DECISION MAKING AND SCENARIOS

MODULE 3.1 - Expressing Business Strategies In Financial Terms

Introduction

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Agenda – This Module

- We'll show
  - How Business Activities, Transactions and Events are translated into Financial Statements
    - Balance Sheets,
    - Income Statements, and
    - Cash Flow Statements
  - How these three statements are linked to each other
  - How Balance Sheets and Income Statements can help to forecast the future Cash Flow Statements,
    - Recall from the prior two modules that future cash flows are the things we want to put into our Net Present Value calculations

Agenda – The Next Module

- We'll apply What We've Been Learning to an Analysis of a New Product Venture
  - We'll map out a plan of the business activities, transactions and events that need to happen to implement our new venture, including their timing
  - We'll show how to set up a spreadsheet to
    - help us with our forecasts, and
    - give us the ability to re-calculate things automatically as we re-think our plans.
  - We'll forecast out the implied financial statements
  - Calculate the Net Present Value (NPV)
  - And we'll use our spreadsheets to explore different risks our venture may face, and analyze the implications of these scenarios for NPV

Introduction

- To Apply Present Value Techniques, we have to be able to express a project in terms of the time pattern of cash inflows and outflows that the project will generate
- To forecast these cash flows, we have to plan the sequence of business activities and transactions that give rise to the cash flows
- Accounting systems that compile Balance Sheets and Income Statements in addition to Cash Flow Statements are helpful in keeping track of all these activities, especially their timing and coordination
- Our Objectives in this Module are to
  - Explain how accounting systems translate Business Activities into Financial Terms
  - How we can use this to better forecast future cash flows

Where Do Future Cash Flows Come From?

- From Transactions with Other Parties
  - Customers, Suppliers, Employees, Governments, Investors, and Creditors
- These Receipts and Payments Result from Business Activities
  - Raising Capital – Equity and Debt
  - Acquiring Resources – Buildings, Equipment, Technology, People
  - Developing Products and Services
  - Selling to Customers

For Simple Enough Projects

- Putting together “full blown” financial statements is overkill
- The rough magnitude of future cash flows can be estimated
- A “back of the envelope” present value calculation can often clearly reveal that the project is profitable – or not

But for More Complicated Projects

- The direct cash flow consequences of the project are not readily apparent; they come from a combination of the activities we just mentioned
- We need a plan for the timing of all those activities and also a prediction for the timing of their cash consequences – there's often a timing difference between when the activity occurs and when the cash payment is paid or received
  - How big will sales be, when will sales be collected?
  - What combination of labor and materials will we need to deliver the product or service at the forecasted time?
  - What resources will we need to acquire?
  - How do we co-ordinate all of the above?

Putting Together Forecasted Financial Statements Will Help Us Do That

- Constructing forecasted balance sheets and income statements that “mesh” with the cash flow statements forces you to
  - Make sure you don’t leave things out of your calculations
  - Think more carefully about what needs to happen to implement your project idea
- **Articulating all the activities helps you spot problems and allows you to re-think your strategy for implementation so that you can improve it**
  - This also helps later on when evaluating results as they come in
    - to be able to compare them to what was expected
    - To spot deviations and take corrective action or revise your strategy as new information becomes available

Credibility with Others

- Having a more fully thought out plan will enhance your ability to
  - Get the project approved by others
  - Get the project funded

One More Benefit – Calculating Taxes

- Taxes are likely to be one of the relevant cash flows associated with your project
- Taxes are usually based on income (not cash flow)
- So to calculate the taxes you need to calculate income

Three Main Financial Statements

- **Balance Sheet**
  - Financial position (listing of resources and obligations) on a specific date
  - Assets = Liabilities + Owners' Equity
- **Income Statement**
  - Profitability of operations over a period of time
  - Net Income = Revenues – Expenses
- **Statement of Cash Flows**
  - Sources and uses of cash during a period of time
  - Operating, Investing, and Financing Activities
- While Each Conveys something different – they're all linked together

Financial Statements for Projects

- Often we think of financial statements (especially balance sheets) as being for FIRMS
- But you can also do this for projects
- For example, you can think of the project's balance sheet as how its adoption would impact (or change) the balance sheet of the firm as a whole

Balance Sheet – a list (in dollars) at a point in time of

- **Assets** - The **resources** that we've acquired that are going to help generate future cash flows
- **Liabilities** - The **obligations** we've made to pay (or pay back) cash to others
- **Owners' Equity** - The **capital** that **owners** have put into the firm (or re-invested)

- **Think of a Balance Sheet as a SNAPSHOT**

Balance Sheet Equation

- Virtually everything in accounting is driven by this (seemingly simple) relation

Assets = Liabilities + Owners' Equity

Resources = Claims on Resources by

Outsiders + Owners

- Equivalently,

Owners' Equity = Assets – Liabilities

Everything that's not claimed by anyone else belongs to the owners

Common Assets Appearing on Balance Sheets

- Cash
- Accounts Receivable
- Inventory
- Property Plant and Equipment
- Intangible Assets
- Investments in Financial Assets
- Other

