

Subject	Commerce
Paper No and Title	Paper No 8: Financial Management
Module No and Title	Module 18: Operating Leverage
Module Tag	COM_P8_M18

Principal Investigator	Co- Principal Investigator		Co- Principal Investigator and Technical Coordinator
Prof K V Bhanu Murthy Professor Department of Commerce University of Delhi	Dr Jaswinder Singh Principal SGTB Khalsa College University of Delhi	Dr. R P Singh Associate Professor SGTB Khalsa College Department of Commerce University of Delhi	Dr Vimal Rarh Deputy Director, Centre for e-Learning and Assistant Professor, Department of Chemistry, SGTB Khalsa College, University of Delhi <i>Specialised in : e-Learning and Educational Technologies</i>
Paper Coordinator	Content Writer		Reviewer
Dr. Vanita Tripathi Assistant Professor, Department of Commerce, University of Delhi	Dr. Neeta Tripathi Assistant Professor, Dayal Singh College, University of Delhi		Dr.Ram Pratap Sinha Associate Professor Government College of Engineering and Leather Technology Kolkata-700098 Chief Editor International Journal of Banking, Risk and Insurance
Anchor Institute : SGTB Khalsa College, University of Delhi			

COMMERCE
PAPER No. : 8 FINANCIAL MANAGEMENT
MODULE No. : 18 OPERATING LEVERAGE

TABLE OF CONTENTS

1. Learning Outcomes
2. Introduction: Financing Decision
3. Financial Structure
 - 3.1. Meaning
 - 3.2. Designing
4. Capital Structure
 - 4.1. Meaning
 - 4.2. Planning Techniques
5. Leverage Analysis
6. Operating Leverage
 - 6.1. Meaning
 - 6.2. Features
 - 6.3. Computation
 - 6.4. Interpretation
 - 6.5. Significance
 - 6.6. Applications
7. Summary

1. Learning Outcomes

After studying this module, you will be able to

- **Understand the Financing Decision.**
- **Absorb the meaning and designing of financial structure.**
- **Learn the meaning and techniques of planning Capital Structure.**
- **Acquire the understanding of Leverage Analysis.**
- **Know the meaning, features, computation, interpretation, significance and applications of Operating Leverage.**

2. Introduction: Financing Decision

A firm's capital structure or financing decision is concerned with obtaining funds to meet firm's long term investment requirements. It involves determining how the selected assets/projects (LHS of balance sheet) will be financed (RHS of balance sheet). Broadly, financing decisions involve two components:

- Firstly, to decide the total funds requirements. This depends on the investment decision of the firm.
- Secondly, to decide the sources and combinations of sources to raise such funds.

3. Financial Structure

3.1. Meaning

Determination of Financing Mix is a difficult task. So it is necessary to distinguish between Financial Structure and Capital Structure. Combination of all funds sources that appear on the liability side of the balance sheet is known as financial structure.

Financial Structure = Equity share capital + Pref. share Capital + Reserve & Surplus +

Long Term debt + Current Liabilities.

3.2. Designing

COMMERCE

PAPER No. : 8 FINANCIAL MANAGEMENT

MODULE No. : 18 OPERATING LEVERAGE

While designing Financial Structure following questions must be kept in mind:

- ❖ What should be the relationship between long term and short term sources of funds?
- ❖ In what proportion the funds be arranged from various long term sources?
- ❖ In what proportion the funds be arranged from various short term sources?

4. Capital Structure

4.1. Meaning

Mix of long term sources of funds to finance projects is called Capital Structure. In other words, capital structure represents the proportionate relationship between debt and equity. Equity includes paid up share capital, share premium, reserves and surplus (retained earnings).

Capital Structure = Equity share capital + Pref. share Capital + Reserve & surplus
+ Long Term debt.

Capital Structure = Financial Structure - Current Liabilities.

