

Financial Policy

Financial Forecasting and Budgeting

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Course Outline

- **Introduction**
 - ◆ Lecture 1: Financial Management and the Business Environment
 - Readings: Brealey & Myers (B&M) Chap1, Chap2.
 - ◆ Lecture 2: Time Value of Money
 - Readings: B&M Chap3
- **Investment Decisions**
 - ◆ Lecture 3: Investment Appraisal Methods (+ *Quiz 1*)
 - Readings: B&M Ch5
 - ◆ Lecture 4: Net Working Capital and Cash Flow Management
 - Readings: B&M Ch30, 31.
 - ◆ **Lecture 5: Financial Forecasting and Budgeting**
 - Readings: B&M Ch6, 19.2, 29.
 - ◆ **Week 6 Midterm Exam (1h30)**
- **Financing Decisions**
 - ◆ Lecture 6: The Value of Bonds and Common Stocks
 - Readings: B&M Ch4.
 - ◆ Lecture 7: Internal Funds, Equity Financing and Dividend Policy
 - Readings: B&M Ch14, 15, 16.
 - ◆ Lecture 8 and 9: Capital Structure and the Cost of Financing (+ *Quiz 2*)
 - Readings: B&M Ch9, 10.1, 19.
 - ◆ Lecture 10: Overall Recap
 - ◆ **Week 11 Final Exam (3h)**

Class Outline

- Financial Forecasting
 - ◆ Percent of sales method
 - ◆ Cash budget
- Corporate valuation and Free Cash Flow

Financial Forecasting

- Very difficult if not impossible to accurately predict future outcomes
 - ◆ Oil price, internet economy, inflation, etc...
- So why do firms engage in planning efforts?
 - ◆ To think about what the future could bring
 - ◆ To devise strategy for dealing with **likely outcomes**
- The more the future is uncertain, the more value is offered by planning

Financial Forecasting

- Percent of sales method
 - ◆ Estimate any future expense, asset and liability as a % of the sales forecast
 - ◆ The % can come from
 - The most recent financial statement
 - From an average computed over several years
 - From the estimation of a financial analyst
 - From your own estimate !!!

Financial Forecasting

- Percent of sales method example:
 - ◆ We expect sales to increase by 20% in 2006 versus 2005, calculate the firm's financing needs in 2006

	2005	in %	2006
Sales	10	100,0%	12
Net income	0,5	5,0%	0,6

Dividends	0,25	2,5%	0,3
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Current assets	2	20,0%	2,4
Net fixed assets	4	40,0%	4,8
Total Assets	6	60,0%	7,2
Accounts payable	1	10,0%	1,2
Accrued expenses	1	10,0%	1,2
Notes payables	0,5	N/M	0,5
Long-term debt	2	N/M	2
Total liabilities	4,5	N/M	4,9
Common stock	0,3	N/M	0,3
Retained earnings	1,2	Retained Earnings _{n-1} + 2,5% of sales	1,5
Common equity	1,5	N/M	1,8
Total Liabilities and Equity	6	N/M	6,7

Spontaneous sources of financing

Discretionary sources of financing

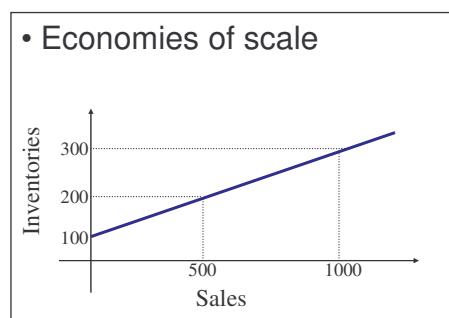
0.5 more are needed !!!

Financial Forecasting

- Exercise
 - ◆ Based on the previous slide, evaluate the sensitivity of the projected financing requirement to changes in the net profit margin (1%, 5% and 10%) and to changes in the dividend payout ratio (30%, 50% and 70%).

