Chapter 16
PROJECTIONS ANALYSIS

This chapter will focus on using the historical information from the financial statements and ratio analysis, as described from the last chapter, to build the projections. The projections will be based on drivers and assumptions that are customized by standard industry parameters. After setting the company's base projections (base case), the chapter will then discuss the process of sensitizing such case based on the analysts view (downside and upside cases).

Learning Objectives

After reading this chapter, students will be able to**:**

- Use historical assumptions and trends to drive the projections;
- Know what must be considered before setting up projective revenue drivers;
- Differentiate between organic and inorganic revenue growth.
- Understand the different assumptions used for startup companies and mature companies as well as companies that their revenues are based contractual obligations.
- Once the revenues are established, you will learn how to build the company's cost structure.
- Understand how to run different sensitivity cases including a downside case, a break-even case and an equity upside case.

Projections Overview

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AUTHOR'S NOTES:
I started my career at Bank of America in the late 80s building financial models for the Leveraged Buyout financing area of the bank. I had a heavy Greek accent, originally from Cyprus, so they asked me to sit in the corner on the trading floor and run numbers. Given my accent, they didn't want me to talk directly to clients and asked me to focus on building the financial models. So, I accepted my role and that's what I did all day and night; As the analyst, I needed to be quick and consistent with my analysis, so I developed various methods to be more efficient. For example, my input numbers such as operating assumptions were shown in ***blue****, any downloaded numbers from any other databases (edgar.gov) such as the 10K and 10Q financial statements were in* ***red*** *and all the output formulas showing the results were in* ***black****. This will help the reader suggesting any changes to the model. I learned over the years that to build an efficient financial model, someone needs to consider the following three factors:*

1. *The model needs to be easy-to-follow (set clearly the input and output sections);*
2. *The assumptions that drive the projections need to be realistic, defensible and logical; and*
3. *The model needs to be flexible for quick changes.*

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The main role of both the financial analyst and credit analyst is to measure the future income and cash flow of the firm. The financial analyst, representing the equity investors, is trying to determine the value the corporation based on the future cash flows. The credit analyst, representing the debt holder, is trying to determine if the current debt is high or low based on the future cash flows. Also, the credit analyst is measuring how much debt can the company handle for a given transaction. This measurement called debt capacity will be covered later on chapter 19 ("Credit Analysis and Debt Capacity Analysis").

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KEY TAKEAWAYS:

- *There are two approaches for setting up your projections: the top to bottom approach and the bottom to top approach.*
- *The Income statement projections are primarily built first on revenue growth trends and then the operating cost assumptions that are based on these projected revenues.*
- *Some companies are striving to generate cash flow instead of focusing on profit and others are focusing on profit targets instead of cash based on where they are in their business growth cycle.*
- *Equity Analyst and Credit Analyst focus on different performance criteria when analyzing the companies.*
- *They are three performance measurements that the analysts use for reviewing management's projections. The projected cash or profit when compared to historical results, when compared to the company's piers and when compared to the analysts' expectations.*

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Building the Base Case

The Base Case is the first projected scenario that the analyst sets up before making any of their own customized adjustments. Depending on the circumstances, the assumptions to build this case is either given directly by management as part of their plan to raise capital or the analyst independently builds it to determine the value of the company as later described in chapter 18 or the debt capacity as later described in chapter 19. When building this case, it is important for the analyst to arrange the revenue drivers or the cost assumptions as such that are in line with industry standards, so the proper comparison can be made for follow-up adjustments.

Revenue Drivers

The revenue drivers are customized based on the industry performance measurements that the company competes in. This makes it easier to compare the results versus the industry operating benchmarks. For example, the assumptions used for a hotel company could be based on the Average Daily Rate (ADR) representing what the customer will pay to rent the room for a night; the number of rooms available per property; and the occupancy rate (OR) which represents the rooms that are rented as percentage of total available rooms. A common benchmark that is used

in the hotel business is Revenue per Available Room (RevPAR) calculated by multiplying the ADR by OR. For manufacturing companies, the revenues are typically driven by volume and price. The analyst will assume a volume growth and price increase/decrease assumption to drive the future revenue. The best starting approach of setting up these assumptions is to use historical growth rates and extend them going forward into the future. Then the analyst can use discretion to adjust these numbers based on expectation. In the figure below (Figure 16.1), Celerity Technology Company shows a breakdown of Revenues by geography. Each region then is projected based on historical average unit volume growth and price increases per unit. In this case, despite the two-year historical assumptions show high total revenue growth rates of 15.6%, the analyst is adjusting these numbers for the future to lower revenue growth rates to perhaps show a more moderate rate of growth (from 9.45% down to 4.96% in year 5).

[INSERT FIGURE 16.1]

Celerity Technogy Inc. ("CTI")
Operating Assumptions

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues by Geography							
Volume Growth							
U.S.		7.50%	5.00%	4.50%	3.00%	2.50%	2.00%
Europe		10.87%	10.00%	8.00%	6.00%	4.00%	2.00%
Asia		21.95%	20.00%	18.00%	15.00%	12.00%	8.00%
Total Volume Growth		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%
Volume Sold (000's Units)							
U.S.	16,000	17,200	18,060	18,873	19,439	19,925	20,323
Europe	2,300	2,550	2,805	3,029	3,211	3,340	3,406
Asia	820	1,000	1,200	1,416	1,628	1,824	1,970
Total Volume	19,120	20,750	22,065	23,318	24,278	25,088	25,699
Price Increase							
U.S.		6.98%	4.00%	3.50%	3.00%	2.50%	2.50%
Europe		5.23%	5.00%	4.50%	4.00%	3.00%	2.50%
Asia		2.50%	3.00%	3.00%	3.00%	3.00%	2.50%
Total Price Increase			4.05%	3.57%	3.10%	2.56%	2.47%
Sales Price per Unit ($)							
U.S.	$ 50.00	$ 53.49	$ 55.63	$ 57.57	$ 59.30	$ 60.78	$ 62.30
Europe	$ 52.17	$ 54.90	$ 57.65	$ 60.24	$ 62.65	$ 64.53	$ 66.14
Asia	$ 48.78	$ 50.00	$ 51.50	$ 53.05	$ 54.64	$ 56.28	$ 57.68
Average Price	$ 50.21	$ 53.49	$ 55.66	$ 57.65	$ 59.43	$ 60.96	$ 62.46
Revenue Growth							
U.S.		15.00%	9.20%	8.16%	6.09%	5.06%	4.55%
Europe		16.67%	15.50%	12.86%	10.24%	7.12%	4.55%
Asia		25.00%	23.60%	21.54%	18.45%	15.36%	10.70%
Total Price Increase		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%

Figure 16.1

In setting up the projected revenue drivers the following assumptions are typically needed to be considered:

- **Historical Averages**: One of the better approaches for building the revenue forecast is using historical averages to extend the revenue going forward. This approach is typically a

good starting point. This projection that is built based on historical averages is typically called the Base Case as described above.

