

Skipped Class

Financial Statement Analysis II



15.501/516 Corporate Financial Accounting
Fall 2010
Lecture 22

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Agenda



- Ratio analysis
 - Comparative analysis
 - Overview of ratio analysis
- Sustainable income
 - Relation to share valuation
 - Irregular items
 - Change in accounting principle
 - Comprehensive income

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Intra-company Basis



- Within company comparisons useful for detecting changes & trends in the co.'s financial structure
 - Horizontal analysis (Dyckman)
- Comparison of a company's **current year** cash amount with the **prior year(s)** cash amount can reflect changes in circumstances or policies
- Comparison of a company's year-end **cash** amount with its year-end **total assets** shows the proportion of total assets in the cash
 - This also can reflect changes in circumstances or policies
 - Examples ?

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Housekeeping



- Reading
 - Dyckman chapter 5 (both lectures 21 & 22)
 - Note that the chapter deals with disaggregation of ROA
- Slides
 - Put on web this morning
- Problem set 5
 - Due December 6
- Final exam
 - December 14

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Comparative Analysis



Three types of financial statement comparisons commonly used to improve decision usefulness of financial information:

- Intra-company basis
- Inter-company basis
- Industry averages
- "Getting the right benchmark"

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Inter-company Basis



- Comparisons with other companies provide insights into a company's competitive position
- For example, Kellogg's total sales for the year can be compared with the total sales of its competitors such as Quaker Oats and General Mills
- What kind of information can this convey?

Competitive

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Industry Averages

- Comparisons with industry averages provide information about a company's **relative position** within the industry
- Kellogg's financial data can be compared with the averages for its industry compiled by financial ratings organizations such as Dun & Bradstreet, Moody's, and Standard & Poor's
- What kind of information is this likely to provide?



Common size financial statements

- A technique for evaluating financial statement data that expresses each item financial statement item as a percent of a base amount (Vertical analysis)
 - Balance Sheet – Divide each line item by total assets so that each is a percent of total assets
 - How does this help? *Compare b/w companies of relative sizes*
 - Income Statement – Divide each line item by net revenue so that each is a percent of net revenue
 - How does this help?



Intracompany Comparison Balance Sheet

	2004		2003	
	Amount	Percent*	Amount	Percent*
Assets				
Current assets	\$ 2,121.8	19.7	\$ 1,747.9	17.6
Property assets (net)	2,715.1	25.1	2,760.2	27.4
Other assets	5,953.3	55.2	5,574.6	55.0
Total assets	\$10,790.4	100.0	\$10,142.7	100.0
Liabilities and Stockholders' Equity				
Current liabilities	\$ 2,846.0	26.4	\$ 2,766.0	27.3
Long-term liabilities	3,687.2	32.7	3,933.5	38.5
Total liabilities	6,533.2	59.1	6,699.5	65.8
Stockholders' equity	4,257.2	39.9	3,443.2	34.2
Common stock	103.8	1.0	128.3	1.2
Retained earnings	2,263.4	20.9	1,518.5	15.0
Treasury stock (cost)	(108.0)	(1.0)	(203.6)	(2.0)
Total stockholders' equity	4,257.2	39.9	3,443.2	34.2
Total liabilities and stockholders' equity	\$10,790.4	100.0	\$10,142.7	100.0

*Numbers have been rounded to total 100%.

What significant time series changes do you notice here ?

Intercompany Comparison Income Statement

	Kellogg Company, Inc.		General Mills, Inc.	
	Amount	Percent*	Amount	Percent*
Net sales	\$9,613.9	100.0	\$11,070.0	100.0
Cost of goods sold	5,298.7	55.1	6,384.0	59.5
Gross profit	4,315.2	44.9	4,686.0	46.5
Selling and administrative expenses	2,634.1	27.4	2,443.0	22.1
Nonrecurring charges	0.0	—	26.0	—
Income from operations	1,681.1	17.5	2,017.0	18.2
Other expenses and revenues (including income taxes)	790.5	8.2	962.0	8.7
Net income	\$ 890.6	9.3	\$ 1,055.0	9.5

*Numbers have been rounded to total 100%.

What significant cross-sectional differences do you notice?

Overview of ratio analysis

- Profitability ratios
- Efficiency ratios
- Liquidity ratios
- Leverage ratios

Note classification is a little different to the text

For example, the book uses Return on investment and Liquidity & solvency rather than the above classification

Also note definitions can occasionally vary slightly from the text

Either definition will be accepted in the exam

There are also ratios that are in the slides but not in the text

You will be responsible for all the ratios in the slides



Profitability Ratios

- Summary of Profitability Ratios
 - Return on Assets (ROA) Lectures 12 & 13
 - Return on Equity (ROE) Lectures 12 & 13
 - Gross Margin Lecture 4 Gross Profit rate
 - SG&A to Sales
 - Profit Margin Lectures 4 and 12 & 13





Profitability Ratios

- Each profitability ratio can be
 - Compared with the firm's prior performance
 - Compared with a specific competitor's performance
 - Compared with an industry average
- To assess time-series & cross-sectional differences
- Generate alternative explanations for those differences
- Investigate which alternative explanations are most likely
- The same process can be followed for each class of ratios

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Efficiency Ratios

- Efficiency (or Activity) Ratios – An income statement line item divided by a related balance sheet line item as a measure of how efficiently resources are being used
- Summary of Efficiency Ratios
 - Accounts Receivable Turnover & Average Collection Period
 - Lecture 8
 - Inventory Turnover & Days in Inventory
 - Lecture 11
 - Accounts Payable Turnover & Days in Accounts Payable
 - Lecture 16
 - Operating Cycle & Cash Conversion Cycle
 - Lecture 16
 - Asset Turnover
 - Lectures 12 & 13
 - Fixed Asset Turnover

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Efficiency Ratios

- Receivables Turnover = Sales/Average Net Receivables
- Average Collection Period or Days Receivables on Hand
= 365/Receivables Turnover
- Inventory Turnover = Cost of Goods Sold/Average Inventory
- Days in Inventory = 365/Inventory Turnover
- Accounts Payable Turnover = Purchases/Average Payables
Purchases = Cost of Goods Sold + End Inv – Beg Inv
- Days in Accounts Payable = 365/Payables Turnover

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Efficiency Ratios

- Operating Cycle
 - Average time from purchase of inventory until collection of cash
 - OC = Days in AR + days in INV
- Cash Conversion Cycle
 - The period from when the firm spends cash on inputs until they receive payment from their customers minus the financing from creditors
 - CCC = OC - days in AP

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Efficiency Ratios

- Assets Turnover Ratio = Sales/Average Total Assets
 - Measures how efficiently the firm generates sales from its existing assets
- Fixed Assets (PP&E) Turnover = Sales/Average Fixed Assets
 - Measures how efficiently the firm generates sales from its existing fixed assets

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Liquidity Ratios

- Liquidity ratios can be viewed from two perspectives
 - As efficiency ratios that assess the company's optimal working capital management
 - As ratios that assess the ability of the company to survive (i.e. pay its bills) in the coming period or periods
- In general, liquidity ratios measure the ability of the firm to pay bills due in the next year with
 - current assets or
 - cash flow that will be generated in the next year

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Liquidity Ratios

- Summary of Liquidity Ratios
 - Current Ratio
 - Quick Ratio
 - Cash Ratio
 - Current Cash Debt Coverage Ratio or Operating Cash Flow Ratio

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Liquidity Ratios

- Current Ratio = Current Assets/Current Liabilities
 - Lecture 4
- Quick Ratio = Current Monetary Assets/Current Liab
 - current monetary assets are cash, marketable securities & accounts receivable
 - Lecture 4
- Cash Ratio = (Cash & Marketable Securities)/Current Liabilities
- Current Cash Debt Coverage Ratio or Operating Cash Flow Ratio = Cash From Operations/Current Liabilities
 - Lecture 20

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Leverage Ratios

- Primarily provide information about the extent to which
 - The firm's assets are financed by borrowed money
 - The borrowed money has required interest payments
- Can also provide information about the firm's ability to meet its financial obligations
- Should be compared to the structure of the asset side of the balance sheet to assess extent to which the firm is hedged

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Leverage Ratios

- Summary of Leverage Ratios
 - Debt (Total Liabilities) to Total Assets Ratio
 - Lecture 4
 - Debt (Total Liabilities) to Equity (Stockholders' Equity) Ratio
 - Interest-Bearing Liabilities to Total Assets Ratio
 - Non-Interest-Bearing Liabilities to Total Assets Ratio
 - Times Interest Earned Ratio
 - Lecture 16
 - Cash Debt Coverage Ratio
 - Lecture 20

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Leverage Ratios

- Debt (Total Liabilities) to Total Assets Ratio = $\frac{\text{Total Liabilities}}{\text{Total Assets}}$
- Debt (Total Liabilities) to Equity (Stockholders' Equity) Ratio = $\frac{\text{Total Liabilities}}{\text{Stockholders' Equity}}$
- Interest-Bearing Debt to Total Assets Ratio = $\frac{\text{Interest-Bearing Debt}}{\text{Total Assets}}$
- Interest-Bearing Debt is
 - Long-Term Debt (including current maturities) &
 - Capital Lease Obligations (including current maturities)

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Leverage Ratios

- Non-Interest-Bearing Debt to Total Assets Ratio = $\frac{\text{Non-Interest-Bearing Debt}}{\text{Total Assets}}$
- Times Interest Earned Ratio (Earnings Basis) = $\frac{\text{Earnings Before Interest and Taxes}}{\text{Interest Expense}}$
 - Lecture 16
- Cash Debt Coverage Ratio = $\frac{\text{Cash from Operations}}{\text{Average Total Liabilities}}$
 - Lecture 20

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Share valuation

- The value of a firm's shares is the present value of the expected future cash flows to the firm's current shareholders
or supposed to
- Empirical evidence indicates accounting net income is a better predictor of the firm's future cash flows than are the firm's current cash flows
- Result likely due to accounting accrual process



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Sustainable income

- Accounting net income's predictive ability can be improved by adjusting it for items (irregular revenues, expenses, gains or losses) that are unlikely to be repeated in future years
- Sustainable income is the part of current net income that is most likely to be repeated in future years
- Consequently sustainable income does not include irregular items
- Analysts & users of financial reports are interested in sustainable net income
(recurring)



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Components of the income statement

Income Statement	
Sales	\$XX
Cost of goods sold	XX
Gross profit	XX
Operating expenses	XX
Income from operations	XX
Other revenues (expenses) and gains (losses)	XX
Income before income taxes	XX
Income tax expense	XX
Income before irregular items	XX
Irregular items	XX
Net income	XX
Other comprehensive income items	XX
Comprehensive income	\$XX



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Irregular items

- Two types of irregular items are reported (net of taxes)
 - Discontinued operations
 - Disposal of a significant segment of the business
 - Extraordinary items
 - Events or transactions that are
 - unusual in nature &
 - infrequent in occurrence



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Discontinued operations

- Example
 - Rozek Inc. reported a net income of \$800,000 from continuing operations in 2007
 - During 2007 the company discontinued & sold its unprofitable chemical division. The loss in 2007 from chemical operations (net of \$90,000 taxes) was \$210,000. The tax rate is 30%.

ROZEK INC. Income Statement (partial) For the Year Ended December 31, 2007	
Income before income taxes	\$ 800,000
Income tax expense	240,000
Income before irregular items	560,000
Discontinued operations	
Loss from disposal of chemical division, net of \$90,000 income tax savings	(210,000)
Net income	\$ 350,000



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Extraordinary items

- Events or transactions that are
 - unusual in nature &
 - infrequent in occurrence
- Example
 - In 2004 a revolutionary foreign government expropriated property held as an investment by Rozek Inc
 - The loss is \$70,000 before applicable income taxes of \$21,000, the income statement presentation will show a deduction of \$49,000

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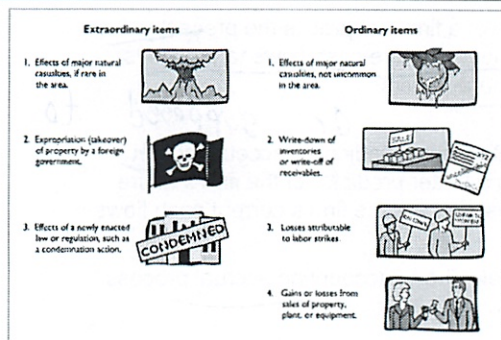


Extraordinary items

ROZEK INC Income Statement (partial) For the Year Ended December 31, 2007	
Income before income taxes	\$ 800,000
Income tax expense	240,000
Income before irregular items	560,000
Discontinued operations: Loss from disposal of chemical division, net of \$90,000 income tax savings	(210,000)
Extraordinary item: Expropriation of investment, net of \$21,000 income tax savings	(49,000)
Net income	<u>\$ 301,000</u>

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Extraordinary items



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Change in accounting principle

- Financial statement analysis requires consistent financial reporting over time
- An accounting principle change is permitted when management can show the new principle is preferable to the old
 - Example - FIFO to average cost for inventory
- Such changes interfere with the comparability of a firm's financial reports over time, consequently
 - Most accounting principle changes are required to be reported retroactively
 - In other words, the previous years' comparative numbers in the financial report for the change year are computed using the new accounting principle

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Comprehensive income

- As we saw in Lecture 18, some gains & losses are excluded from the calculation of net income and go directly to stockholders' equity
- Those gains & losses include
 - Unrealized gains & losses on available for sale securities & on derivative transactions (hedges)
 - Some types of foreign currency transactions
 - Some pension adjustments

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Comprehensive income

- The FASB now requires that, in addition to reporting net income, a company must report comprehensive income
 - Comprehensive income = Net Income + gains & losses excluded from Comprehensive income
- Comprehensive income is reported
 - As an add-on to the income statement
 - See following example
 - Or separately in its own statement

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Comprehensive Income

Includes all changes in stockholders' equity during a period except those resulting from

1. investments by stockholders &
2. distributions to stockholders

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Comprehensive Income



PACE CORPORATION	
Income Statement and Statement of Comprehensive Income For the Year Ended December 31, 2007	
Net sales	\$440,000
Cost of goods sold	260,000
Gross profit	180,000
Operating expenses	110,000
Income from operations	70,000
Other revenues and gains	\$ 5,600
Other expenses and losses	(9,600)
Income before income taxes	66,000
Income tax expense (\$66,000 × 30%)	19,800
Income before irregular items	46,200
Discontinued operations: Gain on disposal of Plastics Division, net of \$15,000 income taxes (\$50,000 × 30%)	35,000
Extraordinary item: Tornado loss, net of income tax savings \$18,000 (\$60,000 × 30%)	(42,000)
Net income	39,200
Add: Unrealized gain on available-for-sale securities	10,000
Comprehensive income	\$ 49,200

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Comprehensive Income



- Most items in other comprehensive income (the items we add to net income to produce comprehensive income) are unlikely to be sustainable

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Sustainable income



- For mature firms sustainable income is unlikely to be sustainable for many years into the future *will break down*
- For growth firms sustainable income is likely to grow for some years in the future *hopefully*
- In other words, growth, decline & reversion to the mean is not built into sustainable income
- Your valuation of the firm's shares should take these future changes into account
- You should also be alert to the fact that some managers will claim losses that are continuing as extraordinary

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Direct Cash Flow
Reading

Appendix 4A

12/4

~~we can~~

We can see how cash changes by looking at changes from one balance sheet to another.

