Chapter 16 Problems

## Short-Answer

1. What type of conflict of interest do covenants attempt to address?

   Stockholder-bondholder conflict

2. How does an indirect cost of financial distress differ from a direct cost of bankruptcy?

   Cost associated with an increased chance of going bankrupt rather than from actually going bankrupt.

3. What kind of signal is sent if a firm increases the amount of debt it has in its capital structure?

   That management has confidence in the firm

4. Firms will usually include debt covenants to reduce the potential for conflict between a firm's stockholders and its bondholders. What is the cost associated with such covenants?

   Reduces management flexibility

5. Ford CEO Bucks Inc. has a corporate tax rate of 35%. Ford CEO Bucks estimates that if it issues $100 million of new debt, there is a 20% chance that the firm's value will drop by $50 million due to financial distress. Calculate the net gain (or loss) of value if Ford CEO Bucks issues the debt.

   Gain = 100(.35) - .2(50)

6. What types of firms are most likely to experience a loss of value due to empire building?

   High free cash flow: cash left after firm makes interest payments and undertakes positive NPV projects

7. In general, management knows more than outside investors about the value of a firm's assets. How does this difference in information impact how stock prices react when a firm announces plans to issue additional shares of stock?

   Stock prices decline since the decision to issue stock signals that management believes the stock is overvalued

8. In general, managers know more about the value of a firm's assets and equity than do the firm's stockholders. What does this imply about how stock prices will react to a firm's decision to issue common stock?

   Fall

9. What is the difference between direct and indirect costs of financial distress? Give examples of direct and indirect costs.

   => direct costs stem from the bankruptcy process while indirect costs stem from an increased chance of bankruptcy
   Direct: cost to hire accountants, lawyers, investment bankers
   Indirect: loss of customers, suppliers, trade credit, best employees, value as operate. Also fire sale of assets, difficulty collecting from customers, and losses by our creditors.

10. What key issue will cause managers and stockholders to disagree about whether a firm should invest in projects with small negative net present values that diversify the firm?

    Stockholders are well diversified while managers are not

Chapter 16 Problems

11. If asymmetric information exists, what does an increase in debt signal about a firm and why is this signal credible?

The debt signals that management is confident about the future of the firm. The signal is credible since management will likely be fired if the debt drives the firm into bankruptcy.

12. Ford CEO Bucks Inc. currently has no debt and is expected to generate free cash flows of $100 million per year forever. If Ford CEO Bucks issues permanent debt of $75 million at an interest rate of 4%, the firm's free cash flows will drop to $95 million per year forever. If Ford CEO Bucks issues the debt, what will be its value if its corporate tax rate is 35% and if the appropriate discount rate for Ford CEO Bucks' future cash flows is 7%?

$$V^L = \frac{100}{.07} + (.35)75 - \frac{5}{.07} = \frac{95}{.07} + (.35)75$$

## Problems

1. What is the difference between the direct and indirect costs of excessive debt? How do these costs impact the optimal capital structure of the typical firm and what determines how these costs vary across firms?

    Direct = cost stemming from bankruptcy process
    Indirect = cost associated with the increased chance of bankruptcy
        => stem from change in the way people behave towards the firm

    Impact on firm:
        Direct: relatively small, loss of 3-4% of firm value
        Indirect: larger: 10-20% of firm value

    Expected costs increase with amount of debt relative to assets and cash flow and with volatility of the firm's cash flows and asset values.

2. Explain how debt in a firm's capital structure creates potential conflicts between the firm's stockholders and its creditors. Note: In your discussion you should identify the potential conflicts.

    1) firms may overinvest in high risk projects
        => if in financial distress, stockholders may have net gain from high risk even if negative NPV project
        => stockholders have residual claim and limited liability
            => stockholders get benefit if firm does well but don't lose as value drops below what owed b/h
        => bondholders have fixed claim
            => bondholders don't get upside but do have downside of risk

    2) firms may fail to undertake positive NPV projects
        => if high chance of default, b/h get much if not all of project's benefit
        => stockholders may have net loss if they provide funding (but receive little benefit)

    3) firm may help stockholders cash out
        => stockholders want to get any cash out if possible
        => loss if sell assets below value to get cash out

    4) firm can issue debt with the same claim as existing debt and then repurchase equity
        => dilutes claim of original bondholders

3. Explain how debt in a firm's capital structure helps to reduce potential conflicts between a firm's owners and managers.