- **Future Assumptions / Views:** The financial analysts may then adjust the Base Case above to reflect more their view going forward. The views could be based on future economic conditions such as economic cycles that could positively or negatively affect the revenues. The views could also be firm specific. For example, the product could be at its early stage and should experience higher volume than typically seen so far.
- **Industry Drivers based Demand and Supply:** Another approach that is typically used for new companies that do not have much historical information is to look at the industry and assume how much market share could the company capture. For example, if the analyst is building the revenues of a newly established company in the oncology diagnostics business and the total industry is $8 billion per year, the drivers could be a potential market share percentage (i.e. projecting $400 million assuming 5% market share). It's very important for the analyst to look for trend changes in the industry including regulation governing the product, any structural changes, product obsolete and replacement and overall demand of the product.
- **Organic and Inorganic volume growth:** The forecasted unit volume growth could be derived from the existing business and/or acquired business or new products. The growth derived from the existing business or the sale of the company's current products is referred to as "organic" growth. For companies in the retail space, as an example, the analyst needs to separate the organic growth, sometimes refer to "Same Store Sales" and the inorganic growth representing the opening or acquiring new stores. Since the growth rates are different it essential to separate them so the analyst could make the necessary adjustments to derive to the overall revenue.
- **Price Assumptions**: The unit price increase is depended on market conditions, demand and supply dynamics and other specific drivers including expected volatility in the commodity prices such the distribution of oil and gas or chemical products. Also, if the company's main expense is purchases of commodity raw material, the analyst needs to consider if the revenue needed to be adjusted to reflect any ability that this company can pass-through the increase in price to their customers.
- **Contractual Revenues**: If the company shows that the revenue is tied to specific contracts with their customers on volume and/or prices, the analyst needs to make a case of predictability of revenue generation in the future. Certain companies break up the revenues by "Firm Orders" and "Non-Firm Orders" to show that some of the volume is expected and some is not.
- **Cyclical Revenues**: Cyclical businesses like appliances and auto parts industries that are less stable as are depended on economic cycles and need to be considered when building the forecasted assumptions.
- **Newly Established Companies**: Typically, companies at their early stage of development have erratic sales growth. It's important to reasonably estimate the correct assumptions based on where the company is in their product life cycle, from early development stage to mature to stabilization and decline stages.

Revenue Segments (subsidiaries, product/services, geographical, departments)

As mentioned above, the revenue drivers can be built based on acceptable industry parameters as

demonstrated in the table below (Figure 16.2)

[INSERT FIGURE 16.2]

Revenue Assumption Drivers by Industry

Industry	Revenue Drivers	Revenue Formula	Comments
Airline	Revenue Passenger Mile (RPM); Miles Travelled (MT) per Day, Available Seat Miles (ASM)	Revenue = RPM x MT x 365 days	MT as % of ASM to indicate the activity of the airline during certain periods - an indusry benchmark used to compare between seasonal and non-seasonal periods and versus com pany peers.
Consumer Communications, Digital Media and Networking	Average Revenue per User (ARPU) per month, Number of Users (NofU)	Revenue = ARPU x NofU x 12 months	ARPU could be recorded per month, or per year. The Numbe rof Users could be broken down by existing and new users.
Hotel	Average Daily Rates (ADR); Occupancy Rate (OR); Numbers of Rooms (NofR); Revenue Per Available Room (RevPAR)	Revenue = ADR x OR x NofR x 365 days RevPar = ADR x OR Total Yearly Rooms = NofR x 365 days, so Revenues = RevPAR x Total Yearly Rooms	For more detailed analysis the ADR and OR could be broken down into weekdays and weekends. A typical benchmark used in the industry is RevPAR.
Manufacturing	Volume (V); Price (P)	Revenue = Unit Volume x Price per Unit	Companies with multiple products could share the unit prices and volumes so the analyst could better project the revenues
Restaurant	Average Check (AC); Turnover (TO) per day; Number of Seats (NofS)	Revenue = AC x TO x NofS x 365 days	For more detailed analysis the AC and TO could be broken down into different shifts (Breakfast, Lunch, Dinner) a well as weekdays and weekends
Retail	Average sales Price per Square Footage (APSF); Total Square Footage; Total Stores (TS); Average Square Footage Per Store (ASFPS); Number of Customers per store per year (C)	Revenue = APSF x TS x ASFPS x C	
Shipping/Transportation/Freight	Revenue Ton-Mile (RTM); Gross Ton Mile (GTM)		
Software as a Service (SaaS)	Net Monthly Recurring Revenue (MRR); Number of Bookings (NofB); Churning Rate (CR);		
Utilities			

Figure 16.2

Cost Assumptions

The analysts typically rely on historical cost amounts in relationship to revenues. The projected revenue discussed above is the basis for estimating the company's total costs going forward. The premise is that as the company grows, the cost will probably grow at the same pace as revenues. Direct costs, such as cost of goods sold which includes labor, materials and overhead expenses are expecting to grow at the same percentage of revenues. Indirect costs though, such as selling, general and administrative expenses expect to grow from year to year at a higher or lower growth rate than revenues, depending on where the company stands in their promotional cycle. New companies spend more on up-front SG&A as they are positioning the company to grow in the future. Mature companies' SG&A typically grow at a slower pace than revenue contributing to higher EBITDA margins from the year before. For conservative purposes though, is not unusual to see that the analysts assume that these indirect operating expenses for a mature company grow at the same rate as revenues, therefore they are running these costs as a percentage of revenues. Of course, it's important for the analyst to understand which costs are fixed and which ones are variable before running the projections to better reflect the cost structure of the company. In some cases where the analyst runs the projections based on a specific event, such the buyout of the company, the costs could be adjusted down to reflect specified savings identified by the investor buying the company. These savings could be reductions in cost of labor if the investor announces

a labor reduction or a plant closure and implementation.

