CHAPTER 13

CORPORATE VALUATION, VALUE-BASED MANAGEMENT, AND CORPORATE GOVERNANCE
Overview

- Corporate Valuation
- Value-Based Management
- Corporate Governance
Corporate Valuation: Context

- **Goal**
  - Computing the intrinsic value of equity
- **How?**
  - Equity = Assets – non-equity claims
  - = Assets – debt - preferred stock
  - = Operating assets + Non-operating assets – debt – preferred stock
  - = \( V_{OP} + V_{NON-OP} \) – debt – pref. stock
  - **Conceptual equivalent**
    - Equity = Sources of value – Claims on value
- **Challenge**
  - Computing operating assets (\( V_{OP} \))
  - The rest is easy to compute/observe
Corporate Valuation: Assets versus Claims

- **Assets**
  - Operating assets
    - Assets-in-place
    - Growth options
  - Non-operating assets
    - Marketable securities portfolio over and above the cash needed
    - Investments in other companies

- **Claims in order of priority of claim**
  - Debtholders have first claim
  - Preferred stockholders have the next claim
  - Any remaining value belongs to stockholders
Corporate Valuation: An Easy Example

- $\text{FCF}_0 = 20$ million
- WACC = 10%
- $g = 5\%$ (perpetual growth)
- Marketable securities = $100$ million
- Debt = $200$ million
- Preferred stock = $50$ million
- Book value of equity = $210$ million
  - Value of equity = ?
  - Market value added = ?
Corporate Valuation: An Easy Example

- Step 1: Place FCFs on the time-line and compute the present value to get $V_{OP}$
  - We assume that FCFs follow a growing perpetuity

$$V_{OP} = \frac{FCF_1}{WACC - g}$$

- $WACC = 10\%$
- $g = 5\%$
- $FCF(1)$
  - $FCF(1) = FCF(0) \times 1.05 = 20 \times 1.05 = \$21$

$$V_{OP} = \frac{21}{0.10 - 0.05} = \$420$$
Step 2: Compute the value of equity

Equity = Sources of Value – Non-equity Claims on Value

= \( V_{\text{OP}} + V_{\text{NON-OP}} - \text{debt} - \text{pref. stock} \)

Sources of Corporate Value
- Value of operations = $420
- Value of non-operating assets = $100

Claims on Corporate Value
- Value of Debt = $200
- Value of Preferred Stock = $50

Equity = 420 + 100 - 200 - 50 = $270

This number represents the intrinsic value of equity.

Given our assumptions, intrinsic value is the “should be” value.

- More specifically, investors should value the firm’s equity as $270.
- If the actual market price is $270 then the security is known to be fairly valued.
- If not then either (1) market is wrong or (2) our assumptions are wrong.
Corporate Valuation: Market Value Added (MVA)

- Intrinsic MVA = Total corporate value of firm - total book value of firm

\[
\text{MVA} = \$520 - (\$200 + \$50 + \$210) \\
= \$520 - \$460 \\
= \$60 \text{ million}
\]
Corporate Valuation: A Relatively Harder Example

- Projected free cash flows (FCF):
  - Year 1 FCF = -$5 million.
  - Year 2 FCF = $10 million
  - Year 3 FCF = $20 million
  - FCF grows at constant rate of 6% after year 3.
- WACC = 10%
- Marketable securities = $0
- Debt = $40 million
- Preferred stock = $0
- Number of shares outstanding = 10 million shares
  - Value of equity =?
  - Value of equity per share=?
Corporate Valuation: A Relatively Harder Example

- **Step 1**: Place FCFs on the time-line and compute the present value to get $V_{OP}$

**Horizon Value**
Discounted value of all future cash flows starting from $t = 3$ through infinity

Hypothetical single-cash flow assumed to occur in $t = 2$ amounting to $500$

Bundles infinitely many cash-flows into a single amount and makes discounting convenient

**Known as “Horizon Value” or “Terminal Value”**

\[
V_{OP} = \frac{FCF_1}{1 + WACC} + \frac{FCF_2}{(1 + WACC)^2} + \frac{FCF_3}{(1 + WACC)^2} + \frac{FCF_3}{WACC - g}
\]

\[
V_{OP} = \frac{-5}{1.10} + \frac{10}{1.10^2} + \frac{20}{0.10 - 0.06} = $416.94
\]

\[
\frac{20}{0.10 - 0.06} = $500
\]
Step 2: Compute the value of equity

Equity = Sources of Value - Non-equity Claims on Value

= \( V_{\text{OP}} + V_{\text{NON-OP}} - \text{debt} - \text{pref. stock} \)

