Building a 3 Statement Financial Model in Excel
PRIVATE COMPANY INC.
INCOME STATEMENT
FOR THE YEAR ENDED DECEMBER 31, 2018

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$85,006</td>
<td>$84,898</td>
<td>$81,422</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>38,839</td>
<td>37,756</td>
<td>38,121</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>48,167</td>
<td>47,142</td>
<td>43,291</td>
</tr>
<tr>
<td>Distribution Expenses</td>
<td>6,166</td>
<td>6,421</td>
<td>5,864</td>
</tr>
<tr>
<td>Marketing and Administration</td>
<td>30,830</td>
<td>28,569</td>
<td>23,507</td>
</tr>
<tr>
<td>Research and Development</td>
<td>2,026</td>
<td>1,931</td>
<td>1,794</td>
</tr>
<tr>
<td>Depreciation</td>
<td>2,907</td>
<td>2,803</td>
<td>2,980</td>
</tr>
<tr>
<td>EBIT (Operating Profit)</td>
<td>6,518</td>
<td>9,216</td>
<td>9,186</td>
</tr>
<tr>
<td>Interest</td>
<td>1,264</td>
<td>1,102</td>
<td>1,073</td>
</tr>
<tr>
<td>Income Before Taxes</td>
<td>5,254</td>
<td>8,116</td>
<td>8,113</td>
</tr>
<tr>
<td>Taxes</td>
<td>1,570</td>
<td>2,409</td>
<td>2,761</td>
</tr>
<tr>
<td>Net Income</td>
<td>$3,684</td>
<td>$5,667</td>
<td>$5,352</td>
</tr>
</tbody>
</table>
What is a financial model?

A financial model is a tool used to forecast a business’ financial performance into the future based on historical data and assumptions.
Why do we build financial models?

For anyone pursuing a career in corporate development, investment banking, FP&A, equity research, commercial banking, or other areas of corporate finance, building financial models is part of the daily routine.

**Corporate Decisions**
- Company performance, strategic planning

**Project Finance**
- Whether to invest in a project

**Corporate Transactions**
- Mergers & acquisitions, capital raising

**Investment Decisions**
- Valuation, equity research, portfolio management
Types of financial models

- Three Statement Model
- DCF Model
- Merger Model (M&A)
- Initial Public Offering (IPO) Model
- Leveraged Buyout (LBO) Model
- Sum of the Parts Model
- Consolidation Model
- Budget Model
- Forecasting Model
- Option Pricing Model
Hierarchy of financial modeling

- **Three Statement Model**
  - Income statement, balance sheet, cash flow statement

- **DCF Analysis**
  - Discounted cash flow analysis to value a business

- **Scenario Analysis**
  - Estimate changes in the value of a business in different possible scenarios

- **Sensitivity Analysis**
  - Evaluate how sensitive an investment is to changes in drivers

- **M&A Analysis**
  - Evaluate the attractiveness of potential merger, acquisition or divestiture

- **Capital Raising**
  - Analyze the pro forma impact of raising debt or equity

- **LBO Analysis**
  - Determine how much leverage can be used to purchase a company
Financial Modeling Best Practices
Key structure for model building

**Good models clearly** separate inputs, processing, and outputs.

**Inputs**
- Clearly identified
- Should only ever be entered once

**Processing**
- Processing should be transparent
- Broken down into simple steps
- Easy to follow

**Outputs**
- Quickly accessible
Modeling best practices

1. Clarify

- What problem is the model meant to solve?
- Who is the end user?
- What are users supposed to do with the model?
Modeling best practices

1. Clarify

What is the minimum number of inputs and outputs to build a useful model?

