

Wrap-Up of the Financing Module



Finance Theory II (15.402) – Spring 2003 – Dirk Jenter

The Big Picture: Part I - Financing

A. Identifying Funding Needs

- Feb 6 Case: Wilson Lumber 1
- Feb 11 Case: Wilson Lumber 2

B. Optimal Capital Structure: The Basics

- Feb 13 Lecture: Capital Structure 1
- Feb 20 Lecture: Capital Structure 2
- Feb 25 Case: UST Inc.
- Feb 27 Case: Massey Ferguson

C. Optimal Capital Structure: Information and Agency

- Mar 4 Lecture: Capital Structure 3
- Mar 6 Case: MCI Communications
- Mar 11 Financing Review
- Mar 13 Case: Intel Corporation



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Overview of Financing

Financial forecasting

- Short-term and medium-term forecasting.
- General dynamics: Sustainable growth.

Capital structure

- Describing a firm's capital structure.
- Benchmark: MM irrelevance.
- Theory 1: Static Trade-Off Theory.
- Theory 2: Pecking Order Theory.
- Agency issues related to capital structure.

→ **Pulling it all together.**



Forecasting a Firm's Funding Needs

- **Question:** Given a firm's operations and the forecast thereof, how much funding will be required, and when?
- Requires short-run and long-run forecasting.
- Requires an assessment of a firm's general dynamics:
 - The concept of sustainable growth.
 - Distinguish "cash cows" from "finance junkies".



General Dynamics

- **Sustainable Growth Rate: $g^* = (1-d) * ROE$**
- Give a (very rough) measure of how fast you can grow assets without increasing your leverage ratio or issuing equity.
- Sustainable growth rate increases when
 - Dividends (d) decreases
 - Profit margins (NI/Sales) increases
 - Asset turnover (Sales/Assets) increases
 - Leverage (Assets/NW) increases



Key Points

- **Key Point 0:** The concept of sustainable growth does not tell you whether growing is good or not.
- **Key Point 1:** Sustainable growth is relevant only if you cannot or will not raise equity, and you cannot let D/E ratio increase.
- **Key Point 2:** Sustainable growth gives a quick idea of general dynamics: Cash cows ($g \ll g^*$) or Finance junkies ($g \gg g^*$).
- **Key Point 3:** Financial and business strategies cannot be set independently.



Capital Structure: Theory and Practice

- Modigliani-Miller Theorem
 - Capital structure choices are irrelevant.
- Theory 1: Static Trade-off Theory
 - Tax shield vs. Expected distress costs
- Theory 2: Pecking Order Theory
 - Costs of asymmetric information.
- Agency Issues related to capital structure.



Modigliani-Miller Theorem

- **MM: In frictionless markets, financial policy is irrelevant.**
 - “Proof”: Financial transactions are NPV=0. QED
- **Corollary:** All the following are irrelevant:
 - Capital structure
 - Long- vs. short-term debt
 - Dividend policy
 - Risk management
 - Etc.



Using MM Sensibly:

MM gives us a framework to understand why capital structure matters -> Changing the size of the pie.

When evaluating an argument in favor of a financial move:

- Ask yourself: Why is a financing argument wrong under MM?
→ Avoid fallacies such as mechanical effects on accounting measures (e.g., WACC fallacy, EPS fallacy)
- Ask yourself, what frictions does the argument rely on?
→ Taxes, Costs of financial distress, Information asymmetry, Agency problems.
- If none, dubious argument. If some, evaluate magnitude.



Theory 1: Static Trade-Off Theory

- The optimal target capital structure is determined by balancing *Tax Shield of Debt vs. Expected Costs of Financial Distress*
- Debt increases firm value by reducing the corporate tax bill.
→ This is because interest payments are tax deductible.
→ Personal taxes tend to reduce but not offset this effect.
- This is counterbalanced by the expected costs of financial distress:

$$\begin{aligned} &\text{Expected costs of financial distress} \\ &= \\ &(\text{Probability of Distress}) * (\text{Costs if actually in distress}) \end{aligned}$$



Checklist for Target Capital Structure

Tax Shield:

- Would the firm benefit from debt tax shield? Is it profitable?
Does it have tax credits?

