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UNDERSTANDING LEVERAGE: A DUAL APPROACH TO MEASURING RISK AND PROFITABILITY IN FIRMS

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Abstract: This study investigates the multifaceted nature of leverage in corporate finance, distinguishing between its static and dynamic forms. Building on Dudycz's theoretical framework, the paper explores how operating and financial leverage impact a firm's earnings and return on equity, depending on varying levels of sales and debt. The analysis emphasizes the importance of clear measurement definitions, supported by visual models. The findings highlight that while leverage can significantly enhance profitability, it also magnifies risk. The study recommends precision in leverage assessment to inform strategic financial decisions better.

Key words: Leverage, Operating leverage(OL), Financial leverage (FL), Total leverage (TL), EBIT, ROE, Static approach, Dynamic approach.

Introduction

Leverage remains one of the core elements in understanding a company's risk and return profile. At its essence, leverage involves using fixed costs or borrowed capital to amplify potential returns. It plays a vital role in financial strategy, particularly in capital structure planning, risk management, and investment analysis. However, while the term "high leverage" is frequently used, it is often misinterpreted due to inconsistent definitions and measurement methods.

This paper addresses the ambiguity surrounding leverage by analyzing both the static and dynamic perspectives of operating and financial leverage. It offers a structured view of their respective impacts on performance and decision-making. By clarifying the dual measurement systems and examining their consequences, this research aims to equip financial analysts and decision-makers with tools to better assess and manage corporate risk.

Methodology

This research follows a qualitative, theoretical approach grounded in the analytical framework of Tadeusz Dudycz. His work categorizes leverage into three distinct types:

- **Operating Leverage (OL)**
- **Financial Leverage (FL)**
- **Total Leverage (TL)**

Each is assessed using:

1. **Static Methodology**: Based on a snapshot of cost structures or capital composition.
2. **Dynamic Methodology**: Focused on changes in performance metrics due to changes in volume (e.g., sales or EBIT).

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Data and equations are interpreted from the book, while visualization through two graphs illustrates the real-world application of these models. Parameters such as EBIT, ROE, margin of safety, and break-even point are examined as core indicators.

Results

Operating Leverage

Operating leverage indicates how sensitive a firm's earnings are to fluctuations in sales due to the presence of fixed costs. Companies with high fixed costs relative to variable costs exhibit high operating leverage. This means small changes in sales can lead to large changes in operating income (EBIT).

- **Static Approach**: The fixed cost ratio at the break-even point (BEP) is analyzed.
- **Dynamic Approach**: The Degree of Operating Leverage (DOL) measures the percentage change in EBIT divided by the percentage change in sales.

Key Equation (Static):

$$OL = \frac{FC}{FC + FV}$$

Key Equation (Dynamic):

$$DOL \frac{\%\Delta EBIT}{\%\Delta SALES} = \frac{S - VC}{S - VC - FC}$$

D Figure 1: Profit Sensitivity under Different Operating Leverage Scenarios

This graph demonstrates how EBIT grows faster when operating leverage is high, but it also shows greater downside risk during sales downturns.

Financial Leverage

Financial leverage reflects the sensitivity of net earnings to changes in EBIT due to the use of debt. The more a company borrows, the more its equity returns are magnified — both positively and negatively.

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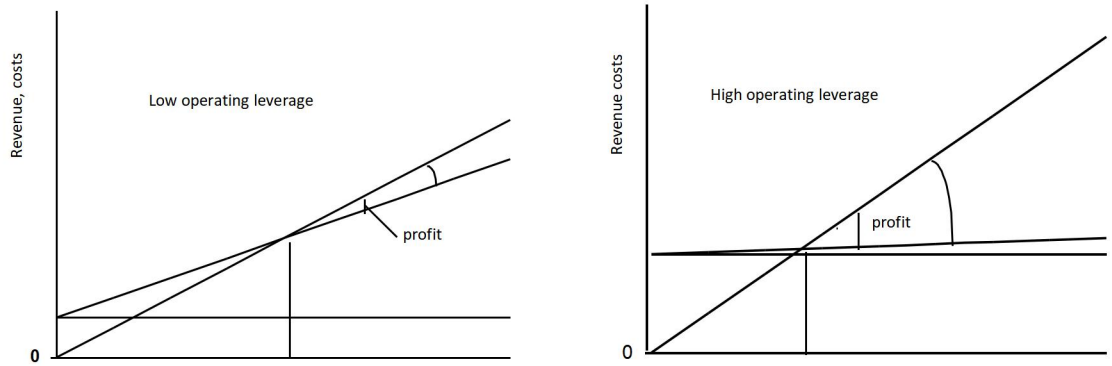

Figure1. Different scale of operating leverage

The graphs demonstrated in Figure 1 that low operating leverage is related with relatively low fixed costs and high variable costs at sales level at breakeven point. In contrast, high operating leverage involves relatively high fixed costs and low variable costs.

