MN20211 Revision Lecture

May 5th 2010

RF section of Course.

Exam Structure

- Section A: choice of one numerical question from 2 (RF or AB): worth 30 marks
- Choice of one essay from 2 (both RF's) : worth 35
- Choice of one essay/conceptual question from 2 (both AB's): worth 35.

My course structure

- **Investment Appraisal** (which projects to invest in?)
- => **Real Options** (flexibility in investment appraisal)
- **Capital Structure** (financing of projects)
- **Payout policy** (dividends/ share repurchases): what to do with cashflows achieved from projects?

Skills Required:-

- Conceptual (essays): lecture notes/ articles/text book

- Analytical (numerical)

Conceptual

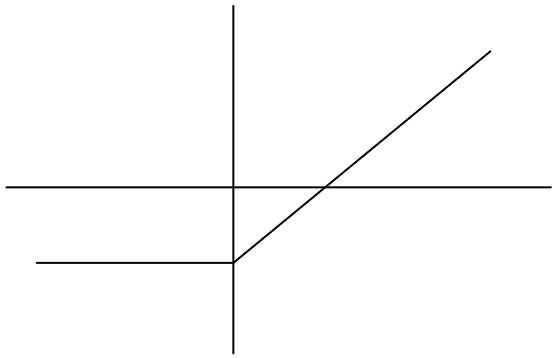
- Essay structure:
- Good relevant introduction setting the scene for the forthcoming essay
- Main body of essay:-
- => theories covered in the course: including intuition for the models, diagrams, key equations (??)
- => any practical/empirical examples
- => conclusion.

Essay

- Quality, not quantity
- Focussed/relevant
- Including ALL the ingredients on the previous slide.
- Half a page of A4 not usually sufficient
- Essays full of opinions not sufficient.
- Typically good essay: 4+ sides of A4 (depending on writing size!)

Real Options

- Standard NPV is now-or-never decision
- Real Option approach: recognises flexibility
- => “Now-or-later”
- Option to delay, option to abandon, option to expand.
- Option Diagrams



Real options (continued)

- Talk about pricing of options
- RO value-added = static NPV + option value
- Effect of risk?
- Option to expand: R and D
- Effects of competition: (Smit and Ankum, Smit and Trigeorgis)
- Use of game theory to analyss (show normal form game/ game tree)
- Trade-off between delaying to add value, and protecting competitive advantage (equation)

Capital Structure

- Introduction (relevant to the question!)
- Theories:
- Modigliani-Miller (equations? Diagrams.)
- => perfect market assumptions.
- Tax
- Agency problems: Jensen and Meckling
- Jensen FCF, other papers: disciplining role of debt
- => trade-off model
- Signalling: => pecking order (RE/Debt/Equity)

Value of the Firm and Capital Structure

Value of the Firm = Value of Debt + Value of Equity = discounted value of future cashflows available to the providers of capital.

(where values refer to **market** values).

Capital Structure is the amount of debt and equity: It is the way a firm finances its investments.

Unlevered firm = all-equity.

Levered firm = Debt plus equity.

Miller-Modigliani said that it does not matter how you split the cake between debt and equity, the value of the firm is unchanged (Irrelevance Theorem).

Value of the Firm = discounted value of future cashflows available to the providers of capital.

-Assume Incomes are perpetuities.

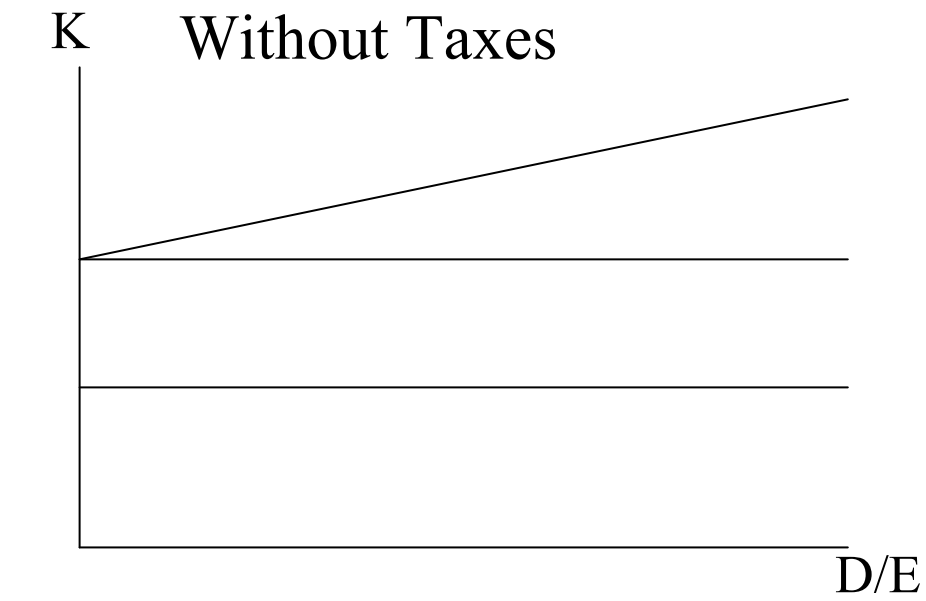
Miller- Modigliani Theorem:

