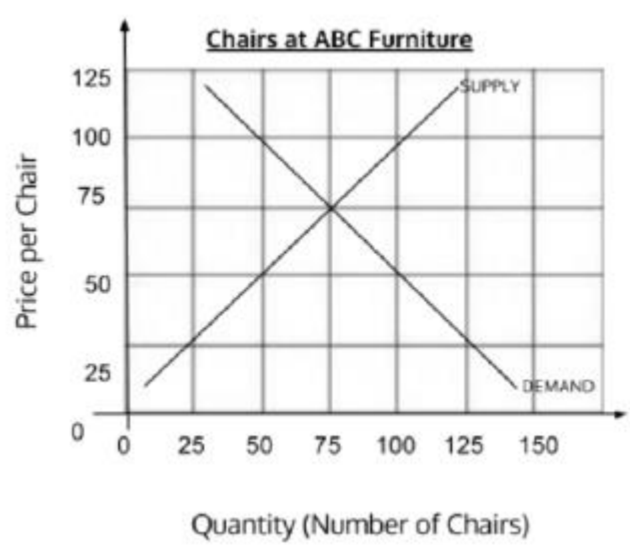
Earlier in the section, we learned that the law of supply and demand resulted in shifts in quantity supplied and quantity demand, respectively. This is called quantity change. There is also a change in the supply or demand curve. This is not the same as a quantity change. A quantity change is movement along the supply/demand curve—further up the curve or further below. A supply or demand curve change is when the entire curve shifts left or right. At every price the quantity demanded/supplied has increased/decreased. The entire curve shifts left or right depending on the situation. For example, if there is an increase in wages so people have more money to spend -- demand for goods increase; the demand curve shifts to the right. In this case, at every price, the quantity demanded has increased. A price change is a movement along the curve. A determinant is a curve shift.

This section gives you a general idea of how businesses and customers interact. Incorporating the supply and demand models and identifying the determinants within your case studies would be extremely beneficial.

Worked Example

ABC Furniture specializes in selling kitchen chairs. Based on pre-existing information, they have the following supply and demand information as shown in the diagram to the right.

Look at the diagram carefully, then answer the questions on the next page.



1. ABC Furniture normally prices their chairs at $50 per chair. At this price, how many chairs should they expect to sell and how many chairs should they produce? Is this the most efficient price to sell at? If not, what type of disequilibrium is the company experiencing?

2. ABC Furniture is having a sale and chairs have been reduced to $30. At this new price, how many chairs should they expect to sell?

3. A new furniture company recently opened in the neighborhood. In order to adjust to the incoming competitor, how should ABC Furniture change their graph?

Solution:

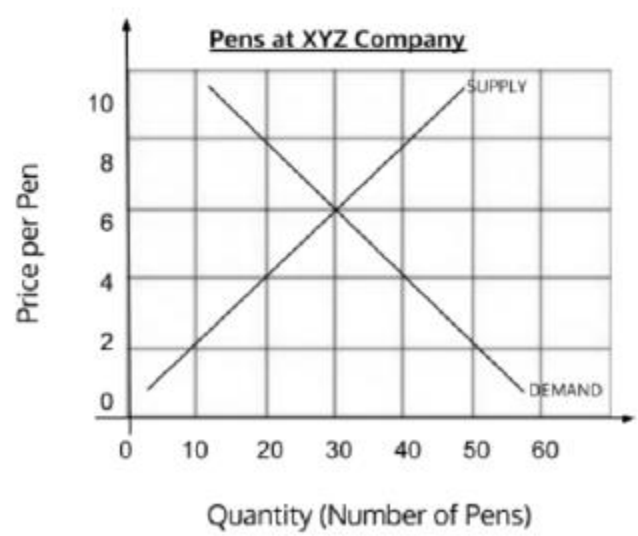
1. At $50/chair, ABC Furniture should expect to sell 50 chairs but should produce 100 chairs. This is not the most efficient price to sell at as this would result in a shortage of goods.

2. At $30/ chair, ABC Furniture should expect to sell around 30 chairs.

3. Since a new competitor entered the market, the number of sellers (one of the supply determinants) has increased and thus, the supply curve shifts to the right.

Your Time to Shine

XYZ Company specializes in selling pens. Based on previous sales and records, they have put the information into the following graph.



1. XYZ Company prices their pens at $2 per pen. At this price, how many pens should they expect to sell and how many pens should they supply?

2. XYZ Company's suppliers are increasing their costs, so XYZ Company has to increase the price of pens to $8 per pen. At this new price, how many pens should they expect to sell? Is this the most efficient price to sell at? If not, what type of disequilibrium is the company experiencing?

3. A new stationary company opened in the neighborhood. In order to adjust to the changes in the neighborhood, what should XYZ Company do? Assume all other factors, such as XYZ Company's production line, remains constant.

While in most cases demand curves are downward sloping and supply curves are upward sloping, there are a few exceptions to this general rule.

If a demand curve is perfectly price elastic, it means that even a small change in price will result in a significant change in quantity demanded. On a supply/demand diagram, this is seen as a horizontal demand curve.

If a supply curve is perfectly price elastic, it means that even a small change in price will result in a significant change in quantity supplied. On a supply/demand diagram, this is seen as a horizontal demand curve.

If a demand curve is perfectly price inelastic, then regardless of the magnitude of the price change, the will not be a change in the quantity demanded.

If a demand or supply curve is perfectly price inelastic, then regardless of the magnitude of the price change, the will not be a change in the quantity demanded.

Giffen Good
a good that has an upward sloping demand curve, thus violating the law of demand

There is another exception to the downward sloping demand curve, and that is the **Giffen Good**. A Giffen Good is a hypothetical good such that, as the price of the product increases, the quantity demanded also increases. In other words, Giffen Goods have upward sloping demand curves. These are extremely rare in reality, and thus we will not spend too much time on this subject. We will leave it to your microeconomics professor to explain this concept in further detail.

6.5 Economic Utility & Types of Economic Utility

In previous sections, we learned about supply and demand and how to quantify the price and amount of goods supplied. But there are many factors to help determine these quantitative values. One particular factor is how satisfied people are with the good. The more satisfied people are, the more likely they will buy the good, and the quantitative values of price and supply of goods will increase. Determining how satisfied people are with a particular good is subjective, and so economists came up with a way to quantity satisfaction – utility.

Utility
the satisfaction or benefit from consuming a good

Utility is the satisfaction a person gets from consuming a particular good. If the good satisfies a human want or need it is considered to have a utility. For example, let's assume you like chocolate. You are hungry so you eat a chocolate bar. The first chocolate bar makes you happy because it helped satisfy your hunger; it provided a benefit to you. You eat a second chocolate bar. This time, since you are no longer hungry, the chocolate bar doesn't make you as happy. Comparing the two situations, the first chocolate bar provided more of a benefit to you than the second. So, we can say that the first chocolate bar created more utility for you than the second chocolate bar.

One point of contention in economics is whether utility should be cardinal or ordinal. If utility is cardinal, that implies that we can measure utility on a scale. Those who subscribe to the idea of utility being cardinal will assign each good or service a certain amount of "utils." The util is a unit of measurement of the utility of a good or service. So if a glass of milk is 10 utils, and a cookie is 20 utils, then eating the cookie will make the consumer twice as happy as drinking the glass of milk.

Some people disagree with this system. They argue that it is impossible to quantify that the cookie creates twice as much satisfaction as the glass of milk. Instead, these economists argue that we can only measure utility in ordinal terms. That is, we can only specify whether the consumer preferred product A over product B, and not the extent to which the consumer preferred product A over product B.

Total Economic Utility
the total satisfaction or benefit from consuming a good

The **total economic utility** is the total satisfaction of consumer's wants or needs. The total amount of benefit from eating both the first and second chocolate bar. It's important to note that the total economic utility doesn't always increase.

Marginal Utility
the addition satisfaction a consumer gains by consuming one additional unite of a good or service

The **marginal utility** is the incremental satisfaction that the consumer gets from consuming one additional unit of the good or service.

Law of Diminishing Marginal Utility
as consumption of a good increases, marginal utility decreases and total economic utility can increase or decrease

The **law of diminishing marginal utility** states that as a consumer consumes more of a good, their marginal utility decreases but their total utility may either increase at a slower pace or decrease. After eating around four chocolate bars, you might get full and the benefit of eating another chocolate bar is very small. Thus, at that point, the total economic utility will increase by a smaller amount. When you eat the fifth chocolate bar, you are so full and sick of chocolate that eating that fifth chocolate provides a negative benefit. In this case, the total economic utility would decrease.

Now that you understand what utility means, it is time to introduce the different types of economic utility.

Place utility is created when consumers are able to obtain the product at the desired location. For example, suppose you were walking in the Sahara Dessert. You get really thirsty, and want to drink some water. If there was a store nearby that sold water, the store would offer place utility, because you are able to get the water at a convenient location.

Form utility is created when the product is made using ingredients/raw materials of the consumer's choice. For example, suppose Adam likes organic food. If the restaurant sold a fruit salad that consisted of organic apples, peaches, and pears, the restaurant would be generating form utility.

Time utility is created when the product is available at the time the consumer wants/needs it. For example, suppose a storm knocks out power to the community. If the consumer is able to get a flashlight now, then time utility has been created. On the other hand, there would be no time utility if the consumer can only get the flashlight after the electricity is restored.

Possession utility makes it easier for consumers to own the product. For example, suppose you needed to buy a $1,000 new laptop. As a student, that laptop might be too expensive. If the store offered a deferred payment plan, allowing you to pay off the cost of the laptop over 5 years, then the store has created possession utility, because the store has made it easier for you to own the product.

6.6 Factors of Production

Having examined the world from the consumer's perspective, it is now time to examine the world from the producer's prospective. In order to produce their products, producers need to use inputs known as **factors of production**. Traditionally, there have been three major factors of production.

Factors of Production
Land, labour, and capital. Sometimes people also consider entrepreneurship to be a factor

Land refers to the physical land that is used in the production process. For example, a farmer needs land to grow soybeans. A factory producing cellphones might have to be built on a large parcel of land.

Labor refers to the input of workers in the production process. For example, when cars are built on an assembly line, workers may be needed to inspect the products.

Capital refers to the physical assets (ex: machinery and equipment), as well as raw materials used during the production process. It is important to remember that this is the definition of capital in *economics*; in Chapter 7 you will learn a different definition of capital that is used in *accounting*.

In recent years, some economists have developed the idea of a 4th factor of production: entrepreneurship. Entrepreneurship refers to the innovation that goes into the design, development, and production of a product.

Of course, each factor of production costs money. Equipment has to be purchased, and workers have to be paid. In general, costs can be classified as fixed, variable, or semi-variable.

A fixed cost is a cost that does not change despite the level of production. For example, suppose you ran a toy store. Regardless of how many toys you sell, you are charged the same amount of monthly rent. Thus, rent is a fixed cost.

A variable cost is a cost that that changes with the level of production. For example, suppose that you pay your factory workers $10/hr. The more hours they work, the more cost the business incurs. Thus, the factory workers' pay in this example is a variable cost.

A semi-variable cost is a cost that consists of both a fixed cost portion and a variable cost portion. For example, a utility company might charge a fixed monthly cost, irrespective of the amount of electricity used, as well as an electricity supply charge per kilowatt hour of electricity consumed.

It should be noted that these costs are characterized as variable or fixed with respect to *total* costs and not the per unit cost. If a factor of production has a fixed total cost, then an increase in production will result in lower per unit fixed costs. If a factor of production has a variable total cost, the per unit cost of that factor remains constant.

Worked Example

Fiona is the owner of a football factory in Mississauga. The factory pays $15,000 in rent per month, and $2,500 in utilities, and $2,500 for maintaining/renting the equipment. The factory also employs several workers. Each worker is paid $20 for every football they produce.

1. Identify the fixed costs
2. Identify the variable costs
3. Identify the semi-variable costs
4. What is the total fixed cost for producing 3,000 footballs? The total variable cost?
5. What is the per unit fixed cost for producing 3,000 footballs? The per unit variable cost?

Solution:

1. Factory Rent, Utilities, and Fees for Maintaining/Renting the Equipment
2. Wages paid to workers
3. None
4. Total fixed costs = \$20,000
   Total variable cost = $20 \times 3{,}000$
   = \$60,000
5. Per Unit Fixed Cost = $\frac{\$20000}{3{,}000}$
   = \$6.67/football
   Per unit variable cost is \$20 per football

Your Time to Shine

The facts are the same as in the Worked Example.

1. Determine the total fixed cost and the total variable cost associated with producing 5,000 footballs.
2. Determine the per unit fixed cost and per unit variable cost for producing 5,000 footballs.
3. Compare your results in a) and b) to the results in d) and e) of the Worked Example.

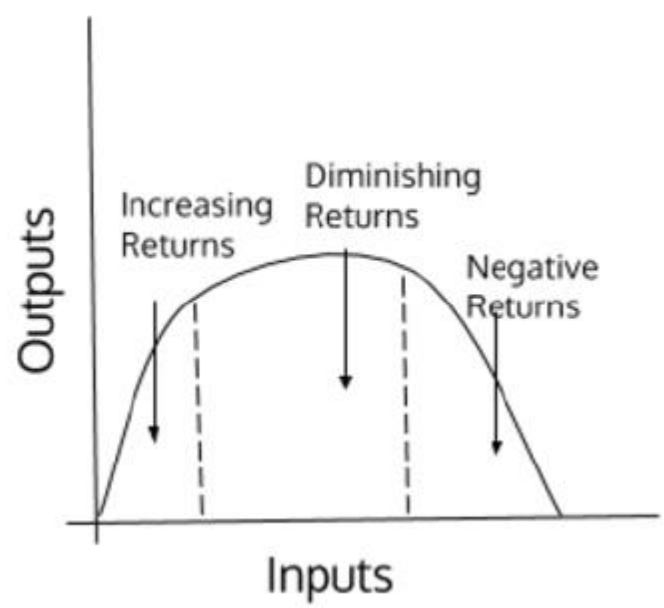
Have you ever heard of the saying, "too many hands in the pot spoil the soup?" This saying perfectly sums up the concept of law of diminishing returns. The **Law of Diminishing Returns** states that in every production line there is a point when increasing production input will eventually decrease total output. If there is a certain amount of fixed resources, increasing the variable input will only decrease output. There are only 'x' number of machines. Overtime as you increase the amount of raw materials being put into the machine, the machine will jam

Law of diminishing returns
increase in variable input decreases total output; profits gained are less than money/energy invested

and clog. This will decrease overall output. The fixed factors can only produce a certain amount of goods, and once it is pushed beyond that capacity it will produce less.

Think about marketing on social media. A small budget increase in a Facebook social media campaign will increase company revenue as you gain more exposure. But if you increase the budget too much and over post on Facebook, the overall revenue will decrease since you saturated the Facebook target audience. A large budget increase will eventually result in a decrease in output. Keep in mind that this law only applies in the short run. In the long run, all factors become variable and can be changed– you can always broaden the campaign beyond Facebook and add another channel.

Presented below is a visual representation of how the Law of Diminishing Returns is expressed on a production input – output graph. At first, there are increasing returns where inputs will increase outputs. But as the curve begins to plateau, production experiences diminishing returns. Later into the production process, there are negative returns.



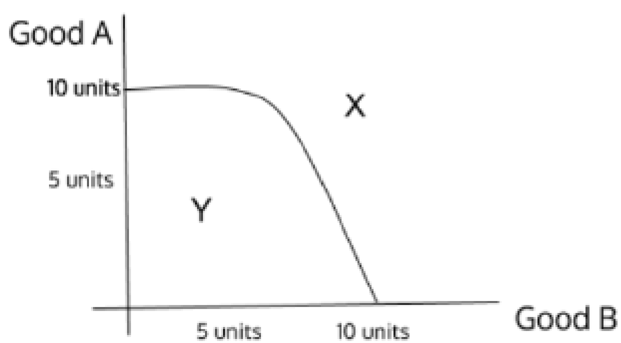
6.7 PPF, Absolute & Comparative Advantage

Earlier in the chapter, we asked a lot of questions including: Why do some companies specialize in making certain items? The answer is simple, they specialize in making those items because those companies are more efficient at producing the good. But why is that? Economists have come up with a method to show exactly how much more efficient a particular company is at producing a good. The method, like supply and demand, is also represented graphically.

The **Production Possibilities Frontier (PPF)** is a very effective visual representation that shows the output possibilities for two particular goods given a set of inputs. It is assumed that all inputs are used to its maximum capability.

Production Possibilities Frontier (PPF)
a graph displaying the output possibilities for two goods given a set of input

Table 6.7.1



Above is the general outline for a typical PPF graph.

The decreasing shape of the graph indicates the basic economic idea of **opportunity cost**. Increasing the production of Good A means decreasing the production of Good B due to a limited number of resources. Good B must be sacrificed to produce Good A. But the opportunity cost is not a consistent amount – increasing production of Good A does not always mean sacrificing the same amount of Good B; it is not a linear relationship.

Opportunity Cost
the loss of potential gain from other alternatives when one alternative is chosen

This outward bow shaped curve is the maximum output of Good A and Good B. So for instance, a potential maximum output could be 10 units of Good A and 0 units of Good B. Producing within the PPF curve is considered inefficient because the company is outputting goods below maximum capacity. Refer to Point Y as being inefficient. Conversely, producing outside of the PPF curve is outputting goods beyond maximum capacity. While we would like to produce in region X, it is currently unattainable.

It is important to note that the PPF curve is not static. It can shift inwards and outwards due to changes in technology, as well as due to trade.

Absolute Advantage
when Company X can produce more of Good A and B given the same amount of resources as Company Y

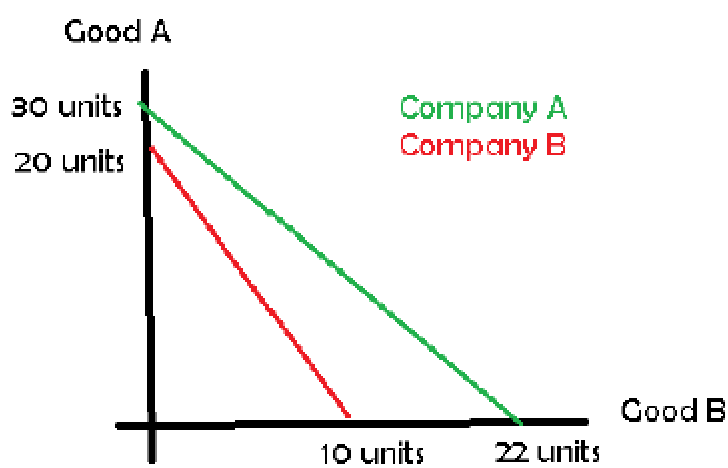
A company has **absolute advantage** when it can produce more of both Good A and Good B given the same amount of input. For example, let's assume that both Jack and John are given the same resources to bake a cake. But when given an hour, Jack can bake thrice as many cakes as John. Jack has an absolute advantage because regardless of the resources, he can always bake more cakes than John. This information is extremely important as it helps companies and countries determine the most effective, or ineffective, use of its resources.

Comparative Advantage
when Company X has a lower opportunity cost of producing a particular good given the same amount of resources as Company Y

Sometimes it isn't enough just to look at who can produce more given the same input. Earlier in the chapter when we looked at the PPF curve we mentioned opportunity cost. **Comparative advantage** is based on the concept of opportunity cost. The opportunity cost of producing one good is equal to the loss of the other good. Going back to the previous graph, the opportunity cost of producing Good A is equal to the amount of Good B that was given up in order to produce Good A. The opportunity cost of producing 5 units of Good A is 5 units of Good B. 5 units of Good B had to be sacrificed in order to produce those 5 units of Good A.

When a particular country or company has a lower opportunity cost for a particular good, then that specific country/company has a comparative advantage and should specialize in producing that particular good.

To reinforce your understanding, let's use an example. There are two companies that produce two types of goods with the same amount of resources. They want to trade goods so that both companies can benefit from the trade. Notice how the graph below isn't the bow-shaped curve from earlier. Unlike the bow-shaped curve, the opportunity cost for a straight line is constant. The linear PPF is a less realistic model but helps to simplify and explain the idea of competitive and absolute advantage in a clear manner.



Based on the graph, Company A has an absolute advantage in both goods, since they can produce more units regardless of the input. At first glance, it seems like no trade between these two companies can result in a benefit for both. But, taking a look at the opportunity cost and examining comparative advantages, there is a mutually beneficial trade.

The opportunity cost of Company A producing Good A is the amount of Good B that is given up in order to produce Good A. Thus, the ratio: Good B / Good A expresses how much of Good B is given up per 'x' amount of Good A. Taking the two known points of the graph: 22/30 = 0.73 units. Based on the same logic and reasoning, the following table and relationship is produced:

Table 6.7.

	Opportunity Cost to Produce Good A	Opportunity Cost to Produce Good B
Company A	0.73 units (22/30)	1.36 units (30/22)
Company B	0.5 units (10/20)	2 units (20/10)

The opportunity cost for Company B to produce Good A is smaller than the opportunity cost it would take for Company A to produce Good A (0.5 < 0.73). Therefore, it would be mutually beneficial for Company B to specialize in producing Good A and Company A to specialize in producing Good B. Company A trades away some of Good B for Good A, and Company B receives Good B as a trade for giving up Good A. This trade would result in a production outside of the original PPF curve.

The concepts of Absolute and Comparative advantage can be extended to countries as well. Different countries have varying amounts of land, labor, and capital. We say that these countries have different **factor endowments.** Thanks to these differences, countries may become more efficient in producing a specific type of good, and as a result, specialize in the production of that good. These countries will then trade with other countries for other goods.

Factor Endowment
the particular combination of factors of production that a country has

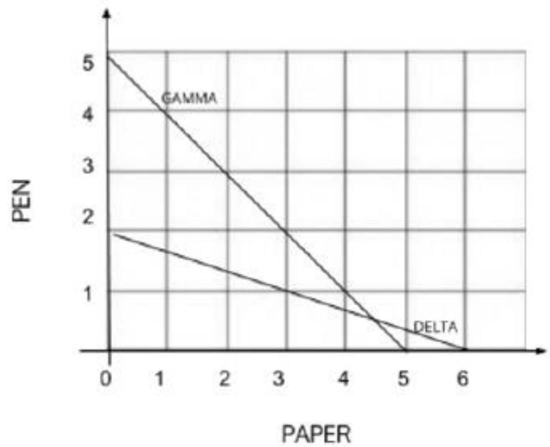
The result of this analysis is the **Heckshe**r**-Ohlin Theory**. This theory states that countries will export the products/services whose production makes extensive use of the factors of production that are found more abundantly within that country. For example, planting rice is very labor intensive. Since Japan has a large population, labor is very abundant. As a result, this theory predicts that Japan would export rice.

Hecksher**-Ohlin Theory**
A theory that states that the products which a country exports/imports is dictated by the relevant abundance of certain factors of production within the country, and the extent to which those products utilize those factors of production

If countries tend to export certain types of products, which products do they tend to import? The logical answer must be the products in which they do not specialize. The second conclusion that can be drawn from the Heckshe**r**-Ohlin Theory is that countries will import the products/services whose production makes extensive use of the factors that are relatively scarce within that country. As an example, Canada has a low population density. Thus, we might expect that Canada would import rice, a labor intensive product.

Worked Example

Country Delta and Gamma both produce pens and paper. Based on the information provided in the graph, answer the questions that follow:



1. Which country has the absolute advantage in producing pens and which has the absolute advantage in producing paper?
2. Produce a table showing each country's opportunity costs for each good. Based off of the table, determine what good each country should specialize their production in.

Solution:

1. Country Gamma has an absolute advantage in producing pens, since regardless of the amount of resources inputted, Country Gamma produces more pens. Country Delta has an absolute advantage in producing paper.

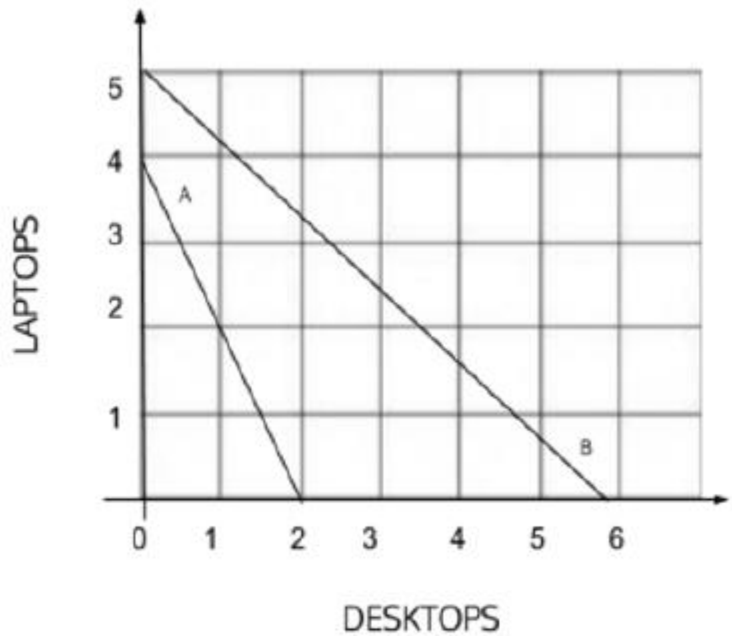
2.

	Produce 1 Pen	Produce 1 Paper
Gamma	1 Paper	1 Pen
Delta	3 Paper	$\frac{1}{3}$ Pen

Country Gamma should specialize in producing pens and Delta should specialize in producing paper. The opportunity cost for Gamma to produce 1 pen is less than opportunity cost of Delta to produce 1 pen (1 < 3).

Your Time to Shine

Company A and B are both electronic companies that produce laptops and desktops. Based on the information provided in the graph, answer the questions below.



1. Which country has the absolute advantage in producing laptops and which has the absolute advantage in producing desktops? Hint: given the same inputs, which country can produce the greater number of each good?

2. Produce a table showing each country's opportunity costs for each good. Based off of the table, determine what good each country should specialize their production in.

Questions for Comprehension

Multiple Choice

1. Economists believe scarcity is...
   a) The fundamental economic problem of limited resources
   b) The allocation of unlimited resources
   c) Dealing with limited wants
   d) All of the above

2. An economic system answers three questions about a particular country or business:
   a) How much wealth? Which to produce? When to produce?
   b) Why produce? For whom to produce? When to produce?
   c) What to produce? Why produce? For whom to produce?
   d) How to produce? What to produce? For whom to produce?

3. Christopher Columbus founded a new country and he wants to develop a new economic system. In this country, there is an abundance of natural resources and everyone wants some of it. Christopher believes the best system is to have a single party own all of the natural resources. What type of system is Christopher thinking of?
   a) Traditional Economy
   b) Mixed Economy
   c) Command Economy
   d) Market Economy

4. Based on the law of supply, as price increases…
   a) quantity supplied increases
   b) quantity supplied decreases
   c) supply increase
   d) not enough information

5. Quantity demanded increases, as a result of…
   a) price increase
   b) price decrease
   c) the law of demand
   d) both a) and c)

6. The price where quantity supplied equals quantity demanded is equal to…

a) Shortage
b) Surplus
c) Equilibrium
d) Stability

7. There is a shortage of goods when the quantity supplied…
   a) is equal to quantity demanded
   b) is the same value as quantity demanded
   c) is more than quantity demanded
   d) is less than the quantity demanded

8. During a surplus of goods of...
   a) quantity demanded is too high
   b) quantity supplied is too low
   c) both a) and b)
   d) the price should be lowered

9. In the long run, if there are too many input variables it can lead to a decrease in output. This is an example of which of the following:
   a) Law of diminishing returns
   b) Law of economic utility
   c) Law of supply and demand
   d) None of the above

10. Billy says that based on the law of diminishing marginal utility, the marginal utility could be negative. But his friend Jill disagrees and says that marginal utility must always be positive. Is Billy right?
    a) Yes, marginal utility can be negative after at least the fourth quantity is consumed
    b) Yes, marginal utility can be negative even when the first quantity is being consumed
    c) No, marginal utility must always be positive because you wouldn't consume it unless it provided a benefit
    d) It varies based on the good

11. Bill needs to suggest the most efficient production output for his start-up company. He remembers learning about the PPF curve in his Economics class, but he is unsure if he recalls the information correctly. Bill thinks that to achieve the most efficient production output, the company should produce within the curve and then once the company is more established it can produce on the curve. Did Bill recall the information correctly?
    a) No, the company should try to produce as much as it can with its resources and produce outside of the curve
    b) No, a company should always try to produce along the curve
    c) Yes, that way her company can save resources and use them for when her company is increasing sales
    d) There is not enough information

12. France can produce 30 units of cheese or 6 units of milk. Germany can produce 35 units of cheese or 21 units of milk. The two countries want to produce a mutually beneficial trade. Which statement below is correct?
    a) Germany has an absolute advantage in both goods
    b) France has a comparative advantage in cheese
    c) Germany has a comparative advantage in milk
    d) All of the above

Short Answer

13. Scarcity is the fundamental economic concept and economists have come up with three main questions to deal with scarcity. Why does scarcity exist and why is it important to take such comprehensive measures to deal with it?

14. It is career day and you and your friend are given the option to learn about jobs in either macroeconomics or microeconomics. You have a hard time deciding between which session to go to so your friend tells you: "Go to macroeconomics! It has a much greater impact on the world and the economy. Microeconomics doesn't impact the global economy." Discuss the accuracy of your friend's remark.

15. Many businesses and countries perform trade to help increase their overall production. How do they develop a mutually beneficial trade and what factors are needed to create such a trade?

16. Throughout the chapter, two important laws were discussed: the Law of Diminishing Returns and the Law of Diminishing Marginal Utility. What are the differences and similarities between the two?

Mini-Case

Hillside Views is a small manufacturing company that produces quality products including stationary, organizers, and other education-related merchandise. The company started in 2010 and has since gathered over 100 clients and established itself in the local town. But recently, the company has faced some challenges and profits are decreasing. The current CEO, Albert Leon has been a part of the company since it was founded and has asked for your help with the company's current situation.

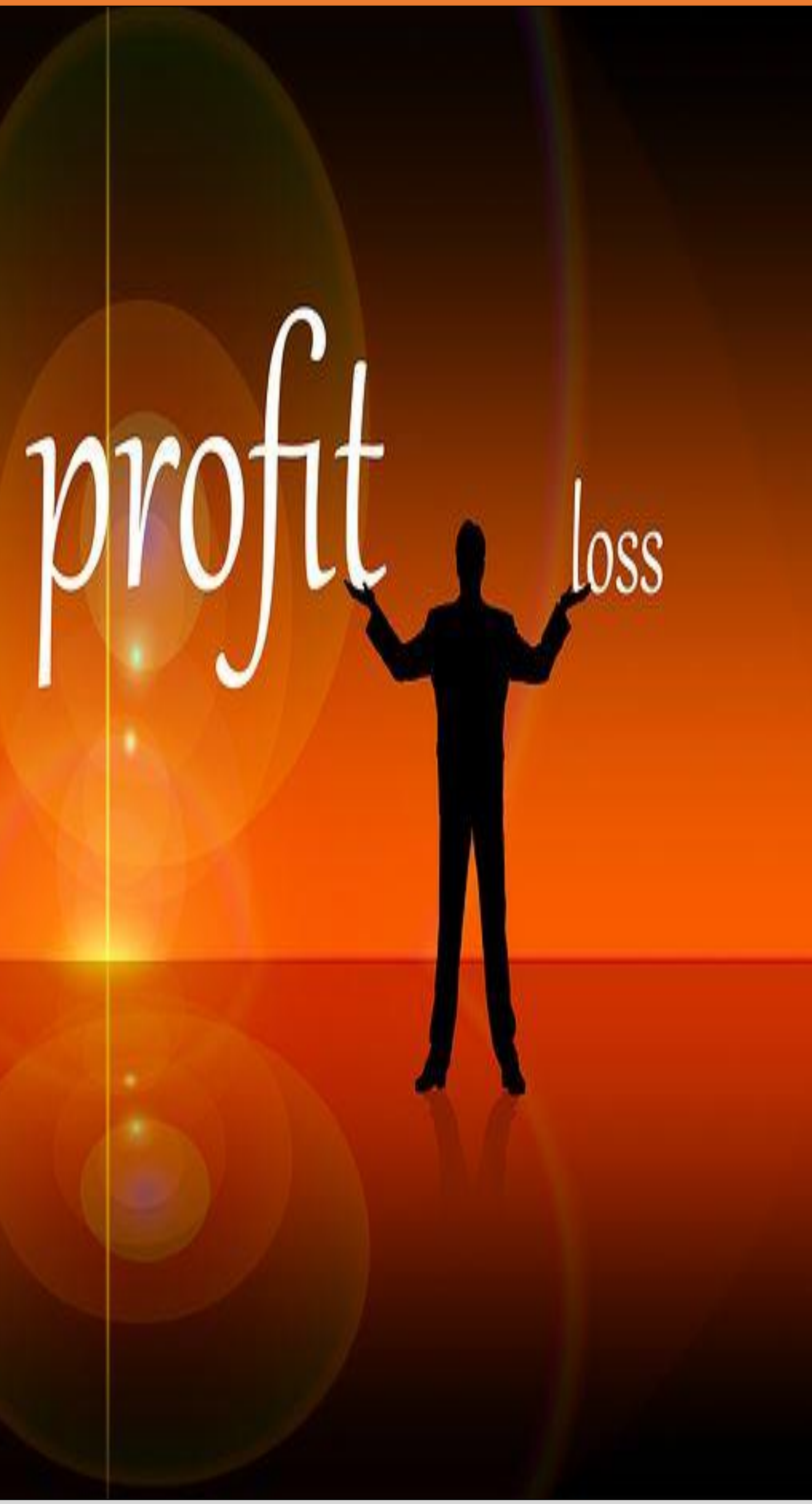
Albert Leon has noticed that many clients are looking to buy different products and oftentimes, the company doesn't carry the product they want. Hillside Views wanted to satisfy customer wants by creating these products, but because of government regulations the production process for the products were not allowed for release. Employees have also noticed that the storage room is often filled with some products but are often out of stock for others. The lack of product availability drives clients away. Recently, a new manufacturing company opened across the street. Many of Hillside Views' clients are now buying from the new company.

Although Hillside Views has been effectively running since 2010, the company is now experiencing some issues. The CEO would like you to use economic concepts to discuss these issues and present possible solutions. Make sure to use diagrams and pictures as the CEO has not taken economics before and is fairly new to the concepts and ideas.

Chapter 7: Accounting

By the end of this chapter, you will be able to:

- Explain the concept of accounting **(CS)**
- Compare U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) **(SP)**
- Journalize business transactions **(CS)**
- Discuss the nature of the accounting cycle **(CS)**
- Explain the nature of balance sheets **(SP)**
- Describe the nature of income statements **(SP)**
- Describe the nature of cash flow statements **(SP)**
- Interpret financial ratios significant to investors **(SP)**
- Explain the role of managerial accounting techniques in business management **(SP)**
- Explain the nature of managerial cost accounting (e.g., activities, costs, cost drivers, etc.) **(SP)**
- Describe the scope of costs in managerial accounting (e.g., direct cost, indirect cost, sunk cost, differential cost, etc.) **(SP)**
- Describe marginal analysis techniques and applications **(SP)**
- Discuss the use of variance analysis in managerial accounting **(SP)**
- Discuss the nature of cost accounting budgets **(SP)**
- Discuss the nature of cost allocation **(SP)**



From your local convenience store, to Apple, every business requires accounting on some level. Whether it's to release information to investors, help management make decisions or report business earnings to the government, every business needs to understand its financial situation. Understanding past financial performance can help guide the business towards success in the future. In this chapter, you will learn about accounting and GAAP, financial ratios, financial statements and managerial accounting.

7.1 What is Accounting?

Accounting
provides insight into the financial state of organizations through identifying, recording analyzing, summarizing and communicating the financial information

General Journal
book of original entry, where all economic transactions are recorded as they occur within a business

Balance Sheet
snapshot of a company's overall financial position at any given point in time, highlighting the amount of assets, liabilities and equity a company has

Income Statement
shows the profitability of a company over time, highlighting its revenues and expenses over fiscal periods

Cash Flow Statement
reveals the inflows and outflows of cash from operating, investing and financing activities within a company

Statement of Owners' Equity
shows the changes in owners' equity over a period of time

Internal User
management, directors and employees of the company to which the financial statements pertain

External User
all other users of financial statements

Financial Accounting Standards Board
an independent agency that sets authoritative GAAP in the United States

Accounting provides insight into the financial state of organizations through identifying, recording, analyzing, summarizing and communicating the financial information. The first step in the accounting process is to identify any financial transactions, which relate to the organization. An organization purchases $50, 000 worth of inventory, pays its electricity bill, or sells a bicycle; these are all examples of financial transactions within an organization. Once transactions relevant to the organization are identified, they are recorded in a **general journal.** The transactions are recorded in chronological order, denominated by dollars and cents so they can be analyzed and summarized through a variety of financial statements.

Financial statements, including the **balance sheet**, **income statement**, **cash flow statement** and **Statement of Owners' Equity** are communicated to interested parties such as **internal** and **external users**. These financial statements will be further explored in Section 7.2.

It is important for employees handling the accounting within an organization to remain ethical. Ethics is defined as the moral principles of an entity when deciding between the right and wrong thing to do. Since most people or entities would have different sets of moral principles, Generally Accepted Accounting Principles (GAAP) are set in place to help guide accountants to record transactions and remain accurate, honest and fair throughout the accounting process. GAAP is divided into authoritative GAAP and non-authoritative GAAP**.** Authoritative GAAP are binding guidelines that companies must follow. In the US, the source of authoritative GAAP is the **Financial Accounting Standards Board**. Non-authoritative GAAP, on the other hand, comes from widely accepted industry practices. While non-authoritative GAAP is not binding, companies often choose to adhere to these rules voluntarily.

For the purposes of this book, we will primarily refer to Authoritative GAAP. In particular, you should be aware that any references to GAAP are to US GAAP that are in effect at the time of writing (2016). Accounting standards can change from time to time. You are encouraged to consult the FASB website to read more information about changes to GAAP.

Some of the key components of authoritative GAAP are the assumptions and principles.

GAAP Assumptions:

- Economic Entity Assumption
- Monetary Unit Assumption
- Time Period Assumption

GAAP Principles:

- Cost Principle
- Full Disclosure Principle
- Going concern Principle
- Matching Principle
- Revenue Recognition Principle
- Materiality Principle
- Principle of Conservatism

Let's take a closer look at each of these.

Economic Entity Assumption

This GAAP has to do with keeping the business transactions separate from personal transactions. For example, if you were reporting **assets** your business owns on the balance sheet, listing a car you use for personal purposes would be in violation of this GAAP.

Assets
anything with monetary value a business owns (ex: a car), and is expected to generate future economic benefits for the company

Monetary Unit Assumption

Any economic events occurring must be measured in a currency (for example US Dollars), and only transactions whose economic effect can be measured should be reported. In addition, it is assumed that the currency is relatively stable, and thus, no attempt is made to adjust for the effects of inflation when producing the financial statements.

Time Period Assumption

The time period assumption states that the life of a business can be divided into distinct, artificial time periods. For example, quarterly income statements can be generated 4 times a year or annual reports are generated once per annum, each with a specific time period. For example, a quarterly report might say 3 months ended, March 31st 2016, or an annual report might say 12 months ended December 31st, 2016, however a **fiscal year** doesn't have to match up with a calendar year.

Fiscal Year
a year during which an accounting cycle takes place, which does not necessarily have to match up with a calendar year

Cost Principle

This principle states that financial statements must report the value of assets at historical cost. The historical cost refers to the amount paid for an asset when it was originally acquired. It is due to this GAAP that assets are not ever "marked up" to market value, however they may be depreciated, amortized, or **written-off** if they are deemed to be impaired. We will address these special situations later on in this chapter.

Written-Off
cancelling or getting rid of the value of an account, or part of an account

Full Disclosure Principle

The full disclosure principle states that all information relevant to lenders, shareholders and investors to make informed decisions about the company must be disclosed. For example, if a company is facing a major lawsuit, and it is likely that the company will lose, it must be disclosed.

Going Concern Principle

This principle requires accountants to report information about an entity as if it were to operate indefinitely, or until its objectives were completed and not to sell its assets in the near future. If the company appears as if it is going to shut down, this should be disclosed to all interested parties.

Matching Principle

The matching principle requires the use of **accrual-based accounting**, as opposed to **cash-based accounting**. Accrual based accounting means that revenues and expenses are recorded when they occur, and not when the cash is exchanged between the parties involved. Cash based accounting records sales and expenses when the money is exchanged in cash, not when they are actually incurred. For example, if you performed a service of $500 for a client on account, meaning they will pay you in 30 days, you would record the sale of $500 when the service is completed under accrual based accounting, but under

Accrual-Based Accounting
revenues and expenses are recorded when they occur, and not when the cash is exchanged between the parties involved

Cash-Based Accounting
sales and expenses are recorded when the money is exchanged in cash, not when they are actually incurred

cash based accounting you would record it 30 days later when payment is received. In addition, expenses that helped generate revenues must be matched and both must be reported in the same fiscal period.

Revenue Recognition Principle

The revenue recognition principle uses accrual based accounting, and records revenues when they are earned. An organization can report an income of $10, 000 despite having received $0 in cash, because it has finalized $10, 000 worth of sales.

If you have taken Grade 12 Accounting, you may be familiar with the mnemonic device "RCMP." RCMP illustrates four criteria that must be satisfied for recognizing revenue under Canadian GAAP:

Risks and rewards have been transferred from seller to buyer

Collectability is assured

The value of the goods or services can be **M**easured

Performance is achieved

US GAAP, on the other hand, uses slightly different criteria for revenue recognition. These are set out based on the requirements of the Securities and Exchange Commission (SEC):

- persuasive evidence of an arrangement exists
- delivery has occurred or services have been rendered
- the Seller's price to the buyer is fixed or determinable
- collectability is reasonably assured

Materiality Principle

The materiality principle sates that an accountant does not have to follow a GAAP if the amount in question is insignificant and/or it would be too costly to correct the insignificant mistake. An accountant's judgement is required to determine whether or not something is insignificant. For example, it was recorded that office supplies were purchased for $135 instead of $153 in a company that has a net profit of $500, 000 that year. The $18 increase in expense would be insignificant, in comparison to the net profit, and therefore if it were too late to correct the mistake the accountant would not be required to under the materiality principle.

Principle of Conservatism

The principle of conservatism states that when there are different, acceptable accounting treatment under GAAP, accountants should choose the method that is least likely to overstate assets and/or net income. It is important to note that accountants must still remain objective and realistic. The principle of conservatism does NOT suggest that accountants should deliberately understate assets and/or net income.

Worked Example

In each of the following situations, determine if GAAP has been violated. If so, identify which GAAP was violated.

1. Ballantree Enterprises Inc. is being sued by environmental activists. There is more than a 95% chance that the company will suffer a multimillion dollar loss as a result of the lawsuit. However, since the verdict still has not been announced, Ballantree decides that it will not disclose the lawsuit.

2. Rezlick Co. decides to use "hypothetical value accounting." It estimates the amount of sales it expects to have in future periods, computes the present value of those sales, and records the present value as current period revenues.

3. Weldrick Farms Ltd. owns a 200 acre plot of land near Maryland. The land was purchased for a mere $10 million, but now is worth over $200 million. The company decides to state the value of the land as $200 million on its balance sheet.

Solution:

1. Full Disclosure Principle

2. Revenue Recognition Principle

3. Cost Principle

Your Time to Shine

In each of the following situations, determine if GAAP has been violated. If so, identify which GAAP was violated.

1. Barton Enterprises decides to release financial statements that are inflation-adjusted.

2. Picadilly Company's largest shareholder is Eric Wilson. When Eric bought a car for his own personal use with his own money, Picadilly listed Eric's car on the balance sheet.

3. Rosen Airlines Ltd. decides not to recognize depreciation expense on its planes.

The use of GAAP is crucial, as users of financial information depend on this information to make informed decisions, however the US accounting standards vary from Canadian standards. Canada and over 140 other jurisdictions require the use of International Financial Reporting Standards (IFRS) for publicly traded corporations. Below is a table which summarizes the differences between US GAAP and IFRS.

Figure 7.1.1:

Area	US GAAP	IFRS
Jurisdiction (Which companies does this apply to?)	- publicly traded companies operating in the US, or on any US stock exchange	- publicly traded companies outside the US, such as Canada, Europe, Australia, etc

Themes	- rule based
	    - list of detailed rules which must be followed
	- uses historical cost to report financial information
		- principle based
		    - set of key objectives laid out for fair reporting
		- uses market value to report financial information

Financial Statement Names	- balance sheet - income statement - cash flow statement	- statement of financial position - statement of comprehensive income - cash flow statement

Area	US GAAP	IFRS

Balance Sheet Presentation	- order:
	  - assets*
	  - liabilities**
	  - shareholder's equity
	* assets listed in order of decreasing liquidity
	** liabilities listed in order of increasing maturity
		- order:
		  - assets*
		  - liabilities**
		  - shareholder's equity
		* assets listed in order of increasing liquidity
		** liabilities listed in order of decreasing maturity

Inventory Valuation Methods	LIFO, FIFO, Weighted Average and Specific Cost (explained at the end of 6.4) are all valid forms of inventory valuation methods – however, there are two caveats 1. LIFO Conformity Rule: Companies must maintain consistent valuation methods for financial reporting and tax purposes (cannot frequently change. between FIFO and LIFO) 2. LIFO Reserve: If a company uses LIFO, the difference in value of inventory under LIFO vs FIFO must be disclosed.	FIFO, Weighted Average and Specific Cost are all valid forms of inventory valuation methods – however, LIFO is not allowed under IFRS
Plant, Property & Equipment (PPE)	The term depreciation applies only to tangible assets (PPE). PPE is recorded at historical cost, and depreciated down to market value if it's impaired. No increases to market value are allowed	PPE is recorded at fair market value.
Intangible Assets	Intangible assets are assets that are not physical, such as intellectual property (patents, copyrights, etc.). The term amortization applies only to intangible assets. Intangible assets with a definite life are amortized. All research and development costs must be expensed (recorded immediately as an expense).	Research costs must be expensed, however development costs can be capitalized (recorded as an asset and amortized over time) provided they lead to the development of a new patent.

Area	US GAAP	IFRS
Asset Impairment	2-Step Impairment Test: 1. If the book value is greater than the expected cash flows to be generated, the asset is impaired. 2. The impairment amount is equal to the book value minus the fair market value. If the fair market value or cash flows rise, no reversal is allowed.	The impairment amount is equal to the book value minus the recoverable amount. The recoverable amount is either: 1. Fair market value, or if unknown, 2. Value in use (Present value of future cash flows) If fair market value rises, reversal of impairment is allowed in certain situations.
Goodwill	Goodwill must be tested for impairment on an annual basis. 2-Step Impairment Test: 1. If the book value is greater than fair value, then impairment exists and must proceed to Step 2. 2. The amount of impairment is equal to the book value minus the fair value. Reversal of Goodwill write-off is not allowed.	Same impairment test criteria as for tangible assets. Goodwill must be tested for impairment on an annual basis and reversal of goodwill impairment is not allowed.

Worked Example

Decide whether each of the following is a characteristic of GAAP, IFRS, both GAAP and IFRS, or neither GAAP nor IFRS.

1. Applies to publicly traded companies in the US.
2. Reversal of asset impairment is sometimes allowed.

Solution:

1. GAAP
2. IFRS

Your Time to Shine

Decide whether each of the following is a characteristic of GAAP, IFRS, both GAAP and IFRS, or neither GAAP nor IFRS.

1. LIFO is not allowed.

2. The use of the Modified Accelerated Cost Recovery System (MACRS) is allowed for computing depreciation.

7.2 The Accounting Statements

Fiscal Period
the duration of time financial statements reflect; common fiscal periods include quarters (3 months) or a year

Every business must keep track of its financial transactions in order to accurately report its financial positions at the end of each **fiscal period**. This is done through a general journal. A general journal is where transactions in an organization are originally recorded and organized in a chronological order. First, the debits are recorded in a transaction, followed by the credits. For example, when a company makes a sale, acquires new inventory, or buys a new truck, it is all recorded in the general journal.

General Journal

The general journal (as illustrated on the next page), consists of 5 columns. The first column shows the date. The year is stated once at the top per page, as well as the month, with the day of the month copied out for each transaction. The month or year is only written when a new one has begun, or a new page in the general journal is being used. The next column shows the account name, which simply states the accounts that were affected by the transaction. Third is the P.R. column, referring to page reference. Each account (e.g. cash, bank loan, sales, etc.) has its own general ledger (further explained later in this section). The page reference is the account's number, so that an accountant may easily refer between the general journal and ledger. Refer to Figure 7.2.1 for numbering accounts.