2. Simplify

What is the minimum number of inputs and outputs to build a useful model?
Modeling best practices

1. Clarify

- Plan how inputs and outputs will be laid out

2. Simplify

- Keep all inputs in one place

3. Plan
Modeling best practices

1. Clarify
2. Simplify
3. Plan
4. Integrity

- Consider using Excel tools such as: “Data validation” and “Conditional formatting”
Modeling best practices

1. Clarify

2. Simplify

3. Plan

4. Integrity

5. Model Testing

- Use test data to ensure the model works as expected
Modeling best practices

1. Clarify
2. Simplify
3. Plan
4. Integrity
5. Model Testing
Tension: complex vs. simple models

**Complex Models**
- High detail
- Precise
- Hard to model
- Prone to error

**Simple Models**
- Basic
- Easy to follow
- Lack of precision
- Overly simplified

**Best Models**
Keep things as simple as possible while providing enough detail for decision making
Model inputs

- Inputs
- Processing
- Outputs
**Model inputs**

**Inputs**

**Objectives**
- Accurate
- Reasonable data ranges
- Easy to use
- Easy to understand
- Easy to update data

**Achieving objectives**
- Enter each data once
- Use *color* to differentiate inputs and outputs
- Use data validation & conditional formatting
- Use comments
Model processing

Do you try to put all your processing calculations into as few cells as possible?

Do you hide your processing cells or worksheets?
Model processing

Objectives
- Easy to maintain
- Accurate processing
- Transparency

Achieving objectives
- Break down complex calculations
- Use comments and annotations
- Use formatting
- Calculate final figures which will go onto the output reports
Model outputs

- Inputs
- Processing
- Outputs
Model outputs

**Outputs**

**Objectives**
- Provide key results to aid decision-making
- Easy to understand
- Unambiguous

**Achieving objectives**
- Make outputs modular
- Consider creating a summary section with only the most important key model outputs
Model structure and layout

Multi-spreadsheet

Single spreadsheet
Financial forecasting framework

**Assumptions & drivers**
- Historical ratios and figures which drive the forecast

**Income statement**
- Summarizes the company’s profit and loss

**Balance sheet**
- Displays the company’s assets, liabilities and shareholders’ equity

**Cash flow statement**
- Reports the cash generated and spent by a company

**Supporting schedules**
- Breaks down longer calculations such as PP&E and debt schedule
Financial forecasting approach

- Assumptions & drivers
- Income statement
- Balance sheet
- Cash flow statement
- Supporting schedules
Financial modeling steps

- Assumptions and Drivers
- Income Statement
- Balance Sheet
- Cash Flow Statement
- Supporting Schedules
Financial modeling steps

1. Historical data

- Assumptions and Drivers
- Income Statement
- Balance Sheet
- Cash Flow Statement
- Supporting Schedules
Financial modeling steps

1. Assumptions and drivers
   - Historical data

2. Assumptions and drivers
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
4. Forecast working capital
Financial modeling steps

1. **Historical data**
2. **Assumptions and drivers**
3. **Forecast revenues down to EBITDA**
4. **Forecast working capital**
5. **Forecast capital assets (PP&E, capex, depreciation, etc.)**

**Assumptions and Drivers**

**Income Statement**

**Balance Sheet**

**Cash Flow Statement**

**Supporting Schedules**
Financial modeling steps

1. **Assumptions and Drivers**
   - Historical data

2. **Income Statement**
   - Assumptions and drivers

3. **Balance Sheet**
   - Forecast revenues down to EBITDA

4. **Cash Flow Statement**
   - Forecast working capital

5. **Supporting Schedules**
   - Forecast capital assets (PP&E, capex, depreciation, etc.)

6. **Forecast capital structure**
# Financial modeling steps

<table>
<thead>
<tr>
<th>Assumptions and Drivers</th>
<th>Income Statement</th>
<th>Balance Sheet</th>
<th>Cash Flow Statement</th>
<th>Supporting Schedules</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Historical data</td>
<td>2. Assumptions and drivers</td>
<td>3. Forecast revenues down to EBITDA</td>
<td>4. Forecast working capital</td>
<td>5. Forecast capital assets (PP&amp;E, capex, depreciation, etc.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6. Forecast capital structure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7. Complete cash flow statement</td>
</tr>
</tbody>
</table>
Model Setup and Assumptions
The case

**Your boss has just emailed** you about something the executive team would like to look at ASAP.

**You need to create a financial forecast** for a business, with limited information.

**You only have a set of historical financial statements** and some guidance from the company’s management team, as well as a template model from a colleague.

