International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Revisiting Cost of Capital: When Debt Becomes More Expensive Than Equity - A Case Study of Kingfisher Airlines

Armaan Ahluwalia[1], Anant Bokade[2]

Abstract: ***This paper examines whether the cost of debt is always lower than the cost of equity by analyzing standard financial models and applying them to real-world scenarios, including the downfall of Kingfisher Airlines. Using both mathematical reasoning and empirical evidence, it demonstrates that in periods of extreme leverage and financial distress, the cost of debt can exceed that of equity. The paper also explores how credit ratings, tax shields, and market conditions influence capital costs and affect a firm's weighted average cost of capital (WACC).***

Keywords: cost of debt, cost of equity, WACC, financial distress, Kingfisher Airlines

1. Introduction

In corporate finance, firms raise capital primarily through debt and equity. Both sources have an associated cost, the return investors expect to cover the risk of investing in the business.

The cost of debt refers to the effective rate a firm pays on its borrowed funds. It is typically observed through interest rates on loans or yields on bonds. Since debt involves contractual payments and has priority over equity during liquidation, it is generally considered less risky. Further, interest payments are tax deductible, making debt an affordable option generally.

The cost of equity, on the other hand, represents the return required by shareholders for investing in the firm. Unlike debt, equity holders do not receive fixed payments and are residual claimants on the firm's cash flows. As equity returns are uncertain and depend on the firm's performance, equity tends to be more expensive than debt due to higher risk.

The purpose of the paper is to examine whether debt is a cheaper source of finance than equity particularly under conditions of financial distress. This topic is critical for understanding capital structure decisions in both stable and volatile environments, especially for firms facing high leverage

Cost of Debt and Equity Formulas and Relation
Kd = (1 − T)(Rf + Default Risk Premium)
Ke = Rf + β (Market Risk Premium)

2. Mathematical Analysis

The cost of debt is determined by combining a risk-free baseline with a default risk premium, which reflects the likelihood that the company might fail to meet its debt obligations, based on factors like its credit rating. Since interest payments are tax-deductible, the company effectively pays less than the nominal interest, so the real cost of debt is reduced by the fraction of taxes saved, which is why it is multiplied by (1- tax rate).

The cost of equity reflects the return that shareholders expect for investing in the company. It is based on a risk-free baseline, like government bonds, plus a premium for systematic risk, which accounts for the company's sensitivity to overall market movements. Unlike debt, equity holders are not guaranteed fixed payments and face the full impact of market fluctuations, so the expected return is higher to compensate for this risk. The more a company's value swings with the market, the larger this premium becomes, which makes the cost of equity generally higher than the cost of debt.

Cases Where Cost of Debt is Higher than Cost of Equity

Hypothetical Example: ABC LTD
Scenario:
The company is highly leveraged, has huge losses, and cannot use most of the tax shield from interest.
Lenders charge very high interest because the company is risky.
Equity investors are only expecting moderate returns because the stock is depressed and shareholders are hoping for recovery, not huge growth.

Parameters:
Debt Outstanding: ₹100 crore
Interest rate on debt: 30%
Corporate tax rate: 0%
Equity value: ₹55 crore

Assume:
Risk-free rate = 6%
Market risk premium = 8%
Unlevered β = 1
Levered β = 1 (1 + Debt(1 − T) / Equity)
= 1 (1 + 100 / 55)
= 2.819

Cost of equity:
Ke = 6% + (2.819 × 8%)
= 28.56%

Implication:
If we plot leverage on the x-axis and cost of capital on the y-axis, the cost of debt remains relatively flat at low leverage but rises sharply once default risk increases. The cost of

equity rises continuously with leverage. Beyond a certain point, the cost of debt may exceed the cost of equity due to extreme financial distress.

This situation has been observed with firms like Yes Bank and Vodafone Idea.

Relation to WACC and Capital Structure
Firms do not evaluate the cost of debt and equity in isolation, but through the Weighted Average Cost of Capital (WACC), which represents the overall required return on the firm's assets.

Since debt is usually cheaper than equity, increasing debt initially lowers WACC due to the tax shield. However, beyond an optimal level of leverage, rising default risk increases both cost of debt and equity, causing WACC to rise. This explains why excessive reliance on debt can destroy firm value.