Sources of Corporate Value
- Value of operations = $416.94 millions
- Value of non-operating assets = $0

Claims on Corporate Value
- Value of Debt = $40 millions
- Value of Preferred Stock = $0

Equity = 416.94 + 0 - 40 - 0 = $376.94 millions

Equity per share = $376.94/10 = $37.69/share
Corporate Valuation: Application

- Overall, value of equity is computed in two steps
  1. Compute the value of operating assets
  2. Adjust for other assets and non-equity claims
- Can be applied to a company that does not pay dividends, a privately held company, or a division of a company, since FCF can be calculated for each of these situations
Value-Based Management (VBM)

- VBM is the systematic application of the corporate valuation model to all corporate decisions and strategic initiatives.
- The objective of VBM is to increase Market Value Added (MVA).
  - MVA is determined by four drivers:
    - Operating profitability (OP = NOPAT/Sales)
    - Capital requirements (CR = Operating capital / Sales)
    - Weighted average cost of capital
    - Sales growth
VBM: MVA for a Constant Growth Firm: An Ugly Formula

\[ \text{MVA}_t = \left( \frac{\text{Sales}_t (1 + g)}{\text{WACC} - g} \right) \left( \text{OP} - \text{WACC} \right) \left( \frac{\text{CR}}{(1+g)} \right) \]

- Component A is always positive
- Component B can be both positive and negative, which determines whether MVA is positive or negative
When does Component B become positive?

When the 1st term is larger than the 2nd term:

- HIGHER operating profitability (OP)
- LOWER WACC (required return by investors)
- LOWER capital requirement (CR)
How about the impact of growth on MVA?

- Is higher the growth, higher the MVA?
  - No
  - Depends on Component B’s sign
    - If Component B is positive then growth increases MVA
    - If Component B is negative then growth decreases MVA

- If a business/division has a negative MVA then growth makes MVA even WORSE
MVA can also be defined as follows:

$$MVA_t = \frac{\text{Capital}_t (\text{EROIC}_t - \text{WACC})}{\text{WACC} - g}$$

(EROIC$_t$ – WACC) determines whether MVA is positive or negative

- Whenever EROIC$_t$ is larger than WACC, MVA is positive
- Whenever EROIC$_t$ is less than WACC, MVA is negative
- What is EROIC$_t$?
  - Expected Return On Invested Capital
EROIC is defined as the proportion of expected future operating profit to invested capital:

\[
ER\text{OIC}_t = \frac{\text{NOPAT}_{t+1}}{\text{Capital}_t}
\]

Is EROIC same as WACC?

- No. WACC is the required return to be earned to justify investing in the firm. EROIC is the expected performance of the firm.
- WACC is the appropriate benchmark for EROIC
- As long as EROIC exceeds WACC, the firm beats the investors’ required return benchmark (WACC), implying a positive MVA
- If EROIC is less than WACC then the firm destroys value, implying a negative MVA
A company has two divisions. Both have current sales of $1,000, current expected growth of 5%, and a WACC of 10%.

- Division A has high profitability (OP=6%) but high capital requirements (CR=78%).
- Division B has low profitability (OP=4%) but low capital requirements (CR=27%).

Issues
- Division evaluations based on MVA
- Growth strategy

VBM: The Impact of Growth on MVA
VBM: What is the impact on MVA if growth goes from 5% to 6%?

<table>
<thead>
<tr>
<th></th>
<th>Division A</th>
<th>Division B</th>
</tr>
</thead>
<tbody>
<tr>
<td>OP</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>CR</td>
<td>78%</td>
<td>78%</td>
</tr>
<tr>
<td>Growth</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Sales&lt;sub&gt;0&lt;/sub&gt;</td>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>WACC</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>MVA</td>
<td>(300.0)</td>
<td>(360.0)</td>
</tr>
<tr>
<td>MVA value</td>
<td></td>
<td>385.0</td>
</tr>
</tbody>
</table>

MVA declines for Division A and MVA improves for Division B.
## VBM: Expected ROIC and MVA

<table>
<thead>
<tr>
<th></th>
<th>Division A</th>
<th>Division B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital&lt;sub&gt;0&lt;/sub&gt;</td>
<td>$780</td>
<td>$270</td>
</tr>
<tr>
<td>Growth</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>NOPAT&lt;sub&gt;1&lt;/sub&gt;</td>
<td>$63</td>
<td>$42</td>
</tr>
<tr>
<td>EROIC&lt;sub&gt;0&lt;/sub&gt;</td>
<td>8.1%</td>
<td>15.6%</td>
</tr>
<tr>
<td>WACC</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>MVA</td>
<td>(300.0)</td>
<td>300.0</td>
</tr>
</tbody>
</table>