**You must link the historical financial statements** and create a well built 5-year forecast as fast as possible.
Historical data

- Assumptions and Drivers
- Income Statement
- Balance Sheet
- Cash Flow Statement
- Supporting Schedules
Assumptions, drivers and forecasting methods

1. Historical data
2. Assumptions and drivers

- Assumptions and Drivers
- Income Statement
- Balance Sheet
- Cash Flow Statement
- Supporting Schedules
### Forecasting methods

#### Top-Down Analysis
- Start with total addressable market (TAM)
- Work down from there based on market share and segments until arriving at revenue

#### Bottom-Up Analysis
- Start with most basic drivers of the business (units)
- Build up the analysis all the way to revenue

#### Regression Analysis
- Analyze the relationship between revenue and other factors using the regression analysis in Excel

#### Year-over-Year Growth Rate
- Most basic form of forecasting
- Calculate the year-over-year change in revenue
Forecast Revenues Down To EBITDA
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
Forecasting operating revenues and profits

**Income statement**

- **Revenues**
- **Direct operating cost**
- **Indirect operating cost**
  - Depreciation and amortization
  - Cost of debt
  - Taxes

**EBITDA**

**Net income**
Forecasting revenues

First principles
- **Retail (bottom up)** – forecast # of stores, size, and derive revenue per sq. ft.
- **Telco (top down)** – Forecast market size and use current market share and competitor analysis to predict revenue
- **Regression**

Quick and simple
- Use historic figures and trends to predict future growth (e.g. last year plus 5%)
Forecasting gross margin and SG&A expenses

Use historic figures or trends to forecast future margins

- Revenue: 100%
- Cost of goods sold: 80%
- **Gross margin**: 20%
- SG&A: 5%
- Operating margin: 15%
Forecasting gross margin and SG&A expenses

Consider factors such as economies of scale and learning effects.

- **Revenue**: 100%
- **Cost of goods sold**: 80%
- **Labor + materials + Inflation %**: 20%

**Complex Models**
- Based on inputs
- Per unit

**Simple Models**
- Based on a margin
- Easy to model
Forecasting gross margin and SG&A expenses

- **Revenue**: 100%
- **Cost of goods sold**: 80%
- **Gross margin**: 20%
- **Indirect**: 5% or $xx
- **Operating margins**: 15%

Forecasted as a percentage of revenue or as a fixed cost (plus an inflator)

Often includes marketing, sales, general and administrative expenses
Forecast Working Capital and PP&E
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
4. Forecast working capital
   - Accounts receivable
   - Inventories
   - Accounts payable
Having forecast the revenues and costs of an operation, the next step is to **consider the working capital required to generate them**.

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities &amp; Shareholders’ Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td><strong>Current liabilities</strong></td>
</tr>
<tr>
<td>Cash</td>
<td><strong>Accounts payable</strong></td>
</tr>
<tr>
<td><strong>Accounts receivable</strong></td>
<td><strong>Other current liabilities</strong></td>
</tr>
<tr>
<td><strong>Inventory</strong></td>
<td><strong>Shareholders’ equity</strong></td>
</tr>
<tr>
<td>Non-current assets</td>
<td>Common shares</td>
</tr>
<tr>
<td>Operating (non-current)</td>
<td>Retained earnings</td>
</tr>
<tr>
<td>assets</td>
<td></td>
</tr>
</tbody>
</table>
Forecasting working capital