Following the P.R. column, there are the debit and credit columns. *Double-entry accounting requires at least two accounts to be affected every transaction.* One of the two accounts will receive a debit transaction which affects the "left" side of an account, while the other receives a credit transaction which affects the "right" side of an account. The total monetary value of the debits and credits must balance out, regardless of the number of affected accounts. *Assets and Expenses have a natural debit balance, and Liabilities, Equity and Revenues have a natural credit balance.* This means a debit entry increases Assets and Expenses, and decreases Liabilities, Equity and Revenue, whereas credits have the opposite effects on each of these accounts. For example, when there are two accounts affected by a transaction like on August 1st and 7th in Figure 7.2.2, the debit and credit columns show the same value, hence balancing the debits and credits. However, the transaction on August 9th, consists of more than 2 accounts as we have a new truck worth \$25,000, which is a debit to assets, but we paid \$10,000 cash for it, which is a credit to assets. This means the overall assets of the organization increased by \$15,000. \$15,000 of the value of the truck was agreed to be paid back over one month, so the liability account, accounts payable, is increased by applying a credit of \$15,000, which brings out total credits up to \$25,000, to match the debit value.

Figure 7.2.1: Accounts are numbered off in a very specific way. Use this chart as reference.

Account Type	Account Number	Description
Assets	100-199	anything with monetary value a business owns (ex: a car)
Liabilities	200-299	money the business owes to creditors; a debt (ex: a bank loan)
Equity	300-399	value of owner's shares in the organization of the business (Assets – Liabilities = Equity)
Revenue	400-499	money earned through operation of the business (ex: sales)
Expenses	500-599	money paid to operate the business (ex: rent, supplies, advertising, etc)

Chart of Accounts
a financial organizational tool that provides a complete listing for every account (a unique record for each type of asset, liability, equity, revenue and expense) in an accounting system

Companies have a **chart of accounts** which keeps track of their organization's various accounts and account numbers. The chart of accounts consists of the account number in the first column, followed by the account name in the second column and finally the account type in the third and final column. A sample chart of accounts is shown below in figure 7.2.2.

Table 7.2.2
Chart of Accounts (companies will have many more accounts in real life examples)

Account Number	Account Name	Account Type
101	Bank	Asset
201	Accounts Payable	Liability
301	A. Kapur, Capital	Equity
401	Sales	Revenue
502	Advertising	Expense
504	Utilities	Expense

Figure 7.2.3: Sample General Journal

Page 1

General Journal

Date		Account	PR	Debit	Credit
2016 Aug	1	Accounts Receivable--Glenforest	102	$500	
		Sales	401		$500
		- to record $500 worth of merchandise			
	7	Inventory	103	$1,000	
		Cash	101		$1,000
		- to record purchase of inventory			
	11	Truck	108	$25,000	
		Cash	101		$10,000
		Accounts Payable--Chevrolet	201		$15,000
		- to record purchase of truck			

General Ledger

General Ledger
maintains track of individual account balances, recording transactions relevant to a specific account from the general journal

The **general ledger** (as illustrated on Figure 7.2.4) is a financial tool to keep track of individual accounts. The general journal maintains records of all transactions which occur within a business, however it does not keep track of the balance in each individual account. In order to maintain updated records of each account, the general ledger is used. The first column contains the date, similar in format to the general journal. The next column, contain details of transaction which occurred that affected the general ledger account, in this case, Cash. For example, when $1, 000 of cash was spent to purchase inventory, the details stated "Purchased Inventory", so that where the money is being spent can be tracked. Following, there are the debit and credit columns, which are debited when there are inflows of cash and credited when there are outflows of cash. The debits increase the cash account balance, as it is an asset account, and credits decrease this balance. the cash account balance is summed up in the second last column, keeping track of the overall balance in the account. When cash is debited, this balance increases and when cash is credited this value decreases. The final column, indicates whether the balance is a debit (Dr.) balance, or a credit (Cr.) balance.

Figure 7.2.4: Sample general ledger

Account #101

General Ledger – Cash Account

			Debit	**Credit**	**Balance**	
2016 Aug	7	Opening Balance (brought forth from previous page)	$45,000		$45,000	Dr
	7	Purchased Inventory		$1,000	$44,000	Dr
	9	Down Payment for Truck		$10,000	$34,000	Dr
	10	Revenue Earned from Sales	$500		$34,000	Dr

Special Journal

In addition to using the general journal, companies will also use the special journal. This is because recording entries in a general journal gets repetitive, tedious and takes too much time. There are four types of special journals, to record different types of transactions within a business. The first type is a Cash Receipts Journal, (Figure 7.2.5) which is used any time cash is received by the organization. Similar to the general journal, the date column is first, followed by an account column. Since it is clear that cash is always going to be an account affected when recording transactions in this journal, the account name you write in the second column is the account being credited. Then, there is a list of accounts commonly credited when cash is received by the organization, such as Sales and Accounts Receivable, so debit and credit values can be recorded with minimalistic efforts, as the only recording required is two (or more) numbers and one account name. In the chance that an account other than the ones listed needs to be credited, there is an "Other Accounts" column, where the value may be recorded. For example, below, $140 cash was received because a sale was made, so the only account recorded is the sales, and $140 is written under the "Cash Dr." and "Sales Cr." Columns. The Cash Receipts Journal is just one of four types of journals used, the second being the cash disbursements journal, where cash outflows of the business are recorded. The third and fourth types are the Sales and Purchases journals, where any merchandise sold or purchased **on account** is recorded.

On Accounts
a transaction is completed using accounts receivable or accounts payable, depending on the scenario present

Figure 7.2.5: Sample special journal, more specifically cash receipts journal

Cash Receipts Journal

Date		Account	PR	Cash Dr	Sales Discount Dr	Accounts Receivable Cr	Sales Cr	Other Accounts Cr
2016 Aug	1	Sales		$140			$140	
	1	Liam Waterous		$589	$11	$600		
	4	Gabriel Yeung		$300	$43	$343		

Adjusting entries are journal entries made at the end of a fiscal period, prior to releasing a company's financial statements, in order to bring the balance of accounts up to date. For example, a business purchased $900 worth of supplies on December 1st, 2016, and now it's December 31st, 2016, and there is only $400 worth of supplies left. This means, during the month of December, $500 worth of supplies were used, and the company must take this into account when preparing financial statements. If nothing is done, then our supplies account will be overstated by $500, and the supplies expense account will be understated by $500. In order to correct this, an adjusting entry (as illustrated below) is made, with the Office Supplies Expense account being debited $500 and the Office Supplies account being credited $500. Additionally, if employees are paid bi-weekly, and have worked for the period of December 18-31, however have not been paid in cash yet, we still need to take into account that they have earned those wages. A liability account, wages payable, is then credited by the amount owed to employees for that period and wages expense is debited the same amount. Adjusting entries are justified because of two specific GAAP principles: The Revenue Recognition and Matching principles. If adjusting entries were not performed, these GAAP would be violated. An inaccurate amount of revenue and expenses would be reported as they would not have been recognized in the same period in which they occurred. Adjusting entries always affect at least one income statement account and at least one balance sheet account, however they *never* affect the cash account.

Adjusting Entries
journal entries made to update the balance of accounts at the end of fiscal periods

Figure 7.2.6: Sample general journal with adjusting entries

Page 2

General Journal – Adjusting Entries

Date		Account	PR	Debit	Credit
2016 Dec	31	Office Supplies Expense	501	$500	
		Office Supplies	104		$500
		- adjust for supplies used in December			
	31	Depreciation Expense - Automobile	505	$208	
		Accumulated Depreciation – Automobile	111		$208
		- adjust for depreciation expense in December			
	31	Wages Expense	508	$2,100	
		Wages Payable	209		$2,100
		- to adjust for accrued wages for December			

Remember to always adjust your entries to prevent overstating or understating the values of your accounts for the fiscal period.

Closing Entries
made to reset the balance of nominal accounts, such as revenues, expenses and drawings/dividends to $0

Nominal Accounts
temporary accounts which much be reset at the end of fiscal periods through closing entries

Closing entries are journal entries made at the end of fiscal periods to close out **nominal accounts.** Nominal accounts are temporary accounts used throughout the accounting period, which need to have their balances reset to $0 at the start of the new accounting period. For example, a business earns $500,000 in revenue and has $200,000 of expenses for the year of 2016. In order to accurately maintain records of revenues and expenses for the year of 2017, we must reset these values to $0, so we transfer the values of the nominal accounts into a real account. The closing entries consist of 3 entries recorded in the general journal the first to close Revenues, the second to close all expense accounts, and the third to close the drawings account. To close revenues, since it originally has a credit balance, it must be debited in order to set the balance to $0. The accounts are closed into equity accounts, which can be a sole proprietor's capital account (Figure 7.2.7), or for a corporation, it would be the **retained earnings** account. Next, since the expenses have a debit balance, they are credited in order to set the balance to $0. Finally, any **drawings** taken out by owners in a sole proprietorship, or **dividends** paid out in corporations are credited in order to reset the balance of those accounts as well. By closing the revenue account, the equity account is being credited, or increased, by the amount of the revenues. Then, the equity account is debited or decreased by the amount of expenses incurred throughout the period, and finally, it is debited or decreased again by the balance of the drawings account. This updates the amount of equity in a company, while simultaneously closing out nominal accounts.

Retained Earnings
made to reset the balance of nominal accounts, such as revenues, expenses and drawings/dividends to $0

Drawings
monies withdrawn from the business, for personal use, by owners

Dividends
monies paid to shareholders from retained earnings, as an inventive for investors to purchase or stay invested in the company

Figure 7.2.7: Sample general journal with closing entries

Page 3

General Journal – Closing Entries

Date		Account	PR	Debit	Credit
2016 Dec	31	Revenue	401	$279,430	
		U. Sandhu, Capital	302		$279,430
		- to close the revenue account for 2016			
	31	U. Sandhu, Capital	302	$64,200	
		Automobile Expense	501		$1,400
		Rent Expense	502		$7,200
		Utilities Expense	503		$2,400
		Wages Expense	504		$53,200
		- to close expense accounts for 2016			
	31	U. Sandhu, Capital	302	$15,230	
		Drawings	308		$15,230

Trial Balance

Trial Balance
a statement of all debits and credits in a double-entry account book, with any disagreement indicating an error

With hundreds of journal entries being recorded, it is more than likely a mistake may have been made in the process. In order to make sure our double-entry accounting system has effectively and accurately kept track of the transactions, an accountant will use a trial balance multiple times every fiscal period. A **trial balance** takes the balances of every account of the organization, and lists them in the first column. In the second and third columns, their natural debit or credit balances are shows (Figure 7.2.8), and the debits must equal the credits. If the debits and credits do not match, there has been a mistake. The first trial balance is done after recording journal entries, the second after adjusting entries, and the final one after closing entries. *However, having a trial balance with Debits = Credits (Dr=Cr), does not necessarily mean a mistake was not made.* For example, a sale of $179 could have been recorded as a sale of $197 on both the Cr (sale) account and the Dr (cash/accounts receivable) account, which would overstate assets and sales, however the trial balance would still balance!

Figure 7.2.8: Sample trial balance (note how the value for the debit column is the same as the credit column)

Midila's Dance Studio & Shop

Trial Balance

December 31st, 2016

Account	Debit	Credit
Cash	34,500	
Accounts Receivable	1,400	
Inventory	1,300	
Automobile	25,000	
Building	150,000	
Accumulated Depreciation		2,500
Accounts Payable		2,200
Bank Loan		18,300
Mortgage		71,500
M. Anton, Capital		86,319
Revenue		279,430
Cost of Goods Sold	183,849	
Automobile Expense	$1,400	
Rent Expense	$7,200	
Utilities Expense	$2,400	
Wages Expense	$53,200	
Totals	$460,249	$460,249

Balance Sheet

Fundamental Accounting Equation
Liabilities + Owners' Equity = Assets, which shows that all assets must be paid for through borrowing capital or shareholders' capital

A balance sheet is one of four financial statements created by organizations. The balance sheet provides a snapshot of a company's financial position at any given point in time, and is separated into three sections: assets, liabilities, and equity. An asset is anything a company owns which has a monetary value and is expected to generate future economic benefits for the company, whereas liabilities are any monetary values the company owes to creditors. Debtors are people to whom owe you money, and creditors are people you owe money to. Equity represents the owner/shareholders' residual claim on the company's assets, after the liabilities have been paid. It can be calculated using the **fundamental accounting equation**. The equation is written as A = L + OE, where A=Assets, L=Liabilities and OE = Owner's Equity. Assets and liabilities are broken into 2 sections (Figure 6.2.8) based on liquidity or maturity. Liquidity is the ability of an asset to be converted into cash, so highly liquid assets including cash, accounts receivable, which is usually less than 30 or 60 days. The first asset section on the balance sheet titled "Current Assets", includes assets which can be liquidated within a year, whereas assets less liquid than that are classified under "Fixed Assets". Within each of these categories, each individual asset is sorted by decreasing liquidity, so the most liquid assets are listed first. Maturity is similar to liquidity, but is used for liabilities, as the maturity date refers to the date on which the liability is due. Liabilities are classified into current liabilities and fixed liabilities, due in less than one year and more than one year respectively. Finally, there is the equity section, which shows the ending value of owner's equity .

A title for any financial statement generally has the same formatting; a header with three lines. The first line consists of the company's name, the second contains the name of the financial statement, and the third contains the date or date range for which the statement was made. The balance sheet consists of three columns of numbers. The last column consists of the totals of each major category, including total current assets, total fixed assets and total assets. Total current and fixed assets are summed up to get total assets, so under the value of the two totals you can see a single underline meaning the $15,000 of current assets and $465,000 of fixed assets are to be totalled. Since A=L+OE, total assets is double underlined as its total must equal the total of liabilities and owner's equity combined, and it's the end of the assets section on the balance sheet. Moving further down there are current liabilities, long-term liabilities, and ending equity from this period which all sum up to give the total liabilities and owner's equity, that, according to the fundamental accounting equation should be equal to total assets. A dollar sign is included at the top of each column, or under any underlining of numbers, and negative numbers are indicated through the use of brackets.

The middle column of numbers on the balance sheet gives the net individual balances of balance sheet items, meaning it shows the value of any item after additions or subtractions to the value. The first row is where the additions and subtractions happen. The historical cost of the assets for example are taken, then the accumulated depreciation is subtracted from that cost in order to achieve the net balance of that individual item or account.

As seen in the first column under fixed assets values are listed, with accumulated depreciation below indicated with brackets around it, meaning these values must be subtracted from the historical cost, then the net value is listed in the second column. All the sums of the net values are listed in the final and third column.

Figure 7.2.9: Sample balance sheet for Katherine's Bakery for December 31st, 2017. Note how the accounts are indented and which values the columns are listed under.

Katherine's Bakery
Balance Sheet
As at December 31, 2017

Assets			
Current Assets			
Bank		$10,000	
Accounts Receivable		$2,100	
Supplies		$500	
Prepaid Insurance		$2,400	
Total Current Assets			$15,000
Fixed Assets			
Plant, Property, and Equipment (PP&E)	$520,000		
Accumulated Depreciation – PP&E	($55,000)	465,000	
Total Fixed Assets			$465,000
Total Assets			$480,000
Liabilities & Owner's Equity			
Current Liabilities			
Accounts Payable		$2,400	
Interest Payable		$3,100	
Total Current Liabilities			$5,500
Long-Term Liabilities			
Bank Loan Payable		$35,000	
Mortgage Payable		$217,000	
Total Long-Term Liabilities			$252,000
Owner's Equity			
K. Li, Capital			$222,500
Total Liabilities & Owner's Equity			**$480,000**

Income Statement

The income statement (Figure 7.2.9) is a financial statement used to measure how profitable a company or business is. Also known as a profit and loss statement, the income statement measures the revenues and expenses of a business over a period of time. The period of time may vary, for example it could be quarterly or annually, so the date range is mentioned in the header of the income statement, stated as “For the year ended” or “For the 3 months ended”. The first section on the income statement lists the revenues. The total sales are listed first, then any discounts and sales returns and allowances (which are recorded in a separate account and not directly subtracted from the sales account) are subtracted to get net sales. In some cases, there may be additional sources of revenue, hence an additional line stating “Net Revenues” would need to be added, but since there is only one source of revenues, we can leave it at net sales. Next, the Cost of Goods Sold (COGS) are calculated. COGS are the direct costs incurred while producing goods, and may not necessarily be present for businesses which only provide services. These include the direct material costs for any products the company produces, as well as labour costs to produce those products. To calculate these costs, the beginning inventory is taken into consideration, as well as any additional purchases to the inventory over the period of time. The cost of shipping the products from the supplier to us is included in inventory costs, and must be included under COGS. The value of net purchases is then added to the beginning inventory value to determine the total amount of inventory we have available to sell during this time period. From this, we subtract the ending inventory value (what’s left at the end of the year), to determine how much our cost of goods sold was. From this, we get our gross profit, which is revenues minus COGS.

In the lower portion of the income statement there are additional expenses categorized as operating expenses. These are expenses, also known as administrative or overhead expenses, incurred by the business throughout the year such as the ones listed on the income statement. These are subtracted from the gross profit previously listed to get the income before taxes. This is the income amount the government will tax (tax rates vary depending on region). And finally, once the income tax expense is subtracted, the Net Income or Net Loss for the business is presented. The net income or loss shows the total profitability of the business over the specified time period, indicated the total amount of profit made or lost.

Figure 7.2.10: Sample income statement for Wangster's Art Supplies Shop for the year ended December 31st, 2017

Wangster's Art Supplies Shop		
Income Statement		
For the Year Ended December 31, 2017		
Revenues		
Net Sales		$850, 000
Cost of Goods Sold		
Cost of Goods Sold		488, 550
Gross Profit		$361, 450
Operating Expenses		
Delivery	$43, 000	
Depreciation	8, 000	
Marketing	65, 000	
Utilities	5, 800	
Insurance	$14, 800	
Rent	36, 000	
Salaries	120, 000	
Commissions	$12, 000	304, 600
Income Before Taxes		$56, 850
Income Tax Expense		10, 705
Net Income		$46, 145

Cash Flow Statement

The cash flow statement is another one of the major financial statements, which allows users to determine the inflows and outflows of cash within a business over a period of time. Similar to the income statement, the header states a date range, as it is showing the cash flow over a period of time. The cash flow statement is broken down into 3 succinct sections: cash flows from operating activities, cash flows from investing activities and cash flows from financing activities (Figure 7.2.10). Cash flows from operating activities includes cash generated or paid out through the core functions of the business, including the production and selling of its goods and services. The next section on the cash flow statement is the cash flows from investing activities section, which takes into account any investments the business has made, such as purchasing or selling plant, property, or equipment assets, or marketable securities. As business are generally investing in new properties or equipment, cash is flowing out of the business, so these will be negative values. However, if the company decides to sell some of its investments, that would be recorded as a cash inflow. The final section of the cash flow statement is cash flows from financing activities. Financing activities include any changes in loans or debts, or any changes in equity such as the issuance of stocks or distribution of dividends in corporations. For example, XYZ Corporation issues 100 shares in the company for $10 each, which would produce $1,000 in cash. Once the three sections are summed up, the net change in cash for the period is calculated. From here, we take the cash balance at the beginning of the period and add that to the net change in cash, to get the final cash balance for the end of the period.

Figure 7.2.10: Sample cash flow statement for Sandra's Banking Empire for the year ended December 31st, 2017

Sandra's Banking Empire
Statement of Cash Flows
For the Year Ended December 31, 2017

Cash Flows from Operating Activities		
Net Income		$7,000,000
Adjustments to reconcile Net Income to Net Cash		
Depreciation Expense	$1,300,000	
Increase in Accounts Receivable	($480,000)	
Decrease in Accounts Payable	($248,000)	
Decrease in Wages Payable	($720,000)	($148,000)
Net Cash Provided by Operating Activities		$6,852,000
Cash Flows from Investing Activities		
Purchase of Building	($3,400,000)	
Purchase of Equipment	($310,000)	
Net Cash Provided by Investing Activities		($3,710,000)
Cash Flows from Financing Activities		
Partial Repayment of Bank Loan	($85,000)	
Repayment of Mortgage	($950,000)	
Net Cash Provided by Financing Activities		($1,035,000)
Net Change in Cash		$2,107,000
Cash Balance Jan. 1, 2017		$433,615
Cash Balance Dec. 31, 2017		$2,540,615

The cash flow from operating activities section of the cash flow statement can be prepared in one of two ways, the first being the direct method and the second being the indirect method. Most corporations use the indirect method (as illustrated above), which takes the net income and reverses any non-cash related expenses or changes balance sheet accounts to end up with the net cash provided by operating activities. This is because net income is affected by these non-cash items, and it must be reversed to realize the real amount of cash produced. For example, depreciation is not a cash expense, so it is added back to the net income, since the cash did not physically leave the company. The direct method on the other hand, lists all instances where cash was exchanged between the company and another party, such as "cash paid to employees", so non-cash expenses such as depreciation are never taken into account in the first place.

The Accounting Cycle

Within every fiscal period, an organization undergoes an accounting cycle. An accounting cycle consists of 9 main activities that were explained earlier in this chapter, which repeat every fiscal period:

1. Analyze Business Transactions
2. Journal Entries
3. Posting to the Ledger Accounts
4. Trial Balance
5. Adjusting Entries
6. Adjusted Trial Balance
7. Financial Statements
8. Closing Entries
9. Post-Closing Trial Balance

7.3 Calculation of Financial Ratios

Financial ratios are a key component of fundamental analysis (which you will learn more about in Chapter 11), which is one of the two main methods used to analyze an investment. Financial ratios use figures from the financial statements issued by companies in order to achieve a better understanding of how well the company is performing financially. A financial ratio provides a mathematical comparison between two pieces of financial data. For example, the net profit margin ratio compares net income and total revenues.

Benchmarking
comparing actual performance results with a standard performance goal or number – a benchmark

Horizontal Analysis
a procedure in fundamental analysis in which an analyst compares ratios or line items in a company's financial statements over a certain period of time

Ratios are useful as they can be used to compare different companies within the same industry, even if the companies are of different sizes. Comparing the value of a ratio to an industry or sector average is known as **benchmarking**. Ratios are also useful for comparing a company's financial data to previous years' data. This is called **horizontal analysis.**

Financial ratios are classified into categories such as liquidity, profitability, and solvency. Liquidity ratios measure how easily a business is able to meet its short-term debt obligations. Profitability ratios measure how profitable a company is, or how efficient a company is at earnings profits given the amount of resources they possess. Solvency ratios measure how well a business will be able to survive in the long-term, which are useful to long term investors and creditors.

Liquidity Ratios

1. Current Ratio (Working Capital Ratio*)

$$= \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

The current ratio measures a company's ability to pay off its current debt obligations. The current ratio divides the current assets by current liabilities, which measures how well a company can pay back current liabilities utilizing its current assets. Generally, at least a ratio over 1 is ideal, as if it were below 1, the company has more current liabilities than it can pay back with its current assets. A ratio of 1, would mean that for every $1 of current assets the company has, it also has $1 of current liabilities to pay.

Note that if the Current Ratio is too high, it can be problematic. A current ratio that is too high indicates that the company may not be effectively utilizing its cash.

** Not to be confused with "working capital", which is equal to current assets – current liabilities.*

2. Acid Test Ratio (Quick Ratio)

$$= \frac{\text{Cash+Marketable Securities+Receivables}}{\text{Current Liabilities}}$$

Similar to the current ratio, the acid test ratio measures a company's ability to pay off its current obligations with only its most liquid assets. Inventories are excluded from current assets in this ratio, as they can take some time to be converted into cash, whereas the other current assets as listed above in the equation can be converted into cash relatively quickly. A ratio of 2 would mean that a company has $2 of current liquid assets to cover every $1 of current liabilities it has.

Efficiency Ratios

1. Receivables Turnover

$$= \frac{\text{Net Credit Sales}}{\text{Average Net Recievables}}$$

To calculate the average amount of any account balance, the value from the beginning of the period of the account and value from the end of the period of the account are summed up and divided by two. For example, if there were net receivables of $50,000 on January 1st, 2017, and $100,000 on December 31st, 2017, then the average net receivables would be $75,000. The receivables turnover ratio measures how well a company is able to extend credit and manage it. The company extends credit to customers recorded under "accounts receivable", and this ratio measures how efficiently the company is able to collect on the interest-free credit they have extended to their customers. A ratio of 12 would

would mean the company collects accounts receivables 12 times per fiscal period. It can be hard for investors to calculate the receivables turnover ratio, as many companies do not disclose how much of their sales are on credit. As a result, analysts will often assume that 100% of the company's sales are on credit, and consistently apply that assumption to all fiscal periods. They will then examine the trend in the Receivables Turnover ratio over time, rather than comparing the value of the ratio to that of other companies.

2. Collection Period

$$= \frac{365}{Receivables\ Turnover}$$

The collection period is related to the receivables turnover ratio, as it measures the average number of days it takes the business to collect a debt. Like in the example above, if the company collects accounts receivables 12 times per fiscal period, it would have a collection period of

$$\frac{365}{12} = 30.4 \text{ days}$$

meaning it takes on average 30.4 days for the business to recollect money from an accounts receivable account.

3. Inventory Turnover

$$= \frac{Cost\ of\ Goods\ Sold}{Average\ Inventory}$$

Similar to the receivables turnover ratio, the inventory ratio measures how well a company is able to sell its inventory. Generally, the more often they sell their inventory the higher their revenues will be, hence a higher inventory turnover is desired. However, high inventory turnover can also be caused because of decreases in price, which wouldn't necessarily lead to more profits. Inventory turnover ratio measures how many times a company purchases and sells its inventory in a fiscal period, or how long it takes to completely replace the inventory. An inventory turnover ratio of 10 would mean a company replaces its inventory 10 times per fiscal period.

4. Days' Sales in Inventory

$$= \frac{365}{\text{Inventory Turnover}}$$

The days' sales in inventory ratio is related to the inventory turnover ratio, similar to how the collection period is related to the receivables turnover ratio. The days' sales in inventory measures the average number of days it takes the business to sell a unit from its inventory. Like in the example above, if the company replaces inventory 10 times per fiscal period, its days' sales in inventory would be

$$\frac{365}{10} = 36.5$$

This means the company holds on to its inventory for an average of 36.5 days before they are able to sell it.

Every business has an operating cycle, which is the amount of time it takes from the moment cash is used in the production/purchasing of the goods/services, until the moment the business receives cash from the customer for the sale of those goods/services. Knowing how long the operating cycle is, is useful for estimating the amount of working capital a company should ideally have to operate or expand. Having a short operating cycle means it takes less time for the company to purchase/produce inventory and sell it to receive cash from customers, meaning they wouldn't need as much working capital as if they had a longer operating cycle. This is also known as the cash conversion cycle. It can be calculated using

Accounts Receivable Collection Period +

Days' Sales in Inventory

as this measures the amount of time it takes to sell an item from the company's inventory and then collect the cash from the customer.

Notice that in each of these 4 ratios, we utilized an "average" value in the denominator. The reason we do that is because the denominator is based on balance sheet information, which captures a business's financial position at a point in time. Meanwhile, our numerator is based on income statement information, which captures the business's performance over a period of time. Thus, to get more accurate results, we want to use an "average" value in the denominator. In some DECA cases, you may only be given ending inventory, or ending A/R. If that is the case, then use the ending information to calculate your ratios.

Profitability Ratios

1. Gross Profit Margin

$$= \frac{\text{Gross Profit}}{\text{Net Sales}}$$

   The gross profit margin measures the percentage of net sales a company gets to keep after the cost of goods sold are accounted for. This provides insight into how well a company is able to manage its cost of goods sold, as the higher the ratio, the better they can control these expenses. If the ratio decreases over time, that means the cost of goods sold are increasing at a rate faster than the revenues. If the gross profit margin was 50%, that would mean for every $1 worth of goods sold the company keeps $0.50 after COGS is accounted for.

2. Profit Margin

$$= \frac{\text{Net Income}}{\text{Net Sales}}$$

   Similar to gross profit margin, the profit margin measures the percentage of net sales a company gets to keep after all the expenses the company incurs are accounted for. In addition to COGS, overhead expenses would be included in this, so net income is divided by net sales to get the percentage of sales a company gets to keep after expenses. A 25% profit margin would mean that for every $1 the company is earning, they profit $0.25 after all expenses are accounted for. This ratio is important as it measures how efficiently a company can control their total expenses while maintaining sales. If the profit margin is increasing, that means the company is able to grow net sales at a rate faster than its expenses.

3. Return on Assets (Return on Investment)

$$= \frac{\text{Net Income}}{\text{Average Total Assets}}$$

Return on assets (ROA) is an indicator of how well a company's management is able to use the available assets to the company to generate net income. ROA measures how efficiently a company uses its assets by dividing net income by average total assets to derive a percentage. The percentage tells users how much net income the company is able to generate given the amount of assets available to them. For example, an ROA of 20% would mean that for every $5 of assets the company had, they were able to generate $1 of profit. A higher percentage is ideal, as it means the management is more efficient at generating income given the resources they had.

4. Return on Common Shareholders' Equity (Return on Equity)

$$= \frac{\text{Net Income}}{\text{Average Common Shareholders' Equity}}$$

Return on common shareholders' equity (ROE), like return on assets, is an indicator of how efficiently a company's management is able to generate net income, given the capital shareholders have provided them with. ROE is also expressed as a percentage, and is derived by dividing net income by average equity. The percentage tells users how much profit a company is able to generate given the amount of equity in a company. For example, an ROE of 10% would mean that for every $10 of shareholders' equity, the company was able to generate $1 of profit.

Another way of calculating the ROE is through the **DuPont Model**. This was developed by the DuPont corporation in the 1920s, to help analyze the ROE within a company. The ROE can be calculated by multiplying profit margin, asset turnover and financial leverage.

DuPont Model
a method of performance measurement that was started by the DuPont Corporation in the 1920s where assets are measured at their gross book value rather than at net book value to produce a higher return on equity

$$\text{ROE} = \frac{\text{Net Income}}{\text{Shareholders}'Equity}$$

$$ROE = \frac{\text{Net Income}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Total Assets}} \times \frac{Total\ Assets}{Shareholders'Equity}$$

(Profit Margin × Asset Turnover × Financial Leverage)

The DuPont model breaks down ROE into three drivers, profit margin, asset turnover, and financial leverage so that the management or investors can pinpoint why the business is lacking if they have a low ROE, or why they are excelling if they have a high ROE. As in the example above, the ROE is 10%, however this doesn't allude to why the ROE is that amount. Using the DuPont model, if the company's financial statements lead you to a calculation of a 5% profit margin, an asset turnover of 4, and financial leverage of 0.5, you would similar get a 10% ROE. Using this model, however, we are able to compare the company's profit margin, asset turnover and financial leverage to other companies in the industry to determine which driver is causing the company to have a higher/lower ROE than the others.

5. Earnings per Share (EPS)

$$= \frac{\text{Net Income}}{\text{Average Number of Common Shares}}$$

Earnings per share measures how much net income a company is able to generate for every common share in the company. The EPS ratio is expressed as a dollar value, for example, if a company has a net income of $20,000 and has an average of 10,000 outstanding shares of common stock, the earnings per share would be $2, meaning for every one share, $2 of income earned. EPS is a key ratio in determining the price range of shares in a company. A company would have a lower earnings per share compared to another company making the same net income if it has more common shares outstanding.

6. Price-Earnings (PE) ratio

$$= \frac{\text{Share Price}}{\text{Earnings Per Share}}$$

The Price-Earnings ratio measures the price of individual shares compared to the earnings per share the company generates. For example, if a company's shares are selling for $10 and its EPS is $1, which would mean the company's PE ratio is 10. This means the price to buy one share is 10 times more than the income earned for that share per fiscal period (usually calculated for the fiscal year).

7. Payout Ratio

$$= \frac{\text{Cash Dividends}}{\text{Net Income}}$$

The payout ratio measures the portion of its net income that it pays out as cash dividends to shareholders. The payout ratio is expressed as a percentage, and indicates how sustainable a company's dividend payments are. For example, a payout ratio of 10% would mean that the company paid out 10% of its total net income as dividends to the shareholders, so if it had $100,000 of net income, $10,000 of it would have been paid to shareholders in the form of cash dividends.

8. Dividend Yield

$$= \frac{\text{Cash Dividends per Share}}{\text{Share Price}}$$

The dividend yield ratio measures the amount of dividends paid by a company relative to the company's share price. Dividend yield is expressed as a percentage by taking the cash dividends per share and dividing them by the share price. This reveals what percentage of the share price is returned to the shareholder in terms of cash flow. For example, if a company's share price was $50 and it declared $2 of dividends for the year, it would have a dividend yield of 4%. This means that of the capital someone invests in the company, they will receive 4% of it back as cash dividends.

Solvency Ratios

1. Debt to Equity

$$= \frac{\text{Total Debt}}{\text{Total Equity}}$$

The debt equity ratio reveals the relationship between debt and equity, and the capital structure of a company. It measures how much of the company's funding comes from liabilities (debt) and how much comes from ownership (equity). This is known as a company's financial leverage, and the debt to ratio may be expressed as a number or percentage. For example, if a company has $100,000 of liabilities and $80,000 of equity, which would mean it has a debt to equity ratio of 1.25 or 125%. That would mean for every $1 of equity the business has, it has $1.25 of liabilities making it a risky business to invest in. However, if the company is able to generate net income well enough to pay off liabilities, that means the shareholders benefit more from the net income received, as there is not as much equity in the company as there would be if there was a lower debt to equity ratio, allowing for the shareholders to benefit more. Ultimately, deciding whether to use debt or equity to finance a company's operations is a complicated matter. You will learn more about this in Chapter 10.

2. Interest Coverage Ratio (Times Interest Earned)

$$= \frac{Earnings\ Before\ Interest\ Expense + Income\ Tax\ Expense}{\text{Interest Expense}}$$

The interest coverage ratio measures how well a company is able to meet its interest obligations on loans it has taken out. That is derived by taking earnings before interest and tax (EBIT) expenses, and dividing it by the interest expense. This reveals how many times over the company is able to pay its interest expense. For example, if a company had EBIT of $50,000 and $5,000 of interest expense, it would have an interest coverage ratio of 10.

This means the company would be able to pay off its interest obligations 10 times and is in a relatively good solvency position and not likely to have to file bankruptcy.

7.4 Managerial Accounting

Unlike financial accounting, which focuses on getting financial data and information to external users, managerial accounting focuses on providing internal users with useful financial data to help management make decisions. In managerial accounting, there are several techniques accountants use to analyze different parts of the business.

One of the techniques used in managerial accounting is product costing, which assigns costs to each input used in production to determine the total cost of making one unit of a good. For example, consider the case of Gabriel's Stationary, a business with multiple products. The management wants to find out what price to set each of these products, such as one pencil, so they use product costing. Product costing determines the cost of raw materials, labour, rent, machinery, utilities and any other costs that are allocated to the production of a single pencil. Costs such as rent and utilities can be difficult to measure for each product, however it can be divided up based on, for example, the number square feet the production of pencils is taking. Let's say there was $0.20 of raw materials, $0.25 of labour and $0.25 of all other costs. This would make a single pencil cost $0.70, so now management can accurately price it based on the company's goals and how much profit margin they would like.

In addition to product costing, managerial accounting uses cash flow analysis, inventory and raw material turnover analysis, financial leverage metrics, and accounts receivable management. Cash flow analysis analyzes the cash flow statements within a company, and tries to delay cash outlays and speed-up cash inflows. Cash flow analysis also analyzes cash flow for areas of improvement and creates cash flow budgets, which are projections of cash flow for future years. Inventory and raw material turnover analysis takes a look at how often a company sells its inventory and has to replace it along with raw materials required in the production of the inventory. Financial leverage metrics provide insight into a company's capital structure, and determines how much is financed through debt and how much is financed through equity. Accounts receivable (A/R) management oversees accounts receivables, and attempts to collect on ones nearing their due date. A/R management is responsible for estimating the amount of bad debt (the amount of debt the company will not be able to re-collect from customers), and write-off the debt as necessary.

One last technique managerial accountants use is budgeting, trend and variance analysis. Budgeting analysis takes a look at capital expenditures in a business. Accountants will use managerial accounting to determine whether a capital expenditure is beneficial to a business, how to finance it if they decide to move ahead with the task and how long it will take to see income generated from that capital expenditure. Trend analysis has to do with looking at the costs and prices of goods and services over a period of time in an attempt to discover patterns and predict future trends. Trend analysis also takes a look at the deviations between their projected budgets and what the company actually spent, otherwise known as variances. Variance analysis is taking a look at what management had projected versus what outcomes actually occurred. For example, if a company has $80,000 budgeted for purchasing their raw materials for the year, however they spend $90,000, there is a variance of $10,000. Variance analysis would further look into the reason behind this variance, which is may be purchase price variance meaning the price at which the materials were purchased has increased at a rate greater than expected. Another viable reason could be a variance in quantity of production, meaning that more goods were produced than expected. There are a variety of causes for the variances, which may include a change in labour rates, a change in selling price, changed efficiency of the workers or a change in overhead costs. Variance analysis is useful in managerial accounting as it specifies why management's projections deviated so they can better project for the future. More importantly, it pinpoints why a business' revenues or expenses were above or below the projected amount and how they can more efficiently operate the business to increase revenues and decrease expenses.

It can be difficult to determine how much of something to purchase or produce, but that's where marginal analysis comes in. Marginal analysis is taking a look at an activity, and seeing how the benefits and costs would change if more or less of the activity were done. For example, a company currently produces 100,000 units of radios, but they wish to expand their business. They would do a marginal analysis to determine how much costs would increase due to the increased amount of rental space and machinery they would require, as well as an increase in utilities and raw materials, and any additional costs. Taking all the costs into consideration, they would then determine how much they stand to benefit from the expansion and increased production of radios. If an additional 100,000 units could be produced with an additional $10 of revenue each, the revenues would have to provide added benefits of at least $1 million for the company to break even on the expansion. Marginal analysis can be useful when deciding between multiple projects to choose between, such as producing the addition 100,000 units of radios or beginning an mp3 production segment of the business. Marginal analysis would analyze the additional costs and revenues, and lead management towards the one with higher profits.

Costs play a big role in managerial accounting and there are a variety of types of costs. Managing costs and expenses is a crucial part of increasing the net income of a business. Costs can be analyzed on different levels such as costs per product or cost per project, which is important to report accurate information on financial statements. Some of the types of costs are as follows:

- *Variable Cost*: Variable costs vary depending on the level of output a company has. For example, a pizzeria's electricity usage is a variable expense, as the more pizza they produce using their electric ovens, the higher the costs of electricity will be.
- *Fixed Cost*: Fixed costs are costs that do not change, regardless of the amount of production. For example, the pizzeria has to pay rent for the space they use, which is a fixed amount they have to pay whether they sell one pizza or one hundred pizzas. Note that costs are fixed only over a **relevant range**. If the pizzeria had to expand its operations and rent a second building, then they would

Relevant Range
a specific activity level that is that is bound by a minimum and maximum amount

have to incur more rent costs. However, the rent is still fixed per building. In this case, our relevant range is one building.

- *Direct Cost***:** Direct costs are the costs directly associated with the production of a good or service, including materials and any direct labour used to produce it. For example, a person can make 6 radios an hour, so that person's wages and the raw materials of the radio would be the direct costs. Direct costs are a type of variable costs as they increase and decrease depending on the volume production.
- *Indirect Cost***:** Indirect costs are costs associated with operating the business but cannot be specifically allocated to the production of goods or services. For example, a small business uses a small amount of rental space for both their head offices and production, hence the amount electricity used only for production cannot be determined and is an indirect cost to the business.
- *Sunk Cost***:** Sunk costs are costs businesses incur, usually when the business is starting up new, that have already been invested in the business and cannot be recovered. For example, a t-shirt production company needs to purchase $200,000 worth of sewing machinery to start up their business. The machinery would be a sunk cost once it is purchased, as the amount spent on machinery is an expense the business has incurred to start up and cannot be recovered.
- *Differential Cost***:** Differential cost can be described as the price difference between two alternatives. For example, a business is deciding whether they should advertise in a Super Bowl commercial for $1 billion or create a different ad campaign for $750 million. The differential cost would be $250 million.

Cost accounting has its own subset within managerial accounting as costs play an important role in making decisions internally. One thing cost accounting delves further into is cost drivers. A cost driver is any activity or event that causes costs to be incurred, or changes the amount of costs incurred. There are a multitude of cost drivers that a business has, such as direct labour or inventory storage costs, all which help drive up the cost of production.

Cost accounting budgets are created to help with future projections of financial information within a company, such as revenues and expenses. Anticipating the amount of sales and spending of a company can be extremely useful so a company can make arrangements ahead of time, such as hiring extra labour or ordering materials needed for production ahead of time. Budgeting also limits the amount each department of a company has to spend over a period of time such as a year, which helps them maintain control over their expenses and stay on track with their financial goals as a whole. Management can also implement what is known as a rolling budget, which incrementally adds to the budget in place, every month for example, so that there is always a yearlong budget in place. For example, if a budget is for the time period of March 2017-February 2018, once April 2017 arrives, a budget for the month of March 2018 will be added into the existing budget so there will again be a one-year budget, from April 2017 – March 2018, in place. Within cost accounting, there are five types of budgets including the master, operating, cash flow, financial and static budgets. The master budget oversees the business' finances as a whole, whereas the cash flow budget look at only the cash inflows and outflows within the business. The operating budget looks at the revenues and expenses related to the core functions of the business and makes projections for sales and costs to predict a net income. The financial budget is the management's strategy for how they go upon managing the financial state of their company, such as how they will make use of assets or manage expenses. Finally, the static budget does not get altered throughout the year. The static budget is created at the beginning of a fiscal period and management is forced to match the budget as closely as possible to achieve a wanted outcome, which can be difficult as the budget is not flexible.

There are costing techniques management accountants use, which are different ways to allocate costs to different cost objects. Cost allocation is the assigning of costs to cost objects that are creating those costs, such as a specific product, department or project. Broadly speaking, we can classify a costing system as being either **Variable Costing** or **Full Absorption costing**. Under Variable Costing, we only allocate

Variable Costing
a method that only assigns variable costs to inventory

Full Absorption Costing
a costing system which treats all costs of production as product costs, regardless weather they are variable or fixed

the direct costs to our cost object. Meanwhile, under Full Absorption costing, we assign both direct and indirect costs to our cost object.

Worked Example

Gupta Enterprises manufactures stethoscopes, a commonly used tool in doctor's offices. In the month of March, Gupta paid its workers \$15/hour for direct labor. Total direct labor hours were 500,000. Gupta also incurred \$200,000 in direct costs related to the manufacturing of the stethoscopes. Gupta also incurred overhead of \$275,000. Assuming that the stethoscopes are the only product that Gupta manufactures, determine the cost that would be assigned to the stethoscopes under:

1. Direct Costing

2. Full Absorption Costing

Solution:

1. Under this method, we only consider direct costs. Thus, the cost we would assign to the stethoscopes would be

$$\$15/\text{hour} \times 500{,}000 \text{ hours} + \$200{,}000 = \$7{,}700{,}000$$

2. Under this method, we have to consider both our direct and indirect costs. Thus, the cost we would assign to the stethoscopes would be

$$\$15/\text{hour} \times 500{,}000 \text{ hours} + \$200{,}000 + \$275{,}000 = \$7{,}975{,}000$$

Your Time to Shine

Gupta Enterprises manufactures stethoscopes, a commonly used tool in doctor's offices. In the month of April, labor costs fell to \$10/hour for direct labor. Total direct labor hours increased to 600,000. Gupta also incurred \$250,000 in direct costs related to the manufacturing of the stethoscopes. Gupta also incurred overhead of \$150,000. Assuming that the stethoscopes are the only product that Gupta manufactures, determine the cost that would be assigned to the stethoscopes under:

1. Direct Costing

2. Full Absorption Costing

As you can see, using Full Absorption costing is more accurate because it takes into account indirect costs. In reality, companies have multiple products. How do we allocate the costs among different products? Here, we introduce two types of allocation methods: **traditional costing** and **Activity-Based Costing (ABC)**.

Traditional Costing
the allocation of factory overhead to products based on the volume of production resources consumed

Activity-Based Costing
a costing system that identifies activities in an organization and assigns the cost of each activity with resources to all products and services according to the actual consumption by each

Cost Driver
the unit of an activity that causes

Traditional costing groups the indirect expenses together into a single cost pool. These costs are then allocated using a single **cost driver**. For example, the company may choose to allocate costs using direct labor hours, or machine hours, or direct labor dollars, or machine dollars. Regardless of which cost driver is chosen, we can generalize that under traditional costing, the amount of overhead allocated to a product is proportional to the amount of use of the cost driver in the production of that good.

Reconsider the case of Gupta Enterprises from before. Suppose it is now May, and Gupta Enterprises now produces two products: stethoscopes and blood pressure monitors. In total, the company incurred $550,000 in overhead. Gupta's factory operates at full practical capacity, and its workers worked a total of 1,000,000 direct labor hours. If workers spent 200,000 hours on making stethoscopes, how much overhead should be allocated to each product?

To solve this question, we first consider the fact that Gupta Enterprises was operating at full capacity. This allows us to deduce that the amount of direct labor hours for manufacturing blood pressure monitors must have been

1,000,000 – 200,000 = 800,000 hours.

$$\text{Cost Driver Rate} = \frac{\$550{,}000}{1{,}000{,}000 \text{ hours}}$$

$$= \$0.55/\text{hour}$$

$$\text{Allocated Overhead for Stethoscopes} = \$0.55 \times 200{,}000$$

$$= \$110{,}000$$

Allocated Overhead for Blood Pressure Monitors

$= \$0.55 \times 800{,}000$

$= \$440{,}000$

However, as time went on, accountants realized that this method had its limitations. First, this method allows the use of only 1 cost driver, which can affect the accuracy of the costing system. Moreover, traditional costing does not recognize that some overhead costs are incurred irrespective of number of units produced. Consequently, traditional costing results in **volume bias.**

Volume Bias
A flaw associated with traditional costing that results in high-volume products being overcosted and low-volume products being undercosted.

With all the limitations of traditional costing, accountants developed activity based costing. ABC is the allocation of costs based on different activities performed within a business. For example, let us return to the scenario of Gupta Enterprises. The management of Gupta Enterprises has compiled the following information about Gupta's overhead costs:

Figure 7.4.1: Cost Drivers for Gupta Enterprises

Activity	Cost Driver	Stethoscopes	Blood Pressure Monitor	Total Activity Cost
Equipment Set-Up	Number of Set-Ups	2	40	\$50,000
Shipping & Handling	Number of Shipments	100	10	\$100,000
Salary of Support Staff & Management	Direct Labour Hours	200,000	800,000	\$300,000
Machine Costs	Number of Machine Hours	200,000	100,000	\$100,000

How much overhead do we allocate to each product?

Just as under traditional costing, we need to compute our cost driver rates. However, under ABC, we have multiple cost pool and cost drivers.

$$\text{Equipment Set-Up} = \frac{\$50{,}000}{20+40}$$

$$= \$833.33/\text{setup}$$

$$\text{Shipping and Handling} = \frac{\$100{,}000}{100+10}$$

$$= \$909.09/\text{shipment}$$

Salary of Support Staff & Management

$$= \frac{\$300{,}000}{200{,}000+800{,}000}$$

$$= \$0.30/\text{direct labor hours}$$

$$\text{Machine Costs} = \frac{\$100{,}000}{200{,}000+100{,}000}$$

$$= \$0.33/\text{ machine hours}$$

After we have the cost driver rates, we can multiply the cost driver rate by the activity utilization to determine the amount of overhead for each activity to allocate to the product.

Let us consider Stethoscopes:

Equipment Set-Up Costs $= \$833.33 \times 20$

$= \$16{,}666.67$

Shipping & Handling Costs = $909.09*100

= $90,909.09

Salary of Support Staff & Management = $\$0.30 \times 200{,}000$

= $70,000

Machine Costs = $\$0.33 \times 200{,}000$

= $66,666.67

Total Allocated overhead for stethoscopes = $244,242.43

To calculate the overhead for blood pressure monitors, we could use the overhead rates and apply them to each activity. But there's a simpler way. Remember that the factory is operating at practical capacity.