4.2. Planning Techniques

The process that leads to the final choice of the capital structure is called Capital Structure Planning. There are various techniques to measure the risk- return characteristics of alternative capital structures. The widely used techniques are:

- ❖ **Leverage Analysis**
- ❖ **EBIT – EPS Analysis.**

5. Leverage Analysis

Leverage, in general, is defined as a % change in dependent variable due to certain % change in independent variable. In financial management, these variables will be financial variables like Sales or Operating Income.

Leverage analysis means use of fixed operating costs and use of sources of funds which carry fixed financial costs to increase the potential return of an investment. Operating, Financial and Combined leverage are three types of leverage. In this module, we will discuss the Operating Leverage part of Leverage Analysis in detail.

 **Pathshala**
पाठशाला
A Gateway to All Post Graduate Courses

COMMERCE

PAPER No. : 8 FINANCIAL MANAGEMENT

MODULE No. : 18 OPERATING LEVERAGE

6. Operating Leverage

6.1. Meaning

Operating leverage refers to the use of fixed costs in the firm's operation. It points out the impact of change in sales on operating income (EBIT). Operating Leverage measures the sensitivity of a firm's operating income to a change (Δ) in sales. A firm will not have operating leverage if its ratio of fixed costs to total cost is nil. For such a firm, a given change in sales would produce the same percentage change in its operating profits (EBIT). If the firm has fixed costs, it would have operating leverage, and the percentage change in operating profit would be more for a given percentage change in sales.

6.2. Features

Following are the features of Operating Leverage:

- ✓ It measures the relationship between the sales revenue and EBIT.
- ✓ It impacts capital structure and return on total assets.
- ✓ It relates with the business risk of a firm.
- ✓ It is related to composition of fixed assets.
- ✓ It affects assets side of balance sheet of the firm.

6.3. Computation

Degree of Operating Leverage (DOL) is the percentage change in a firm's operating profit i.e. EBIT, resulting from a percentage change in sales.

Therefore, **Degree of Operating Leverage (DOL)**

$$= \% \text{ change in operating profit} / \% \text{ change in sales}$$

Or

$$= (\Delta \text{ EBIT} / \text{EBIT}) / (\Delta \text{ Sales} / \text{Sales})$$

Or

$$= \text{Contribution} / \text{EBIT}$$

Or

$$= (\text{Sales} - \text{Variable Cost}) / (\text{Sales} - \text{Variable Cost} - \text{Fixed Cost})$$

- Fixed costs are costs that are independent of output. Such costs remain constant throughout the relevant range Example: rent, cost of buildings or machinery etc.
- Variable costs are costs that change with the output. Generally variable costs increase or decrease proportionately with output. Example: wages, utilities, materials etc.
- Contribution = Sales Revenue - Variable Costs.
- Earnings Before Interest and Taxes (EBIT) = Contribution - Fixed Costs.

6.4. Interpretation

1. If: Contribution > Fixed Costs; Operating Leverage is favourable.
Contribution < Fixed Costs; Operating leverage is unfavourable.
2. If DOL = K, an X% increase in sales will produce a K*X% increase in EBIT.

When comparing firms, the firm with the highest DOL is the firm that will be most “sensitive” to a change in sales.

Example 1. Calculate Degree of Operating Leverage (DOL) in following cases:

	Case I	Case II
Sales	2,00,000	3,00,000
Variable Cost	1,20,000	1,80,000
Fixed Cost	40,000	40,000

Solution:

Case I. Degree of Operating Leverage (DOL)

$$= (\text{Sales} - \text{Variable Cost}) / (\text{Sales} - \text{Variable Cost} - \text{Fixed Cost})$$

$$= [(2,00,000 - 1,20,000) / (2,00,000 - 1,20,000 - 40,000)]$$

$$= 80,000 / 40,000 = 2$$

Interpretation: Thus, an X% increase in sales will produce a 2X% increase in EBIT. For example, 50% increase in sales, will result in 2(50%), i.e., 100% increase in EBIT.

