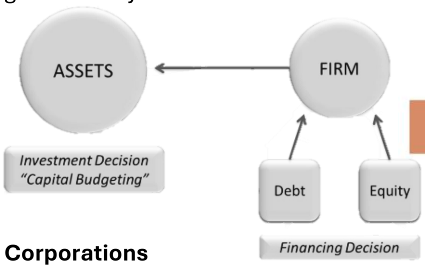
Business Decisions
Capital Budgeting / Investment / CAPEX Decision
- Decision to invest in tangible or intangible assets
Financing Decision: Decision on the sources and amounts of financing
Capital Structure: The mix of long-term debt and equity financing
Real Assets: Assets used to produce goods and services
Financial Assets: Financial claims to the income generated by the firm's real assets



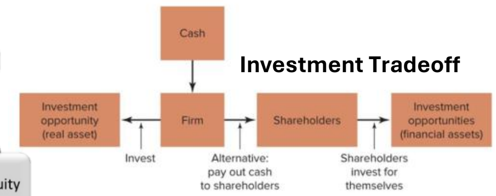
Corporations
LLP/LLC: no double taxation, lose at most what you invest, but harder to set up. Owners not personally liable for obligations
Double taxation: corporate tax on EBIT, then PIT on issued dividend
Professional Corporations: corporation with limited liability, but professionals can be sued for malpractice
requires agreement across all shareholders, difficult to issue new shares

	Sole proprietorship	Partnership	Corporation
Ownership	Manager	Partners	Stockholder
Manager-owner separation	No	No	Usually
Owner's liability	Unlimited	Unlimited	Limited
Owner/biz taxed separately?	No (PIT only)	No (PIT only)	Yes

Financial Manager
CFO: financial policy, corporate planning
Treasurer: cash management, raising of capital, banking relationships
Controller: preparation of financial statements, accounting , taxes

(1) Cash raised from investors
(2) Cash invested in firm
(3) Cash generated by operations
(4) Cash reinvested
(5) Dividend

Goals of Corporation
Shareholders desire wealth maximization
- Maximize current market value of shareholder's investment in the firm
Cannot maximise profits
- which year's profits?
- Earning manipulation
Opportunity cost of capital
- The minimum acceptable rate of return on capital investment is set by the investment opportunities available to shareholders in financial markets



Agency Problem
Agency cost: value lost from, or from mitigating
Executive Compensation
- Fixed base salary + additional compensation
- Stock options
Corporate governance
- The laws, regulations, institutions, and corporate practices that protect shareholders and other investors

Elements of good corporate governance:
- Legal requirements
- Board of directors
- Activist shareholders
- Takeovers
- Information for investors Accounting and reporting standards

Short selling: Borrowing security, selling, and buying at lower price
Corporate raiders: Restructuring to earn greater shares, but causes job losses
Tax avoidance: Voluntarily Paying more/less tax and effect on dividends

Platforms
Linear Value Chain:
- Design, Manufacture, Sell, Deliver
Platform Structure:
Producers --> Platform <-- Consumers
Advantages
- no gatekeepers to manage flow
- new sources of value/supply (sharing economy optimizes use of idle assets)
- Community feedback loops

Network Effects
Economies of scale
Price Effects: elasticity
Brand effects
Scaling is important
Positive Same side
- more users, better
Negative same-side
- competition
- too much friction / network collapse
Positive cross-side (2-sided)
- As one side increases, the other benefits
Negative cross-side (2-sided)
- Matching problems / clutter

Monetisation
- charging consumption lowers consumption
- charging production lowers creation
- charging can also reduce negative network effects by avoiding clutter/competition
- freemium model

Whom to Charge?
- charging all users (as vetting), can cause negative networks
- charging on, subsidise the others
- subsidise some
- price discrimination
- avoid changing what used to be free

Pipeline Model
1. Liquidity
Users: active users/total users
Growth: new active / total active
2. Matching Quality
Interaction rate vs long-term activity
3. Trust
How much users trust the platform

Metrics (Consumer)
Commitment:
- Time between interactions
- Percentage of active users etc.
Outcome based metrics (e.g. number of bookings)
Content creation metrics
- Consumer relevance (positive response listings %)
Co-creation (listings% with +ve response)
Market access regardless of complete interaction e.g. reservations

Metrics (Producer)
- Interaction failure
- Interaction fraud
- Retention, churn rates

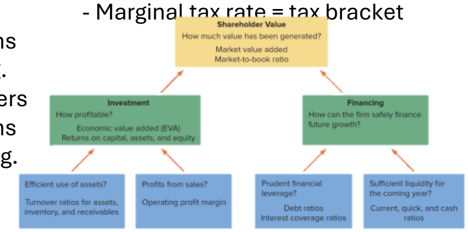
Ability to adapt to needs/changes in env