[INSERT FIGURE 16.3]

Celerity Technogy Inc. ("CTI")
Income Statement Cost Assumptions

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Cost of Revenues as % of Revenue by Geography							
U.S.	36.63%	38.04%	38.00%	38.00%	38.00%	38.00%	38.00%
Europe	32.50%	35.71%	35.00%	35.00%	35.00%	35.00%	35.00%
Asia	32.50%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Total Cost of Rev. as % of Total Revenue	35.94%	37.84%	37.71%	37.70%	37.71%	37.71%	37.72%
Gross Margin by Geography							
U.S.	63.38%	61.96%	62.00%	62.00%	62.00%	62.00%	62.00%
Europe	67.50%	64.29%	65.00%	65.00%	65.00%	65.00%	65.00%
Asia	67.50%	60.00%	60.00%	60.00%	60.00%	60.00%	60.00%
Total Cost of Rev. as % of Total Revenue	64.06%	62.16%	62.29%	62.30%	62.29%	62.29%	62.28%
Operating Expenses Assumptions							
Administrative & General Increase %		13.79%	5.00%	5.00%	5.00%	5.00%	5.00%
Marketing Expenses as % of Total Revenue	7.81%	7.21%	7.00%	7.00%	7.00%	7.00%	7.00%
Other Operating Expenses as % of Total Rev.	1.04%	1.08%	1.00%	1.00%	1.00%	1.00%	1.00%
Total Operating Expenses as % of Total Rev.	23.96%	23.15%	22.11%	21.53%	21.24%	21.11%	21.12%
Depreciation Expense % of Total Revenue	6.25%	5.86%	6.00%	6.00%	6.00%	6.00%	6.00%

Figure 16.3

In setting up the projected cost drivers the following assumptions are typically needed to be considered:

- **Cost of Goods Sold**: As discussed on chapter 16, the Cost of Goods Sold (COGS) includes the labor costs, material costs and overhead costs. A detailed analysis would include the number of workers per shift, number of shifts, number of shifts per day and average wages per worker to determine the cost of labor. A detailed analysis would also include the cost of inventory as a raw material and the energy costs that is spent to produce the manufacturing units (overhead expenses). Most of the analysts though don't have such detailed information, so is typical to use the historical COGS as percentage of revenue to run the projections. Sometimes, the COGS are given by segment or by product which will be helpful to project the cost going forward and able to make different assumptions based on each segment dynamics. In a typical transaction that the company is seeking financing, the management lays their cost strategy which could include cost savings that need to be incorporated in the projections. Another information that is useful for the analyst is the capacity utilization. This is measured as a percentage of the actual volume output per year to the maximum yearly output assuming 100% of the manufacturing facility is running at its peak. In Figure 17.3, for example, the company provided their COGS by geography. As you can see the European operations produce higher gross margins than the US and Asia (65% versus 62% and 60% compared to the US and Asia, respectively) – this is an important information when projecting the gross profitability per region going forward.

- **Operating Expenses:** As discussed on chapter 16, the operating expenses include the

selling or the expenses to market the company's products, administrative expenses for indirectly supporting the company's business and any other general expenses that are not directly expenses based on the company's revenues. Other expenses in this category could include research and development expenses – very important expense especially for companies that spend a lot of money to support the growth of the company. This segment could look at as separating the fixed costs and variable costs. If the company is positively growing at a healthy pace, the fixed costs could contribute higher margins but if the company shows revenue declines, the fixed cost has a reverse impact to operating margins. The analyst needs to be aware of the sensitivity of the fixed expenses to revenue, especially the factors that influencing the largest cost line items. For conservative purposes, analyst typically run the operating assumptions as percentage of revenue. The better approach for general and administrative expenses is to assume a growth rate instead so if the revenues decline, these expenses continue to grow causing a problem for the company that needs to manage these expenses during tough periods. The selling or marketing expenses are typically run as % of revenues since these expenses are directly supporting the revenue growth of the company. Figure 17.3 shows the growth rate used for the general and administrative expenses is lower than the average revenue growth contributing to an increase in EBITDA margins (5.0% growth versus average revenue growth seen on figure 17.1 of ~5-10%)

- **Depreciation Expenses**: Depreciation expense which is a non-cash expense is typically projected based on the company's fixed assets using an average life. A lot of the analysts though, since depreciation is not significant, is done by using the same approach as any other expense by calculating the depreciation as percentage of revenue as seen on figure 17.3. It's not perfectly correct, but the argument is that since revenue grows so does the need to invest in capital to sustain the growth and hence the growth of depreciation at the same rate. It's important to compare the depreciation to the capital expenditures (Capex) found in the cash flow statement as it need to be in line. Since depreciation expense is used primarily for tax benefits, it's important to make sure the amount is not excessively high especially as it relates to capital expenditures. Typically for valuation purposes, depreciation is assumed to be equal with Capex representing the minimum capital expenditures the company needs to spend to keep up with the devaluation of its assets or depreciation.

Cash Flow Expenditures Assumptions

As mentioned previously, the cash clow statement represents all the other activities that the company is engaged to run the business including the management of working capital, their investment activity and financing activity. To project the cash flow statement, these activities needed to be addresses separately.

- **Working Capital Activities:** Working Capital activity recorded in the cash flow statement are driven directly by year-to-year changes of the current assets minus current liabilities changes as shown on the balance sheet statement. The current asset includes the Accounts Receivable, Inventory and other current assets such as Prepaid Expenses. The current liabilities include Accounts Payables and other current liabilities such as Accrued Income Taxes and Accrued Expenses. The assumptions that drive these items shown on figure 16.4

are described below:

[INSERT FIGURE 16.4]

Celerity Technogy Inc. ("CTI")
Working Capital Assumptions

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Accounts Receivable							
Accounts Receivable Turnover		21.14x	21.14x	21.14x	21.14x	21.14x	21.14x
Accounts Receivable Days		17.26	17.26	17.26	17.26	17.26	17.26
Inventory							
Inventory Turnover		11.20x	11.20x	11.20x	11.20x	11.20x	11.20x
Inventory Days		32.59	32.59	32.59	32.59	32.59	32.59
Prepaid Expenses							
Prepaid Expenses as % of Revene	0.81%	0.81%	0.81%	0.81%	0.81%	0.81%	0.81%
Accounts Payable							
Accounts Payable Turnover		11.20x	11.20x	11.20x	11.20x	11.20x	11.20x
Accounts Payable Days		32.59	32.59	32.59	32.59	32.59	32.59
Accrued Income Taxes							
Accrued Income Taxes as % of Revenues	1.25%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
Accrued Expenses							
Accrued Expenses as % of Revenues	1.04%	0.72%	0.72%	0.72%	0.72%	0.72%	0.72%

Figure 16.4

- **Accounts Receivable:** The Accounts Receivable (AR) on the balance sheet are based on Accounts Receivable Days (ARD) and Accounts Receivable Turnover (ART) calculations. In Figure 17.4 the projected ARD used for the projections is based on historical average of 17.26 Days or the average length of time that the customers pay starting from the day they are charged to pay for the merchandise. The formula is:
  - ***AR = [(ARD / 365) x Revenues]***
- **Inventory:** The Inventory (Inv) on the balance sheet is based on Inventory Turnover (ITO) and Inventory Days (ID) calculations. In Figure 17.4 the projected ID used for the projections used is based on the historical average of 11.20 Days or the average length of time that the raw material bought from the suppliers turn into a finished good and a cash sale. The formula is:
  - ***Inv = [(ID / 365) x Accounts Payables]***
- **Other Current Assets:** For projection purposes, other current assets are based on as a percentage of revenue. In Figure 17.4 the projected Prepaid Expenses are calculated based on last year's percentage of revenues of 0.81%.
- **Accounts Payable:** The Accounts Payable (AP) on the balance sheet are based on Accounts Payable Days (APD) and Accounts Payable Turnover (APT) calculations.