Or look at transaction events

Then split those into operating, investing, financing

Direct method presents net cash flow from operating activities by showing the major categories of operating cash receipts + payments

Convert accruals to cash

Convert Revenues + Expenses to Cash Flows

$$\text{Sales} \rightarrow \left[\begin{array}{l} + \downarrow \text{ in AR} \\ - \uparrow \text{ in AR} \\ + \uparrow \text{ in increased revenue} \end{array} \right] = \text{receipts from costs}$$

$$\text{Cogs} \rightarrow \left[\begin{array}{l} + \uparrow \text{ in inventory} \\ - \downarrow \text{ in inventory} \\ + \downarrow \text{ in AP} \\ - \uparrow \text{ in AP} \end{array} \right] = \text{Payments for merch}$$

(2)

Operating expenses
 Interest expense
 Income tax expense

→ $\left[\begin{array}{l} + \uparrow \text{ prepaid expense} \\ - \downarrow \text{ " "} \\ + \downarrow \text{ Accrued liability} \\ - \uparrow \text{ " "} \end{array} \right] = \text{payment for expenses}$

Depreciation Expense
 Depletion expense
 Amortization "

→ $\left[\begin{array}{l} - \text{ everything} \\ \text{exclude} \end{array} \right] = 0$

Gains + Losses
 From investing
 + financing

$\left[\text{exclude} \right] = 0$

Cash Flows from Investing + Financing

- ~~Supplemental Disc~~
- identical both direct & indirect

Supplemental Disclosure

- 1. Reconciliation net income to net cash flow from op activity
- 2. Schedule or description non-cash investing + financing transaction
- 3. firm policy on ~~what~~ which highly liquid investments treated as cash

Ratios

12/4

ROE

$$ROE = \frac{NOPAT}{Sales} \cdot \frac{Sales}{Assets} \cdot \frac{Net\ income}{NOPAT} \cdot \frac{Assets}{SE}$$

$$\begin{array}{l} NOPAT \\ \uparrow \\ \text{net operating} \\ \text{profit,} \\ \text{margin} \end{array} \cdot \text{Asset} \\ \text{Turnover} \quad \cdot \text{Earnings} \\ \text{leverage} \quad \cdot \text{fin.} \\ \text{Leverage}$$

$$= \frac{Net\ income}{Shareholder\ equity}$$

$$RDA = \frac{Net\ income}{Assets}$$

NOPAT = Net operating profit after tax

$$= Operating\ Income \cdot (1 - \text{tax rate}) = \text{Net income}$$

Operating Income = Gross Income - Op. Ex. - Depreciation

$$\text{Receivables Turnover} = \frac{Net\ Credit\ sales}{Avg\ AR}$$

$$\begin{aligned} \text{Avg Collection Period} &= \frac{Days \cdot AR}{Credit\ Sales} = \frac{Avg\ AR}{Avg\ Daily\ Sales} \\ &= \text{DSO} \end{aligned}$$

②

Inventory Turnover

$$\frac{\text{Sales}}{\text{Inventory}} = \frac{\text{COGS}}{\text{Avg inventory}}$$

Days Inventory Outstanding (DSI)(DIO)

$$\frac{\text{Inventory}}{\text{COGS}} \times 365$$

Accounts Payable Turnover = $\frac{\text{Total Supplier Purchases}}{\text{Avg AP}}$

$$\text{Operating Cycle} = \underset{\substack{\uparrow \\ \text{inventory}}}{\text{DIO}} + \underset{\substack{\uparrow \\ \text{Sales}}}{\text{DSO}} - \underset{\substack{\uparrow \\ \text{payable}}}{\text{DPO}}$$

Cash Conversion Cycle (CCC) = DIO + DSO - DPO
= Same as operating cycle

Asset Turnover Ratio = $\frac{\text{Revenue}}{\text{Assets}}$

(ROA is net income over assets)

Quick Ratio = $\frac{\text{Current Assets} - \text{Inventories}}{\text{Current Liabilities}}$ = $\frac{\text{Cash} + \text{Cash equiv}}{\text{Current Liabilities}}$ ↳ textbook

③

$$\frac{\text{Current Ratio}}{\text{Current Ratio}} = \frac{\text{Current assets}}{\text{current liabilities}}$$

$$\begin{aligned} \frac{\text{Current Cash Debt Coverage Ratio}}{\text{Current Cash Debt Coverage Ratio}} &= \text{Cash Current Debt Coverage Ratio} \\ &= \frac{\text{Cash from Ops} - \text{Dividends}}{\text{Avg current liabilities}} \end{aligned}$$

$$\frac{\text{Debt to Asset}}{\text{Debt to Asset}} = \frac{\text{Liabilities}}{\text{Assets}}$$

$$\begin{aligned} \frac{\text{Times Interest Earned Ratio (TIE)}}{\text{Times Interest Earned Ratio (TIE)}} &= \frac{\text{EBIT}}{\text{Interest payable}} \end{aligned}$$

$$\text{EBIT} = \text{Earnings before Interest \& Taxes}$$

$$\text{Earnings} = \text{After tax net income}$$

Google invests in other companies in order to continue to grow

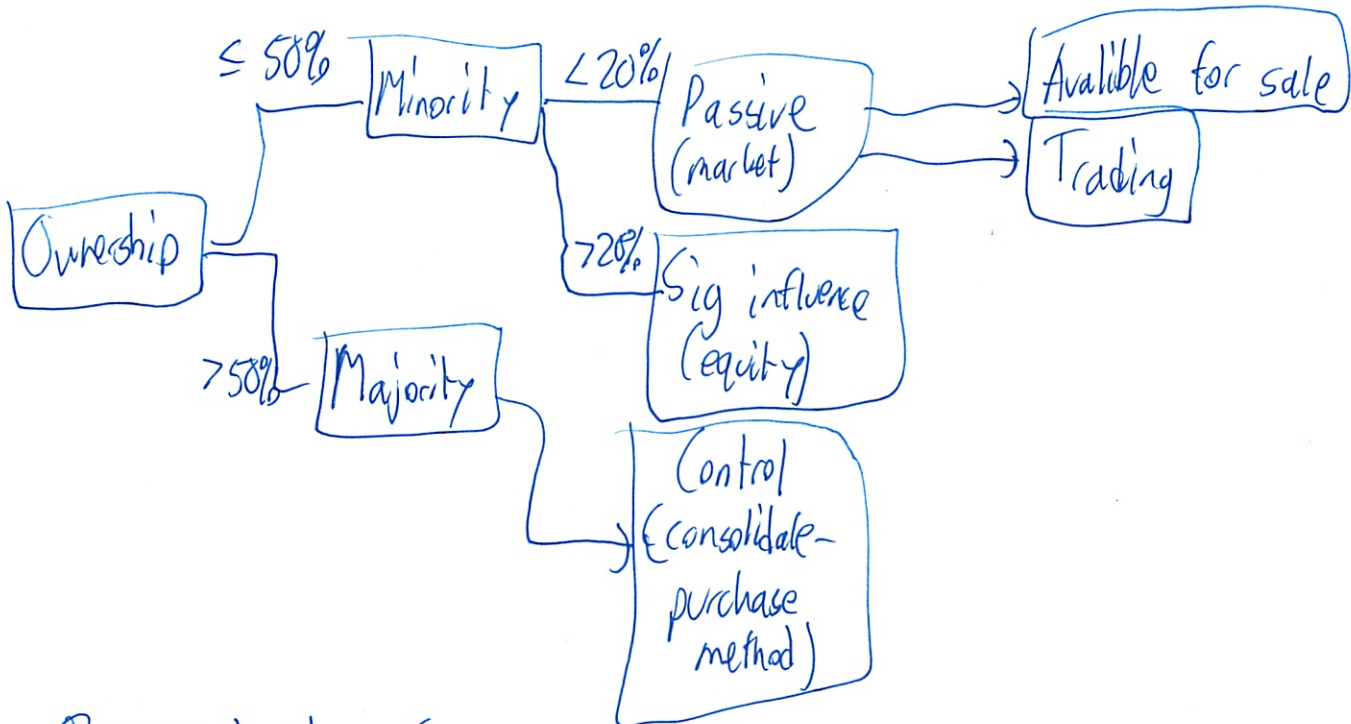
Many companies purchase voting stock in other companies called incorporate ~~over~~ investments

Goals

Short term investment of excess cash - companies have extra cash seasonally - or for liquidity

Alliances for strategic purposes - to gain access to R+D or supply/distribution or production or marketing expertise

Market penetration or expansion - horizontal or vertical



GAAP levels of control

② \downarrow of ownable stock

1. Passive - $< 20\%$ - No influence; purpose is to realize dividends and capital gains

Also includes investments in debt securities, inc bonds + notes

2. Significant influence - $20\% < x \leq 50\%$, not control

amt of influence can be from % of stock owned or legal agreements to use knowhow or if sole customer/supplier

3. Control - $> 50\%$, ability to elect a majority of board of directors, so can set strategic direction of company + hire managers
Can also be via legal mean like tech licensing

	<u>Accounting</u>	<u>Balance St</u> <u>Effects</u>	<u>Income St</u> <u>Effects</u>	<u>Cash Flow</u> <u>Effects</u>
<u>Passive</u>	Market method	Investment act. Current mkt value	Dividends + Capital gains affect income Market Interim Div in mkt value - dep on classification	Dividends Purchases - out Dividends + sale proceeds - in
<u>Significant Influence</u>	Equity Method	Investment act. = % owned of company's equity	Dividend \downarrow investment act Reports their % of investee company's income Capital Gains income	Same \Rightarrow
<u>Control</u>	Consolidation	Balance Sheet Combined	Combined Sale of investee combined Sale has cap gain/loss	Combined Sale/purchase of investee - Cash change

③ Passive Investments

- Short term investments of excess cash
- can involve debt or equity securities
- recorded on balance sheet at fair market value
 - price on date of purchase
- manager decides short/long term based on their expectations
- when sold record gain or loss on sale

$$\text{Gain/loss on sale} = \text{Proceeds from sale} - \text{Book Value of investment sold} \\ \text{↳ purchase price}$$

Purchase 1,000 \$20 shares	-20,000 Cash	+20,000 Investments
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Sell 400 @ \$30	+12,000	-8,000 Investments	+4,000 Gain on Sale
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- Reported as other income
- accounting for purchase/sale - same for all
- but reporting while owning, is different

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Mark-to Market Vs Cost

- if passive investment in marketable securities has an active market w/ published prices report asset value as market value on balance sheet
- if no market report at historical cost
- fair market value = published price * # of shares owned
- trade off b/w objectivity of historical cost vs relevance of market value
- has the following fluctuations

$$\text{Assets } \uparrow \downarrow = \text{Liabilities} + \text{Equity } \uparrow \downarrow$$

- depends on type of security if regular income or OCI

Investments Marked to Market

- two classifications required if reporting at current market value (mark to market)

1. Available for Sale (AFS) - held for gains + dividends, but willing to sell if the price is right

2. Trading (T) - activity buy + sell to make a profit

- AFS has a little less volatility, report ~~as~~ OCI
- T has high volatility, report change as unrealized gains + losses

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Market Adjustments

- if change in value
- ~~AFS~~ ~~AFS~~

AFS	+ 3,000	+ 3,000	not on income statement
\$5↑ in value	Investments	AOCT	
T	+ 3,000	+ 3,000	on income statement
\$5↑ in value	Investments	RE (Unrealized Gain)	

- gain only for listed securities

Financial Statement Disclosures

- describe its policies
- google < 3 months Cash eq
- > 3 months marketable securities, AFS
- < 12 }
- also in foot notes
- policies on how/when to report gain/losses

Potentials for Earnings Management

- difference in AFS and T
- such as diff way changes in fair market value reported
- if ~~management~~ management wanted to manipulate - could change classification
- so req to revalue + record gain/loss till now before switch
- but management can still decide when to change classification

(a)

- Company can realize gains by quickly selling + repurchasing security
- look on cash flow where ~~gain~~ purchase + sale recorded separately

Investments Reported at Cost

Cost method - historical cost

- cash dividends + interest recognized as current income
- debt securities under held-to-maturity (HTM) reported like this
 - market value change not on balance/income sheet
 - sale reported as other income

Investments Reported at Cost

Reasons

- Prelude to acquisition - gain seat on board + observe company
- Strategic alliance - investor company provides know-how to its suppliers
- Pursuit of R+D - to reduce/spread risk
 - often w/ option to purchase rest of company

