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Introduction to Finance



Introduction to Finance

Lecture 4

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Chapter

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Financial Forecasting

Financial Forecasting



A forecast is the prediction of the future based on a certain set of circumstances that could be related to the past or present data.

In finance, managers use different financial forecasting techniques to foresee future trends and get the most accurate figures.

Financial Forecasting



- Financial forecasting is the process of estimating or predicting how a business will perform in the future.
- With a financial prognosis you try to predict how the business will look financially in the future.

Financial Forecasting



- A common example of making financial prognoses is the predicting of a company's revenue.
- Sales figures ultimately determine where the (commercial) organization is currently placed.

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- They are therefore important indicators for good decision-making that supports organizational objectives.
- Other important aspects of financial forecasting are predicting other revenue, future fixed and variable costs, and capital.

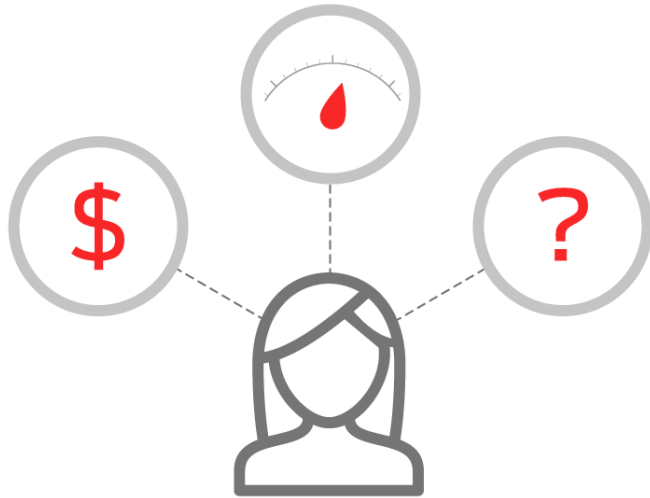
Financial Forecasting

- Historical performance data is used to make predictions.
- These help predict future trends.



Uses of Financial Forecasting

Financial Forecasting



- Companies and entrepreneurs use financial forecasting to determine how to spread their resources, or what the expected expenditures for a certain period will be.

Financial Forecasting

- Investors use Financial Forecasting to determine if certain events will affect a company's shares.
- Other analysts use prognoses to extrapolate how trends like the GNP or unemployment will change in the coming year.



What makes Financial Forecasting important ?



Financial Forecasting



- Financial Forecasting is a tool for entrepreneurs and CEOs to make better business decisions in a multitude of scenarios.
- It also helps with:
 - 1) Convincing investors to finance a company
 - 2) Setting objectives and budgets

Financial Forecasting

When running a company, it's tempting to only look in the rear mirror by analyzing financial data from the past.

But the result is that questions like the ones below will remain unanswered:

How will the future financial situation of my company look?

How much money can we pay out to shareholders this year?

How much money can we generate this year to repay debts?

How long until all debts are repaid?

What will the organization's profitability and cash flow look like for the next six to eighteen months?

Budgeting v/s Financial Forecasting

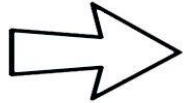


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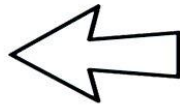


Financial Forecasting

Budget



Forecast



- Budgeting and financial forecasting are tools that companies use to establish a plan for where management wants to take the company (budgeting) and whether it is heading in the right direction (financial forecasting).

Financial Forecasting

- Budgeting is the financial direction of where management wants to take the company, helping quantify the expectation of revenues that a business wants to achieve for a future period.



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Financial Forecasting



- Financial forecasting tells whether the company is headed in the right direction, estimating the amount of revenue and income that will be achieved in the future.

Financial Forecasting

- Budgeting creates a baseline to compare actual results to determine how the results vary from the expected performance.
- Financial forecasting is used to determine how companies should allocate their budgets for a future period, but unlike budgeting, financial forecasting does not analyze the variance between financial forecasts and actual performance.

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Methods of Financial Forecasting



Methods of Financial Forecasting

- Financial forecasting methods fall into two broad

a) Quantitative

b) Qualitative.

- The Quantitative method relies on data that can be measured and statistically controlled and rendered.
- The Qualitative method relies on data that cannot be objectively measured.



Quantitative Methods of Financial Forecasting

1. Straight Line Forecasting Method

- This method is commonly used when the company's growth rate is constant, to get a straightforward view of continued growth at the same rate.
- It involves only basic math and historical data. Ultimately, it renders growth predictions that can guide financial and budget goals.

Quantitative Methods of Financial Forecasting

An example of straight line financial forecasting

- A restaurant chain's annual growth rate has held steady at 5% over the past three years. The company expects its growth to continue at that rate over the next two years.
- By calculating next year's growth at 5% over this year's, and the following year's at 5% above next year's, the company can make accurate predictions about how many people it will need to hire and the added payroll costs for each of those years.