Role of Credit Rating
Credit ratings capture a firm's default risk. A downgrade increases perceived probability of non-payment, forcing lenders to demand higher interest rates and stricter terms. In distressed or loss-making firms, this can raise borrowing costs substantially, making debt expensive despite its usual tax advantages.

Further, sovereign credit ratings influence borrowing costs even for the US. Rising debt, large fiscal deficits, and political uncertainty increase concerns about debt sustainability and potential payment disruptions. When rating agencies perceive higher risk, they may downgrade US debt, signalling weaker creditworthiness. This leads investors to demand higher yields on Treasury securities, raising government borrowing costs and global benchmark interest rates.

Conclusion (Theoretical)
Debt is a powerful tool for firms as it has the power to save taxes and generate higher returns. However, excessive debt can lead to insolvency and other complications. Hence, debt must be used wisely, keeping into consideration the Net Present Value of future returns.

Statistical Framework
Let Rs and Rb denote the returns from stocks and bonds respectively for a sufficiently large sample of data. Due to this we assume a normal distribution for the sample mean of Rs and Rb, keeping in mind the Central Limit Theorem.

$P=corr(Rs,Rb)$

Under normal market conditions Rs and Rb are generally negatively correlated, however during distress market periods, correlation is said to increase.

As bondholders face increasing risk, mathematically the left tail downside of the distribution, they may demand a higher risk premium.

This framework corresponds directly to situations where cost of debt may be higher than that of equity.

Kingfisher Airlines Case Study

History of Kingfisher Airlines
Kingfisher Airlines was launched in 2005 by Vijay Mallya under the United Breweries Group.

Phase 1 : Entry as a Domestic Low-Cost Carrier (2005–2006)
Initially, Kingfisher entered as a domestic low-cost, efficiency-focused airline, competing with Indigo, SpiceJet, and Air Deccan.

The business model included:
High aircraft utilization
Lower ticket prices
Standardized fleet
Point-to-point routes
Minimal frills

Lower operating cost per seat
At this stage, the airline was cash-burning but manageable, relying on equity infusions, bank loans, and sale-and-leaseback of aircraft.

Business Model Shift- From Low-Cost to Premium (Negative NPV Turn)
Around 2007- 2008, Kingfisher changed strategy from a low-cost carrier to a premium full-service airline. This marked the beginning of financial stress.

Major Strategic Mistakes (Negative NPV Investments)
Fleet expansion with wide-body aircraft
High lease commitments
Acquisition of Air Deccan (2008)
Brand confusion and integration costs
Premium positioning in a price-sensitive market

External Shock- Rising Oil Prices
Between 2007–2008, global crude oil prices rose sharply. Aviation fuel forms 30–40% of airline operating costs. Ticket prices could not rise proportionally, accelerating losses.

Financial Deterioration and Excess Leverage
By 2010–2012:
Continuous losses
Mounting bank debt (~₹7,000–9,000 crore)
Grounded aircraft
Unpaid salaries
Suspension of operations in 2012
Equity value largely wiped out

How Did Excess Leverage Make Cost of Debt Higher Than Cost of Equity?
Step 1- Cost of Equity in Distress
Share price collapsed
No dividends
Probability of recovery minimal
Expected return on equity ≈ 0

Step 2- Cost of Debt under Distress
Higher perceived default risk
Higher interest rates
Penalty charges
Restructuring costs

Effective interest rate ≈ 10–12%

Comparison:
Kd > Ke

Appendix: Mathematical Demonstration- Kingfisher Airlines
Total Debt (D): ₹8,000 crore
Equity Value (E): ~₹0–500 crore
Interest Expense: ₹800–960 crore
Tax Rate: 0%
Kd ≈ Interest / Debt
≈ 880 / 8,000
≈ 11%
CAPM-based Ke ≈ 8.6%
Economic Ke ≈ 0%
Thus:
Kd > Ke

WACC UNDER EXTREME LEVERAGE
WACC = (E/V)Ke + (D/V)Kd(1 − T)
E = 500
D = 8,000
V = 8,500
WACC ≈ 10.35%

Firm value was driven almost entirely by cost of debt.

References

[1] Statitsical Methods(2012). Sultan Chand and Sons
[2] Fundamentals of Mathematical Statistics(2014). Sultan Chand and Sons
[3] The Intelligent Investor. (2006). Harper Business
[4] Rich Dad Poor Dad. (2017). Robert Kiyosaki
[5] Miscellaneous Articles (The Economic Times)