Reported w/ equity method

- assumes acq. at book value
- ~~the~~ otherwise see appendix

- ⑦
- investments initially recorded at ^{purchase} cost
 - dividends are treated as ~~entry~~ recovery of investment and thus ↓ investment balance
 - not reported as income
 - reports income = to % investment (or loss)
 - not recorded at market value

Purchase 30% for 300 - 300 Cash + 300 investment

Company reports \$100 income + 30 investment + 30 RE Investment Income

Company Pays Dividends + 6 - 6

- still 30%, after companies RE ↑ and dividend ↓
 Will diverge from market value
 Cash flow only sees the dividend cash portion

Ratios

NOPM = overstated

- investee's sales not reported

Asset Turnover Ratio = Undetermined

Financial leverage = Understated

- investee's liabilities not reported

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Investments w/ Control

- Just add them up as if same company
- don't include intercompany balances + transactions
- at first, purchase ~~the~~ price reported w/ equity method on investment account
- then consolidate the balance sheet
 - add the records
 - remove intercompany transactions -;
 - investments + loans
 - sales + purchases
 - so remain investment # added above
 - and then remove companies contrib capital + RE to match
 - so consolidate equity matches that of parent co.
- but all this only if acq price = book value
- if acq price \neq > book value then record ~~the~~ as assets Intangible +
Tangible
 - ie goodwill the value above book value
- so in steps
 1. Adjust BV of tangible assets + liabilities to fair market value
 2. Assign a fair value to any identifiable intangible asset
 - including the ones that have not been reported on balance sheet
 3. Assign residual amt to Goodwill

(9) Can Amortize some intangibles like goodwill
SEC watches for excessive capitalization of goodwill

In progress R+D must be reported as an expense that year

Plan

Reporting of Goodwill

- GAAP req. companies to test for Goodwill
 1. Market value compared to book value
 2. If market value $<$ BV, then must impair to current MV
 - Goodwill must be written down
 - Reported as a loss

(More than 60% of MNCs in 1990s lost shareholder value)

Limitations of Consolidated Reporting

- is more relevant than not doing it
- but a few flaws
 - subsidiaries ~~not~~ might have ~~cash~~ cash flow problems
 - debts are owned by subsidiaries
 - often complicates comparisons
 - inter-department pricing policies can affect it

Pooling of Interest

- available before 2001
- investment acct recorded at book, not market value
- so no goodwill created

(10)

And since good will amortization was req, ~~the~~
pooling would have higher upfront profits

~~but~~ even though can't start it, can continue using it

So @ assets understated (lower value)

So asset turnover overstated

incomes overstated - no depreciation + amortization

Michael Plasmeyer

15.501/15.516
Corporate Financial Accounting
Problem Set #5
Fall 2010
Due December 6th in class

A

IMPORTANT INFORMATION:

Please hand in a hard copy of your answers in class on the due date. **Soft copy submissions will not be accepted.** Only one copy per group is required. Maximum of three people per group. If you cannot attend class, you may drop off the problem set before the due date in Lynn Li's mail tray during business hours. The mail tray is located in E62-655.

Question 1: Statement of Cash Flows

Preparing statements of cash flows, balance sheet, and income statement.

The following are transactions for Rietveld and Beest Asthmacoaster Cures Inc. Please prepare (1) balance sheet, (2) income statement, (3) direct statement of cash flow, and (4) indirect statement of cash flow.

1. Issued 10,000 shares of stock at the par-value of \$40.
2. Received a 10-year loan from the bank for \$100,000.
3. Acquired land for \$14,000 and truck for \$1,000.
4. Acquired \$159,200 inventory for \$130,000 cash and rest on credit.
5. Sold truck for \$1,000.
6. Paid creditors \$4,000.
7. Sold \$100,000 inventory for \$160,000 on account.
8. Collected \$5,000 from account.
9. Paid \$6,000 for rent for the current and next fiscal year (12 months of payments total).
10. Used 4 months of rent this fiscal year.

Question 2: Statement of Cash Flows and Ratios

Preparing a statement of cash flows and compute ratios

The following are the condensed financial statement data for Pluchino, Rapisarda, and Garofalo Company for the current year. During the current year, the firm sold for \$5,000 a random promotion machine costing \$15,000 with \$10,000 of accumulated depreciation.

- a. Prepare a statement of cash flows for Pluchino, Rapisarda, and Garofalo Company for the year using the indirect method of computing cash flow from operations.
- b. Derive a presentation of cash flows from operations using the direct method.
- c. Compute the following ratios: ROE, ROA, ROE Decomposition, Receivables Turnover, Average Collection Period, Inventory Turnover, Days in Inventory, Accounts Payable Turnover, days in Accounts Payable, Operating Cycle, Cash Conversion Cycle, Asset Turnover Ratio, Fixed Asset Turnover, Current Ratio, Quick Ratio, Cash Ratio, Current Cash Debt Coverage Ratio, Debt to Asset, and Times Interest Earned Ratio

Balance Sheet:

	January 1	December 31	Change
ASSETS			
Cash	\$52,000	\$58,000	6,000
Accounts Receivable	\$93,000	\$106,000	13,000
Inventory	\$151,000	\$162,000	11,000
Land	\$30,000	\$30,000	0
Buildings and Equipment (cost)	\$790,000	\$830,000	40,000
Less: Accumulated Depreciation	(\$460,000)	(\$504,000)	-44,000
Total Assets	\$656,000	\$682,000	+26,000
LIABILITIES AND STOCKHOLDERS' EQUITY			
Accounts Payable for Inventory	\$136,000	\$141,000	+5,000
Interest Payable	\$10,000	\$8,000	-2,000
Mortgage Payable	\$120,000	\$109,000	-11,000
Common Stock	\$250,000	\$250,000	0
Retained Earnings	\$140,000	\$174,000	+34,000
Total Liabilities and Stockholders' Equity	\$656,000	\$682,000	+26,000

Income Statement:

Sales Revenue		\$1,200,000
Cost of Goods Sold	(\$788,000)	
Gross Margin		\$412,000
Other Expenses		
Wages and Salaries	(\$280,000)	
Depreciation	(\$54,000)	
Interest	(\$12,000)	
Income Taxes	(\$22,000)	
Net Income		\$44,000
Dividends to Common Stock		(\$10,000)
Addition to Retained Earnings		\$34,000
Retained Earnings, January 1		\$140,000
Retained earnings, December 31		\$174,000

The 44,000 # is correct if want it to balance

Question 3: Statement of Cash Flows and Marketable Securities

Effect of various transactions on the statement of cash flows

The exhibit below (on next page) shows a simplified statement of cash flows for a period. Numbers appear on the 11 of the lines in the statement. Other lines are various subtotals and grand totals; ignore these in the remainder of the problem. Assume that the accounting cycle is complete for the period and that Acevedo-Whitehouse and Rocha-Gosselin (AWRG) Corporation has prepared all of the financial statements. It then discovers that it has overlooked a transaction. It records that transaction in the accounts and corrects all of the financial statements. For each of the following transactions, indicate which of the numbered lines of the statement of cash flows change, and state the amount and direction of change. If net income, line (3), changes, be sure to indicate whether it decreases or increases. Ignore income tax effects. (Hint: First, construct the entry the firm would enter in the accounts to record the transaction in the accounts. Then, for each line of the journal entry, identify the line of the exhibit affected).

- a. Amortization of a patent, treated as an expense, \$600
- b. Acquisition of a factory site financed by issuing capital stock with a market value of \$50,000 in exchange
- c. Purchase of inventory on account for \$7,500; assume inventory had increased for the year before the firm recorded this overlooked transaction
- d. Purchase of inventory for cash of \$6,000; assume inventory had increased for the year before the firm recorded this overlooked transaction
- e. Uninsured firm loss of merchandise inventory totaling \$1,500; assume inventory had increased for the year before the firm recorded this overlooked transaction
- f. Collection of an account receivable totaling \$1,450; assume accounts receivable had increased for the year before the firm recorded this overlooked transaction
- g. Issue of bonds for \$10,000 cash
- h. Disposal of equipment for cash at its book value of \$4,500
- i. AWRG purchased equity securities costing \$59,800 during the period. The firm classifies these as short-term Securities Available for Sale.
- j. AWRG sold for \$47,900 equity securities classified as short-term Securities Available for Sale. The securities originally cost \$42,200 and had a book value of \$44,000 at the time of sale.
- k. AWRG sold for \$18,700 equity securities classified as short-term Securities Available for Sale. The securities originally cost \$25,100 and had a book value of \$19,600 at the time of sale.
- l. A particular equity security purchased during the period for \$220,500 had a market value of \$201,500 at the end of the accounting period. AWRG classifies the security as a short-term Securities Available for Sale. The firm had already recorded the purchase.
- m. Assume the same information as in part l except that the market value of security at the end of the accounting period is \$227,900.

Exhibit:**Simplified Statement of Cash Flows***- Direct -***Operations**

Cash Receipts from Customers	(1)
Less: Cash payments to Suppliers, Employees, and Others	<u>-(2)</u>
Cash Flow from Operations [= (1) - (2)]	<u>S1</u>

*Direct***Reconciliation of Net Income to Cash Flow from Operations**

Net Income	(3)
Additions to Net Income to Compute Cash Flow from Operations	+ (4)
Subtractions from Net Income to Compute Cash Flow from Operations	<u>-(5)</u>
Cash Flow from Operations [= (3) + (4) - (5)]	<u>S1</u>

*Indirect***Investing**

Proceeds from Disposition of "Investing" Assets	+ (6)
Cash Used to Acquire "Investing" Assets	<u>-(7)</u>
Cash Flow from Investing	<u>S2</u>

Financing

Cash Provided by Increases in Debt or Capital Stock	+ (8)
Cash Used to Reduce Debt or Capital Stock	- (9)
Cash Used for Dividends	<u>-(10)</u>
Cash Flow from Financing	<u>S3</u>

Net Change in Cash = [S1 + S2 + S3] (11)

Cash, Beginning of Period	<u>S4</u>
Cash, End of the Period	<u>S5</u>

Question 4: Marketable Securities*Buy at start at 08*

ZJTZYHZZ Fruit Bat Corp. has decided to invest in the following securities during 2008.

Securities	Type of Securities	Cost	Fair value at 12/31/2008	Fair value at 12/31/2009
TA	Trading	\$250,000	\$275,000	sold in 2009
TB	Trading	\$360,000	\$350,000	sold in 2009
AA	Available-for-sale	\$620,000	\$580,000	\$615,000
AB	Available-for-sale	\$470,000	\$530,000	\$485,000
HA	Held-to-maturity	\$120,000	\$125,000	\$140,000
HB	Held-to-maturity	\$290,000	\$300,000	\$310,000

at what price

As his accountant, please show the CEO, Libiao Zhang, your T-accounts for the fiscal year ending in 2008 and 2009. Assume the tax rate is 30%. What are the effects on income due to marketable securities at the end of each fiscal year?

1. Statement of Cash Flows

Journal

	Cash + Assets		=	Liabilities	+	Contrib	+	RE
Issue 10,000 Shares	+400,000					+400,000		
	Cash					Common Stock		
Receive 10 year loan	+100,000			+100,000				
				Loan				
Acquire land	-14,000	+14,000						
		Land						
Acquire Truck	-1,000	+1,000						
		Trucks						
Acquire Inventory	-130,000	+159,200		+29,200				
		Inventory		Accounts Payable				
Sold Truck	+1,000	-1,000						
		Trucks						
Paid creditors	-4,000			-4,000				
				Loan				
Sold goods		-100,000					+60,000	
		Inventory					Sales	
		+160,000						
		Accounts Receivable						
Collected	+5,000	-5,000						
		Accounts Receivable						

assuming,
call be A.P.
also assuming
payment of
principal

②

Cash + Assets = Liabilities + Contrib + RE

Pay Rent

-6,000 +6,000
Prepaid Rent

-6,000

Use rent

-2,000
Prepaid Rent

-2,000
Rent Expense

Total

351,000
14,000 Land
59,200 Inventory
155,000 Accounts Receivable
4,000 Prepaid Rent

232,200

= 96,000 Loan
29,200 Accounts Payable

125,200

400,000
Common Stock

+58,000
total

= 583,200

= 583,200

3

Balance Sheet

Assets

Cash	351,000
Accounts Receivable	155,000
Prepaid Rent	9,000
Inventory	59,200
<hr/>	
Current Assets	569,200
Land	14,000
<hr/>	
Assets	584,200

Liabilities

Accounts Payable	29,200
Loan	96,000
<hr/>	
	125,200

(note I omit subsections ^{totals} (Current/Long-Term Assets/Liability when only 1 item in it)

(4)

Income Statement

Revenues	160,000
- COGS	-100,000
<hr/>	
Gross Profit	60,000
- Rent Expenses	-2,000
<hr/>	
Net Income	58,000

3

Direct Statement of Cash Flows

Operating

Cash Received from Customers 5,000

Cash Paid for Merch Paid -130,000

(again my assumption)

Cash Paid for Rent -6,000

Net Cash Operating -131,000

Investing - (uses gross, not net amts)

Purchase Plant Assets -15,000

Sale Plant Assets +1,000

Net Cash Investing -14,000

Financing

Sale of Common Stock 400,000

Bank loan 100,000

Principal Repayment -4,000

Net Cash financing 496,000

Cash Start 0

Cash End 351,000

Net Change 351,000

Matches journal entries + balance sheet

6) Indirect Statement of Cash Flows

Note ↑ = increase
 ↓ = decrease

Operating

Net Income 58,000

↳ from income statement

- Accounts Receivable ↑ - 155,000

+ Accounts Payable ↑ + 29,200

- Prepaid Rent ↑ - 4,000

- Inventory ↑ - 58,200

Net Δ Cash Operating

- 131,000 (Matches)