Thus, it follows that the overhead for blood pressure monitors is given by:

$550,000 – $244,242.43 = $305,757.57

In job order costing, the cost object is no longer a product but rather a specific "job." For example, suppose that Kelli's cake shop was asked to bake a cake for a Canada Day ceremony. Under this method, Kelli's Cake Shoppe would assign all costs including raw materials, labour and utilities for that job order to that one cake, which would be the cost object. Lean accounting focuses on value-based pricing, unlike ABC or traditional costing. Value-based pricing is assigning prices to goods and services based on the value they provide to the customers rather than marking up the price after measuring the costs incurred to produce the good or service. For example, a car company might use cost-plus pricing as they simply calculate costs and mark up the price, however a luxury car company would use value-based pricing as they are providing a car with more comfortable seats for example, which is an added value.

Marginal costing is also known as cost-volume profit analysis, which measures the relationship between the three. The formula assumes the sales price and variable cost per unit to remain consistent, which can be useful to determine the break-even point of a good or service. The break-even point is the quantity of goods or services required to be sold in order for the business to completely cover its expenses for the production of that item. This can be useful to management as they can more accurately estimate after how many sales the company will break-even, and whether is it realistic for them to expect profits.

The formula is written as $px = vx + FC +$ profit, where p represents the price per unit, v represents the variable cost per unit, FC represents the fixed costs allocated to this good or service, and x represents the quantity sold.

To determine the break-even point using the formula, $profit$ must be set to \$0, which is when the company makes \$0 in profit but also sells enough to cover all its expenses. For example, a sofa costs \$100 in variable costs and sells it for \$450, and there are \$7,500 of fixed expenses the company faces, how many sofas would the company have to sell to break even? The formula can be rearranged to isolate the quantity

$$X = \frac{\text{profit} + \text{FC}}{(\text{P}-\text{V})}.$$

Plugging in the values,

$$X = \frac{0 + 7500}{(450-100)},$$

the company would have to sell 21.42 sofas, but since a half a sofa cannot be manufactured, 22 sofas would need to be sold to break even and earn a bit of profit.

Cost-volume profit analysis can also be used to see how changes in variable or fixed costs, the quantity of goods sold, or profit affect each other. Management can realistically manipulate these numbers to determine sales goals, or determine how much they need to increase their profit margin by to reach the desired levels of profit.

Operating leverage refers to the relationship between fixed and variable costs within a business. If a company has a high degree of operating leverage, it means their fixed costs are relatively greater than their variable costs, whereas a low degree of operating leverage means the opposite. A company with a high degree of operational leverage will see their profits increase significantly with added sales, as their variable costs are low, however they will also suffer more losses if sales are not made as fixed costs must be paid regardless of quantity of sales. The degree of operating leverage (DOL) can be calculated as

$$DOL = \frac{(\text{Sales}-\text{Variable Costs})}{\text{Profit}}.$$

For example, Bidhur's Trap House has a profit of \$10,000, variable costs of \$3,000 and \$30,000 of sales, it would equate to

$$DOL = \frac{(\$30{,}000 - \$3{,}000)}{\$10{,}000}.$$

This would have a DOL of 2.7, meaning if sales increased by 100% (doubled), the profit would increase by 270%.

In businesses with many products being sold, it can get hard to maintain a record of what has been sold. The cost of goods sold can be calculated through one of four ways: The First-In, First-Out (FIFO) method, Last-In, Last-Out method (LIFO), weighted average method and specific cost method. For example, a company made the following purchases (Figure 7.4.2) over the course of 2017.

Figure 7.4.2: Schedule of Purchases of Inventory

Date	Quantity of Product	Per Item Cost	Total Cost
Jan. 1	100	$8	$800
Mar. 8	500	$10	$5,000
Jun. 10	50	$12	$900
Dec. 1	100	$15	$1,500

Under the FIFO method, we assume what was purchased first is what is sold first. For example, if 625 units of the product were sold, we would take the cost of 100 units from January 1st, 500 units from March 8th, and 25 units from June 10th. That would bring the total cost to

$$\$800 + \$5{,}000 + (\$25 \times \$12)$$

$$= \$800 + \$5{,}000 + \$300$$

$$= \$6{,}100$$

The cost of goods sold under the FIFO method would be $6,100.

Under the LIFO method, we assume what was purchased last is sold first. This can be assumed in certain industries such as grocery stores (customers usually want fresher produce), however it is not always practical to use as it doesn't usually match the products being sold in real life. 625 units being sold under the LIFO method would mean 100 units from December 1st, 50 units from June 10th, and 475 units from March 8th sold. That would bring the total cost to

$$\$1{,}500 + \$600 + (\$475 \times \$10)$$

$$= \$1{,}500 + \$600 + \$4{,}750$$

$$= \$6{,}850$$

The cost of goods sold under the FIFO method would be $6,850.

Under the weighted average method, the company calculates the average cost of all units purchased throughout the month. To do this, you take the total cost of all units

$$\$800 + \$5{,}000 + \$600 + \$1{,}500 = \$7{,}900$$

and divide it by the total number of units

$$100 + 500 + 50 + 100 = 750$$

to get the average cost. In this scenario, the average cost is

$$\frac{\$7{,}900}{750} = \$10.53$$

To calculate the cost of goods sold for 625 units, you take the average cost per unit and multiply by the quantity sold,

$$\$10.53 \times 625 = \$6{,}581.25$$

The cost of goods sold under the weighted average method is $6,581.25.

Under the specific cost method, the company maintains records of individual purchases and inventory. The company then calculates cost of goods sold by knowing exactly how many units from each date were sold.

Questions for Comprehension

Multiple Choice

1. Which of these is true concerning the balance sheet?
   a) It shows the changes in a company's financial position over a period of time.
   b) It shows the profits earned by a company over a period in time.
   c) It shows a company's financial position at a specific point in time.
   d) It shows the profits earned by a company at a specific point in time.
   e) It is not one of the 4 major financial statements.

2. Retained Earnings would appear…
   a) On the balance sheet
   b) On the income statement
   c) Both a) and b)
   d) Neither a) nor b)

3. Rachel Tran Co. issues 10 million public shares to investors. This transaction would be classified as what type of activity on the Cash Flow Statement?
   a) Operating
   b) Investing
   c) Financing
   d) All of the above
   e) Uncertain—it depends on who you ask

4. Ayush Kapur Ltd. is a publicly traded US company. On Dec 1, 2001, it purchased land for $10 million. A geological survey reveals that the land is worth $20 million as of 2015. In 2015, the company changes its balance sheet to record the land at $20 million. This violates…
   a) Going Concern Assumption
   b) Monetary Unit Assumption
   c) Matching Principle
   d) Historical Cost Principle
   e) Materiality Constraint

5. Current assets are assets that the company expect to use …
   a) Within 3 months
   b) Within 6 months
   c) Within 1 year
   d) Within 3 years
   e) Within 5 years

6. The Twinkle Company has a current ratio of 4.55. Which of these interpretations concerning the firm's current ratio is correct?
   a) For every $1 of current assets, the company has $4.55 in current liabilities.
   b) For every $1 of current liabilities, the company has $4.55 in current assets.
   c) The company is in a better financial position than a company with a current ratio of 2.02.
   d) Both b) and c)
   e) a), b) and c)

7. Arrange these activities in the order in which they occur during the accounting cycle:
   I. Identify transactions
   II. Prepare Financial Statements
   III. Post Journal Entries
   IV. Record Entries in General Journal
   a) I, II, III, IV
   b) I, IV, II, III
   c) I, IV, III, II
   d) IV, III, II, I
   e) None of the above

8. Recording accrued expenses is an example of which part of GAAP?
   a) Matching Principle
   b) Cost Principle
   c) Conservatism Principle
   d) Groupthink Principle
   e) Expense Principle

9. The Balala Company had Sales Revenues of $40 million; Cost of Goods Sold of $25 million; Selling, General, Admin Expense of $3 million; and Depreciation Expense of $5 million in the year 2013. The closing entry for Balala Company in the year 2013 would involve …
   a) Credit to Sales Revenues for $40 million
   b) Debit to Cost of Goods Sold for $25 million
   c) Credit to Depreciation Expense for $5 million
   d) Debit to Selling, General, Admin Expense for $3 million

10. Which of these statements is true about accounting?
    a) Accounting focuses only on cash flows
    b) Accounting standards are consistent across all countries.
    c) Accounting aims to provide meaningful information to decision-makers.
    d) Accounting scandals have never occurred.
    e) All of the above

11. The Nifemi Company provides snow shovelling services for a year. On April1, the company receives $6,000 cash from a customer, and in exchange will provide snow shovelling services for a year. If the company records the transaction by debiting cash for $6,000 and crediting Revenue for $6,000, and then …
    a) Assets will be overstated by $6,000.
    b) Liabilities will be understated by $6,000.
    c) Expenses will be overstated by $6,000.
    d) Revenues will be understated by $6,000.
    e) The company has not made an error in recording this transaction.

12. Blagojevic Inc. decides buys a new factory for $35 million, paying with cash. Because of this transaction …
    a) The company's current ratio will increase.
    b) The company's current ratio will decrease.
    c) The company's current ratio will remain unchanged.
    d) More information is needed to determine the effect of this transaction on the current ratio.

13. Spoila's company takes 17 days to sell its inventory, and generally collects its receivables within 32 days of the sale. How long is the operating cycle for this company?
    a) 17 days
    b) 32 days
    c) 49 days
    d) 1 month
    e) 1 year

14. Which of these accounts would appear on a post-closing trial balance?
    a) Accounts Receivable
    b) Selling, General and Administrative Expense
    c) Sales Revenue
    d) Goodwill Expense

15. Bank Loan Payable decreases by $5,000, which is the effect on the Cash Flow Statement?
    a) Cash from Operating Activities decreases by $5,000
    b) Cash from Investing Activities decreases by $5,000
    c) Cash from Financing Activities decreases by $5,000
    d) Cash from Operating Activities increases by $5,000
    e) No effect

16. Surangiwala Unlimited owns a wide variety of patents. They are examples of ______________ assets.
    a) Current
    b) Tangible
    c) Intangible
    d) Fungible
    e) Naïve

17. A company's fiscal year end can be which of the following dates?
    a) Jan. 31
    b) Dec. 31
    c) Nov. 7
    d) Oct. 15
    e) Any of the above

18. What type of account is Prepaid Expenses?
    a) Revenue
    b) Expense
    c) Asset
    d) Liability
    e) Shareholders' Equity

19. What type of account is Accumulated Depreciation?
    a) Asset
    b) Liability
    c) Shareholders' Equity
    d) Contra-Asset
    e) Contra-Liability

Short Answer Questions

20. IFRS and GAAP differ in many ways. One key difference is that the use of LIFO is prohibited under IFRS. Using what you know about LIFE, and IFRS, give a possible explanation.

21. Compute Return on Equity directly and using the DuPont formula given the following information:
    - Assets = $500,000
    - Liabilities = $350,000
    - Sales Revenue = $1,500,000
    - Net Income = $240,000

22. A busy CEO is complaining to his CFO about the immense amount of disclosure required. "I don't understand why we have to give produce a cash flow statement and an income statement. Aren't cash flow and net income going to be the same anyways?" As the CFO, comment on the accuracy of the CEO's claim and explain using the concepts discussed in this chapter why companies are required to produce both financial statements.

23. Companies often lease assets instead of purchasing them outright. Under US GAAP, there is a distinction between an *operating lease* and a *capital lease*. If a lease is considered an operating lease, then lease payments are recorded as an expense. However, if the lease is a capital lease, the company needs to be recognized a leased assets and corresponding lease liability. FASB is considering a proposal to modify GAAP so that both types of leases would appear on the balance sheet. What do you think are the reasons behind FASB's proposal?

24. Activity-Based Costing has so many benefits compared to Traditional Costing. In light of this, why do you think not all companies have migrated to ABC?

Mini-Case

Mr. Lai is a former superior court judge in Ontario. After 18 years on the bench, he decides it is time for a career change and opens up his own manufacturing firm. As someone who is very passionate about law, he decides that his firm will produce gavels and lawyer robes.

In the first month of operations, Lai Legal Supplies Inc. produces 50,000 gavels and 80,000 lawyer robes. The material cost of the gavels totalled $100,000, and the material cost of the robes totaled $1,000,000. Direct labor hours were 200,000 for the gavels and 500,000 for the robes, at a rate of $20/hour.

In addition, the firm also incurs the following overhead:

- Mr. Lai earns an annual salary of $200,000 for overseeing the business. As someone who believes in justice, Mr. Lai allocates his management time overseeing production activities in direct proportion to the number of direct labor hours that his workers spend on producing the product.
- The cost of renting the factory is $100,000. This amount would be incurred irrespective of how many gavels and lawyer robes the firm produces. Thus, the company does not allocate this expense to a particular product.
- Shipment costs totalled $500,000. In total, the company made 10,000 shipments of gavels and 2,000 shipments of lawyer robes.
- Machine set-up costs totalled $350,000. 2,000 setups were made with respect to the production of gavels, and 3,000 setups were made with respect to the production of lawyer robes.
- Other Selling, General, and Administrative costs totalled $375,000. These are not allocated to a particular product.

1. Suppose the company allocates overhead using a traditional costing system, with direct labor hours as the cost driver. Assume that the company is operating at practical capacity. If the company wishes to make a 20% gross margin on both products, at what price should they sell each product.

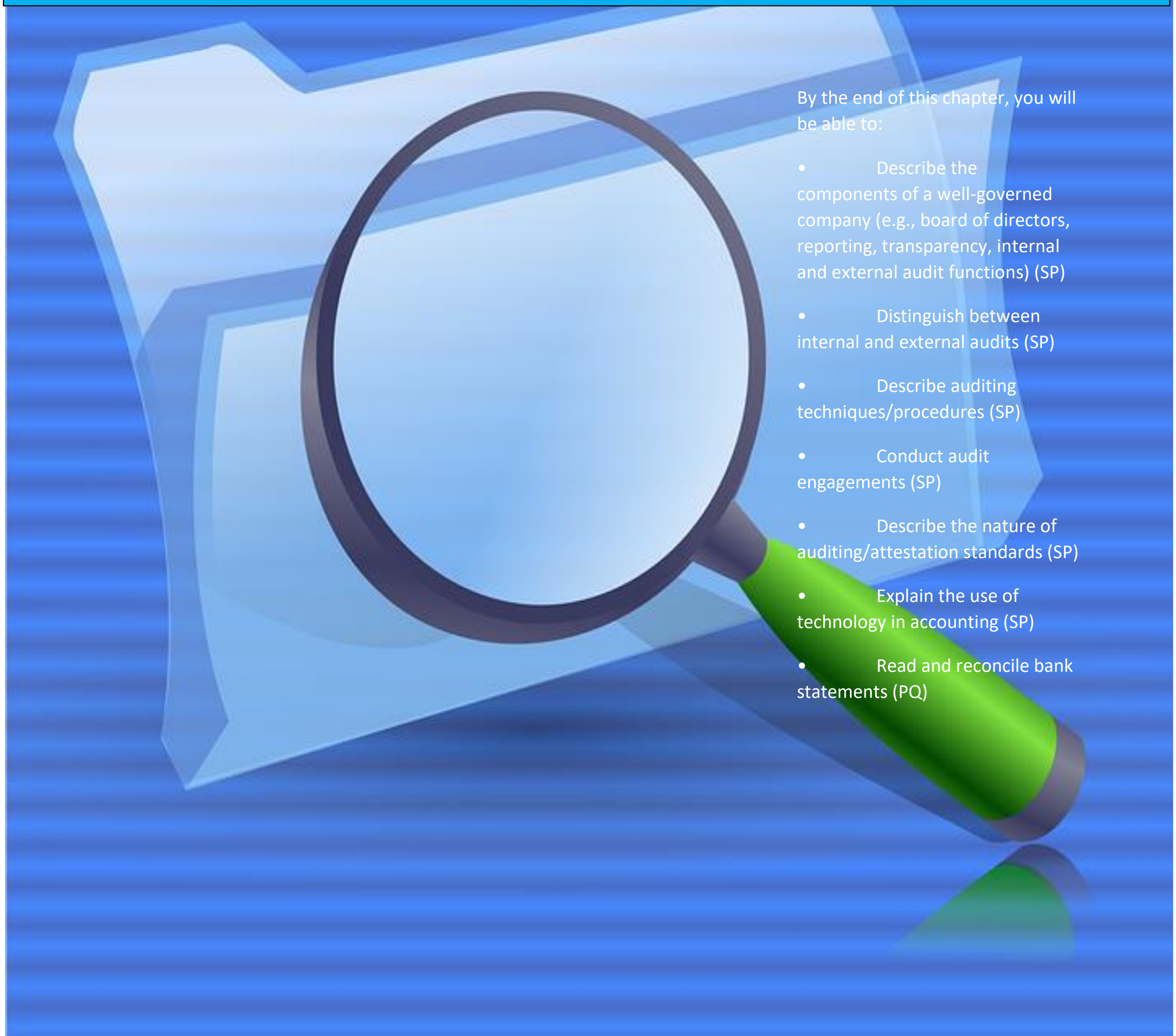
2. Now suppose instead that the company uses activity-based costing. What is the new per unit cost of each product?

3. Suppose the company had revenues of $20,000,000, no interest expenses, and a tax rate of 35%. Prepare an income statement for the company for August 2015, the first month of operations.

4. Based on your income statement from question 3, compute the net profit margin.

Chapter 8

Audit and Internal Controls



By the end of this chapter, you will be able to:

- Describe the components of a well-governed company (e.g., board of directors, reporting, transparency, internal and external audit functions) (SP)
- Distinguish between internal and external audits (SP)
- Describe auditing techniques/procedures (SP)
- Conduct audit engagements (SP)
- Describe the nature of auditing/attestation standards (SP)
- Explain the use of technology in accounting (SP)
- Read and reconcile bank statements (PQ)

In the previous chapter, you learned that financial information plays a crucial role in helping internal and external users make decisions. When you examine a company's balance sheet, you trust that it represents the company's financial position fairly well. Yet in the early 2000s, there was a wave of accounting scandals, creating massive losses for investors. How can we trust that financial statements are accurate? How can we trust that management is being honest? In this chapter, you will learn about types of accounting fraud and an important piece of legislation designed to combat fraud. You will understand the importance of auditors, both internal, and external. Finally, you will recognize the purpose of internal controls, and learn a leading framework for establishing effective internal controls.

8.1 Fraud & Scandals

Investors and creditors rely on accurate financial statements to make informed decisions. Sometimes, however, the statements may contain errors or misrepresentations, which impact the decision-making process. **Fraud** is a deliberate attempt by a person or entity to deceive or misrepresent the factual circumstances.

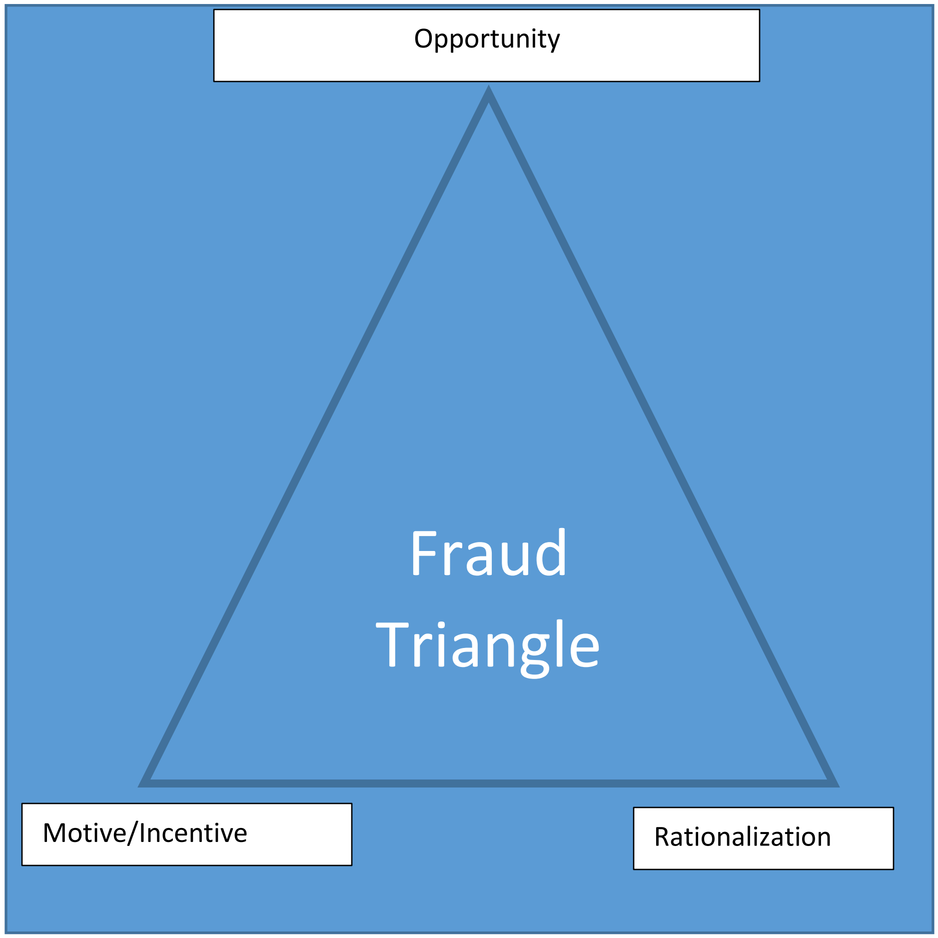
Fraud
a deliberate attempt by a person or entity to deceive or mislead others

Some examples of fraud are easier to detect than others. For example, suppose your broker tried to convince you that Apple stock was trading at only $1/share. You could easily check Google Finance or Yahoo Finance, and determine that Apple's stock price is worth far more than that.

Other examples are more difficult to detect. In many instances, accountants and management must make subjective judgements that affect a company's financial results. For example, companies must estimate the amount of their accounts receivable that is expected to become uncollectible. It can be difficult to determine whether the estimate was made in good faith, or if the estimate was an attempt by management to manipulate its earnings.

Title 18 of the United States Code states that fraud is an offense that is punishable by imprisonment and/or fines. Given the severity of the punishment, it may be surprising to learn how frequently fraud is committed. Experts have tried to determine some factors that induce someone to commit fraud. The fraud triangle suggests that with any case of fraud, there is usually motive, opportunity, and rationalization.

A motive is the reason why someone committed fraud. For example, a company may overstate its earnings to boost its share price. It is also possible for a person to have multiple motives to commit fraud. Suppose a thief robs $100,000 from the bank, and the bank manager was playing video games while the robbery took place. The bank manager may fail to report the robbery to the bank's headquarters, both to prevent the bank's share price from taking a hit, and to save his own job.



While a motive drives someone to commit fraud, opportunity is what gives them the chance to do so. Many opportunities for fraud arise from weak internal controls. The concept of internal controls will be explored later on in this chapter.

Finally, in cases of fraud, individuals often try to rationalize their actions. Believing their actions are harmless, or that they have no other choice, individuals will be prone to committing fraud.

Embezzlement
the unauthorized taking of a company's assets (usually money) by an employee

In addition to earnings manipulation, there are other types of fraud that can occur. **Embezzlement** is when an employee decides to unlawfully take possession of money or other economic resources that belongs to the company. For example, a purchasing manager may set up a phony vendor using his/her own banking information. The vendor bills the company for goods that were never purchased, and the money is sent to the purchasing manager's bank account.

Shrinkage occurs when an employee steals a company's inventory. For example, suppose a cashier at Old Navy decides to take home a t-shirt that was displayed in the store. The employee's action leads to inventory shrinkage.

Shrinkage
when inventory is stolen by an employee

When fraud is discovered, it is often a major scandal for a company. Accounting scandals can destroy shareholder confidence. After all, would you feel confident investing in a company knowing that it has lied about its financial performance? Consequently, shareholders will quickly sell any remaining shares that they own, resulting in a precipitous decline in the company's stock price.

In the early 2000's, many companies including Worldcom, Parmalat, and MCI suffered scandals. Perhaps the most infamous accounting scandal in history is the case of Enron.

Enron was an American energy and electricity company. While Enron enjoyed a powerful monopoly in some electricity markets, it was later discovered that Enron had engaged in a practice known as **hypothetical future value accounting**. This means that the company made estimates of how much revenues it expected to generate in the future, and booked those sales as current period revenues. Recall from Chapter 7 that the Revenue Recognition Principle requires that revenues can only be recognized once the service has been performed or the buyer has taken title to the goods. Thus, Enron's accounting practice was a violation of GAAP.

Hypothetical Future Value Accounting
a deceptive accounting practice used by Enron

When news about Enron broke, its stock price plummeted. Ultimately, the firm collapsed, and all the employees lost their jobs. The CEO and CFO were sentenced to prison for their roles in the scandal. In addition, Arthur Andersen, the firm that audited Enron's financial statements, was forced into bankruptcy.

As you can see, fraud can create a devastating ripple effect throughout the economy. With all the fraud and scandals that occurred at the start of the 21st century, Congress knew they had to act.

8.2 Sarbanes-Oxley Act

In 2002, Congress passed the Sarbanes-Oxley Act (commonly referred to as "SOX" or "Sarbox.") The purpose of SOX was to enhance the reliability and accuracy of financial reporting. All publicly traded companies in the US are required to adhere to the provisions of SOX.

While SOX is more than 60 pages in length, there some key provisions that you should be aware of.

Title I of the Sarbanes-Oxley Act established the Public Company Accounting Oversight Board (PCAOB). The PCAOB was created to monitor and regulate the operations of external auditors. PCAOB also establishes standards and guidelines for how audits are to be completed. You will learn more about the role of PCAOB later in this chapter. With its regulatory and supervisory functions, is it any surprise that PCAOB has earned the pronunciation ("peek-a-boo")?

Title II imposes standards relating to auditor independence. To increase the trustworthiness of audit reports, auditors are expected to be free from any influence by the companies they are auditing. Title II requires that the lead partner on an audit be changed every five years. You will learn more about audits later in this chapter.

In addition, Title II places restrictions on the types of services that audit firms can provide. Audit firms are not allowed to provide consulting or advisory services for any client that they are currently auditing. Finally, Title II also places restrictions to prevent conflicts of interest. If someone worked in a senior position (eg CEO, CFO, controller, or chief accounting officer) at a client firm, and then is subsequently hired by the audit firm, they cannot participate in the audit of that client until one year has passed from the date they stopped working for the client firm.

Section 302 of the Sarbanes-Oxley Act is one of the most famous provisions. SOX 302 establishes management's responsibility for the accuracy of a company's financial reports. Specifically, a company's CEO and CFO must sign and attest that "the financial statements, and other financial information included in the report, fairly present in all material respects the financial condition and results of operations of the issuer as of, and for, the periods presented in the report." This declaration is considered a solemn affirmation, and management can be found liable if they knowingly made a false statement.

SOX 404 of the Sarbanes-Oxley Act is an equally important provision. SOX 404 states that management is responsible for establishing effective internal controls within a company, and requires that management conducts an assessment of the effectiveness of the company's internal controls at the end of every fiscal year.

Titles VIII, IV, and XI establish penalties for SOX violations. Companies that violate SOX may be subject to fines and/or delisting from the stock market. In addition, their management teams and directors may be subject to fines and/or imprisonment.

Title XI of SOX also enhances whistleblower protection for those who report cases of fraud or other violations of the Sarbanes-Oxley Act.

While SOX may not fully stop the commission of fraud, it can hopefully act a powerful deterrent against perpetrators.

Worked Example

Read each scenario and determine if there was a violation of the Sarbanes-Oxley Act. If so, identify the provision that was violated.

1. To ensure more consistent audits, Amherst Corp, a NYSE listed company, decides that it will hire the same external auditors for the next 10 years.

2. The CEO of Hudson Enterprises refuses to attest to the accuracy of the financial statements. "What if someone uses my signature to obtain a mortgage," she asks.

Solution:

1. Title II was violated. Amherst must change auditors at least once every five years.

2. SOX 302 was violated. The CEO must attest to the accuracy of the financial statements by making a signed declaration.

Your Time to Shine

Read each scenario and determine if there was a violation of the Sarbanes-Oxley Act. If so, identify the provision that was violated.

1. The CEO of Skilling Ltd declares "There is no need for internal controls. Establishing them would hinder our operational effectiveness."

2. A whistleblower reported to the SEC that Scallop Corp had violated the Sarbanes-Oxley Act. Subsequently, this whistleblower was fired from his job.

8.3 Board of Directors & Corporate Governance

In Chapter 3, you were introduced to the structure of the typical publicly traded company. Shareholders elect a board of directors, who in turn hire the company's management, including the CEO and CFO. The directors on a company's board play a vital role in ensuring that the company acts in the best interests of the shareholders.

The number of directors on a board can vary from company to company, and is not always proportional to the size of the company. For example, although Apple is one of the largest publicly traded companies, it has only 8 directors. Meanwhile, some other firms may have as many as 30 directors serving on the board.

The board's chairperson is its highest-ranking member. He or she has overall responsibility for ensuring that the board properly carries out its responsibilities. In some companies, the position of chairperson and CEO are carried out by separate people. This helps increase the board's independence, so that it is in a better position to oversee and scrutinize the actions of management, and if necessary, take corrective action to preserve shareholder value.

A company also typically has several committees. A committee consists of some but not all the directors on the company's board. Each committee is responsible for overseeing a particular function. Although companies may have a wide range of committees, in general, the most common types of committee are the Audit Committee, the Compensation Committee, the Nomination Committee, and the Ethics Committee.

The scope of each committee can be easily inferred from the name of the committee.

The Audit Committee is responsible for overseeing the work of the company's internal audit team. It is also responsible for hiring external auditors to conduct audits of the company's financial statements.

The Compensation Committee is responsible for determining the amount and type of pay for the board members and the company's C-Suite.

The Nomination Committee is responsible for establishing guidelines about the nomination, appointment and confirmation processes for board members and C-suite officials.

The Ethics Committee is responsible for establishing a code of ethics, conducting inquiries into potential ethics violations, and taking corrective measures to ensure that the firm abides by its code of ethics.

If shareholders are not satisfied with the performance of the board of directors, they may choose to vote against one or more board members at the next shareholders' meeting. If a director fails to receive majority support from shareholders, he or she is terminated from the board.

The board of directors plays a vital role in ensuring that the company has established good **corporate governance** procedures. Corporate governance refers to the policies, procedures, and directives that dictate the way the company is

Corporate Governance
the policies and procedures that outline how the company is run

run. Good corporate governance can lead to increased profitability and thus the creation of value for shareholders. Meanwhile, poor corporate governance can lead to losses for the firm, destroying shareholder wealth.

Currently, there is no universal standards for good corporate governance. Some corporate governance standards are enshrined in legislation. Others may be part of listing requirements of stock exchanges. And some may be part of industry best practices.

In Chapter 5 of the book you learned about the importance of business ethics. Maintaining ethical behavior is part of good corporate governance.

Now, we will talk about another fundamental aspect of good corporate governance: the independence of the board. Since the mandate of the board is to act in the interests of shareholders, it is important that the board remain independent of management. There are several characteristics that define an independent board.

First, as you learned earlier, the role of CEO and chairperson should be held by different people. This allows the board to properly oversee the actions of management, and take corrective measures if needed.

Second, a majority of the board members must be independent. This means that a majority of the board members must not simultaneously be part of the company's **C-Suite**. This is a requirement for all companies listed on the New York Stock Exchange as well as the NASDAQ.

C-Suite
the top executives of the company (ex: CEO, CFO, CAO, COO, etc)

Finally, a company should try, where possible, to avoid interlocking directorates. In Chapter 5, you learned that the Clayton Act prohibited interlocking directorates when the board member served on multiple boards of the same industry. Now, we will discuss the logic behind this regulation.

Suppose that Emily serves on the board of both Pepsi-Cola and Coca-Cola. As a board member, Emily is obligated to act in the shareholders' best interests.

Yet, Pepsi-Cola and Coca-Cola are rivals. This means that their shareholders often have competing interests. How can Emily possibly satisfy the interests of both shareholder groups? She cannot. Therefore, it is important not to have interlocking directorates.

While there are more elements to effective corporate governance practices, those are beyond the scope of this book. You can consult the NYSE manual on corporate governance for more information.

8.4 External Auditors & Other Key Players

You have probably heard the term external auditor before (especially if you have actually been paying attention to this chapter). An external auditor, also known as an independent auditor, is someone that is hired by an unrelated entity (known as the client) to determine whether the financial statements accurately depict, in all material respects, the financial position of the company. For the purposes of this chapter, the term "external auditor" shall be used to refer to both an individual auditor, and to refer collectively to all external auditors working on an engagement.

After auditors complete their audit, they can issue four types of opinions:

An **unqualified opinion** is effectively a passing grade. It means that the auditor believes that the financial statements are free from material errors.

A **qualified opinion** means that while the auditor generally believes the company has complied with GAAP, there are instances in which the company has not followed GAAP.

An **adverse opinion** means that the auditor believes that the client firm has committed numerous GAAP violations. The auditor does not believe that the financial statements prepared by the client accurately reflects the client's financial situation.

A **disclaimer opinion** is issued when an auditor is unable to render an opinion on whether or not the financial statements

Unqualified Opinion
an opinion issued when the auditor believes that the financial statements fairly reflect the company's financial situation

Qualified Opinion
an opinion issued when the auditor believes that the financial statements fairly reflect the company's financial situation, but there may be an issue with a particular account or line item

Adverse Opinion
an opinion issued when the auditor believes that the financial statements do not fairly reflect the company's financial situation

Disclaimer Opinion
an opinion issued when the auditor is unable to render an opinion on the financial statements

fairly represent in all material respects the company's financial position.

In the US, all publicly traded companies are required to have their financial statements audited on an annual basis. The auditor's report, which contains the auditor's opinion as well as a description of how they reached that conclusion, is required to be disclosed to shareholders on an annual basis.

In addition to assessing the accuracy of financial statements, external audit firms also test the effectiveness of the company's internal controls. The auditors will render an opinion as to whether or not there are significant (material) control deficiencies.

While many accounting firms provide external audit services, there are four large global players: KPMG, Ernst & Young, Deloitte, and PricewaterhouseCoopers. These firms are collectively known as the "big 4." A fifth player, Arthur Andersen LLP, used to exist, until the Enron scandal broke out. Subsequently, Arthur Andersen filed for bankruptcy.

Although auditors are hired by the company's audit committee, they do not report to management. In fact, one of their main jobs is to scrutinize the actions of management. External auditors communicate their findings to the client's board of directors as well as to shareholders.

As mentioned earlier, the Public Company Accounting Oversight Board (PCAOB) was created to monitor and regulate the actions of external audit firms. All external audit firms in the US are required to be registered with PCAOB.

PCAOB is one of the agencies that sets standards to which external auditors must adhere to. Failure to comply with these standards can result in disciplinary action, including fines and license revocation.

Another standard setting body in the United States is the American Institute of Certified Public Accountants (AICPA). The AICPA is responsible for setting auditing standards pertaining to audits of private companies.

Finally, the International Auditing and Assurance Standards Board (IAASB) sets auditing standards for publicly traded companies that are traded on non-US stock exchanges.

8.5 Generally Accepted Auditing Standards

The key principles that must be followed in an audit are known as Generally Accepted Auditing Standards (GAAS). PCAOB sets GAAS for US publicly traded companies, AICPA sets GAAS for US privately held companies, and IIASB sets GAAS for foreign publicly traded companies.

PCAOB has set out 10 GAAS Principles, which are grouped into the categories of General, Field Work, and Reporting.

General Standards

1. The auditor must have adequate technical training and proficiency to perform the audit.
2. The auditor must maintain independence in mental attitude in all matters related to the audit.
3. The auditor must exercise due professional care in the performance of the audit and in the preparation of the report.

Fieldwork Standards

1. The auditor must adequately plan the work and must properly supervise any assistants.
2. The auditor must obtain a sufficient understanding of the entity and its environment, including its internal control, to assess the risk of material misstatement of the financial statements whether due to error or fraud, and to design the nature, timing, and extent of further audit procedures.
3. The auditor must obtain sufficient appropriate audit evidence by performing audit procedures to afford a reasonable basis for an opinion regarding the financial statements under audit.

Reporting Standards

1. The auditor must state in the auditor's report whether the financial statements are presented in accordance with generally accepted accounting principles.
2. The auditor must identify in the auditor's report those circumstances in which such principles have not been consistently observed in the current period in relation to the preceding period.
3. When the auditor determines that informative disclosures are not reasonably adequate, the auditor must so state in the auditor's report.
4. The auditor must either express an opinion regarding the financial statements, taken as a whole, or state that an opinion cannot be expressed, in the auditor's report. When the auditor cannot express an overall opinion, the auditor should state the reasons therefor in the auditor's report. In all cases where an auditor's name is associated with financial statements, the auditor should clearly indicate the character of the auditor's work, if any, and the degree of responsibility the auditor is taking, in the auditor's report.

While you do not need to memorize these principles for the competition, having a general understanding of the nature of these principles can help you stand out from the competition.

PCAOB also issues more specific standards known as Audit Standards (AS). These standards are intended to provide more detailed guidance and must be adhered to during the audits of publicly traded companies.

Throughout the chapter, we will introduce a wide variety of PCAOB audit standards as well as their interpretation.

Let’s begin by examining AS 1001, which sets out responsibilities of external auditors and differentiates the responsibilities of the external auditors from those of management. Paragraph 1 of AS 1001 states:

"The objective of the ordinary audit of financial statements by the independent auditor is the expression of an opinion on the fairness with which they present, in all material respects, financial position, results of operations, and its cash flows in conformity with generally accepted accounting principles. The auditor's report is the medium through which he expresses his opinion or, if circumstances require, disclaims an opinion. In either case, he states whether his audit has been made in accordance with the standards of the PCAOB. These standards require him to state whether, in his opinion, the financial statements are presented in conformity with generally accepted accounting principles and to identify those circumstances in which such principles have not been consistently observed in the preparation of the financial statements of the current period in relation to those of the preceding period."

This first paragraph provides authoritative support for what we know the role of an external auditor to be. It reveals that auditors must render an opinion on not just one financial statement, but on all of the 3 key financial statements.

Paragraph 3 of AS 1001 states:

"The financial statements are management's responsibility. The auditor's responsibility is to express an opinion on the financial statements. Management is responsible for adopting sound accounting policies and for establishing and maintaining internal control that will, among other things, initiate, record, process, and report transactions (as well as events and conditions) consistent with management's assertions embodied in the financial statements. The entity's transactions and the related assets, liabilities, and equity are within the direct knowledge and control of management. The auditor's knowledge of these matters and internal control is limited to that acquired through the audit. Thus, the fair presentation of financial statements in conformity with generally accepted accounting principles is an implicit and integral part of management's responsibility. The independent auditor may make suggestions about the form or content of the financial statements or draft them, in whole or in part, based on information from management during the performance of the audit. **However, the**

auditor's responsibility for the financial statements he or she has audited is confined to the expression of his or her opinion on them.” (emphasis added)

Paragraph 3 resembles the viewpoint expressed in the Sarbanes-Oxley Act: the responsibility for the accuracy of financial statements and for establishing effective internal controls lies with management: the auditor’s only job is to render an opinion on whether management has met this burden.

This chapter is only intended to highlight the most important audit standards. For a comprehensive list of PCAOB audit standards, you can visit the PCAOB website.

Coverage of AICPA GAAS and IAASB standards is beyond the scope of this book, but you may locate these standard the AICPA and IAASB websites, respectively.

8.6 The Audit Process & Audit

Now that we introduced some of the key players in the audit process, let us discuss how an audit is conducted. First, the company being audited (the client) hires the external audit firm.

Remember that one of the most important qualities of an external audit firm is its independence. We want the firm to be able to reach an objective conclusion about the accuracy of the client’s financial statements and the effectiveness of the client’s internal controls. We saw earlier that SOX Title II prescribed some legislative requirements to facilitate auditor independence.

PCAOB standard AS 1005 imposes even stricter standards for auditor independence. Not only must the external auditor be independent of the client, but also, the auditor has to be perceived as being independent. AS 1005 provides that: “Independent auditors should not only be independent in fact; they should avoid situations that may lead outsiders to doubt their independence.”

For example, suppose that Erin’s sister is a controlling shareholder of Lakeshore enterprises. Erin has always believed in the value of integrity and honesty. As an auditor, she does not disclose confidential information obtained during her audits. Even if Erin does not tell her sister anything about Lakeshore while conducting the audit, Erin would still be in violation of AS 1005 if she audited Lakeshore because outsiders may doubt Erin's independence.

After the audit firm is hired, the firm prepares an **engagement letter**. This letter outlines the terms on which they have been hired, and outlines the scope of their audit. The engagement letter also specifies whether the audit is being performed under PCAOB standards or AICPA standards. The engagement letter is addressed to the board of directors of the company, not to the management. This is because the external audit firm will present their findings to the board, to bolster auditor independence.

Engagement Letter
a letter indicating the terms on which an auditor has been hired and the scope of the audit to be conducted

The next step in the audit process is to plan the engagement. An audit is a substantial undertaking, and just with any other large project, planning is important to ensure a high-quality audit. Thus, planning is a required component of GAAS (as you saw earlier in this chapter).

The auditor must design the audit in such a way as to minimize the **audit risk**. In essence, audit risk is the risk that the auditor comes to an incorrect audit opinion (eg rendering an unqualified opinion when an adverse opinion should have been rendered).

Audit Risk
the risk that an auditor comes to an incorrect audit opinion

To minimize audit risk, the auditors should conduct a **risk assessment**. The risk assessment allows them to identify high-risk areas within a firm's financial reporting and internal controls, and focus their audit more on these high-risk areas.

Risk Assessment
a step in the audit process that enables auditors to detect areas of concern that need closer scrutiny

Certain accounts are prone to fraud or misstatement. For example, cash and inventory are particularly susceptible. Therefore, companies need to maintain strong controls in these areas. You will learn more about the roles of internal controls later in this chapter.

Certain transactions can also raise suspicion. Recall that balance sheets are prepared as at a specific moment in time. Transactions that take place just before the books are closed require extra scrutiny, because they may be "**window dressing**." Window dressing occurs when a transaction is made to make the

Window Dressing
a transaction undertaken to make a company's financial situation look better than it actually is

company's financial position look better than it actually is.

For example, suppose Denver Engineering Ltd has a year-end of December 31st. The company has $10,000 in cash on December 30th. Just before they close the books on December 31st, Denver Engineering signs a 5- year, $10 million notes payable. The journal entry for this transaction is:

Dec 31	Cash	10,000,000	
	Notes Payable		10,000,000
	To record signing of a 5 year note payable		

After this transaction takes place, the cash account balance rises to $10,010,000, a significant increase. This is the balance that will be reported on the company's balance sheet. On January 1st, the company immediately pays back this notes payable, reversing the transaction. The cash balance falls back down to $10,000.

This transaction was merely intended to make the company look better. Thus, it violates the GAAP principle of full disclosure. Thus, auditors need to scrutinize transactions made close to the end of the fiscal period.

The next task for the auditor is to decide set a materiality threshold. Remember, the auditor only needs to be concerned with whether there are material (significant) errors or omissions in the financial statements. The materiality threshold may be expressed as a percentage or dollar amount, and differs from client to client, and from account to account. In deciding whether something is material or immaterial, the auditor often needs to rely on professional judgement.

Now that the auditor has finished these steps, the scope of the audit has been established. The auditor knows what to concentrate on when examining the records of the client. The next step is for the auditor to decide how he or she will verify the accuracy of the financial statements.

Now that the auditor has finished these steps, the scope of the audit has been established. The auditor knows what to concentrate on when examining the records of the client. The next step is for the auditor to decide how he or she will verify the accuracy of the financial statements.

It is important to note that the auditor often cannot test every single transaction, record, and control, as that would be too time consuming. Instead, the auditor usually uses a random sample of transactions, records, and controls to test.

One of the tools that auditors commonly use to assist them with their jobs a data analysis software such as IDEA or ACL. These software enable them to analyze trends in data, and look for anomalies. One anomaly detection tool relies on **Benford's Law.**

Benford's Law is a mathematical observation about patterns in the leading digit of numerical data. As an illustration, the leading digit in the number 8562 is 8, the first digit in the number.

Benford's Law found that in real-life data, leading digits of 0 and 1 are the most common, whereas a leading digit of 7 or 8 is more unlikely.

Data analysis software can compare the distribution of leading digits in a dataset to those predicted by Benford's Law. Of course, failing this test does not mean that the dataset is erroneous or has been tampered with. It just means that the auditor may need to scrutinize the data more.

In a recent case, auditors from KPMG were examining refunds issued by a call center. The auditors examined the leading digit on the refunds, and noticed that the leading digit "4" occurred more frequently than expected. Subsequent to this Benford's Law analysis, KPMG conducted more investigations, which led to the discovery that call center operators had been issuing fraudulent refunds upwards of a hundred thousand dollars.

As you can see, these tools are powerful resources for auditors. For the purposes of the competition, you do not need to know the specific capabilities of these data analysis software, but having an understanding of their role in the audit process can be useful.

Internal Controls
the policies and procedures put into place by a company to safeguard assets and enhance the accuracy of financial reporting

The auditor is now ready to start the actual audit. The auditor begins the audit by testing the effectiveness of **internal controls**. Internal controls are the policies and procedures put into place by the company to help protect assets and ensure accuracy in financial statements. We will discuss internal controls and controls testing in more depth later on in this chapter.

After the auditor has finished testing the effectiveness of the internal controls, he or she needs to formulate an opinion as to their effectiveness. If the auditor believes that the company has not maintained adequate controls, this means that there is greater risk that errors could have occurred. Thus, the auditor needs to apply even more scrutiny when analyzing the company's records.

Audit Evidence
evidence gathered by an auditor to support a management assertion

In addition to testing the internal controls, the auditor needs to test the accuracy of the financial statements. The auditor needs to look for **audit evidence** to support the assertions of management. An assertion is a claim made by management about the accounts. Audit evidence could take various forms, from transaction source documents, to third-party records (such as bank statements).

For example, consider the case of Shu's Math Tutoring Ltd, a company headquartered in Markham. Management claims that the company has $5 million in cash on the balance sheet. In this instance, management is making two assertions: the existence of the cash, and the accuracy of the cash balance. The auditor would choose the most appropriate test to verify the validity of the assertion, in this case, the auditor would examine the bank statements.

PCAOB Standard AS 1005 sets out guidelines for the audit evidence needed in order to support a particular assertion. The quantity of evidence required depends on two factors:

Risk of Misstatement

Suppose you are baking cookies. By accident, you add 10g more chocolate chips than the recipe called for. It's not a major issue; the cookies will just taste a little sweeter than usual. By contrast, suppose you were a doctor and you prescribed a patient with 10g more medicine than the needed dose. The patient could potentially die because of this mistake.

As you can tell, not all mistakes are equally dangerous. The more dangerous a mistake is, the greater the precautions we need to take to try to prevent it.

In the world of auditing, the mistake we need to be concerned with is the risk of material misstatements (inaccuracies) in the company's financial report. If a particular account has a high degree of risk of misstatement, the auditor needs to gather more evidence to support the management's assertion about that account.

Quality of Evidence Obtained

Suppose you are an equity research analyst. If this is the first year on the job, chances are your boss will carefully scrutinize your calculations and forecasts, because he or she does not yet have sufficient information about the quality of your work. But after you have been with the company for a few years, your boss may be less thorough with his or her reviews of your work, because you have now established a reputation for yourself.

Likewise, there is an inverse correlation between the quality of audit evidence and the quantity needed. When evidence is very high in quality, a lower amount is needed to support the assertion.

You are probably wondering how auditors determine the quality of evidence. To ensure consistency in audit work, PCAOB has set out two criteria which are used to assess the quality of evidence: reliability and relevance. The more relevant and reliable a piece of audit evidence is, the higher its quality. For example, bank statements are higher quality than verbal information from the client.

There are different procedures auditors can use to obtain evidence. The auditors can examine records, or conduct interviews with company employees, just to name a few methods.

Once the auditor has finished the testing, the auditor is ready to formulate his or her opinion on whether or not the financial statements are materially accurate. The lead audit partner (a high ranking employee who is responsible for overseeing the audit of a particular client) will sign the audit opinion. Afterwards, the concurring partner (a high ranking employee who is not involved in the audit of this particular client) will review the work performed by the auditors. Once this review is finished, the audit process is completed.

Remember how we said PCAOB "looks over the shoulders of auditors?" More formally, one of the many functions of PCAOB is to conduct Audit Quality Reviews (AQR)**.** In an AQR, PCAOB will evaluate the auditor's work, to see if it has complied with appropriate audit standards. If not, the audit firm may be issued a warning, a fine, or even have its license revoked, depending on the severity of the infraction.

This is one of the reasons why auditors need to document the audit process. The documentation provides a record of what they did and why. This not only helps the auditor prepare for a possible PCAOB review, but is also a good self-check to ensure that everything has been done properly. The auditor's documentation should be through enough for another professional auditor to follow the same steps and arrive at the same conclusion.