**Detailed approach**
- Account/client detail
- Inventory management detail

**“Quick and simple” approach**
- Historical trends
- A % of sales based on trends

**Moderate approach**
- Receivable days
- Inventory days
- Payable days

High complexity

Moderate approach

Low complexity
Working capital equations

**Receivable days**

**Payable days**

**Inventory days**
Working capital equations

**Receivable days**

\[
\text{Receivable days} = \frac{\text{Accounts receivable}}{\text{Sales}} \times 365
\]

**Forecast accounts receivable**

\[
\text{Forecast accounts receivable} = \frac{\text{Accounts receivable} \times 365}{\text{Sales}}
\]

**Payable days**

**Inventory days**
Working capital equations

- Receivable days
- Payable days
- Inventory days

Accounts payable days = Accounts payable
Cost of sales \times 365

Forecast accounts payable = Payable days
\frac{365}{\text{Cost of sales}}
Working capital equations

**Receivable days**

**Payable days**

**Inventory days**

**Forecast inventory**

\[
\text{Inventory days} = \frac{\text{Inventory}}{\text{Cost of sales}} \times 365
\]

\[
\text{Forecast inventory} = \frac{\text{Inventory days}}{365} \times \text{Cost of sales}
\]
## Financial modeling steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Historical data</td>
</tr>
<tr>
<td>2</td>
<td>Assumptions and drivers</td>
</tr>
<tr>
<td>3</td>
<td>Forecast revenues down to EBITDA</td>
</tr>
<tr>
<td>4</td>
<td>Forecast working capital</td>
</tr>
<tr>
<td>5</td>
<td>Forecast non-current capital assets</td>
</tr>
<tr>
<td></td>
<td>- PP&amp;E</td>
</tr>
<tr>
<td></td>
<td>- Capex</td>
</tr>
<tr>
<td></td>
<td>- Depreciation</td>
</tr>
<tr>
<td></td>
<td>- Intangibles</td>
</tr>
</tbody>
</table>
### Forecasting financial statements

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities &amp; Shareholders’ Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td><strong>Current liabilities</strong></td>
</tr>
<tr>
<td>Cash</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>Other current liabilities</td>
</tr>
<tr>
<td>Inventory</td>
<td>Long term liabilities</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>Shareholders’ equity</strong></td>
</tr>
<tr>
<td><strong>Operating (non-current) assets / PP&amp;E</strong></td>
<td>Common shares</td>
</tr>
<tr>
<td></td>
<td>Retained earnings</td>
</tr>
</tbody>
</table>
Forecasting property, plant and equipment (PP&E)

**First principles approach**

- Forecast property, plant, and equipment requirement directly (e.g. store expansion)
- Forecast depreciation/amortization based on stated depreciation/amortization policies. If depreciation policies are not available, divide gross assets by the depreciation expense to get average asset life.

**“Quick and simple” approach**

- Forecast depreciation & amortization as a percentage of opening PP&E balance or percentage of revenue
- Forecast PP&E balance based on a capital asset turnover ratio

---

[High complexity] [Low complexity]
Forecasting property, plant and equipment (PP&E)

**Capital Asset Turnover Ratio**

\[
\frac{\text{Sales}}{\text{PP&E (end of period)}} \quad \text{or} \quad \frac{\text{Sales}}{\text{PP&E (average)}}
\]
Forecast Capital Structure
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
4. Forecast working capital
5. Forecast capital assets (PP&E, capex, depreciation, etc.)
6. Forecast capital structure
#### Forecasting financial statements

**The financing structure affects both the balance sheet and the income statement**
(i.e. interest)

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities &amp; Shareholders’ Equity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current assets</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Cash</strong></td>
<td><strong>Current liabilities</strong></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Inventory</td>
<td>Income taxes payable</td>
</tr>
<tr>
<td><strong>Non-current assets</strong></td>
<td><strong>Non-current liabilities</strong></td>
</tr>
<tr>
<td>Operating (non-current)</td>
<td><strong>Long term debt</strong></td>
</tr>
<tr>
<td>assets</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Shareholders’ equity</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Common shares</strong></td>
</tr>
<tr>
<td></td>
<td>Retained earnings</td>
</tr>
</tbody>
</table>