Investing

Purchase Plant Assets - 15,000

Sale of Plant Assets + 4,000

Net Δ Cash Investing - 11,000

Financing

Sale of Common Stock 400,000

Bank loan 100,000

Principal repayment - 4,000

Net Δ Cash financing 496,000

Net Change in Cash
 Cash at end of period

+ 351,000
 351,000 (takes a while - hour + so far)

same as w/ Direct

7

2. Statement of Cash Flows + Ratios

a) Indirect Cash Flow

now use adjustments

Operating

Net Income 34,000

+ Depreciation Expense +44,000

+ Dividends + 10,000

- ↑ in AR -13,000

- ↑ in Inventory -11,000

- ↓ in AP -8,000

Net change in Operating Cash +56,000

← Mistake on P-set's Income Statement

Investing

Net Asset Purchases -40,000

Financing

Pay Dividend -10,000

Start Cash	52,000
End Cash	58,000

Change in Cash 6,000

8

b) Direct Cash Flow Statement

Operating

Cash Received From Customers

Sales Revenue	1,200,000
- ↑ in Accounts Receivable	- 13,000
+ ↑ in Unearned Revenue	0

Cash Paid For Merch Purchased

COGS	- 788,000
+ ↑ in Inventory	- 11,000
- ↑ in Accounts Payable for Inv	+ 5,000

Cash Paid To Employees - 280,000

Cash Paid for Interest

Interest expense	- 12,000
+ ↓ Interest payable	+ 2,000

Cash Paid For Taxes - 22,000

Cash Paid For Mortgage - 11,000

Don't Count Dividend - 10,000

56,000

(Investing + Financing same)

9.

c) Compute a bunch of ratios

ROE

$$\frac{\text{Net income}}{\text{Shareholder equity}} = \frac{44,000}{250,000} = .176$$

ROA

$$\frac{\text{Net income}}{\text{Assets}} = \frac{44,000}{682,000} = .0645$$

ROE Decomposition

$$\begin{aligned} & \text{Net operating profit margin} \cdot \text{Asset Turnover} \cdot \text{Earnings Leverage} \cdot \text{Financial Leverage} \\ & = \frac{\text{NOPAT}}{\text{Sales}} \cdot \frac{\text{Sales}}{\text{Assets}} \cdot \frac{\text{Net income}}{\text{NOPAT}} \cdot \frac{\text{Assets}}{\text{Shareholders Equity}} \end{aligned}$$

(NOPAT = Net operating profit after tax)

$$= \frac{44,000}{1,200,000} \cdot \frac{1,200,000}{682,000} \cdot \frac{44,000}{44,000} \cdot \frac{682,000}{250,000}$$

$$= \frac{44,000}{250,000} = .176$$

(10)

Receivables Turnover

$$= \frac{\text{Net credit sales}}{\text{Avg AR}} = \frac{1,200,000}{\left(\frac{106,000 + 93,000}{2}\right)} = 12.06$$

Avg Collection Period (DSO)

$$= \frac{\text{Avg AR}}{\frac{\text{Sales}}{\text{Days}}} = \frac{\left(\frac{106,000 + 93,000}{2}\right)}{\left(\frac{1,200,000}{365}\right)} = 30.26$$

Inventory Turnover

$$= \frac{\text{COGS}}{\text{Avg Inventory}} = \frac{412,000}{\left(\frac{162,000 + 151,000}{2}\right)} = 2.63$$

Days in Inventory (DIO) (DSI)

$$= \frac{\text{Avg Inventory}}{\text{COGS}} \cdot 365 = \frac{\left(\frac{162,000 + 151,000}{2}\right) \cdot 365}{412,000} = 138.64$$

26

Accounts Payable Turnover (prob wrong)

$$\begin{aligned}
 &= \frac{\text{Purchases}}{\text{Avg AP}} = \frac{28000 + 44000 + 12000 + 22000 + 11000}{\frac{136,000 + 141,000}{2} + \frac{8000 + 10000}{2} + \frac{120000 + 109000}{2}} \\
 &= \frac{396000}{138500 + 9000 + 114500} \\
 &= 1.51
 \end{aligned}$$

Days in AP

$$\frac{\text{Avg AP}}{\text{Purchases}} \cdot 365 = \frac{1}{1.51} \cdot 365 = 241.72$$

Operating Cycle

$$\begin{aligned}
 &\text{DIO} + \text{DSO} - \text{DPO} \\
 &= 138.64 + 30.26 - 241.72 \\
 &= -72.82
 \end{aligned}$$

$$\text{DSO} = \frac{\text{Avg AR}}{\left(\frac{\text{Sales}}{\text{days}}\right)}$$

(12)

Cash Conversion Cycle

Same as Operating cycle

Asset Turnover Ratio

$$= \frac{\text{Revenue}}{\text{Assets}} = \frac{1,200,000}{682,000} = 1.7595$$

Fixed Asset Turnover Ratio

$$= \frac{\text{Revenue}}{\text{Fixed assets}} = \frac{1,200,000}{30,000 + 830,000 - 504,000} = 337$$

Quick Ratio

$$= \frac{\text{Cash + cash eqv}}{\text{Current liabilities}} = \frac{58,000 + 106,000}{141,000 + 8,000 + 109,000} = 1.63$$

Current Ratio

$$= \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{58,000 + 106,000 + 163,000}{141,000 + 8,000 + 109,000} = 1.26$$

Current Cash Debt Coverage Ratio

$$= \frac{\text{Cash from Ops}}{\text{Avg current liab}} = \frac{56,000}{141,000 + 8,000 + 109,000} = 1.217$$

Debt to Asset Ratio

$$= \frac{\text{Liabilities}}{\text{Assets}} = \frac{141,000 + 8,000 + 109,000}{682,000} = 1.378$$

(13)

Times Interest Earned (TIE)

$$= \frac{\text{Net Income} + \text{Taxes} + \text{Interest}}{\text{Interest Payable (all contractual debt)}} = \frac{44,000 + 22,000 + 12,000}{8,000 + 109,000}$$

$$= \frac{2}{3}$$

14

3. Statement of Cash Flows + Marketable Securities

- Have statement of cash flows
- Indicate which line will change
- Ignore tax effects

a) Amortization \$ 600

Not included in cash flow

b) Acq. of factory site financed by issuing stock

8 ↑ 50,000

7 ↑ 50,000 (Result # is more negative)

c) Purchase inventory on account

~~2 ↑ 7,500 3 ↓ 7,500~~ no change on account

5 ↑ 7,500 (addition to inventory)

d) Purchase inventory w/ cash

2 ↑ 6,000

3 ↓ 6,000

5 ↑ 6,000

e) Uninsured loss of merch

5 ↓ 1,500 (decreased increase in inventory)

15.

f) Collection of AR \$1,450

1 ↑ 1,450

5 ↓ 1,450 (subtract from increase of AR)

g) Issue bonds

8 ↑ 10,000

h) Sale of equipment for cash

1 ↑ 4,500

i) Purchase Short Term AFS Securities

- Reported as income on income statement

2 ↑ 59,800

j) Sold Short Term AFS for a gain

- On income statement as \$5,700 other income

1 ↑ 47,900

k) Sold Short Term AFS for a loss

1 ↑ 18,700

- income statement loss 6,400

l) Value of Short Term AFS decreases

Bypass income statement → ACOI no change

m) " " " " " increase - same answer as above

(16)

4. Marketable Securities

Company invests in a bunch of securities

Make T-accounts for 08, 09

Do journal first Cash + Assets = Liabilities + Contrib + RE

Buy Securities	-2,110,000	+2,110,000	
	Cash	Investments	

End of 08		+15,000	+15,000
Trading		Investments	RE (Unrealized gains)

End of 08		+20,000	+20,000
AFS		Investments	AOCI

End of 08	no record	—	—
HTM			

Sale of trading in 09	+625,000	-625,000	
	Cash	Investments	

← all gains realized

End of 09		-10,000	-10,000
AFS		Investments	AOCI

End of 09	no record	—	—
HTM			

08 Taxes	-10,500		-10,500
	Taxes		Tax expense

09 Taxes	0		0
----------	---	--	---

(17)

08

Cash	
Dr	Cr
2,110,000	
10,500	

Investments	
2,110,000	
15,000	
20,000	

Tax Expense	
10,500	

Retained Earnings	
10,500	15,000

AOCI	
20,000	

not closed to RE each period

09

Cash	
	625,000

Investments	
	625,000
	10,000

AOCI	
	10,000

15.501/15.516
Corporate Financial Accounting
Problem Set #5
Fall 2010
Due December 6th in class

IMPORTANT INFORMATION:

Please hand in a hard copy of your answers in class on the due date. **Soft copy submissions will not be accepted.** Only one copy per group is required. Maximum of three people per group. If you cannot attend class, you may drop off the problem set before the due date in Lynn Li's mail tray during business hours. The mail tray is located in E62-655.

Question 1: Statement of Cash Flows

Preparing statements of cash flows, balance sheet, and income statement.

The following are transactions for Rietveld and Beest Asthmacoaster Cures Inc. Please prepare (1) balance sheet, (2) income statement, (3) direct statement of cash flow, and (4) indirect statement of cash flow.

1. Issued 10,000 shares of stock at the par-value of \$40.
2. Received a 10-year loan from the bank for \$100,000.
3. Acquired land for \$14,000 and truck for \$1,000.
4. Acquired \$159,200 inventory for \$130,000 cash and rest on credit.
5. Sold truck for \$1,000.
6. Paid creditors \$4,000.
7. Sold \$100,000 inventory for \$160,000 on account.
8. Collected \$5,000 from account.
9. Paid \$6,000 for rent for the current and next fiscal year (12 months of payments total).
10. Used 4 months of rent this fiscal year.

Suggested Solution:

Cash (A)			
BB	0		
(1)	400,000	15,000	(3)
(2)	100,000	130,000	(4)
(5)	1,000	4,000	(6)
(8)	5,000	6,000	(9)
EB	351,000		

Accounts Receivable (A)			
BB	0		
(7)	160,000	5,000	(8)
EB	155,000		

Inventory (A)			
BB	0		
(5)	159,200	100,000	(7)
EB	59,200		

Property, Plant and Equipment (A)			
BB	0		
(3)	1,000	1,000	(5)
(3)	15,000		
EB	14,000		

Prepaid Rent (A)			
BB	0		
(9)	6,000	2,000	(10)
EB	4,000		

Accounts Payable (L)			
		0	BB
(6)	4,000	29,200	(4)
		25,200	EB

Notes Payable (L)			
		0	BB
		100,000	(2)
		100,000	EB

Par Value (SE)			
		0	BB
		400,000	(1)
		400,000	EB

Retained Earnings (SE)			
		0	BB
(7)	100,000	160,000	(7)
(10)	2,000		
		58,000	EB

Balance Sheet:

Cash	\$351,000
Accounts Receivable	\$155,000
Inventory	\$59,200
Prepaid Rent	\$4,000
Property, Plant and Equip't	\$14,000
Total Assets	583,200

Accounts Payable	\$25,200
Notes Payable	\$100,000
Total Liabilities	\$125,200

Par Value	\$400,000
Retained Earnings	\$58,000
Total Stockholders' Equity	\$458,000
Total Liab + SE	\$583,200

Income Statement:

Sales	\$160,000
Cost of Goods Sold	<u>(\$100,000)</u>
Gross Margin	\$60,000
Rent Expense	(\$2,000)
Net Income	\$58,000

Direct Method:**Cash Flow from Operation Activities**

(4) Inventory Purchase	(\$130,000)
(6) Paid Creditors	(\$4,000)
(7) Collection of Receivables	\$5,000
(8) Rent Payment	(\$6,000)
Net cash provided by (used for) operating activities	(\$135,000)

Cash Flow from Investing Activities

(3) Land and Truck	(\$15,000)
(4) Sale of Truck	1,000
Net cash provided by (used for) investing activities	(\$14,000)

Cash Flow from Financing Activities

(1) Common Stock	\$400,000
(2) Bank Loan	\$100,000
Net cash provided by (used for) financing activities	\$500,000

Net increase in cash \$351,000

Indirect Method:

Cash Flow from Operation Activities

Net Income	\$58,000
Adjustments to reconcile net inc. to net cash provided by (used for) operating activities	
Depreciation	\$0
Net increase in AR	(\$155,000)
Net increase in Inventory	(\$59,200)
Net increase in AP	\$25,200
Net increase in prepaid rent	(\$4,000)
Net cash provided by (used for) operating activities	(\$135,000)

Cash Flow from Investing Activities

Purchase of PP&E	(\$15,000)
Sale of PP&E	\$1,000
Net cash provided by (used for) investing activities	(\$14,000)

Cash Flow from Financing Activities

Proceeds from bank loan	\$100,000
Proceeds from issuance of stock	\$400,000
Net cash provided by (used for) financing activities	\$500,000
Net increase in cash	\$351,000

Question 2: Statement of Cash Flows and Ratios

Preparing a statement of cash flows and compute ratios

The following are the condensed financial statement data for Pluchino, Rapisarda, and Garofalo Company for the current year. During the current year, the firm sold for \$5,000 a random promotion machine costing \$15,000 with \$10,000 of accumulated depreciation.