In Figure 17.4, similar to inventory, the projected APD that is used to calculate the projections is based on the historical average of 11.20 Days or the average length of time that the company pays its bills to the vendors or suppliers the inventory. The formula is:

- ***AP = [(APD /365) x Accounts Payable]***

- **Other Current Liabilities:** For simplistic purposes, all other current liabilities on the balance sheet are calculated based on percentage of revenue. In Figure 17.4 both the Accrued Income Taxes and Accrued Expenses are based on percentage of revenues at 0.90% and 0.72% respectively.

- **Investment Activities Assumptions:** For simplistic purposes, unless there are specific plans to spend a major one-time manufacturing plant improvements or major purchases of the truck fleet, the **Capital Expenditures** (Capex) and **Long-Term Investments** (LTI) are projected to grow at the same level as the revenues calculated as percentage of revenues – this is sometimes called "Maintenance Capex". In the Figure 17.5 below the Capex and LTI are estimated at 11.26% and 4.50% respectively (historical levels). One approach for the analyst is to run the Capex at the same percentage of Depreciation to Revenue representing low maintenance growth and any additional percentage of Capex to revenue should contribute directly to higher growth.

[INSERT FIGURE 16.5]

Celerity Technogy Inc. ("CTI")
Investment Activity Assumptions

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Capital Expenditures							
Capital Expenditures as % of Revenue		11.26%	11.26%	11.26%	11.26%	11.26%	11.26%
Long Term Investments							
Long Term Investments as % of Revenues		4.50%	4.50%	4.50%	4.50%	4.50%	4.50%

Figure 16.5

- **Financing Activities Assumptions:** The Financing Activities shown in the Cash Flow Statement consists of debt activities of borrowing or paying down the debt as well any equity activities including any distributions or issuance of new equity. The debt assumptions including the borrowing and repayment of debt which are based on the contractual obligation between the company and its creditors. The equity component of the cash flow statement is based on specific plans for the company to make equity distributions to the existing investors or to raise new equity via public issuance or private placement offering. The repayment of debt shown on the cash flow statement is driven from the debt schedule table (Fig. 16.6) and described below under the Debt Schedule Assumptions.

Debt Schedule

The Debt Schedule is built based on the four basic input criteria – also called Money-Terms -

typically seen in the credit agreements and bond indentures: 1. Amount borrowed (Outstanding); 2. the cost of borrowing (Interest payment); 3. the principal payment (scheduled or amortized debt payments); and 4. the term of the debt facility representing how many years it takes to pay the loan. The debt outstanding drive the balance sheet, the interest payments drive the income statement and the principal payment drive the cash flow statement. The interest rate charged could be set as fixed or floating and the principal payments are based on a set scheduled payment found in the agreement. These characteristics will be discussed in detailed in chapter [21] (Capital Markets). Figure 17.6 shows that the short-term and long-term debt interest payment is based on floating rate index London Inter Bank Offering Rate (LIBOR) starting at 2.0% plus a spread rate of 3.0%. LIBOR is a rate that most banks use as a interest rate benchmark which represents the cost of a bank's borrowing from other banks. In this example, the projections assume an increase in LIBOR by 0.5% per year for the next 3 years and another 1.0% increase in year 4 before it stabilizes at that level. Please note that the interest payment is calculated based on last year's outstanding – conservatively assuming that the principal payment is paid on the last day of each year.

[INSERT FIGURE 16.6]

Celerity Technogy Inc. ("CTI")
Debt Schedule

	HISTORICAL		PROJECTED				
	Year -1	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Interest Rate Forward Assumptions- LIBOR		2.00%	2.50%	3.00%	3.50%	4.50%	4.50%
LIBOR Incr./ (Decr.)			0.50%	0.50%	0.50%	1.00%	0.00%
Short-Term Debt							
Spread Pricing (L + Spread)			3.00%	3.00%	3.00%	3.00%	3.00%
Interest Rate			5.50%	6.00%	6.50%	7.50%	7.50%
Outstanding	20,000	10,000	-				
Principal Payment			10,000	-	-	-	-
Interest Payment			550	-	-	-	-
Total Payment			10,550	-	-	-	-
Long-Term Debt							
Spread Pricing (L + Spread)			3.00%	3.00%	3.00%	3.00%	3.00%
Interest Rate			5.50%	6.00%	6.50%	7.50%	7.50%
Outstanding	1,200,000	1,180,000	1,160,000	1,130,000	1,090,000	1,030,000	950,000
Principal Payment			20,000	30,000	40,000	60,000	80,000
Interest Payment			64,900	69,600	73,450	81,750	77,250
Total Payment			84,900	99,600	113,450	141,750	157,250
Total Debt	1,220,000	1,190,000	1,160,000	1,130,000	1,090,000	1,030,000	950,000
Outstanding			30,000	30,000	40,000	60,000	80,000
Principal Payment			65,450	69,600	73,450	81,750	77,250
Interest Payment			95,450	99,600	113,450	141,750	157,250
Total Payment			160,900	169,200	186,900	223,500	234,500

Figure 16.6

Tax Schedule

The Tax Schedule is set up to estimate the yearly tax expenses going forward. These expenses are typically calculated by multiplying the tax rate to the Earnings Before Taxes (EBT). A portion of this expense could be the actual taxes paid in cash and the remaining will be deferred. Figure 16.7

below shows that 4.0% of the tax expenses is deferred (historical estimate) and the other 96.0% is paid in cash. The tax rate used in this case is 40%. The deferred tax is added to the net income in the cash flow statement – similar to the depreciation expense.

[INSERT FIGURE 16.7]

Celerity Technogy Inc. ("CTI")
Tax Schedule

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
EBT			324,422	367,676	392,399	396,152	407,128
Tax Rate			40.00%	40.00%	40.00%	40.00%	40.00%
Tax Expenses			129,769	147,070	156,960	158,461	162,851
Tax Deffered			5,191	5,883	6,278	6,338	6,514
Tax Paid (Cash)			124,578	141,188	150,681	152,123	156,337
Tax Deferred as % of Taxes			4.00%	4.00%	4.00%	4.00%	4.00%

Figure 16.7

Balance Sheet Assumptions

The Balance Sheet flows entirely as an output. The income statement builds the Retained Earnings (RE) found in the bottom of the balance sheet by adding the net income to last year's income and the cash flow statement builds the Cash (C) found on the top of the balance sheet by adding the free cash flow to last years cash. All the balance sheet items in between the Cash and Retained Earnings are driven primarily by the cash flow statement activities as it was discussed above and more extensively in the previous chapter (Chapter 16).