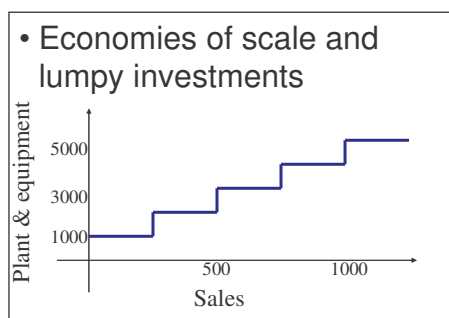
Financial Forecasting

- Limitations of the Percent of Sales Method
 - ◆ Asset requirements and financing sources are not always a constant percent of sales



Financial Forecasting

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Financial Forecasting

- Percent of sales method
 - ◆ Very simple
 - ◆ Not precise estimate of the amounts and timing

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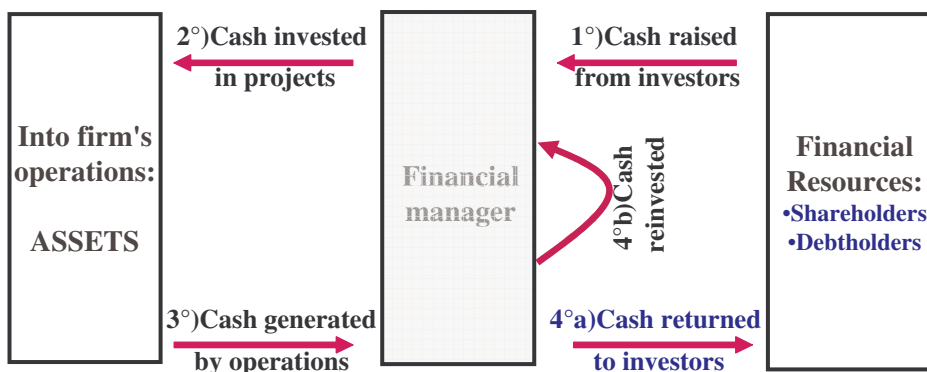
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Financial Forecasting

- Cash budget
 - ◆ Detailed plan of future cash flows
 - Cash receipt
 - Cash disbursements
 - Net change in cash for the period
 - New financing needed
 - ◆ Exercises on webintec
 - Cash budget.xls

Corporate Valuation

- What drives the value of a firm to
 - ◆ Shareholders
 - ◆ Debtholders



Corporate Valuation

- What drives the value of a firm?
 - ◆ The value of a firm is driven by the **future cash flows** it is able to generate for its investors (shareholders + debtholders)
 - ◆ These cash flows are said to be free for investors:
Free Cash Flows
 - ◆ The value of a firm can be calculated as the **Net Present Value** of all **future free cash flows**

Free Cash Flow

- **Free Cash Flow to the Firm (FCFF)** is the cash that is left over after the payment of all cash expenses and operating investment required by the firm
- **FCFF** is the hard cash that is available to pay the company's various claim holders (shareholders + debtholders)
- **FCFF** is what is left to
 - ◆ Pay dividends
 - ◆ Repay debts
 - ◆ Build up cash balances

Free Cash Flow

- Any business is worth the NPV of its future free cash flows discounted at the appropriate cost of capital r

$$Value_0 = \sum_{i=1}^{\infty} \frac{FCF_i}{(1+r)^i}$$

- The value of a firm is driven by its ability to generate **cash** for investors not by its ability to make profit

Free Cash Flow

- Determination of the Free Cash Flow
 - ◆ FCFF = + revenues
 - operating costs*
 - tax
 - + depreciation
 - investment expenditures
 - ◆ Investment expenditures must account for
 - Fixed capital expenditure (new and replacement)
 - Change in working capital
 - Change in (current assets – current liabilities)

Free Cash Flow

- What are the determinants of the FCF analysis
 - ◆ Forecast of firm's sales revenues and expenses
 - Sales growth
 - Margin
 - Tax rate
 - ◆ Estimate the levels of investment in current and fixed assets
 - Capital expenditure
 - Working capital
 - ◆ Determine the firm's financing needs

Free Cash Flow

- Sales forecast
 - ◆ Past trends in sales
 - ◆ Influence of any event that can affect those trends
- Forecasting financial variables
 - ◆ Percent of sales method
 - ◆ Cash budget

Free Cash Flow

- The FCF approach is valid not only for a whole firm but for any business division as well
- Example
 - ◆ You are interested in purchasing the chemical division of XYZ Ltd and you want to estimate its value based on the FCF approach
 - ◆ How would you determine this value?