*Note: The table above shows a simplified representation of financial statements and the impact of financing structure on both the balance sheet and the income statement.*
### Balance Sheet

**PRIVATE COMPANY INC.**

**BALANCE SHEET**

**DECEMBER 31, 2018**

**ASSETS**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$4,486</td>
<td>$5,994</td>
<td>$5,208</td>
</tr>
<tr>
<td>Trade and Other Receivables</td>
<td>14,721</td>
<td>14,074</td>
<td>12,885</td>
</tr>
<tr>
<td>Inventories</td>
<td>8,036</td>
<td>7,691</td>
<td>7,168</td>
</tr>
<tr>
<td><strong>Total Current Assets</strong></td>
<td>27,243</td>
<td>27,759</td>
<td>25,121</td>
</tr>
<tr>
<td><strong>Non-Current Assets</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property Plant and Equipment</td>
<td>21,175</td>
<td>20,371</td>
<td>19,563</td>
</tr>
<tr>
<td><strong>TOTAL ASSETS</strong></td>
<td>$48,418</td>
<td>$48,130</td>
<td>$44,684</td>
</tr>
</tbody>
</table>

**LIABILITIES AND SHAREHOLDERS' EQUITY**

<table>
<thead>
<tr>
<th></th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trade and Other Payables</td>
<td>$11,077</td>
<td>$10,504</td>
<td>$10,001</td>
</tr>
<tr>
<td>Income Taxes Payable</td>
<td>581</td>
<td>894</td>
<td>1,088</td>
</tr>
<tr>
<td>Dividends Payable</td>
<td>2,931</td>
<td>4,209</td>
<td>4,312</td>
</tr>
<tr>
<td><strong>Total Current Liabilities</strong></td>
<td>14,589</td>
<td>15,807</td>
<td>15,401</td>
</tr>
<tr>
<td><strong>Non-Current Liabilities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Term Debt</td>
<td>20,000</td>
<td>19,427</td>
<td>17,903</td>
</tr>
<tr>
<td>Shareholder's Equity:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common Stock and Additional Paid-In Capital</td>
<td>5,762</td>
<td>5,762</td>
<td>5,524</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>8,067</td>
<td>7,334</td>
<td>5,850</td>
</tr>
<tr>
<td><strong>Total Shareholder's Equity</strong></td>
<td>13,829</td>
<td>13,096</td>
<td>11,380</td>
</tr>
<tr>
<td><strong>TOTAL LIABILITIES AND SHAREHOLDERS' EQUITY</strong></td>
<td>$48,418</td>
<td>$48,130</td>
<td>$44,684</td>
</tr>
</tbody>
</table>

**Corporation Finance Institute**
Approaches to modeling capital structure (debt/equity)

Do we want to model the status quo, or do we want to model a different capital structure?

- Debt & Equity $ Values Held Constant
- Debt/Equity x Ratio Held Constant
- Debt/Equity Change Over Time Based on Cash Flow
Forecasting the capital structure

What should be the split between equity and debt financing?

**Leverage ratios**
- **Debt**
- **Equity**

**Coverage ratios**
- **EBIT**
- **Interest Expense**

- Financial covenants dictate maximum leverage and minimum coverage
- Consider management’s willingness to take on debt
- Use the company’s current access to the debt and equity capital markets
Compounding vs non compounding interest

Is the debt (and interest expense) compounding or not?

IF YES
There will be a circular reference in the model

IF NO
There will not be a circular reference in the model
Circular references

\[
\text{Opening Debt Balance} + \text{Interest} + \text{Additions/Repayments} = \text{Closing Debt Balance}
\]
Complete Cash Flow Statement
Financial modeling steps

1. Historical data
2. Assumptions and drivers
3. Forecast revenues down to EBITDA
4. Forecast working capital
5. Forecast capital assets (PP&E, capex, depreciation, etc.)
6. Forecast capital structure
7. Complete cash flow statement
A cash flow forecast can be derived from the balance sheet and income statement.