Other Balance Sheet items such as other intangible and tangible long-term assets, as well as other liabilities are projected based on either set asset schedules or as percentage of revenues. In later chapters we will discuss these assets such as Goodwill that is generated based on new transactions involve the acquisition of the company or initial public offering. The example used, ***Celerity Technology Inc.*** does not show any other assets or liabilities at the moment. In later chapters, we will examine the generation of Goodwill and other Intangibles based on an assumed Leveraged Buyout (LBO) or an acquisition of the company by another strategic investor.

The Finished Product: "Base Case" Spreadsheet: Balance Sheet, Income and Cash Flow Statements

The Finished Product that should be included in the analyst's presentation, or sometimes called "The Deliverable". The presentation typically starts with a summary of results (figure 16.8) followed by the three core statements.

[INSERT FIGURE 16.8]

Celerity Technogy Inc. ("CTI")
Summary of Results

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues	960,000	1,110,000	1,228,140	1,344,200	1,442,919	1,529,268	1,605,161
Revenue Growth		15.6%	10.6%	9.5%	7.3%	6.0%	5.0%
EBITDA	385,000	433,000	493,561	547,928	592,424	629,659	660,688
EBITDA Margin							
Interest Expense			95,450	99,600	113,450	141,750	157,250
Tax Expense			129,769	147,070	156,960	158,461	162,851
Working Capital			(2,870)	4,548	3,869	3,384	2,974
Capex			138,304	151,374	162,491	172,215	180,761
Cash on Balance Sheet	45,000	65,800	118,577	179,246	236,183	267,484	278,544
Total Debt	1,220,000	1,190,000	1,160,000	1,130,000	1,090,000	1,030,000	950,000
Equity Ownerhip	1,746,000	1,919,800	2,114,453	2,335,059	2,570,498	2,808,190	3,052,467
EBITDA / Interest (Coverage Ratio)	3.0x	3.6x	5.2x	5.5x	5.2x	4.4x	4.2x
Total Debt / EBITDA (Leveraged Ratio)	3.1x	2.7x	2.4x	2.1x	1.8x	1.6x	1.4x
Debt Capitalization	41.1%	38.3%	35.4%	32.6%	29.8%	26.8%	23.7%

Figure 16.8

The Balance Sheet (Figure 16.9) below shows the base case results assuming the company continues to grow on all fronts generating higher cash balances every year as retained earnings continue to grow.

[INSERT FIGURE 16.9]

Celerity Technogy Inc. ("CTI")
Balance Sheet (000's)

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Current Assets							
Cash	45,000	65,800	118,577	179,246	236,183	267,484	278,544
Accounts Receivable	45,000	60,000	58,088	63,577	68,246	72,330	75,920
Inventories	35,000	40,000	41,346	45,252	48,576	51,492	54,060
Prepaid Expenses	10,000	9,000	9,958	10,899	11,699	12,399	13,015
Total Current Assets	135,000	174,800	227,969	298,974	364,704	403,706	421,539
Property and Equipment							
Land	2,500,000	2,500,000					
Building	450,000	550,000					
Furniture & Equipment	50,000	75,000					
Total Gross P&E	3,000,000	3,125,000	3,263,304	3,414,678	3,577,169	3,749,384	3,930,145
Less Accumulated Depreciaition	(300,000)	(365,000)	(438,688)	(519,340)	(605,916)	(697,672)	(793,981)
Net P&E	2,700,000	2,760,000	2,824,616	2,895,338	2,971,253	3,051,712	3,136,164
Long-Term Investments	200,000	250,000	305,322	365,871	430,868	499,753	572,058
Total Assets	3,035,000	3,184,800	3,357,906	3,560,182	3,766,825	3,955,171	4,129,761
Liabilities and Owners Equity							
Current Liabilities							
Accounts Payable	35,000	40,000	41,346	45,252	48,576	51,492	54,060
Accrued Income Taxes	12,000	10,000	11,064	12,110	12,999	13,777	14,461
Accrued Expenses	10,000	8,000	8,851	9,688	10,399	11,022	11,569
Current Portion of Long Term Debt	20,000	10,000	-	-	-	-	-
Total Current Liabilities	77,000	68,000	61,262	67,050	71,975	76,291	80,090
Long-Term Debt:	1,200,000	1,180,000	1,160,000	1,130,000	1,090,000	1,030,000	950,000
Deferred Income Taxes	12,000	17,000	22,191	28,074	34,352	40,690	47,204
Total Liabilties	1,289,000	1,265,000	1,243,453	1,225,123	1,196,327	1,146,981	1,077,294
Owners' Equity							
Common Stock	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Paid-in-Capital	-	25,000	25,000	25,000	25,000	25,000	25,000
Retained Earnings	746,000	894,800	1,089,453	1,310,059	1,545,498	1,783,190	2,027,467
Total Owners' Equity	1,746,000	1,919,800	2,114,453	2,335,059	2,570,498	2,808,190	3,052,467
Total Liabilities & Owner's Equity	3,035,000	3,184,800	3,357,906	3,560,182	3,766,825	3,955,171	4,129,761
Error Check	-	-	-	-	-	-	-

Figure 16.9

The Income Statement (Figure 16.10) below shows a normalized growth and flat costs as percentage of revenue.

[INSERT FIGURE 16.10]

Celerity Technogy Inc. ("CTI")
Income Statement (000's)

		HISTORICAL		PROJECTED				
BASE CASE		**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues by Geography								
U.S.		800,000	920,000	1,004,640	1,086,594	1,152,767	1,211,126	1,266,232
Europe		120,000	140,000	161,700	182,495	201,182	215,506	225,312
Asia		40,000	50,000	61,800	75,112	88,970	102,636	113,618
Total Revenue		960,000	1,110,000	1,228,140	1,344,200	1,442,919	1,529,268	1,605,161
Total Revenue Growth			*15.6%*	*10.6%*	*9.5%*	*7.3%*	*6.0%*	*5.0%*
Cost of Revenues by Geography								
U.S.		293,000	350,000	381,763	412,906	438,051	460,228	481,168
Europe		39,000	50,000	56,595	63,873	70,414	75,427	78,859
Asia		13,000	20,000	24,720	30,045	35,588	41,054	45,447
Total Cost of Revenue		345,000	420,000	463,078	506,823	544,053	576,709	605,474
Gross Profit		615,000	690,000	765,062	837,377	898,866	952,558	999,687
Total Margin			*62.2%*	*62.3%*	*62.3%*	*62.3%*	*62.3%*	*62.3%*
Operating Expenses								
Administrative & General		145,000	165,000	173,250	181,913	191,008	200,559	210,586
Marketing Expenses		75,000	80,000	85,970	94,094	101,004	107,049	112,361
Other Operating Expenses		10,000	12,000	12,281	13,442	14,429	15,293	16,052
Total Operating Expenses		230,000	257,000	271,501	289,448	306,442	322,900	338,999
EBITDA		385,000	433,000	493,561	547,928	592,424	629,659	660,688
EBITDA Margin %		*40.1%*	*39.0%*	*40.2%*	*40.8%*	*41.1%*	*41.2%*	*41.2%*
Depreciation		60,000	65,000	73,688	80,652	86,575	91,756	96,310
Amortization		-	-	-	-	-	-	-
EBIT		325,000	368,000	419,872	467,276	505,849	537,902	564,378
EBITA Margin %		*33.9%*	*33.2%*	*34.2%*	*34.8%*	*35.1%*	*35.2%*	*35.2%*
Total Interest Expense				95,450	99,600	113,450	141,750	157,250
EBT				324,422	367,676	392,399	396,152	407,128
Taxes	40%			129,769	147,070	156,960	158,461	162,851
Net Income				194,653	220,606	235,439	237,691	244,277

Figure 16.10

The Cash Flow Statement (Figure 16.11) below shows the buildup of free cash flow resulting from continuous growth of the income statement. The base case assumes working capital, investment activities are in line with the revenue growth. The financing activities are based on the debt schedule obligations including interest payments calculated on an assumed increase in floating rate (LIBOR) and set scheduled principal payments.