Types of Platforms
- (Idle asset hunting)
- Innovation platform (Apple ecosystem)
- Transactional (A – platform – B)
- Orthogonal Platforms (client as a target) e.g. websites w ad providers
- Orthogonal Platforms (client as a source) e.g. data mining

GAAP/Book/Mkt values
- Book Values: according to balance sheet and backward-looking
- Market Values: according to resale in market and forward-looking
- Equity and asset "market values" > "book values" (book value of equity is cash that shareholders have contributed plus cash retained and reinvested by company)
- Short-term liability "market values" close to "book values"
- Long-term liability "market value" > / < "book values" (depends on interest rate)

Depreciation
- "Profits" subtract depreciation (a non-cash expense)
- "Profits" ignore cash expenditures on new capital (the expense is capitalized)

Taxation
- Loss last year may be carried forward to offset up to 80% of current income
- Interest not corporate taxable
- Ave tax rate = T / TI
- Marginal tax rate = tax bracket



Value company created for shareholders as % of E == % net capital contributed by shareholders = MVA / E

When firms buy back their own shares from investors, the repurchase reduces the book value of shareholder's equity

Assets	End of fiscal 2017	2016
Current assets		
Cash and marketable securities	3,595	2,538
Receivables what ppl owe you	1,952	2,029
Inventories currently in stock/mfg	12,748	12,549
Other current assets	638	608
Total current assets	18,933	17,724
Fixed Assets		
Tangible fixed assets		
Property, plant, and equipment	41,413	40,426
Less accumulated depreciation (how much your assets depreciated)	19,339	18,512
Net tangible fixed assets	22,075	21,914
Intangible asset (goodwill)	2,275	2,093
Other assets	1,246	1,235
Total Assets	44,529	42,966

Other assets: 2 condition to be included: 1. ∃ past txn 2. has future use

Goodwill: if you acquire another company by paying more than its balance sheet, that is goodwill

Liabilities and shareholders' equity	End of fiscal 2017	2016
Current liabilities		
Debt due for repayment	2,761	1,252
Accounts payable	11,628	11,212
Other current liabilities (unearned revenue because we haven't finish rendering the service)	1,805	1,669
Total current liabilities	16,194	14,133
Long-term debt	24,267	22,349
Other long-term liabilities	2,614	2,151
Total liabilities	43,075	38,633
Shareholders' equity: (money that you collect after IPO = stock issues)		
Common stock and other paid-in capital	9,715	9,010
Retained earnings	39,935	35,517
Treasury stock – money you lose when you buy back shares	(48,196)	(40,194)
Total shareholders' equity	1,454	4,333
Total liabilities and shareholders' equity	44,529	42,966

	$ Million	% of Sales
Net sales (from selling items)	100,904	100.0%
Other income (eg dividends from investment)	325	0.3%
Cost of goods sold (COGS) eg raw materials, labour	–66,548	66.0%
Selling, general & administrative expe (SGNA)	–17,864	17.7%
Depreciation	–2,062	2.0%
Earnings before interest and income ta (EBIT)	14,755	14.6%
Interest expense	–1,057	1.0%
Taxable income	13,698	13.6%
Taxes	–5,068	5.0%
Net income	8,630	8.6%
Allocation of net income		
Dividends	4,212	4.2%
Addition to retained earnings (reinvested)	4,418	4.4%

Cash provided by operations:	
Net income	8,630
Depreciation	2,062
Changes in working capital items	
Decrease (increase) in accounts receivable	139
Decrease (increase) in inventories	(84)
Decrease (increase) in other current assets	(10)
Increase (decrease) in accounts payable	352
Increase (decrease) in other current liabilities	669
Total decrease (increase) in working capital	1,066
Cash provided by operations	11,758

Cash flows from investments:	
Capital expenditure	(1,897)
Sales (acquisitions) of long-term assets	47
Other investing activities	(105)
Cash provided by (used for) investments	(1,955)
Cash provided for (used by) financing activities:	
Increase (decrease) in short-term debt	850
Increase (decrease) in long-term debt	2,448
Dividends	(4,212)
Repurchases of stock	(7,745)
Other	(211)
Cash provided by (used for) financing activities	(8,870)
Net increase (decrease) in cash and cash equivalents	933

Market Value downsides

1. The market value of the company's shares reflects investors' expectations about future performance.
2. Market values fluctuate because of many risks and events that are outside the financial manager's control (noisy)
3. Can't lookup privately owned coys (shares not traded). Cannot observe the mkt value of divisions or plants that are parts of larger companies.

Economic Value Added / Residual Income

ATOI = (1-t) * IE + NI = (1-t) * EBIT

ATOI accounts for taxes before IE (hence excludes effects of financing i.e. if company had no leverage, is 100% equity funded, since debt is tax exempt)

EVA = ATOI – (cost of capital * total capitalization)

Residual Income: Net dollar return after deducting the cost of capital.