- **Operating activities** (e.g. revenues, operating expenses)
- **Investing activities** (e.g. sale/purchase of assets)
- **Financing activities** (e.g. issuing shares, raising debt)

**Net Cash Movement**
### Cash flows from operating activities

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net income</td>
<td>100</td>
</tr>
<tr>
<td>Depreciation</td>
<td>20</td>
</tr>
<tr>
<td>Other non-cash items</td>
<td>-</td>
</tr>
<tr>
<td>Trade and other receivables</td>
<td>(10)</td>
</tr>
<tr>
<td>Inventory</td>
<td>(20)</td>
</tr>
<tr>
<td>Trade and other payables</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

**Cash from operating activities** 135

**From income statement**

**From balance sheet**

Changes in operating assets and liabilities
Cash flows from investing activities

From specific fixed asset forecasts

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital expenditures (additions to PP&amp;E)</td>
<td>(120)</td>
</tr>
<tr>
<td>Proceeds from disposals of fixed assets</td>
<td>10</td>
</tr>
<tr>
<td>Payments for investment in businesses</td>
<td>0</td>
</tr>
<tr>
<td>Proceeds from disposals of businesses</td>
<td>0</td>
</tr>
</tbody>
</table>

Cash from investing activities (110)
### Cash flows from financing activities

#### From balance sheet and supporting schedules

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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</thead>
<tbody>
<tr>
<td>Issuance of common stock</td>
<td>100</td>
</tr>
<tr>
<td>Dividends paid in the year</td>
<td>(5)</td>
</tr>
<tr>
<td>Increase/(decrease) in long-term debt</td>
<td>15</td>
</tr>
<tr>
<td>Increase/(decrease) in short-term debt</td>
<td>(10)</td>
</tr>
</tbody>
</table>

**Cash from financing activities**  

100
Review and Audit
Auditing techniques

- Sanity Checks (Assumptions and Drivers)
- GoTo Special
- Trace Precedents and Dependents
- View Formulas
- Error Messages and Alerts
- Excel Settings
Summary
A financial model is a tool that relies on a set of assumptions.
A modular approach to building models

- Assumptions and Drivers
- Income Statement
- Balance Sheet
- Cash Flow Statement
- Supporting Schedules
- Discounted Cash Flow (DCF) Analysis
- Sensitivity Analysis
- LBO or M&A
DCF models, sensitivity, M&A, LBO, and more

Three Statement Model

- DCF Analysis
- Scenario Analysis
- Sensitivity Analysis
- M&A Analysis
- Capital Raising
- LBO Analysis

Courses:
- Business Valuation Modeling Course
- Scenario & Sensitivity Analysis in Excel Course
- Advanced Financial Modeling (AMZN Case Study) Course
- Mergers & Acquisitions (M&A) Modeling Course
- Leveraged Buyout LBO Modeling Course
Additional Case Study
Overview

**Practice your skills**

- A “real” example of something you’d be asked to do at work
- Take raw data (PDF) and blank Excel model provided
- Build the three financial statements from scratch, including the historical results and a 5-yr forecast

**Solution and demonstration**

- Highlight the main steps to building the three statement model
- Step-by-step demonstration
- Add commentary about why things are modeled as they are
Steps for building the three statement model

1. Copy and paste raw data into the blank model
2. Format and link historical subtotals
3. Calculate historical ratios
4. Make assumptions based on the guidance provided
5. Start the income statement
6. Start the balance sheet
7. Build supporting schedules
8. Build the cash flow statement and complete the I/S and B/S
9. Create charts, graphs, and outputs
Practice your skills

- You can find these links on the attachment tab

1. Download the **Case Study – Financial Statements & Future Prospects** for raw data and assumptions

2. Open the **Case Study – Three Statement Model – Blank** and build a three statement model
### Case study wrap up

![Image of a spreadsheet with financial statements and a man drawing a flowchart]