8.7 Internal Audit

In addition to hiring an external firm to conduct an audit, companies usually have internal auditors. Internal auditors are employees of the client firm who are tasked with examining the effectiveness of the company's internal controls and rendering an opinion on the reliability of the company's financial reporting. In summary, the role of the internal auditor is very similar to the external auditor, except that the internal auditor is not independent of the company.

Internal auditors however are still expected to be functionally independent of the activities that they are auditing. For example, an internal auditor should not also work in risk management if the internal auditor is conducting an audit of the company's risk management practices. The head of the internal audit function is usually known as the Chief Internal Auditor. He/she reports to the audit committee of the board of directors, instead of reporting to company management, helping to preserve the independence of this crucial business function.

The Institute of Internal Auditors (IIA) is the organization tasked with establishing standards for internal auditors. The IIA has established a set of Core Principles that internal auditors must abide by:

- Demonstrates integrity
- Demonstrates competence and due professional care
- Is objective and free from undue influence
- Aligns with strategies, objectives, and risks of the organization
- Is appropriately positioned and adequately resourced
- Demonstrates quality and continuous improvement
- Communicates effectively
- Provides risk-based assurance
- Is insightful, proactive, and future-focused
- Promotes organizational improvement

In addition to the Core Principles, the IIA also establishes more specific guidelines that internal auditors need to adhere to when performing their duties. These guidelines are called International Standards for the Professional Practice of Internal Auditing, and are published on the IIA Website.

While you do not need to memorize standards verbatim, taking a look at the standards can help you gain a better understanding of the roles and responsibilities of internal auditors.

Internal Auditors are expected to abide by the IIA Code of Ethics. The Code of Ethics emphasizes the principles of Integrity, Objectivity, Confidentiality, and Competency. More information about this Code can be found on the IIA Website.

Since the functions of internal auditors and external auditors are so similar, you may be wondering to what extent external auditors are permitted to use the work of internal auditors.

For an answer, we turn to PCAOB standard AS 2605. According to this standard, external auditors may use the conclusions of internal auditors without performing the tests themselves when the item in question is immaterial or when there is a low audit risk. If the item is material, then external auditors must independently perform tests.

As part of their audit, external auditors must also assess the effectiveness of the internal audit function of the client organization. They do this by examining the competency and objectivity of the internal audit function. A competent internal audit function is part of a strong control environment. This makes the company less vulnerable to fraud.

8.8 Internal Controls, Testing & COSO Framework

Throughout this chapter, you have learned about why effective internal controls are so important to a company's wellbeing. In this section, you will learn more about the types of internal controls, how they are tested, and the role of COSO.

Remember that internal controls encompass all policies and procedures that are put in place by an organization to safeguard its assets and preserve the accuracy and reliability of financial reporting. Let's examine some common types of internal controls within a company:

Physical Controls

You wouldn't leave a $100 bill lying on the table of a public library. If you did, there would be a high probability that your money would be stolen. Instead, you would leave your money in a secure place, such as inside a locked box in your home.

Companies also take similar precautions with their money and valuable assets. These valuables are often kept in a locked area. If someone does not have the proper key, then they would not be able to take the company's valuables.

Controls involving locks and vaults are known as physical controls, because they restrict physical access to a company's valuables.

Documentation

Defense lawyers often say, "show me the evidence." It is important for a company to have proper documentation of all transactions: from sales, to inventory purchases. This increases the likelihood that transactions are recorded correctly, and that no unauthorized transactions take place. Documentation controls are also one of the reasons why many restaurants have a policy of giving you free food if the waiter or waitress fails to give you the receipt. The receipt serves as evidence that you purchased food from the restaurant. This can help deter unscrupulous waiters and waitresses from pocketing the money for themselves, instead of remitting it to the company.

Authorization

Authorization controls focus on restricting access to the company's valuable information. The most common type of authorization control is a password. Password-protected documents can help ensure that only certain individuals have access to the company's information.

Segregation of Duties or Separation of Duties

This is a form of control whereby multiple people are involved in the processing of a transaction. This makes it much harder for fraud to take place, as employees would need to collude. For example, a common instance of segregation of duties occurs when a company requires that the purchasing manager who places an order not be the same person who records the order in the company's accounting system. This prevents an employee from ordering items for personal use and having access to the accounting records to hide or cancel the purchase. Another example of separation of duties is when a company requires one person to authorize an employee's paycheck, another person to sign the paycheck, and a third person to document the paycheck in the accounting system. This prevents an employee from creating a fictitious employee and pocketing the extra salary.

Bank Reconciliations

When people talk about "bank recs," they're not complaining about a bank's poor customer service. Instead, a bank reconciliation (often abbreviated as "bank rec") is another example of internal control. In a bank reconciliation, a company compares its bank account balance from the bank statement to the bank account balance listed in the company's own records. It then tries to reconcile, or resolve the differences between the two numbers. There are two reasons why the numbers are different. The first one has to do with transaction timing. For example, suppose Bansal Company writes a check to Gao's Music Store for the purchase of 10 trumpets on June 10th. Bansal Company would record this transaction on June 10th, but the bank won't deduct the amount from Bansal Company's account until Gao's Music Store cashes the check. The other reason why the numbers are different may be due to error. Errors could have been made by the bank, the company, or both. Ultimately, while the numbers might differ, the company always needs to understand why the numbers differ. A bank rec helps the company to catch and correct any errors in a timely fashion.

Petty Cash

In general, companies prefer to make payments by cheque, wire transfer, debit card, or credit card, as opposed to paying with cash. This is because it is more difficult to document and trace cash transactions. However, some merchants may only accept cash—particularly if the item being purchased is not of a high value. In order for a company to still maintain internal controls, it often sets up a petty cash fund.

A petty cash fund is a small collection of cash set aside for use in cash transactions or to reimburse employees for cash purchases. It is maintained by someone known as the petty cash custodian. Suppose an employee needs cash to buy envelopes for the business. It is the company's policy to reimburse employees for the cost of envelopes. The employee will inform the petty cash custodian that she wishes to purchase envelopes for the company. The petty cash custodian will have the employee sign a voucher, indicating the date money was taken from petty cash, and the purpose of the transaction. The petty cash custodian will then sign the voucher as well. The employee is given the money, and the voucher is kept in the petty cash box. At any given time, the sum of the money in the petty cash box and the value of the vouchers should equal the size of the petty cash fund.

You may be wondering what the difference is between a cash control and an internal control. Cash controls are specific internal controls that are designed to safeguard cash. In other words, cash controls are a subset of internal controls. Based on this definition, we can see that bank reconciliations and petty cash funds are also forms of cash control.

Now that you know about different types of internal controls, it is time to discuss how an auditor tests the effectiveness of an internal control.

PCAOB Standard AS 2201 applies. It states that when assessing the effectiveness of internal controls, auditors must gather evidence to answer the following two main questions:

1. *Do the controls help prevent and detect errors or fraud in the financial statements, assuming the controls are properly performed?*

   This is known as **design effectiveness**. A control is not effective if it cannot meet this requirement. For example, assume that Dearborn Corporation sets the password on all employee accounts to "123456." While this is an example of the existence of a control, this control does not meet the design effectiveness requirement because a common password is unlikely to restrict access to only authorized persons.

Design Effectiveness
a measure of whether or not an internal control can prevent/detect the misstatements and errors in financial reporting

2. *Is the control procedure actually being performed in the manner that the company prescribed?*

   This is known as **operating effectiveness.** A company can have the best internal controls "on paper," but unless the controls are actually implemented, the controls are moot.

Operating Effectiveness
a measure of whether or not the company's established controls procedures are being followed

There are multiple ways that auditors can test the design and operating effectiveness of a control. The auditor can interview company employees to see if controls are being followed. The auditor can conduct observations, to observe the control being implemented. The auditor can inspect documents, for example, look at bank reconciliations, to see if controls are being properly carried out. Finally, the auditor can re-perform the control, that is, perform the control him or herself in accordance with the company's outlined policies.

How many tests does the auditor need to perform? Once again, it depends on risk. The higher the risk of misstatement caused by a deficient control, the more tests the auditor needs to conduct on those controls.

Once the auditor has gathered the evidence, he or she can form an opinion on whether or not there are material deficiencies in the effectiveness of internal controls. But in order to do so, it would be nice to have some form of benchmark, some form of widely accepted standards for internal controls.

The Committee of the Sponsoring Organizations of the Treadway Commission (COSO) was formed in 1985 as an initiative to improve the accuracy of financial reporting, and to prevent financial statement fraud. COSO consists of five sponsoring organizations: the American Accounting Association (AAA), the American Institute of Certified Public Accountants (AICPA), Finance Executives International (FEI), The Institute of Internal Auditors (IIA), and the Institute of Management Accountants.

In 1992, COSO published guidance on internal controls. The 1992 Internal Controls—Integrated Framework provided insight into what makes internal controls effective. The principles outlined in that document were widely adopted by publicly traded companies.

In 2013, COSO revised its guidance on internal controls to take into account new developments since the issuance of the original 1992 Framework. As of December 15, 2014, the revised Framework has been adopted, and companies must maintain compliance with it.

We are grateful to the AIPCA for permission to reproduce a portion of the Executive Summary of the 2013 Internal Controls—Integrated Framework. The excerpt from the Executive Summary can be found in section 8.9 of this chapter.

8.9 Excerpt from 2013 COSO Framework Summary

Relationship of Objectives and Components

A direct relationship exists between *objectives*, which are what an entity strives to achieve, *components*, which represent what is required to achieve the objectives, and the *organizational structure* of the entity (the operating units, legal entities, and other). The relationship can be depicted in the form of a cube.

- The three categories of objectives—operations, reporting, and compliance—are represented by the columns.
- The five components are represented by the rows.
- An entity's organizational structure is represented by the third dimension.

Components and Principles

The *Framework* sets out seventeen principles representing the fundamental concepts associated with each component. Because these principles are drawn directly from the components, an entity can achieve effective internal control by applying all principles. All principles apply to operations, reporting, and compliance objectives. The principles supporting the components of internal control are listed below.

Control Environment

1. The organization[2] demonstrates a commitment to integrity and ethical values.
2. The board of directors demonstrates independence from management and exercises oversight of the development and performance of internal control.
3. Management establishes, with board oversight, structures, reporting lines, and appropriate authorities and responsibilities in the pursuit of objectives.
4. The organization demonstrates a commitment to attract, develop, and retain competent individuals in alignment with objectives.
5. The organization holds individuals accountable for their internal control responsibilities in the pursuit of objectives.

2 For purposes of the *Framework*, the term "organization" is used to collectively capture the board, management, and other personnel, as reflected in the definition of internal control.

Risk Assessment

6. The organization specifies objectives with sufficient clarity to enable the identification and assessment of risks relating to objectives.
7. The organization identifies risks to the achievement of its objectives across the entity and analyzes risks as a basis for determining how the risks should be managed.
8. The organization considers the potential for fraud in assessing risks to the achievement of objectives.
9. The organization identifies and assesses changes that could significantly impact the system of internal control.

Control Activities

10. The organization selects and develops control activities that contribute to the mitigation of risks to the achievement of objectives to acceptable levels.
11. The organization selects and develops general control activities over technology to support the achievement of objectives.
12. The organization deploys control activities through policies that establish what is expected and procedures that put policies into action.

Information and Communication

13. The organization obtains or generates and uses relevant, quality information to support the functioning of internal control.
14. The organization internally communicates information, including objectives and responsibilities for internal control, necessary to support the functioning of internal control.
15. The organization communicates with external parties regarding matters affecting the functioning of internal control.

Monitoring Activities

16. The organization selects, develops, and performs ongoing and/or separate evaluations to ascertain whether the components of internal control are present and functioning.
17. The organization evaluates and communicates internal control deficiencies in a timely manner to those parties responsible for taking corrective action, including senior management and the board of directors, as appropriate.

These pages are excerpted from “Internal Controls—Integrated Framework”. © COSO 2013. Used with permission.

Questions for Comprehension

Multiple Choice

1. Which of these companies had an accounting scandal?
   a) WorldCom
   b) Parmalat
   c) Enron
   d) All of the above

2. Which of these organizations oversees external auditors in the US?
   a) FINRA
   b) GAAS
   c) PCAOB
   d) Audit Plus

3. Which one of the following statements is true concerning the Sarbanes-Oxley Act?
   a) It applies to private companies headquartered in the US.
   b) It states that external auditors are responsible for implementing effective internal controls.
   c) It offers whistleblower protection to those who report violations of the Act.
   d) It was established by the International Court of Justice.

4. Which one of the following statements is true concerning corporate governance
   a) Engaging in corporate governance is wasteful spending.
   b) Effective corporate governance is often dictated by industry best practices.
   c) Corporate governance standards are imposed by the Corporate Governance Act.
   d) No more than 50% of the board of directors should be independent from management.

5. The theory that the leading digits of numbers occurring naturally should follow a certain distribution is known as…
   a) Benford's Law
   b) Simpson's Paradox
   c) Stolper-Samuelson Theory
   d) Law of Large Numbers (LLN)

6. *"In our opinion, the accompanying consolidated balance sheets and the related consolidated statements of income, comprehensive income, cash flows and shareholders' equity present fairly, in all material respects, the financial position of Carnival Corporation & plc (comprising Carnival Corporation and Carnival plc and their respective subsidiaries, the "Company") at November 30, 2015 and November 30, 2014, and the results of their operations and their cash flows for each of the three years in the period ended November 30, 2015 in conformity with accounting principles generally accepted in the United States of America."*

   This is an example of a(n)…

   a) Unqualified Opinion
   b) Qualified Opinion
   c) Adverse Opinion
   d) Insufficient Opinion

7. Which factors determine the quantity of audit evidence required to support a management finding or assertion?
   a) Risk of Misstatement
   b) Quality of Evidence
   c) Both a) and b)
   d) Neither a) nor b)

8. When might an external auditor choose to use a re-performance of a control instead of merely relying upon the work of internal audit?
   a) When the internal audit is competent and objective
   b) When the risk of misstatement is high
   c) When the external audit is too busy
   d) When the law requires re-performance of the control

9. Martin is the chief internal auditor at Barry's Berries, a fruit conglomerate headquartered in Nebraska. He holds a CPA designation and has been working at the company for 20 years. His duties include auditing the company's risk management division. Recently, the company's chief risk officer injured herself and is on long-term disability. Martin is taking over as chief risk officer until the company can find a replacement. "I can handle both jobs at the same time, I am a very efficient worker," declares Martin. Has Martin broken any IIA core principles?
   a) Yes, because Martin might not be objective in his audit.
   b) Yes, because Martin is an interlocking director.
   c) No, because Martin has the proper training and competency needed for his job.
   d) No, because Martin communicates effectively.

10. Which one of these is not a sponsoring organization of COSO?
    a) AICPA
    b) SEC
    c) IIA
    d) FEI

11. The "COSO cube" is part of…
    a) The 1992 framework
    b) The 2002 framework
    c) The 2013 framework
    d) The 2016 framework

12. Which of the following is an objective of internal controls according to the COSO 2013 framework?
    a) Operations
    b) Reporting
    c) Compliance
    d) All of the Above

13. Which of the following correctly lists the five integrated components of internal control?
    a) Control Environment, Compliance, Risk Assessment, Information & Communication, Monitoring Activities
    b) Control Environment, Tone from the Top, Managerial Oversight, Information & Communication, Risk Assessment
    c) Control Environment, Risk Assessment, Information & Communication, Monitoring Activities, Control Activities
    d) Control Environment, Monitoring, Tone from the Top, Information & Communication, Reporting

14. How many principles of effective internal control are listed in the COSO 2013 framework?
    a) 13
    b) 15
    c) 17
    d) 19

Short Answer Questions

15. Outline one similarity and one difference of internal auditors and external auditors.

16. Both NASDAQ and NYSE requires that all members of the audit committee be independent directors. Explain why you think this is the case, with specific reference to the function of the audit committee.

17. What are the three components of the fraud triangle? Which component does the existence of internal controls try to prevent?

18. A classmate in your auditing class proclaims, "if audits are so good, why don't we require companies to have their quarterly statements audited as well?" Respond your classmate's comment.

19. At Luk Corporation, purchases are supposed to be approved by a manager. Once the invoice is received, the payment is supposed to be approved by a 2nd manager. The cheque is to be issued by a 3rd employee, and the transaction is recorded in the accounting system by a 4th employee. Recently, the laptop of the VP of Marketing crashed. The company needed to replace the laptop quickly, so rather than having four employees be involved in the process, one employee took care of everything, from approval, to recording the transaction in the accounting system. Comment on the effectiveness of internal controls at Luk Corporation. Your response should include an analysis of both *design effectiveness* and *operating effectiveness*.

Mini-Case

Rahul Bathija is a successful entrepreneur. Having graduated from one of the top business schools in the world, he decides to launch his own company. Bathija Enterprises is a privately held company that runs a network of 88 automobile dealerships across the US. Bathija Enterprises sells a wide variety of cars, from fuel efficient cars, to pick-up trucks, to SUVs.

Recently, Rahul decides that he wants to expand his company into the Canadian market. To do this, he will need a bank loan. The bank has asked for Bathija Enterprises' audited annual financial statements. More specifically, the bank has requested that the audit be conducted under PCAOB standards.

While Rahul knows everything and anything about cars, he would like to get some more information about the audit process.

Required: As the Chief Financial Officer of Bathija Enterprises, answer Rahul's questions, found below.

1. What does it mean for the financial statements to be audited? Why might the bank have asked for audited financial statements?

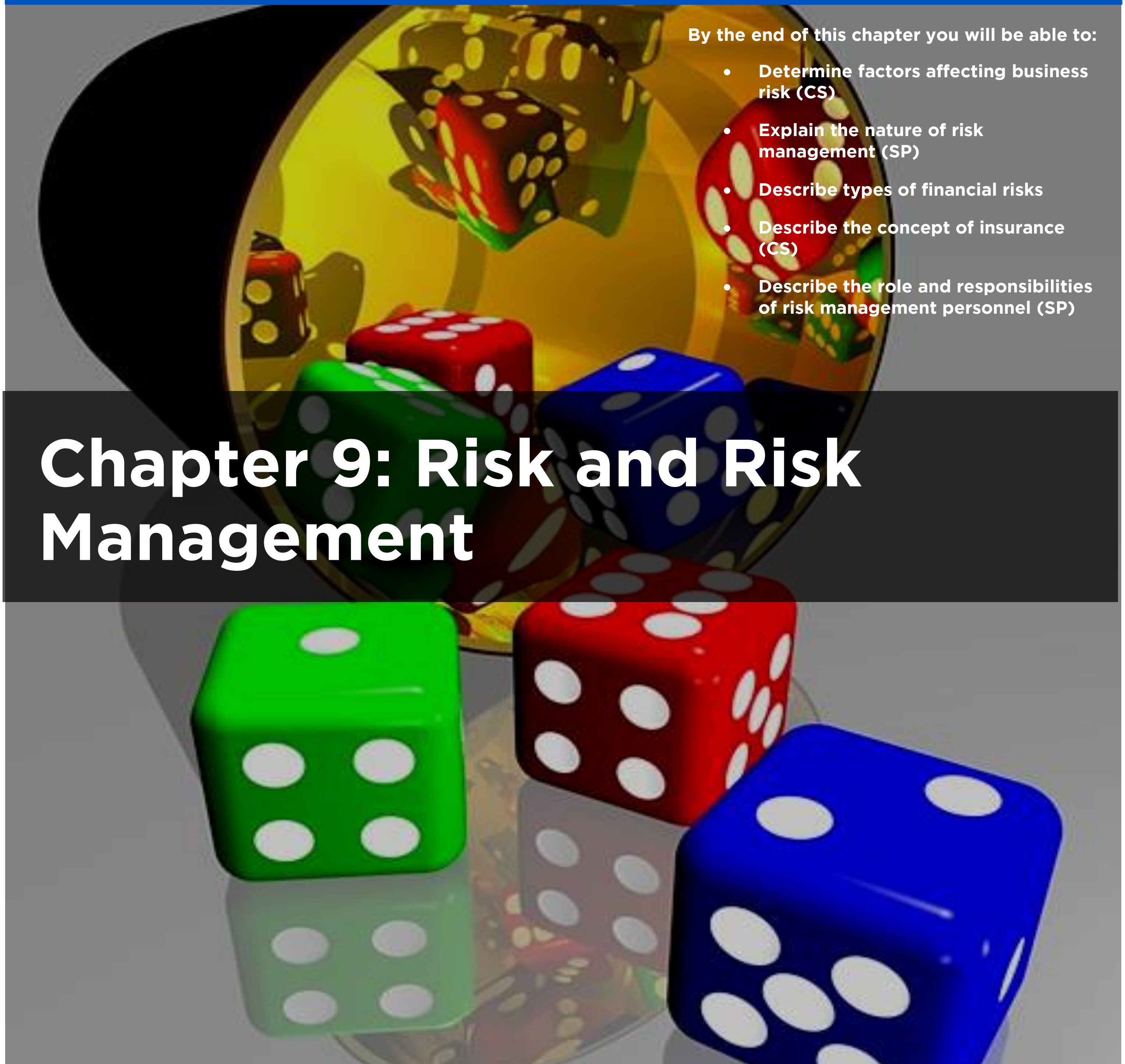
2. I heard someone mention the term "GAAS." I know that gasoline is used to fuel cars, but what does mean when it comes to audits?

3. We recently appointed an MBA student to the position of Chief Internal Auditor. If we get him to audit our financial statements, would that be sufficient to meet the bank's request? Why or why not?

4. I am worried that if the auditors are observing, it might reduce employee productivity. Besides observation, what other techniques do auditors use when conducting the audit?

5. I know that internal controls are important, but are they able to 100% eliminate any fraud or error within the business? Why or why not?

6. There are so many different standard setting organizations, from the PCAOB, to the AICPA, to the IIA. Wouldn't it be easier if we just had one standard setting organization in the audit world? Why do we need all three?



By the end of this chapter you will be able to:

- Determine factors affecting business risk (CS)
- Explain the nature of risk management (SP)
- Describe types of financial risks
- Describe the concept of insurance (CS)
- Describe the role and responsibilities of risk management personnel (SP)

Chapter 9: Risk and Risk Management

In May of 2010, the Dow Jones Industrial Average fell by more than 1,000 points, dealing a crippling blow to many traders in North America. The same year, British Petroleum incurred one of the world's largest oil spills, and faced legal challenges arising from the incident. These are just some of the many examples of the risks that businesses may face. If not managed properly, businesses can suffer extensive losses. This chapter will look at what constitutes risk, different types of risks, and different types of risk management techniques. It will also introduce a risk management model known as the "three lines of defense."

9.1 Nature of Business Risk

When an airplane lands, it is expected to land within a certain zone of the runway known as the *touchdown zone*. However, due to strong winds or pilot error, planes can sometimes land outside of the expected zone. In this case, there has been a *deviation* from the expected landing spot of the plane. This analogy can be used to understand the nature of business risk. **Risk** is defined as the possibility that the actual result varies from the expected results. Business risks, are therefore risks that businesses can encounter.

Risk

The possibility that the actual outcome differs from the expected outcome

Business risks can come in many forms. Broadly speaking, there are three distinct categories of business risk:

Natural risk is the risk of loss associated with natural disasters. For example, if a hurricane rips through town and shatters the glass windows of a toy store, the store has been the victim of natural risk.

Natural risk

Risk of loss associated with natural disasters

Human risk is the risk of loss associated with human vulnerabilities. For example, suppose a movie theatre usher decides to put the proceeds of ticket sales into her own wallet rather than into the cash register. The theatre has become the victim of human risk.

Human risk

Risk of loss associated with human vulnerabilities

Economic risk is the risk of loss caused by economic issues. These can include everything from rising interest rates, to downturns in the business cycle, to rapidly deteriorating stock prices. Later on in this chapter, specific types of economic risks and their associated management techniques will be discussed.

Economic risk

Risk of loss associated with economic issues

Of course, not all risks result in the possibility of loss. Risk only implies deviation from the expected outcome. **Speculative risks** can result in either a gain or a loss for a business, whereas **pure risks** can only result in a loss.

Speculative risk

Risk that can result in a gain or loss

Pure risk

Risk that can only result in a loss

9.2 Credit Risk & Risk Management

Debtor

An entity that has borrowed money from another entity

Creditor

An entity that has lent money to another entity

Creditworthiness

The extent to which a debtor is likely to fulfill its obligations in repaying loans

Credit history

The debtor's past activity of borrowing and loan repayment

Delinquent

The act of being late on a loan

Default

A loan is default if the borrower is unable or unwilling to pay

In order to understand credit risk, you first need to understand the nature of debtor-creditor relationships. Suppose Eric borrows money from the bank in order to purchase a new BMW. In this scenario, Eric is the **debtor** because he owes money to the bank. The bank is the **creditor** because it has lent out money to Eric.

In lending money to Eric, the bank subjects itself to **credit risk.** Credit risk is the possibility that a business's debtor is unable or unwilling to pay back its loans. Should this happen, the creditors would incur a substantial loss.

As a result, companies need to find a way to manage their credit risk exposure. One of the best ways to mitigate credit risk is to lend only to debtors who are likely to pay back their loans as promised. In other words, they need to assess the **creditworthiness** of their customers. There are two tools that are used for this purpose:

1. If the debtor is an individual, then the **creditor** can examine the debtor's credit report. A credit report lists the outstanding balances on any credit cards, car loans, bank loans, and other loans that the debtor may have. It also provides information about the debtor's **credit history.** The credit history shows the debtor's past credit activity. For example, the credit report will indicate if the debtor has ever been late (**delinquent)** on a loan payment, as well as if the debtor has ever **defaulted,** which means that the debtor has not paid off the loan.

   In addition to providing detailed information about the debtor's credit activity, the credit report also provides a snapshot score that can be quickly used to determine how likely it is that the debtor will be able and willing to pay off his/her loans. The most commonly used credit score is a FICO (Fair, Isaac) score. This score ranges on a scale from 200 to 800. The higher the FICO score, the greater the likelihood that the debtor will pay off its loans.

In the United States, credit reports can be obtained from the three major **credit bureaus**: Equifax, Experian, and Transunion. Creditors can ask for their debtors' credit reports by contacting these credit bureaus. Moreover, debtors themselves can view their credit report. As previously mentioned in Chapter 4, individuals are entitled to one free credit report from each of the three credit bureaus every year.

Credit bureaus

Agencies that provide information on an individual's credit history

2. Debtors can sometimes be companies. If Enbridge issues a $5 million bond, then Enbridge is the debtor, and the bondholders are the creditors. The bondholders need a way of assessing Enbridge's creditworthiness. The bondholders can examine a report provided by a **credit rating agency.** These agencies assess the likelihood that a company will be able to pay off a specific debt. If the company issues several types of debt, then each type of debt will have its own credit rating. The three major credit rating agencies in the US are Fitch, Moody's, and S&P. Each credit rating agency has its own scale and method to evaluate the potential risk.

Credit rating agency

An organization that rates the likelihood that a company will be able to pay off a specific debt

Worked Example

Presented on the next page is a partial credit report for Jane Vernon-Fields. Use the partial credit report to answer the questions below:

1. Identify the Credit Bureau that provided the report.

2. Identify the debtor.

3. Interpret the FICO score.

4. Has Ms. Vernon Fields ever been late on a payment? How do you know?

Equifax Credit Report for Jane Vernon Fields

Date: July 16th, 2016

FICO score: 720

Current Outstanding Balances

JP Morgan Chase Sapphire Credit Card (...7652)	$1,500
Bank of America Mortgage (...2134)	$150,400
Best Buy Credit Card (..3445)	$4,200

Other Notes

Ms. Vernon Fields has never declared bankruptcy. She has neither defaulted nor been delinquent.

Solution:

1. Equifax
2. Jane Vernon Fields
3. The FICO score is a measure of how likely the debtor will repay his or her debts. The higher the FICO score, the greater the probability that the debtor will repay

Your Time to Shine

Presented on the next page is a partial credit report for Albert Sanchez. Use the partial credit report to answer the questions below:

1. Identify the Credit Bureau that provided the report.
2. Identify one of the creditors.
3. Interpret the FICO score.
4. What is the significance of the information in the “Other Notes” section?

Transunion Credit Report for Albert Sanchez

Date: July 20th, 2016

FICO score: 600

Current Outstanding Balances

American Express Platinum Credit Card (...8419)	\$2,000
Citigroup Mortgage (...0609)	\$300,400
Lexus Automobiles Car Loan (..3425)	\$40,200

Other Notes

Mr. Sanchez declared bankruptcy in 2010, resulting in the write off of several debts. As of 2016 she has not defaulted or been delinquent on a loan.

Credit risk metrics

Tools used to measure credit risk

Altman Z-score

A metric that indicates the likelihood that a company will go bankrupt

Exposure at Default

The amount of the loan made by the creditor

Probability of Default

The likelihood that the debtor will default on their loans

Even if the creditors have taken all reasonable steps to ensure that they are only lending to trustworthy entities, they can still incur unexpected losses. Creditors need to be able to measure the probability and extent of possible losses. These tools are called **credit risk metrics**. There are a few credit risk metrics that are important for you to know about.

The **Altman Z-score** is a metric created by NYU professor Edward Altman. Altman examined the financial statements of manufacturing companies, two years prior to their bankruptcy. He applied statistical analysis to the financial statements to derive a formula that measures the likelihood of bankruptcy.

The Altman Z-score formula is:

Z-score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E

A= (working capital/total assets)

B= (retained earnings/total assets)

C= (EBIT/total assets)

D= (market value of equity/book value of liabilities)

E= (sales/total assets)

If the Z-score of a company is above 2.99, then the risk of bankruptcy within the next two years is low.

If the Z-score of a company is between 1.81 and 2.99, then there is a medium risk of bankruptcy within the next two years.

If the Z-score of a company is less than 1.81, then the risk of bankruptcy within the next two years is high.

While the Z-score is a useful tool, it has its limitations. The original Z-score formula was based on the financial position of manufacturing companies. A similar methodology could be extended to other industries, although the coefficients of the formula and the interpretation ranges would have to change.

Another approach to credit risk management focuses on the expected amount of loss arising from a loan. In this methodology, the creditor examines three metrics: Exposure At Default (EAD), Probability of Default (PD), and Loss Given Default (LGD).

The **Exposure At Default (EAD)** is the original amount of the loan. For example, suppose Anaheim Regional Bank lends $50 to Scott Williams. The Exposure At Default in this case is $50.

Probability of Default (PD) is exactly as the name suggests. It measures the likelihood that a debtor (individual or company) will default on their loans.

Sometimes, the creditor may not lose the entire value of the loan when the debtor defaults. The debtor may be asked to sell some of its assets, and the proceeds from these forced asset sales may offset possible losses to the creditor. The **Loss Given Default (LGD)** is the percentage of the loan value that the company would lose should the debtor default. For instance, if Robinson Bank made a loan of $100 and expects to lose $80 of the loan should the debtor default, the Loss Given Default is $80/$100 = 80%.

Together, these three metrics are combined in a mathematical formula to determine the Expected Loss to the creditor.

Exposure at Default

The amount of the loan made by the creditor

Probability of Default

The likelihood that the debtor will default on their loans

Loss Given Default

The percentage of the original loan that the creditor can expect to lose should the debtor default on the loan.

Expected Loss

The amount of money that a company should expect to lose due to its credit risk exposure

The **Expected Loss** represents the amount that the company can actually expect to lose through its credit risk exposure. It is calculated using the formula:

$$Expected\ Loss = PD * LGD * EAD$$

Worked Example

Hanover Regional Bank has determined the following information about its choice to lend to Edwards Manufacturing: PD = 15%, LGD= 90%, EAD=$30,000. Determine the expected loss of lending to Edwards Manufacturing.

Solution:

Expected Loss = 15% × 90% × $30,000

= $4,050

Your Time to Shine

Thomson Insurance has determined the following information about its choice to lend to Xavier Pharmaceuticals. PD= 20%, LGD= 80%, EAD = $50,000. Determine the expected loss of lending to Xavier Pharmaceuticals

How do companies determine the PD, LGD, and EAD? They use a credit risk model. The model computes the PD and LGD based on statistical information. Models will take into account historical data, macroeconomic conditions, and industry trends. While the model used differs from creditor to creditor, many creditors will use some form of the **CreditRisk+** model. This model, developed by the bank Credit Suisse, examines a statistical distribution known as a **Poisson Distribution**.

CreditRisk+

A credit risk model developed by Credit Suisse

Poisson Distribution

A statistical distribution often used in modelling credit risk

Once a company computes these metrics, it can have a better understanding of its credit risk exposure. What if the company believes that its credit risk exposure is too high? One tool that a company can use is called **factoring**. Factoring involves the sale of its receivables to another company, known as the factor. The factor will pay the creditor a sum of money equal to the present value of the receivables being factored, less a service charge. In return, the factor gets to collect the payments made by the debtors that would have otherwise gone directly to the creditors. In this way, the creditor minimizes its credit risk exposure.

Factoring

When a company sells its receivables to a third party (known as the factor), in exchange for cash

While it is not a factoring arrangement *per se*, credit cards operate in a very similar way. When a customer uses a credit card to purchase something from a store, the credit card company will immediately deposit into the store's bank account a sum of money equal to the value of the purchased goods, less a service charge. At the end of the billing cycle, the customer will pay the credit card company, instead of paying the store. In this way, the store reduces its exposure to credit risk.

Overall, credit risk is a major challenge for many businesses. In fact, it is the largest risk that banks face. Thus, it is very important for companies to be able to identify and manage their credit risk exposure.

9.3 Market Risk & Risk Management

Market risk is another economic risk that some businesses face. It reflects the possibility that a business incurs losses due to adverse fluctuations in the capital markets. For example, if Agrium Corporation invests in shares of Canadian Tire and the share price of Canadian Tire falls, then Agrium Corporation has become the victim of market risk.

Market risk

Possibility of loss due to adverse fluctuations in the capital markets

A company will use a variety of market risk metrics in order to identify its market risk exposure. This section will examine two metrics, standard deviation, and VaR.

Standard Deviation

A mathematical statistic that measures the spread of data around its mean.

In a set of data, the **standard deviation** measures the spread of data around the mean. If the standard deviation is high, then there is more variation in the data. If the standard deviation is lower, then there is less spread in the data. For a review of how standard deviation is calculated, visit the accompanying website.

In portfolio theory, σ denotes the standard deviation of returns for the investment in question. The higher the value of σ, the more volatile the investment's returns are, and the greater the market risk is.

Value-at-risk (VaR)

A measure of the magnitude of losses on an investment portfolio given an extremely adverse scenario

Value-at-risk is another popular metric for quantifying market risk. Unlike standard deviation, **VaR** takes a worst-case scenario approach. A VaR statement is expressed as follows: I am X% confident that my portfolio will not lose more than Y amount over Z days. The X% is known as a confidence level, a tem that you will be familiar with if you have taken statistics. Z represents the time period of that the VaR is based on. Taken in totality, a VaR statement could read: "I am 99% confident that my portfolio will not lose more than 3% over a 10-day period."

Lognormal distribution

Data that follow a normal distribution after a logarithmic transformation is applied

The VaR model assumes that security prices follow a normal or **lognormal distribution**. If you are examining two investments at the same confidence level over the same time period, then the one with the higher VaR subjects the firm to greater market risk.

Hedging

A way to minimize market risk by investing in a security that is inversely correlated with your existing investments

A common way to minimize market risk is to engage in **hedging**. This refers to the process of investing in a security whose price is inversely correlated with the market value of your investments. As the value of your portfolio declines due to adverse market movements, the value of the hedge position increases, offsetting some of your losses.

Correlation coefficient

A statistic that illustrates the direction and magnitude of the correlation between two variables

In order to determine if an investment is a suitable choice to hedge the portfolio, you must examine the **correlation coefficient** between the investment use for hedging and the overall portfolio. The correlation coefficient shows the direction and magnitude of the correlation between two things, in this case between the hedge and the overall portfolio. The correlation coefficient can take on any value between -1 and 1. The sign of the correlation coefficient determines whether the two things move in the same direction, and the magnitude determines the strength of the correlation. Thus, a correlation coefficient of 1 implies a perfect positive correlation; an increase in the value of one thing always leads to a proportional increase in the value of another thing. Likewise, a correlation of coefficient of -1 implies a perfect negative correlation; an increase in the value of one thing always leads to a decrease in the value of another thing.

In general, the investment used for hedging should have a correlation coefficient as close to -1 as possible.

Worked Example

ABC Company invests in a portfolio of North American equities. It wants to hedge its market risk, and is selecting between three potential investment choices.

Investment Choice	Correlation Coefficient
DEF	-0.7
GHI	0.8
JKL	0.2

1. Which investment should ABC choose to hedge its portfolio?

2. If the value of the portfolio declines by 10%, what is the percentage change in the value of the hedge?

Solution:

1. It should choose investment DEF since that investment has a correlation coefficient that is close to -1

2. While you may be tempted to conclude that the percentage change of in the value of the hedge is -0.7 × 10% = -7%, remember that the correlation coefficient only tells you if a correlation exists between two things, and how strong that correlation is. It does not give a formula linking the value of one thing to the value of another.

Your Time to Shine

Alpha Company invests in a portfolio of European equities. It wants to hedge its market risk, and is selecting between three potential investment choices.

Investment Choice	Correlation Coefficient
Beta	0.3
Delta	0.4
Gamma	-0.6

1. Which investment should Alpha choose to hedge its portfolio?
2. If the value of the portfolio is $100,000, what is the dollar value of hedge required to offset 50% of the market risk?

9.4 Interest Rate Risk & Introduction to Swaps

Interest rate risk

Risk associated with the company facing higher interest rates on its debt

Recall that a company has two main sources of financing: debt and equity. When a company finances by issuing debt, it must pay interest on the debt. The higher the rate of interest, the more expensive it will be for the company to service its debt. Moreover, since interest rates fluctuate, companies could potentially see their cost of borrowing increase if the central bank raises its benchmark rate. This subjects the company to **interest rate risk.**

Since interest is paid on debt, it follows that the companies most sensitive to interest rate risk are those financed primarily through debt. In Chapter 7, you learned the debt-to-equity ratio as a means to assess the extent to which the company relied on debt financing.

When a company decides to issue new debt, it has two choices. It can issue fixed rate debt or floating rate debt. Fixed rate debt means that the cash interest payments will be constant throughout the term of the debt. For example, suppose ABC Co. issued a 5 year, 8% bond paid semi-annually. The cash interest payments will remain at 8% of the bond's face value throughout the 5 year period.

Benchmark rate

An interest rate off which other interest rates are based.

London Interbank Offered Rate (LIBOR)

A commonly used benchmark rate for debt

Floating rate debt, on the other hand, means that the cost of debt is tied to a certain **benchmark rate**. A benchmark rate is an interest rate to which all other interest rates are based on. If the benchmark rate increases, then the cost of debt increases. If the benchmark rate decreases, then the cost of debt also decreases. The most commonly used benchmark rate for floating rate debt is the **London Interbank Offered Rate (LIBOR)**.

If the company's revenues are positively correlated to interest rates, or if the company believes that interest rates will decline, it will opt for floating rate debt. On the other hand, if the company's revenues are not correlated with interest rates, or if the company believes the interest rates will rise, it is more likely to issue fixed rate debt.

What if a company originally issues floating rate debt but then expects interest rates to rise? The company could of course repurchase the debt, but it may not be practical. Thankfully, there is an easier solution. The company can enter into an interest rate swap with another company. Suppose Company A currently pays floating rate interest on its debt, while Company B pays fixed rate.

After the two companies enter into a swap agreement, the companies will make a series of payments to each other over the life of the debt. These payments effectively result in Company A borrowing at a fixed rate, and Company B borrowing at a floating rate.

Interest rate swaps are a powerful way for a company to reduce its interest rate risk. In addition to interest rate swaps, there are also other types of swap agreements. While the specifics of other types of swaps will not be discussed in this book, in general, swaps involve two entities exchanging streams of cash flows that, as of the date of the agreement, have the same net present value.

Worked Example

Callahan Corporation issues a 5 year, $1,000,000 bond, with a coupon rate of LIBOR+3%. The rate is reset annually, with the annual coupon rate being determined by the LIBOR rate on Dec 31 of the following year.

1. Suppose the LIBOR rate on Dec 31, 2007 is 2.25%. What is the coupon rate that Callahan will pay on its bond for 2008?

2. The company expects interest rates to rise in the future. Besides buying back the bond issue. What else could it do?

Solution:

1. Coupon Rate = 2.25% + 3%
   = 5.25%

2. Enter into an interest rate swap.

Your Time to Shine

Ditmars Corporation issues a 5 year, $1,000,000 bond, with a coupon rate of LIBOR+1.75%. The rate is reset annually, with the annual coupon rate being determined by the LIBOR rate on Dec 31 of the following year.

1. Suppose the LIBOR rate on Dec 31, 2007 is 4.25%. What is the coupon rate that Ditmars will pay on its bond for 2008?

2. The company expects interest rates to fall in the future. Should it enter into an interest rate swap? Why or why not?

9.5 Operation Risk, DRP & BCP

In Section 9.1 you learned about natural risk and human risk as being distinct types of business risks. Sometimes, both of these risks can be lumped into the category of **operational risk**. An operational risk is a risk associated with weaknesses or failures in systems, processes, procedures, and/or operations. In short, it is a catch-all category for a business risk that is not an economic risk.

Operational Risk

Risk of loss associated with weaknesses or failures in systems, processes, procedures, and/or operations

Two important elements of operational risk management are **disaster recovery planning** and **business continuity planning**. DRP, as the name suggests, involves a business planning on how it will respond to a disaster or crisis. For example, suppose a powerful hurricane rips the roof off a factory building. The business would establish a plan to deal with such a contingency. Perhaps it has spare capacity at another factory that could be used temporarily to prevent a stoppage in manufacturing capabilities. This type of planning is critical to the smooth operation of the business.

Disaster Recovery Planning (DRP)

Contingency planning for how a company will respond to a disaster

Business Continuity Planning

A plan on how a business will continue operating given a major change to the business's operations

Business continuity planning is closely related to disaster recovery planning. Unlike DRP, BCP need not necessarily be in response to a catastrophe. Suppose, for example, the founder of a company decides to retire and pass the family business on to her children. A business continuity plan would help ensure a smooth transition in leadership.

In today's world, cybersecurity is another key operational risk issue for many businesses. Chapter 12 will discuss cybersecurity in more depth.

9.6 General Risk Management Strategies

While there are specific strategies used to manage the different types of risks, in general, the strategies can be grouped into four categories.

Risk avoidance

Managing a business risk by not assuming the risk

Risk avoidance means that the business chooses not to assume the risk. For example, suppose a business is concerned with the political stability in Brazil given the recent corruption scandals. The business can avoid this risk by deciding to not operate in Brazil.

Risk retention

When a business chooses to bear the full risk of a situation, without taking any measure to offset it

Risk retention means that the business chooses to assume the risk. In the Brazil example, the business would decide to still sell candy in Brazil, despite the concerns about the political climate.

Risk reduction

When a business takes steps to offset the amount of risk it faces

Risk reduction means finding ways to reduce a company's risk exposure. For example, a retail store could install security cameras to reduce the risk of theft.

Risk transference

When a business passes its risk exposure to another entity

Risk transference mean transferring the risk from one entity to another entity. The most common method of risk transference is through an insurance contract. When a company signs up for insurance, it pays regular insurance premiums to the insurer. If an insured event occurs, then the insurance company will make a payment to the beneficiary in order to offset the beneficiary's loss.

Key person

Someone on whom the company closely depends for success. A key person is usually a member of the company's C-suite.

Businesses can purchase many different types of insurance. They can purchase property insurance to protect them in case their facilities get damaged by natural disasters. They can also purchase **key person** life insurance. A key person life insurance contract means that if the company's senior management dies or becomes significantly disabled, the insurance company will make a payment to the business in order to help the business recover.

Of course, individuals can and commonly do purchase life insurance for themselves.

Term life insurance provides coverage for a fixed number of years. For example, suppose Mrs. Jenkins buys a $1 million, 10 year term life insurance policy. If she dies within 10 years of purchasing the insurance policies, her beneficiaries would be entitled to payment. But if she dies after 10 years of purchasing the policy, and the policy has not been renewed, then her beneficiaries would not be entitled to payment.

Term life insurance

Life insurance that provides coverage for a fixed amount of time

Whole life insurance provides coverage for the entire life of an individual. Regardless of how old the individual is when he dies, the insurance company will pay the beneficiaries.

Whole life insurance

Life insurance that provides coverage for the entire life of an individual

Universal life insurance combines a life insurance policy with an investment, such as a segregated fund. Segregated funds will be discussed in a later chapter in this book.

Universal life insurance

Life insurance that has a combined insurance and investment feature

Sometimes, organizations will offer a **group insurance** plan to its members. For example, a bank may offer medical and dental insurance to all its employees. This insurance is often cheaper than if the employees individually obtained insurance due to three main reasons:

Group insurance

Insurance offered to all members of a particular group or organization

1. *Subsidies*: Employers may subsidize or offset a portion of the cost of the insurance policy, meaning employees have to pay less out-of-pocket for insurance.

2. *Risk pooling*: When the insurance company insures many individuals, it is able to "pool the risk" across all the insured members. Essentially, if there are enough people that are insured, then the insurance company can pay out the small percentage of claims that have arisen.

   More precisely, risk pooling can occur because of a mathematical phenomenon. Earlier on, risk was defined as the possibility that an outcome will vary from the expected outcome. You learned how to use standard deviation to measure the extent to which the actual outcome is likely to vary from the expected outcome.

   Let's suppose an insurance company has insured two individuals, Aaron and Bob. Let A represent the expected loss the company incurs from insuring Aaron, and let B represent the expected loss the company incurs from insuring Bob. Assume that A and B are **independent events.** The normal distribution (bell shaped curve) is used to model the expected losses. Let μ_A represent the mean expected loss from insuring Aaron, and Let μ_B represent the mean expected loss from insuring Bob. Let σ_A and σ_B represent the standard deviation of A and B respectively.

Independent events

Two events are said to be independent if the outcome of one event does not affect the outcome of the other

The total mean expected loss of insuring both individuals, μ_c, can be found by adding

$$\mu_A + \mu_B$$

Let σ_C represent the standard deviation of both events occurring at the same time.

Mathematically, the relationship $\sigma_C^2 = \sigma_A^2 + \sigma_B^2$ holds true. Square rooting both sides yields

$$\sigma_c = \sqrt{\sigma_A^2 + \sigma_B^2}$$

This means that as you insure more and more people, the risk increases at a slower rate than the rate at which you add people to the insurance policy.

Adverse selection

In the context of insurance, adverse selection refers to the phenomenon that the people who opt to buy insurance are inherently high-risk people.

3. *Less adverse selection*: With insurance policies, the phenomenon of **adverse selection** often occurs. Suppose that some individuals are higher risk while some individuals are lower risk. If the insurance companies cannot distinguish between the high and low risk individuals, they will charge a price based on the average risk they incur in insuring an individual. However, people who are less risky will decide that it is not worth it for them to get insurance. Consequently, high risk individuals are the only ones who remain. On the other hand, group insurance often compels all members of the group to be insured and pays premiums. This means that there is a combination of low and high risk people in the pool, resulting in a reduction in overall risk for the insurance company.

Overall, insurance plays a vital role in helping businesses and individuals carry on with their tasks.

9.7 The Three Lines of Defense Model

While companies typically have dedicated risk management teams, risk management is the shared responsibility of all employees. Today, businesses have adopted a model known as the "Three Lines of Defense." This model establishes each employee's role in risk management.

An easy way for you to understand this model is to imagine a gold box being guarded by three concentric rings of soldiers. The outermost ring is the **1st line of defense.** These individuals are so named because they have the first opportunity to help the company manage risks. Individual **business lines** form the first line of defense. For example, consider a bank. The mortgage officers that are part of its secured lending division form the 1st line of defense. The role of employees in the 1st line of defense is to implement the company's risk management policies.

1st line of defense

The employees who work in the individual business lines

Business lines

A division within a business that handles a particular product (Eg the secured lending business of a bank)

The middle ring of soldiers is the **2nd line of defense**. The employees who work in Risk Management constitute the 2nd line of defense. Their job is to establish and revise the risk management framework. In addition, they also oversee the 1st line of defense. If the 1st line of defense fails to catch a potential risk, the 2nd line of defense will step in to help the company properly manage the risk.

2nd line of defense

The employees who work in risk management

Finally, the company's internal audit is its **3rd line of defense**. These employees assess the effectiveness of the risk management framework that has been put in place. In doing so, the 3rd line of defense oversees both the 1st and 2nd lines of defense.