EVA Advantages

- EVA recognizes that companies need to cover their opportunity costs before they add value.
- EVA makes the cost of capital visible to operating managers (Earn at least the cost of capital on assets employed)
- A plant or divisional manager can improve EVA by reducing assets that aren't making an adequate contribution to profits.

EVA Disadvantages

- They show current performance and are not affected by all the other things that move stock market
- We use book values (calculated values may be undervalued)

Mergers

- Mergers do not help increase ROA as although they increase profit margins, it is offset by a decline in asset turnover
- If firm is financed entirely by equity, then the leverage ratio and debt burden equal to 1, then ROE == ROA
- If firm borrows, then the leverage ratio is greater than 1 (A > E),
and the debt burden is less than 1 (part of the profits is absorbed by interest)
- If a firm borrows, then it has fewer equity holders to share the remaining profits

ROE, ROC, ROA use start-of-year

ROE: return to equity as net income divided by the book value of equity.

ROC and ROA measure the return to all investors, including interest paid as well as net income to shareholders.

More debt = more leverage

Dupont

$$\text{ROA} = \frac{\text{after-tax operating income}}{\text{assets}}$$

$$\text{ROA} = \frac{\text{sales}}{\text{assets}} \times \frac{\text{after-tax operating income}}{\text{sales}}$$

Asset turnover; Operating profit margin

Measuring Financial Leverage

$$ROE = \frac{NI}{equity} \times \frac{assets}{assets} \times \frac{sales}{sales} \times \frac{ATOI}{ATOI}$$

assets = liabilities + equity
if liabilities = debt,
assets = debt + equity
$\frac{assets}{equity} = \frac{debt}{equity} + 1$

$$\text{ROE} = \frac{\text{assets}}{\text{equity}} \times \frac{\text{sales}}{\text{assets}} \times \frac{\text{after-tax operating income}}{\text{sales}} \times \frac{\text{net income}}{\text{after-tax operating income}}$$

Leverage Ratio; Asset Turnover (increases w debt); Operating Profit Margin; Debt Burden (decreases w more debt)

ROA (independent of debt). ROA > I

$= \frac{NI}{equity}$

if debt = 0, then I = 0 then $\frac{A}{E} = 1$ and ATOI = NI $\frac{NI}{ATOI} = 1$ then ROE = ROA and equity = asset

net income + (1-t) × interest

you use someone else's money but you're earning more than the interest you're paying them ⇒ higher returns

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Accounting Formulas

<u>Balance</u>

- NWC = CA – CL
- Capex = PPE – PPE_last + D
- Notes payable is a CL
- Equity = Total A – Total L
- Gross investment = increase NFA + D

<u>Income</u>

- NS = SGNA + COGS + D + IE + T+ NI
- TI = T + NI
- EBIT = IE + T + NI
- ave tax rate = T / TI

<u>Cash</u>

- FCF = CFO + CFI + Interest
- CF = CFO + CFI + CFF
- CFO = NI + non-cash (D, amortisation), NWC (R, inv, AP)
- CFI = selling PPE – buying PPE
- CFF = issued stock – dividends

<u>Others</u>

- Basic Earnings Per Share (EPS) = (Net income - preferred dividends) / weighted ave of common shares outstanding

FSA

ATOI = (1-t) * IE + NI

ATOI = (1-t) * EBIT

EVA = ATOI – (cost of capital * total capitalisation)

Mkt Capitalisation = #shares * price per share

Total capitalisation = E + LTD (money raised from stockholders, creditors)

Performance measures	
Market value added ($ millions)	market value of equity – book value of equity
Market-to-book ratio	market value of equity ÷ book value of equity
Profitability Measures	
Return on assets (ROA)	after-tax operating income/total assets
Return on capital (ROC)	after-tax operating income/(long-term debt + equity)
Return on equity (ROE)	net income/equity
EVA ($ millions)	after-tax operating income – (cost of capital × capital)
Efficiency Measures	
Asset turnover	sales/total assets at start of year
Receivables turnover	sales/receivables at start of year
Average collection period (days)	receivables at start of year/daily sales
Inventory turnover	cost of goods sold/inventory at start of year
Days in inventory	inventories at start of year/daily cost of goods sold
Profit margin	net income/sales
Operating profit margin	after-tax operating income/sales
Leverage Measures	
Long-term debt ratio	long-term debt/(long-term debt + equity)
Long-term debt–equity ratio	long-term debt/equity
Total debt ratio	total liabilities/total assets
Times interest earned	EBIT/interest payments
Cash coverage ratio	(EBIT + depreciation)/interest payments
Liquidity Measures	
Net working capital to assets	net working capital/total assets
Current ratio	current assets/current liabilities
Quick ratio	(cash + marketable securities + receivables)/current liabilities
Cash ratio	(cash + marketable securities)/current liabilities