


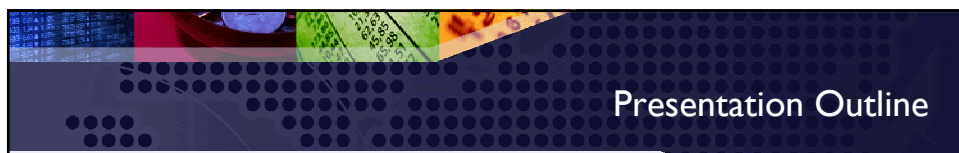
# Financial Modeling & Forecasting

## What investors look for in projections

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# Presentation Outline

Fig 1

- I. Introduction
- II. Background
- III. Financial Projections
- IV. Assumptions
- V. Financial Analysis
- VI. Breakeven Analysis
- VII. Sensitivity Analysis
- VIII. Discussion



## General

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- Financial projections should tell a story
- Let the story determine the bottom line.
  - What are you going to do in your business?
  - How are you going to do it?
  - How is this reflected in your financials?
- Financial projections capture the future operating, investing and financing activities that determine future profitability, financial position and risk.
- Financial projections should be comprehensive, internally consistent and externally reasonable.



## Investment

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- The investor's primary concern is his/her investment.
- Let the business plan sell the business, and the use the financials to focus on the risk and returns to an investor.
- Investors should be able to identify the risks and see the additional returns.
- Remember to sell the investment!



## Sources and Uses

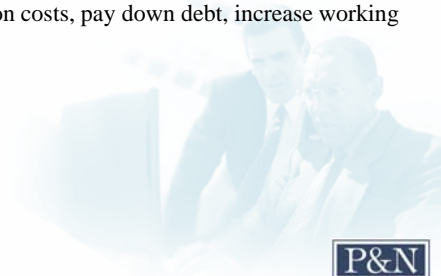

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**Sources**

- Shows where the cash is going to come from.
- Could be debt, new cash (venture capital), or existing cash

**Uses**

- Shows where the investment is going to be spent
- Could be business startup or expansion costs, pay down debt, increase working capital

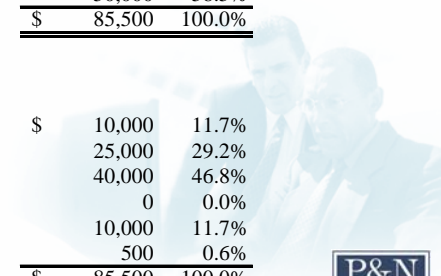




## Sources and Uses

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**SOURCES AND USES**

	<u>Contribution</u>	<u>Cap %</u>
<b><u>Sources</u></b>		
Cash on Hand	\$ 500	0.6%
Bank Revolver	0	0.0%
Senior Bank Note	20,000	23.4%
Subordinated Bank Note	5,000	5.8%
Owner Contribution	10,000	11.7%
New Equity	50,000	58.5%
<i>Total Sources</i>	<u>\$ 85,500</u>	<u>100.0%</u>
<b><u>Uses</u></b>		
Purchase new equipment	\$ 10,000	11.7%
Operating costs	25,000	29.2%
Office manager	40,000	46.8%
Refinance Existing Debt	0	0.0%
Working Capital	10,000	11.7%
Cash	500	0.6%
<i>Total Uses</i>	<u>\$ 85,500</u>	<u>100.0%</u>

## Time Frame

Fig. 7

Forecast length should match the business life cycle.

- A one year forecast for a tree farm is useless.
- On the other had, a long-term forecast for a rapidly changing industry is just as ridiculous

Generally speaking, forecast monthly for the first year and quarterly or annually thereafter.

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## Financial Statements

Fig. 8

### Income statement

- Used to calculate return on investment.
- Also known as a Profit and Loss Statement

### Cash flow statement

- Helps show when business might run into trouble
- Sometimes called a Sources and Uses of Funds statement

### Balance sheet

- Used to calculate liquidity and leverage, two measures of risk.

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## Income Statement

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### Basic Income Statement

Sales / Revenue	\$	100
Cost of Goods Sold		<u>25</u>
Gross Profit		75
Selling, General, & Administrative Expenses		<u>65</u>
Operating Profit		10
Taxes		<u>4</u>
Net Income	\$	<u>6</u>

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## Income Statement

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Selling, general, & administrative expenses can be broken out on a separate schedule. Easily identifiable examples can be delineated. Examples are as follows:

- Rent
- Salaries / Wages
- Depreciation
- Advertising
- Office supplies
- Utilities

Interest expense should be forecast based on debt-carried and expected interest rates.

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## Cash Flow

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- The cash flow statement is generated from items on the income statement and the balance sheet.
- Cash flow statement shows periodic changes in cash.
- The cash flow statement is also used to verify the company has sufficient cash on hand throughout the first year.

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## Cash Flow

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Cash flow statement shows more than just the change in cash from one year to the next. This statement is also used to test the following:

- Timing of capital infusions
- Capital expenditures
- Return of capital
- Additional borrowing needs

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## Balance Sheet

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- The balance sheet is often the most difficult sheet to forecast conceptually, primarily because the balance sheet would seem to have little impact on an investor.
- The balance sheet can be used as a predictor of investment risk and should be forecast.
- It is important to verify that the balance sheet actually balances. This is a common mistake.

