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Financial Modelling Professional
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1. FINANCIAL MODELLING BASICS

1.1. What is Financial Modelling

Financial Modeling is a tool that can be used to forecast a picture of a security or a financial instrument or a company's future financial performance based on the historical performance of the entity. Financial Modeling includes preparing of detailed company specific models which are then used for the purpose of decision making and performing financial analysis. It is nothing but constructing a financial representation of some, or all, aspects of the firm or given security. OR it is mathematical model of different aspects of financial health of a given company and this model can be made on a simple not book paper or in excel, with later it is easily possible to analyse the impact of different assumptions or change in value of various variables hence gives the more flexibility. Financial modeling is a mirror which shows whether

- ✓ An Organization is in need of additional funds (debt or equity) or not
- ✓ how a business will react to different financial situations or market conditions
- ✓ In which company we should make investment for better returns i.e. comparative analysis
- ✓ Analyzing and defining the risk level
- ✓ Has the company had a change in direction that is loss of customers, expansion etc.
- ✓ Identifying of Strategic and Business Plans through finding strengths and weaknesses.
- ✓ It's a technique to value and analyze Firms, IPOs and FPOs

A good financial model should

- ✓ Be relatively simple
- ✓ Focus on key cash flow drivers
- ✓ Clearly convey assumptions and conclusions
- ✓ Evaluate Risks

Wikipedia defines "Financial Modeling" as follows –
Financial modeling is the task of building an abstract representation (a model) of a real world financial situation. This is a mathematical model designed to represent (a simplified version of) the performance of a financial asset or portfolio of a business, project, or any other investment. Financial modeling is a general term that means different things to different users; the reference usually relates either to accounting and corporate finance applications, or to quantitative finance applications.

It is the goal of the analyst to accurately forecast the price or future earnings performance of a company. Numerous valuation and forecast theories exist, and financial analysts are able to test these theories by recreating business events in an interactive calculator referred to as a financial model. A financial model tries to capture all the variables in a particular event. It then quantifies the variables and creates formulas around these variables. In the end, the model provides the analyst with a mathematical depiction of particular business event. The primary software tool used to do this is the spreadsheet. Spreadsheet language allows the financial modeler to reconstruct almost any cash flow or revenue stream.

Example 1 - Consider a Venture Capital or Private Equity Firm

Venture Capital and Private Equity firms are focused on the financial health of their operating companies. Their main question – What is the return on their investment? To answer this question, they require a rigorous budgeting process that encompasses financial modeling. They may want to see the financial impact of the need to spend money on marketing, product development, etc. Or, perhaps the operating company may need to cut expenses for profitability. The outcome of these decisions will require providing metrics such as EBITDA and breakeven analysis. These metrics will enable management to make the proper decisions to profitably manage the company.

Example 2 - Consider a Sales Director

A Sales Director is charged with establishing sales objectives by forecasting annual sales volume and profit margins for various regions, representatives, and products. The Sales Director also establishes and adjusts product pricing, monitors costs, meets competitive pressures, deals with economic indicators, and is cognizant of supply and demand. In order to properly price products, the Sales Director needs to know the component costs of each and every product to maintain a competitive edge and make a contribution above costs!

As the organization grows, the Sales Director's job expands to include new territories. Financial modeling plays a key role by analyzing revenue sources and projecting growth, based on market size. Furthermore, the total dollar value of revenue generated, units sold, and average purchase value are key metrics to determine where sales reps need to spend their time.

1.2. Financial Models Application

Usually the preparation of detailed company-specific models used for decision making purposes and financial analysis.

Applications include:

- ✓ Business valuation, especially discounted cash flow, but including other valuation approaches
- ✓ Scenario planning and management decision making ("what is"; "what if"; "what has to be done")
- ✓ Capital budgeting
- ✓ Cost of capital (i.e. WACC) calculations
- ✓ Financial statement analysis (including of operating- and finance leases, and R&D)
- ✓ Project finance

To generalize as to the nature of these models: firstly, as they are built around financial statements, calculations and outputs are monthly, quarterly or annual; secondly, the inputs take the form of "assumptions", where the analyst specifies the values that will apply in each period for external / global variables (exchange rates, tax percentage, etc....; may be thought of as the model parameters), and for internal / company specific variables (wages, unit costs, etc....). Correspondingly, both characteristics are reflected (at least implicitly) in the mathematical form of these models: firstly, the models are in discrete time; secondly, they are deterministic.

Users of Financial Models

Financial models are used for many different reasons. The most common of which are business valuation, scenario preparation for strategic planning, cost of capital calculations for corporate

finance projects, capital budgeting decisions and the allocation of corporate resources. Financial models are also used in the creation of projections and trends for forecasts and many other uses related to industry comparisons, ratio analysis and common size financial statements.

Uses of Financial Modeling

In the finance industry, the value of financial modelling is increasing rapidly.

- ✓ Financial modeling acts as an important tool which enables business ideas and risks to be estimated in a cost-effective way.
- ✓ Financial modeling is an action of creating attractive representation of a financial situation of company.
- ✓ Financial Models are mathematical terms aimed at representing the economic performance of a business entity.