3rd line of defense

The employees who are part of the internal audit team

Worked Example

Cinderella Bancorp uses the three lines of defense model in its risk management practices. Below are the job descriptions of three employees at the bank. Based on their job descriptions, determine whether each employee belongs to the 1st, 2nd, or 3rd line of defense.

Abigail is a mortgage specialist with Cinderella Bancorp. Abigail meets with clients who wish to apply for a mortgage on a daily basis. Abigail reviews the clients' bank statements and credit reports. She combines this with an internal credit risk rating score that is generated by the computer. On the basis of this information, Abigail decides whether or not to approve the mortgage.

Brian has always liked asking tough questions. Instead of becoming a lawyer, he has decided to pursue a career with Cinderella Bancorp. Brian travels frequently to inspect various parts of the bank, ensuring that the risk management team across each of the bank's five national hubs is designing an effective framework. When he is not travelling, Brian sometimes provides guidance to management on the new COSO cube framework.

Charlie holds a PhD in mathematics from MIT. The bank leveraged his financial acumen, and assigned him to the market risk division. Charlie uses his knowledge of statistics to determine the size of normal market fluctuations. With this information, he establishes trading limits for the traders of the bank. Charlie regularly revises and updates these limits in accordance with his expertise and professional judgement.

Solution:

Abigail is part of the bank's 1st line of defense. She works in the bank's residential mortgage business line. By reviewing financial statements, credit reports, and the bank's internal credit rating system, Abigail is implementing the bank's credit risk management framework.

Brian works in the 3rd line of defense. He oversees the work of risk management employees. The fact that he provides guidance on COSO cube suggests that he works in internal audit, which is part of the 3rd line of defense.

Charlie works in the 2nd line of defense. The information states that he establishes a market risk management framework involving trading limits. He regularly revises the framework based on his professional judgment.

Your Time to Shine

Terrence Bank uses the three lines of defense model to manage its risks. Presented below are the job descriptions of three employees. Below are the job descriptions of five employees at the bank. Based on their job descriptions, determine whether each employee belongs to the 1st, 2nd, or 3rd line of defense.

Dylan works for the credit union's automobile financing business line. He meets with potential clients, and discusses different financing options. He assesses each client's credit risk by using an internal credit rating system, as well as by looking at the clients' credit reports. Based on these factors, Dylan decides whether or not to approve the loans.

Emily was a former scientist at NASA. After the conclusion of the Space Shuttle program, Emily joined the bank, putting her quantitative skills to good use. Today, she specializes in analyzing the bank's interest rate risk. She establishes and revises a framework for risk management based on economic trends as well as her own professional judgment.

Frederick has had over 25 years of experience working at PwC. He primarily performed audits for insurance companies and banks. Eventually, he was hired by Terrence Bank to serve as the Chief Internal Auditor.

Questions for Comprehension

Multiple Choice

1. Which of the following is an example of natural risk?
   a) Britain voting to leave the European Union.
   b) Hurricane Sandy hits New York.
   c) A jewelry thief steals $24 million from De Beers.
   d) All of the Above

2. Although all companies can be subject to credit risk, which companies are most heavily exposed to credit risk?
   a) Banks
   b) Insurance Companies
   c) Airlines
   d) Convenience Stores

3. Suppose Fairchild Enterprises issues a $5,000 bond. Lillian decides to invest in this bond. In this example, Lillian is the…
   a) Debtor
   b) Creditor
   c) Mortgagor
   d) Shareholder

4. Which of these is an example of a Credit Rating Agency?
   a) Moody's
   b) Fitch
   c) S&P
   d) All of the above

5. The most popular credit score is a…
   a) FICO Score
   b) FIFO Score
   c) TYCO Score
   d) LIFO Score

6. The CreditRisk+ model is based on which statistical distribution?
   a) Z-distribution
   b) Student's *t*-distribution
   c) Markov Distribution
   d) Poisson Distribution

7. "I am 99% confident that my portfolio will not lose more than $10,000 in a 2 day period" is an example of a(n)
   a) VaR Statement
   b) Mission Statement
   c) Purpose Statement
   d) Account Statement

8. Consider the following four companies whose debt-to-equity ratios are shown. Based only on this information, which company appears to be the most sensitive to interest rate risk?
   a) Company A, debt-to-equity ratio: 1.5
   b) Company B, debt-to-equity ratio: 2.2
   c) Company C, debt-to-equity ratio: 3.4
   d) Company D, debt-to-equity ratio: 4.8

9. Which of these is commonly used to offset interest rate risk?
    a) Assurfinance
    b) Options
    c) Swaps
    d) Insurance

10. Bonbon Company buys key life insurance for its CEO. This is an example of…
    a) Risk transference
    b) Operational risk management
    c) Both a and b
    d) Neither a nor b

11. Internal audit is part of the …
    a) 1st Line of Defense
    b) 2nd Line of Defense
    c) 3rd Line of Defense
    d) 4th Line of Defense

Short Answer Questions

12. A credit report will indicate if the debtor has ever declared bankruptcy. Why is this information important for creditors to know?

13. Colossal Headaches is a leading manufacturer of pain relief medicines. Unfortunately, the company has been experiencing cash flow problems. The company has some accounts receivable that will be due in 35 days. Colossal Headaches needs the money earlier, though, in order to cover its payroll. Propose 2 alternatives that Colossal could use to deal with its cash flow problem. What additional information would be useful in recommending a course of action?

14. Assume you and your friend are enrolled in a risk management class. After learning about hedging, your friend declares, "Wow, since hedging reduces risk, why not hedge our entire investment portfolio? That way we are completely protected from loss." Comment on the accuracy of your friend's assertion.

15. Why is it important for businesses to continuously monitor the correlation coefficient between their investment portfolio and their hedge position?

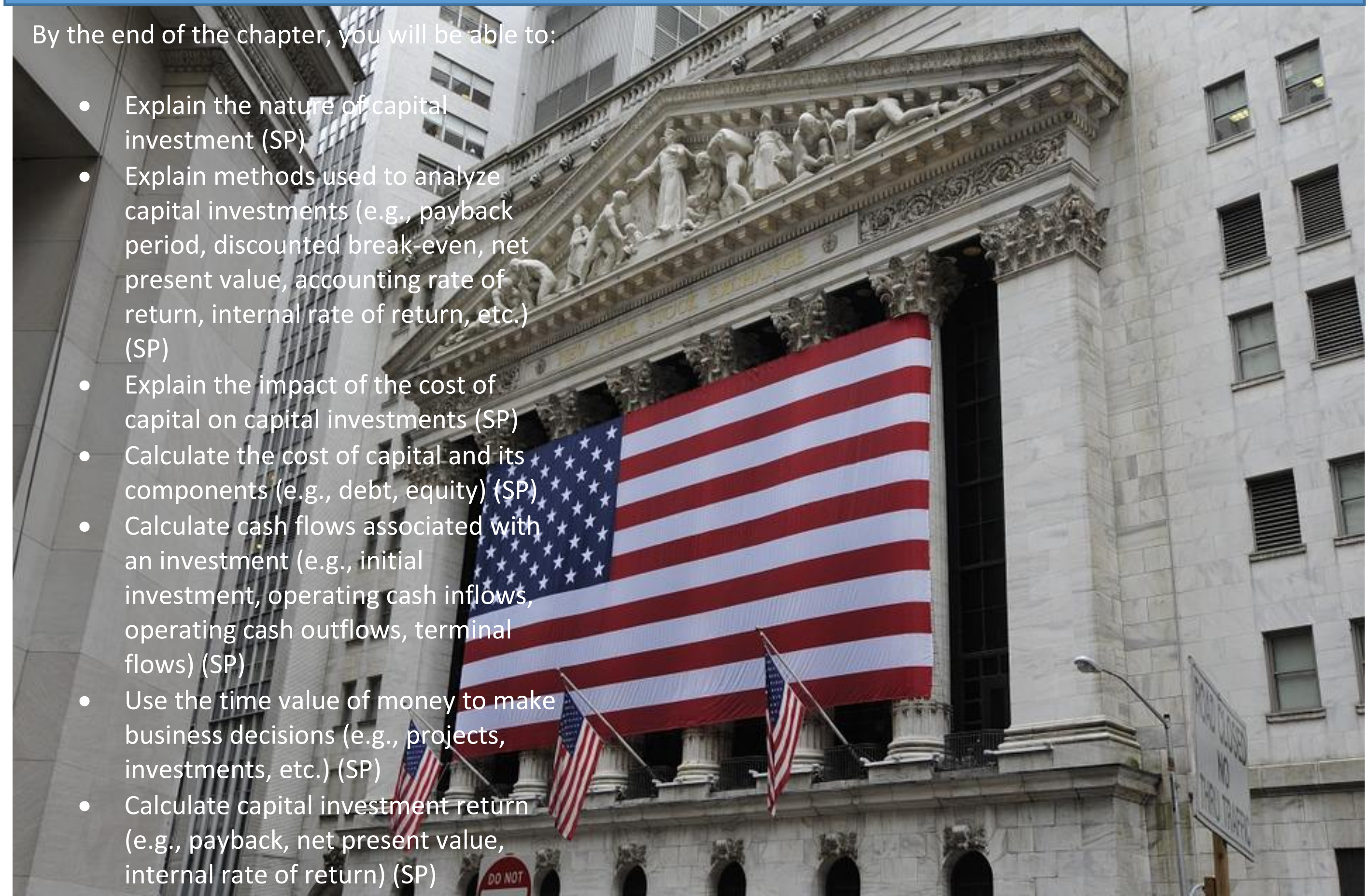
16. Some businesses engage in *succession planning*; in which they make a plan for a smooth transition from one management team to the next. What type of risk is this intended to reduce?

Mini-Case Analysis

Global Success Bank (GSB) is a worldwide financial institution offering banking, insurance, and investment management services. The bank is led by CEO Erwin Williams, a skilled business executive with over 25 years' experience in the industry. Williams has been instrumental in getting GSB to the state of prosperity that it is in now. Williams himself designed most of the new banking products that GSB is offering to its customers.

While GSB offers loans to consumers, most of the loans are unsecured credit cards or unsecured lines of credit. These loans charge a floating interest rate benchmarked to the LIBOR. The company's insurance arm focuses on providing group health insurance benefits to employees of S&P 500 companies. GSB's investment management services division manages pension funds for public sector employees. These funds are primarily interested in a diversified portfolio of North American equities.

Although GSB is a strong business, its CEO believes in prudent risk management. As a result, he has asked you to analyze the risks that GSB faces, and determine if any changes should be made. Write a brief memo in which you address the CEO's concerns.



By the end of the chapter, you will be able to:

- Explain the nature of capital investment (SP)
- Explain methods used to analyze capital investments (e.g., payback period, discounted break-even, net present value, accounting rate of return, internal rate of return, etc.) (SP)
- Explain the impact of the cost of capital on capital investments (SP)
- Calculate the cost of capital and its components (e.g., debt, equity) (SP)
- Calculate cash flows associated with an investment (e.g., initial investment, operating cash inflows, operating cash outflows, terminal flows) (SP)
- Use the time value of money to make business decisions (e.g., projects, investments, etc.) (SP)
- Calculate capital investment return (e.g., payback, net present value, internal rate of return) (SP)

Chapter 10: Corporate Finance

Apple is one of the world's most valuable companies. As of 2016, the company is valued at more than $600 Billion US. In the past 10 years, shares of Apple have increased in price by approximately 900%. How has Apple been able to create so much value for its shareholders? How does it make smart investment decisions? The answer lies in the field of study known as Corporate Finance. This chapter will serve as an introduction to the principles of Corporate Finance. In this chapter, you will learn about the importance of Corporate Finance to an organization, and how Corporate Finance differs from Accounting. You will also learn about how a company chooses between a mix of debt versus equity financing. Finally, you will learn how a company decides which projects to invest in, and how the company can measure its return on those investments.

Note 1: Information Obtained from Google Finance in 2016

10.1 Purpose of Corporate Finance

Stock

A type of security that grants an ownership stake in a company's assets/earnings

In today's world, many industries are dominated by corporations: businesses that are their own legal entities and are owned by a group of people called shareholders. These shareholders invest their capital into buying the corporation's shares or **stocks** which means that they are providing capital to the corporation and in return they own a portion of the corporation's assets.

Corporate Finance

The function within the firm that is responsible for deciding how the firm should be financed and which projects the firm should invest in. The goal of corporate finance is to maximize the value of the firm.

Every corporation accordingly seeks to use this capital from its shareholders' investments to the best of its ability in order to generate value and profit for the business. In fact, this is the primary concern and purpose of **corporate finance**: to maximize the value of the firm. This manifests itself in the form of making profitable investments and generating a high return on invested capital. It can be increased through greater operating efficiency and effective cash flow control.

As corporations are the dominant players in industry, understanding and effectively applying corporate finance concepts is of great importance; thus, as a Finance Cluster competitor, it is vital for you to understand the processes and activities in the financial management of corporations.

Activities in corporate finance cover areas such as capital structuring, capital budgeting, and the management of current assets, current liabilities, inventory, and short-term investments.

Capital Structuring

Deciding the optimal mix of debt and equity financing for the firm

Capital structuring refers to the methods of financing the company uses in order to raise its capital. More specifically, it refers to the relative amounts and types of debt and equity used to finance the company's assets. For example, a company may need to raise capital for a new investment it wishes to make and it can either do this through issuing common stock or by issuing bonds. Both types of financing should be considered and evaluated along with the current financial position and structuring of the company in terms of debt and equity to determine which method to use. The more efficient option is the one that has the smaller opportunity cost with regard to shareholder wealth.

determine which method to use. The more efficient option is the one that has the smaller opportunity cost with regard to shareholder wealth.

Capital budgeting is a key corporate financing procedure that plans how capital should be allocated towards various **capital expenditures**. Capital expenditures are the monies spent by corporations in order to purchase or upgrade long-term assets that will generate future cash flows. Examples include purchasing a new truck, investing in a new factory or a plot of land, or renovating a building.

Capital Budgeting

The process of deciding which projects a firm should invest in

Capital Expenditures (CAPEX)

Monies spent to acquire or improve fixed assets that are expected to generate future cash flows

Worked Example

Decide if each of the following scenarios is a capital structuring decision or capital budgeting decision.

1. Lau Corporation decides to issue $50 million in common stock

2. Uong Enterprises Ltd, a fast-food chain, decides to open a new franchise in Richmond Hill, Ontario.

Solution:

1. Capital Structuring

2. Capital Budgeting

Your Time to Shine

Decide if each of the following scenarios is a capital structuring decision or capital budgeting decision.

1. Kompella & Qurban-Ali LLP, a leading law firm, decides to acquire a new, state-of-the-art office building in order to attract more clients

2. Zheng Corporation decides to buy back $10 million worth of debt.

10.2 Corporate Finance vs Accounting

Although some people assume that “finance” and “accounting” mean the same thing, it is important to recognize the differences between these two fields. While both accounting and corporate finance are branches of the financial function of a corporation, they differ in their purpose and so differ in their functions and the tasks involved as well.

The purpose of accounting is to accumulate and report on financial information about the performance, financial position, and cash flows of a business. This information is then used to by many stakeholders to make decisions, such as these: how should the business be managed? Is it a good investment? Should the business be lent money?

Accounting itself can be further classified into financial and managerial accounting. Financial accounting deals with providing past information in the form of financial statements to external users in order to help them make decisions regarding the corporation. Managerial accounting works to help internal users such as managers and directors make decisions regarding the operations of the corporation and on how to allocate resources to achieve their goals.

Corporate finance, on the other hand, is more concerned with analyzing the financial information of a company in order to make decisions on how to raise, structure and invest its capital in such a way that results in the creation of value. This return can then be reinvested or used to issue dividends to shareholders. In either case shareholder value is increased, which is, after all, the objective of corporate finance!

Capital Structuring

When you go out with your friends to eat and you have to pay for the meal, generally, one of two situations takes place: either you have the money to pay for your food yourself and you do so or you need to borrow money from one of your friends and pay them back later. This is similar to how corporations fund their activities: they can either use money from their owners (equity), or they can borrow money (debt).

Capital structuring is about deciding how to finance a firm in the way that maximizes shareholder value and essentially decides how to organize the claims on a firm's assets and future cash flows. Capital structuring is important to consider and evaluate since an inefficient capital structure can destroy an incredible amount of value.

Broadly speaking, there are two kinds of financing that firms can pursue: debt and equity. There are a variety of different ways that firms can borrow money; with the most obvious approach being issuing bonds or getting a bank loan. For more information on the various types of debt instruments corporations can use to finance their activities, refer to Chapter 11.

There are two kinds of equity shares: preferred stock and common stock.

Preferred shares have a promised dividend payment that the issuer (the corporation) has the option to pay. Preferred dividends must be paid before any common dividends are paid, though the failure to pay preferred dividends does not constitute a default. Preferred shares can be either cumulative or non-cumulative. The unpaid dividends on cumulative preferred shares accumulate from one period to the next, and must all be paid before any common dividends can be paid. The unpaid dividends of non-cumulative preferred shares do not accumulate from one period to the next. Most preferred shares are cumulative. Preferred shares typically do not have voting rights.

Common shares entitle the owners to the residual value of the firm. This means that common shareholders are entitled to whatever is left over after all other financial asset holders have been paid, and are not entitled to any specific dividend/interest or principal payments. While they are not entitled to these payments, often times investors will expect dividend payments when the company is more successful and generates a lot of profit. Most common shares allow the shareholder to vote on matters such as the election of the board of directors and larger issues for the firm.

Preferred Shares

A class of shares in which the owner receives set dividends and liquidated assets in the case of bankruptcy before common shareholders and commonly does not have the ability to vote

Common Shares

A class of shares in which the owners have a claim to any assets remaining after creditors and preferred shareholders have been paid and commonly have the ability to vote

At first, issuing debt over equity may seem counter-intuitive: why pay additional interest payments when you can just issue shares at no additional cost? However, there are various factors that a company must consider when it comes to raising capital. For example, while interest payments create an additional expense for the company, issuing equity dilutes the value of the company's shares and the new shareholders now have a claim or an expectation to receive future profits of the business. In fact, when used effectively, debt can generate more value than equity and at a lower ultimate cost.

Financial leverage

A measure of the extent of debt used to finance a company's operations

The amount of debt used to finance a company's assets in comparison to equity is known as **financial leverage**. The higher the leverage of a company, the more debt it is using to finance its operations. While a certain amount of leverage can be useful and beneficial to a company in creating shareholder value, a leverage ratio that is too high can result in unmanageable credit risk and interest expense payments. The most common financial ratios used to represent leverage are the debt-to-equity ratio and the debt ratio.

The debt-to-equity ratio measures the proportion of total debt of a company to its total equity and is calculated as follows: Debt-to-Equity Ratio= Total Liabilities/ Total Shareholder's Equity

The debt ratio measures the proportion or percentage of the company's assets that are funded by debt and is calculated as follows: Debt Ratio= Total Liabilities/ Total Assets.

One point of confusion for many students is the distinction between "debt" and "liabilities". Debt refers to any interest-bearing liability (such as bonds or loan payable). Meanwhile, liability refers to an economic obligation of a company. Accounts Payable would be a liability, but not a "debt" as it does not accrue interest. Hence, all debt are liabilities, but not all liabilities are debt.

The reciprocal of the debt ratio, Total Assets/Total Liabilities, is used less frequently in isolation. Instead, as you saw in Chapter 7, it is combined with other ratios to build the DuPont model.

So how should a firm raise its capital? Through debt or equity instruments? How much of each should be issued?

To answer these questions, the advantages and disadvantages of one method of financing compared to the other must be examined. The advantages and disadvantages of debt financing as opposed to equity financing have been presented in the table below.

Advantages of Debt Compared to Equity	**Disadvantages of Debt Compared to Equity**
The lender of debt instruments to the corporation does not have ownership claims in the company and so does not dilute or reduce the value of individual shares. Equity instruments on the other hand provide ownership and thus, dilute share value.	Unlike equity, debt principal must eventually be paid back, with interest, and too much debt raises the company's break-even point and makes it difficult for them to grow due to the high cost of servicing all of the debt.
With debt, there is only an obligation to repay the principal amount plus interest and if the company is successful, there are no claims to future profits by the lender. Equity instruments have a claim to future profits and bring an expectation of receiving a share of them.	Debt instruments often contain restrictions on the company's use of its capital resources in order to ensure that they are not going to default. Debt also creates a need to budget and forecast cash flow for interest payments. They also often times require the company to offer collateral assets (assets that will be liquidated to repay the debt in the case of a default). These restrictions limit the company's ability to use their capital to grow and increase shareholder value.
Interest payments can be deducted on the company's tax returns and reduce the taxes paid while dividend payments~~,~~ (which, for equity instruments, are-analogous to the interest on debt instruments) do not get deducted on tax returns and do not reduce the taxes paid.	The higher the ratio of a company's debt becomes to its equity (debt-to-equity ratio), the riskier they become in the view of external parties and the more difficult it becomes for them to attract investors or obtain additional debt financing. As a result, the debt capacity of a company is rather limited.

There are a few other factors that firms should consider when making capital structuring decisions: the cost of financial distress, information asymmetry, and control.

Costs of financial distress

Costs increased during the bankruptcy process or in a period where bankruptcy risk is high

The risk of financial distress reduces the value of a firm and this risk increases with the proportion of the firm's assets that are financed by debt. The **costs of financial distress** come during both during and before the bankruptcy process. Costs during the bankruptcy process include legal fees, increased managerial latency if it is being restructured (the bankruptcy court has to approve most major decisions a firm makes while it is being restructured), and the loss of intangible assets if the firm is being liquidated. While a firm is near bankrupt, customers may worry about the availability of replacement parts and service, suppliers may refuse to offer credit, employees will try to find jobs elsewhere, management may take unjustified risks because it has nothing to lose, and management makes fewer long-term investments. The costs of financial distress vary from one industry to the next. In particular, the costs of financial distress increase as a firm's assets become less tangible; this implies that firms with lots of intangible assets, like tech firms, should borrow little, and firms with mostly tangible assets, like steel firms, could borrow more.

Information asymmetry

The idea that in a particular situation, some entities may know more than others do. In the context of corporate finance, one of the biggest examples of information asymmetry is the idea that management knows more about a firm than investors

Information asymmetry is the idea that management knows more about a firm than investors do, and thus is able to ascertain whether a firm's shares are over- or under-valued. Investors also know that management knows more about a firm than investors do. Because of this, management feels that investors may perceive a firm issuing equity as a signal that management thinks that its shares are overvalued, and that investors may perceive a firm issuing debt as a signal that management thinks that its shares are undervalued. Because management wants to maximize the firm's share price, it may have an incentive to issue debt even when doing so produces certain disadvantages and risks.

Controlling Interest

When an entity owns more than a 50% stake in the firm

Control can also be a factor for some firms. When firms issue shares, it reduces the control that current shareholders have over the firm. If a single large shareholder currently has a **controlling interest** in a firm, they may be reluctant to allow the company to issue additional voting shares for fear of losing their control over the firm. This is particularly relevant for small- and medium-sized firms.

Ultimately, the type of capital structuring a firm should use varies from industry to industry and depends on factors such as the leverage ratio, tax reductions, credit risk, the costs of financial distress and the type of assets in the firm's industry, information asymmetry, ownership claims and controlling interest considerations. By weighing these different factors into their decision, firms can decide on what type of financing they should utilize and determine a capital structure that will best be able to generate value for shareholders.

10.3 Capital Budgeting

In the previous section, you learned how a firm can raise capital. Now, how does a firm use that capital effectively? Capital budgeting, also called investing, is about figuring out what projects a firm should and should not spend its money on in order to maximize shareholder value. There are a couple of important considerations to take into account when making investing decisions including the opportunity cost of the capital invested in the project (i.e. what else could the firm or its shareholders be doing with the money if it was invested elsewhere), the cash flows that the project generates, and the riskiness of those cash flows. Through the course of this section, a mathematical model that combines these considerations will be built to help make capital budgeting decisions.

Time Value and Present Value

The **time value of money** is how one takes into account the opportunity cost of the capital they invest in a project. Imagine you were given the option to receive \$100 today, or \$100 in 10 years. Which option would you choose? You would probably choose to receive the \$100 today. Perhaps you chose the first option because you would rather spend \$100 today than spend \$100 in 10 years. Even if you did not want to spend the money in the next 10 years, it would still make sense to take it

Time value of money

The idea that money received today is more valuable than money received in the future today because you could invest it and have more than $100 in 10 years.

Present Value

The amount a future cash flow is worth today

Now ask yourself: how much less would you have to be offered today to make you indifferent between getting the money today and in 10 years? It is this question that gives rise to the idea of **present value**: how much is a dollar received n the future worth today? To answer that question, if 10-year interest rates were 3%/year, you would need

$$\frac{100}{(1+0.03)^{10}} = \$74.41$$

today to have $100 in 10 years. In general:

$$PV = \frac{C}{(1+r)^T}$$

Discount rate

The rate at which future cash flows are discounted (reduced). This rate compensates for both risk and time value of money

Where PV is the present value, C is the future cash flow, r is the interest rate, or rather the **discount rate**, and T is the number of time periods.

In general, projects have more than one cash flow. Let's consider a case where a project has equal cash flows equally spaced in time for a certain amount of time. For example, suppose you receive $100 each year for 10 years, starting a year from today. What would the present value of the project be?

Annuity

A stream of cash flows in which an equal amount of cash flow is received every period

We use the present value of an ordinary **annuity** formula:

$$PV_{OA} = C\left[\frac{(1-(1-r)^{-n}}{r}\right]$$

where PV_{OA} is the present value, C is the value of the cash flow for each period, r is the discount rate, and n is the number of periods. Using the example from above, we get:

$$PV_{OA} = 100\left[\frac{(1-(1+0.03)^{-10}}{0.03}\right]$$

$$= (100)(8.530203)$$

$$= \$853.02$$

Therefore, this project is worth \$853.02 today. Notice that this value is less than \$100*10=\$1,000. This is because of time value of money; the 1st \$100 payment is more valuable than the later \$100 payment.

Net Present Value

Net Present Value

Present value of all cash flows associated with a project

The **net present value** (NPV) is the present value of all of the cash flows associated with a project, including the initial cost of the project, operating cash inflows, operating cash outflows, and terminal flows (this will be explained in the DCF section). Now that we have seen how to calculate the present value of a single cash flow and of an ordinary annuity, we can use this formula to find that the formula for the present value of multiple cash flows that are not equal.

By convention, a negative value for C is used to represent a cash outflow, and a positive value is used to represent a cash inflow.

$$NPV = (C_0) + \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_{n-1}}{(1+r)^{n-1}} + \frac{C_n}{(1+r)^n}$$

Worked Example

Xie Corporation is an oil and gas manufacturer in Alberta. The company decides to purchase a new oil well for \$5 million. It expects to incur \$7 million in cash outflows in year 1, but starting in year 2, the project will produce cash inflows. \$10 million in cash inflows will be generated in year 2, \$15 million in year 3, \$8 million in year 4, and \$2 million in year 5. What is the net present value of the new oil well, assuming that the discount rate is 10%?

Solution:

$$NPV = -5M + \frac{-7M}{(1+0.10)^1} + \frac{10M}{(1+0.10)^2} + \frac{15M}{(1+0.10)^3} + \frac{8M}{(1+0.10)^4} + \frac{2M}{(1+0.10)^5}$$

$$= \$14{,}880{,}000$$

Your Time to Shine

Xu Corporation is an oil and gas manufacturer in Alberta. The company decides to purchase a new oil well for $20 million. It expects to generate $2 million in cash inflows in year 1, $8 million in year 2, $15 million in year 3, $8 million in year 4, and $2 million in year 5. What is the net present value of the new oil well, assuming that the discount rate is 8%?

Earlier, you learned that discount rates represent the opportunity cost of capital. Given the above formula, this intuitively makes sense: the greater discount rates are, the greater cash flows have to be to make the NPV positive. When the NPV is positive that means that the project will generate a positive return and it suggests that the firm should invest into the project or expenditure.

When the NPV is zero, management is indifferent to pursuing a project.

When the NPV is negative, management should not pursue the project, because it will destroy value for shareholders.

However, when making capital budgeting decisions, it is important to consider more than just NPV; it is entirely possible that the NPV for a project looks positive because of errors in estimating cash flows or discount rates.

Sensitivity analysis

An analysis showing how outputs would change if small changes were made to inputs

To help compensate for this effect, management often performs a **sensitivity analysis.** Sensitivity analysis shows how the output of a model (in this case the NPV) would change if incremental changes were made to the inputs (ex: cash flows and discount rates).

Whenever the NPV is positive, management needs to ask why it is positive. In effect, they need to consider what the strategic considerations surrounding the project are. For example, a firm may have a patent on a particular technology that gives them a cost advantage over their competitors. This then contributes to why the NPV appears as positive.

Three Big Rules for What to Discount

1. *Only cash is relevant*: When calculating NPV, focus on cash flows, not accounting profits. In accounting, income and expenses are accrued, which means that income and expenses are reported when they are earned/incurred, not when cash actually comes in the door. When making capital budgeting decisions, the time value of money is relevant, and so it is important to record cash flows when they are received, not when they are earned/accrued.

2. *Always estimate cash on an incremental basis*: This is another way of saying that sunk costs are sunk. If the firm has a division that is losing money, and it can reduce losses by making a certain investment, it should consider that investment based on how much the losses can be reduced; the firm should not decide not to make the investment simply because the division is losing money. Similarly, if the firm has a division that is making a lot of money, it shouldn't put more money into the division simply because the division is profitable, it should only consider the additional cash flows that that the new project is expected to make.

3. *Be consistent in your treatment of inflation*: If in some part of your calculation you use nominal numbers (numbers that do not take into account inflation), then all of your calculations should use nominal numbers. If you decide to take into account inflation, all of your numbers should do so. In particular, if you are using nominal cash flows, you should use nominal discount rates, and vice versa if you are using real numbers.

Risk, Discount Rate and WACC

Risk is the uncertainty inherent in the cash flows an asset generates. The objective of finance is to maximize shareholder value, and since shareholders are risk averse, firms need to be risk averse and effectively manage and control their risk.

Systematic risk

Risk that cannot be eliminated through diversification

Non-systematic risk

Risk that can be eliminated through diversification

Diversification

Spreading one's capital across multiple investments

Weighted Average Cost of Capital (WACC)

The overall "average" cost of financing the firm

There are two general kinds of risk: **systematic risk**, which is risk that cannot be eliminated through **diversification** (i.e. creating an investment portfolio including a variety of projects, expenditures and investments*)*, and **non-systematic risk** (i.e. risk that can be eliminated through diversification*)*.

When calculating the NPV of an investment, these two kinds of risk are dealt with in very different ways. When adjusting the NPV calculation to take into account systematic risk, discount rates (r) are changed, while when adjusting the NPV calculation to take into account non-systematic risk, cash flows are changed.

If the amount of systematic risk in an investment is roughly equal to the amount of systematic risk that the firm as a whole is exposed to, the firm can use a metric called the **weighted average cost of capital**, or **WACC**, as its discount rate.

Capital, whether raised through debt or equity, has a certain associated cost. The WACC is a weighted average of the costs of capital from all of the firm's financing sources. If a firm is financed by only debt and equity, the WACC is calculated as follows:

$$\text{WACC} = \frac{D}{(D+E)\,K_d} + \frac{E}{(D+E)\,K_e}$$

where D is total debt, E is total equity, K_d is the cost of debt and K_e is the cost of equity. The cost of equity cannot be directly observed and must be estimated.

As discussed previously, when a company takes on debt, they must pay interest to their creditors. This interest is expressed as an annual rate that must be paid on the principal (amount of original debt outstanding). The cost of debt is the overall effective interest rate a company pays for its debt financing.

However, as mentioned previously, one of the advantages of debt financing is the tax deductions received from the deductibility of the interest payments on debt. Hence, we must adjust the cost of debt to take this into account by multiplying the rate that we have arrived at by one minus the effective tax rate of the corporation. This is done to reduce the cost of debt by the percentage of tax savings it provides. Now, in summary, the cost of debt can be calculated as follows:

Thus, Cost of debt is calculated as follows:

$$K_d = r(1 - T)$$

where K_d is the cost of debt, r is the interest rate of the debt, and T is the corporation's statutory tax rate.

While it may not seem to be the case at first, issuing equity also has a certain cost associated with it. This cost is essentially the compensation demanded by the market and shareholder's for the use of their capital and can be thought of as the return shareholder's expect from the company. The most conventional and widely applied method used to estimate the cost of equity is the Capital Asset Pricing Model (CAPM) which will be covered in more depth in Chapter 11. In this chapter, we will just examine the calculation for the cost of equity and gain a general understanding of the variables involved. The formula to calculate the cost of equity is as follows:

$$K_e = r_f + (r_m - r_f)\beta$$

where K_e is the cost of equity, r_f is the risk-free rate of return, r_m is the market rate of return and β is a risk multiple.

The general idea of the calculation is that investors expect a certain return from the company based on market risk rates, "risk-free" security return rates and the company's historical relation to the market. Investors typically expect to receive a return that is a certain amount above the return they could be receiving through very secure and low risk investments such as treasury bills. This rate of return is the risk-free rate of return in the calculation. The amount that they expect their return to differ by is related to the difference between the overall market's rate of return and the risk-free rate of return. This difference is how much additional return investors would expect from the market itself. However, companies do not mirror the market perfectly and thus, our calculation is adjusted by a risk multiple β which reflects the degree by which the company's stock moves in accordance with the overall market. For example, a β value of

2 indicates that the company's stock tends to move twice the amount of the market. This second portion of the calculation is reflective of the additional return investors expect from the company aside from the return they would have earned through risk-free investments.

The Capital Asset Pricing Model (CAPM) is explained in further depth in Chapter 11.

Worked Example

Shen Ltd. has a pre-tax interest rate of 5.0% on its debt. The statutory tax rate (combined state and federal) is 38%. The risk-free rate of interest is 2.3%, and the equity market rate of return is 7.9%. $\beta = 1.2$. The value of debt on the balance sheet is \$200 million, and the value of equity on the balance sheet is \$500 million. The stock price is \$14.15/share, and there are 25 million shares outstanding. Compute the WACC for Shen Ltd.

Solution:

D = \$200 million

E = \$14.15 × 25 million

= \$353.75 million

$$K_d = r(1 - T)$$
$$= 0.05(1 - 0.38)$$
$$= 0.031$$

$$K_e = r_f + (r_m - r_f)\beta$$
$$= 0.023 + (0.079 - 0.023) * 1.2$$
$$= 0.0902$$

$$\text{WACC} = \frac{\text{D}}{\text{D} + \text{E}}\text{K}_\text{d} + \frac{\text{E}}{\text{D} + \text{E}}\text{K}_\text{e}$$
$$= \left(\frac{200}{200+353.75}\right)(0.031) + \left(\frac{353.75}{200+353.75}\right)(0.0902)$$
$$= 0.0688$$

Therefore, the weighted average cost of capital is 6.88%.

Your Time to Shine

Grier Computing Inc. has a pre-tax interest rate of 4.0% on its debt. The statutory tax rate (combined state and federal) is 36%. The risk-free rate of interest is 2.3%, and the equity market rate of return is 8.9%. $\beta = 1.9$. The value of debt on the balance sheet is $500 million, and the value of equity on the balance sheet is $200 million. The market value of equity is $500 million. Compute the WACC for Grier Computing Inc.

When the amount of systematic risk in an investment is substantially different from the amount of systematic risk that the firm as a whole is exposed to, using the WACC as a discount rate is inappropriate. There are a number of mathematical models that have been created to help financial managers determine what the appropriate discount rate in this situation, but this is beyond the scope of this textbook.

When dealing with non-systematic risk, take the expected value (expected value is a probability-weighted average) of the possible cash flows.

Now why is it that systematic and non-systematic risk are treated so differently? Imagine there was an investment that gave the firm money based on the results of a coin toss: they get $100 today if the coin lands on heads and nothing if it lands on tails. The above model suggests this investment has a present value of $50. This seems awkward because it has the same present value as receiving a guaranteed $50 today, but is substantially riskier, so what is going on? Imagine having the option of making not one of these coin tosses, but one million; in this circumstance, roughly half of those coin tosses will be heads and roughly half will be tails. This portfolio of coin tosses created will not end up being very risky; after all, if you flip a head once, you would hardly be surprised, but you would be truly astonished if you flip a head one million times in a row.

This is the idea of diversification: the riskiness of investments is reduced and the amount of variability in the expected rate of return is minimized by investing in many diverse types of projects, expenditures and securities. Even if the firm does not diversify, its shareholders can, and so there is no reason why it should treat diversifiable (non-systematic) risk as anything special. Systematic risk, on the other hand, cannot be eliminated through diversification, and thus should be treated more carefully than non-systematic risk.

Other Metrics for Evaluating Investments

While NPV is the simplest measure of the value an investment generates, there are other metrics that financial managers should be aware of. These additional metrics and their advantages and disadvantages are explored below.

Internal Rate of Return (IRR)

Internal Rate of Return (IRR)

The discount rate used such that the NPV of a project is equal to zero

IRR is the most common method of determining whether to invest in the project, and is often used in place of NPV. IRR is very similar to NPV but rather than giving how much value a project creates; it gives what discount rate would give an NPV of 0. IRR is calculated by solving for r in the following equation:

$$0 = (C_0) + \frac{C_1}{(1+r)^1} + \frac{C_2}{(1+r)^2} + \cdots + \frac{C_{n-1}}{(1+r)^{n-1}} + \frac{C_n}{(1+r)^n}$$

Hurdle rate

The minimum required rate of return set by management

When firms use IRR in making capital expenditure decisions they typically set a **hurdle rate**, which is the minimum IRR of a project that they are willing to invest in. The hurdle rate is typically a little higher than a firm's discount rate to help ensure that small changes in the assumptions behind a project do not change whether an investment is good or not. The hurdle rate can never be set less than the firm's WACC.

IRR essentially tells management what minimum discount rate and level of opportunity cost would be necessary to make the investment not worthwhile. If this rate is higher than the hurdle rate, then that means the company is more likely to benefit from investing in the capital expenditure. Except in certain special circumstances, it is almost impossible to calculate IRR without a computer, so you will not be asked to calculate the IRR of a series of cash flows for your exams or your role-play. In your role-plays, you may be asked to explain what IRR is, what it means, and when to use it.

For **lending projects,** the IRR rule is

If IRR > hurdle rate, the company should invest.

If IRR = hurdle rate, the company is indifferent.

If IRR < hurdle rate, the company should not invest.

The biggest advantage of IRR over NPV is that IRR is a relative measure of value whereas NPV is an absolute measure; this means that IRR shows the value an investment creates relative to the initial outlay while NPV shows the total value created. The advantage of this is that it takes the size of projects into account. For example, if the NPV of a project with a billion-dollar outlay was $1000, a tiny change in assumptions about the cost or cash flows of the project could make the NPV negative while for a project with a $1000 outlay and a $1000 NPV, this would be less of a risk. Using the IRR metric, the project with the smaller outlay looks more desirable than the project with the larger outlay because it gives a percentage or proportional measurement of the project's value.

Lending projects

Projects in which there is an initial cash outflow followed by a series of cash inflows in the future. The IRR rule we introduce in this chapter applies only to lending projects. If the cash flows follow a different structure, the IRR rule would have to be modified in order to arrive at the right decision. A detailed discussion of IRR is beyond the scope of this book and will be left to your corporate finance instructor.

IRR Complications

There are some situations when IRR is difficult to calculate: for example, when rates of return and the cost of capital fluctuate over time.

When the costs of borrowing increase, the hurdle rate is pushed up as well because a higher return must be made on the investment to compensate for the increased interest rate. As a result, the IRR is pushed higher as well.

When a project has all positive or all negative cash flows, the project will have no IRR. In this unusual situation, however it should be obvious whether or not to take the project since all positive cash flows clearly indicate a positive return and all negative cash flows clearly indicate a negative return.

IRR assumes that the discount rate is constant over time, and when it is not (and for long periods of time, it almost always isn't) the IRR rule won't always guarantee that NPV is positive. For this reason, it is not recommended to use IRR when discount rates vary considerably over the duration of a project.

Accounting Rate of Return

Accounting Rate of Return

A proportional measurement of the average annual profit of an investment to its initial investment cost

The **accounting rate of return** is a measurement of the proportional return of the average annual profits generated by a project in comparison to the initial investment for the project and is calculated as follows:

$$\text{Return} = \frac{\text{Average Profit per Year}}{\text{Initial Investment}}$$

While you may be asked to calculate this metric in role-plays, there are many drawbacks to this simple metric. First of all, it uses accounting revenue and expenses and does not indicate anything about the cash flows associated with the project. As discussed before, the cash flows associated with a project are more important to consider than the accrued revenues and expenses when it comes to capital expenditure decisions. Additionally, the calculation has no adjustments made for the time value of money and thus, the values of future profits appear to be more than what they would really be worth. This metric also does not consider the increased risk with longer periods of time or take into account several other financial factors and thus, cannot be used effectively as a comparative measurement between different projects.

Payback Period

Payback Period

Amount of time it takes a firm to earn back its initial investment in a capital expenditure

The **payback period** is the amount of time it takes the firm to recuperate its initial outlay. In other words, the payback period is the point in time when the sum of all cash flows to date related to the project is equal to zero. Firms that use the payback rule invest in all projects that pay for themselves by a specified cut-off period. The payback rule has problems; in particular, using the payback rule to make capital expenditure decisions can result in a short-term bias. To illustrate this, consider the following example:

Project	C_0	C_1	C_2	C_3	Payback Period	NPV at 10%
A	-2000	500	500	5000	2 years, 2 months	2624
B	-2000	500	1800	0	1 year, 10 months	-58
C	-2000	1800	500	0	1 year, 5 months	50

In this example, the best project (A) has the longest payback; this is because project A generates large cash flows in three years' time. Thus, it is apparent that even though project A can be the most profitable of the three, this measurement makes it seem as though it is the worst of the three. This flaw can be remedied by using **discounted payback** or **discounted break-even** and discounting the cash flows that are used to calculate payback in a fashion similar to the NPV and IRR calculations:

Discounted payback period

A modified form of the payback period calculation that takes into account time value of money

Project	C_0	$\frac{C_1}{1.1}$	$\frac{C_2}{1.1^2}$	$\frac{C_3}{1.1^3}$	Payback Period	NPV at 10%
A	-2000	455	413	3757	2 years, 4 months	2624
B	-2000	455	1488	0	Never	-58
C	-2000	1636	413	0	1 year, 11 months	50

Regardless of whether management chooses to discount the cash flows used to calculate payback, payback should not be used as a determinant of whether or not to invest in a project. Rather, it should be used as a warning sign to tell how dependant a project is on cash flows in the distant future. If the payback period is very long, the firm needs to carefully check whether they are unduly optimistic with their projected cash flows in the distant future.

10.4 Discounted Cash Flow Analysis

If you are deciding to buy a T-shirt, you want to know if the price you would have to pay for a certain shirt is fair. In other words, you want to know if the shirt is too pricey or if it is a bargain. Similarly, investors want to know whether the investment they are considering is worth the money required to invest in it.

Discounted Cash Flow (DCF) Analysis

A method of financial valuation of an investment that uses the present value of future free cash flow projections to determine a fair value price for the investment

Discounted Cash Flow (DCF) Analysis is a method of financial valuation of an investment that uses the present value of future free cash flow projections to determine a fair value for the price of the investment. If the fair value arrived at through DCF analysis is lower than the price of the investment, then the investment is likely overvalued and vice versa. DCF Analysis is essentially a culminating application of the various concepts already covered in this chapter; it uses concepts and formulaic elements you have already learned such as the time value of money, NPV, risk, and WACC. It operates under the premise that the company is ultimately worth the present value of the future cash profits it can generate.

DCF analysis can not only be applied to capital expenditures by a corporation but also to evaluating the fair value of a corporation itself and, by extension, the fair value estimate of its share price. This means that investors can also use DCF analysis to determine whether a corporation's share price is overvalued or undervalued and can make investments on this basis. Evidently, DCF analysis has many applications for both investors and firms. Accordingly, it is important for you to be able to describe the process by which a company or capital expenditure can be evaluated using DCF analysis. The general process by which this method of valuation is executed is explored in this section.

Forecast Period

Forecast period

The amount of time for which future cash flows will be projected in DCF analysis

Since DCF analysis involves discounting future cash flow projections to present value, the first step is to determine the **forecast period**, or how far into the future cash flows will be projected. In the case of capital expenditures, this is usually the period which the company forecasts the investment asset will be efficiently usable for and typically ends around the time that management predicts the asset will lose its value. This period is equivalent to the usable life of the asset in amortization calculations which are covered in more detail in Chapter 6.

When evaluating the fair value of a company, however, the period used depends on the situation of the company and their strategic position in relation to both the economy and competitors. Thus, specific forecast periods vary depending on individual factors relating to a company's strategic positioning; however, for your purposes, certain general guidelines can be used in order to estimate a company's strategic position and its appropriate corresponding forecast period.

As a general rule of thumb: If the company is growing at an outstanding rate, greatly exceeding the growth rate of the economy and operating with a dominant and strategically sound position in the market with respect to competitors, use a forecast period of 10 years.

If the company is growing at a moderate rate, decently exceeding the growth rate of the economy and operating with certain strategic advantages but not clearly the dominant company in relation to competitors, use a forecast period of 5 years.

If the company is growing at a slow rate, matching or slightly exceeding the growth rate of the economy and operating in a highly competitive industry with little advantage over its competitors, use a forecast period of 1 year.

Typically, the forecast period estimates how long the company will have excessive growth before the market is saturated with competitors and their growth enters a slow and mature state. This is why companies with greater growth rates and competitive advantages in the market have greater forecast periods.

Projecting Cash Flows

Now that the forecast period is determined, the next step is to project the future cash flows of a company or capital expenditure. In the case of capital expenditures, this is less complicated and involves evaluating the various expected cash flows throughout the life of the asset investment.

The **initial investment outlay** includes all of the costs involved in purchasing, transporting and installing the asset. For example, this could include the cost of purchasing new machinery, shipping and transportation costs, installation costs, legal costs, and equipment operation costs.

The **operating cash inflows** are the cash revenues the asset generates over its operational life and **operating cash outflows** are the cash costs the asset incurs over its operational life. For example, an asset can produce merchandise revenue as an operating cash inflow and require maintenance costs as an operating cash outflow.

Initial Investment Outlay

All costs of purchasing, transporting and installing an asset or capital expenditure

Operating cash inflows

Cash revenues generated over operational life of an asset or capital expenditure

Operating cash outflows

Cash costs incurred over operational life of an asset or capital expenditure

Terminal flows

Cash flows associated with the end of an asset's life including salvage value and clean-up costs

The **terminal flows** of capital expenditures include all of the cash flows associated with the end of an asset's life. For example, terminal flows can include the salvage value of an asset as well as selling and clean-up costs.

Revenue Growth Rate

In the case of evaluating a company, in order to calculate future cash flows, the first step is to estimate the growth of future company revenues. Typically, this is done through taking many different factors into consideration such as historical trends, prospective product launches, market share performance and outlook, price change possibilities, and threats of new competitors entering or dominating the market.

Since there is so much variability in the future prospects of a company's revenues, investors often treat the situation as one with non-systematic risk. In other words, they can use the probability weighted average formula introduced in an earlier section and evaluate the growth rates using certain estimated probabilities of each growth rate.

Usually, investors are conservative when it comes to projecting future growth rates over 3 years into the future while management of a company tends to be rather optimistic in comparison. For example, if a company has had a 15% growth rate over the past 3 years, management may claim that this trend will be maintained for the next five years while investors would likely prefer to use a 15% growth rate for the next 3 years and a 10% growth rate for the next 2 years.

This is because the investors are taking into account risks such as market saturation and economic downturns that could negatively affect the company's growth rates. Of course, the opposite could also be true and a company's growth rate could increase over the forecast period; however, investors prefer to be conservative in these situations and tend to go with a lower rate in future years in their DCF analysis.

Calculating Free Cash Flow

Once the company's revenue growth rate is determined, the projected revenues can be calculated by simply multiplying the most recent year's revenue by the growth rates in succession. The next step in our DCF analysis for companies is to use the projected revenues to calculate the company's projected **free cash flows**. These are the cash monies left over for a company to use for funding activities to enhance shareholder value - such as paying out dividends, buying back shares, and developing and launching new product lines - after the cash costs are subtracted from the cash profits. In order to calculate these values, investors take the projected revenues and subtract the following projected values: operating costs, taxes, net investments and change in working capital.

The **operating costs** include any expenses the company incurred in its course of operations; for example, selling and general administrative (SGA) costs, cost of goods sold (COGS), research and development (R&D), salaries, and utilities are all operating costs. When projecting future values for these costs, it is conventional to use a higher **operating cost margin** - the percentage of revenues consumed by operating costs - in later years multiplied by the projected revenues to stay conservative in estimates. Once the operating costs have been projected, they are subtracted from projected revenues to arrive at an **operating profit** projection.