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## Balance Sheet

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Notable balance sheet accounts include the following:

- Cash
- Accounts receivable
- Inventory
- Property, plant and equipment
- Accounts payable
- Debt
  - Current portion
  - Long-term
- Equity
  - Retained earnings
  - Paid-in capital

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## Assumptions

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### Critical Points

- Assumptions should be defined separately.
- Always check for reasonableness.
- Provide support for your assumptions.

### Common Assumptions:

- Sales growth
- Profit margin
- Interest rates
- Inventory turnover
- Capital expenditures
- Industry specific

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## Financial Analysis

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### Financial analysis tools and techniques can:

- Isolate trends (positive and negative)
- Help identify strengths and weaknesses

### Basic financial analysis tools include:

- Common size financial statements
- Ratio analysis
- Trend analysis of common size statements and ratios

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## Financial Analysis

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### Common size financial projections

- Income statement line items as a percentage of revenues / balance sheet items as a percentage of total assets
  - Identify changes in cost of sales, gross profits, and operating expenses over time
  - Identify changes in current assets and liabilities, fixed assets, debt, or other balance sheet items over time.
  - Why are these items changing? Were these changes expected?

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## Financial Analysis

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### Ratio analysis can assist with understanding and projecting:

- Growth rates
- Cost control rates
- Asset turnover rates
- Profitability rates
- Risk rates

### How do ratios compare to benchmarks?

- Integra Information ([www.integrainfo.com](http://www.integrainfo.com))
- RMA Statement Studies ([www.statementstudies.org](http://www.statementstudies.org))
- Trade associations

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## RMA Statement Studies

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- Derived directly from the financial statements of companies applying for loans.
- Nineteen classic financial statement ratios, clearly defined.
- Common-size balance sheet and income statement. Six balance sheet and income statement line items are presented in common-size format.
- Data arrayed by asset and sales size. Six different asset and sales size categories are presented.
- More than 700 industries presented using the North American Industry Classification System (NAICS) codes.
- Trend data available for the past four years.
- Probability of default estimates on a percentage scale.
- Cash flow measures on a common-size percentage scale.
- Change in position, normalized, year over year, for eight financial statement line items.



## Integra Information

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- Data sources that represent the financial performance of over 4.5 million privately held businesses
- Detailed industry financial benchmarks of companies in over 900 industries & 13 sales size ranges
- Include an Income Statement, Balance Sheet, Cash Flow Analysis and over 70 financial ratios
- Five Year Industry Forecasts available on over 900 Industries
- Data that is used to compare an individual company against their peers
- All industry reports can be downloaded into MS Excel
- Data collected from 33 different data sources
- Products
  - Industry Financial Data
  - Industry Forecasts
  - Industry Research and Trends
  - Benchmark and Evaluations
  - Credit and Data Services



Important ratios to consider:

### Risk

- Leverage  
Debt / equity
- Current Ratio  
Current assets / current liabilities
- Turnover ratios  
Sales / receivables  
Sales / total assets  
Cost of sales / inventory  
Cost of sales / payables
- Interest coverage  
Earnings before interest and taxes / interest expense



Important ratios to consider:

### Return

- Return on Investment (ROI)  
 $(\text{Cash flow from investment} - \text{amount invested}) / \text{amount invested}$
- Return on Assets (ROA)  
Net income / total assets
- Return on Equity (ROE)  
Net income / shareholder's equity



## Financial Analysis

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Beware the pitfalls:

- Ratios can be complicated by accounting methods
  - How do comparable companies report inventory, stock options, depreciation, etc.
  - GAAP allows for different treatments, and different accounting treatments can skew ratio output.
- Ratios are 'industry dependent'
  - CPA firms use different ratios than manufacturing firms
  - Be cautious of 'rules of thumb'

Financial analysis tools are diagnostic; they do a better job of raising questions than providing answers!



## Free Cash Flow

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Brealey & Myers define "free cash flow" as:

"Cash not required for operations or for reinvestment."

Put another way as:

"Free cash flow is the amount of cash that a firm can pay out to investors after paying for all investments necessary for growth."



## Breakeven Analysis

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What does this mean?

- Cash flow is positive for a period.
- Cumulative cash flow becomes positive
- Earnings become positive for a period.
- Cumulative earnings are positive
- Cumulative earnings are positive after the business has made promised returns of capital.

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## Sensitivity Analysis

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Sensitivity Analysis

- How do expected future earnings / future cash flows respond to different 'shocks'?
- Important to know which variables are most influential in your model.

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## Scenario Analysis

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- Run multiple scenarios
  - Measure outcomes of events with different influences
  - Often used to see best case and worst case
- Used to establish a range of earnings/cash flows for the company
  - Does not increase confidence in expected value

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## Monte Carlo Analysis

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### Run Monte Carlo analysis

- Measures outcomes of events with random influences and assigns probabilities based on frequency
  - Can run tens of thousands of potential scenarios in seconds
- Does not give you 'THE' answer, but gives confidence in the range of answers for a set of variables.

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## Difficulty

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- Devil is in the details
- The challenge is to make meaningful projections that describe the business.
  - Financial projections must match business plan.
  - Key assumptions should be reasonable.
- The difficulty is making assumptions that drive the financial model.

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## Discussion Forum

Participant Questions?

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## Contact Information

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