Quantitative Methods of Financial Forecasting

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2. Moving Average Forecasting Method

- A moving average is the calculation of average performance around a given metric in shorter time frames than straight line, such as days, months or quarters.
- It is not used for longer time periods, such as years, because that creates too much lag for it to be useful in trend following.

Quantitative Methods of Financial Forecasting

2. Moving Average Forecasting Method

- In short, this method helps identify underlying patterns which you can then use to evaluate common financial metrics such as revenues, profits, sales growth and stock prices.
- A rising moving average indicates an uptrend, whereas a falling moving average points to a downtrend.

Quantitative Methods of Financial Forecasting

An example of moving average financial forecasting

- A retailer wishes to calculate how much—if any—product he should reorder from a wholesaler.
- It's the holiday season, so sales are going well overall, but he needs to know which products are trending upward.
- Rather than try to track sporadic upticks and drops in a specific product's sales throughout the day or over a week, he calculates a moving average for the week to show him the trend and drive his inventory purchase orders.

Quantitative Methods of Financial Forecasting

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3. Simple Linear Regression Forecasting Method

- It is used to chart a trend line based on the relationship between a dependent and independent variable.
- A linear regression analysis shows the changes in a dependent variable on the Y-axis to the changes in the explanatory variable on the X-axis.
- The correlation between the X and Y variables creates a graph line, indicating a trend, which generally moves up or down, or holds consistent.

Quantitative Methods of Financial Forecasting

An example of simple linear regression forecasting

- Sales and profits are two variables that are key to the success of every company. Using the simple linear regression method, if the trend line for sales (x-axis) and profits (y-axis) rises, then all is well for the company and margins are strong.
- If the trend line falls because sales are up but profits are down, something is wrong; perhaps there are rising supply costs or narrow margins.
- However, if sales are down but profits are up, the value of the item is trending upward. This means the company's expenses/costs are down.

Quantitative Methods of Financial Forecasting

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4. Multiple Linear Regression Forecasting Method

- This method uses more than two independent variables to make a projection.
- Basically, multiple linear regression (MLR) creates a model of the relationship between the independent explanatory variables (parameters) and the dependent response variable (outcome).

Quantitative Methods of Financial Forecasting

An example of multiple linear regression

- A truck company executive wants to predict fuel costs in the next six months.
- The independent variables she uses for this method are the Petrol and Diesel Fuel Update, mileage from GPS fleet routing systems, traffic patterns from smart city open data platforms and the number of trucks the company expects to be on the road during the period based on delivery orders.

Quantitative Methods of Financial Forecasting

An example of multiple linear regression

- This list is for illustrative purposes only, and other variables may also affect the result (outcome).
- In any case, all of the variables are independent of the outcome but also have an effect on the outcome.
- This model predicts the outcome—in this case, the predicted fuel costs for the period—based on the variables.

Qualitative Methods of Financial Forecasting

- By their nature, qualitative forecasting methods are less precise than quantitative. They're as much art as imprecise science.
- That is not to say, however, that they are less useful.
- For example, a doctor learns from experience the telltale signs of a certain disease, which drive his decision to order certain tests. The doctor may also suspect one disease over another because one is common in the local area, even if uncommon nationally.

Qualitative Methods of Financial Forecasting

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- Similarly, business executives develop expert knowledge from experience pertaining to their industry or product line.
- This information is not necessarily measurable, nor confirmed by historical data, but it has business value nonetheless.
- Qualitative forecasting methods use or combine soft data, such as expert estimates or opinions, with hard data, such as machine data or sales data, to make projections that are usually applied to short-term business predictions.

Qualitative Methods of Financial Forecasting

1. Market research

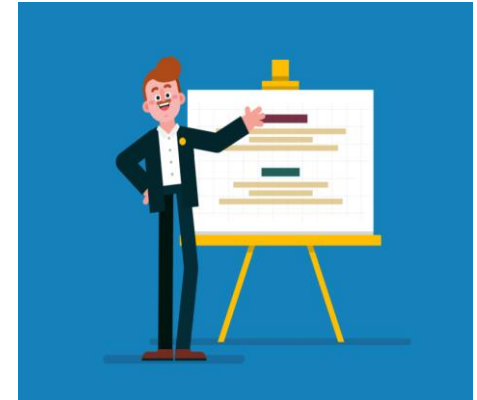
- Market research is widely used in the business world to evaluate potential scenarios a company hasn't faced before.
- For example : When a business is choosing where to open a new location, or when it's testing the marketing and packaging for an upcoming product.