Financial Modeling is widely used in various sectors like:

- ✓ Investment Banks
- ✓ Credit Rating Agencies
- ✓ Equity Research
- ✓ Mutual Funds
- ✓ Financial KPOs
- ✓ Project Finance companies.

So, why should a business consider these financial modeling applications? The answer can vary depending on the needs of the organization, but can encompass:

- ✓ Managing cash flows
- ✓ Identifying financial risk and strategy
- ✓ Analyzing quality of earnings
- ✓ Examining EBITDA

Like most companies, human capital is stretched. So, whether the individual is a CEO, sales, marketing, or purchasing executive, financial modeling is a focal point in making decisions.

In addition, external stakeholders, such as bankers, investors, venture capital/private equity firms, and vendors demand financials, as evidence to properly fund an organization's growth.

1.3. Financial Modeling Approaches

Using Income Statement

Revenues Projections - For most companies revenues are a fundamental driver of economic performance. A well designed and logical revenue model reflecting accurately the type and amounts of revenue flows is extremely important. There are as many ways to design a revenue schedule as there are businesses. Some common types include:

- ✓ Sales Growth: Sales growth assumption in each period defines the change from the previous period. This is simple and commonly used method, but offers no insights into the components or dynamics of growth.

- ✓ Inflationary and Volume/ Mix effects: Instead of a simple growth assumption, a price inflation factor and a volume factor are used. This useful approach allows modeling of fixed and variable costs in multi product companies and takes into account price vs. volume movements.
- ✓ Unit Volume, Change in Volume, Average Price and Change in Price: This method is appropriate for businesses which have simple product mix; it permits analysis of the impact of several key variables.
- ✓ Dollar Market Size and Growth: Market Share and Change in Share – Useful for cases where information is available on market dynamics and where these assumptions are likely to be fundamental to a decision. For Example: Telecom industry
- ✓ Unit Market Size and Growth: This is more detailed than the preceding case and is useful when pricing in the market is a key variable. (For a company with a price-discounting strategy, for example, or a best of breed premium priced niche player) e.g. Luxury car market
- ✓ Volume Capacity, Capacity Utilization and Average Price: These assumptions can be important for businesses where production capacity is important to the decision. (In the purchase of additional capacity, for example, or to determine whether expansion would require new investments.)
- ✓ Product Availability and Pricing
- ✓ Revenue driven by investment in capital, marketing or R&D
- ✓ Revenue based on installed base (continuing sales of parts, disposables, service and add-ons etc). Examples include classic razor-blade businesses and businesses like computers where sales of service, software and upgrades are important. Modeling the installed base is key (new additions to the base, attrition in the base, continuing revenues per customer etc).
- ✓ Employee based: For example, revenues of professional services firms or sales-based firms such as brokers. Modeling should focus on net staffing, revenue per employee (often based on billable hours). More detailed models will include seniority and other factors affecting pricing.
- ✓ Store, facility or Square footage based: Retail companies are often modeled based on the basis of stores (old stores plus new stores in each year) and revenue per store.
- ✓ Occupancy-factor based: This approach is applicable to airlines, hotels, movie theatres and other businesses with low marginal costs.

<u>Costs projections</u> - Drivers include:

- ✓ Percentage of Revenues: Simple but offers no insight into any leverage (economy of scale or fixed cost burden
- ✓ Costs other than depreciation as a percent of revenues and depreciation from a separate schedule: This approach is really the minimum acceptable in most cases, and permits only partial analysis of operating leverage.
- ✓ Variable costs based on revenue or volume, fixed costs based on historical trends and depreciation from a separate schedule: This approach is the minimum necessary for sensitivity analysis of profitability based on multiple revenue scenarios

<u>Operating expenses</u>

- ✓ General and Administrative: Generally treated as % of Revenues
- ✓ Sales and Marketing: Generally modeled as % of Revenues. In some cases, it is actually a revenue driver and not driven by revenues. For example, brokerage business or pure plays trading and marketing firms.
- ✓ R&D: Generally R&D costs are treated as % of revenues.

Interest expense (or Net interest expense)

- ✓ This is one of the few income statement items that are driven by balance sheet information. A interest schedule is generally developed to
  - ✓ Calculate interest received on cash and short term investments
  - ✓ Calculate interest expenses arising from all types of debt. Interest rate assumptions are needed.
- ✓ Ending balance of previous year can be used to calculate interest expenses to avoid circular reference in excel
- ✓ Average balance can be used as well (it will give circular reference though)

Income taxes

- ✓ Effective tax rate is generally used. Effective rate is calculated as Taxes paid / Pre-Tax income.
- ✓ For future years, either the marginal tax rate equivalent to the country of incorporation is taken or if the effective rate is much lesser than the marginal tax rate then during the initial years, tax rate can be low but gradually would have to be moved to marginal tax rate. For example, In India, marginal corporate tax rate is 33%.