Case II. Degree of Operating Leverage (DOL)

$$= (\text{Sales} - \text{Variable Cost}) / (\text{Sales} - \text{Variable Cost} - \text{Fixed Cost})$$

$$= [(3,00,000 - 1,80,000) / (3,00,000 - 1,80,000 - 40,000)]$$

$$= 1,20,000 / 80,000 = 1.5$$

Interpretation: Thus, X% increase in sales will produce a 1.5X% increase in EBIT. For example, 50% increase in sales will result in 1.5(50%), i.e., 75% increase in EBIT.

Example 2. The following information is given:

Selling Price per Unit.....	Rs. 20
Variable cost per unit.....	Rs. 12
Actual sales	100 units

Calculate DOL if: (a) FC is Rs. 500 and (b) FC is Rs. 400.

Solution: **Computation of Operating Leverage**

Particulars	Situation (a)	Situation (b)
	Rs.	Rs.
Sales	2000 [100 units x Rs.20 per unit]	2000 [100 units x Rs.20 per unit]
Less: Variable costs	(1200) [100 units x Rs.12 per unit]	(1200) [100 units x Rs.12 per unit]
Contribution	800	800
Less: Fixed Costs	(500)	(400)
EBIT	300	400
Operating Leverage = Contribution / EBIT	= 800/ 300 = 2.67	= 800/ 400 = 2.00

6.5. Significance

For a firm having higher DOL, even a small change in sales levels will have a magnified effect on EBIT. Even a minute increase in sales will significantly increase the operating profit (EBIT). However, even a small decrease in sales will also significantly decrease the operating profits (EBIT). It is a double edged sword. Therefore, a firm should always try to avoid operating under high degree of operating leverage as a high DOL condition is a high risk situation.

6.6. Applications

Major areas of application of Operating Leverage are as follows:

- The concept of operating leverage plays a very important role in capital budgeting decisions in identifying profitable investment projects.
- Operating leverage is very important for long term profit planning as one can get information about the impact on EBIT due to change in sales for a given amount of FC.
- DOL and Business Risk: Business Risk is the risk of variability in a firm's operating income (EBIT) due to changes in firm's business conditions like variations in sales volume or variable costs. In context of business risk, DOL becomes relevant when there is any change in sales volume or selling price or variable costs or fixed costs. DOL amplifies the variability of operating profits and hence significantly increases business risk.
- Capital structure decisions of a firm are also effected by its operating leverage.

7. Summary

- ❖ Financing decisions involve deciding about the total funds requirements, sources of raising required funds and the proportion in which funds are to be raised from various sources.
- ❖ Combination of all funds sources that appear on the liability side of the balance sheet is known as financial structure.
- ❖ Mix of long term sources of funds to finance projects is called Capital Structure.
 $\text{Capital Structure} = \text{Financial Structure} - \text{Current Liabilities}.$
- ❖ Capital Structure Planning is the process that leads to the final choice of the capital structure. Leverage analysis and EBIT – EPS analysis are two main capital structure planning techniques.

- ❖ Leverage analysis means use of fixed operating costs and use of sources of funds which carry fixed financial costs to increase the potential return of an investment.
- ❖ The three types of leverage are: Operating, Financial and Combined leverage.
- ❖ Operating leverage refers to the use of fixed costs in the firm's operation. It points out the impact of change in sales on operating income (EBIT).
- ❖ Degree of Operating Leverage (DOL) = % change in operating profit / % change in sales = Contribution / EBIT = (Sales – Variable Cost) / (Sales – Variable Cost – Fixed Cost). If DOL = K, X% increase in sales will cause K*X% increase in EBIT.
- ❖ For a firm having higher degree of operating leverage, even a small change in sales levels will have a magnified effect on EBIT. A firm should always try to avoid operating under high DOL as a high DOL condition is a high risk situation.
- ❖ Operating Leverage plays a very crucial role in capital budgeting decisions, profit planning and capital structure decisions. DOL significantly increases business risk.