[INSERT FIGURE 16.11]

Celerity Technogy Inc. ("CTI")
Cash Flow Statement (000's)

BASE CASE	Year 0	PROJECTED Year 1	Year 2	Year 3	Year 4	Year 5
Net Income	148,800	194,653	220,606	235,439	237,691	244,277
Plus Depreciation	65,000	73,688	80,652	86,575	91,756	96,310
Plus Deffered Taxes	5,000	5,191	5,883	6,278	6,338	6,514
Cash Income	218,800	273,532	307,140	328,293	335,786	347,101
Working Capital Activities						
Change in Accounts Receivable	(15,000)	1,912	(5,489)	(4,669)	(4,084)	(3,590)
Change in Inventory	(5,000)	(1,346)	(3,906)	(3,324)	(2,916)	(2,568)
Change in Prepaid Expenses	1,000	(958)	(941)	(800)	(700)	(615)
Change in Accounts Payable	5,000	1,346	3,906	3,324	2,916	2,568
Change in Accrued Income Taxes	(2,000)	1,064	1,046	889	778	684
Change in Accrued Expenses	(2,000)	851	836	711	622	547
Total Change in Working Capital	(18,000)	2,870	(4,548)	(3,869)	(3,384)	(2,974)
Operating Cash Flow (OCF)	**200,800**	**276,403**	**302,592**	**324,424**	**332,402**	**344,126**
Investment Activities						
Capital Expenditures	(125,000)	(138,304)	(151,374)	(162,491)	(172,215)	(180,761)
Investments (Change)	(50,000)	(55,322)	(60,550)	(64,996)	(68,886)	(72,305)
Total Financing Activities	(175,000)	(193,626)	(211,923)	(227,487)	(241,101)	(253,066)
Cash Available Before Financing Activities	25,800	82,777	90,669	96,937	91,301	91,060
Financing Activities						
ST Debt Payments	(10,000)	(10,000)	-	-	-	-
LT Debt Payments	(20,000)	(20,000)	(30,000)	(40,000)	(60,000)	(80,000)
Equity Contribution	25,000					
Total Financing Activities	(5,000)	(30,000)	(30,000)	(40,000)	(60,000)	(80,000)
Free Cash Flow	20,800	52,777	60,669	56,937	31,301	11,060
Beginning Cash	45,000	65,800	118,577	179,246	236,183	267,484
Ending Cash	65,800	118,577	179,246	236,183	267,484	278,544

Figure 16.11

Part of the "Deliverable" presentation, a summary of the results is a good way of showing a snapshot of the main results taken by each of the statements and analyzed in a ratio analysis (Figure 16.12).

[INSERT FIGURE 16.12]

Celerity Technogy Inc. ("CTI")
Financial Ratios

	HISTORICAL		PROJECTED				
BASE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Liquidity Ratios							
Current Ratio	1.8x	2.6x	3.7x	4.5x	5.1x	5.3x	5.3x
Quick ratio	1.2x	1.9x	2.9x	3.6x	4.2x	4.5x	4.4x
Accounts Receivable Turnover (ART)		21.1x	20.8x	22.1x	21.9x	21.8x	21.7x
Accounts Receivable Days		17.3x	17.5x	16.5x	16.7x	16.8x	16.9x
Solvency Ratios							
LTD / Total Capitalization	40.7%	38.1%	35.4%	32.6%	29.8%	26.8%	23.7%
EBITDA / Interest (Coverage Ratio)	3.0x	3.6x	5.2x	5.5x	5.2x	4.4x	4.2x
LTD / EBITDA (Leverage Ratio)	3.1x	2.7x	2.4x	2.1x	1.8x	1.6x	1.4x
Altma's Z-score (used Book Value of Equity)	2.2x	2.7x	2.3x	2.5x	2.8x	3.0x	3.3x
Activity Ratios / Operating Ratios							
Inventory Ratio (IR)		11.2x	11.4x	11.7x	11.6x	11.5x	11.5x
Inventory Ratio - Days		32.6	32.1	31.2	31.5	31.7	31.8
Profitability Ratios							
Gross Margin	64.1%	62.2%	62.3%	62.3%	62.3%	62.3%	62.3%
EBITDA Margin	40.1%	39.0%	40.2%	40.8%	41.1%	41.2%	41.2%
Return on Assets (ROA)		4.8%	6.0%	6.4%	6.4%	6.2%	6.0%
Return on Equity (ROE)		8.1%	9.7%	9.9%	9.6%	8.8%	8.3%

Figure 16.12

Building the What-if-Scenario Cases

The What-If-Scenario analysis could include a downside case, an upside case, a break-even case or any other sensitivity case customized for the analyst that challenges the base case. The equity analyst could run the upside case including potential cost savings or enhanced revenue assumptions resulting from a new product launch or a significant price increase or an acquisition. The debt analyst could run a downside case measuring how resistant the company is if revenue declines and/or cost increases. The management could run a break-even case scenario to measure how low the revenue can go so few of the obligations such as short-term and long-term debt services are not met.

Revenue Drivers: For example, the Downside Case (Fig 16.13) for Celerity Technology Inc. below shows lower revenue growth assumptions, perhaps, to illustrate a potential recession that might occur in year two, slower growth expectations in year one and very slow recovery post-recession years. The lower revenue growth and declines are adjusted by region including volume and price.