    1) allows managers to retain their ownership of firm
        => owner/manager gets 100% of any benefits and bears 100% of any costs of actions by the firm
        => if don't retain 100% ownership of firm:
            => less willing to incur personal costs that benefit firm (like effort)
            => more willing to incur cost to firm that provides personal benefit (like plush offices, corporate jet)

    2) interest payments on debt reduce excess cash flow and thus wasteful investment by managers
            => managers want to overexpand firm since larger firms provide higher pay, perks, prestige, and notoriety

    3) interest payments keep pressure on management to work harder
        => bankruptcy if fail to make interest payments

    4) creditors help monitor management

Chapter 16 Problems

4. GoldInSacks' investment banking division estimates that PG Manufacturing (PGM) is currently worth $100 million. PGM's founder is planning to sell 90% of the firm's equity to outside investors but will remain with the firm as Chief Executive Officer.
   a. Explain why outside investors will rationally offer less than $90 million for the shares.
   b. Explain how issuing some debt and some shares of stock would help to resolve the issues you raise in part a.

   a. Once outside investors own 90% of the equity, conflicts will arise between PGM's owners and managers
      => issue price will be lower than current value to reflect present value of cost of future conflict
      Example of conflict:
         1) PGM's management will expend less effort than is optimal for the new stockholders
            => managers bear the cost but share the benefit with stockholders
         2) PGM's management will want more pay and perks than is optimal for the new stockholders
            => managers get the benefit but stockholders bear the cost
         3) PGM's management will want to reduce risk through diversification while stockholders are indifferent
            => management is not well diversified while stockholders are
         4) PGM's management will want to take on projects that increase the size of the firm even if neg NPV
            => more pay, perks, power, prestige for management of large firms
   b. => With debt in PGM's capital structure, cash gets used for debt service so management doesn't waste it.
      => the threat of bankruptcy keeps the pressure on management
      => bondholders help monitor management

5. Assume that Firm A's stock is owned by a single individual who is also CEO of the firm. Assume that firm B's stock is owned by thousands of investors and that the CEO and other top managers own a small percent of the firm's equity.
   a. Explain how you would expect the capital budgeting decisions to differ between the firms.
   b. Explain how you would expect the capital structure of the two firms to differ.

   a. Firm B is more likely to invest in projects that increase the size of the firm even if the projects are negative NPV
      => management benefits from a larger firm even if it doesn't help stockholders
         => increased pay, power, perks, prestige, less risk

      Firm B will be more likely to invest in projects that diversify the firm
         => management benefits since they are not diversified
         => management at firm A will consider the cost of diversification while the management of firm B may not
         => Firm B's stockholders are indifferent to diversification but not to the cost

   b. Firm B may have more debt since debt helps reduce stockholder-manager conflict
      => cash used for debt service so management won't waste it
      => creditors help monitor management
      => threat of bankruptcy pushes management to work harder

      Note: management may resist debt since don't like the discipline

      Firm B may have more debt as management uses debt to signal their confidence in the firm

Chapter 16 Problems

6. Explain how debt in a firm's capital structure creates potential conflicts between a firm's stockholders and its creditors. Note: in your discussion you should talk abut what the potential conflicts are.