$$V_U = \frac{NCF(1-T)}{\rho} = V_E$$

$$V_L = V_U + T.B = \frac{NCF(1-T)}{WACC} = V_E + V_D$$

Irrelevance Theorem: Without Tax, Firm Value is independent of the Capital Structure.

Note that $WACC = \%debt * K_d(1-t) + \%equity * K_e$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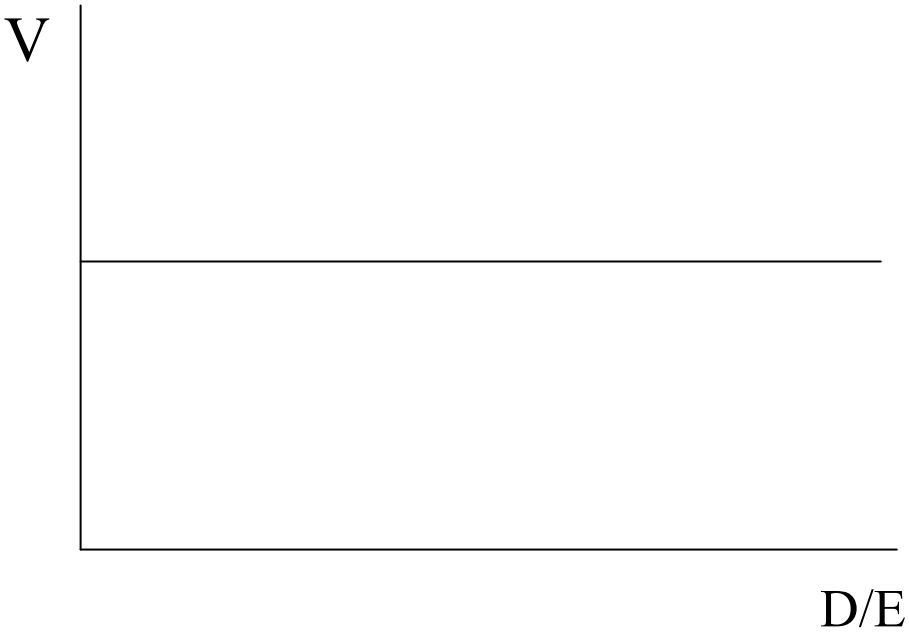
Without Taxes
D/E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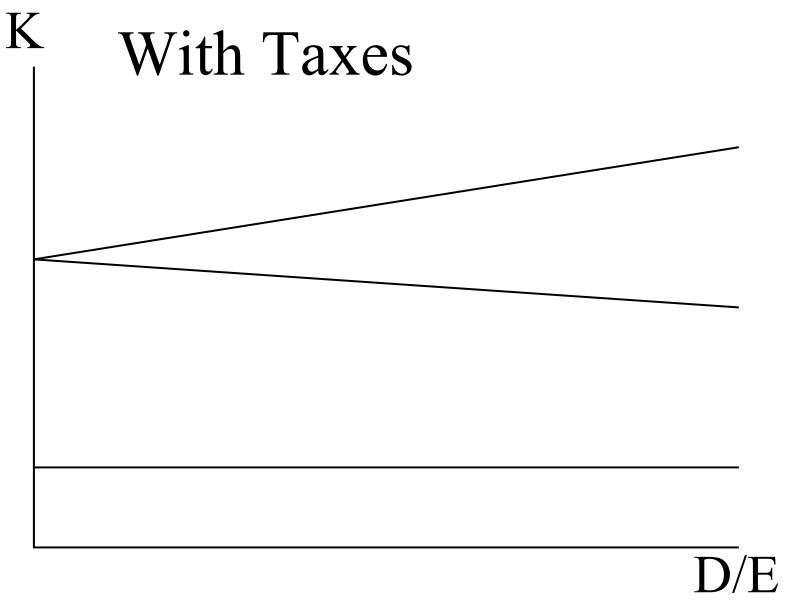
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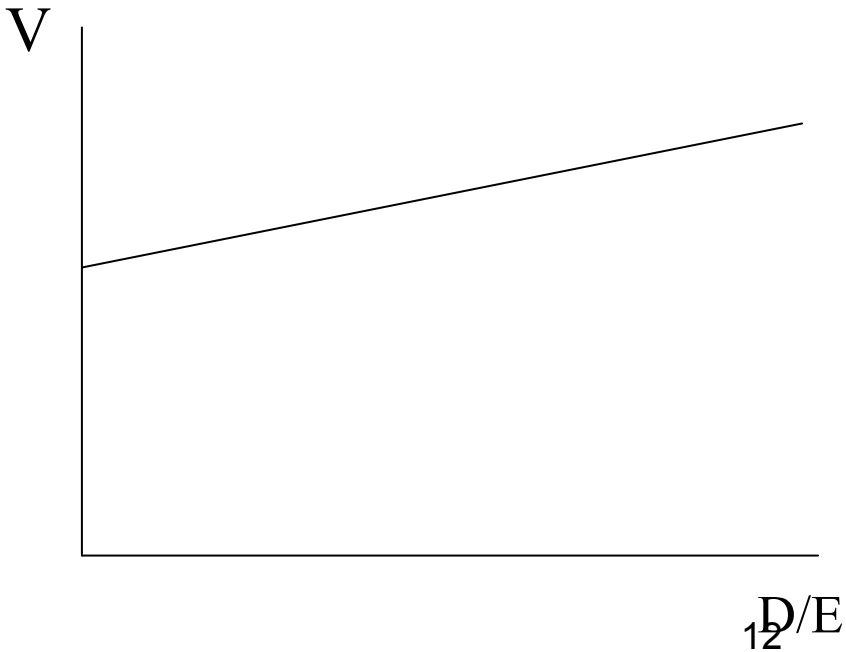

