

# LECTURE: PROJECTIONS

## Case Study: Celerity Technology

### 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
- 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 a hotel company:
  - Average Daily Rate (ADR) representing what the customer will pay to rent the room for a night; the number of rooms available per property;
  - Occupancy rate (OR) which represents the rooms that are rented as percentage of total available rooms.
  - 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.

**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).

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 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 industry benchmark used to compare between seasonal and non-seasonal periods and versus company 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 Number of 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) as 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.

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

- **Cost of Goods Sold:**
- **Operating Expenses:**
- **Depreciation Expenses:**

#### Cash Flow Expenditures Assumptions

As mentioned previously, the cash flow 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:**
  - **Accounts Receivable:**  $AR = [(ARD / 365) \times Revenues]$
  - **Inventory:**  $Inv = [(ID / 365) \times Accounts Payables]$
  - **Other Current Assets:** For projection purposes, other current assets are based on as a percentage of revenue.
  - **Accounts Payable:**  $AP = [(APD / 365) \times Accounts Payable]$
  - **Other Current Liabilities:** For simplistic purposes, all other current liabilities on the balance sheet are calculated based on percentage of revenue.
- **Investment Activities Assumptions:**
  - **Capital Expenditures (Capex)** - % of revenue or % Fixed Assets
    - Maintenance Capex vs Growth Capex
  - **Long-Term Investments (LTI)** are projected to grow at the same level as the revenues calculated as percentage of revenues
- **Financing Activities Assumptions:**
  - Debt activities of borrowing or paying down the debt
  - Equity activities including any distributions or issuance of new equity

### 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.

### 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.

### 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 year's 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.