- Prepare a statement of cash flows for Pluchino, Rapisarda, and Garofalo Company for the year using the indirect method of computing cash flow from operations.
- Derive a presentation of cash flows from operations using the direct method.
- Compute the following ratios: ROE, ROA, ROE Decomposition, Receivables Turnover, Average Collection Period, Inventory Turnover, Days in Inventory, Accounts Payable Turnover, days in Accounts Payable, Operating Cycle, Cash Conversion Cycle, Asset Turnover Ratio, Fixed Asset Turnover, Current Ratio, Quick Ratio, Cash Ratio, Current Cash Debt Coverage Ratio, Debt to Asset, and Times Interest Earned Ratio

Balance Sheet:

	January 1	December 31
ASSETS		
Cash	\$52,000	\$58,000
Accounts Receivable	\$93,000	\$106,000
Inventory	\$151,000	\$162,000
Land	\$30,000	\$30,000
Buildings and Equipment (cost)	\$790,000	\$830,000
Less: Accumulated Depreciation	(\$460,000)	(\$504,000)
Total Assets	\$656,000	\$682,000
LIABILITIES AND STOCKHOLDERS' EQUITY		
Accounts Payable for Inventory	\$136,000	\$141,000
Interest Payable	\$10,000	\$8,000
Mortgage Payable	\$120,000	\$109,000
Common Stock	\$250,000	\$250,000
Retained Earnings	\$140,000	\$174,000
Total Liabilities and Stockholders' Equity	\$656,000	\$682,000

Income Statement:

Sales Revenue		\$1,200,000
Cost of Goods Sold	(\$788,000)	
Gross Margin		\$412,000
Other Expenses		
Wages and Salaries	(\$280,000)	
Depreciation	(\$54,000)	
Interest	(\$12,000)	
Income Taxes	(\$22,000)	
Net Income		\$44,000
Dividends to Common Stock		(\$10,000)
Addition to Retained Earnings		\$34,000
Retained Earnings, January 1		\$140,000
Retained earnings, December 31		\$174,000

Suggested Solution

a.

Balance Sheet:

	January 1	December 31	Difference
ASSETS			
Cash	\$52,000	\$58,000	\$6,000
Accounts Receivable	\$93,000	\$106,000	\$13,000
Inventory	\$151,000	\$162,000	\$11,000
Land	\$30,000	\$30,000	\$0
Buildings and Equipment (cost)	\$790,000	\$830,000	\$40,000
Less: Accumulated Depreciation	(\$460,000)	(\$504,000)	(\$44,000)
Total Assets	\$656,000	\$682,000	

LIABILITIES AND STOCKHOLDERS'

EQUITY

Accounts Payable for Inventory	\$136,000	\$141,000	\$5,000
Interest Payable	\$10,000	\$8,000	(\$2,000)
Mortgage Payable	\$120,000	\$109,000	(\$11,000)
Common Stock	\$250,000	\$250,000	\$0
Retained Earnings	\$140,000	\$174,000	\$34,000
Total Liabilities and Stockholders' Equity	\$656,000	\$682,000	

Operations:

Net Income	\$44,000		
Additions:			
Depreciation Expense	\$54,000		
Increases in Accounts Payable	\$5,000		
Subtractions:			
Increases in Accounts Receivable	(\$13,000)		
Increase in Inventory	(\$11,000)		
Decrease in Interest Payable	(\$2,000)		
Cash Flow from Operations		\$77,000	

Investing:

Sale of Equipment	\$5,000		
Acquisition of Equipment	(\$55,000)		
Cash Flow from Investing		(\$50,000)	

Financing:

Dividends	(\$10,000)		
Retirement of Portion of Mortgage Payable	(\$11,000)		
Cash Flow from Financing		(\$21,000)	

Net Change in Cash		\$6,000	
Cash, January 1		\$52,000	
Cash, December 31		\$58,000	

b. Direct Cash Flow Statement.

Operations	Indirect Method	Changes in Related Balance Sheet Accounts from T-Account Work Sheet	Direct Method	From Operations: Receipts less Expenditures
Revenues.....\$1,200	(\$13)	Accounts Receivable Increase	\$1,187	Receipts from Customers
COGS.....(\$788)	\$5	Accounts Payable Increase	(\$794)	Payments for Merchandise
	(\$11)	Merchandise Inventory Increase		
Wages & Salaries.....(\$280)	--	Other Current Liabilities Increase	(\$280)	Payments for Wages and Salaries
Depreciation Expense...(\$54)	\$54	(Expense Not Using Cash)	--	
Interest Expense.....(\$12)	(\$2)	Interest Payable Decrease	(\$14)	Payment for Interest
Income Tax Expense.....(\$22)		Income Taxes Payable Increase	(\$22)	Payments for Income Taxes
Net Income.....\$44	\$44	Totals	\$77	CFO Derived via Direct Method
	\$77	CFO Derived via Indirect Method		

Operations:

Sources of Cash:

Cash Received from Customers \$1,187,000

Uses of Cash:

Payments to Suppliers (\$794,000)

Payments to Employees (\$280,000)

Interest Payments (\$14,000)

Tax Payments (\$22,000)

Cash Flow from Operations \$77,000

Investing:

Cash Used for New Acquisition of Equipment (\$55,000)

Cash Received from Disposition of Equipment \$5,000

Cash Flow Provided by (Used for) Investing (\$50,000)

Financing:

Cash Used for Dividends (\$10,000)

Cash Used to Repay Mortgage (\$11,000)

Cash Flow Provided by (Used for) Financing (\$21,000)

Net Change in Cash \$6,000

Cash, January 1 \$52,000

Cash, December 31 \$58,000

c. Compute the following ratios:

ROE	$\frac{\text{Net Income}}{\text{Average Equity}}$	$\frac{44,000}{0.5(390,000 + 424,000)}$
ROA	$\frac{\text{NI} + \text{Interest} (1 - \text{tax rate})}{\text{Average Assets}}$	$\frac{44 + 12(1 - \frac{22}{66})}{0.5(656 + 682)}$
ROE Decomposition	$\frac{\text{NI}}{\text{Sales}} \frac{\text{Sales}}{\text{Avg Assets}} \frac{\text{Avg Assets}}{\text{Avg Equity}}$	$\frac{44}{1,200} \frac{1,200}{0.5(656 + 682)} \frac{0.5(656 + 682)}{0.5(390 + 424)}$
Receivables Turnover	$\frac{\text{Net Credit Sales}}{\text{Average AR}}$	$\frac{1,200}{0.5(93 + 106)}$
Average Collection Period	$\frac{365}{\text{Receivables Turnover}}$	$\frac{365 * 0.5(93 + 106)}{1,200}$
Inventory Turnover	$\frac{\text{COGS}}{\text{Avg Inventory}}$	$\frac{788}{0.5(151 + 162)}$
Days in Inventory	$\frac{365}{\text{Inventory Turnover}}$	$\frac{365 * 0.5(151 + 162)}{788}$
Accounts Payable Turnover	$\frac{\text{Purchases}}{\text{Avg Accounts Payable}}$	$\frac{799}{0.5(136 + 141)}$
Days in Accounts Payable	$\frac{365}{\text{AP Turnover}}$	$\frac{365 * 0.5(136 + 141)}{799}$
Operating Cycle	Days in AR + Days in Inv	30.3 + 72.5
Cash Conversion Cycle	Days in AR + Days in Inv – Days in AP	30.3 + 72.5 - 63.3
Asset Turnover Ratio	$\frac{\text{Sales}}{\text{Avg Assets}}$	$\frac{1,200}{0.5(656 + 682)}$
Fixed Asset Turnover	$\frac{\text{Sales}}{\text{Avg Net Fixed Assets}}$	$\frac{1,200}{0.5(360 + 356)}$
Current Ratio	$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	$\frac{58 + 106 + 162}{141 + 8}$
Quick Ratio	$\frac{\text{CA} - \text{Inv} - \text{Prepayments}}{\text{Current Liabilities}}$	$\frac{58 + 106}{149}$
Cash Ratio	$\frac{\text{Cash} + \text{Marketable Sec.}}{\text{Current Liabilities}}$	$\frac{58}{149}$
Current Cash Debt Coverage Ratio	$\frac{\text{Cash from Operations}}{\text{Current Liabilities}}$	$\frac{66}{149}$
Debt to Asset	$\frac{\text{Total Debts}}{\text{Total Assets}}$	$\frac{258}{682}$
Times Interest Earned Ratio	$\frac{\text{EBIT}}{\text{Interest Expense}}$	$\frac{44 + 22 + 12}{12}$

Question 3: Statement of Cash Flows and Marketable Securities

Effect of various transactions on the statement of cash flows

The exhibit below (on next page) shows a simplified statement of cash flows for a period. Numbers appear on the 11 of the lines in the statement. Other lines are various subtotals and grand totals; ignore these in the remainder of the problem. Assume that the accounting cycle is complete for the period and that Acevedo-Whitehouse and Rocha-Gosselin (AWRG) Corporation has prepared all of the financial statements. It then discovers that it has overlooked a transaction. It records that transaction in the accounts and corrects all of the financial statements. For each of the following transactions, indicate which of the numbered lines of the statement of cash flows change, and state the amount and direction of change. If net income, line (3), changes, be sure to indicate whether it decreases or increases. Ignore income tax effects. (Hint: First, construct the entry the firm would enter in the accounts to record the transaction in the accounts. Then, for each line of the journal entry, identify the line of the exhibit affected).

- a. Amortization of a patent, treated as an expense, \$600
- b. Acquisition of a factory site financed by issuing capital stock with a market value of \$50,000 in exchange
- c. Purchase of inventory on account for \$7,500; assume inventory had increased for the year before the firm recorded this overlooked transaction
- d. Purchase of inventory for cash of \$6,000; assume inventory had increased for the year before the firm recorded this overlooked transaction
- e. Uninsured firm loss of merchandise inventory totaling \$1,500; assume inventory had increased for the year before the firm recorded this overlooked transaction
- f. Collection of an account receivable totaling \$1,450; assume accounts receivable had increased for the year before the firm recorded this overlooked transaction
- g. Issue of bonds for \$10,000 cash
- h. Disposal of equipment for cash at its book value of \$4,500
- i. AWRG purchased equity securities costing \$59,800 during the period. The firm classifies these as short-term Securities Available for Sale.
- j. AWRG sold for \$47,900 equity securities classified as short-term Securities Available for Sale. The securities originally cost \$42,200 and had a book value of \$44,000 at the time of sale.
- k. AWRG sold for \$18,700 equity securities classified as short-term Securities Available for Sale. The securities originally cost \$25,100 and had a book value of \$19,600 at the time of sale.
- l. A particular equity security purchased during the period for \$220,500 had a market value of \$201,500 at the end of the accounting period. AWRG classifies the security as a short-term Securities Available for Sale. The firm had already recorded the purchase.
- m. Assume the same information as in part l except that the market value of security at the end of the accounting period is \$227,900.

Exhibit:

Simplified Statement of Cash Flows

Operations

Cash Receipts from Customers	(1)
Less: Cash payments to Suppliers, Employees, and Others	<u>-(2)</u>
Cash Flow from Operations [= (1) - (2)]	S1

Reconciliation of Net Income to Cash Flow from Operations

Net Income	(3)
Additions to Net Income to Compute Cash Flow from Operations	+ (4)
Subtractions from Net Income to Compute Cash Flow from Operations	<u>-(5)</u>
Cash Flow from Operations [= (3) + (4) - (5)]	S1

Investing

Proceeds from Disposition of "Investing" Assets	+ (6)
Cash Used to Acquire "Investing" Assets	<u>-(7)</u>
Cash Flow from Investing	S2

Financing

Cash Provided by Increases in Debt or Capital Stock	+ (8)
Cash Used to Reduce Debt or Capital Stock	-(9)
Cash Used for Dividends	<u>-(10)</u>
Cash Flow from Financing	S3

Net Change in Cash = [S1 + S2 + S3] (11)

Cash, Beginning of Period S4

Cash, End of the Period S5

Suggested Solutions:

a. Amortization Expense \$600

Patent \$600

(3) Decreases by \$600; reduces net income through amortization expenses

(4) Increases by \$600; amount of expense is added back to net income in deriving CFO.
No effect on net CFO or cash.

b. Factory Site \$50,000

Common Stock \$50,000

This transaction does not appear in the statement of cash flows because it does not affect cash. The firm must disclose information about the transaction in a supplemental schedule or note.

c. Inventory \$7,500

Accounts Payable \$7,500

(4) Increases by \$7,500; operating increase in cash from increase in Accounts Payable.

(5) Increases by \$7,500; operating decrease in cash from increase in Inventory.

The net effect is to leave CFO unchanged, because the amounts added and subtracted

change in such a way as to cancel out each other.

- d. Inventory \$6,000
Cash \$6,000
(2) Increase by \$6,000; use of cash in operation
(5) Increase the subtraction by \$6,000; increase in Inventory account, subtracted
(11) Decreases by \$6,000
The net effect is to reduce CFO and cash by \$6,000 the cash expenditure for an operating asset, Inventory.
- e. Fire Loss \$1,500
Inventory \$1,500
(1) Decreases by \$1,500; net income goes down.
(4) Increases by \$1,500; additions go up because inventory, not cash, was destroyed. OK to show as a reduction to a subtraction for Line (5)
No net effect on cash flow including CFO or cash.
- f. Cash \$1,450
Accounts Receivable \$1,450
(1) Increases by \$1,450 for collection of cash from customers.
(4) Increases by \$1,450; operating increase in cash reflected by decrease in the amount of Account Receivable. OK to show as a reduction in the subtraction on Line (5).
(11) Increases by \$1,450.
CFO increases by \$1,450, which causes cash to increase by \$1,450.
- g. Cash \$10,000
Bonds Payable \$10,000
(8) Increases by \$10,000; increase in cash from security issue.
(11) Increases by \$10,000
- h. Cash \$4,500
Equipment (Net) \$4,500
(6) Increases by \$4,500; increase in cash from sale of noncurrent asset
(11) Increase by \$4,500
- i. Marketable Securities \$59,800
Cash \$59,800
(7) Increased by \$59,800 since the purchase of marketable securities is an Investing activity.
(11) Decreased by \$59,800.
Since (7) carries a negative sign, so increasing it reduces cash.
- j. Cash \$47,900
Marketable Securities \$42,200
Realized Gain on Sale of AFS \$5,700
Unreal.Gains on AFS \$1,800
Marketable Securities \$1,800
Because the first entry involves a debit to the cash amount line (11) increases by \$47,900. The sale of AFS securities is an investing activity, so line (6) increases by \$47,900 and there is no effect on CFO. Because the realized gain is an income statement account, line (3) increases by \$5,700. We show all of the cash proceeds of sales \$47,900 on line (6). Under the indirect method, we double count cash in the amount of the gain if we do not eliminate \$5,700 from the operations section of cash flows. Thus, line (5) increases by

\$5,700 to offset the realized gain. The net effect of the entries on line (3) and line (5) is zero. The second entry does not involve an income statement account or the cash account and therefore, would not appear on the statement of cash flows.

k. Cash	\$18,700
Realized Loss on AFS	\$6,400
Marketable Sec.	\$25,100
Marketable Sec.	\$5,500 = (\$25,100-\$19,600)
Unrealized Loss on AFS	\$5,500

Because the the first entry involves a debit to the cash amount line (11) increases by \$18,700. The sale of AFS securities is an investing activity, so line (6) increases by \$18,700 and there is no effect on CFO. Because the realized loss is an income statement account, line (3) decreases by \$6,400. The loss used no cash so line (4) shows an addback of \$6,400. The second entry does not involve cash account, nor any income statement account, so it does not affect statement of cash flows.

l. Unreal. Loss on AFS (OCI)	\$19,000
Marketable Securities	\$19,000 = (\$220,500 – 201,500)

The entry does not appear on the statement of cash flows.

m. Marketable Securities	\$7,400
Unreal. Gains on AFS	\$7,400

The entry does not appear on the statement of cash flows.