#### Assumptions

<table>
<thead>
<tr>
<th>Year</th>
<th>Revenue</th>
<th>Cost of Goods Sold (COGS)</th>
<th>Gross Profit</th>
<th>Expenses</th>
<th>Earnings Before Tax</th>
<th>Taxes</th>
<th>Net Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>102,907</td>
<td>39,023</td>
<td>63,884</td>
<td>26,427</td>
<td>3,594</td>
<td>1,120</td>
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<td>2014</td>
<td>116,086</td>
<td>48,004</td>
<td>68,082</td>
<td>22,658</td>
<td>16,649</td>
<td>4,892</td>
<td>11,719</td>
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<tr>
<td>2015</td>
<td>131,345</td>
<td>49,123</td>
<td>82,222</td>
<td>23,872</td>
<td>17,205</td>
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</tr>
<tr>
<td>2016</td>
<td>142,341</td>
<td>52,654</td>
<td>89,687</td>
<td>25,002</td>
<td>18,044</td>
<td>10,008</td>
<td>8,036</td>
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<tr>
<td>2017</td>
<td>150,772</td>
<td>56,710</td>
<td>94,062</td>
<td>25,245</td>
<td>18,439</td>
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<td>6,927</td>
</tr>
<tr>
<td>2018</td>
<td>165,849</td>
<td>69,657</td>
<td>96,193</td>
<td>28,194</td>
<td>31,914</td>
<td>13,312</td>
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<tr>
<td>2019</td>
<td>182,434</td>
<td>85,744</td>
<td>96,689</td>
<td>34,115</td>
<td>34,115</td>
<td>15,000</td>
<td>9,115</td>
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<tr>
<td>2020</td>
<td>200,678</td>
<td>100,339</td>
<td>100,339</td>
<td>37,527</td>
<td>37,527</td>
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<td>12,527</td>
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<tr>
<td>2021</td>
<td>220,745</td>
<td>141,277</td>
<td>157,833</td>
<td>41,279</td>
<td>41,279</td>
<td>15,000</td>
<td>26,279</td>
</tr>
<tr>
<td>2022</td>
<td>242,820</td>
<td>187,933</td>
<td>54,887</td>
<td>41,279</td>
<td>41,279</td>
<td>15,000</td>
<td>26,279</td>
</tr>
</tbody>
</table>

#### Income Statement

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
<td>Sales</td>
<td>102,907</td>
<td>116,086</td>
<td>131,345</td>
<td>142,341</td>
<td>150,772</td>
<td>165,849</td>
<td>182,434</td>
<td>200,678</td>
<td>220,745</td>
<td>242,820</td>
</tr>
<tr>
<td>Cost of Goods Sold (COGS)</td>
<td>39,023</td>
<td>48,004</td>
<td>49,123</td>
<td>52,654</td>
<td>56,710</td>
<td>69,657</td>
<td>85,744</td>
<td>100,339</td>
<td>141,277</td>
<td>187,933</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>63,884</td>
<td>68,082</td>
<td>82,222</td>
<td>89,687</td>
<td>94,062</td>
<td>96,193</td>
<td>96,689</td>
<td>100,339</td>
<td>157,833</td>
<td>54,887</td>
</tr>
<tr>
<td>Salaries and Benefits</td>
<td>26,427</td>
<td>22,658</td>
<td>23,872</td>
<td>25,002</td>
<td>25,245</td>
<td>28,194</td>
<td>31,914</td>
<td>34,115</td>
<td>37,527</td>
<td>41,279</td>
</tr>
<tr>
<td>Rent and Overhead</td>
<td>10,963</td>
<td>10,125</td>
<td>10,087</td>
<td>11,020</td>
<td>11,412</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
<td>15,000</td>
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<tr>
<td>Depreciation &amp; Amortization</td>
<td>19,500</td>
<td>18,150</td>
<td>17,205</td>
<td>16,044</td>
<td>16,080</td>
<td>13,132</td>
<td>13,786</td>
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<td>14,667</td>
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<tr>
<td>Interest</td>
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<td>2,500</td>
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<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
<td>2,500</td>
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<tr>
<td>Total Expenses</td>
<td>59,390</td>
<td>53,433</td>
<td>52,664</td>
<td>52,046</td>
<td>54,237</td>
<td>59,327</td>
<td>62,800</td>
<td>65,326</td>
<td>68,014</td>
<td>71,946</td>
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<tr>
<td>Earnings Before Tax</td>
<td>3,594</td>
<td>16,649</td>
<td>28,659</td>
<td>37,622</td>
<td>39,825</td>
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<td>8,483</td>
<td>10,008</td>
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<td>9,489</td>
<td>9,804</td>
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<tr>
<td>Net Earnings</td>
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<td>11,719</td>
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<td>24,401</td>
<td>25,209</td>
<td>72,729</td>
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</table>
Business Valuation Modeling