[INSERT FIGURE 16.13]

Celerity Technogy Inc. ("CTI")
Revenue Assumptions

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues by Geography							
Volume Growth							
U.S.		7.50%	2.00%	-1.00%	1.00%	2.00%	2.00%
Europe		10.87%	5.00%	-2.00%	2.00%	2.00%	2.00%
Asia		21.95%	10.00%	3.00%	5.00%	5.00%	5.00%
Total Volume Growth		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%
Volume Sold (000's Units)							
U.S.	16,000	17,200	17,544	17,369	17,542	17,893	18,251
Europe	2,300	2,550	2,678	2,624	2,676	2,730	2,785
Asia	820	1,000	1,100	1,133	1,190	1,249	1,312
Total Volume	19,120	20,750	21,322	21,126	21,408	21,872	22,347
Price Increase							
U.S.		6.98%	1.00%	1.00%	1.00%	2.00%	2.00%
Europe		5.23%	2.00%	2.00%	3.00%	3.00%	2.50%
Asia		2.50%	2.00%	2.00%	2.00%	2.00%	2.50%
Total Price Increase			7.68%	10.47%	5.93%	3.74%	2.73%
Sales Price per Unit ($)							
U.S.	$ 50.00	$ 53.49	$ 54.02	$ 54.56	$ 55.11	$ 56.21	$ 57.34
Europe	$ 52.17	$ 54.90	$ 56.00	$ 57.12	$ 58.83	$ 60.60	$ 62.11
Asia	$ 48.78	$ 50.00	$ 51.00	$ 52.02	$ 53.06	$ 54.12	$ 55.47
Average Price	$ 50.21	$ 53.49	$ 57.60	$ 63.63	$ 67.40	$ 69.92	$ 71.83
Revenue Growth							
U.S.		15.00%	9.20%	8.16%	6.09%	5.06%	4.55%
Europe		16.67%	15.50%	12.86%	10.24%	7.12%	4.55%
Asia		25.00%	23.60%	21.54%	18.45%	15.36%	10.70%
Total Price Increase		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%

Figure 16.13

Cost Assumptions*:* This case will also assume an increase in costs on both the direct and indirect expenses (Fig 16.14) resulting to lower margins, profit and cash flow.

[INSERT FIGURE 16.14]

Celerity Technogy Inc. ("CTI")
Revenue Assumptions

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues by Geography							
Volume Growth							
U.S.		7.50%	2.00%	-1.00%	1.00%	2.00%	2.00%
Europe		10.87%	5.00%	-2.00%	2.00%	2.00%	2.00%
Asia		21.95%	10.00%	3.00%	5.00%	5.00%	5.00%
Total Volume Growth		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%
Volume Sold (000's Units)							
U.S.	16,000	17,200	17,544	17,369	17,542	17,893	18,251
Europe	2,300	2,550	2,678	2,624	2,676	2,730	2,785
Asia	820	1,000	1,100	1,133	1,190	1,249	1,312
Total Volume	19,120	20,750	21,322	21,126	21,408	21,872	22,347
Price Increase							
U.S.		6.98%	1.00%	1.00%	1.00%	2.00%	2.00%
Europe		5.23%	2.00%	2.00%	3.00%	3.00%	2.50%
Asia		2.50%	2.00%	2.00%	2.00%	2.00%	2.50%
Total Price Increase			7.68%	10.47%	5.93%	3.74%	2.73%
Sales Price per Unit ($)							
U.S.	$ 50.00	$ 53.49	$ 54.02	$ 54.56	$ 55.11	$ 56.21	$ 57.34
Europe	$ 52.17	$ 54.90	$ 56.00	$ 57.12	$ 58.83	$ 60.60	$ 62.11
Asia	$ 48.78	$ 50.00	$ 51.00	$ 52.02	$ 53.06	$ 54.12	$ 55.47
Average Price	$ 50.21	$ 53.49	$ 57.60	$ 63.63	$ 67.40	$ 69.92	$ 71.83
Revenue Growth							
U.S.		15.00%	9.20%	8.16%	6.09%	5.06%	4.55%
Europe		16.67%	15.50%	12.86%	10.24%	7.12%	4.55%
Asia		25.00%	23.60%	21.54%	18.45%	15.36%	10.70%
Total Price Increase		15.63%	10.64%	9.45%	7.34%	5.98%	4.96%

Figure 16.13

Working Capital Assumptions: The working capital assumptions below (Fig. 16.15) were kept at the same levels as the base case though there could be an argument that he company manages the receivables and payables differently in recession years as they are trying to squeeze more cash given the income declines.

[INSERT FIGURE 16.15]

Celerity Technogy Inc. ("CTI")
Working Capital Assumptions

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Accounts Receivable							
Accounts Receivable Turnover		21.14x	21.14x	21.14x	21.14x	21.14x	21.14x
Accounts Receivable Days		17.26	17.26	17.26	17.26	17.26	17.26
Inventory							
Inventory Turnover		11.20x	11.20x	11.20x	11.20x	11.20x	11.20x
Inventory Days		32.59	32.59	32.59	32.59	32.59	32.59
Prepaid Expenses							
Prepaid Expenses as % of Revene	0.81%	0.81%	0.81%	0.81%	0.81%	0.81%	0.81%
Accounts Payable							
Accounts Payable Turnover		11.20x	11.20x	11.20x	11.20x	11.20x	11.20x
Accounts Payable Days		32.59	32.59	32.59	32.59	32.59	32.59
Accrued Income Taxes							
Accrued Income Taxes as % of Revenues	1.25%	0.90%	0.90%	0.90%	0.90%	0.90%	0.90%
Accrued Expenses							
Accrued Expenses as % of Revenues	1.04%	0.72%	0.72%	0.72%	0.72%	0.72%	0.72%

Figure 16.15

***Investment Activities**:* The Capital Expenditures and annual Investments are typically the first expenses that management is able to cut when facing recessionary pressures, lower revenues and/or higher operating costs. This downside case though (Fig. 17.16), takes a conservative approach by showing below that capital expenditures and long-term investments as percentage of revenues remain the same as the base case.

[INSERT FIGURE 16.16]

Celerity Technogy Inc. ("CTI")
Investment Activity Assumptions

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Capital Expenditures							
Capital Expenditures as % of Revenue		11.26%	11.26%	11.26%	11.26%	11.26%	11.26%
Long Term Investments							
Long Term Investments as % of Revenues		4.50%	4.50%	4.50%	4.50%	4.50%	4.50%

Figure 16.16

The Downside Case results shown in each core statement below (Balance Sheet (Fig. 16.17), Income Statement (Fig 16.18 and Cash Flow Statement (Fig. 16.19)) are better captured in the ratio analysis.

