ABM 302 Lesson 5: Theories of Capital Structure

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NET INCOME THEORY (DAVID DURAND)

According to this theory, capital structure decisions are relevant to the value of firm.

An increase in proportion of debt, i.e. the degree of financial leverage will lead to decline in the form's cost of capital, while the value of firm and market price of equity shares will increase and vice versa.

Basic assumptions of theory are as follows.

- There are two sources of capital debt and equity.
- Firm can change debt-equity mix.
- Cost of debt (Kd) is less than cost of equity (Ke).
- Firm follows 100% dividend pay-out.
- Business risk is constant over time.
- There are no taxes.
- Use of debt does not change risk perception of common investors, so, Ke remains same at all degrees of financial leverage.

NET INCOME THEORY CONTINUED.....

The value of firm (V) is determined by value of equity (E) and value of debt (D).

V = (E + D)

Here:

$$V = \frac{EBIT}{Ko}$$
$$D = \frac{I}{Kd}$$
$$E = \frac{Equity Earning}{Ke}$$
$$E = \frac{Or}{Ke}$$
$$E = \frac{EBIT - I}{Ke}$$



NET OPERATING INCOME THEORY (DAVID DURAND)

According to this theory, capital structure decisions are irrelevant to the cost of capital and the value of firm. There is nothing like optimal capital structure.

Basic assumptions of theory are as follows.

- There are two sources of capital debt and equity.
- Firm can change debt-equity mix.
- Cost of debt (Kd) is less than cost of equity (Ke).
- Cost of equity (Ke) increases with every increase in debt.
- Firm follows 100% dividend pay-out.
- Business risk is constant over time.
- Market evaluates firm as a whole, hence, split between debt and equity is irrelevant.
- There are no taxes.

NET OPERATING INCOME THEORY CONTINUED.....

• The value of equity (E) is residual, it depends on value of firm (V) and the value of debt (D).

E = (V - D)

- An increase in debt increases risk perception of common stock-holders. Hence, their expectations about return increase.
- This exactly offsets the advantage of low-cost debt to the firm, and results into no effect on cost of capital (Ko) and value of firm (V).



TRADITIONAL THEORY

According to this theory, capital structure decisions are relevant to the cost of capital and the value of firm. Firm should strive to reach at the 'optimal capital structure'.

It states that as a result of increase in debt up to certain point, cost of capital (Ko) comes down and value of firm (V) increases. Beyond that point, reverse trend emerge.

Basic assumptions of theory are as follows.

- There are two sources of capital: debt and equity.
- Firm can change debt-equity mix.
- Cost of debt (Kd) is less than cost of equity (Ke).
- With increase in debt, initially, cost of equity (Ke) remains constant. But, after a point due to increase in risk perception of lenders and equity holders, both Kd and Ke increase.
- Firm follows 100% dividend pay-out ratio.
- Business risk is constant over time.
- There are no taxes.

TRADITIONAL THEORY CONTINUED.....

There can be 3 stages of D/E mix.

- Stage I: With increase in debt, firm gets advantage of low-cost debt. Since Ke is constant, Ko decreases and V increases.
- Stage II: Further increase in debt leads to increased risk to equity holders. So, Ke increases, and as a result, Ko tends to $_{\Box}$ increase, and V is deceasing.
- Stage III: Excessive increase in debt leads to increased Ke as well as Kd. This results into high Ko and low V.



At optimum point (O), Ko is minimum, V is maximum.

MODIGLIANI – MILLER (MM) THEORY

MM theory is akin to NOI theory; it also talks about irrelevance of capital structure decisions. However, this theory provides operational and behavioral justification for irrelevance of capital structure.

Basic assumptions of MM theory are as follows.

- Perfect capital markets: Free market play, Free flow of information, Rational investors, Infinitely divisible securities, and No transaction costs.
- None of the investors can affect the stock price.
- Firms can be grouped into 'equivalent risk classes' based on their business risk. These are substitutable firms for investors.
- The cost of debt (kd) is fixed and always lower than the cost of equity (Ke).
- Investor can borrow freely on the terms as the firm can.
- 100% dividend payout and No taxes (removed later)

MM THEORY CONTINUED.....

Main propositions of the theory are as follows.

• Ko and V are independent of capital structure.

- Increase in debt leads to increased risk to equity holders and increased Ke, exactly offsetting advantage of low-cost debt.
- Market value of firm (V) is equal to discounted operating income (EBIT), at a rate (Ko) appropriate to its risk class.

$$V = \frac{EBIT}{Ko}$$

• The cost of capital is:

$$Ko = Ke\left(\frac{E}{E+D}\right) + Kd\left(\frac{D}{E+D}\right)$$

• A levered firm has higher cost of equity than an unlevered firm, because it's Ke includes risk premia for financial risk.

$$Ke = Ko + (Ko - Kd)\frac{D}{E}$$

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MM THEORY CONTINUED.....

- **Statement:** Value of levered firm=Value of unlevered firm (VL = VU) **Operational Justification:**
- The operational justification of MM theory is explained through -
- Functioning of the 'Process of arbitrage': It states that investors sell 'Over-valued' shares of levered firm and buy 'Under-valued' shares of unlevered firm. This process sets right the discrepancy in the valuation of levered and unlevered firm.

Firm A (L): Ko $\downarrow - V\uparrow - MPS \uparrow - Sell - MPS \downarrow - V \downarrow$ Firm B (U): Ko $\uparrow - V\downarrow - MPS \downarrow - Buy - MPS \uparrow - V \uparrow$

• Substitution of 'Corporate leverage' by 'Personal/ Home-made leverage': It states that investor, for equalizing risk in new investment (unlevered firm), replicate the D/E Mix of the firm in his personal capacity, and invest total fund (Sale Proceed + Loan) for maximizing return on investment.