The taxes portion of the calculation is rather simple and involves a corporate tax rate multiplied by the operating profit of the company. This tax value is then subtracted from the operating profit to arrive at an after-tax profit.

The **net investments** portion of this calculation involves the capital expenditure monies spent and to calculate it, investors take the previous year's capital expenditures costs and subtract the non-cash expenses of depreciation and amortization. This is done to ensure the calculation reflects cash monies spent rather than accrued expenses with no cash charges. They then express it as a percentage of revenues in past years and assume that it will steadily grow along with revenues. They then multiply their projected percentage growth rates for this value by the projected revenues and arrive at the projected net investments.

The change in working capital reflects the increase or decrease in the amount of current assets a company has left after paying down current liabilities. Working capital can be assumed to grow at the same rate as revenues and investors use this

Free cash flows

Cash left over for a company to use for funding activities in order to enhance shareholder value.

Operating Costs

Any expenses incurred by the company in its operations such as selling and general administrative (SGA) costs, cost of goods sold (COGS), research and development (R&D), salaries, and utilities

Operating cost margin

The percentage of revenues consumed by operating costs

Operating Profit

Operating revenues less operating costs

Net Investments

The money invested in capital expenditures excluding the non-cash depreciation and amortization costs to grow at the same rate as revenues and investors use this assumption to calculate projected changes in working capital by multiplying the most recent observed change in working capital by the revenue growth rate.

The net investment value and the changes in working capital value are then both subtracted from the after-tax profit to arrive at the free cash flow value. This process is used to come up with a free cash flow projection for every year in the forecast period.

Terminal Value

When considering the future cash flows of an entire company as opposed to a capital expenditure, a large difference one must take into account is the following: a company is assumed to operate into the foreseeable future while a capital expenditure asset has a set projected useful life. In other words, if you only include the free cash flows for the forecast period, you are assuming the company will stop operating at the end of the forecast period; however, this is not the case. This means that investors must take into account the value of all of the future cash flows a company will generate *beyond* the forecast period.

To simplify this calculation, you can make the assumption that after the forecast period, the revenue growth rate of the company will be a stable and mature value. This value should not greatly exceed the growth rate of the economy itself as the assumption involves the saturation and stagnation of the industry and market resulting in slower but stable growth.

Terminal value

The cumulative value of a corporation's perpetual future profits

One method to calculate the **terminal value** of a company is via the Gordon Growth Model which uses the following formula and the WACC as a discount rate to calculate the terminal value:

$$\text{Final Projected Year CF}\left(\frac{1 + \text{Long Term CF Growth Rate}}{\text{Discount Rate} - \text{Long Term CF Growth Rate}}\right)$$

This value will seem rather large but keep in mind it represents all future cash flows of the company beyond the forecast period and into the foreseeable future.

Discounting Cash Flows

Now that the projected cash flows for every year in the forecast period (and the terminal value in the case of firm value evaluation) are known, it is time to discount these cash flows to present value and find the sum. This actually employs the same method discussed in the capital budgeting section where investors will use the WACC as a discount rate in the NPV formula to find the present value of the cash flows. As discussed in that section, for capital expenditures with a substantially different systematic risk than the corporation, a discount rate other than the WACC should be used. For discounting free cash flows of a company, the WACC is used as it reflects the systematic risk and opportunity costs of the firm.

In the case of capital expenditures, the sum of these discounted cash flows is the NPV and is calculated the same way as shown before. For firm valuation, however, investors must take the terminal value into account within the formula as well. This value is discounted the same way as the other cash flows and the number of time periods used in the exponent of the denominator is the same as the last cash flow of the forecast period. Thus, if the forecast period is five years, the number of time periods used in the discounting of the terminal value is also five. The value of the sum of all the discounted cash flows and the discounted terminal value is known as the firm value.

Calculating Fair Value Share Price

Take a moment to recall the goal of DCF analysis: to determine a fair value price for an investment and whether or not one should invest in it. In the case of capital expenditures, this is achieved by evaluating the positivity or negativity of the NPV: if the NPV is positive, then the investment is a good one and vice versa. In the case of a firm valuation, investors are really examining whether the share price of the firm is undervalued or overvalued in order to decide whether or not they wish to purchase the investment.

Once the firm value is calculated, there are only a couple of simple calculations necessary to arrive at a fair value share price. First, the net enterprise value of the company does not take into account whether the cash flows being generated are claimed by debt or equity; thus, investors must subtract the net debt of the company from the net enterprise value to determine the NPV of future cash flows that shareholders have a claim to. This new value is known as the fair value of equity and it represents the present value of the company's future cash profits that can be claimed by shareholders of the company.

From here, it is one simple step to arrive at the fair value share price! Simply divide the fair value of equity by the total outstanding number of common shares and voila! You now have the fair value of the share price of the firm! You can now use this value and compare it to the market share price of the company: if the fair value share price is higher than the market share price, then the stock is undervalued and you should invest in it now and vice versa.

Evidently, DCF analysis can be a useful, albeit lengthy, process and evaluation tool both for investors and management of a firm to determine the fair value of share prices, investments and capital expenditures. However, certain important considerations should be kept in mind when using DCF analysis. Although it is a more advanced and detailed method of valuation, there are many instances where estimates and assumptions about future cash flows and riskiness are made. Even a slight change in these estimates can wildly impact the final value achieved. Those using this method of valuation should be aware of its susceptibility to change and always keep in mind that when dealing with projections of future profits and risk, nothing is certain and everything is susceptible to change.

10.5 Questions for Comprehension

Multiple Choice

1. The goal of Corporate Finance is to…
   a) Maximize the value of the firm
   b) Ensure that the company is profitable
   c) Record transactions accurately
   d) Reduce the cost of interest

2. Which one of the following best illustrates the differences between Accounting and Corporate Finance?
   a) Accounting is cash based, Finance is accrual based
   b) Accounting collects information, Finance uses information
   c) Accounting is about revenues, Finance is about expenses
   d) All of the Above

3. The two main elements of Corporate Finance are…
   a) Managerial Finance and Financial Finance
   b) Debt Finance and Equity Finance
   c) Capital Budgeting and Capital Structuring
   d) Capitalism and Socialism

4. Which one of the following companies is likely to have a high debt ratio?
   a) JP Morgan Chase & Co.
   b) Target Corp.
   c) American Airlines
   d) Pfizer

5. A company has a dividend rate of 6%. The company's hurdle rate is 8%, and the IRR on a lending project is 5%. This is the only project available to the firm. The firm should…
   a) Increase the hurdle rate
   b) Decrease the hurdle rate
   c) Increase the dividend rate
   d) Decrease the dividend rate

6. Why is debt financing cheaper than equity financing?
   a) Interest expense is tax deductible, whereas dividends are not
   b) Interest payments are required, whereas dividends are not
   c) Both A & B
   d) Neither A nor B

7. The hurdle rate is _______ WACC.
   a) Higher than
   b) Lower than
   c) Equal to
   d) Higher than or equal to

8. Won Corporation is considering a project with an NPV of $500 million. If the company is using the NPV method to evaluate projects, will it invest in the project?
   a) Yes, because the project is NPV positive
   b) Yes, because the IRR is greater than the hurdle rate
   c) No, because the project is NPV positive
   d) No, because the IRR is greater than the hurdle rate

9. Which of the following is true about the IRR method of evaluating a project?
   a) IRR can be easily calculated without a financial calculator
   b) All projects have an IRR
   c) The IRR method allows for the use of multiple discount rates
   d) None of the above

10. Sasha is an equity research analyst at Goldman Sachs. She is trying to determine a fair price for Amazon stock. Her calculations initially show that Amazon stock should be worth $300/share. Later, she decides to update her model by lowering the discount rate. Which one of these is <u>not</u> a possible fair price for Amazon stock under Sasha's new calculations?
   a) $275
   b) $330
   c) $445
   d) $500

Short Answer Questions

11. Explain the difference between Capital Budgeting and Capital Structuring.

12. The DCF method examines free cash flows instead of net income to arrive at a fair value for stock. Why do you think this is?

13. What is a benefit of using the NPV method to evaluate a project? A drawback?

14. How does each of the following <u>independent</u> scenarios affect the Weighted Average Cost of Capital? (Increase, Decrease, No Change, Uncertain)
   a) The statutory tax rate is reduced to 15%.
   b) The Federal Reserve ends QE3, resulting in an increase in the risk-free rate.
   c) A company decides to pursue more risky projects, resulting in an increase in beta.
   d) A company decides to buy back $500 million of shares.

Mini-Case Analysis

De Silva Inc. is an amusement park operator. The company's largest competitors include SeaWorld, Universal, Disney, and Six Flags. The company currently has three amusement park properties: Toronto, Chicago, and New York. It is thinking of adding an amusement park property in Los Angeles.

Amusement Parks are very capital-intensive. De Silva expects that initial construction costs will be $0.75 Billion per year for the next 3 years. Thereafter, the park is expected to offer discount prices to attract customers. Total revenues generated by the new park is $500 million per year in each of years 4 and 5, net income will be $200 million per year, and free cash flows will be $150 million per year. In years 6-10, the company expects free cash flows to grow at a rate of 10% per year.

De Silva Inc. currently has $750 million cash on hand, of which $200 million is needed to satisfy its day-to-day operations. To finance the remainder of the project, the company will have to either issue debt or issue equity. Currently, the company has an Aa2 credit rating and an outstanding debt balance of $2.5 Billion. Market analysts estimate that the new debt would be rated Aa2, have a 10 year maturity, and have an interest rate of 4.5%. The current interest rate on the company's debt is 4.0%.

De Silva Inc. has 200 million common shares outstanding. The market value of common stock is $55/share. De Silva pays a $1.25 dividend per share each year, and regularly reviews the dividend paid. De Silva Inc. has the same sensitivity to systematic risk as the overall stock market. The risk-free rate is 2.3%, and the equity market return is 7.9%.

Required: Answer the questions below.

1. What is the meaning of capital-intensive? Would you expect De Silva Inc. to have a high Degree of Operating Leverage or a low Degree of Operating Leverage? Justify your answer.

2. Compute the company's current cost of debt, cost of equity, and WACC.

3. What considerations does the company need to consider when deciding whether to issue debt or equity to finance the project? What is this type of decision known as?

4. Calculate the new WACC for the project assuming the company issues debt.

5. Calculate the new WACC for the project assuming the company issues equity.

6. Use the higher of the WACC from part (d) or part (e) as the discount rate to compute the NPV of the project.

7. Based on your analysis in part (f), should the company pursue this project? Why or why not?

8. Compute the payback period and discounted payback period of the project.

Chapter 11: Incredible Investments

Investing in today's markets is as interesting as it is complex. After all, fluctuations in the market occur on not just a daily basis but by each passing second in all markets throughout the world. These challenges also present tremendous opportunities for skilled, disciplined investors. While there is no magic formula to investing, this chapter will provide an overview of some key concepts that can help you make more informed investment choices. We discuss the investment environment as well as types of investments. We examine how an investor can construct an optimal portfolio given his/her risk tolerance. We discuss the regulatory agencies that provide oversight in the capital markets. Finally, we discuss specific types of investments and methods of evaluating their performance.

11.1 Types of Investments

Being able to understand the multitude of different types of investments in the markets is one of the cornerstones of any savvy investor. Today, investors are presented with a wide array of investment options that vary in risk, returns, and complexity. Picking the right investment types out of all the available choices is an important task for any investment professional or aspiring amateur seeking to fulfill their objectives. Bonds and stocks immediately come to the minds of most people when the word "investment" is brought up. However, to be limited to just the two without understanding the many funds, ETF's, options, and other alternatives is a loss of opportunity.

Stocks

Stock

A type of security that grants a stake of ownership in a corporation and its earnings

When purchasing **stocks**, the investor becomes the owner of a small portion of a given company. This entitles him or her to attend shareholder meetings, cast votes, and collect payment allocated to shareholders, otherwise known as dividends.

In the past, ownership of stocks was seen as an investment tool used only by the wealthy rather than for the masses. Nowadays, almosat everyone can have access to investments in stocks thanks to advancements in technology and the advent of online brokerage firms. Amateur investors can buy and sell stocks on their own with just a few thousand in savings and an online brokerage account. As a result, many amateur investors are now able to manage their own stock market investments.

Bonds

A debt investment in which money is loaned out by an investor to either a government or corporation for a predefined period of time with either a fixed or variable interest rate (coupon)

Stocks are considered a riskier investment option when compared to the likes of **bonds** and GICs since they do not guarantee a return for investors; even dividends from stocks are not guaranteed as they may change over time as a result of profits among other market driven changes. Additionally, stocks fluctuate in price in small fractions of a second each trading day, which means that investors are at constant risk of losing money.

As with most investments, a higher amount of risk correlates with a greater return and in this respect stocks are no exception to the rule. Stocks have the potential to produce returns far greater than bonds, treasuries, or GICs albeit with a greater amount of risk attached. You will learn more about the risk-reward trade-off as it pertains to investments later in this chapter.

There are two main methods in which investors seek to make money with stocks – dividends, and appreciation in share price. The former is never guaranteed and many stocks don't pay dividends at all. However, companies with steady earnings may hand out dividends reaching as high as 7% depending on the context. The latter of the two is the far more common approach with most investors. Many investors in the stock market seek to buy stocks of a company in anticipation of the company increasing in value which typically results in an increase in share price.

Bonds

A bond is a type of fixed income investment that is in most cases issued by a corporation or government seeking to raise money. From the investors' point of view, holding on to a bond is much like handing out a loan; the investor receives a set interest rate known as the coupon while the issuer of the bond has to return the face value of the bond at the **maturity date.** Corporations and governments will use bonds to raise money in lieu of bank loans in many cases due to size and scalability of financing needed. Often times it is easier for a large company or government to issue $5B worth of bonds instead of obtaining a bank loan when financing is needed for projects. This is because with bonds, the risk is spread out across thousands of bondholders, whereas with a bank loan, the bank assumes the risk of loss should the company become **insolvent**. As a result of bondholders being debtors, they are paid before shareholders in the event of insolvency.

Maturity Date

The date at which the bond expires and the corporation pays back the principal value of the bond

Insolvent

When the company is unable to pay back its debt, the company is said to be insolvent

The main difference between bonds and stocks stems from the fact that bonds return a steady coupon payment throughout the life of the bond whereas the valuation of stocks fluctuate on a daily basis. Furthermore, in most cases, the level of risk taken on by a bondholder is lower than that of owning stocks since the return on investment is more predictable. However, not all bondholders are fortunate enough to recover their principal let alone earn a return on investment. Companies can default on a bond, meaning that they are unable or unwilling to repay the principal. In the case of a default, bondholders may lose all of their investments' value. In general, it is safe to generalize bonds as being a safer, lower return, fixed income alternative to stocks.

Although a default on a bond is rare, different issuers have a different likelihood of defaulting. This in turn impacts the coupon rate on the bonds. Bonds issued by large, stable governments and companies usually have a near zero risk of default. Consequently, their coupon is smaller than that of a less stable government or a company in weaker financial condition. To help classify risk associated with bonds, they are rated by credit rating agencies on a scale from AAA being the safest to C being at high risk of default. As an example, a 10yr bond issued by the US government is at near zero risk of default and consequently has a low yield of under 2%. Meanwhile, a 10yr bond issued by the Venezuelan government may have a yield of over 20% since the government of Venezuela is far more likely to default than the United States.

Funds

Often times, amateur investors struggle to comprehend the complexity of selecting and buying individual stocks and bonds. As an alternative to spending long hours researching and diversifying investment choices, funds provide investors with a diversified selection of investments to fit individual investment needs. The many types of funds available include mutual funds, hedge funds, and ETF's.

Mutual fund

a professionally managed investment vehicle which trades in diversified holdings; it is funded by shareholders

A **mutual fund** is a fund of capital pooled together by multiple investors which is then professionally managed by investment experts. Mutual funds vary in the types of investments they make which may include stocks, bonds, or a mix of the two. Many amateur investors rely on mutual funds for their investments since these funds are already diversified in nature and are run by investment experts. However, all mutual funds have annual management fees that eat into the returns of their investors.

Hedge funds are privately funded ventures which require a large minimum investment from wealthy clientele which paves way for their exclusive nature. The hedge fund industry is not as heavily regulated as the mutual fund industry. Consequently, many hedge fund managers use aggressive and exotic investment strategies in an attempt to maximize potential returns. Hedge funds are also known to have high management fees which have created many billionaires out of their fund managers in the process.

Hedge funds

A limited partnership which uses high risk methods to maximize returns on pooled funds

Exchange traded funds, also known as ETF's are passive funds that trade as if they were publicly traded stocks. ETF's provide much of the same diversification that mutual and hedge funds provide minus the component of active management. Most ETFs track a particular market index, commodity, or bonds and are characterized by a low management fee.

ETF Exchange traded fund

A marketable security that is traded on a stock exchange and reflects tracking of a commodity, bonds, or index

Commodities

A **commodity** refers to a good in the market which is nearly the same as another type of the same commodity regardless of producer. For instance, an ounce of gold will vary little even if produced by different companies. This property is known as **fungibility**. Commodities commonly traded on the global markets include precious metals, oil, and agricultural goods. Commodities such as these are often traded through the use of futures contracts on exchanges such as the Chicago Mercantile Exchange. Without the use of futures, it is often difficult for investors to invest directly in a commodity; buying a physical bar of gold or buying 100 barrels of oil is usually impractical. Rather, many investors opt for securities that provide indirect exposure to a commodity. As an example, an investor seeking to invest in gold may buy a gold ETF which tracks the movement of gold. Commodities provide an investment option other than securities which may be used to help diversify an investment portfolio. Often times investors use commodities such as gold to hedge their position in times of market turmoil.

Commodity

A basic good which is bought and sold, consistent characteristics compared with other commodities of the same type

Fungibility

Something is fungible if one unit of a particular item is essentially equivalent to a different unit of the same good, even when the goods are produced by different companies

Alternatives

Although most investors, professionals and amateurs alike, can find sufficient choices with the aforementioned investments, there are many additional choices for investments. Depending on area of expertise and comfort level, many people find themselves investing in options, foreign exchange, real estate, and antiquities, among other things.

11.2 The Risk-Reward Trade-Off & Portfolio

You have probably heard of the phrase "no pain, no gain." This concept applies to many things in life, including investments. In general, *high risk* investments offer the possibility for high profits, yet can also expose the investor to the potential of large losses. *Low risk* investments, on the other hand, generally give the investor less profits, yet the likelihood and magnitude of loss is reduced. This trade-off between "high risk, high return" and "low risk, low return" is known as the *Risk-Reward Trade-Off.* The diagram below shows the general risk and reward attributes of several common types of investments.

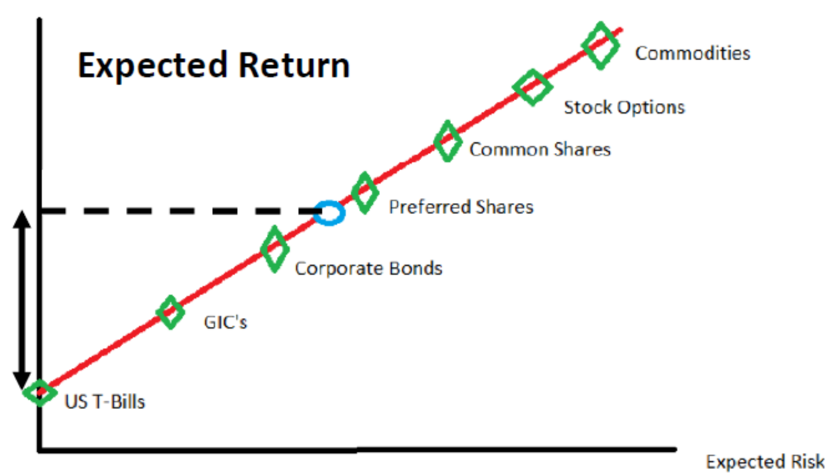


Figure 11.2.1 Risk-Reward Trade-Off Diagram

It is important to note that this is only a general ordering of risk/reward attributes. It is possible, for a particular corporate bond, for example, to be more risky than another particular common stock.

If you look closely at the diagram, you will see that the risk-reward line (in red) intercepts the y-axis at a point above the origin. This is consistent with the assumption that US treasury bills are "risk-free" assets.

The distance between the y-intercept and the origin is known as the **risk-free rate**. The risk-free rate is the rate of return you expect on an asset that has zero risk. The risk-free rate of return is usually very small, usually just sufficient to compensate investors for inflation.

Risk-free rate

The rate of return on an investment that carries no risk

Pick an arbitrary point on the red line that is above the y-intercept. The vertical distance between that point and the y-coordinate of the y-intercept, is known as the **risk premium** of an asset. It is the additional return that investors demand for taking on a certain amount of risk.

Risk Premium

The additional return in excess of the risk free rate that investors demand for investing in a risky asset

We know that for all investors:

1. Among two investments offering the same expected return, the investor will prefer the investment with the lower risk.

2. Among two investments with the same risk, the investor will prefer the investment with the higher expected return.

But what if we are analyzing two investments where both the risks and expected returns are different? In this case, we need more information about the investor to ascertain which investment they would choose. We can classify investors into three broad types:

Risk-Loving

Investors who actively seek risky investments and who do not demand a large risk premium for investing in risky assets

Risk-Neutral

Investors who demand a moderate risk premium for investing in risky assets

A **risk-loving** investor favors risky investments, and does not demand a significant risk premium for investing in riskier assets.

A **risk-neutral** investor demands a moderate risk premium for investing in riskier assets.

Risk-averse

Investors who in general do not like risky assets unless they receive a large risk premium to compensate

A **risk-averse** investor tends to favor less risky investment choices and demands a significant risk premium for investing in riskier assets.

It should be emphasized that risk-loving investors don't always invest in very risky assets, and risk-averse investors don't always invest in risk-free assets. Rather, these three descriptions of an investor's risk-tolerance measure the risk premium investors' demand for taking on an incremental unit of risk.

Intuitively, it follows that given any two investment choices A and B, the investor can always specify a preference. The investor can prefer A to B, can prefer B to A, or can be indifferent among A and B. Being indifferent means that the investor gains equal utility from investment choice A and B.

On a diagram with risk on the horizontal axis, and expected return on the vertical axis, we can draw indifference curves for investors. At every point along an indifference curve, investors derive the same utility.

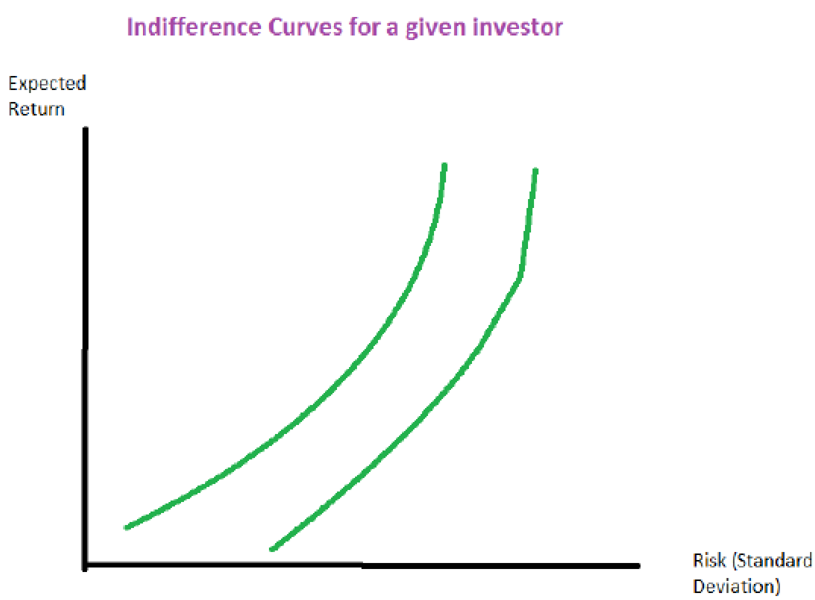


Figure 11.2.2: Indifference Curves

There are two important things to keep in mind about these indifference curves:

1. Indifference curves are always parallel and cannot intersect one another.

2. Indifference curves for investments are always upward sloping, unlike the indifference curves that you may have seen in economics classes. This is because indifference curves for investments show the risk-reward trade-off, instead of the consumption between two different goods.

Portfolio Theory

A set of principles, beliefs, theories, and ideas on how to construct the optimal investment portfolio

Investment Portfolio

The set of all investments that an investor owns

Of course, investors want to maximize returns while minimizing the investment risk. This idea serves as the driving philosophy behind **portfolio theory.** The objective of portfolio theory is to construct the optimal **investment portfolio** for each investor. An investment portfolio, often referred to as a portfolio, is the set of all investments that the investor holds.

Modern Portfolio Theory arose from the research of three economics professors at the University of Chicago: Dr. Eugene Fama, Dr. Kenneth R. French, and Dr. Harry Markowitz.

Dr. French proposed the **Efficient Markets Hypothesis (EMH).** The EMH states that market prices take into account all available information. There are three forms of the EMH, and they can be summarized as follows:

Efficient Markets Hypothesis (EMH)

The theory stating that markets take into account all available information. There are three forms: weak, semi-strong, and strong.

1. The Weak Form holds that historical price patterns are taken into account in determining market prices. Thus, technical analysis is of no use.

2. The Semi-strong Form holds that markets reflect information about the company's past and future expected financial performance. Thus, fundamental and technical analysis are of no use. Later on you will learn what exactly fundamental and technical analysis are.

3. The Strong Form holds that the markets reflect all available information pertaining to a stock, including insider information. Thus, even insider information is of no use. Of course, fundamental and technical analysis are also of no use under this form of the EMH.

While there are many supporters of the EMH, there are also many skeptics. There is evidence to suggest both market efficiency and market inefficiency. For your purposes, it is sufficient to know what the EMH is and its three forms.

Suppose, however, that the markets are fully efficient. Suppose also that investors are fully rational, and will act in their own best interests. If these two conditions are held, we can assume that investors will want to choose a portfolio that optimizes the risk-reward trade-off.

Let us first consider a simple case with two risky assets. Suppose investors can choose between ABC stock and DEF stock. ABC stock has an expected return of 5% and a standard deviation of 8%. Suppose that DEF stock has an expected return of 10% and a standard deviation of 20%.

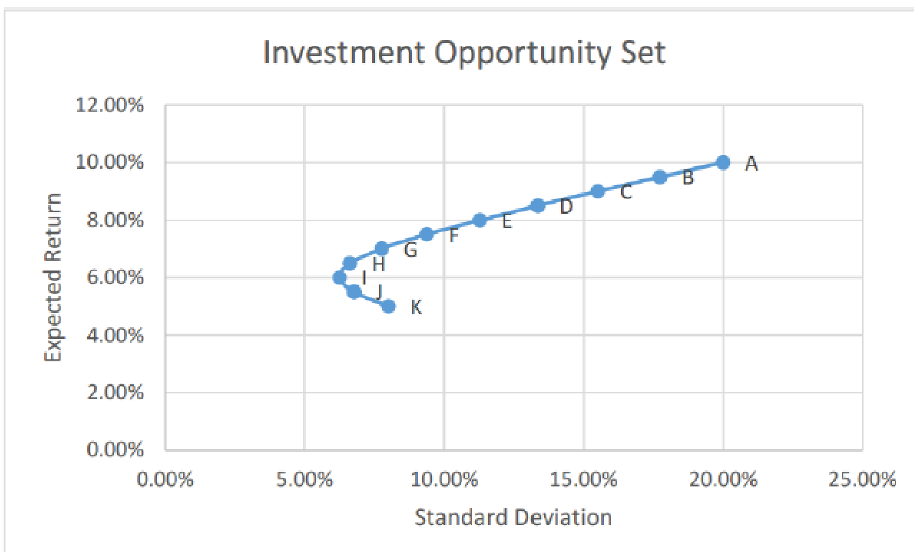


Figure 11.2.3: Investment Opportunity Set

Investment Opportunity Set

The set of all possible investment portfolios that the investor can choose from

Based on this data, we can construct the **Investment Opportunity Set**. This shows all the different levels of portfolio risk and return as we vary the weight invested in each asset. The exact derivation of the Investment Opportunity Set will not be tested in case studies or written exams, but having a basic understanding of what the Investment Opportunity Set is can be useful.

We know that if there are two portfolios with the same amount of risk, investors will choose the portfolio with the higher returns. Thus, we know that investors will only opt for portfolios A through I. We call these portfolios **Efficient Portfolios** and the curve from A to I the **Efficient Frontier.** This type of analysis was pioneered by Dr. Markowitz.

Efficient Portfolios

The portfolio that offers the highest expected return for a specified level of risk

Efficient Frontiers

The curve that shows the efficient portfolios that investors can choose from

The Efficient Portfolios represent possible portfolios that the investors may choose to hold. We do not know which portfolio is optimal unless we are given information about the investor's risk tolerances, and hence, their indifference curves.

In the real world, we know that investors can choose from thousands of different assets. What can we conclude about the optimal portfolio in this case? First, remember that assets are either risk-free or risky. Let us therefore subdivide our portfolio into a risk-free and risky portfolio.

Remember that our goal is to optimize the amount of expected return per incremental unit of risk that the investors are taken. We can use the **Sharpe Ratio** to evaluate the risk-reward trade-off of the risky portfolio.

Sharpe Ratio

A statistical measure invented by William Sharpe that measures the incremental risk premium per unit of risk of a particular investment

Suppose a portfolio has annual returns averaging 8%. The historical standard deviation of annual returns is 3%, and the risk-free rate is 2.2%. We can determine the Sharpe ratio using the following formula:

$$\text{Sharpe Ratio} = \frac{\mathrm{R_p} - \mathrm{R_f}}{\sigma}$$

$$= \frac{0.080 - 0.022}{0.030}$$

$$= 1.93$$

Different risky portfolios will have different Sharpe ratios. The higher the Sharpe ratio, the more desirable that portfolio is.

One of the key developments in portfolio theory was the introduction of the **Capital Asset Pricing Model**, often abbreviated as CAPM.

Capital Asset Pricing Model (CAPM)

A theory about the fair prices of financial assets

Like all models, CAPM is based on some key assumptions. For example, CAPM assumes that investors are rational and have homogeneous expectations. Homogeneous expectations mean that for any asset, all investors agree on its risk/reward characteristics.

When CAPM holds true, we find that the optimal risky portfolio (ex: the one with the highest Sharpe ratio) is the Market portfolio. This means that investors get the best return simply by investing in assets such that the weight of each asset in the portfolio mirrors the weight of that asset in the broad stock market.

We can plot the Market portfolio's risk-return characteristics on a graph. We will also plot the risk-free asset's risk-return characteristics on the same graph.

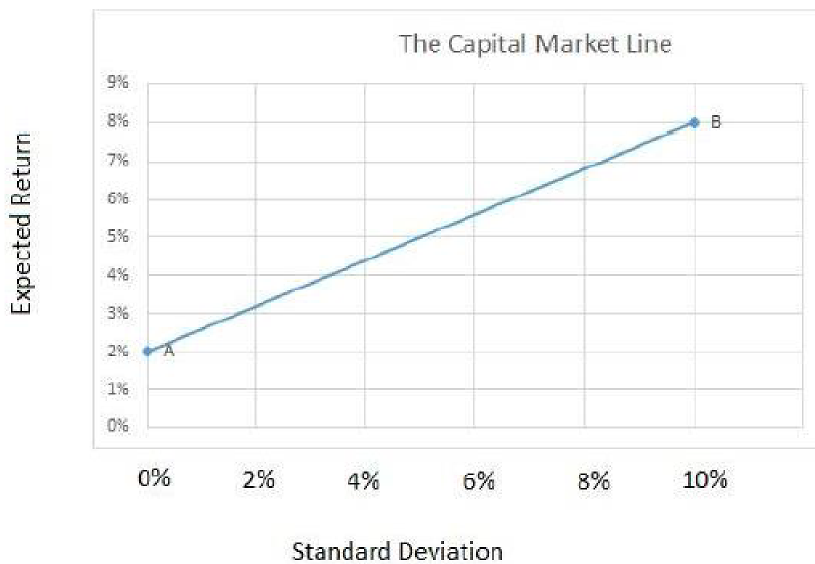


Figure 11.2.4: Capital Market Line Diagram

In the diagram, point A represents the characteristics of the risk-free asset, whereas point B represents the characteristics of the risky asset. The blue line connecting points A and B is the Capital Markets Line (CML)

Capital Markets Line

The linear relation showing the risk-reward trade-off of the market portfolio

The line going through these two points is known as the **Capital Markets Line**. When choosing from all possible securities, any portfolio that lies on the CML is efficient.

The optimal portfolio for the investor can be found by the tangency point between their indifference curves and the CML, as shown in the diagram.

In addition to telling us information about the optimal investment portfolio, CAPM also tells us what the required rate of return for any particular equity investment should be.

Let $E(r)$ represent the required return for an equity investment, let R_f represent the risk free return, let R_m represent the market return, and let β represent the beta of the investment.

Then, CAPM states:

$$E(r) = R_f + (R_m - R_f)\beta$$

This formula should look very familiar to you. It is exactly the formula we used for cost of equity in Chapter 10 when we were computing the Weighted Average Cost of Capital.

We can interpret the CAPM as follows: the required rate of return on an equity investment is equal to the risk free rate of return, plus the risk premium of the investment. The risk premium of the investment is computed by taking the market risk premium, $(R_m - R_f)$, and multiplying it by β, the measure of sensitivity to systematic risk. Recall from Chapter 10 that systematic risk is risk that cannot be eliminated through diversification.

Worked Example

Yang Industries is an American publicly traded company. The company specializes in pharmaceutical products. The Beta of the stock is 1.95. If the market rate of return is 7.95% and the risk-free rate of return is 2.2%, what is the required return for shareholders of Yang Industries?

Solution:

To solve this question, we simply use the CAPM formula presented earlier:

$$E(r) = R_f + (R_m - R_f)\beta$$

$$E(r) = 0.022 + (0.0795 - 0.022) \times 1.95$$

$$E(r) = 0.134 \text{ (rounded)}$$

Therefore, the required rate of return is 13.4%.

Your Time to Shine

Li Sciences is a publicly traded Canadian biopharmaceutical company. The Beta of the stock is 1.72. If the market rate of return is 8.00% and the risk free rate is 2.15%, what is the required rate of return for this equity investment?

If CAPM holds true, why do investors still choose specific stocks? After all, CAPM states that the market portfolio is the optimal risky portfolio.

We consider three possibilities:

1. *An asset is mispriced*: CAPM tells us what any given equity investment *should* be priced at. Sometimes, markets may not price securities at the CAPM implied price. Let us suppose that an asset price is lower than the CAPM implied price. It follows then, that these securities have a higher rate of return than CAPM implies. We can compute the difference between the actual return and the CAPM implied return. This is known as **alpha.**

Alpha

The excess return or an investment over the expected rate of return

Referring to the Yang Industries example, suppose the actual return on the stock was 15%. Then, the alpha is 15%-13.4% = 1.6%.

The higher the alpha, the better the stock return is from a risk-adjusted perspective. Assuming that the markets are competitive and efficient, the price of the stock would increase, to the point that the excess return (alpha) reverts to zero.

Likewise, if a stock had negative alpha, we would expect many investors would want to short the stock, until the price reverts to equilibrium.

Asset allocation

The process of determining what percentage of the investment portfolio will be allocated to a particular asset class

While in the long run we would expect alpha to be zero, it doesn't mean that there is no temporary mispricing. Investors can and will try to take advantage of short-term mispricing.

2. *CAPM is wrong*: CAPM is a model, and like all models, it has limitations. CAPM's assumptions may not be true, limiting the usefulness of the model. Some people believe that investors may not be rational, and are instead driven by emotion and instinct. This has lead to a field known as **behavioral finance**, which is the study of how psychology affects investor behavior. Another potential issue with the CAPM is the assumption that investors have homogenous expectations. Different investors may come to very different conclusions about the risk and reward expectations of a stock. Finally, a third criticism of the CAPM is that it may not have considered all sources of systematic risk.

   Drs. Fama and French developed the **Fama-French three-factor model**, which sought to improve the reliability of the CAPM model.

Behavioral Finance

The study of how human psychology and behavior affects financial markets

Fama-French three-factor model

A modified version of CAPM proposed by Drs. Eugene Fama and Kenneth French, that uses three factors to model systematic risk associated with an investment

3. *Markets are inefficient*: Some people believe that markets are inefficient, and as such, they contend that investing in the market portfolio is not the best choice.

   While CAPM is a well-known model, it evidently has shortcomings. Many scholars have won Nobel Prizes for their work on CAPM, and maybe one day you will too.

Regardless of whether you believe in CAPM, the following steps in portfolio management should be followed:

1. Identify investment objectives and risk/reward tolerances.

2. Determine the optimal **asset allocation.** Asset allocation involves determining what proportion of your assets will be invested in a specific asset class (ex: what percentage of your portfolio should you invest in stocks)

Asset allocation

The process of determining what percentage of the investment portfolio will be allocated to a particular asset class

Security Selection

The process of identifying which particular assets to invest in within each particular asset class

3. Conduct **security selection**. This involves choosing the best individual securities within each asset class.

4. Monitor portfolio performance and make changes as necessary.

Later in the chapter, you will learn some specific techniques for security selection.

11.3 Capital Markets Overview

What are they?

Capital markets are channels that connect those who are looking to acquire capital with those looking to supply capital or make an investment. These markets can be further broken down based on what they offer. If a market consists of equity securities or stocks, it is known as a stock market. On the other hand, if a market consists of debt securities or bonds, it is known as a bond market. The securities on these markets tend to have terms that exceed one year.

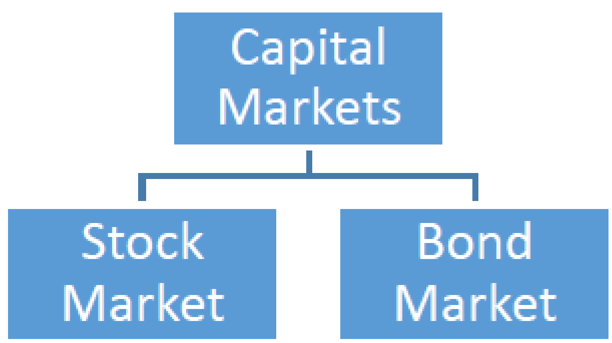


Figure 11.3.1 Capital Markets Structure Diagram

Primary vs Secondary Market

Capital markets can also be categorized into primary and secondary markets. The term primary refers to the initial stage of when a security is created. As an example, if Templeton Industries decided to sell 12,000 shares to the public for the first time since the company’s inception, the stocks would be offered primary market. The primary market can be thought of as the place where an Initial Public Offering (IPO) occurs. This will be discussed in further detail later in the chapter. Secondary markets are unique in the sense that investors are trading amongst themselves. On this market, the involvement of the company that held the IPO is no longer required. Most common markets, such as NASDAQ, are secondary markets.

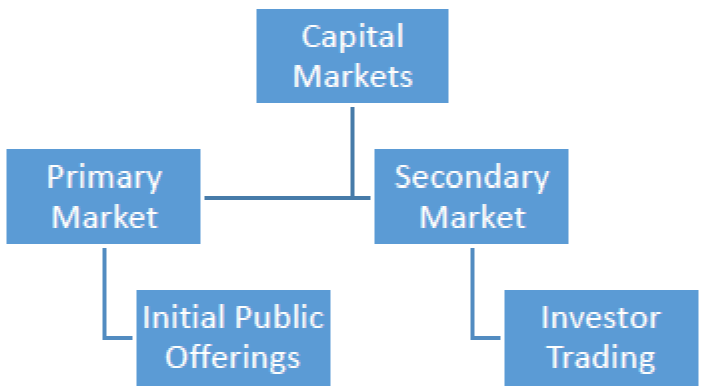


Figure 11.3.2: Capital Markets Structure Diagram 2

What is an IPO?

If you enjoy keeping tabs on the latest occurrences in the financial world, the word IPO may be thrown around from time to time. IPO is an abbreviation for **Initial Public Offering**. As the name implies, this is the first time a company is selling its stock to the public. This can be done for multiple reasons with the primary being an effort to raise large amounts of capital. An IPO is an exciting time for investors and the company alike. Major IPO's can net billions of dollars. On the contrary, IPO's can also fail, with the price of the stock declining below its initial price. The biggest IPO of all time belongs to a conglomerate: The Ali Baba Group. In 2014, this IPO raised $25 billion.

Initial Public Offering (IPO)

When a company lists its shares on a stock exchange for the first time

Who participates in capital markets?

Now that we have a firm understanding on what capital markets are and what purposes they serve, it is important to examine who is involved in the market. Investors acting individually consist of a portion of the participants. Individual investors range from day traders who trade securities on a daily basis to investors that trade securities periodically. Institutions also participate in the capital markets. One example of an institutional investor is a mutual fund. A mutual fund is composed of money collected from many investors and pooled together. The purpose of a mutual fund is to allow the common investor to diversify their portfolio. Mutual funds are professionally managed. Banks and other financial institutions also conduct business on the markets with many banks offering their own mutual funds. Finally, governments also participate in the capital markets. The capital markets provide an alternative form of financing, allowing governments to rely less on tax revenues to fill budget deficits.

What is the importance of capital markets?

Economic Standpoint

The capital markets of a country tend to have a direct relationship with the economy of a country. In other words, a healthy capital market will be a reflection of a healthy economy and vice versa. The US is the world's largest economy. Many American corporate and governmental entities require large amounts of capital to fulfill obligations and allow for productive expansion. Capital markets ensure that unique sources of funds are readily available as long term investments and can be properly channeled. This facilitation of funds allows for the country to increase national income and boast a growing economy.

Investor Standpoint

The capital market poses many incentives to individuals looking to invest and grow their savings. The market provides direct access to corporations involved in all sectors of industry. This allows for investors to hold ownership stakes in companies they believe will prosper. Companies also reward shareholders with dividends based on company performance. The capital market is also highly regulated. The SEC or Securities and Exchange Commission is tasked with the responsibility of overseeing the capital market in the United States. This governmental commission protects investors from fraudulent companies and manipulative practices on the market.

Global Standpoint

As the world is becoming increasingly interconnected, it is essential to understand that the performance of a capital market in one part of the world can have an immense impact on a capital market that is on the other side of the world. The worst financial crisis since the Great Depression was the collapse of the housing market in 2006 and 2007. At the time the housing bubble burst, many financial institutions had invested in Mortgage Backed Securities. With major banking institutions on the verge of default, the government was forced to provide a bailout. However, due to globalization, many foreign entities had also invested heavily in the US capital market. The decline of the US capital market produced a ripple effect in major institutions globally.

Capital Stock

As we have learned, the stock market creates a medium between investors and those looking to finance their entity. Corporations specifically, are legal entities separate from their shareholders. This gives shareholders the benefit of limited liability. Now we will explore some of the classes of capital stock and their benefits to investors.

Types of Capital Stock

No Par Value Capital Stock

The **Canada Business Corporations Act (CBCA)** requires most Canadian companies to issue no par value stock. Investors are responsible for determining the price of the share and there is no pre-set value.

Canada Business Corporations Act (CBCA)

A law governing corporations that are incorporated in Canada

Par Value Capital Stock

This method of selling stock is prevalent in the United States of America. Corporate entities that are selling the stock put a pre-set value on the stock. This ensures that the stock cannot be sold for lower than the pre-set value.

Classes of Capital Stock

Common Shares

Corporations give up ownership of their company to investors purchasing common stock. At the annual shareholder meeting, shareholders with voting shares are able to cast votes or use a proxy if they are not present. As a common holder, you possess the right to purchase any additional shares being issued which allows for ownership to be maintained. Dividends are received as decided by the Board of Directors, however the priority is given to Preferred Shareholders.

Preferred Shares

Preferred shareholders receive preference over common shareholders in terms of dividends and in the event of liquidation. These shares have a predetermined dividend value set by the corporation when the stock is offered. However, it is important to note that preferred shareholders usually do not receive voting rights.

- *Cumulative Preferred Shares vs Noncumulative Preferred Shares*: If a company misses its dividend payment, cumulative preferred shareholders will have their dividends payed in future years. On the contrary, noncumulative preferred shareholders will not be reimbursed for missed dividends.

- *Convertible Preferred Shares*: These shares are unique in the sense that the shareholder possesses the option to exchange their preferred shares to common shares at a pre-set ratio. In Canada, close to 50% of shares have this clause.

- *Callable Preferred Shares vs. Retractable Preferred Shares*: The callable clause allows for a company to purchase back their preferred shares at a set price from the shareholders. This allows for the elimination of future dividend payments. If a share is retractable, the shareholder can choose to sell the share back to the corporation at a set price.

11.4 The Regulatory Landscape

The **SEC** was created in the Securities Exchange Act of 1934, more commonly known as the Exchange Act or the 1934 Act in order to add oversight in the securities market following the Great Crash in 1929 and the subsequent recession that followed. Pre-1929, particularly right after the end of the First World War, there was little federal regulation in the capital markets. Despite efforts by politicians to require financial disclosure and enact fraud protection for investors, the Wilson and Harding Administrations never seriously pursued any legislation.

Securities and Exchange Commission (SEC)

a federal agency of the United States which oversees regulation of the securities industry

During the 'Roaring 20s', the majority of investors did not consider the risk that came from the unreliable information investors were receiving regarding the securities they had invested in. According to the SEC, approximately 20 million large and small shareholders took advantage of the post war prosperity, setting out to achieve the American Dream and make their fortunes on the stock market. It is estimated that half of the $50 billion in new securities offered during this time became worthless.

After the crash of 1929, all public confidence in the markets was lost. Investors, as well as lenders lost immense amounts of money during the crash. In the end, this huge default on debt was the catalyst for the Great Depression. Politicians knew, in order for the economy to recover, the public's faith in the market had to be restored. Consequently, Congress held hearings to identify the problems and find solutions.

As a result of these hearings, congress passed the Securities Act of 1933 as well as the Securities Exchange Act of 1934 created the SEC and were designed to restore investor confidence in the capital markets. These Acts were passed in order to provide more reliable information and clear rules regarding deals. Two primary purposes can be outlined from these laws:

1. Companies publicly offering securities for investment dollars must tell the public the truth about their businesses, the securities they are selling, and the risks involved in investing.

2. People who sell and trade securities – brokers, dealers, and exchanges – must treat investors fairly and honestly, putting investors' interests first.

Oversight of the securities industry requires a coordinated effort. Congress established the Securities and Exchange Commission (SEC) in 1934 to enforce the newly-passed laws, to stimulate stability in the markets and to protect investors. President Franklin Delano Roosevelt appointed Joseph P. Kennedy, President John F. Kennedy's father, to serve as the first Chairman of the SEC.

Today

The role of the Securities and Exchange Commission (SEC) is to protect investors, and make sure that the markets are fair and efficient. It does this by enforcing the federal securities law, proposing securities rules, and regulating the securities industry. The SEC imposes many federal laws and regulates the entire securities market in the United States as well as worldwide. These laws are laid out over many Acts, including the 1934 Act, Securities Act of 1933, the Trust Indenture Act of 1939, the Investment Company Act of 1940, the Sarbanes-Oxley Act of 2002 and the Dodd-Frank Act of 2010. It is the responsibility of the Commission to:

- Interpret and enforce federal securities laws;
- Issue new rules and amend existing rules;
- Oversee the inspection of securities firms, brokers, investment advisers, and ratings agencies;
- Oversee private regulatory organizations in the securities, accounting, and auditing fields; and
- Coordinate U.S. securities regulation with federal, state, and foreign authorities.

In addition, The SEC has five divisions so that they can impose laws efficiently. The five divisions are:

1. *Corporate Finance*: The corporate finance division oversees registration of transactions such as mergers made by companies, as well as disclosure made by pubic companies. It is also responsible for operating EDGAR (an electronic database that helps investors get information).

2. *Trading and Markets*: This division administers self-regulatory organizations (SRO's) such as the Municipal Securities Rulemaking Board (MSRB) and the Financial Industry Regulatory Authority (FINRA). It also superintends all broker-dealer firms and investment houses. It also approves proposed changes in regulations and monitors operations in the industry. The SEC delegates most of its enforcement and rulemaking authority to FINRA.

3. *Investment Management*: The Investment Management division supervises registered investment companies, which include registered investment advisors and mutual funds. These bodies are held to a very high standard under various regulations and federal securities laws. This division enforces many securities law, in particular the Investment Advisors Act of 1940, and the Company Act of 1940.