Balance Sheet: Assets

Cash and Cash Equivalents:

- ✓ Linked to cash from Cash Flow Statement

Accounts Receivable (Part of Working Capital Schedule):

- ✓ Generally modeled as Days Sales Outstanding;
- ✓ Receivables turnover = Receivables/Sales * 365
- ✓ A more detailed approach may include aging or receivables by business segment if the collections vary widely by segments
- ✓ Receivables = Receivables turnover days/365*Revenues

Inventories (Part of Working Capital Schedule):

- ✓ Inventories are driven by costs (never by sales);
- ✓ Inventory turnover = Inventory/COGS * 365; For Historical
- ✓ Assume an Inventory turnover number for future years based on historical trend or management guidance and then compute the Inventory using the formula given below
- ✓ Inventory = Inventory turnover days/365*COGS; For Forecast

Other Current Assets (Part of Working Capital Schedule):

- ✓ Modeled as % of sales
- ✓ Fixed Assets (Property, Plant and Equipment)
- ✓ Separate schedule is prepared taking into account various components
- ✓ Ending Balance for PPE = Beginning balance + Capex – Depreciation – Adjustment for Asset Sales

Balance Sheet: Liabilities

Current Liabilities Projections

- ✓ Accounts Payables (Part of Working Capital Schedule):
- ✓ Payables turnover = Payables/COGS * 365; For Historical

- ✓ Assume Payables turnover days for future years based on historical trend or management guidance and then compute the Accounts Payables using the formula given below
- ✓ Accounts Payables = Payables turnover days/365*COGS
- ✓ Short Term Debt: Usually modeled as part of debt schedule
- ✓ Accrued Liabilities: Kept constant most often; Can be modeled as % of sales
- ✓ Deferred taxes: Kept constant most often; Can be modeled as % of sales
- ✓ Other Current Liabilities: Can be modeled as % of COGS or as % of Sales

Long term Liabilities:

- ✓ Deferred taxes: Kept constant most often; Can be modeled as % of sales
- ✓ Post retirement Pension Cost: Kept constant most often
- ✓ Long term Debt: Usually modeled as part of debt schedule (please refer debt schedule on next page)
- ✓ Key feature of the debt schedule is to use the Revolver facility and how it works so that the minimum cash balance is maintained and ensures that the Cash account does not become negative in case the operating cash flow is negative (Companies in investment phase who need lot of debt in initial years of operation – Telecom companies, for example)
- ✓ Overall range of Debt to equity ratio should be maintained if there is any guidance by the management
- ✓ Debt balance can also be assumed to be constant unless there is a need to increase the debt
- ✓ Notes to the accounts would give repayment terms and conditions which need to be accounted for while building the debt schedule
- ✓ For some industries, like Airlines, Retail etc Operating Leases might have to capitalized and converted to debt. However, this is a complex topic and beyond the scope of discussion at this point

Certifications

Accounting, Banking and Finance
- Certified AML-KYC Compliance Officer
- Certified Business Accountant
- Certified Commercial Banker
- Certified Foreign Exchange Professional
- Certified GAAP Accounting Standards Professional
- Certified Financial Risk Management Professional
- Certified Merger and Acquisition Analyst
- Certified Tally 9.0 Professional
- Certified Treasury Market Professional
- Certified Wealth Manager

Big Data
- Certified Hadoop and Mapreduce Professional

Cloud Computing
- Certified Cloud Computing Professional

Design
- Certified Interior Designer

Digital Media
- Certified Social Media Marketing Professional
- Certified Inbound Marketing Professional
- Certified Digital Marketing Master

Foreign Trade
- Certified Export Import (Foreign Trade) Professional

Health, Nutrition and Well Being
- Certified Fitness Instructor

Hospitality
- Certified Restaurant Team Member (Hospitality)

Human Resources
- Certified HR Compensation Manager
- Certified HR Stafffing Manager
- Certified Human Resources Manager
- Certified Performance Appraisal Manager

Office Skills
- Certified Data Entry Operator
- Certified Office Administrator

Project Management
- Certified Project Management Professional

Real Estate
- Certified Real Estate Consultant

Marketing
- Certified Marketing Manager

Quality
- Certified Six Sigma Green Belt Professional
- Certified Six Sigma Black Belt Professional
- Certified TQM Professional

Logistics & Supply Chain Management
- Certified International Logistics Professional
- Certified Logistics & SCM Professional
- Certified Purchase Manager
- Certified Supply Chain Management Professional

Legal
- Certified IPR & Legal Manager
- Certified Labour Law Analyst
- Certified Business Law Analyst
- Certified Corporate Law Analyst

Information Technology
- Certified ASP.NET Programmer
- Certified Basic Network Support Professional
- Certified Business Intelligence Professional
- Certified Core Java Developer
- Certified E-commerce Professional
- Certified IT Support Professional
- Certified PHP Professional
- Certified Selenium Professional
- Certified SEO Professional
- Certified Software Quality Assurance Professional

Mobile Application Development
- Certified Android Apps Developer
- Certified iPhone Apps Developer

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- Certified Network Security Professional

Management
- Certified Corporate Goverance Professional
- Certified Corporate Social Responsibility Professional

Life Skills
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- Certified Public Relations Officer

Media
- Certified Advertising Manager
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Sales, BPO
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& many more job related certifications

Contact us at :

Vskills

011-473 44 723 or **info@vskills.in**

www.vskills.com