The Downside Case Balance Sheet projections:

[INSERT FIGURE 16.17]

Celerity Technogy Inc. ("CTI")
Balance Sheet Statement (000's)

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Current Assets							
Cash	45,000	65,800	436,210	812,904	1,163,688	1,482,200	1,790,591
Accounts Receivable	45,000	60,000	54,573	54,700	56,157	58,593	61,115
Inventories	35,000	40,000	100	(53)	56	121	130
Prepaid Expenses	10,000	9,000	9,355	9,377	9,627	10,045	10,477
Total Current Assets	135,000	174,800	500,238	876,928	1,229,529	1,550,959	1,862,313
Property and Equipment							
Land	2,500,000	2,500,000					
Building	450,000	550,000					
Furniture & Equipment	50,000	75,000					
Total Gross P&E	3,000,000	3,125,000	3,254,935	3,385,173	3,518,880	3,658,388	3,803,900
Less Accumulated Depreciaition	(300,000)	(365,000)	(453,586)	(574,620)	(644,981)	(691,271)	(726,574)
Net P&E	2,700,000	2,760,000	2,801,349	2,810,553	2,873,900	2,967,117	3,077,326
Long-Term Investments	200,000	250,000	301,974	354,069	407,552	463,355	521,560
Total Assets	3,035,000	3,184,800	3,603,562	4,041,550	4,510,980	4,981,431	5,461,199
Liabilities and Owners Equity							
Current Liabilities							
Accounts Payable	35,000	40,000	100	(53)	56	121	130
Accrued Income Taxes	12,000	10,000	10,395	10,419	10,697	11,161	11,641
Accrued Expenses	10,000	8,000	8,316	8,335	8,557	8,929	9,313
Current Portion of Long Term Debt	20,000	10,000	-	-	-	-	-
Total Current Liabilities	77,000	68,000	18,811	18,702	19,310	20,210	21,084
Long-Term Debt:	1,200,000	1,180,000	1,160,000	1,130,000	1,090,000	1,030,000	950,000
Deferred Income Taxes	12,000	17,000	29,674	41,832	55,049	68,803	83,320
Total Liabilties	1,289,000	1,265,000	1,208,485	1,190,534	1,164,359	1,119,013	1,054,404
Owners' Equity							
Common Stock	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Paid-in-Capital	-	25,000	25,000	25,000	25,000	25,000	25,000
Retained Earnings	746,000	894,800	1,370,077	1,826,016	2,321,622	2,837,418	3,381,796
Total Owners' Equity	1,746,000	1,919,800	2,395,077	2,851,016	3,346,622	3,862,418	4,406,796
Total Liabilities & Owner's Equity	3,035,000	3,184,800	3,603,562	4,041,550	4,510,980	4,981,431	5,461,199
Error Check	-	-	-	-	-	-	-

Figure 16.17

The Downside Case Income Statement projections:

[INSERT FIGURE 16.18]

Celerity Technogy Inc. ("CTI")
Income Statement (000's)

		HISTORICAL		PROJECTED				
DOWNSIDE CASE		**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Revenues by Geography								
U.S.		800,000	920,000	947,784	947,689	966,738	1,005,794	1,046,428
Europe		120,000	140,000	149,940	149,880	157,464	165,432	172,959
Asia		40,000	50,000	56,100	58,939	63,123	67,605	72,760
Total Revenue		960,000	1,110,000	1,153,824	1,156,508	1,187,325	1,238,831	1,292,147
Total Revenue Growth			*15.6%*	*3.9%*	*0.2%*	*2.7%*	*4.3%*	*4.3%*
Cost of Revenues by Geography								
U.S.		293,000	350,000	-	-	-	-	-
Europe		39,000	50,000	-	-	-	-	-
Asia		13,000	20,000	1,122	(589)	631	1,352	1,455
Total Cost of Revenue		345,000	420,000	1,122	(589)	631	1,352	1,455
Gross Profit		615,000	690,000	1,152,702	1,157,097	1,186,694	1,237,479	1,290,692
Total Margin			*62.2%*	*99.9%*	*100.1%*	*99.9%*	*99.9%*	*99.9%*
Operating Expenses								
Administrative & General		145,000	165,000	165,000	165,000	165,000	165,000	165,000
Marketing Expenses		75,000	80,000	-	-	-	-	-
Other Operating Expenses		10,000	12,000	11,538	11,565	11,873	24,777	25,843
Total Operating Expenses		230,000	257,000	176,538	176,565	176,873	189,777	190,843
EBITDA		385,000	433,000	976,164	980,532	1,009,821	1,047,702	1,099,849
EBITDA Margin %		*40.1%*	*39.0%*	*84.6%*	*84.8%*	*85.1%*	*84.6%*	*85.1%*
Depreciation		60,000	65,000	88,586	121,034	70,361	46,291	35,303
Amortization		-	-	-	-	-	-	-
EBIT		325,000	368,000	887,578	859,498	939,460	1,001,411	1,064,546
EBITA Margin %		*33.9%*	*33.2%*	*76.9%*	*74.3%*	*79.1%*	*80.8%*	*82.4%*
Total Interest Expense				95,450	99,600	113,450	141,750	157,250
EBT				792,128	759,898	826,010	859,661	907,296
Taxes	40%			316,851	303,959	330,404	343,865	362,918
Net Income				475,277	455,939	495,606	515,797	544,378

Figure 16.18

The Downside Case Cash Flow Statement projections:

[INSERT FIGURE 16.19]

The Downside Case Ratio Analysis:

[INSERT FIGURE 16.20]

Celerity Technogy Inc. ("CTI")
Financial Ratios

	HISTORICAL		PROJECTED				
DOWNSIDE CASE	**Year -1**	**Year 0**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Liquidity Ratios							
Current Ratio	1.8x	2.6x	26.6x	46.9x	63.7x	76.7x	88.3x
Quick ratio	1.2x	1.9x	26.1x	46.4x	63.2x	76.2x	87.8x
Accounts Receivable Turnover (ART)		21.1x	20.8x	22.1x	21.9x	21.8x	21.7x
Accounts Receivable Days		17.3x	17.5x	16.5x	16.7x	16.8x	16.9x
Solvency Ratios							
LTD / Total Capitalization	40.7%	38.1%	35.4%	32.6%	29.8%	26.8%	23.7%
EBITDA / Interest (Coverage Ratio)	3.0x	3.6x	10.2x	9.8x	8.9x	7.4x	7.0x
LTD / EBITDA (Leverage Ratio)	3.1x	2.7x	1.2x	1.2x	1.1x	1.0x	0.9x
Altma's Z-score (used Book Value of Equity)	2.2x	2.7x	2.3x	2.5x	2.8x	3.0x	3.3x
Activity Ratios / Operating Ratios							
Inventory Ratio (IR)		11.2x	11.4x	11.7x	11.6x	11.5x	11.5x
Inventory Ratio - Days		32.6	32.1	31.2	31.5	31.7	31.8
Profitability Ratios							
Gross Margin	64.1%	62.2%	62.3%	62.3%	62.3%	62.3%	62.3%
EBITDA Margin	40.1%	39.0%	40.2%	40.8%	41.1%	41.2%	41.2%
Return on Assets (ROA)		4.8%	6.0%	6.4%	6.4%	6.2%	6.0%
Return on Equity (ROE)		8.1%	9.7%	9.9%	9.6%	8.8%	8.3%

Figure 16.20

CASE STUDY AND PRACTICE CASES

1. Based on the information below, complete the projected spreadsheet. (access spreadsheet www.professordrou.com)

TO BE PROVIDED LATER

References (Chapter 17)

TO BE PROVIDED LATER