15.535 Notes

Strategy Analysis

5-forces Model

1. Bargaining power of customers
2. New Entrant Threat
3. Threat of substitutes
4. Bargaining power of suppliers
5. Customer Bargaining Power

Financial Ratio categories

A. Profitability (measuring Earning Power)

- GM
- NI
- EBITDA Margin
- EBIT
  → interest coverage

B. Tax (measures impact of taxes)

- Effective Tax Rate
- Interest

C. Valuation (Market value + accounting)

- P/E
- Price/EBITDA
- Price/Sales

Return on Equity

$$ROE = \frac{\text{Net Income}}{\text{Average Stock Equity}}$$

→ effectiveness in managing shareholder capital

$$ROA = \frac{NI + (1-T)\text{Interest}}{\text{Average Total Assets}}$$

→ effectiveness at managing capital from all sources

Du Pont Formula

- combines Profitability, Activity, & leverage

$$\text{Return on Equity} = \frac{NI}{Sales} \times \frac{Sales}{\text{Avg. Total Assets}} \times \frac{\text{Avg Total Assets}}{\text{Avg SE}}$$

Bankruptcy Risk

Altmann Z-score

→ evaluates risk of bankruptcy

variables

- Net wc/Total Assets (liquidity)
- RE/Total Assets (leverage)
- EBIT/TA (profitability)
- Market Value/Book value of Liabs (leverage)
- Sales/TA (activity)

$\boxed{\text{Z-score}}$ = 1.2(NWC/TA) + 1.4(RE/TA) + 3.3(EBIT/TA) + 0.6(MVE/BVL) + 1.0(Sales/TA)

Z'': 6.56, 3.26, 6.72, 1.05 (BVE), +3.25

- Z < 1.8 (Distressed) (4.35)
- Z > 3.0 (safe) (5.85)
- <1.8<3.0 (unsure) (4.35) (5.85)

Piotroski F-Score

- ROA Positive
- Op. cash flow Positive
- Op. cash flow > Net Income
- ROA Increased
- GM increase
- Asset Turnover increase
- LT Debt/TA decreased
- Current ratio increase
- No new equity issue

Assign +1 for each true

Benchmarking

- compare over time or
- to peers

Special Items

- one-time "Non-core" events
  - gains/losses on peripheral activity
  - restructuring charges
  - Asset Impairments
  - Discontinued Ops.

⇒ Back these out when calculating Ratios

Accruals

- Non-Cash Influences on Net-Income

$$\text{Total Accruals} = \text{Net Income} - \text{Cash Flow from ops}$$

Accrual Ratio

$$= \frac{NI - (\text{Cash Flow ops} - \text{Cash Flow Inv})}{\text{Avg. Total Assets}}$$

Cookie Jar Accounting

1. Allowances for sales return & Discounts

$$\%\text{ of sales} = \frac{\text{Additions to Allowances}}{\text{Sales, Gross}}$$

2. Allowances for DA

$$\%\text{ of AR} = \frac{\text{allowances for DA}}{\text{AR, Gross}}$$

③ Unearned (Deferred) Revenue

$$\text{Unearned Rev Turnover} = \frac{\text{Sales}}{\text{change in Balance}}$$

④ warranty liability

$$\% \text{ sales} = \frac{\text{Addition to warranty liab}}{\text{Sales}}$$

M-Score (Manipulation)

M-Score =

Name	Value
constant	-4.890
DSRI	0.92
GMI	0.528
AQI	0.404
SGI	0.892
DEPI	0.115
SAI	-0.172
LVGI	-0.327
TATA	4.679

M > -2.22, Potential Manipulation

* Look in notebook for variable Defs

Dechow F-Score

* alternative Manipulation metric. Detail in Notebook

Segment Disclosures

- Operating segment has ③ characteristics
  - engages in business activities that recognize revenue & incur expenses
  - Results of component regularly reviewed
  - Discrete Financial info available

Non-Controlling Interest

- When parent holds a controlling interest in a subsidiary

→ appears as contribution/[deduction] to NI

Equity Method

→ when non-controlling interest held (20%-50%)