Question 4: Marketable Securities

ZJTZYHZZ Fruit Bat Corp. has decided to invest in the following securities during 2008.

Securities	Type of Securities	Cost	Fair value at 12/31/2008	Fair value at 12/31/2009
TA	Trading	\$250,000	\$275,000	sold in 2009
TB	Trading	\$360,000	\$350,000	sold in 2009
AA	Available-for-sale	\$620,000	\$580,000	\$615,000
AB	Available-for-sale	\$470,000	\$530,000	\$485,000
HA	Held-to-maturity	\$120,000	\$125,000	\$140,000
HB	Held-to-maturity	\$290,000	\$300,000	\$310,000

As his accountant, please show the CEO, Libiao Zhang, your T-accounts for the fiscal year ending in 2008 and 2009. Assume the tax rate is 30%. What are the effects on income due to marketable securities at the end of each fiscal year?

Suggested Solution:

For 2008:

	Cash	Trading Securities	AFS Securities	Held-to-Maturity
	250	250	620	120
	360	360	470	290
	620	25	60	
	470	10	40	
	120			
	290			
EB	2,110	625	EB 1,110	EB 410

	Deferred Taxes	Retained Earning	OCI	Comput. of Def. Taxes
		25	60	
		10	40	
	4.5	4.5		-4.5 = .3(10-15)
	6		6	-6 = .3*(40-70)
EB	10.5	EB 11.5	EB 14	

For trading securities: Unrealized gains and losses map into retained earnings and is reflected in the income statement. So we incurred deferred taxes of \$4.5.

For AFS securities: Unrealized gains and losses map into other comprehensive income (OCI). Deferred taxes are also incurred, in the amount of \$6.

For HTM securities: Any changes in unrealized gains and losses have no affect on HTM.

For 2009:

	Cash	Trading Securities	AFS Securities	Held-to-Maturity
BB	2,110	625	1,110	410
275		275	35	
350		350	45	
Pay Tax	4.5			
EB	1,489.5	0	1,100	410

	Deferred Taxes	Retained Earning	OCI	Comput. of Def. Taxes
BB	10.5	11.5	14	
4.5			45	
			35	
3			3	$3=0.3(45 - 35)$
EB	3	11.5	7	

For trading securities: We assume that they sold for the prices at the end of 2008. Since we sold it for the same price as 2008 prices, there are no realized gains or losses. We still have to pay taxes, which amounts to \$4.5.

For AFS securities: Unrealized gains and losses map into other comprehensive income (OCI). Since AFS securities decreased by 10, we have a deferred tax asset. So, we get a tax credit of 3.

For HTM securities: Any changes in unrealized gains and losses have no affect on HTM.

In-Class



Investments in Securities

15.501/516 Corporate Financial Accounting
Fall 2010
Lecture 23

Professor Ross Watts
Sloan School of Management
Massachusetts Institute of Technology



What is a Security?

- A security is a negotiable instrument representing financial value
- Broadly categorized into:
 - Debt securities (e.g., notes, bonds & debentures)
 - Equity securities (e.g., common shares & preferred shares)
 - Derivative contracts (e.g., forwards, futures, options and swaps)
 - A forward contract is an agreement between two parties to buy or sell an asset at a certain future time for a certain price agreed today
 - A futures contract is a standardized forward contract that is traded on an exchange (examples of assets traded on exchanges are agricultural products, oil, gas, ~~interest rate~~ & foreign currencies)
 - An option is the right to buy (call option) or sell (put option) an asset at a specified exercise or strike price on or before a specified exercise date. We saw an example of an employee call option in Lecture 17
 - An interest rate swap is a contract to swap payments on a fixed rate loan for payments on a variable rate loan or vice-versa. There are also CURRENCY SWAPS

All must be valued if on balance sheet
if ~~then~~ interest rates will kill you



Securities classification for reporting purposes

- Minority, **passive** investments
 - Investment in another company's shares is passive if investment is < 20% of that company's shares
 - Investment in **debt securities** is also **passive** - don't have a vote
 - These investments appear in the balance sheet in either
 - current assets as marketable securities
 - Investments
 According to when the management **intends** to convert them into cash
- Minority, **active** investments in shares (**significant influence**)
 - Investments in between 20% & 50% of another company's shares
 - Appear under "Investments" in balance sheet
- Majority, **active** investments in shares (**control**)
 - Investments in more than 50% of another company's shares
 - Consolidated into the controlling ("parent") company's financial reports
 - Effectively the subsidiary's transactions are melded in with the parent's transactions



Housekeeping

- PS 5 due
- Reading
 - Dyckman chapter 12, 537-562
- Slides
 - Put up yesterday *but edited*
- Final exam
 - December 14

Watts



Why do firms invest in securities?

- Normal part of the business
 - Banks
 - Mutual funds
 - Pension funds
 - Insurance companies
 - Hedging exposures (e.g. foreign currency)
- Temporary Investments
 - Excess cash at certain times of the year due to seasonality
 - Future expansion of the business
- Strategic reasons
 - Influence another company
 - Control another company
- Retention of free cash flow
 - Risk aversion
 - Empire building

For these people investing is their business



Accounting for different classes of equity investments

	Accounting	B/S	Income effects
▪ Passive	Fair value	Mkt or FV	Dividends & capital gains
▪ Significant influence	Equity method	Investment A/c = proportion of investee's equity	Divs reduce Investment A/c % owned investee income Investor income reports = % of investee income Capital gains are income
▪ Control	Consolidation	B/S's of investor & investee combined	Income stmts combined Sale of investee yields capital gain or loss

FSB trying to calculate re-define control - but can't agree on formula

Different classes of **passive** debt & equity investments



- Classifications based on intent ← *political = liberalism not a vpy good system*
 - Trading securities (debt & equity)
 - Management intends to actively buy & sell for trading profits
 - Available for sale securities AFS (debt & equity)
 - Management intends to hold for capital gains & dividend revenue, but may sell if the price is right
 - Held-to-maturity (debt only)
 - Management intends to hold to maturity
- Accounting is different for each classification

T
Trading securities (debt & equity)



- Acquired for short-term profit potential
- Investment marked-to-market on balance sheet & value changes reported on income statement
- Purchases & sales reported in operating section of cash flow statement

Interest OACT

HTM
Held to maturity (debt only)



- Acquired with ability & intent to hold to maturity
- Investment carried at historical cost on the balance sheet
- Interest income reported on income statement & operating section of cash flow statement

AFS
Available-for-sale (debt & equity)



- Securities not classified as trading or held to maturity
- Investment marked-to-market on balance sheet & value changes reported in "other equity" account in stockholders' equity
 - Does not go through Retained Earnings
- Purchases & sales reported in investing section of cash flow statement

does not flow through income statement

Acquisition & sale of **passive** marketable security investments



- Recorded at cost (fair market value) at acquisition
- Investment's value in the B/S is marked to market at end of each period
- Whether the gain or loss on sale goes to
 - the income statement
 - or
 - accumulated *other comprehensive income* (OCI)
 depends on whether the investment is classified as a **trading security** or an **available for sale security**
- Management has to classify the security at purchase

Standards determining securities' reporting



- SFAS 115 was the accounting standard for security investments
- In 2008, SFAS 159 gave firms option of using either
 - SFAS 115 accounting or
 - Fair value accounting
 for **individual securities**
- Financial firms were given the option of adopting SFAS 159 **early** (i.e., in 2007)
 - Many financial firms exercised that option for sub-prime securities

*value security each qtr/year
gain/loss depends on your valuation
lots of flexibility*



Financial reporting under SFAS 115

- Investment securities
 - reported in the balance sheet according to whether the management intends to convert them into cash
- If management has to, or intends to, convert the securities into cash in the next year
 - securities are reported in current assets as marketable securities
- Otherwise securities are reported in Investments
 - A non-current asset category
- Key question about 115 was whether market value changes should be recognized in financial statements

115 gave us fair value accounting if chose to use it



Should investment securities' MV changes be recognized?

- Investment securities (IS)
 - Corporate & government bonds, treasuries
 - Common stock
 - Derivative instruments: options, swaps, etc.
- What is different about IS such that both gains & losses can be recognized?
 - Objective (i.e., reliable, verifiable) asset MVs are available in liquid markets for some securities
 - But, what happens in illiquid markets?
 - Enron troubles partly due to reliance on illiquid securities' prices

Yes ~ BUT have a market price - not just made up by management



SFAS 115 (adopted 1994)

Controversy: When 115 was being written i

- Where should MV changes be reported?
- In the Income Statement or not?
 - Taxes
 - Taxes are based on unrealized gains/losses
 - Deferred taxes on unrealized (paper) gains/losses
 - Increased variability in income
 - Problems for bank regulators + analysts

3 classifications

Compromise in SFAS 115

- New classifications
 - Trading securities (debt & equity)
 - Available-for-sale (debt & equity)
 - Held-to-maturity (debt only)
- With different accounting treatments
- Classification depends on management's intent

- where this covered before one from

The political compromise

What did we do w/ other uncertainties
Comparison to recognition of other assets' market value changes



- Accounts receivable
 - Estimates of uncollectibles
 - Changes in credit risk
 - Down & up (to extent doesn't exceed original debt)
- Inventory
 - Purchase/production cost
 - Changes in input prices, obsolescence
 - Down only
- Fixed Assets
 - Acquisition cost (historical basis)
 - Obsolescence
 - Down only

generally down but not up



SFAS 115 (adopted 1994)

- Previously IS involving stocks & bonds valued at "lower of cost or market" on a portfolio basis not individual securities
- Under SFAS 115 mark-to-market accounting gains & losses are treated similarly
 - The market value can exceed cost
 - Problem of illiquid markets
 - still

w/ taxes
examples

Accounting for securities under SFAS 115



- Debt instruments
 - Held to maturity
 - Recording
 - Purchase
 - Accrue interest & receipt of interest
 - Sale
 - Trading & available for sale
- Equity - trading securities & available for sale
 - See following

19

Securities example



On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity
RE Trading	-12,500	+12,500				

Avail. For Sale

21

Securities example



On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	-12,500	+12,500					

Avail. For Sale
Same as above

On Nov. 30, 2002 ACE receives \$625 in MITCO dividends (\$1.25 per share)

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	+625						+625

Investment Income on I/S →

Avail. For Sale

23

Securities example



On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity
RE Trading						

Avail. For Sale

Purchase Security
- note must be < 20% of company

20

Securities example



On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity
RE Trading	-12,500	+12,500				

Avail. For Sale
Same as above

22

Securities example



On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	-12,500	+12,500					

Avail. For Sale
Same as above

On Nov. 30, 2002 ACE receives \$625 in MITCO dividends (\$1.25 per share)

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	+625						+625

Investment Income on I/S →

Avail. For Sale
Same as above

24

all same
- but animation

End of year example

Securities example



On Dec. 31, 2002 MITCO is trading at \$30 per share and ACE has a 30% tax rate

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading		+2,500				+2,500
		(\$30-\$25)*500				
		Investment Income on I/S				
				+750		-750
		2,500 x 30% Income Tax Expense on I/S				
Avail. For Sale		+2,500			+1,750	

mark to market

deferred

No I/S Effect into other equity

must include tax effect

both have yet been sold

End of year - but drop

Securities example



On Dec. 31, 2003 MITCO is trading at \$27 per share and ACE has a 30% tax rate

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading		1,500	-1,500			
			(\$27-\$30) X 500 share investment			
			Income on I/S			
				-450		+450
			-1,500 X 30% Income tax benefit on I/S			
Avail. For Sale		-1,500			-1050	

do reduce tax liability - assume have tax liability to offset it

Securities example Sell



On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading		12,500	1,000		300	
Beg Balance						
	+18,000	-12,500	-1,000			+4,500
				-300		-1,350
Avail. For Sale					700	

tax added for T

pay taxes (on both)

Securities example



On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading		12,500	1,000		300	
Beg Bal						
	+18,000	-12,500	-1,000			+4,500
				-300		-1,350
Avail. For Sale					700	

very diff patterns of taxes

Securities example

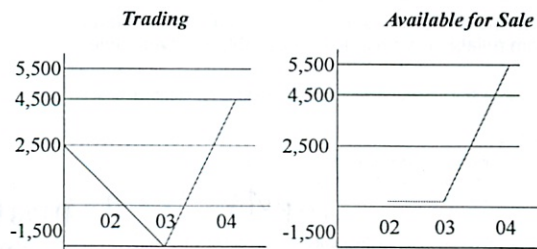


On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading		12,500	1,000		300	
Beg Bal						
	+18,000	-12,500	-1,000			+4,500
				-300		-1,350
Avail. For Sale					700	

tax added for AFS

Securities: Income patterns



? AFS added this

- eliminates variability in income till you sell



Reclassifications of Securities

- Trading to Available-for-sale
 - Gains or losses of the period recognized on reclassification date
 - Subsequent market value changes reported in "Other Equity"
- Available-for-sale to Trading
 - Cumulative gains or losses, including those of current period, recognized on reclassification date
 - Subsequent market value changes reported in the income statement

Can switch

31 On other side of debate - concerned w/ banks



Does recognition of gains/losses matter?