1) firms may overinvest in high risk projects
   - => if in financial distress, stockholders may have net gain from high risk even if negative NPV project
   - => stockholders have residual claim and limited liability
     - => stockholders get benefit if firm does well but don't lose as value drops below what owed b/h
   - => bondholders have fixed claim
     - => bondholders don't get upside but do have downside of risk

2) firms may fail to undertake positive NPV projects
   - => if high chance of default, b/h get much if not all of project's benefit
   - => stockholders may have net loss if they provide funding (but receive little benefit)

3) firm may help stockholders cash out
   - => stockholders want to get any cash out if possible
   - => loss if sell assets below value to get cash out

Chapter 16 Problems

## Multiple-Choice

1. Assume that Equity Only Corp (EO) is funded with equity only while Debt And Equity Inc. (DAE) has both debt and equity in its capital structure. Which of the following projects is DAE more likely to undertake than EO if both firms are acting in stockholder interests?

a. a low-risk, negative NPV project
b. a high-risk, positive NPV project
c. a low-risk, positive NPV project
**D**. a high-risk, negative NPV project
e. a two of the above

2. Which of the following is a direct (rather than an indirect) cost of financial distress?

a. best employees leaving the firm
b. losing customers
c. suppliers no longer providing trade credit
**D**. the cost of hiring lawyers
e. the firm has greater difficulty collecting from its customers

3. Assume that Equity Only Corp (EO) is funded with equity only while Debt And Equity Inc. (DAE) has both debt and equity in its capital structure. Which of the following projects is DAE more likely to reject than EO if both firms are acting in stockholder interests? Assume that all of the projects have the same cost of capital.

a. a negative NPV project that will be funded by the firm issuing common stock
**B**. a positive NPV project that will be funded by the firm issuing common stock
c. a negative NPV project that will be funded by the firm issuing debt
d. a positive NPV project that will be funded by the firm issuing debt
e. two of the above

4. Why should shareholders be concerned about financial distress costs that will be borne by debt holders?

a. during the bankruptcy process, stockholders can be forced to contribute funds to reimburse debt holders for these costs
b. stockholders typically also own debt issued by the firms in which they own stock
c. shareholders can be sued by debt holders to recover these costs after a firm has emerged from bankruptcy
**D**. they lead to higher interest rates when a firm issues debt
e. two of the above

5. Assume that the manager of My Firm Inc. owns all the firm’s stock while the manager of Their Firm Inc. owns none of the firm’s stock. Which of the following statements is likely to be true? Assume that the firms are otherwise equivalent.
1) the manager of Their Firm is likely to receive higher pay and perks than the manager of My Firm
2) the manager of Their Firm is more likely to want to acquire a firm unrelated to the current business
3) the manager of Their Firm is likely to expend less effort than the manager of My Firm
4) the manager of Their Firm is more likely to accept negative NPV projects

a. one of the above is likely to be true
b. two of the above are likely to be true
c. three of the above are likely to be true
**D**. all four of the above are likely to be true
e. none of the above are likely to be true

Chapter 16 Problems

6. Debt helps resolve potential conflict between a firm's owners and managers because

1) management won't be tempted to waste surplus cash since it will be used for debt service
2) leverage makes it easier for a firm to respond to actions by competitors
3) of the tax shield created by debt
4) the threat of bankruptcy motivates managers to work harder
5) the creditors help monitor management

a. one of the above is likely to be true
b. two of the above are likely to be true
**C**. three of the above are likely to be true
d. four of the above are likely to be true
e. all five of the above are likely to be true

7. Which of the following statements about debt covenants is <u>incorrect</u>?

a. debt covenants attempt to prevent actions by the firm that would benefit stockholders at the expense of bondholders
b. debt covenants do not affect firm behavior until the firm files for bankruptcy
c. debt covenants reduce management flexibility
d. the presence of debt covenants generally reduces the issue price for debt for a given maturity value and coupon rate
**E**. two of the above are incorrect

8. In general, a firm's managers know more about the firm than the firm's outside investors. As a result

1) an increase in debt signals management's confidence in the firm
2) an equity issue signals that management believes the firm is undervalued
3) stock prices fall, on average, when firms announce plans to issue equity
4) stock prices rise, on average, when firms announce plans to issue equity

a. one of the above are correct
**B**. two of the above are correct
c. three of the above are correct
d. all four of the above are correct
e. none of the above