V
D/E

MM main assumptions:

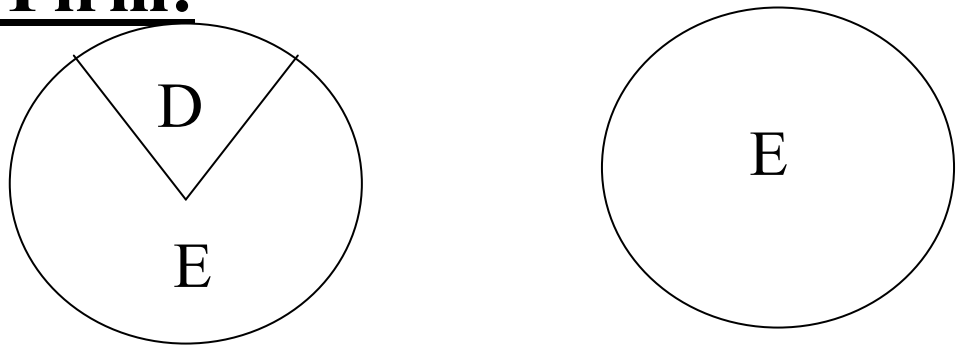
- Symmetric information.

-Managers unselfish- maximise shareholders wealth.

-Risk Free Debt.

MM assumed that investment and financing decisions were separate. Firm first chooses its investment projects (NPV rule), then decides on its capital structure.

Pie Model of the Firm:



MM irrelevance theorem- firm can use any mix of debt and equity – this is unsatisfactory as a policy tool.

Searching for the Optimal Capital Structure.

-Tax benefits of debt.