Former SEC Chairman Breeden, on mark-to-market (ca 1990):

If you are in a volatile business, then your balance sheet and income statement should reflect that volatility. Furthermore, we have seen significant abuse of managed earnings. Too often companies buy securities with an intent to hold them as investments, and then miraculously when they rise in value, the companies decide it's time to sell them. Meanwhile, their desire to hold those securities that are falling in value grows ever stronger. So companies report the gains and hide the losses.

will recognize more gains when have a loss

Current SEC Chairman Arthur Levitt, Jr (1997):

it is unacceptable to allow American investors to remain in the dark about the consequences of a \$23 trillion derivatives exposure. We support the independence of the FASB as they turn on the light.

Federal Reserve Chairman Greenspan, on derivatives (ca 1997):

Putting the unrealized gains and losses of open derivatives contracts onto companies' income statements would introduce "artificial" volatility to their earnings and equity. Shareholders would become confused; management might forego sensible hedging strategies out of purely window dressing concerns.



SFAS 115 was a compromise in GAAP

no one won

- Recognize all unrealized gains/losses for "trading securities" in Net Income
- Mark "available for sale" securities to market value, but don't report changes in the income statement
 - Reduces earnings volatility
 - Managers dislike income volatility
 - They complain similarly about other accounting method changes that increase reported earnings volatility even though underlying cash flows are unaffected
- Ignore value changes for "held to maturity" category



Fair value accounting

- SFAS 159 (February, 2007) gave management the option to elect fair value accounting for many financial assets & liabilities for fiscal years beginning after November 15, 2007
- If the election is not made for individual assets, SFAS 115 (the accounting in the 1st part of this lecture) applies
- The election is
 - On an individual asset or liability basis
 - Irrevocable for that asset or liability once made
 - Made for existing assets & liabilities when the standard becomes effective
 - Made for new assets & liabilities at acquisition or when incurred respectively



Fair value accounting

- Has 3 levels of measures for financial assets that range from reliable & verifiable to unreliable & unverifiable
 - Level 1: Quoted prices in active markets for identical assets
 - Level 2:
 - Observable inputs into an asset valuation model
 - (e.g., LIBOR rate)
 - Comparables
 - Level 3: Unobservable inputs into an asset valuation model
 - (e.g., future cash flows)
 - Inputs that reflect the manager's own assumptions

? most subprimes

inputs to a model - model may be no good though



Fair value accounting

- Is effectively equivalent to the Trading Basis seen earlier in the lecture
 - Gains & losses go into Net Income
- Also, if the FV election is made for some existing assets, at the time the standard comes into effect there is
 - A cumulative adjustment to Retained Earnings; &
 - A change in the assets' values in the Balance Sheet

do go back and adjust



FV accounting & financial firms

- Firms were allowed to adopt SFAS 159 early (in 2007) if they met certain conditions that included adopting SFAS 157 (full FV accounting)
- Financial firms were early adopters
 - including banks affected by the sub-prime mortgage problems

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FV accounting & financial firms

- How did the banks' FV reporting respond to the sub -prime mortgage crisis?
- What did they do as the market for sub-prime mortgages became illiquid?
 1. Take write-offs on sub-prime-based financial securities for drops in the value of those securities?
 2. Adjust the level of fair value estimation?
 3. Both?
- For quite a while the banks merely adjusted the level of FV measurement down without taking any write-offs
- Write-offs eventuated in 3rd quarter of 2007 but to date appear far too little

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Future of FV reporting - banks

- Financial Stability Forum
 - Paris conference
 - Front end recognition of gains on transactions
 - Full profit taken when transaction made
 - Example - sale of mortgage securities through SPEs
 - When no more good mortgages to take on & profits measured on fair value basis
 - Some banks moved to compete with Freddie Mac & Fannie Mae for bad mortgages so they could continue to generate income
 - FSF Report
 - Recommends change in compensation plans
 - Wants banks to anticipate the turn in the business cycle
 - Dangerous
- FASB makes use of SPE's very difficult

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still very hard to value
allowed them to stay high



Some observations

- Objectivity of liquid market prices allows value of marketable securities to be adjusted on balance sheets when such prices exist
- Combinations of
 - complex financial instruments that trade in illiquid markets &
 - FV accounting
 open the door to managerial opportunism
- Accounting for "Available for Sale" securities is an example of political influence on accounting standard setting process

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Future of FV accounting generally

- FV accounting was intended to eventually allow
 - assets other than marketable securities and liabilities to be marked to current value
- Income was to have been the difference in the FV of equity (Assets minus liabilities) adjusted for dividends & capital movements
 - Financial reporting would have become an unverifiable valuation exercise
- This will not happen
 - FASB revenue recognition proposal has been revised to look more like existing revenue recognition
 - Lack of verifiability would allow too many frauds & reduce information in financial statements
- FV financial reporting will eventually disappear

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FASB has done a 180°
turn
Want to go back to
income based
In future SFAS standard

12/8

Final Exam Review



15.501/516 Corporate Financial Accounting
Fall 2010
Lecture 24

Professor Ross Watts
Sloan School of Management
Massachusetts Institute of Technology

Exam will cover



- Statement of Cash Flows
 - Chapter 4
 - Lecture 19
- Life Cycle of a Firm
 - Chapter 4
 - Lecture 20
- Fundamental Analysis
 - Chapter 5
 - Lecture 21
- Financial Statement Analysis
 - Chapter 5
 - Lecture 22
- Investment in Securities
 - Chapter 12
 - Lecture 23

Operating Activities



- Primary activity of business
 - Selling goods
 - Providing services
 - Manufacturing
 - Cost of Sales
 - Advertising
 - Paying employees
 - Paying utilities

Important Information



- Exam
 - Lasts for 80 minutes
 - Is closed book
 - Held in room E62-276 (A) 9.00 am, (B) 10.30am *both 9AM*
- You can use a non-programmable calculator
- Previous exams may not be representative
- Cheat sheet allowed
 - One 8 1/2" X 11" page

double sided

*difficulty will match midterm 2
past exams easier*

Cash Flow Statement



- Exam concentrates on the indirect method rather than direct method
- Statement
 - Measures change in cash account between two balance sheets
 - Breaks cash inflows/outflows into three sources
 - Operating
 - Investing
 - Financing

Investing Activities



- Obtaining/selling resources or assets to operate the business
 - Land
 - Buildings
 - Vehicles
 - Computers
 - Furniture
 - Equipment

Financing Activities



- Borrowing creates **liabilities**
 - Bank loans
 - Debt securities

- Selling stock creates **stockholders' equity**
 - Sales of stock
 - Paying dividends

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More generally



- Operating activities
 - Changes in current asset & current liabilities
- Investing activities
 - Changes in long-term assets
- Financing activities
 - Changes in long-term liabilities & equity
- Changes can be increases or decreases

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Cash Flow Statement - direct method



Operating activities:		
Cash sale of services (4)	\$8,000	
Cash payments for expenses (5)	(\$9,000)	
Net cash from operating activities		(\$1,000)
Investing activities:		
Purchase of equipment (6)	(\$5,000)	
Net cash from investing activities		(\$5,000)
Financing activities:		
Borrowings (2)	\$3,000	
Owner contributions (1)	\$10,000	
Payment of dividends (6)	(\$1,000)	
Net cash from financing activities		\$12,000
Increase in cash balance		\$6,000
Cash balance at beginning of year		\$0
Cash balance at end of year		\$6,000

direct - list the things

Indirect Cash Flow Statement

exam focuses on indirect



- Most companies use the **indirect** method
- **Only difference** with the direct cash flow statement is **presentation**
- **Change in cash is identical** in direct vs. indirect
- **Presentation of investing & financing** sections is **identical** in direct vs. indirect
- **Presentation of operating** section is **different** but change in cash from operations is identical in direct vs. indirect

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Inventory changes & OCF adjustments



- ...buys \$7M of inventory that remains unsold
 - Inventory change? Increase
 - Income adjustment to obtain operating cash flows (OCF) Subtract \$7M

- ...sells \$2M of inventory purchased during the year
 - Inventory change? None
 - Income adjustment to obtain OCF? None

- ...sells \$8M of inventory purchased during prior year
 - Inventory change? Decrease
 - Income adjustment to obtain OCF? Add \$8M

indirect - adjust Net income for operating cash flow

under accruals

Summary of net income adjustments for changes in non-cash current assets & liabilities



- Increase in non-cash current assets
 - Increase in accounts receivable deducted from Net Income (slide 13)
 - Increase in inventory deducted from Net Income (slide 15)
- Decrease in non-cash current assets
 - Decrease in accounts receivable added to Net Income (slide 14)
 - Decrease in inventory added to Net Income (slide 17)
- Increase in current liabilities
 - Increase in wages payable added to Net Income (slide 20)
- Decrease in current liabilities
 - Decrease in accounts payable deducted from Net Income (slide 21)

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Net Income adjustments for Depreciation & amortization



- Company recognizes \$6M in depreciation expense

	\$0
--	-----
 - Effect on cash

	- \$6M
--	--------
 - Effect on net income

--	--
- To start at net income & end at cash flow from operations, must **add back** \$6M for depreciation expense

add it back

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Gains & Losses on sale of assets



- Company sells an asset for \$2,000
 - Purchase price was \$10,000
 - Accumulated depreciation \$9,000
- What is the gain/loss on sale?
 - Gain of \$2,000 - \$1,000 = \$1,000
- Effect on operating cash flow?
 - \$0
 - The \$2,000 will appear in the investing activities
- To start at net income & end at cash flow from operations must deduct gains on sale & add back losses on sale

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Calculate Operating CF



Depreciation was \$45,000
 Loss on the sale of an asset \$5,000
 Net Income was \$195,000
 AR decreased by \$15,000
 Prepaid Expense decreased by \$4,000
 AP increased by \$17,000

Net Income		\$195,000	
<i>Adjustments to reconcile net income to net cash provided by operating activities</i>			
Depreciation expense	\$45,000		
Loss on the sale of an asset	5,000		
Decrease in accounts receivable	15,000		
Decrease in prepaid expenses	4,000		
Increase in accounts payable	17,000	86,000	
Net cash provided by operating activities		\$281,000	

add backs

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Indirect Method



- Most companies favor the indirect method for the following reasons:
 - Easier to prepare
 - Focuses on differences between net income & net cash flow from operating activities
 - Tends to reveal less company information to competitors
 - Over ninety-eight (98.8)% of companies use the indirect method

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Steps in Preparing SCF



Step 1: Determine net cash provided/used by operating activities by converting net income from an accrual basis to a cash basis.

Buying & selling goods
 This step involves analyzing not only the current year's income statement but also comparative balance sheets and selected additional data.

Step 2: Analyze changes in noncurrent asset and liability accounts and record as investing and financing activities, or as significant noncash transactions.

Investing *Financing*
 This step involves analyzing comparative balance sheet data and selected additional information for their effects on cash.

Step 3: Compare the net change in cash on the statement of cash flows with the change in the cash account reported on the balance sheet to make sure the amounts agree.

+ *or* *-*
 The difference between the beginning and ending cash balances can be easily computed from comparative balance sheets.

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Step 1 in to converting NI to CFO



Net Income +/- Adjustments = Net Cash Provided/Used by Operating Activities

- Add back noncash expenses, such as depreciation expense, amortization, or depletion.
- Deduct gains and add losses that resulted from investing and financing activities.
- Analyze changes to noncash current asset and current liability accounts.

look for non cash transactions

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Adjustments in Step 1



Cash flows from operating activities		
Net income		\$145,000
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation expense	\$ 9,000	
Loss on sale of equipment	3,000	
Decrease in accounts receivable	10,000	
Increase in merchandise inventory	(5,000)	
Increase in prepaid expenses	(4,000)	
Increase in accounts payable	16,000	
Decrease in income tax payable	(2,000)	
		27,000
Net cash provided by operating activities		\$172,000

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Income Statement and Additional Information



Revenues		\$507,000
Cost of goods sold	\$150,000	
Operating expenses (excluding depreciation)	111,000	
Depreciation expense	9,000	
Loss on sale of equipment	3,000	
Interest expense	42,000	\$315,000
Income before income tax		192,000
Income tax expense		47,000
Net income		\$145,000

Additional Information for 2007:

- The company declared and paid a \$29,000 cash dividend.
- Issued \$110,000 of long-term bonds in direct exchange for land.
- A building costing \$120,000 was purchased for cash. Equipment costing \$25,000 was also purchased for cash.
- The company sold equipment with a book value of \$7,000 (cost \$8,000, less accumulated depreciation \$1,000) for \$4,000 cash.
- Issued common stock for \$20,000 cash.
- Depreciation expense was comprised of \$6,000 for building and \$3,000 for equipment.