- **MVA declines**
- **MVA improves**
Corporate Governance: Six Potential Agency Problems

- Expend too little time and effort
- Consume too many nonpecuniary benefits
- Avoid difficult decisions (e.g., close plant) out of loyalty to friends in company
- Reject risky positive NPV projects to avoid looking bad if project fails; take on risky negative NPV projects to try and hit a home run
- Avoid returning capital to investors by making excess investments in marketable securities or by paying too much for acquisitions
- Massage information releases or manage earnings to avoid revealing bad news
Corporate Governance: Definition

- Mechanisms (i.e., set of laws, rules, and procedures) that influence a company’s operations and the decisions made by its managers to eliminate, if not minimize, agency problems
  - Corporate governance provisions under the firm’s control
    - Board of directors
    - Charter provisions increasing the likelihood of hostile takeovers
    - Compensation plans
    - Capital structure choices
    - Internal accounting control systems
  - Corporate governance provisions outside the firm’s control
    - Regulations and laws
    - Block ownership patterns
Corporate Governance: Boards of Directors

- Theoretical Justification
  - Board of directors are elected by shareholders to monitor managers

- Practical Limitations
  - CEO has strong influence on the board
    - CEO might be the chairman of the board
    - Not everybody can be easily elected as a board member since election slates are approved by the nomination committee that is highly influenced by the CEO
    - Significant proportion of board members are insiders, who are supervised by the CEO
      - Bringing in an independent board member can alleviate this problem but it might be costly or ineffective
        - Unfamiliar to firm’s operations
        - Strategically picked not to “rock the boat”
Corporate Governance: Boards of Directors

• Practical Limitations (continued)
  - Unless votes are counted cumulatively, minority shareholders cannot place even a single person on the board
    - Owning 51% of the shares allows determine 100% of the board composition
  - Not all members of the board are elected annually, making a total board turnover impossible
  - As the size of the board gets larger, decision making effectiveness decreases
• Theoretical Justification
  ○ In order to expose themselves to market discipline firms can ban (1) targeted share repurchases, (2) shareholder rights provisions, and (3) restricted voting rights
  ○ Limiting these provisions makes hostile takeovers easy and therefore commits the management to maximize value
    ▶ A poorly-managed firm is likely to have a low stock price, which gives investors an incentive to buy significant proportion of the outstanding shares to gain voting power
      ○ Voting power enables control, meaning that acquirer can fire the management, improve the firm performance and increase the stock price above the initial purchase level
Corporate Governance: Charter Provisions

How does allowing these provisions make takeovers harder?

- Suppose that Investor A believes that Firm XYZ is not managed properly
- XYZ’s current stock price is $10
- Investor A believes that if s/he ran the firm, the stock price would be $40
- Therefore, Investor A decides to acquire significant proportion of shares to gain control so that s/he can pocket $30/share
- The moment Investor A acquires 5% of XYZ’s shares, Investor A’s holdings become public information, meaning that XYZ’s managers know that there is a takeover threat
- Suppose that XYZ’s managers do not want to lose their jobs (although they probably do not deserve to be employed due to their horrible performance)
XYZ managers have various tools at their disposal to fend off this takeover attempt

- They can ask Investor A to sell back all of his/her holdings at a price of $30 and ask to sign an agreement not to attempt to takeover XYZ
  - This is called targeted share repurchase
  - The cost of this expensive buy back is borne by shareholders
  - Managers typically justify a targeted share repurchase to their shareholders by blaming Investor A for being greedy and unduly negative of the existing managers
- Managers can also exercise a poison pill that allows every shareholder (except Investor A) to buy new shares at a bargain price. As a result Investor A’s holdings will be diluted significantly, reducing the voting power
  - Poison pill provision is a shareholder rights provision
Managers can also deprive Investor A of his/her voting rights
- This right is called restricted voting rights provision

Practical limitations
- Making hostile takeovers easy might be harmful to shareholders
  - Let’s continue with our prior example that Investor A strongly believes that XYZ’s stock can be worth $40/share
  - Therefore, Investor A must be willing to pay up to $40/share for each stock, which is currently trading at $10/share
  - Suppose that, XYZ’s existing shareholders DO NOT know that Investor A is willing to pay up to $40 per share
  - Investor A can make the following offer to ensure that s/he does not end up paying too much premium for XYZ’s stock
    - “I will pay $20 per share for the first 51% of the shares and $10 per share for the remaining 49%”
This offer forces each of XYZ’s shareholders to make a decision between two choices
- **Choice 1:** Do not participate in the offer
- **Choice 2:** Tender shares immediately