→ investment recorded at cost

- ↑ by share of net income
- ↓ by share of Dividends

$\boxed{\text{if} \geq 50\%}$

- entity consolidated into statements

Multiples Valuation

Step 1: Identify Potential comparable companies

Selection Factors:

- Risk & Growth
- Industry
- strategy
- operations

Industry classification Schemes

- Standard Industrial Classification (SIC)
- North-American Industrial Classification System (NAICS)
- Global industry classification (GICS)

P/E Ratios

$$\frac{P}{EPS} = 1-(r-g)$$

Derived from growing perpetuity formula

PEG Ratio

- PEG = PE/(g*100)

Step 2: collect financial market info for comparables & company being valued

Data Inputs

- Last Fiscal Year before valuation date
- Last 12 months, or (LTM) provides more timely info
- forecasts capture expectation of future

Step 3: Assess comparability of statements and back out special items

Computing Relevant Multiples

IS & CFS Multiples

- use levered (after interest) multiples to value Equity (Market Value)

Numerator: Market Value

Denom: Net Income, Cash from Operations

- Use unlevered multiples to value firm

Num: Enterprise Value

Denom: EBIT, EBITDA, Rev

- Balance Sheet Multiples
- Non-Financial Multiples

FX Accounting

other comprehensive income

- changes in operational circumstances excluded from Net Income
   - unrealized gains 'n' losses on translating foreign subsidiaries statements in to parent company currency
   - change in fair value of "available-for-sale" securities
   - change in fair value of cash flow hedges

Foreign Currency transactions

- weighted-average sales exchange rate applied for
   - revenue
   - expenses
   - cash flows

Remeasurement Process

- Foreign Currency assets & liabilities remeasured using $\boxed{\text{FX Rate}}$ (weighted Avg. calc rate)

=> Remeasurement gains & Loss recognised in Net-Income

Re-Measurement Example

- 2/10/19 R&D buys materials for 10 K Rubles
- 3/31/19, ruble depreciates
- 5/10/19, R&D pay invoice, has appreciated

Date	FX Rate	value of Payable	in $	FX gain/LOSS
2/10/19	$1 = 65	10,000	154	
3/31/19	$1 = 85	" "	118	+36
5/10/19	$1 = 60	" "	167	-49

Translation Process

	Parent company reporting currency: stronger	Parent company reporting currency: weaker
Revenue	↓	↑
Expenses	↓	↑
cash Inflow	↓	↑
Cash outflow	↓	↑
Assets	↓	↑
Liabilities	↓	↑

Derivatives Accounting

Fair Value:

* attempt to bring current value to financial statements
* reports assets & liabilities at fair value

Fair-Value Accounting

- unrealized gains/losses on trading securities recognized
- Unrealized gains/losses on available for sale securities recognized in other comprehensive income (OCI)
- Historical cost, for held to maturity

Derivatives

- Instrument that derives value from some underlying variable

→ companies can use to speculate or hedge

→ Fair value required for all Derivatives

→ Change in
- IS → Fair Value hedge
- OCI → cash-Flow Hedge

Fair-Value Hedges

→ hedging of risk related to existing assets, liabilities, or commitments

example

- Exxon produces +$100K worth of crude & hedges commodity price risk by shorting crude (for 3K)

Date	cash	inv	forward	R/E
3/3/19	-100K	+100K		
	-3K			-3K

- Inv falls by 5 K

Date	cash	inv	forward	R/E
		-5K	+5K	-5K +5K

Cash-Flow Hedge

→ hedges on exposure of Forecast (not yet completed) actions or transactions

Cash Flow Hedge: example

- Southwest plans on buying $1M worth of jet fuel

→ They create a forward contract on fuel costing 3K

→ Prices on cruede fall, purchase made

Date	cash	forward	AOCI	R/E
(3/31/14)	-3K			-3K
(12/31/14)		-50K	-50K	
* Buying Fuel	-950K	-50K	+50K	-950 -50K

↳ recognition as cash outflow occurs

Revenue Forecasts

- Better forecasts => better Decisions

=> Determind by Price & Quantity

→ understand what drives these

Potential solutions:

- Historical growth rate
- adjust historical sales growth rate for current condition

* Build Functional Form Model

Alternative Data for Revenue Forecasting

- credit card Data