4. *Enforcement*: The Enforcement division works in conjunction with the three other divisions and other commission offices to investigate alleged violations of securities laws and regulations and to bring action against those entities. The SEC conducts their investigations in private, their staff may ask for voluntary production of documents and testimony, or they may open a formal investigation and demand the production of documents and witness testimony. The SEC can bring an Administrative Proceeding, which is heard by an independent administrative law judge (ALJ) or a civil action in a U.S District Court. The SEC cannot press criminal charges but can refer matters to state and federal prosecutors.

5. *Economic and Risk Analysis*: This division of the SEC was established in 2009 to integrate financial economics and rigorous data analytics into the SEC. The division works in conjunction with all the divisions to influence policy and rule changes.

SEC Filings

In order to provide transparency within the capital markets, the SEC requires all publicly traded corporations to file a wide range of forms. The SEC then checks all submitted information to ensure it meets certain requirements. The objective of the filings is to allow investors insight into the company and an in depth analysis of the company's financials and processes. These filings range from registration statements to quarterly and annual reports. All of which will be discussed in this section.

Registration Statements

Registration statements are filed during the initial public offering of a company's shares. These statements are meant to provide an understanding of the types of securities being offered and the profitability of the corporation. All companies listing on American Exchanges must file these statements regardless of home country or qualify for an exemption. The registration statements consist of two sections.

1. Prospectus: A legal document that provides basic information regarding the company and the securities being offered. This information includes: how the business operates, its financial condition, management team, and insight into any potential risk the company sees in the future. All financial forms including the balance sheet and income statement must be audited by an external accountant.

2. *Additional Information*: The issuing company must also provide additional information deemed necessary to disclose such as the recent sale of unregistered securities.

10-K Report

The 10-K report provides an in depth analysis of the company. It is similar to the prospectus while containing more information than an annual report. Companies must submit this annual filling within 90 days of their fiscal year end.

The 10-K is made up of several components including:

- The "business summary" describing the company's operations, both domestic and foreign, real estate, marketing, research & development, competition as well as business segments among other details.
- The management discussion and analysis (MD&A) is meant to offer an explanation of the company's operations and financial outlook.
- All financial statements, which include the balance sheet, cash flow statement and income statement.
- The company's management team as well as legal proceedings, including litigation as well as patents, trademarks and copyrights must also be included.

Safe Harbor Provisions

Legal provisions that specifically authorize certain conduct, shielding individuals from liability when they act in a particular manner

Safe Harbor Provisions

Safe Harbor provisions are used to reduce liability by stating that certain conduct will not be in violation of any specific laws. In particular, the Safe Harbor provision prevents management from being held liable from inaccurate forecasts of the company's future potential, as long as the management forecasts were reasonable and made in good faith.

Safe Harbor Provisions

Legal provisions that specifically authorize certain conduct, shielding individuals from liability when they act in a particular manner

10-Q & 8-K Reports

A more concise rendition of the 10-K is the 10-Q. This report must be filed within 45 days of the end of each of the first three fiscal quarters. This report is significantly less detailed than the 10-K and can include unaudited financial statements. The 10-Q is meant to provide insight into where the company is headed in the near term as well as the latest developments/innovations for the company. In addition to the 10-Q, there is also the 8-K report. In this report, investors are made aware of any essential information that wasn't filed or did not meet the deadlines of filing in the 10-K or 10-Q. This can include but is not limited to press releases, departures or appointments of executives or the disposition of assets.

Proxy Statement

Companies must disclose any conflicts of interest, management salaries and other benefits received by the management team and board of directors. This filing must be reported prior to the shareholder meeting and before handing over any shareholder voting rights.

Schedule 13D

The schedule 13D must be filed at any time where a single investing entity acquires 5% or more of the publicly traded company. This filing provides information on the background of the owner, including their relationship with the company, an explanation regarding why the transaction occurred as well as where the money is coming from to make the purchase.

Electronic Data Gathering, Analysis and Retrieval

EDGAR is the electronic filing system created by the SEC with the purpose of improving the efficiency and accessibility to the corporate filings listed above. This system must be used by all publicly traded firms when submitting the required filings to the SEC. Due to their time sensitive nature, EDGAR has greatly reduced the time it takes to file and make public all relevant corporate documents.

Canadian Regulatory Bodies

Unlike other countries, Canada does not have a single securities regulatory body at the federal level. Rather, securities regulation in Canada is governed by individual Provincial governments. There are calls for a securities regulator at the federal level for Canada which hopes to improve consistency, enforcement, and clarity.

The Ontario Securities Commission (OSC) is the securities agency that oversees securities regulation in Ontario. The OSC's jurisdiction includes the Toronto Stock Exchange and is the nation's largest securities regulator. In addition to the OSC, the System for Electronic Document Analysis and Retrieval (SEDAR) is used for all publicly traded companies in Canada to upload relevant information for investors. Companies and funds upload prospectuses, financial statements, among other things in order to provide transparency in the marketplace. It can be thought of that SEDAR is the Canadian equivalent to EDGAR in the United States.

Fiduciary

A fiduciary is defined as an individual who is assigned with the responsibility to manage the assets of another party. Fiduciaries include accountants, financial planners, fund managers, executors, and bankers when managing the assets of another party.

The fiduciary has both a legal and ethical obligation to the other party. When a party accepts a fiduciary duty on another party's behalf, they are required to act in the best interest of the individuals whose assets they are managing. This means that the fiduciary must invest the assets for the client's best interest. This idea is also known as the **prudent-person rule**, which dates back to the 1830s. The rule states that a person acting as a fiduciary is required to act with the needs of beneficiaries in mind in order to provide a constant stream of income while ensuring the security of the initial investment.

Prudent-person rule

Legal provisions that specifically authorize certain conduct, shielding individuals from liability when they act in a particular manner

Types of Relationships

Even within the idea of a fiduciary, there are several types of relationships between the fiduciary and the individual.

Corporate directors can hold a similar fiduciary duty. This is because they can be considered as trustees for stockholders if they serve on the board of directors.

Politicians commonly establish blind trusts in order to avoid conflict of interest allegations. A blind trust is structured in a manner in which a trustee is in charge of the investment of a beneficiary without the beneficiary knowing how the assets are invested. Despite the beneficiary not knowing about the asset allocation, the trustee has a fiduciary duty to invest the money according to the prudent-person rules.

Regulation of Fiduciaries

The Department of the Treasury's agency, the Office of the Comptroller of the Currency is in charge of regulating federal savings associations and their fiduciary activities. According to an English High Court ruling, Keech v. Sandford (1726), a fiduciary is not allowed to profit from their position and must report all profits made by the fiduciary to the principal. Only if the principal consents can the fiduciary keep the profits earned.

In the United States, there is no law stating that all financial advisors must be a fiduciary. This results in a lot of concern and confusion regarding whether investors are actually receiving sound advice. The Department of Labor is attempting to put in place a “fiduciary rule” which states that individuals in charge of any retirement assets must be fiduciaries. This rule is being put in place in order to minimize conflicts of interest between advisors and their clients. As investors, it is essential to ask potential advisors whether they are fiduciaries or not.

Although in a perfect world, all advisors would act ethically as fiduciaries, which is not always the case. There have been several cases where individual advisors as well as investment firms have been accused of breaching fiduciary duties. In these cases, advisors invested in securities where the firms were benefiting more from the investment than the principals in the form of fees or kickbacks.

In a ground-breaking case Tibble v. Edison, made it all the way to the Supreme Court. The civil suit was initially filed in 2007 and stated that Edison International, the employer, had breached its fiduciary duty several times. The class action stated that Edison added many expensive mutual funds in dating back from 1999 to 2002 to the 401(K) plan. The class action also stated that Edison chose the high expense mutual funds despite the wide availability of lower cost institutional options.

Since the funds in question were for a retirement plan, all laws and potential breaches would have had to abide by the Employment Retire Income Security Act. This act states that complaints of fiduciary breaches have a six-year statute of limitations. When the complaint was filed in 2007, both the

District and Appellate courts ruled in favour of the petitioners for the 2002 investments made but not the 1999 ones as they were past the six year limitation period. After being appealed, the case had ultimately made it to the Supreme Court of the United Sates in 2015. The Supreme Court ruled in a unanimous decision in favor of the plaintiffs. Their stance was that that fiduciaries have a continuous duty to monitor investments for principals. There was specific reference to a common law of trust citing "a trustee has a continuing duty to monitor trust investments and remove imprudent ones." The decision by the court demonstrated the obligation that employers have to monitor retirement funds for their employees.

Agency Dilemma

Working in hand with the idea of a fiduciary, there is an inherent conflict of interest that arises simply because all parties are humans. This idea is known as the principal-agent dilemma. This dilemma states that the agent, who is supposed to act in the best interest of the principal is inherently motivated by self-interest.

The agency dilemma typically refers to a conflict of interest between a company's management and the company's shareholders. The executive, who acts as the agent for the stockholders is supposed to make decisions that will maximize the investors' wealth. Despite this, it is in the executive's best interest to maximize his/her own wealth. All humans have a natural tendency to do what is in their own best interest; thus, it is not possible to completely eradicate the agency dilemma. It can however, be decreased by offering incentives to executives in the form of performance-based compensation and the threat of firing or takeovers.

"Know Your Client"

The "know your client" form is a form in the investment industry, which ensures that investment advisors know about their clients' risk tolerance, investment knowledge and financial position. This form is meant to protect both the client as well as the advisor. The client is protected because the advisor now knows their investment preferences while the advisor is protected because they know what can and cannot be included in portfolios. The KYC form is an ethical requirement for financial advisors alongside the fiduciary duty. The form is also updated on an annual basis to account for any changes in risk tolerance and increases/decreases in investable income.

Investment Suitability

Investment Suitability is the concept of an investment that is suitable in terms of an investor’s willingness and ability to take on a certain level of risk. It is absolutely necessary for these two criteria to be met in order to make a suitable investment. The investor must also be in a financial position to take certain risks, and it is a must that the nature of the risks and possible consequences be laid out for the investor.

Investment suitability is essential because investors often do not understand what a certain risk entails and their brokers might be tempted to advise them to riskier investments for more profit. Making the matter more complicated is the fact that excessively low risk investments can be just as bad for an investor’s portfolio as high ones. That’s why suitability demands that investments are not too risky or too low risk for an investor’s portfolio.

In the end, suitability comes down to asset allocation. The law and good investment practice deem it illegal to advise anybody into an asset allocation that isn’t right for that particular person. This goes against both the rules as a fiduciary as well as the “know your client” guidelines. An investor’s portfolio must be diversified so that there is a sensible amount of risk and good returns. If an investor does not understand complicated investments, such as a futures contract or warrants, then a simpler investment like a mutual fund is a much safer option. If a broker takes advantage of the investor’s knowledge and advises a high risk or complicated investment, then that broker is abusing the power placed upon them.

11.5 Managed Funds

As discussed previously in the types of investments, managed funds are investment instruments that offer diversification and in some cases, active management all in one package. Managed funds vary in size, type, risk, investments, and almost anything else that comes into mind. The number of these funds number in the tens of thousands and has been growing continuously throughout the previous decades. This subsection of the chapter will go into further detail with regards to managed funds.

Mutual Funds

Mutual funds are likely the most well-known of all investment funds, they populate the retirement and investment accounts of investors from all walks of life. Mutual funds are funds of money pooled together by many investors which is professionally managed by an investment expert. The types of investments made by a particular mutual fund is dictated by the category it belongs to which can be broadly classed into: money market funds, stock/equity funds, fixed income funds, and hybrid funds. Investments are then chosen based on the investment objectives of the fund found in the **prospectus**. Furthermore, all active mutual funds charge a management fee for the services of active management; management fees can often be high and should be considered by investors before putting money in a mutual fund. Mutual funds are a popular low maintenance investment option suitable for investors without the time and/or expertise to individually manage their portfolio.

Prospectus

A document filed by a company issuing stock/bonds that provides information about the company, the offering, the use of proceeds, as well as the risks of investment

Some Types of Mutual Funds for Consideration

Equity Fund

This is the most common type of mutual fund and consists of investments in stocks. The main goal is for long term appreciation of capital and sometimes income from dividends. Not all equity funds are the same. Different funds target their specific investment objectives and may base stock selection off of company size in addition to growth/value.

Bond / Fixed Income Fund

The goal of these funds is to provide a steady stream of income for investors through investments in government and corporate debt. Investors can expect returns greater than that of a Certificate of Deposit or money market fund but bond funds are not without additional risk. Depending on the fund's investment objectives, there may be risk of junk bonds and almost always the risk of an increase of interest rates which will decrease the value of a bond.

Hybrid Fund

A mix of income and capital appreciation; these funds are often thought of as a "hybrid" between a bond fund and equity fund. Hybrid funds will often have a set percentage of the portfolio allocated to either equities or fixed income.

Money Market Fund

Break the buck

When a money market fund's net asset value drops below its par value

These funds are comprised of a combination of cash and debt investments such as short term treasury bills. As a result of this, money market funds are considered one of the safest investments options although their returns are just higher than that of a standard savings account. Despite being regarded as exceptionally safe investments, it is still possible for a money market fund to **break the buck** – in which the fund's net asset value drops below its par value. This happened to a Lehman Brothers money market fund in 2008. Breaking the buck is rare since money market funds invest in high credit quality, short-maturity debts. Furthermore, a large loss of reputation is associated with a fund breaking the buck, so funds will do everything they can to prevent this from occurring.

Index Fund

The goal of an index fund is to track the performance of a market index, such as the S&P500 or the Dow Jones Industrial Average. This passive type of investment fund has gained popularity in recent years due to its simplicity and lower fees than comparable actively managed funds. Index funds are popular with investors who believe that it is not possible to beat the market due to the market's efficiency.

Hedge Funds

Hedge funds are similar to mutual funds. They are both usually actively managed investment vehicles. However, the similarities between the two end there. Hedge funds are privately funded ventures and are thus not as heavily regulated as that of the mutual fund industry. They also require a large minimum investment from each investor. Moreover, this is usually followed by a lock up period where the investor cannot withdraw money out of the fund. Consequently, hedge funds are less accessible than mutual funds which contributes to their image as being only for the wealthy.

Additionally, Hedge funds are often considered to be risky investments and tend to carry high management fees for their exotic investment strategies. A sample fee structure for a standard hedge fund may be a 2% annual commission on assets under management in addition to a 20% "success bonus" (20% of profits). It is these high fees that have turned many hedge fund managers into billionaires.

Hedge funds derived their name from the hedging practices adopted by the earliest hedge funds. Alfred Jones ran the world's first hedge fund, which used a long/short equity strategy. He would buy stocks that he thought were undervalued, while simultaneously short selling stocks that he thought were overvalued. In this way, he reduced his net exposure to the fluctuations of the stock market, because the losses on one side of the portfolio would be offset (hedged) by the gains on the other side of the portfolio.

Today, hedge funds employ a wide variety of strategies. In addition to long/short equity, there are some other strategies which are also quite common:

- *Global Macro*: This strategy involves taking a top-down approach to investment by concentrating on macroeconomic themes. For example, hedge funds using this strategy may have made bets on how Brexit would impact the global markets.
- *Quantitative:* This strategy involves the use of mathematical models to help generate returns.

- *Merger (Risk) Arbitrage:* This strategy focuses on finding companies that are acquisition targets. The hedge fund will buy stock in a company that is being acquired, while short-selling shares of the acquirer.

One of the world's most famous hedge funds was Long-Term Capital Management (LTCM). This fund consisted of many acclaimed industry professionals, including Myron Scholes, a Nobel Prize winner in Economics. While the fund initially generated annual returns in excess of 40% per year, the fund became insolvent after the devaluation of the Russian Rouble, and the Asian Financial Crisis of 1998. Eventually, the Federal Reserve had to step in to bail out investors.

Exchange Traded Funds

Unlike mutual funds and hedge funds, exchange traded funds, also known as ETFs provide investors with a diversified portfolio choice with lower management fees. ETFs are not actively managed and are traded like common stocks which results in high liquidity and low fees for investors. ETFs usually track indices, bonds, commodities, or a bundle of assets. These funds own underlying assets which are divided into shares so that investors may have exposure to those assets when buying an ETF. The SPDR (SPY) is one of the most widely known ETFs in existence with a **Net Asset Value** of over $200 Billion USD. Some characteristics of ETFs include: low management fees, diversified portfolio, liquidity, and simplicity. For these reasons, exchange traded funds have become increasingly popular in recent years.

Net Asset Value (NAV)

The difference between the fund's assets and its liabilities

Benefits of Funds

A major benefit of funds for investors is the ability to find **diversification** without needing to have large amounts of capital nor make an excessive number of trades. The benefit of diversification from funds is especially useful to retail investors with only a small amount of capital to invest with. An investor with $5000 who wishes to have a diverse portfolio of stocks will have to spend a greater percentage of time and money to do so by making individual trades. On the other hand, the same investor may pool $5000 into a fund and have a diversified

Diversification

The practice of investing in a wide array of investment vehicles so as to minimize non-systematic risk portfolio without needing to constantly spend time and money on trades. Due to economies of scale, funds are cheap and easy to diversify with without needing to buy many stocks individually.

Another major benefit of funds is the level of investment expertise that they can provide for individual investors who possess limited knowledge in finance. An investor who does not feel comfortable making their own stock picks may still reap the benefits of equities through ownership of equity funds.

Lastly, **liquidity** for many ETFs and mutual funds is an added benefit of ownership in popular funds. When compared to low volume stocks or alternative investment such as real estate, it is comparatively easy to get in and out of positions in publicly traded funds.

Liquidity

The ease with which an asset can be converted to cash

Drawbacks

Despite there being benefits with ownership of funds, drawbacks are also a reality of these investments. Firstly, a common complaint amongst actively managed funds is the onslaught of high commission fees. These commissions which can be over 2% annually severely eat into investor returns over a long period of time. Additionally, many actively managed funds also underperform their respective market benchmarks even with professional management. Lastly, some funds have penalties for early withdrawal of money which may put a dent into liquidity.

11.6 Managed Funds

Earlier, you learned about the Efficient Markets Hypothesis. As you know, some critics maintain that EMH is flawed because the markets are not fully efficient. In the face of potentially inefficient markets, a good security selection strategy is crucial for success. The two main strategies can be broadly summed up as fundamental and technical analysis, both of which have their own merits as well as criticisms. This section will go into the pros, cons, and the bottom line of each type of analysis. Generally speaking, fundamental analysis refers to the use of economics in order to determine the intrinsic value of a stock. The fundamental analyst bases research off of a company's balance sheet, income statement, and cash flow. On the other hand, the technical analyst believes that the stock price already reflects the economic data presented and that future price direction can be determined through charts and historical price patterns.

Fundamental analysis

Security evaluation technique focused on finding intrinsic value through researching financial, economic, qualitative, and quantitative variables

Intrinsic value

The true value of a company or asset based on all tangible and intangible factors; this may be different from the current share price

Fundamental Analysis

Practitioners of **fundamental analysis** select their investments based on the **intrinsic value** of a security which they attempt to determine through the use of economic data presented in the form of balance sheets, income statements, and cash flow statements. Additionally, users of fundamental analysis also base their investments on research conducted on a security that might not necessarily pertain to economic data. Often times, analysts may find additional qualitative points through research that support or detract from the perceived value of a security. For instance, changes in management, demographics, and forecast of products are all points that may assist in valuing a security. Among fundamentalists, there exists many ways of thought used for valuation purposes such as the dividend discount model. The overarching goal of fundamental analysis is to value a security and compare it with the current market price to make an investment decision.

Dividend Discount Model (DDM)

A model that seeks to calculate a company's value based on the value of all its future dividends. Dividends are the part of a corporation's earnings that are paid out to shareholders.

The Dividend Discount Model (DDM)

The **dividend discount model** is a way of valuing a security based on a mixture of a stock's dividends and growth of those dividends. A simple formula for the dividend discount model is the current share value is equal to the dividends per share divided by the difference between the discount rate and dividend growth rate.

$$\text{Fair Value} = \frac{D}{r - g}$$

where D is the amount of *next year*'s dividend, r is the required rate of return, and g is the dividend growth rate.

Worked Example

Bank of America declared a dividend of $1 per share this year. Assume the stock has a required rate of return of 7%, and a dividend growth rate of 5%. Determine the Fair Value of the stock using the DDM.

Solution:

Using the formula:

$$\text{Fair Value} = \frac{D}{r - g}$$

$$= \frac{1.05}{0.07 - 0.05}$$

$$= \$52.5$$

Therefore, the fair value of the stock is $52.50. It is important to remember that when using the DDM, you must use the next year's dividend, and NOT the current dividend in the computations.

Your Time to Shine

Choi Corporation declared a dividend of $2 per share this year. Assume the stock has a required return of 9%, and a dividend growth rate of 5.5%. Determine the Fair Value of the stock using DDM.

The dividend discount model is useful for valuation purposes due to its simplicity and its principled nature of value. However, a major limitation of the model is the difficulty in assessing dividend growth rate due to the unpredictable nature of dividends. Furthermore, the model is not very useful when assessing companies that do not currently hand out a dividend to shareholders.

Factors Included in Fundamental Analysis

Fundamental analysis can be a broad area of study with many things taken into account. Every investor is different in their style of investing. The following is a list of just some of the things that are used in fundamental analysis of a security.

- Company Financials
    - Earnings
    - balance sheets
    - cash flow statements
- Macroeconomic conditions
- Projected growth (earnings, revenue, market share, etc)
- Intangible assets such as brand name, patents, and goodwill
- Knowledge of current and/or upcoming products

Technical Analysis

Technical Analysis

Security evaluation technique based on predicting future price trends through the use of charts and technical indicators

Technicians

A practitioner of technical analysis, also known as a chartist

Technical Analysis involves the use of charting and historical price patterns to determine the future price of a stock while ignoring fundamentals as it is assumed fundamentals are already priced into the current price. Instead of attempting to decipher fundamentals, **technicians** use a combination of charts and technical indicators to identify trends. It can be thought of as not studying the security but rather the psychology of the market itself. The use of technical analysis relies on three main facets: the market already prices in fundamentals, price moves in trends, and history repeats itself. In general, a technician may have no idea about what a company does but still use technical analysis to aid with an investment decision.

Support and Resistance

The use of supports and resistances is useful in technical analysis since it can help determine the start or reversal of a trend. A support is a price level at which a stock or market rarely dips below while a resistance is a price level that is rarely surpassed. Often times, key areas of support and resistance denotes a struggle between the bulls and bears of the market. When a support is breached or resistance broken with enough volume, it is said that the role is reversed. Supports and resistances happen due to traders who are willing to either buy at a support or sell at a resistance. Furthermore, it is common to see these key price levels at large whole numbers (ex: 50, 100) due to psychological reasons.

Volume

Volume in reference to technical analysis refers to the number of shares of a security that is traded in a given time frame. Usually the volume of a stock is given as a daily average over the preceding 3 months of trading. Volume is especially important in technical analysis since it can help identify the strength of a price movement in addition to signifying trends. A bar graph showing depicting volume can be found below stock charts.

Charts

A chart is a representation of the historical price of a security which may show the price history of just the past minute or even the past few decades. Charts of various types are used by technicians to aid in identifying trends and technical indicators. The standard line chart is the most basic of all charts which displays just the closing price of a security over a period of time. More complex charts such as bar charts and candlesticks include additional information such as open price, high/low, and colour coding. Regardless of chart type, each chart conveys the price of a security (y-axis) over a period of time (x-axis).

Charts are useful to investors due to their straightforward visual display. It is far easier to identify areas of support/resistance and see past trends through a chart than it is to look at a table of historical prices. Furthermore, many technicians have devoted extensive time and research into the practice of chart patterns. Chart patterns are a distinct pattern in the charting of a security which creates a trading signal of future movements. Although there are ideas behind each pattern in existence, chart patterns cannot guarantee accuracy.

Let's look at some common chart patterns:

A *continuation pattern* signals that an existing trend will continue into the future. For example, if the stock is currently in an uptrend, a continuation pattern suggests that the stock price will continue to increase. There are a few different types of continuation patterns.

1. An *ascending triangle* involves signals the continuation of an uptrend. It involves an increase in the support price of the stock, while the resistance price maintains relatively constant. When the stock price breaks above its resistance, the pattern is confirmed. In the diagram, the blue line represents the stock price.

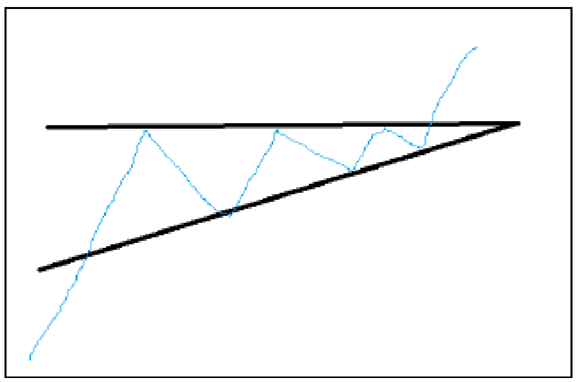


Figure 11.6.1: Ascending triangle chart

2. A *descending triangle* is the opposite of an ascending triangle. It signals the continuation of a downtrend. It involves a declining resistance price of the stock, while the support price remains relatively constant. When the stock price breaks below its support, the pattern is confirmed. In the diagram, the blue line represents the stock price.

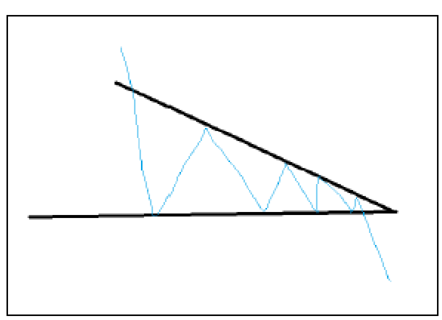


Figure 11.6.2: Descending triangle chart

In addition to looking at continuation patterns, you should also be familiar with *reversal patterns*. These signal reversals in the original trend (ex: stock switches from uptrend to downtrend or vice versa).

1. A *head-and-shoulders top* is so named because it looks like the head and shoulders of a person. The support line is formed by the "neckline" of the pattern. The shoulders and head are the resistance levels of the trend. When the stock price dips below the right "shoulder," the pattern is complete and the stock will change from an uptrend to a downtrend. In the diagram, the blue line indicates the stock price, and the black line is the neckline.

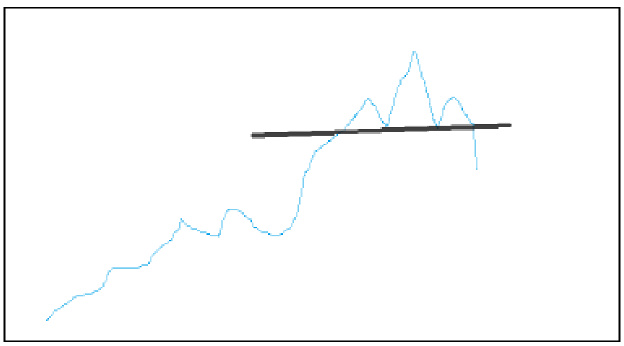


Figure 11.6.3: Head-and-shoulders top chart

2. A *head-and-shoulders bottom* is an upside-down version of the head-and-shoulders top. In the head-and-shoulders bottom, the resistance line is formed by the "neckline" of the pattern, and the shoulders and head are the support levels of the trend. When the stock price rises above the right shoulder, the pattern is complete and the stock will change from a downtrend to an uptrend. In the diagram, the blue line indicates the stock price, and the black line is the neckline.

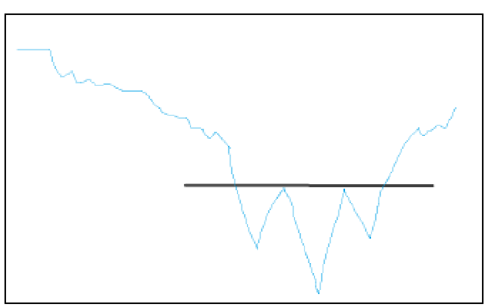


Figure 11.6.4: Head-and-shoulders bottom chart

Of course, there are many technical analysis patterns, but they are beyond the scope of this book.

Elliot Wave Theory

Elliott Wave Theory

The idea that stock prices form cyclical waves

Many things move in cycles. R.N. Elliott proposed that stock markets tended to move in cycles, consisting of a five wave primary trend, and a three-wave secondary trend. This idea is known as the **Elliott Wave Theory**. The five waves are numbered 1 through 5, while the secondary waves are assigned the letters a, b, and c. Cycles can be observed over varying durations: weeks, months, or possibly years. The people who study these cycles are known as "Elliotticians". In the diagram, the green and black lines represent the stock price. The green line is the primary wave, and the black line is the secondary wave.

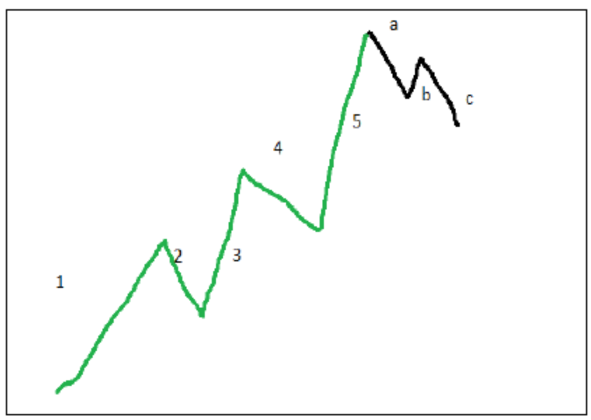


Figure 11.6.5: Elliott Wave Theory Chart

Dow Theory

Dow Theory

The idea that any divergence between the Dow Jones Industrial Average and the Dow Jones Transportation Average must be short-lived

When people hear the phrase "Dow Jones Industrial Average," they tend to think about it as being a stock index consisting of some of the world's largest companies. It is interesting to note how the Dow Jones Industrial Average came into being. In the 1800s, Charles Dow came up with an interesting theory. He believed that if the average price of transportation stocks declined while the average price of industrial stocks were flat or in an uptrend, then this would be a time to exit the stock market. Dow believed that any divergence between the two averages must be short-lived. This theory is what we call the **Dow Theory**. And to test his theory, Dow created the Dow Jones Industrial Average and the Dow Jones Transportation Average.

Criticism of Technical Analysis

Although many investors swear by using technical analysis, there remains a large share of skepticism over the merits of its use. Common arguments against the use of technical analysis include:

- *It completely ignores the fundamental state of a security*: The stock of a company that is losing money, lacks potential, and is vastly "overvalued" may still be appealing to technical analysis despite obvious pitfalls.

- *It does not work*: Proponents of fundamental analysis and the efficient markets hypothesis argue that historical data show that charting and other technical indicators do not beat the market on a risk adjusted basis. Furthermore, they argue that if technical indicators can be understood by anyone, then everyone should have been able to capitalize on it thus making the market efficient.

- *It is highly subjective*: The use and identification of indicators are often used at the discretion of the technician. Rules of technical analysis are not always rigid which paves way for subjectivity in identifying trends.

- *The bottom line*: Although technical analysis may not be for everyone, a firm understanding of the reasoning behind it is important for many investors regardless of investment ideology. It is important to remember that technical analysis relies on the assumptions that the market discounts everything, prices move in trends, and that history repeats itself. Technical analysis maintains that all information needed about a security can be found in its charts rather than fundamentals.

11.7 Bonds

What is a Bond?

Bonds

A bond is a debt investment in which money is loaned out by an investor to either a government or corporation for a predefined period of time with either a fixed or variable interest rate

Maturity Date

A predefined date in which the principal and remaining interest on a loan or other financial instrument is repaid

Coupon Rate

The annual disbursements of a bond expressed as a percentage of face value

Coupon Payment

Interest in the form of cash paid out to shareholders

Corporate and governmental entities require an influx of money to continue to grow and prosper. To raise large amounts of capital, these entities issue **bonds**. When a bond is issued, the bond is given a **maturity date** and a **coupon rate**. Most entities that issue bonds pay interest to the owner of the bond in semi-annual **coupon payments**. Bonds are also known as "fixed income" investments. When the bond reaches its set life or maturation date, the investor will receive the face value of the bond. Bonds are liquid assets and the owner of a bond is referred to as a creditor.

Who Issues Bonds?

Federal Governments

The Canadian Government issues bonds through the Canada Savings Bonds Program. As with most stable countries, bonds issued by the federal government carry minimal risk. However, if a country is in a developing phase, its bonds may be deemed riskier by investors. Developing countries reward investors by providing higher interest payments on the investment.

Municipalities

Large and small municipalities can also offer bonds to those looking to invest in a city or region. These bonds are also very low in risk as most cities tend to avoid bankruptcies. However, it is possible for municipal bonds to default. One of the largest municipal bond defaults came from the Washington Public Power Supply System in the United States. Careless administration of large contracts resulted in bond holders losing their investment.

Corporations

Corporate entities also issue bonds to raise capital. These bonds are the riskiest as companies pose a higher risk in defaulting than a stable government. To compensate for this risk, corporate bonds produce the highest yield. The interest rate an investor receives is inversely proportional to the credit value of a company. If the company possesses a high credit rating, the investor will receive a lower interest rate as less risk is associated with the investment. On the contrary, if the credit value of a company is low, the investor will receive a higher interest rate.

Common Types of Corporate Bonds

Mortgage Bonds

Mortgage bonds are secured by the corporation's assets. If the company does declare bankruptcy, the creditors will be able to secure their investment. These bonds have a lower interest rate as there is less risk associated with them.

Debenture Bonds

Debenture bonds are bonds that are not secured by the assets of a corporation. If a company defaults, the creditors will not be guaranteed payment.

Callable Bonds

These bonds consist of a clause that allows for them to be recalled by the issuer prior to the set date of maturity. When corporations call bonds, the creditor receives the principal investment. Additionally, there may be a clause that requires the corporation to pay the creditor slightly above the face value of the bond.

Convertible Bonds

A convertible bond is a special type of bond that allows for the creditor to convert their bonds into a certain amount of corporation shares. The conversion formula from bonds to shares is determined by the company and shared with the creditor before the purchase of convertible bonds.

Junk Bonds

These bonds have an incredibly high rate of default due to the weak financial conditions of the company. Consequently, investors demand a high rate of return on these bonds. Junk bonds were popularized by Michael Milken in the 1980s.

Strip (Zero Coupon) Bonds

As the name suggests, zero coupon bonds have no coupon payments and will have their face value returned at maturity. Consequently, these bonds can be bought for a price lower than their face value. Examples of these include U.S. Savings Bonds, U.S. Treasury Bills, and bonds that have been stripped of their coupon. Coupon bonds may be separated to form new zero coupon bonds through separation of the principal and coupon payments.

As an example, a zero coupon bond with a yield of 5%, time to maturity of 10 years, and face value of $10,000 will have a current value of $6139.

How do Corporations Determine Bond Interest Rates?

A bond's interest rate is determined by two important aspects. The primary detail that is examined is the credit rating of the corporation. Standard and Poor's is a credit rating agency that is able to accurately assess the long term and short term risk associated with investments. A rating of triple-A symbolizes the epitome of safe investing while a rating of D screams junk. The bond interest rate will always be inversely proportional to the credit rating. This means that if a company is a safe investment, it will offer a lower interest rate in comparison to a riskier corporation. Additionally, the longer the period is until maturity, the higher the interest rate. This is due to an increased chance of unforeseen events that may hinder the corporation from being able to fulfill their obligations.

11.8 Yield Curves & Term Structure of Interest Rates

In order to understand bond pricing, you should be familiar with the concept of the yield curve. This is a graph that depicts the yield of comparable bonds plotted against the time that it will take for the bond to mature. This visual provides an excellent comparison between different yields over the short term and long term. This in turn allows investors to formulate an outlook on where the economy is headed.

The term of structure interest rates embodies three primary configurations:

Normal Yield Curve

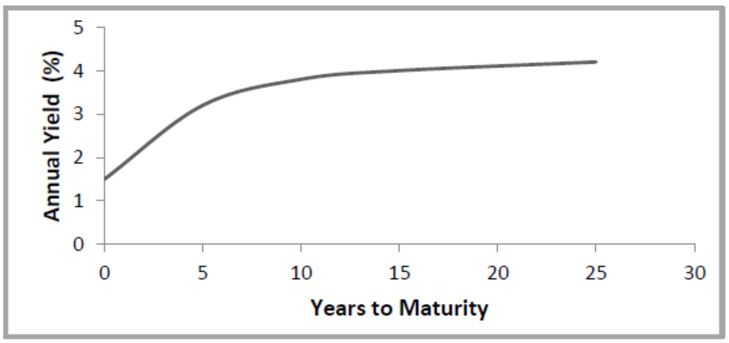
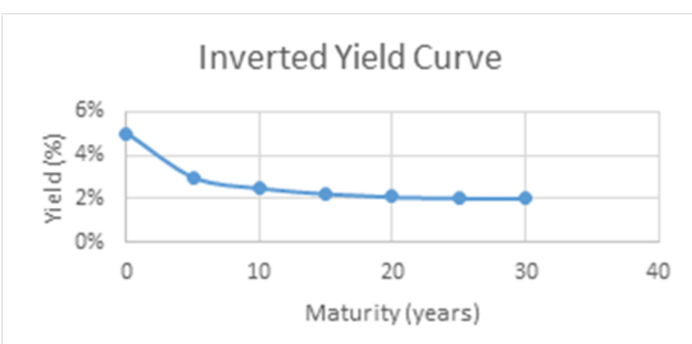


Figure 11.8.1: Normal Yield Curve

In a normal yield curve, the long term yields will be higher than the short term yields. This exemplifies investor confidence in the economy in terms of continued growth.

Inverted Yield Curve



The inverted yield curve is an abnormal occurrence. This economy outlook exemplifies low investor confidence and highly turbulent market conditions.

Flat Yield Curve

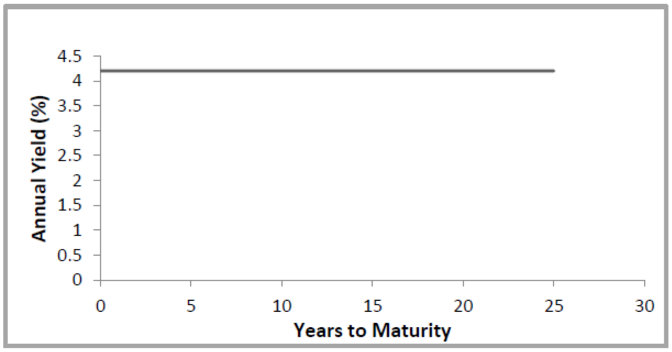


Figure 11.8.3: Flat Yield Curve

The flat yield curve appears when there is little to no difference between the short term and long term rates. This occurrence sends investors mixed signals. Movement in any direction is possible but difficult to predict.

** Note that the curves are merely a theoretical representation. Market conditions create variances.*

A related concept to the yield-curve is the term structure of interest rates. This concept states enables us to calculate what the market implied interest rates are given that we know some other interest rates.

For example, consider the following hypothetical yields on US Treasury Bills:

Term	1 Month	3 Months	6 Months	1 Year	2 Years	5 Years
Rate (%)	0.01	0.03	0.26	0.39	0.70	1.49

Suppose you decide to invest $1,000 in the 2-year government bond. At the end of the 2-years, you would earn $14 in interest. But instead of investing in the 2 year government bond, you could invest in the 1-year government bond, and then reinvest the proceeds in another 1 year government bond upon maturity of the 1st investment. How much interest would you earn in this scenario? Assuming the markets were perfectly efficient, you should earn the same amount of money over the course of the 2 years, namely, $14 in interest. Notice that in the first year you would earn interest at a rate of 0.39% per annum, or $3.9 in interest.

What can we do with this result? If we subtract \$3.9 from \$14, we get \$10.10. That means you'd expect to earn \$10.10 in interest in the 2nd year of your investment. In your 2nd year, you invested \$1,003.90 (principal+ interest earned in the first year). Thus, your effective interest rate on the investment in the second year must have been

$$\frac{10.10}{1003.90} = 1.01\%$$

This phenomenon is the term structure of interest rates.

What is a bond yield?

Now that you know how interest rates work, you can begin to understand what bond yields are. The purpose of all investments is to generate some sort of a return for the investor. Bonds specifically, generate interest which is paid out semi-annually by the majority of issuers. There are multiple ways to calculate the bond yield with nominal yield being the prevalent method.

Nominal Yield & Coupon Rate

The nominal yield refers to the coupon rate of the bond. The coupon rate is the interest rate paid annually as a percentage of the face value of the bond. This rate remains constant as it is based off of the face value of the bond and the annual interest payments. The face value of a bond always remains constant as well as the interest received.

$$\text{Nominal Yield} = \frac{\text{Total Annual Interst Payments}}{\text{Face Value of the Bond}} \times 100$$

For example, suppose a \$500 bond has been issued by Buffet Industries and pays interest of \$20 semi-annually. The Nominal Yield would be computed as follows:

$$\text{Nominal Yield} = \frac{\$40}{\$500} \times 100$$

$$= 8\%$$

Effective Yield

The effective yield utilizes the power of compounding to provide the greatest benefit to the investor. This yield comes into play when the investor reinvests the interest payments received. If a bond has a nominal yield of 8% and semi-annual payments, the investor is now earning interest on the interest payments. This method of calculation is more accurate than the nominal method as the effects of compounding are taken into account.

$$\text{Effective Yield} = \left(n\left(1+\frac{i}{n}\right)-1\right)\times 100$$

i = the coupon rate

n = number of payments annually

For example, suppose Buffet Industries' bonds have a coupon rate of 3%. Interest is paid semi-annually. The Effective Yield can be calculated by:

$$\text{Effective Yield} = \left(2\left(1+\frac{0.03}{2}\right)-1\right)\times 100$$

$$= 3.0225\%$$

Yield to Maturity (YTM)

The yield to maturity provides the value of a bond's annual return if that bond is held till its maturity. This statistic aids investors in determining the potential of a certain bond as well as how it compares to similar investments in terms of return. It is important to note that the bond yield and bond price will always be inversely proportional to each other. We will return to the concept of Yield to Maturity later on in this book.

Yield to Call (YTC)

In some instances, entities issue bonds with a clause that refers to the bond as callable. This means that the issuer of the bond can redeem the bond before the actual date of maturity is reached. This is primarily done so the entity can refinance the bond at a lower interest rate. As an example, the CEO of Buffet Industries decides to raise capital and issues 10000 bonds that mature in 2025. However, the bonds are callable in 2018. In

2018, Buffet Industries makes the decision that it no longer wishes to continue paying interest to the bond holders. At this point, Buffet Industries pays back the bonds at slightly above face value effectively removing them from the market. Yield to call refers to the yield of the bond until the call date, as long as the call date precedes the date of maturity. Reinvestment risk is another factor that investors keep an eye on. Reinvestment risk refers to the risk of reinvesting future coupons at an interest rate lower than current ones. If a bond issuer prematurely calls back a bond due to falling interest rates, the bondholder will suffer from reinvestment risk as it is unlikely he/she can reinvest capital at the prior rate of return due to a fall in interest rates. This risk may be reduced through zero coupon and non-callable bonds.

11.9 Duration, Convexity & Yield to Maturity

A bond can trade at par, at a premium, or at a discount.

If the bond coupon rate is equal to the current market required interest rate, the bond will trade at par. This means that the price of the bond will be exactly equal to the face value.

If the bond interest rate is greater than the current interest rate, the bond will sell for a premium. This means that the bond will sell for more than its face value. For example, a bond with a $100 face value issued at $104 is being issued at a premium

If the bond interest rate is less than the current interest rate, the bond will sell for a discount This means that the bond will sell for less than its face value. For example, a bond with a $100 face value issued at $96 is being issued at a discount.

It is also possible to calculate the exact price of the bond. Theoretically, a bond should trade at the net present value of the bond's cash flows, with the discount rate equal to the market required interest rate.

Worked Example

Suppose Obelisk Corporation issues a \$100,000 face value, 5 year bond that pays a coupon rate of 6% per year, paid semi-annually. The market required interest rate is 8% per year. What is the price that the bond will be issued at?

Solution:

We need to calculate the NPV. In order to do this, we will split the bond into two parts: the principal and the interest.

First, let's deal with the Principal. \$100,000 will be paid back after 10 semi-annual periods. The discount rate is 4% per semi-annual period. Using a financial calculator, we see that PV principal = \$67,556.42.

Next, let's deal with the Coupon Payments. After every half year period, we will be paid a coupon payment equal to

$$\$100{,}000 \times 6\% \times \frac{1}{2} = \$3{,}000$$

We will receive 10 semi-annual payments of \$3,000 each, with the first payment to begin half a year from now. The present value of these payments is the present value of an ordinary annuity with a discount rate of 4% per semi-annual period.

Using a financial calculator, $\text{PVOA}_{\text{coupon}}$ = \$24,332.69.

The NPV of the bond is $\$67{,}556.42 + 24{,}332.69 = \$91{,}889.11$

Thus, the bond will be issued at a price of \$91,889.11. Note that many newspapers will quote bond prices as a percentage of par value, with 100 being equal to par value. In that case, the bond would be quoted as being at 91.89

Your Time to Shine

Mehta Corporation issues a \$100,000 face value, 3 year bond that pays a coupon rate of 9% per year, paid semi-annually. The market required interest rate is 7% per year. What is the price that the bond will be issued at?

These calculations could also have been done with a present-value table. In DECA, you will not be allowed to use a financial calculator. Any present value calculations you may be asked you to do will require you to multiply the future value amount by a present value factor, in order to calculate the present value of the bond. Likewise, for the interest payments, you can multiply the coupon payment by the present value of an ordinary annuity factor in order to arrive at the present value of all the interest payments. These factors would be given to you in a roleplay, so that you can perform the calculations with a four-function calculator.

YTM Revisited

We saw that the bond price calculation was really an NPV calculation. What if we wanted to work backwards? Suppose we were given information about the price of a bond, its coupon payment, and the time until maturity. We wish to figure out the YTM.

The YTM is the required discount rate such that the net present values of the bond's cash flow is equal to the current price of the bond. This is very similar to the calculation of IRR that you learned back in chapter 10; in fact, the YTM is a type of internal rate of return (IRR).

Duration

It is important for investors to be able to accurately gauge the length of time it will take to recoup an investment. Duration refers to the period of time that it will take for a bond's coupon payments to compensate the investor for the original price of the bond.

Bond duration specifically refers to the sensitivity of a bond's price in relation to the fluctuation of interest rates. It allows for investors to understand how much risk they will be exposed to if the interest rates waver. This measurement is expressed in terms of years. Interest rate fluctuations tend to produce an inverse effect in terms of bond price. For example, if there is an increase in interest rates, the bond price will inversely reflect this change by falling. Bonds that consist of a longer duration are more sensitive to possible changes in the interest rate. This makes them riskier. From our previous knowledge, we can infer that since longer durations carry a higher risk, they also entail a higher reward. Bonds with lower coupon rates have higher durations. If multiple bonds have the same coupon rate, the bond with the longest time to maturity will possess the highest duration.

Macaulay Duration

This method of calculating duration is named after its founder, a Canadian economist by the name of Frederick Macaulay. This calculation provides investors with a weighted average number of years that an investor must hold on to a bond before the present value of a bond's interest payments is equal to the principal paid for the bond. The term "weighted average" refers to the multiplication of each year by a factor that reflects its importance.

For example, suppose that Malkiel Corporations has a bond that has face value of $10,000. This bond is known to pay a coupon of 20% per year, paid semi-annually and matures in three years. The yield to maturity is currently 12% per year, compounded semi-annually. The principal will be paid in the final year. What is the duration of the bond? To find out, we start by making the following table:

Time Period (Half Year)	Undiscounted Cash Flow
1	$1,000.00
2	$1,000.00
3	$1,000.00
4	$1,000.00
5	$1,000.00
6	$11,000.00

Knowing that the bond matures in three years and pays the coupon semi-annually, we are able to ascertain that there will be six periods. Additionally, each of the first five periods will have a cash flow of $1,000. The payment of the final year encompasses both the principal and coupon.

For the next step in the calculation, a discount factor unique to each period needs to be determined.

$$\text{Discount Factor} = \frac{1}{(1+\text{ interest rate})^{\text{time period}}}$$

Time Period (Half Year)	Discount Factor
1	0.943
2	0.890
3	0.840
4	0.792
5	0.747
6	0.705

Now that the discount factor has been determined, the weighted discounted cash flow can be found using

$$\text{Period Number} \times \text{Undiscounted Cash Flow} \times \text{Discount Factor}$$

Time Period (Half Year)	Unweighted Discounted CF	Weighted Discounted CF
1	$943.00	$943.00
2	$890.00	$1,780.00
3	$840.00	$2,520.00
4	$792.00	$3,168.00
5	$747.00	$3,735.00
6	$7,755.00	$46,530.00

Add each of the discounted cash flow values to attain a total. Then, divide the total by the present value of the bond to get Macaulay's Duration.

$$\text{Macaulay's Duration} = \frac{\$58{,}676.00}{\$11{,}967.00}$$

$$= 4.90 \text{ half-years}$$

Summary of Steps

1. Determine undiscounted cash flow
2. Determine the discount factor
3. Determine the discounted cash flow
4. Macaulay's Duration will be the total value of the discounted cash flow divided by the present value of the bond

It is important to note that the bond duration is NOT necessarily equal to the number of years remaining until maturity.