Expected distress costs:

- Are cash flows volatile?
- Need for external funds for investment?
- Competitive threat if pinched for cash?
- Customers and suppliers care about distress?
- Are assets easy to re-deploy?

Note: Hard to renegotiate debt structure increases distress costs
(Recall Massey's complex debt structure).



Theory 2: Pecking Order

- **The Pecking Order Theory states that firms make financing choices with the goal to minimize the losses from raising funds under asymmetric information.**
- With information asymmetries between firms and markets:
 - External finance is more costly than internal funds.
 - Debt is less costly than equity (because less info-sensitive) .
- This implies that firms:
 - Preferably use retained earnings,
 - Then borrow from debt market,
 - As a last resort, issue equity.



Implications for Investment

- The value of a project depends on how it is financed.
→ Value = NPV of project – loss from financing
- Some projects will be undertaken only if funded internally or with relatively safe debt but not if financed with risky debt or equity.
- Companies with less cash and more leverage will be more prone to under-invest.
- Rationale for hoarding cash.



Agency Problems and Capital Structure

- Modigliani-Miller assumes that the real investment policy of a firm does not change as a function of capital structure.
- But: **Managers' incentives and hence their behavior may change with the capital structure of the firm.**
- Managers and stockholders incentives do not always coincide. These conflicts are called agency problems
- Agency problems in the firm:
→ We have Principals = Shareholders
→ We have Agents = Managers



Conflicts between managers and investors: Principal-Agent Problems

- Potential problems include:
 - Reduced Effort
 - Perks
 - Empire Building
- There are also conflicts between Bondholders and Shareholders
- **Question:**
 - Can Leverage help to avoid agency costs?
 - Can Leverage give managers incentives to make value-maximizing decisions?



Some classic principal-agent problem:

The Free Cash Flow Problem:

- Managers in firms with lots of free cash flow (cash cows) and bad investment opportunities may be reluctant to simply give the excess cash back to shareholders.
- ⇒ **Having debt puts free cash flows to use, and reduces managers ability to squander funds on pet projects and empire building.**

The Lazy Managers Problem:

- Managers in stable firms with lots of free cash flow and without much product market competition may become lazy and complacent.
- ⇒ **Raising leverage (a lot) puts pressure on managers to perform and to make operations more efficient.**



Can leverage create agency costs?

(Excessive) Leverage can create agency conflicts between equity holders (managers) and creditors (bond holders):

- **Looting the firm in financial distress**
 - Firms have incentives to loot the company prior to bankruptcy
 - Drexel paid \$350M in bonuses three weeks before it filed Chapter 11
- **Delayed liquidation**
 - Firms have incentives to delay liquidation even if immediate liquidation is efficient.
 - Liquidation usually only helps creditors, not shareholders or managers.
- **Claim Dilution**
 - Firms have incentives to surprise existing creditors by borrowing more.
- **Risk shifting (asset substitution):**
 - Managers may decide to increase the risk of the firm after they have borrowed.

All these costs are anticipated by creditors and hence raise the cost of borrowing.



Take Away: Agency Problems and Capital Structure

- **Leverage can help to overcome certain agency problems:**
 - The free cash flow problem.
 - Complacent, lazy managers.
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- **Excessive leverage can create other agency problems:**
 - These tend to kick in in actual financial distress, hence can be regarded as additional costs of distress.
 - Clever usage of covenants can eliminate many of these problems.



Thinking about Capital Structure: An Extended Checklist

- **Taxes**
 - Does the company benefit from debt tax shield?
- **Information Problems**
 - Do outside investors understand the funding needs of the firm?
 - Would an equity issue be perceived as bad news by the market?
- **Agency Problems**
 - Does the firm have a free cash flow problem?
 - Do the managers need additional motivation and monitoring?
- **Expected Distress Costs**
 - What is the probability of distress? (Cash flow volatility)
 - What are the costs of distress?
 - Need for external funds for investment, competitive threat if pinched for cash, customers care about distress, assets difficult to redeploy?
 - Managerial misbehavior in distress?



Conclusion

- The bulk of the value is created on the LHS by making good investment decisions.
- You can destroy much value by mismanaging your RHS:
Financial policy should be supporting your business strategy.
- You cannot make sound financial decisions without knowing the implications for the business.
- Finance is too serious to leave it to finance people.

