

FIN2704/X

Week 10

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Plug variable

How to make the balance sheet balance

- Always: **Assets = Liabilities + Equity**
- ...or you can view this as:
 - How the firm is going to finance its growth
 - How the firm is going to use the excess funds generated from the growth
- Two scenarios covered in this module:
 1. The firm decides that Debt and Equity grow proportionally with Assets
 - The excess funds generated (i.e., NI) goes to paying dividends
 2. The firm decides to not pay dividend
 - All excess funds generated goes to RE, which means that E will increase
 - To balance, the firm will pay off some of its debts

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EFN equation

Allows for calculation of **external financing** needed to finance the increase in assets to facilitate sales growth

$$EFN = (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR)$$

Assets that grow spontaneously with sales

Liabilities that grow spontaneously with sales

Increase in RE due to sales growth

EFN equation assumptions

$$EFN = (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR)$$

To use the EFN equation, these assumptions must be met:

1. Firm is operating at full capacity
2. Constant Profit Margin
3. Dividend Payout Ratio/ Retention Ratio is constant

IMPORTANT INFORMATION

Final Exam is scheduled for

Wednesday, 28 April 2021 at 9:00 am

- On-site exam ONLY
 - No remote exam
 - 90 minutes, digital assessment using Exemplify
- Students who are unable to write this final exam on-site must file for **special consideration** together with valid supporting documents
 - NUS Business School's Board of Examiners will decide the appropriate resolutions in line with NUS guidelines
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Internal growth rate

- How much the firm can grow its assets using **Retained Earnings** as the only source of financing
- Implies that:
 - $EFN = 0$
 - No spontaneous change in liabilities
 - All liabilities are non-spontaneous

$$EFN = (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR)$$

\downarrow \downarrow
 $=0$ $=0$

Sustainable growth rate

How much the firm can grow by using:

- Internally generated funds, and...
- External funds by issuing debt, while ...
- Still maintaining a constant debt ratio
 - No spontaneous change in liabilities
 - All liabilities are non-spontaneous

$$EFN = (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR)$$

↓
=0

Sustainable growth rate example

(Week 10 slide 38) **REVISED**

$$\text{New Sales} = 5,000 * 1.1714 = 5,857$$

$$\begin{aligned} \text{EFN} &= (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR) \\ &= (9,500/5,000)*857 - 0 - (1,200/5,000)*5,857*0.5 \\ &= 925.46 \text{ (all debt)} \end{aligned}$$

$$\text{Current Debt ratio} = 5,400/9,500 = 0.5684$$

Projected Debt ratio

$$= (5,400 + 925.46) / (9,500 + 925.46 + 702.84) = 0.5684$$

Total projected debt =
Current level of debt
+ Projected new debt

Total projected assets
= current level of assets + (A*/S0)ΔS
= current level of assets
+ projected external financing
+ projected financing from RE

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If the firm wants to have a growth rate higher than its sustainable growth rate (Week 10 slide 39)

If want higher growth rate than sustainable growth rate, say 20%.

$$\text{New Sales} = 5,000 * 1.20 = 6,000$$

$$\begin{aligned} \text{AFN} &= (A^*/S_0)\Delta S - (L^*/S_0)\Delta S - M(S_1)(RR) \\ &= (9,500/5,000)*1,000 - 0 - (1,200/5,000)*6,000*0.5 \\ &= 1,180 \text{ (all debt)} \end{aligned}$$

$$\text{Current Debt ratio} = 5,400/9,500 = 0.5684$$

$$\begin{aligned} \text{Projected Debt ratio} \\ &= (5,400 + 1,180) / (9,500 + 1,180 + 720) = 0.5772 \end{aligned}$$

Higher than current Debt ratio

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Other notes

- Sustainable growth rate vs. Internal Growth Rate
 - Both are reasonable assumption
 - Depends on how the firm finances the growth
- Retention rate: how much of the net income is kept by the firm as Retained Earning
 - Retention rate = $1 - \text{dividend payout ratio}$

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Week 10

List of topics

Note:

You are responsible for all materials covered in the pre-recorded videos posted on LumiNUS, unless they are marked “not examinable”. This list only serves to help you in your revisions.

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Week 10 topics

Financial planning

- Capital budgeting decisions
 - Capital structure decisions
 - Net working capital decisions
 - Dividend policy decision
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- Planning process
 - Horizon
 - Aggregation
 - Assumptions & scenarios
-
- Financial statements
 - Pro-forma financial statements
 - Shareholder's Equity increases by Addition to Retained Earnings

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Week 10 topics (cont.)

- Financial planning model ingredients
 1. Sales forecast
 2. Pro-forma statements
 3. Assets requirements
 4. Financial requirements
 5. Plus variables
 6. Economic assumptions

Week 10 topics (cont.)

Percent of Sales approach

- Some Balance Sheet and some Income Statement items may vary directly with sales, while others may not
- External Funds Needed (EFN)
 - Important assumptions to using EFN equation
- Firms operating at less than full capacity
- Internal growth rate
- Sustainable growth rate

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