Modified Duration

This method of calculating duration stems as an extension from Macaulay's Duration. The Modified Duration allows us to compute how much a bond price will change given a certain change in yield. To utilize this formula, one must first calculate Macaulay's Duration. Using the example above, the value calculated for Macaulay's Duration is 2.45 years. The yield is 12% per year, compounded semi-annually.

$$\text{Modified Duration} = \frac{\text{Macaulay's Duration}}{1\text{+interest rate per period}}$$

$$= \frac{2.45}{1 + 0.06}$$

$$= 2.31 \text{ years}$$

Note that the Modified Duration is always shorter than the time remaining until the maturity of the bond.

Bond Price Change

$$\text{Bond Price Change} = -\text{Bond Price} \times \text{Modified Duration} \times \text{Yield Change}$$

Using the example above and assuming that interest rates rise by 0.1%:

$$\text{Bond Price Change} = -10{,}000 \times 2.31 \times 0.001$$

$$= -\$23.10$$

Convexity

The price of a bond and the yield of a bond are related. If both of these attributes are plotted on a graph, the measure of the curve that forms is known as the convexity. As discussed previously in the chapter, the price of a bond and the yield of a bond are inversely proportional. However, this relationship is not linear.

A convexity adjustment will help to improve the accuracy of the estimated price change. This however, is beyond the scope of the book, and so we will leave it to your university professors to cover the topic.

Questions for Comprehension

True or False

1. Bonds with a low risk of default have a high yield.
2. ETF's usually have a lower management fee than mutual funds.
3. Hedge funds are traded on the stock market.
4. Bonds are used by governments and corporations to raise money.
5. In the event of insolvency, shareholders are always paid before bondholders.
6. An AAA credit rating means there is a high chance of default.
7. Most stocks guarantee a dividend.
8. Stocks are considered a fixed income investment.
9. A risk-averse investor always invests in risk-free assets such as treasury bills.

Multiple Choice Questions

10. What is the primary benefit of individual investors using mutual funds to invest in the capital market?
    a) Investment becomes larger
    b) Investment gradually declines
    c) The fund diversifies investments
    d) The fund consists of diverse investors

11. Under the CBCA, most corporations are required to issue…
    a) No Par-Value Shares
    b) Par Value Shares
    c) Preferred Shares
    d) Corporate Bonds

12. Which one of these people was not a primary contributor to Modern Portfolio Theory (MPT)?
    a) Dr. Eugene Fama
    b) Dr. Kenneth French
    c) Dr. Harry Markowitz
    d) Dr. Myron Scholes

13. Which of the following historical events led to the creation of the SEC?
    a) Great Depression
    b) Flash Crash
    c) Black Monday
    d) Dot Com Bubble

14. Which one of these is a quarterly report filed with the SEC?
    a) 10-K
    b) 10-Q
    c) Form 8
    d) Schedule 13D

15. The directors of a company must act in the company's best interest. However, sometimes they end up acting in their own best interest instead. This is an example of…
    a) Laissez- faire economics
    b) Post-mortem struggle
    c) Agency dilemma
    d) Managerial risk

16. Which type of investment would be most likely deemed suitable for novice investors?
    a) Swaps
    b) Options
    c) Commodities
    d) Mutual Funds

17. Hedge funds differ from mutual funds because hedge funds are…
    a) Actively managed
    b) Passively managed
    c) Heavily regulated
    d) Loosely regulated

18. Bonds are considered __________ types of investments?
    a) Fixed-income
    b) Straight-pay
    c) High risk
    d) Derivative

19. Bonds that may be bought back by the issuing corporation on or after a specified date are known as?
    a) Mortgage Bonds
    b) Strip Bonds
    c) Redeemable Bonds
    d) Retractable Bonds

20. Suppose a bond has 10 years remaining until maturity. The Modified Duration of the bond cannot be which one of these values?
    a) 5 years
    b) 8.2 years
    c) 9 years
    d) 13 years

Short Answer

21. List three groups of participants in the capital markets. What are their roles?

22. List the five divisions of the SEC and identify their roles.

23. Walker's Line Ltd. paid a dividend of $1.50 today. Its dividend has grown at a rate of 8% historically, and the required growth rate on the stock is 10%. Compute the fair value of the stock using the Dividend Discount Model.

24. A 5 year, $100,000 bond has a coupon rate of 9% per year, paid semi-annually. The YTM is 7% per year, compounded semi-annually.
    a) Determine the Macaulay Duration of the bond
    b) Determine the Modified Duration of the bond
    c) Determine the approximate effect of a 25 basis point increase in yield on the bond price. You may ignore convexity.

25. List the three forms of the efficient markets hypothesis.

26. Draw a head-and-shoulders top pattern for a stock. Label all key points as needed.

27. If the 2- year LIBOR is currently 3.5%, and the 5 year LIBOR is currently 6.25%, what is the market implied rate for the 3-year LIBOR, 2 years from now?

28. Draw the investment opportunity set for portfolios of two risky assets and label three portfolios as follows: portfolio D is inefficient, portfolio E is efficient, and portfolio F is unattainable.

Mini-Case Analysis

Ripley Adams is a 59 year old high school teacher in Moncton, New Brunswick. He is married to Susan Adams, a 55 year old engineer. They have two children, Chloe, age 13, and Claire, age 17. Over the years, the family has accumulated $200,000 in savings, and the family would like to invest the $200,000. They have called you, their financial advisor, for advice.

You drive over to Moncton and meet with them. You learn the following facts:

- Ripley used to serve in the Canadian Military as a fighter pilot. He got injured in combat, and then became a physics teacher. While he is okay with taking flights, he does not want to take any risks that he deems “unnecessary,” particularly when it comes to investments

- The $200,000 in savings are currently all invested in common stock of Valeant Pharmaceuticals, a large biopharma company. Valeant stock returns have ranged from -9% to 19% per year, with a mean return of 6% and a standard deviation of 13%.

- Susan would like to retire in 5 years and would like to be able to generate monthly income to fund her trips to art museums.

- The family has no debt, and has paid off their mortgage.

On the basis of the information, answer the following questions:

1. When meeting with the Adams family, you brought a form known as a "KYC form." What is the purpose of the form, and what sort of information does it allow you to obtain?

2. Investment advisors are required to conduct a *suitability review*. Give two reasons why the Adams' current investment is unsuitable.

3. Given Susan's objective of generating monthly income, what investment type do you think the Adams should add to their portfolio? Support your argument with logical, well-thought out reasons.

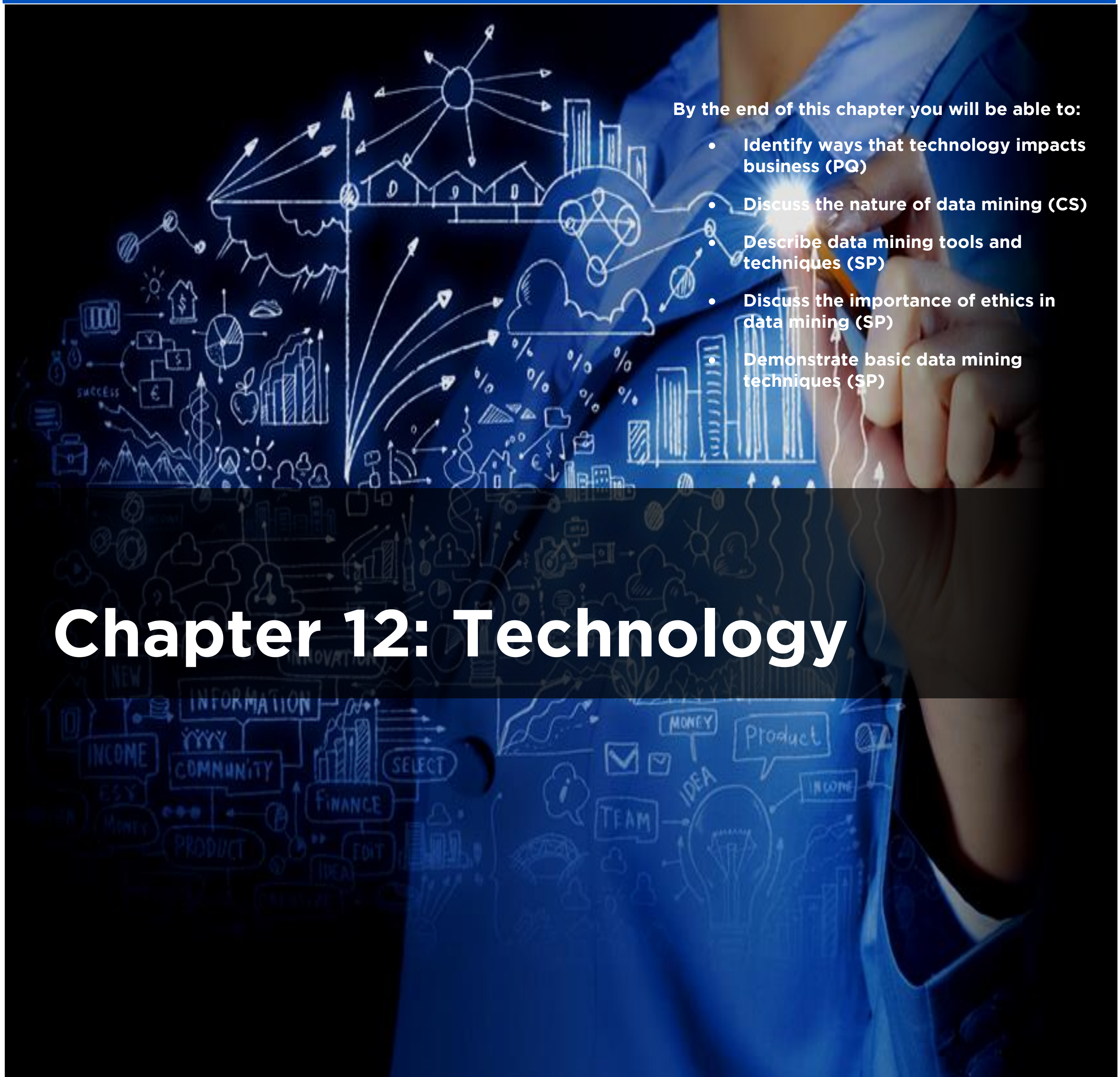
4. Compute the Sharpe ratio of Valeant stock, assuming that the risk-free rate is 2%.

5. The industry average Sharpe ratio is 1.31. In light of this information, and your answer to part d), what can you conclude about the risk/reward profile of Valeant versus other pharmaceutical companies?

6. You have decided to invest in a corporate bond mutual fund. Synergy mutual fund uses a *laddered* approach, that is, the fund ensures that it always holds a combination of short-term, medium-term, and long-term bond holdings. Outline one benefit of investing in a laddered bond fund like Synergy as opposed to a fund that does not invest using a laddered approach.

7. Your economist believes that interest rates are likely to fall. In light of this, would you prefer investing in bonds with lower yields to maturity or higher yields to maturity. Why?

8. After you have designed an optimal investment strategy for the Adams family, you continually monitor the portfolio's performance. Your firm requires that you meet with the family every 6 months to discuss the portfolio's performance. What other information do you think you should discuss with the Adams during these meetings?



By the end of this chapter you will be able to:

- Identify ways that technology impacts business (PQ)
- Discuss the nature of data mining (CS)
- Describe data mining tools and techniques (SP)
- Discuss the importance of ethics in data mining (SP)
- Demonstrate basic data mining techniques (SP)

Chapter 12: Technology

The management of money was traditionally done through manual record keeping, with forecasts based mainly on the general intuition of the manager. However, with the development of technology, many of these tasks are now done using technology. This makes the process more efficient, accurate, and less prone to human error. It has even created new types of markets and forms of monetary exchange which allow the economy to run more smoothly. This chapter maps out the role that technology has played in the business world.

12.1 The Role of Technology

Technology plays a significant role in the business world. Thanks to technological advances, businesses are able to operate more efficiently than ever before. While there are too many technological innovations to list in this book, it is important to understand some of the broader themes in technological advancement.

Automation

Automation is one of the most significant technological innovations of modern times. Prior to the Industrial Revolution, many labor-intensive tasks had to be performed manually. This created several issues. Firstly, labor costs can be expensive, and it can be difficult to find workers with the necessary skills to perform the certain jobs. Secondly, workers in industries such as manufacturing and mining can be exposed to dangerous health hazards. These hazards may cause them to be injured or even die on the job, creating both operational and economic issues for businesses and society. Finally, manual labor can be imprecise. Take a car driver as an example. While the driver may be able to bring their vehicle to a stop within a line 30 cm in width, what if they had to stop the car within +/- 1mm of a certain location? That would be a rather difficult task for a human to accomplish.

In the midst of the Industrial Revolution, humans developed the ability to automate tasks. This meant that tasks could be performed by machines, without direct input/commands from humans. By automating production processes, manufacturing companies were able to increase their output, while improving the consistency in the quality of their products. In Chapter 3, you saw that one of the goals of Six Sigma was to minimize the variance in product quality. Through the use of automation, businesses are able to meet this vital objective.

Macros
The ability to automate tasks in spreadsheet or database applications

In addition to machinery, automation is also used in software. Many spreadsheet applications, such as Microsoft excel, enable users to develop **macros**. Macros allow the software to automate tasks. For example, suppose every month you had to conduct a variance analysis. It can be time consuming to use a calculator to manually compute the variances. With automation, the workload required to compute variances is significantly reduced.

Connectivity

In the 1800s, many people immigrated to North America from Europe. While families often travelled together, sometimes family members had to stay behind in Europe. In order for family and friends to keep in touch, they would have to rely on mail, which was slow and could easily be misplaced.

Eventually, humans found ways to streamline the communication process. The invention of the telephone by Alexander Bell meant that conversations could be carried out in real-time. This allowed for the rapid exchange of information. Towards the end of the 20th century, the Internet emerged as a new form of communication and information sharing. Thanks to the Internet, you are able to submit school assignments without having to physically attend classes. The impact of the Internet on businesses is also profound. The rise of the Internet enabled the development of e-commerce. E-commerce allowed sales to take place online, which gives businesses access to expanded consumer markets. In addition, sales over the Internet could be achieved with lower overhead costs, because businesses would not have to be as reliant on physical stores to sell their goods

Social Media

Communication tools that use the internet

Finally, in the 21st century, **social media** tools started to emerge. MSN enabled users to have live video conferencing with each other. Services such as Myspace, Facebook, Twitter, and Instagram gave people the ability to share their pictures with close friends and family members. These tools also allowed stores to advertise with relatively low cost. Linkedin connected companies with job seekers, helping companies to more easily attract and find talent.

Customization

At one point, one of the authors of this book was planning a trip to Chicago. He had already booked his plane tickets, and the confirmation was emailed to him. As he searched Google for attractions to visit in Chicago, he noticed advertisements pop-up for hotels in Chicago. This was not a mere coincidence.

Technology has enabled businesses to tailor their products/services to better meet customer needs. In the author's case, Google's Adsense technology generated customized advertisements based on emails and search histories. This reduced the amount of time the author had to spend looking for hotels. In additions, the hotel chains had a more effective means of communicating with potential customers.

Customization is also used internally within businesses. Today, many businesses have some sort of **Enterprise Resource Planning (ERP)** software. ERP software, such as Oracle, Hyperion, and SAP gave businesses the ability to manage their resources more effectively. Management could extract and produce detailed and customizable reports related to various elements of the business's operations. This includes information on various things, ranging from its profitability, to the repair status of its machinery.

Enterprise Resource Planning (ERP)

Software that enables businesses to view, monitor, and create reports pertaining to various divisions, segments, and activities within the business

The Sharing Economy

The "sharing economy" is a general term that describes the phenomenon in which individuals directly engage in transactions with each other through online services. The sharing economy has been rapidly expanding with the rise of smartphone-based apps, and it is becoming an integral part of the livelihoods of many people, particularly millennials. Companies such as Uber, Lyft and Airbnb have become well-known representatives of this phenomenon, but the term encompasses much more.

There are many factors that may be attributed to the rise of these services, but three of the main ones are: (1) the increasing popularity of smartphone-based apps among entrepreneurs and the general population, (2) people looking for ways to supplement their income, and (3) a general drive to monetize underutilized assets.

The first factor has been facilitated by improvements in smartphone capabilities and improvements in cellular networks, which provide the necessary technological infrastructure for these services to operate on.

The second factor has been one of the major reasons why such services have been adopted by so many people. By the nature of the sharing economy, people are essentially contractors that get to decide how much business they wish to engage in. For example, a student living in Toronto may work part-time delivering meals through GrubHub. An urbanite may choose to supplement their income by working as an Uber driver on a part-time basis. Given that wages have remained largely stagnant since the Great Recession and the job market is becoming increasingly competitive, there is an ample supply of people seeking to increase their income by participating in the sharing economy.

The third factor, which is the monetization of underutilized assets, has become increasingly common as start-ups create the digital marketplace necessary to connect buyers and sellers. For example, Airbnb allows people to monetize their spare rooms by renting them out. JustPark allows people to rent out their parking spaces. Uber, as previously mentioned, allows people to make use of their spare car time to serve as drivers. These creative applications have been able to create many efficiencies for owners of underutilized assets, which has been a major driver leading to their explosive growth.

As a competitor in a Finance-related category, you should have an understanding of the overall impact of technology on business, as well as the specific examples of how technology has affected the Finance Industry. As this chapter continues, both will be discussed in further detail.

12.2 Data & Data Collection Methods

People often say that “knowledge is power.” While knowledge is definitely useful, so too is data. Businesses collect and analyze a wide variety of data in order to improve their performance. In this section, we will examine the types of data collected and the different means of collecting the data. As you read through the section, you may see connections between the content of this chapter and the content of previous ones.

Accounting Data

Recall from Chapter 7 that the purpose of Accounting is to provide meaningful information to users for decision-making purposes. Thus, accounting data is crucial for a business. Businesses need to see how profitable their products are, and decide when it is time to change their product offerings. In addition, businesses might also want to see the accounting data of companies that they lend money to or invest in, in order to determine how much risk is involved.

Operational/Logistics Data

Businesses have to ask themselves many questions on a daily basis such as: How much inventory do we have on hand? When is the inventory scheduled to arrive? Do we have any products on backorder? As we can see from these questions, businesses need to collect a lot of data pertaining to their operations. This data can be used to help businesses continue to run smoothly in the face of unexpected challenges, such as the inability of a supplier to deliver crucial components, or a strike by the postal carrier.

Marketing Data

With regards to their performance in the marketplace, businesses ask questions such as: How much market share do we have? Do teenagers think our video games are too violent? Do retirees think are pension products are too risky? It is important for businesses to collect and analyze data pertaining to customer sentiment, and customer buying behavior. These data can be used to find new products to offer to customers, and fix deficiencies in existing product offerings. Marketing data is part of the business's **Customer Relationship Management (CRM) tools.**

Customer Relationship Management (CRM)

Software that enables businesses to help identify new customers, identify new products/services to provide to existing customers, and manage transactions/dealings the business has with existing customers

Notice that these types of data are very specific in nature. In fact, much of the data that the businesses gather from these stages are used for the internal dimension of a SWOT analysis!

Of course, businesses also need to gather data that reflects trends in the broad business environment. Recall from Chapter 3 the PESTLE framework: businesses collect and analyze data pertaining to Political, Economic, Social,

Primary Source

Data that is collected by the researcher or organization using the data

Secondary Source

Data that is collected by an external third party

Technological, Legal, and Environmental trends, in order to decide which strategies to pursue. The data on these broad macroeconomic trends are known as Big data. Big data is useful because it can highlight potential opportunities and threats for the business (the external dimension of a SWOT analysis).

Now that we have looked at several types of data, it is time to examine various data collection techniques. In general, data can be classified as **primary source** or **secondary source**. Primary source data refers to data that is collected by the researcher or company conducting the research. Secondary data refers to data that is collected by an external third party.

Surveys

Surveys are one of the most commonly used methods of data collection. With surveys, respondents are asked to provide a written response to several questions. In general, survey questions tend to be closed-ended, asking respondents to rate things on scales, or to choose from one of several options. With the improved connectivity (think back to Section 11.1) that exists in today's society, businesses can administer surveys with great ease and little cost.

Interviews

Interviews are more expensive to conduct than surveys, but their use can be beneficial as well. When businesses conduct interviews with employees, customers, and suppliers, they can probe much deeper into the respondents' state-of-mind. This data can then be used by businesses to continue to improve their operations.

Observations

Observations can also be a useful tool. Unlike the other methods, conducting observations does not necessarily require the consent of the subjects. This method may be used, for example, by a restaurant conducting a surprise inspection of one of its franchises.

Third Party Sources

Sometimes, it may be more feasible to obtain data from external sources rather than relying on internal research. This is particularly true if the data to be collected pertains to broader trends. For example, industry organizations may publish statistics about sales and consumer demographics within their respective industries. Businesses may choose to use this data instead of conducting their own research. Governments at the municipal, provincial/state, and federal levels also provide a broad range of data. For example, both Canada and the US conduct a **census**, in which all citizens are asked to respond to a series of questions ranging from demographic information, to spending habits. Finally, **data aggregators** consolidate and sell different types of data to businesses. For example, S&P NetAdvantage and IbisWorld collect a wealth of information pertaining to various companies.

Census

A mandatory questionnaire that is sent to a country's residents by its government

Data aggregators

Services that consolidate and distribute data to interested users for a fee

When collecting and analyzing data, businesses need to pay attention to some key issues. Businesses need to ensure that the cost of collecting the data does not outweigh the usefulness of the data. In addition, businesses need to take steps to eliminate bias in the data collected. For example, earlier in the book you learned about the risk that confirmation bias poses. Other types of bias, such as **response bias** and **non-response bias** can also reduce the value of the data collected.

Response Bias
When respondents willingly skew the data. This often occurs if the data being collected is of a sensitive nature (e.g. a questionnaire asking students if they have ever cheated on a test)

Non-Response Bias
When the lack of respondents skews the data collected

12.3 Data Analysis Techniques

Now that you have learned about data and data collection techniques, it is time to examine data analysis techniques. **Data mining** is the procedure of analyzing raw data to generate useful information. Patterns are found and recorded from large amounts of data, giving companies a better idea of their consumers' preferences and behaviours. The results produced from data mining help businesses decide on marketing strategies or formulate new ones to optimize profits and costs. The monetization of data is a fast-growing industry that gives companies a competitive edge.

Data Mining
Analyzing raw data to obtain useful information for decision making

An example of a company using data mining techniques is an apparel store. An apparel store can offer a membership or discount program offered through a card or email. The company asks for information about the customer to create a profile which includes their age, location, etc. Through this, the company can track consumers' buying habits and use this data to improve its marketing strategy. This helps them decide when to offer a promotion, stop selling a good, produce a new good, etc. This concept is not only limited to apparel stores; supermarkets, hotels, and various other businesses all use data mining techniques in their decision-making.

Data mining is done using a computer where tools can be chosen from a wide variety of software which incorporate artificial intelligence, machine learning, and many others based on what is needed. Typically, the data-mining software is open-source. This means that although the coding for the information collection and data mining techniques are is already present; the user needs to program basic functions to tailor it to the needs of the company. This chapter focuses on the following data mining techniques:

- Nearest neighbour
- Fuzzy Logic
- Neural Networks

The table on the following page explores each technique in-depth. Note each technique accomplishes one or more of the classes of tasks outlined below:

- *Classification*: identifies which classes or categories data belongs to
- *Regression*: identifies trends or relationships between variables
- *Summarization*: identifies key points and creates an overview including these points

Figure 12.3.2:

Technique	Tasks	Outline
Nearest Neighbour	Classification Regression	The nearest neighbour technique is predictive, meaning it attempts to find a best-fitting response for something which may not have been tested. It incorporates the different similarities of data points to determine how much they affect the result. This technique places the data sets on an imaginary plane with at least 2 axes. The points for these data sets are recorded. Now, to predict what a certain party would say, the party must be defined on the plane. Having defined this, it can be classified based on the other points within a certain distance of it, where closer points have a greater impact on the classification than further points. For example, an apparel store may want to start a line of products targeting a new customer group. After doing a survey on the responses of their current customer group, they put the results on an imaginary plane along with certain parameters. Then, the parameters of the intended target group are input, placing them on the plane as well. Through this, the responses of the intended customer group can be predicted based on the responses of the current customers, where more similar customers have a greater impact on the response than those who are different.
Fuzzy Logic	Classification	Fuzzy logic categorizes data by the idea of: “to what degree does it fit?” In common programming, 0 is “no” and 1 is “yes”. However, fuzzy logic allows answers such as 0.5 and 0.345 based on how well it fits. With regards to classical music, Michael Jackson’s music might be classified as 0.1 whereas Beethoven might be classified as 0.9. This means that in terms of the classical-ness of the composer, Beethoven fits the category better than Michael Jackson. This kind of programming also allows the data mining software to organize information in a more meaningful and clear way.

Neural Networks	Classification Regression Summarization	The neural network technique essentially programs a computer to operate similarly to a human brain. It is used in machine learning and allows the computer to "think". This serves a wide variety of tasks, such as removing unwanted information from a document or identifying hand-writing. This typically involves breaking down information into many parts, where each part goes through a function meant to act as the "neurons" which are what allow the brain to think. The information continually passes through functions until it reaches a point where the requirements for it to be categorized or identified are met. Allowing the computer to "think" and "learn" in data mining is very useful. They can use various methods to estimate trends, classify information, or break down information into its key points.

Data mining programs take advantage of these (and many more) technological developments to accomplish their various goals. By combining the various types of technology available, businesses can record, organize, and create predictions out of data to assess their past marketing strategies and help formulate plans for the future. These can also be used to analyze market activity to understand and identify various patterns in the stock market to help with investment decisions.

Databases
Software applications/tools used to store, retrieve, extract, modify, and analyze data

Sometimes, the data collected needs to be manipulated. **Databases** such as Microsoft Access provide a way to store, retrieve, and analyze data. There are a few common database commands that you should be aware of:

1. *Split*: Imagine you were running a pet store, and you used a database to keep track of sales. You may decide that you want to view sales by type of pet. Thus, you use the Split function. This function allows you to divide the database into several new databases on which you can perform analyses.

2. *Join*: This function is used when you need to combine information from multiple databases. For example, suppose a bank had a list of customers who have credit cards, and a separate database of customers who have investment products. The bank may wish to identify customers that have both products. The join function can be used to identify the customers that have both, and record the output in a separate database. Note that within the Join function, there are several different types of joins. You may want to read Question #64 on the 2013 Provincial Finance Cluster Exam for more information.

3. *Macro*: Just like in spreadsheet applications, macros can be used to automated tasks in databases.

4. *Sort*: Sometimes you may wish to order the data in a certain way. For example, you may want to see which customers have purchased the most items from your store in order to give them a loyalty award. The sort function will arrange the sales data in order of highest to lowest (or lowest to highest, depending on your settings).

5. Filter: Sometimes you may wish to see only a portion of records in the database, without creating a new database. In this case, the filter function can be used. This function displays all records matching a certain criteria.

12.4 Data Analysis Techniques

While data mining is extremely useful for helping companies become successful, there are many legal and ethical issues surrounding data mining. Data mining requires personal information to be learned. While getting this information, privacy and confidentiality must be maintained. Prior to being asked questions which reveal private information, targets of data mining would ideally be aware of:

- Why is it being asked?
- How it will be used?
- Who will be getting and using the data?
- The security status of the data
- How it can be updated?

Making consumers aware of the points above ensures that no privacy concerns will arise and that the information is not used in a manner that negatively impacts those being surveyed. Certain laws also exist to protect the privacy of individuals and businesses. For example, the Fair Information Practices law prevents companies from revealing information that can identify individuals[3] and various privacy policies set up by companies prevent employees from sharing sensitive information. Breaking compliance with these laws and/or policies generally results in legal penalties.

The privacy of information is of particular importance for the Finance industry. Private information such as debit/credit card numbers and account balances are bought and sold by financial institutions on a regular basis. Thus, it is necessary to have laws in place to safeguard the information. In Chapter 5, you were introduced to the Gramm-Leach-Bliley Act (GLBA or GLB Act). In that chapter, you learned that one of the key aspects of that Act was to repeal the Glass-Steagall Act. In this chapter, we will examine the other component of the Gramm-Leach-Bliley Act, the requirements the law imposes on financial institutions in collecting and using private information. This law plays a crucial role in keeping the personal information of individuals from being used for the wrong purpose. The 3 sections that make up the GLBA are; the Financial Privacy Rule, the Safeguards Rule, and the Pretexting provisions.

Figure 12.3.2:

Rules	Overview
Financial Privacy Rule	This controls and oversees the collection and disclosure of private financial information. It requires financial institutions to provide clients with a written privacy notice that explains its information-sharing practices. Customers, (those who have a significant or continuing relationship with the financial institutions), are authorized to receive the privacy notice of a financial institution automatically. On the other hand, consumers, (those who simply receive or received a financial product or service), only get the privacy notice of a financial institution when their private information is shared with a 3rd party company not associated with the financial institution. It should indicate what information is being collected from consumers and customers, with whom the information is being shared with, and the exact protocol on how the information is being protected. Of course, consumers and customers have the right to say no to disclosing information to 3rd party companies, and even to affiliates of the financial institution. If a consumer or customer decides to do so, the privacy policy must show them a reasonable way in which they may opt-out.
Safeguards Rule	The safeguards rule requires written security plans explaining the firm's intentions and preparations for protecting the private information of clients. The plans must incorporate the following 4 things: 1. Assigning more than one employee to operate safeguards 2. Compose and run risk analyses regarding the private information 3. Develop, oversee, and secure the information by assessing the program 4. Adjusting safeguards when necessary based on changes to the methods of collecting, organizing, storing, and using information Doing these ensures that customers are protected and are aware of what actions are being taken to protect them. This allows them to decide whether or not they are comfortable with staying with the company, resulting in the additional benefit of incentivizing companies to provide solid security around private information.

Pretexting Provision	Pretexting is the attempted access of private information without the permissions to do so. This may include actions such as impersonation or phishing. Security against pretexting should be present in plans created under the GLBA. This may include testing those responsible for security with random spot-checks and even impersonations organized by the companies to ensure that pretexting cannot occur. This is sometimes also called “social engineering”.

In short, the *Gramm-Leach-Bliley Act* requires institutions to inform customers about the security of private information. It requires them to report and maintain minimum standards for security, ensuring customers are safe and aware of the circumstances around them.

Another law exists to safeguard information submitted to the Government. The *Paperwork Reduction Act of 1990* specifies four conditions that are required any time the US Government wishes to collect data:

1. The form must specify the purpose of the data collected.
2. The form must specify whether the information is collected on a voluntary or mandatory basis.
3. The form must specify the expected “time burden” (length of time it takes to provide the information).
4. The form must display a valid Office of Management and Budget (OMB) control number.

In summary, data is meaningful, but only to the extent that people and businesses are willing to provide accurate information. Also, it is important for there to be mechanisms to safeguard the data collected.

12.5 Cybersecurity & Operational Risk

In a time where massive amounts of information can be found with the click of a button, methods of collecting data have become more widespread and effective. For businesses, as opposed to verbally asking customers for information or physical surveys, businesses can create online contests or membership programs. After a consumer enters his/her personal information, every purchase using a specific credit card or membership tracking system can be tracked and recorded for further analysis. Data collection has become much easier for traders as well. By having fluctuations in stock prices being constantly broadcast through the internet and powerful computers constantly tracking them, traders receive information more quickly and can rapidly respond to changes in the market.

With new innovations taking place, new problems also begin to take shape. With the increased availability of information, the security of confidential information and privacy becomes a larger issue. In the finance industry, some of the bigger dangers include the theft of credit card numbers, banks accounts, etc. With credit card numbers and bank account access codes being stored digitally to allow for digital transactions, the ability to access massive amounts of money and assets are stored in a firm's information systems. The risk of someone getting the information needed to gain access to this has disastrous consequences for the firm such as the loss of money, exposure of private information, and may even result in the shut-down of the business in extreme cases**.** Though laws are put into place to help protect businesses from these situations, it is ideal to avoid these situations altogether.

Cybersecurity
The protection of data from loss, theft, destruction, and/or hacking

Cybersecurity is the protection of information systems from possible situations such as those outlined above. Protection involves keeping out attempts to gather information through either injecting a program into the system or through networks (ex. Internet). Cybersecurity is one of the biggest operational risk concerns for businesses. This is because not only does hacking give access to a business' finances, it can give access to the finances of many, if not all, other businesses that went through transactions with the hacked business and/or consumer finances (ex. bank account information). Hacking could result in financial losses to consumers, the business, business partners, and can even be used to blackmail (through the use of stolen information). Moreover, despite the constant updates and changes to how technology works, the risk of hackers catching up is always present and it only takes one major breach for a great deal of problems to arise.

While technology can help increase a company's efficiency, the risk of having information stolen is a risk inherent to storing information in digital systems. The use of techniques such as encryption and firewalls may help reduce the risk by making the information harder to understand or be stolen; however, the risk cannot be completely avoided.

12.6 Cybersecurity & Operational Risk

Models
A mathematical or graphical tool intended to represent/forecast some element(s) of a business or the business environment

Regression

Analysis used to find the relationship between variables

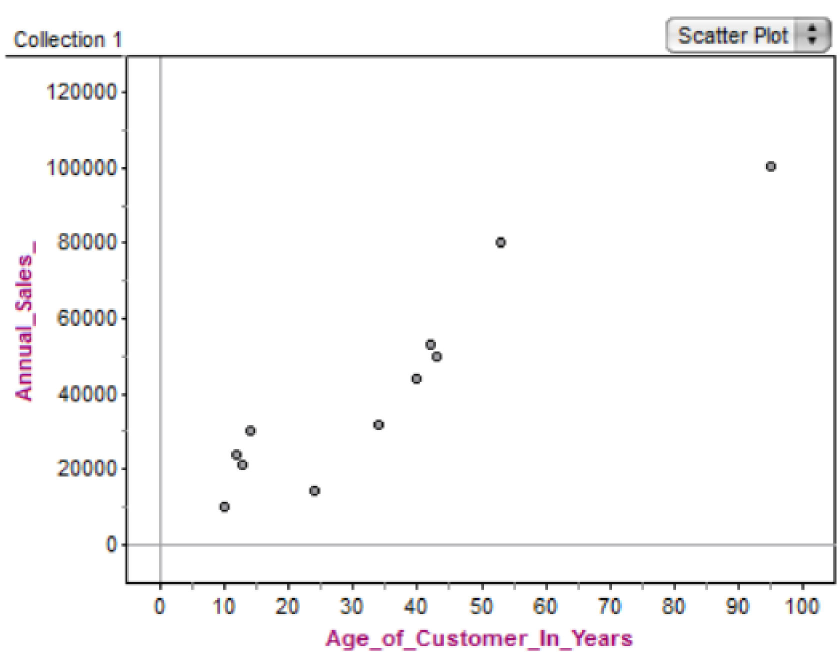
One of the main uses of data is to build **models**. A model is a mathematical or graphical representation of some aspect of a business and/or the business environment. For example, models are developed to forecast interest rates, future sales, and the price of raw materials.

While there are many different modelling tools, we will examine two of the most important ones in this section.

Regression is used when we want to predict the relationship between a dependent variable, and one, or more independent variables.

For example, suppose a business wanted to examine the relationship between age and sales for a particular product. The following table shows the data the business has obtained:

Age of Customer	Annual Sales
10	$10,000.00
14	$30,000.00
12	$24,000.00
24	$14,000.00
43	$50,000.00
34	$32,000.00
40	$44,200.00
95	$100,421.00
13	$21,240.00
42	$53,000.00
53	$80,000.00



From this chart, we see that there seems to be a positive correlation between annual sales and the age of the customer. The next question that the business may seek to answer is, how can we build a mathematical model for this relationship?

In this case, the business may want to construct a line-of-best-fit. The line-of-best-fit seeks to use a linear relationship to model the link between two variables. The most common approach for finding the line-of-best-fit is to use the Least Squares Method. The exact computation of the Least Squares Method will be left to your Statistics professor.

For our purposes, it is good enough to let the computer software generate the line-of-best-fit.

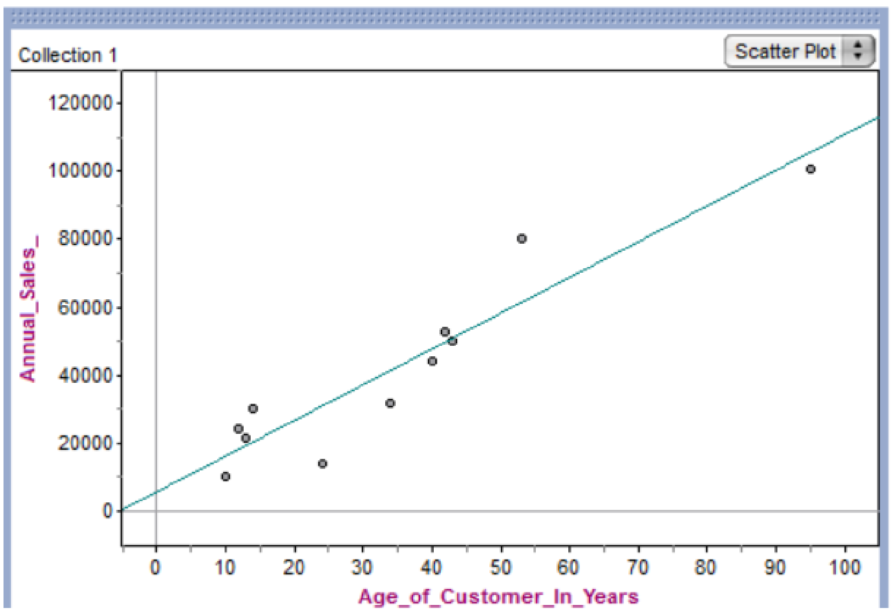


Figure 12.6.2

Notice that many points do not lie on the line. This is not surprising, since models are only approximations of reality.

The computer software can also produce the equation for the line of best fit. In this case, the equation is:

$$\widehat{\text{Annual Sales}} = 1050 \text{ Age of Customer In Years} + 5400$$

So, as the customer's age increases by 1 year, annual sales to that customer are expected to increase by $1,050.

Before we use the model to forecast, we need to ask how good the model is. As mentioned in an earlier chapter, the correlation coefficient shows the strength and direction of the linear relationship between these two variables. In this case, the correlation coefficient is 0.938, which suggests that there is a strong, positive linear relationship between the two variables.

Another way to check if the model is a linear regression model is a good fit is to run a hypothesis test for the true slope of the regression line. We will once again leave it to your Statistics professor to explain the workings behind this test, but for now, we will give a very simplified explanation. Any line can have a positive, negative, or zero slope. If the slope of the regression line is positive or negative, then that means that a change in the independent variable is expected to cause a change in the dependent variable. If, on the other hand, the slope of the regression line is zero, then the change in the independent variable will not cause a change in the dependent variable. Hence, in order for the regression model to be valid, we want the slope of the population regression line to be non-zero.

While we can never know what the true slope of the population regression line is, this hypothesis test can help us make an "educated guess" as to whether or not the slope is non-zero.

Sometimes, models other than a linear model are used. Other common types of regression models include:

- Quadratic
- Exponential
- Sinuisoidal

In addition to regression, businesses may want to use a distribution to model a particular population. Here, the term population does not necessarily mean people, but can also refer to events and occurrences. A common example of something a business might model is stock market returns. *We can compute the daily stock market return. All of these data points constitute the population of stock market returns.*

Businesses develop different types of distributions to use in their models. Some common ones include

- Normal
- Lognormal
- Uniform
- Binomial
- Geometric
- Hypergeometric
- Poisson

In DECA, you will usually not be tested on specific types of models, but it may be good to have an understanding of the different types of models available.

While models are useful tools, they have some key limitations:

1. *Models are not reality*: Instead, models are designed to represent reality. While the model might be good for showing the overall relationship between two variables, or the overall distribution of a population, it is not necessarily true that every datapoint will fit onto the model. In fact, in the previous linear regression, you saw that most of the datapoints did not fit onto the actual model!

Parsimonious
Being simplistic in nature

2. *Models are intended to be simple, but the world is complex*: A good model is often **parsimonious**, that is, it uses as few variables as possible to explain an event, occurrence, or phenomenon. Simpler models are easier for people to understand, and thus, are more useful in decision-making. However, because the model is a simplification of reality, it should not be surprising that sometimes events do not transpire as the model would suggest.
3. *Models are static, but the world is dynamic*: A model is constructed based on a specific set of data obtained over a specific period of time. As time goes by, the relationship between variables might change. Thus, models need to be updated periodically in order to maximize their reliability. For example, suppose a firm finds that recessions happen every 10 years. Then, all of a sudden, recessions start occurring every 2 years. In this case, the world has changed, and the firm needs to update its model.

Businesses can and do fail when they become over-reliant on their models. The classic example is the demise of Long-Term Capital Management, which we briefly mentioned earlier in the book. LTCM failed because its models did not consider how relationships between bond yields during a financial crisis may differ from relationships between bond yields in a non-recession environment.

Quantitative Analysts (Quants)
People who develop and analyze financial models associated with investments

Model risk management personnel
People who manage risk associated with firm's reliance on financial models

Today, many financial institutions will hire **quants** and **model risk management personnel**. Quants (**quantitative analysts**) are people who specialize in developing mathematical models. They can help businesses determine the relationship between different variables. Model risk management personnel are people hired to help a business manage its model risk, that is, the risk of loss associated from being overly reliant on financial or other models.

12.7 Technology in the Stock Market

The stock market is a venue where companies can sell "shares" of their business in order to raise capital to fund ventures. By buying shares, the buyer owns a portion of the company and may receive dividends, which are payments paid to shareholders by the company from its profits. At any point, the owner can sell their shares. The market price is constantly fluctuating, which may result in capital gains or losses upon liquidation.

Thousands of banks and major investments firms rely on the stock market to make profits. Fortunately, as opposed to having thousands of people representing these firms crowding in a room to trade, it can be done very efficiently using computers through the internet. In fact, given the large number of market participants and large numbers of orders that they place, sophisticated computer systems have evolved to help these firms achieve their trading objectives. This section will focus on high-frequency trading, which is a computer-based trading system that allows higher-volume and faster trading than what is possible for a human trader to accomplish.

High-frequency Trading (HFT)
The use of computers and automated software to execute frequent trades

Algorithmic Trading
Execution of stock trades using computers and automated software

High-frequency trading (HFT) is a computerized trading system which allows for the trading of large volumes of stocks at a very high rate. High-frequency trading is a form of **algorithmic trading**. This means that an HFT system uses computers and software, rather than human judgment, to make trading decisions. In this way, trades can be analyzed at speeds impossible for humans to attain.

The use of high-frequency/algorithmic trading requires knowledge in computer programming. A trader can set a computer to analyze the market so that when certain conditions are met, a trade can be executed. The most common types of strategies used in algorithmic trading are trend following strategies. These strategies involve the analysis of trends and patterns in the prices of the shares to make trading decisions as opposed to looking at a company's fundamentals. This strategy is the simplest of all the trading strategies as it does not require predictions, investigation of the company itself, etc. Rather, it simply uses the historical prices of the stock over a period of time and determines trends based on it. This makes it significantly easier to program as it leaves out the complexity of programming software to predict and forecast prices[5]. When implemented in programming, it follows three basic steps:

1. The program finds and records stock prices over a period of time.
2. It then analyzes data and identifies trends.
3. If a desired trend appears, the stock is traded.

There are many benefits of HFT and Algorithmic trading for the users:

- Trades occur at the best or near the best possible price
- Trades occur almost instantaneously
- Timing of trades are consistent and ideal
- Lower transaction costs
- Ability to check multiple markets at once
- No human error or emotions affect the decision-making process

Yet, the use of HFT and algorithmic trading also causes legal and ethical issues. The first is **market manipulation**. For example, a large investment firm could enter stock orders with no intention of actually executing the orders. By doing this, the firm makes it appear as though there is a large amount of activity occurring around certain stocks, causing people to behave differently around it and changing its value. This type of behavior, while profitable, is both unethical and illegal. HFT is also very prone to amplifying market trends. When a large number of investors become unconfident about a security, they may all sell it at the same time, causing the trend-analyzing algorithms to trigger and sell them as well, which results in a flash crash. The reverse may happen as well. Finally, the use of algorithmic trading is often viewed as unethical because it gives large firms which can afford the equipment needed to carry out these trades an advantage over smaller firms and individuals. Having access to information milliseconds before other traders and instantaneous decisions essentially gives them "priority" in selling/buying and diminishes the chances of success of smaller firms in this field.

Market Manipulation
Actions taken with the intention of distorting the free market price of a security (e.g. placing an order with no intention of actually having it executed, in order to artificially raise or lower the price of a security)

12.7 Questions for Comprehension

Multiple Choice Questions

1. Which of the following are trends/themes in how technology has influenced the business world?
    a) Automation
    b) Increased Connectivity
    c) Customization
    d) All of the above

2. The data mining technique which classifies using distances on an imaginary plane is:
    a) Nearest neighbor
    b) Fuzzy logic
    c) Neural networks
    d) None of the above

3. The general purpose of data mining is to _______________ raw data:
   a) Classify
   b) Determine trends from
   c) Identify key points from
   d) Draw useful information from

4. Canada Computers, wants to target millennials more in its marketing strategy. In order to gather information on this target market, what system might the company employ?
   a) Surveys being done in-store asking customers their age and product preference
   b) Only open the store to the target audience and see which products are sold out
   c) Using social media, post contests where answering questions may result in prizes
   d) Create a membership program requiring personal information to track purchases

5. After having gathered the information from the situation above, what would be the best technique to predict the type of products future consumers from this target market would like?
   a) Nearest neighbour
   b) Fuzzy logic
   c) Neural networks
   d) No predictions can be made

6. Which of the following is not an example of a cybersecurity issue?
   a) Theft of information/intellectual property
   b) Theft of assets
   c) Theft of inventory
   d) Invasion of privacy

7. John Bailey has been banking with US Bancorp for 20 years. Which of the following situations is most likely to occur?
   a) John receives a privacy notice from his financial institution automatically
   b) John receives a privacy notice only when his private information is shared with a third party company not affiliated with the Canadian National Bank
   c) John receives a privacy notice a month after his private information is shared with a third party company not affiliated with the Canadian National Bank
   d) John receives a privacy notice a month before his private information is shared with a third party

8. Which of the following is not included in the Safeguard Rule?
   a) Compose and run risk analysis regarding the of private information
   b) Adjusting safeguards when necessary based on changes to the methods of collecting, organizing, storing, and using information
   c) Assigning more than one employee to operate safeguards
   d) Protocols must be reported to customers on a monthly basis

9. Which of these is not an example of a statistical bias?
   a) Confirmation
   b) Response
   c) Non-response
   d) Census

10. Stock market returns are usually modelled using...
    a) Poisson Distributions
    b) Linear Regression
    c) Least Squares Analysis
    d) None of the Above

11. Oracle, Hyperion, and SAP are examples of…
    a) Operating systems
    b) Spreadsheet applications
    c) Word processing software
    d) Enterprise resource planning software

Short Answer Questions

12. A *double-edged sword* is something that is both beneficial and harmful. Identify 4 ways in which technology can be a double-edged sword.

13. One trend in data is *open data*, that is, governments making large quantities of data available to the public. What are the benefits of open data policies? What are some considerations that governments need to keep in mind when implementing open data policies?

14. List one difference and one similarity between the “filter” and “split” commands of a database.

15. List three limitations of models.

Mini Case Analysis

You are the Chief Information Officer at Savvy Investment Fund. Savvy is a closed-ended mutual fund whose unitholders include retired and current police officers, firefighters, and paramedics. Recently, the management of Savvy has contemplated implementing High-Frequency Trading in the funds. Based on these case facts, answer the questions that follow:

1. Define High Frequency Trading.

2. List one advantage and disadvantage of using HFT.

3. The Management decides it wants to find out what the unitholders think about the use of HFT within the fund. Which data collection strategy would be the best to use? Justify your response.

4. The fund's database contains a wide variety of information about fund purchase and redemptions by various customers. Which law helps safeguard the privacy of consumer data?

5. Management wants to use regression analysis to determine the correlation between the amounted invested in the fund and the customer's age. Would linear regression be an appropriate tool? Why or why not?