Qualitative Methods of Financial Forecasting

2. Delphi Method

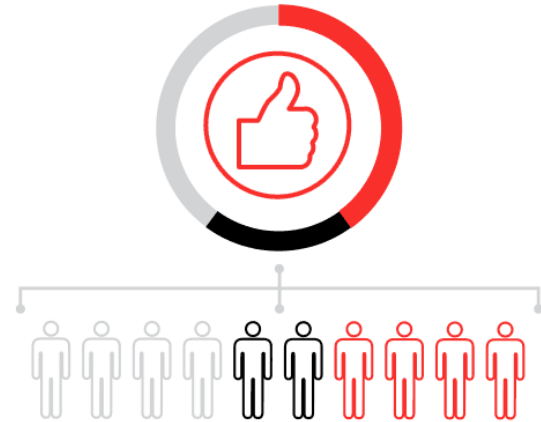
- Similar to market research, the Delphi method of financial forecasting sources its data from experts who can speak knowledgeably on the subjects being evaluated.
- A company seek outside sources, as well as in-house expert insight, to compile data through questionnaires that can be used to identify consensus opinions.



Qualitative Methods of Financial Forecasting

3. Consumer Survey

- Businesses often conduct market surveys of consumers.
- The data is collected via telephonic conversations, personal interviews, or survey questionnaires, and extensive statistical analysis is conducted to generate forecasts.



Qualitative Methods of Financial Forecasting

4. Sales force Polling

- Some companies believe that sales persons have close contact with the consumers and could provide significant insights regarding customer behavior.
- In this method of forecasting, the estimates are derived based on the average of salesforce polling.



Qualitative Methods of Financial Forecasting

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5. Executive Opinions:

- In this method, the expert opinions of key personnel of various departments, such as production, sales, purchasing, and operations, are gathered to arrive at future predictions.
- The management team makes revisions in the resulting forecast, based on their expectations.



Problems With Forecasting



Problems with Forecasting

- Business forecasting is vital for businesses because it allows them to plan production, financing, and other strategies.
- However, there are three problems with relying on forecasts:
 1. Dependence on Historical data
 2. Based on Assumptions
 3. Uncertain future



Problems with Forecasting

1) **Dependence on Historical data:**

- The data is always going to be old.
- Historical data is all we have to go on, and there is no guarantee that the conditions in the past will continue in the future.

Problems with Forecasting

2. Based on Assumptions:

- It is impossible to factor in unique or unexpected events, or externalities.
- Assumptions are dangerous, such as the assumption that banks were properly screening borrowers prior to the subprime meltdown. Black swan events have become more common as our reliance on forecasts has grown.

Problems with Forecasting

3. Uncertain Future:

- Forecasts cannot integrate their own impact.
- By having forecasts, accurate or inaccurate, the actions of businesses are influenced by a factor that cannot be included as a variable.
- In a worst-case scenario, management becomes a slave to historical data and trends rather than worrying about what the business is doing now.

Forecasting: Success Story

- ZARA, Spanish clothing and accessories retailer, which has 2,100 stores in 88 countries.
- The brand is renowned for its ability to deliver new clothes to stores quickly and in small batches.
- Twice a week at precise times, store managers order clothes, and twice a week, new garments arrive like clockwork.
- Zara's supply chain is its competitive advantage.

Forecasting: Success Story

- In-house production allows the retailer to be nimble in the amount and variety of new products to be introduced.
- Six months in advance, Zara commits to only 15 to 25 percent of a season's line.
- The retailer orders only half of its line at the start of the season, which means that up to 50 percent of its clothes are designed and manufactured during the season.

Forecasting: Success Story

- If a style gains in popularity, Zara reacts instantly, creating a new design of the in-demand style, then gets new items into stores while the trend is still peaking.
- Demand spikes can be addressed quickly because the Zara factory usually operates at full capacity only four days a week, leaving flexibility for extra shifts.
- Zara's inventory management software lets the store managers provide customer feedback on the items shoppers prefer and what's not selling. Zara's designers keep sketching, based on the data.

Forecasting: Success Story

- The constant tweaks to clothes give customers a sense of scarcity and exclusivity. This strategy allows Zara to sell more items at full price.
- There are fewer mark-downs and less inventory piling up in any part of supply chain from raw materials to finished products.
- With inventory optimization models, the retailer can determine the quantity to be delivered to a single store twice a week.

Forecasting: Success Story

- The stock delivered is small, so if the hastily created design does not sell, there's no risk of high inventory.
- Operations are monitored in real time and adjusted accordingly to empower demand forecasting.
- A key reason retailers need to intensify their focus on demand forecasting is to achieve greater alignment across their organizations.

Forecasting: Success Story

- Real-time visibility allows integration with merchandise financial plans, and to align location with assortment, category, space, and pricing.
- An enhanced demand forecasting strategy allows retailers to have the most accurate, up-to-date information and create their own success stories.

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