- **Static Approach**: Assesses the sensitivity of ROE to EBIT changes.
- **Dynamic Approach**: Degree of Financial Leverage (DFL) captures the percent change in ROE resulting from a percent change in EBIT.

Key Equation (Static):

$$FL = \frac{\Delta ROE}{\Delta EBIT}$$

Key Equation (Dynamic):

$$DFL = \frac{EBIT}{EBIT - Interest}$$

Figure 2: Impact of Financial Leverage on ROE

As shown, ROE rises dramatically after EBIT surpasses interest expenses, showing the multiplier effect of financial leverage. Below this point, however, leverage can be destructive.

Total Leverage

Total leverage combines the effects of operating and financial leverage, indicating how sales variations ultimately affect ROE.

- **Static Total Leverage (TL)** = OL × FL

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- **Dynamic Total Leverage (DTL)** = DOL × DFL

Equation (Dynamic):

$$DTL = \frac{\%\Delta ROE}{\%\Delta SALES}$$

The higher the total leverage, the more sensitive a firm's equity returns are to changes in revenue.

DOL is an inversion of the margin of safety and that means that if sales slightly exceed the break even point, DOL achieves large values and the greater the sales, the lower its value, approaching one. The function of DOL values depending on the margin of safety is presented in Figure 6. It occurs that no matter how high the operating leverage is, measured by relation.

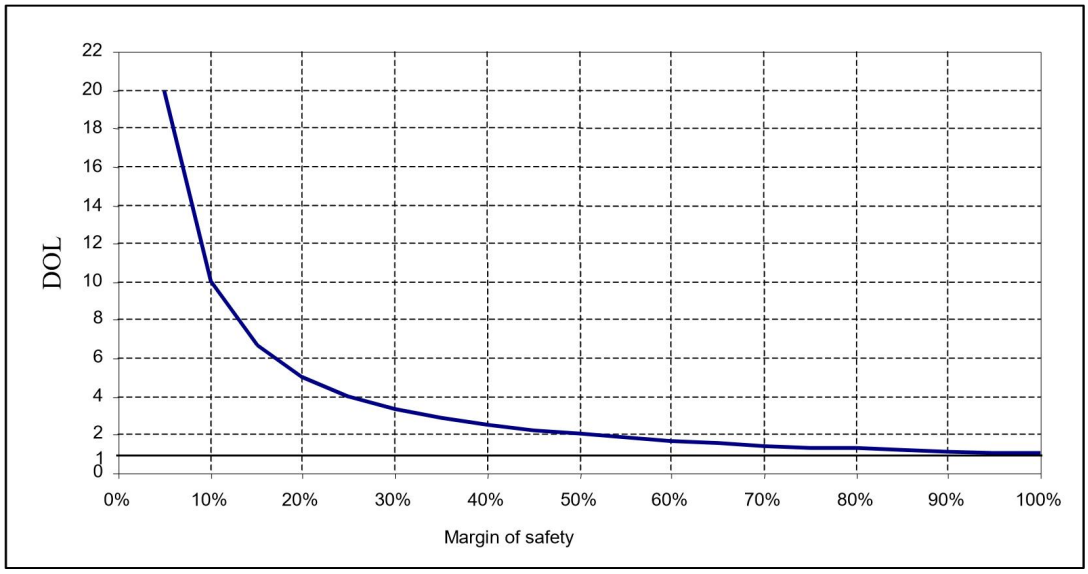

Figure 2. Relation of DOL to margin of safety

Discussion

The findings of this study confirm that leverage, while offering the potential for high returns, significantly increases the volatility of earnings and equity returns. This underscores the importance of understanding the interplay between fixed costs, debt levels, and sales volumes.

Notably, DOL and DFL are often misinterpreted in practice. DOL does not solely depend on fixed costs but is also driven by proximity to the break-even point. The closer a company is to BEP, the higher its DOL. Similarly, DFL varies with EBIT; near-zero EBIT levels can cause extreme volatility in ROE.

Strategic Implications:

1. **High OL Firms:** Best suited for stable industries where sales predictability is high.
2. **High FL Firms:** Should monitor interest coverage ratios and use debt sparingly during downturns.
3. **Integrated Analysis:** Combining static and dynamic views offers a holistic picture of financial health.

Additionally, financial managers should use incremental break-even sales (Qx) to assess when added fixed costs or debt start to pay off.

Conclusion

In conclusion, leverage must be interpreted with dual lenses — static and dynamic — to fully grasp its effects. Static measures reflect structural exposure, while dynamic measures reveal real-time sensitivity to change. Businesses must tailor their leverage based on their industry, sales variability, and strategic goals. With proper monitoring, leverage can become a powerful driver of shareholder value.

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