Free Cash Flow

- Methodology: 5 steps
 1. Estimate the FCFs over a planning horizon:
 - + Sales
 - Operating expenses
 - Tax paid
 - + Depreciation
 - Fixed capital investment
 - Additional working capital
 - = Free Cash Flow

Free Cash Flow

- Methodology: 5 steps
 2. Estimate the cost of capital
 3. Compute the PV of the FCFs
 4. Estimate a terminal value
 5. Deduct any loan repayment

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 1° Estimate the FCFs over a planning horizon of 5 years (for example)

	Yr1	Yr2	Yr3	Yr4	Yr5
+ Sales	1000	1150	1320	1390	1470
- Operating expenses	-700	-790	-890	-930	-980
- Tax paid	-100	-120	-140	-150	-160
+ Depreciation	80	90	100	110	120
- Fixed capital investment	-125	-150	-180	-200	-220
- Additional working capital	-60	-70	-80	-80	-80
= Free Cash Flow	95	110	130	140	150

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 2° We must estimate the cost of capital based on
 - Risk free rate
 - Inflation risk
 - Risk premium
 - ◆ Say in that case it is estimated at 12%

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 3° Then, we compute the PV of FCFs

$$PV = \frac{95}{(1+12\%)^1} + \frac{110}{(1+12\%)^2} + \frac{130}{(1+12\%)^3} + \frac{140}{(1+12\%)^4} + \frac{150}{(1+12\%)^5} = 439.1$$

- ◆ Based on our forecast, XYZ chemical division estimated value is €439mns

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 4° We can use various methods to estimate a terminal value (or Horizon value)
 - 4.1° Constant growth formula
 - 4.2° Comparison with similar companies/business valuation
 - PER
 - PBV
 - 4.3° "No-growth" time horizon
 - When PVGO = 0

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 4-1° Estimate a terminal value with the constant growth formula: $PV_n = FCF_{n+1} / (r-g)$
 - Long run growth rate g
 - Free cash flow for year 6
 - Discount rate r
 - Terminal value = $161 / (12\% - 7\%) = 3210$
 - PV(Terminal value) = $3210 \times (1.12)^{-5} = 1821$

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 4-2° Estimate a terminal value by comparison with similar companies valuation (PER or PBV)
 - Mature similar chemical companies are currently trading at a 13 Price Earning Ratio (PER)
 - XYZ chemical operations should be worth in year 5:
Terminal value = 13 x Earnings at year 5
 - Earnings at year 5: Sales – Op. expenses – Tax = 330
 - PV(Terminal value) = $13 \times 330 \times 1.12^{-5} = 2434$

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 4-3° Estimate a terminal value with "no-growth" time horizon
 - Life-cycle stages of the business
 - Determine the time when the industry is settled into competitive equilibrium => no more growth opportunities
 - At this time t , $Value_t = Earnings_{t+1} / r$

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 4-3° Estimate a terminal value with "no-growth" time horizon
 - Let's assume that the chemical industry will enter in its decline stage in 10 years
 - Terminal value₁₀ = Earnings₁₁ / 12% = 482 / 12% = 4013
 - PV(Terminal Value) = 4013 x (1+12%)⁻¹⁰ = 1292

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ 5° Deduct any loan repayment
 - We are interested in the Net Present Value to the shareholders: what's left after any loan repayment.
 - Let's assume that the XYZ chemical division must refund 100 as principal

Free Cash Flow

- Estimate the value of the XYZ chemical division
 - ◆ Following three different approaches we got several estimated value

	E _{4.1}	E _{4.2}	E _{4.3}
PV(FCF)@12%	439	439	439
PV(Terminal Value)	1821	2434	1292
Loan redemption	-100	-100	-100
Shareholder value	2161	2773	1631