DCF Analysis

<table>
<thead>
<tr>
<th>Date</th>
<th>Entry</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>Exit</th>
<th>Terminal Value</th>
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<tbody>
<tr>
<td>Year Fraction</td>
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<tr>
<td>EBIT</td>
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<td>36,866</td>
<td>37,013</td>
<td>74,263</td>
<td>88,687</td>
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<tr>
<td>Less: Cash Taxes</td>
<td>9,965</td>
<td>9,223</td>
<td>6,253</td>
<td>18,596</td>
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</tr>
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<td>NOPAT</td>
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<td>65,165</td>
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<tr>
<td>Plus: D&amp;A</td>
<td>13,133</td>
<td>13,767</td>
<td>14,211</td>
<td>14,487</td>
<td>14,867</td>
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</tr>
<tr>
<td>EBITDA</td>
<td>52,898</td>
<td>50,873</td>
<td>61,224</td>
<td>88,579</td>
<td>101,554</td>
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<tr>
<td>Less: Capex</td>
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<td>15,000</td>
<td>15,000</td>
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<td></td>
</tr>
<tr>
<td>Less: Changes in NWC</td>
<td>3,175</td>
<td>5,926</td>
<td>5,768</td>
<td>(2,813)</td>
<td>2,041</td>
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<td>Unlevered FCF</td>
<td>24,936</td>
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<td>62,791</td>
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<tr>
<td>Transaction FCF</td>
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<td>21,391</td>
<td>21,203</td>
<td>57,797</td>
<td>62,791</td>
<td>812,428</td>
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<tr>
<td>IRR FCF</td>
<td>(210,490)</td>
<td>18,642</td>
<td>21,391</td>
<td>21,203</td>
<td>57,797</td>
<td>62,791</td>
<td>812,428</td>
<td></td>
</tr>
</tbody>
</table>

Intrinsic Value:
- Enterprise Value: 594,465
- Plus: Cash: 130,550
- Less: Debt: 30,000
- Equity Value: 704,015

Market Value:
- Market Cap: 320,000
- Plus: Debt: 30,000
- Less: Cash: 130,550
- Enterprise Value: 210,490

Equity Value/Share: 35.46
Intrinsic Value/Share: 16.00
Rate of Return:
- Current Price: 16.00
- Target Price: 36.40
- Target Price Upside: 121%
## Conclusion

**Key messages from this session:**

1. **Understand the key structure** for building a financial model in Excel
2. **Follow** modeling best practices
3. **Build a model** step by step as outlined in this course
4. **Make sure the three statements are properly linked**
5. **Practice** your skills
Be it known by all those present, that the board of directors of the Corporate Finance Institute® have conferred upon

STUDENT NAME

the designation of

FINANCIAL MODELING & VALUATION ANALYST (FMVA)®

with all the rights, privileges and honors everywhere pertaining to that degree. A testimony whereof we have hereto subscribed our names on

[Signatures]

Chair of the board
Director
Director