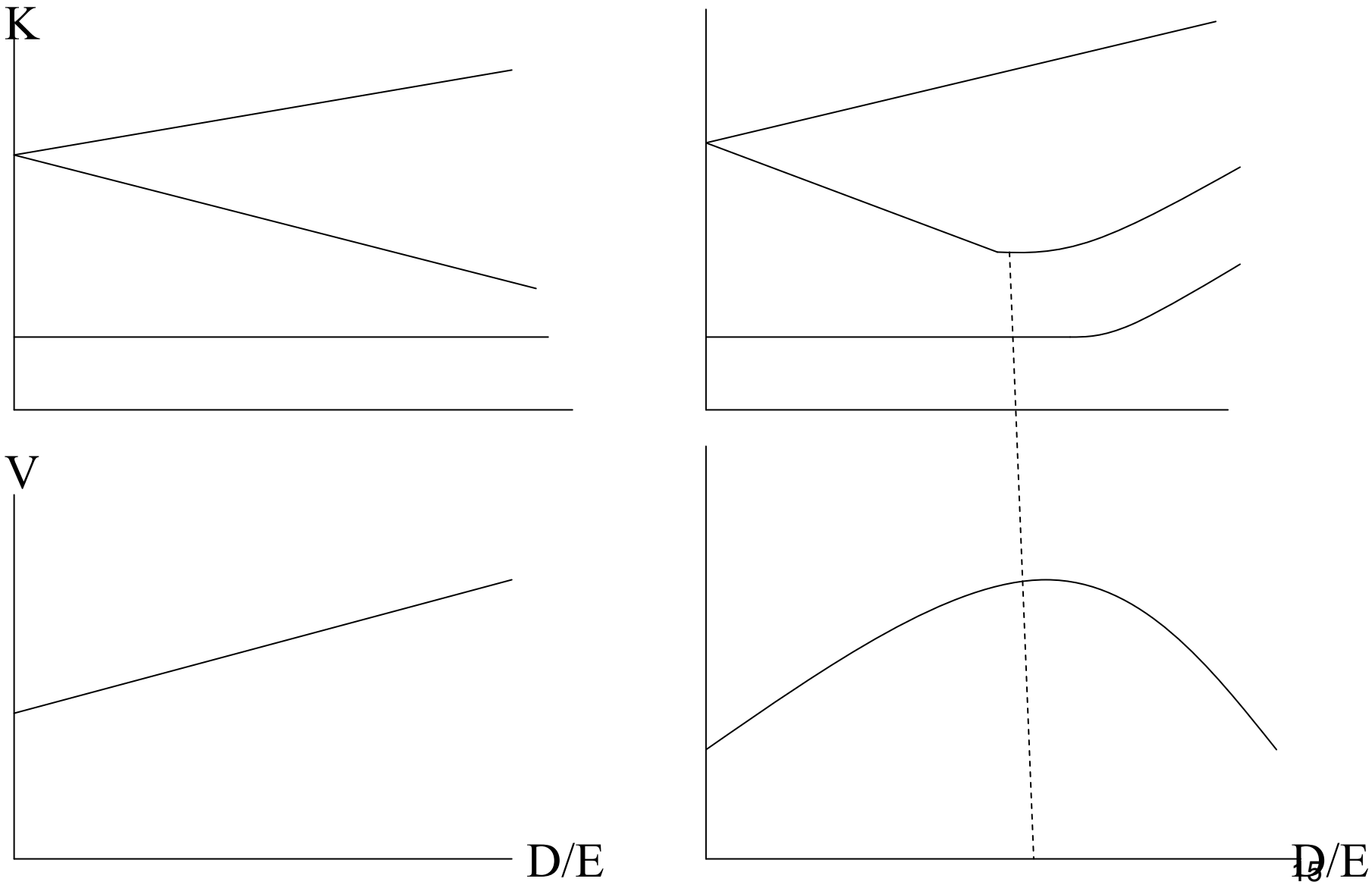
-Asymmetric information- Signalling.

-Agency Costs (selfish managers).

-Debt Capacity and Risky Debt.

Optimal Capital Structure maximises firm value.

Combining Tax Relief and Debt Capacity (Traditional View).



Capital Structure (continued)

- Asymmetric Information
- Ross: signalling with debt (good signal): mgrl (justified) confidence, and debt bankruptcy threat.
- Myers-Majluf: equity and signalling (bad signal): mgr has inside information on future ‘news’ of firm.
- => Pecking order theory (RE/Debt/equity)

Capital Structure (continued)

- Practical methods:
- Survey work (Graham and Harvey): trade-off versus pecking order.
- Life-cycle model
- Benchmarking (irrational/herding?)
- Trade-off versus pecking order (China: reverse pecking order?)
- Case? Eg BT (Fairchild 2003): Debt ↑ credit rating ↓

Dividend Policy

- Introduction (relevant)
- Miller Modigliani dividend irrelevance:
- Cap gains plus dividends
- Source and application of funds argument
- Home-made dividends
- Perfect mkt assumptions
- Lintner's (1956) survey: dividend smoothing…
- Gordon Growth model: real trade-off between paying dividends and investing for growth.
- Agency problems: Jensen's free cash flow (1986), Easterbrook (1984)

Dividend Policy (continued)

- Signalling/asymmetric info
- Miller and Rock: high divs signal high cashflow/good firm => can afford high dividend
- But: Div cuts not always bad news: lots of good opportunities available (Wooldridge and Ghosh paper => ITT and Gould)

Dividend Policy (continued)

- Free cashflow versus signalling hypothesis
- Fuller and Thakor: both hypotheses: high divs good (only -ve NPV project available)
- Fairchild: positive NPV project available.
- Conflicting hypotheses.
- Behavioural aspect: investors conditioned to think high divs are good.
- Cut divs => communication/reputation important
- 6 roundtable discussions of CF.