Limitations to Balance Sheets

- Not All Resources are on the Balance Sheet
  - People
  - "Softer" investments like Research and Development, Advertising, Marketing
- Balance Sheet Assets are generally NOT measured at the Present Value of the future cash flows they will generate
  - Instead they are measured at the cost to acquire them (Historical Cost)
- Nevertheless, Keeping track of the balance sheet (and how it will evolve over time) is extremely helpful in Forecasting the Amounts and Timing of Future Cash Flows

Examples of Liabilities on Balance Sheets

- Accounts Payable (to suppliers)
- Other Payables (wages, interest, income taxes)
- Receipt of payment in advance of providing service
- Short term-debt
- Long-term debt
- Product warranties
- Employee pensions

Owners' Equity (or Shareholders' Equity)

- **OWNERS' EQUITY** is the residual claim on assets after settling claims of creditors (i.e. assets – liabilities)
- Types of Owners' Equity
  - Contributed capital – amounts from investments by owners or by issuing new shares of stock
  - Retained Earnings = profits earned by the firm that have been re-invested back into the firm as opposed to paid out to the owners (in the form of dividends)
    - **THIS IS THE LINK BETWEEN INCOME STATEMENTS AND BALANCE SHEETS**

Forecasting How The Balance Sheet Will Change Over Time Helps Us Keep Track of the Amounts and Timing of …

- Resources we'll be adding (new assets) and resources we'll be using up
- New obligations we'll be adding and old obligations we'll be paying off
- New investments that will be made by owners and distributions made back to owners

What Makes the Balance Sheet Change Over Time?

- These are the business activities and economic events that take place **during** the period
- Two important summaries of these activities are
  - Income Statement = Revenues – Expenses
  - Cash Flow Statement = Cash Inflows – Cash Outflow

Relation Between Financial Statements

Balance Sheet at 12/31/00

Assets = Liabilities + Owners' Equity

Cash + Noncash assets = Liabilities + Contributed Capital + Retained Earnings

Statement of Cash Flows
for year ended 12/31/01

Income Statement
for year ended 12/31/01
(minus dividends)

Cash + Noncash assets = Liabilities + Contributed Capital + Retained Earnings

Balance Sheet at 12/31/01

Relation Between Financial Statements

- The Balance Sheet shows the resources and claims on the resources AT A POINT IN TIME
- The Income Statement and Cash Flow statement provide information about how the balance sheet changes OVER A PERIOD OF TIME
  – The Cash Flow Statement tells you how the CASH account on the balance sheet changes over time
  – The Income Statement tells you about how the RETAINED EARNINGS account on the balance sheet changes over time

Income

- Income (profits) is a measure of the performance of the company during a period of time
- Income is Not the Same as Cash Flow
- On the Income Statement, the recognition of revenues and expenses are tied to business activities, not necessarily to when the associated cash flow occurs
  - Income measures the increase in economic value from a transaction or event
  - Cash Flow measures the receipt of that value in the form of cash
  - The difference is one of TIMING

Example – Income Vs Cash Flow

- Income will match the cost of products you sell to the price you sell them at to calculate the profit on the sale
- Cash flow will match the cost of a product to the period you paid for it and the receipt of cash from the customer to the period it was received – even if these are different periods

- This is where the balance sheet comes in – to help link the timing difference between the two statements
  - Inventory = products we've acquired not yet sold
  - Receivables = sales we've made but not yet collected

Revenue

- Revenue is an increase in shareholders' equity (not necessarily cash) from providing goods or services.

- Revenue is recognized when both:
  - It is earned (i.e. goods or services are provided) and
  - It is realized (i.e. payment for goods or services received in cash or something that can be converted to a known amount of cash)
- Revenue can be recognized before we get cash
  - A credit sale
- Or Revenue can be recognized after we get cash
  - A deposit received in advance of delivery

Expenses

- Expenses are decreases in shareholders' equity (not necessarily cash) that arise in the process of generating revenues
- Expenses are recognized when either:
  - Related revenues are recognized (product costs) (MATCHING) or
  - Incurred, if difficult to match with revenues
    - Examples: Selling, General, Administrative Expenses
- Expenses are often recognized as assets get used up
  - Cost of Goods Sold
  - Depreciation Expense

Income Statement Format – Expenses Are Grouped into Categories

Revenue (or Sales)

\- Cost of Goods Sold

Gross Profit

\- Operating (SG&A) Expense

Operating Income

\- Interest, Other Gains and Losses

Pre-tax Income

\- Income Tax Expense

Net Income

Next

- Recording Transactions and Compiling them into Balance Sheets, Income Statements and Cash Flow Statements
- Showing how we can Construct a Cash Flow Statement from the Balance Sheet and Income Statement

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