What will happen?
- Everyone will tender
  - Investor A will pay $20 for the 51% of the shares and $10 for the remaining shares, implying an average purchase price of $15.1

Why will this outcome occur?
- Put yourself in the shoes of an XYZ shareholder
- You are trying to predict what everyone else will do but you also realize that you do NOT control others’ decisions
- Like you, everyone also faces two choices, implying four possible cases
Case 1: You DO NOT participate and everyone else DOES NOT participate
- If nobody participates the offer will not go through.
  - This might force Investor A to raise the offer to $30 for everyone (50% probability) or Investor A might withdraw (50% probability) and XYZ stockholders might be stuck with a share at $10
    - Remember that XYZ’s current shareholders consider the possibility that Investor A might withdraw because they do not know that Investor A’s reserve price is $40 per share and Investor A is not willing to reveal this information
- In this case your payoff is $20

Case 2: You DO participate and everyone else DOES NOT participate
- In this case your payoff is $20
Case 3: You DO NOT participate and everyone else DOES participate
- Offer goes through
- The value of your share will be whatever market price turns out to be after the acquisition
  - If Investor A turns out to be wrong and the performance does not improve then you are stuck with a piece of share that is worth $10 or even less
  - If Investor A turns out to be correct and manages to improve the value as planned your shares might be worth more than $10
    - Assume that the existing market price of $10 is your best estimate for the value of your shares under this scenario
- In this case your payoff is $10

Case 4: You DO participate and everyone else DOES participate
- Since everyone will be participating, the first 51% will be determined by a lottery. Therefore you can expect that 51% of your shares will be bought at $20 and 49% will be bought at $10, implying an expected value of $15.1.
- In this case your payoff is $15.1
Therefore

- Given that everyone else DOES NOT participate
  - Payoff for NONPARTICIPATION = $20
  - Payoff for PARTICIPATION = $20

- Given that everyone else DOES participate
  - Payoff for NONPARTICIPATION = $10
  - Payoff for PARTICIPATION = $15.1

- What will you do?
  - Participate because it is a superior choice
  - Since everyone will go through the same thought process everyone will participate
  - Had shareholders known Investor A’s actual reserve price of $40, probably they would have colluded to hold-out. Imposing barriers for takeovers forces acquirers to offer higher premiums

- Imposing barriers for takeover reduces the probability of a takeover but at the same time it increases the premium paid by the acquirer
Corporate Governance: Compensation

- **Theoretical Justification**
  - Managers’ compensation packages contain stocks and options that increase in value as stock performs better

- **Practical Limitations**
  - Manager can underperform market or peer group, yet still reap rewards
    - Stock market goes up 40% during the year and the firm’s stock price goes up only 5%
  - Academic studies have shown a relation between extent of option compensations tendency to falsify financial statements or to take excessive risks
**Corporate Governance: Internal Accounting Control Systems**

- **Theoretical Justification**
  - Effective accounting control systems increases the reliability of financial statements
  - Sarbanes-Oxley Act of 2002 requires companies to establish an effective accounting control system

- **Practical Limitations**
  - Although accounting control systems are likely to reduce massive frauds (i.e. Enron), there remains to be a great deal of discretion under managers to justify a wasteful spending as if it was a necessary business investment
Corporate Governance: Laws and Regulations

**Theoretical Justification**
- Legal institutions have been shown to have profound impact on mitigating agency costs
- Generally common law countries (English origin) have been shown to have stronger corporate governance

**Practical Limitations**
- Changing legal institutions is almost an impossibility. Countries inherit their legal systems and legal systems tend to be very persistent
Theoretical Justification

- Block owners have the incentive to monitor managers since they have significant holdings in the firm. External monitoring improves governance.

Practical Limitations

- Although some institutions (i.e. CalPERS) actively monitor the firms they are invested in, many institutions are passive investors.
- Passive block holders tend to liquidate their holdings whenever there is a problem instead of forcing the management to fix the problem.
• Corporate Valuation
  ○ Free-cash flow valuation

• Value-based Management
  ○ Applies free-cash flow valuation to evaluate the value enhancing and value destroying divisions of the firm

• Corporate Governance