Information for Step 2

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Assets	2007	2006	Change in Account Balance Increase/Decrease
Current assets			
Cash	\$ 35,000	\$ 33,000	\$ 2,000 Increase
Accounts receivable	20,000	30,000	10,000 Decrease
Merchandise inventory	15,000	10,000	5,000 Increase
Prepaid expenses	5,000	1,000	4,000 Increase
Property, plant, and equipment			
Land	130,000	20,000	110,000 Increase
Building	160,000	40,000	120,000 Increase
Accumulated depreciation—building	(11,000)	(5,000)	6,000 Increase
Equipment	27,000	10,000	17,000 Increase
Accumulated depreciation—equipment	(3,000)	(1,000)	2,000 Increase
Total	\$395,000	\$138,000	
Liabilities and Stockholders' Equity			
Current liabilities			
Accounts payable	\$ 25,000	\$ 12,000	\$ 13,000 Increase
Income tax payable	6,000	8,000	2,000 Decrease
Long-term liabilities			
Bonds payable	130,000	20,000	110,000 Increase
Stockholders' equity			
Common stock	70,000	50,000	20,000 Increase
Retained earnings	164,000	48,000	116,000 Increase
Total liabilities and stockholders' equity	\$395,000	\$138,000	

Information for Step 2

note differences investigate them

Step 2

Step 3

Cash flows from operating activities		
Net income		\$ 145,000
Adjustments to reconcile net income to net cash provided by operating activities:		
Depreciation expense	\$ 9,000	
Loss on sale of equipment	3,000	
Decrease in accounts receivable	10,000	
Increase in merchandise inventory	(5,000)	
Increase in prepaid expenses	(4,000)	
Increase in accounts payable	16,000	
Decrease in income tax payable	(2,000)	
Net cash provided by operating activities		172,000
Cash flows from investing activities		
Purchase of building	(120,000)	
Purchase of equipment	(25,000)	
Sale of equipment	4,000	
Net cash used by investing activities		(141,000)
Cash flows from financing activities		
Issuance of common stock	20,000	
Payment of cash dividends	(29,000)	
Net cash used by financing activities		(9,000)
Net increase in cash		22,000
Cash at beginning of period		33,000
Cash at end of period		\$ 55,000
Noncash investing and financing activities		
Issuance of bonds payable to purchase land		\$ 110,000

Significant Noncash Activities...



- That do NOT affect cash are NOT reported in the body of the statement of cash flows.
 - Issuance of common stock to purchase an assets.
 - Conversion of bonds into common stock.
 - Issuance of debt to purchase assets.
 - Exchanges of plant assets.

barter

all not in cash flow statement

Significant Non-cash Activities...



- Are reported:
 - In a separate schedule at the bottom of the statement of cash flows or
 - In a separate note or supplementary schedule to the financial statements.

or

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Securities = investments
not capital investments

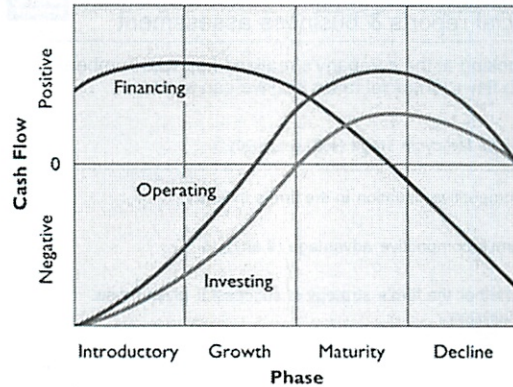
The Product Life Cycle

- A series of phases all products go through
- The phases are often referred to as the:
 - introductory phase
 - growth phase
 - maturity phase
 - decline phase
- The phase a company is in affects its cash flows



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Impact of Product Life Cycle on Cash Flows



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could be asked to identify state
company is in

Free Cash Flow

Cash Provided By Operations

- Capital Expenditures
- Dividends Paid

Free Cash Flow

Does the company have profitable business investments in which to invest this free cash flow free cash flow?

If it does not it should return the cash to the investors

should be asked



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What is financial statement analysis?

- Financial statements are a primary source of information about corporations & their investments
- Financial statement analysis is an important method professional investors & analysts use
 - To answer their questions about firms
 - To help value a firm for trading purposes



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Fundamental analysis

- Is the process of using
 - Knowledge of a firm's business &
 - Analysis of the firm's financial statement information including footnotes
- to
 - Forecast the firm's future payoffs (cash flows) &
 - Value the firm's securities
- for
 - Trading or recommendation purposes

inc other stuff outside of financial statement



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Knowledge of the firm's business

- Products
- Life cycle stage
- Competition
- Comparative advantage
- Regulatory constraints
- Strategy



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Financial reports & business assessment

- By looking at the company's realized financial numbers (cash flows, financial ratios etc) we can assess:
 - Firm's life cycle stage (see Lecture 20);
 - Competitive situation in the firm's industry;
 - Firm's competitive advantage (if any); &
 - Whether the firm's strategy is successful given those situations

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Assessment of competitive situation

- Accounting net income helps assess the firm's competition situation
- If an industry is competitive
 - the firm being assessed &
 - the other firms in the industry
 should only earn the competitive rate of return given the risk
 - i.e., the market rate of return
- If a firm is earning an above competitive rate of return given the risk (economic profits or rents), we have to ask
 - What is generating that above competitive rate of return? &
 - How long is it likely to last?

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Relation between Economic & Accounting Profits

Define rate of return on equity, ROE: $ROE = NI \cdot BVE$
 $NI = ROE \cdot BVE$

This allows us to re-write residual income:

$$RI = NI - r_E \cdot BVE = (ROE - r_E) \cdot BVE$$

To add to shareholder value – to have a positive economic profit – a firm must achieve an ROE at least as high as its cost of equity capital

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Assessment of competitive situation

What real business activities drive ROE?

How can we determine that from financial statement analysis?

By decomposing ROE into its components, we can judge each component's contribution to

profitability (ROE) &
 risk (which influences the cost of capital, r_E)

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Traditional ROE decomposition

This would give the following ROE decomposition:

$$ROE = \frac{NOPAT}{Sales} \times \frac{Sales}{Assets} \times \frac{Net\ income}{NOPAT} \times \frac{Assets}{Shareholders' equity}$$

= net operating profit margin x asset turnover x earnings leverage x financial leverage

NOPAT = Net Operating Profit After Taxes

You should be able to do a ROE decomposition for individual firms & assess the determine the various strategies employed by the firms

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How do the ratios vary over time?

- Returns (ROA, ROE) & Sales growth mean revert

What causes the reversion?

Competition

- Policies or strategies (LEV, ATR & ROS) are relatively stationary in the short-term

Given characteristic at the industry – fairly standard

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Financial Statement Analysis

- Ratio analysis
 - Comparative analysis
 - Common size financial statements
 - Overview of ratio analysis
- Sustainable income
 - Relation to share valuation
 - Irregular items
 - Change in accounting principle
 - Comprehensive income

*things that
expenses will
reoccur*

- not 1 shot deals

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Comparative Analysis & Common Size Statements

Comparative analysis

Financial statement comparisons commonly used to gain insights:

- Intra-company basis - detecting changes inco.'s asset & financial structures
- Inter-company basis - insights into competitive position
- Industry averages - insights into position within the industry
- "Getting the right benchmark" - right benchmark depends on the question

Common size statements

Expresses each financial statement item as a % of a base amount

- Balance sheet - divisor is total assets
 - Insights into structure of assets & their financing
- Income statement - divisor is total revenue
 - Insights into profitability

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Overview of ratio analysis

- Profitability ratios
- Efficiency ratios
- Liquidity ratios
- Leverage ratios

Classification is a little different to the text

For example, the book uses return on investment and liquidity & solvency rather than above classification

Definitions occasionally vary slightly from text - either OK

You are responsible for all the ratios in the slides

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Profitability Ratios

Summary of Profitability Ratios

- Return on Assets (ROA) Lectures 12 & 13
- Return on Equity (ROE) Lectures 12 & 13
- Gross Margin Lecture 4 Gross Profit rate
- SG&A to Sales
- Profit Margin Lectures 4 and 12 & 13

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Profitability Ratios

- Each profitability ratio can be compared with
 - The firm's prior performance
 - A specific competitor's performance
 - An industry average
- To assess time-series & cross-sectional differences
- Generate alternative explanations for those differences
- Investigate which alternative explanations are most likely
- The same process can be followed for each class of ratios

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Efficiency Ratios

Efficiency (or Activity) Ratios – An income statement line item divided by a related balance sheet line item as a measure of how efficiently resources are being used

- Summary of Efficiency Ratios
 - Accounts Receivable Turnover & Average Collection Period
 - Lecture 8
 - Inventory Turnover & Days in Inventory
 - Lecture 11
 - Accounts Payable Turnover & Days in Accounts Payable
 - Lecture 16
 - Operating Cycle & Cash Conversion Cycle
 - Lecture 16
 - Asset Turnover
 - Lectures 12 & 13
 - Fixed Asset Turnover

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Write down on cheat sheet

Efficiency Ratios



- **Receivables Turnover** = $\text{Sales} / \text{Average Net Receivables}$
- **Average Collection Period or Days Receivables on Hand**
= $365 / \text{Receivables Turnover}$
- **Inventory Turnover** = $\text{Cost of Goods Sold} / \text{Average Inventory}$
- **Days in Inventory** = $365 / \text{Inventory Turnover}$
- **Accounts Payable Turnover** = $\text{Purchases} / \text{Average Payables}$
 $\text{Purchases} = \text{Cost of Goods Sold} + \text{End Inv} - \text{Beg Inv}$
- **Days in Accounts Payable** = $365 / \text{Payables Turnover}$

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Efficiency Ratios



- **Operating Cycle**
 - Average time from purchase of inventory until collection of cash
 - $\text{OC} = \text{Days in AR} + \text{days in INV}$
- **Cash Conversion Cycle**
 - The period from when the firm spends cash on inputs until they receive payment from their customers minus the financing from creditors
 - $\text{CCC} = \text{OC} - \text{days in AP}$

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Efficiency Ratios



- **Assets Turnover Ratio** = $\text{Sales} / \text{Average Total Assets}$
 - Measures how efficiently the firm generates sales from its existing assets
- **Fixed Assets (PP&E) Turnover** = $\text{Sales} / \text{Average Fixed Assets}$
 - Measures how efficiently the firm generates sales from its existing fixed assets

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Liquidity Ratios



- Liquidity ratios can be viewed from two perspectives
 - As efficiency ratios that assess the company's optimal working capital management
 - As ratios that assess the ability of the company to survive (i.e. pay its bills) in the coming period or periods
- In general, liquidity ratios measure the ability of the firm to pay bills due in the next year with
 - current assets or
 - cash flow that will be generated in the next year

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Liquidity Ratios



- **Summary of Liquidity Ratios**
 - Current Ratio
 - Quick Ratio
 - Cash Ratio
 - Current Cash Debt Coverage Ratio or Operating Cash Flow Ratio

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Liquidity Ratios



- **Current Ratio** = $\text{Current Assets} / \text{Current Liabilities}$
 - Lecture 4
- **Quick Ratio** = $\text{Current Monetary Assets} / \text{Current Liab}$
 - current monetary assets are cash, marketable securities & accounts receivable
 - Lecture 4
- **Cash Ratio** = $(\text{Cash} + \text{Marketable Securities}) / \text{Current Liabilities}$
- **Current Cash Debt Coverage Ratio or Operating Cash Flow Ratio**
= $\text{Cash From Operations} / \text{Current Liabilities}$
 - Lecture 20

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Leverage Ratios

- Primarily provide information about the extent to which
 - The firm's assets are financed by borrowed money
 - The borrowed money has required interest payments
- Can also provide information about the firm's ability to meet its financial obligations
- Should be compared to the structure of the asset side of the balance sheet to assess extent to which the firm is hedged
 - If interest rates increase for reasons other than inflation the long-term assets will decrease in value and so will the long-term liabilities

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Leverage Ratios

- Summary of Leverage Ratios
 - Debt (Total Liabilities) to Total Assets Ratio
 - Lecture 4
 - Interest-Bearing Liabilities to Total Assets Ratio
 - Non-Interest-Bearing Liabilities to Total Assets Ratio
 - Times Interest Earned Ratio
 - Lecture 16
 - Cash Debt Coverage Ratio
 - Lecture 20

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Leverage Ratios

- Debt (Total Liabilities) to Total Assets Ratio = $\frac{\text{Total Liabilities}}{\text{Total Assets}}$
- Interest-Bearing Debt to Total Assets Ratio = $\frac{\text{Interest-Bearing Debt}}{\text{Total Assets}}$
 - Interest-Bearing Debt is
 - Long-Term Debt (including current maturities) &
 - Capital Lease Obligations (including current maturities)

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Leverage Ratios

- Non-Interest-Bearing Debt to Total Assets Ratio = $\frac{\text{Non-Interest-Bearing Debt}}{\text{Total Assets}}$
- Times Interest Earned Ratio (Earnings Basis) = $\frac{\text{Earnings Before Interest and Taxes}}{\text{Interest Expense}}$
 - Lecture 16
- Cash Debt Coverage Ratio = $\frac{\text{Cash from Operations}}{\text{Average Total Liabilities}}$
 - Lecture 20

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Share valuation & sustainable income

- Total share value = PV of expected future cash flows to the firm's current shareholders
- The accrual process makes net income a better predictor of future cash flows than current cash flows
- Net income's ability to predict future cash flows can be improved by adjusting it for items unlikely to be repeated in the future (irregular items)
- Sustainable income is the result of such adjustments
- Analysts & users of financial reports are interested in sustainable net income

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Irregular items

- Two irregular item types reported (net of taxes)
 - Discontinued operations
 - Disposal of a significant segment of the business
 - Extraordinary items
 - Events or transactions that are
 - unusual in nature &
 - infrequent in occurrence
 - Examples
 - Natural calamities (e.g. a hurricane when such events are rare)
 - Expropriation of assets by a foreign government
 - Effects of newly enacted law or regulations

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Other considerations in estimating sustainable income



- **Consistent accounting**
 - When a firm changes accounting principles effect of the change on past financial reports has to be reported
 - The analyst should compare current & past numbers using the same principles
- **Comprehensive income** *section*
 - Some gains & losses are excluded from income
 - Most such gains & losses are not sustainable, but if the analyst considers they are, they should be included in sustainable income *can be in sustainable*
- **Changes in the firm's life cycle**
 - Sustainable income is not sustainable forever
 - All growth firms eventually cease to be growth firms (competition)
 - All mature firms eventually go into decline
- Managers will often modify the reported income number in their announcements
 - E.g., some will claim certain losses are not continuing when they are
 - Be alert to these claims - see how whether they proved true in the past

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Investments in securities Nature of a security



- A security is a negotiable instrument representing financial value
- Broadly categorized into:
 - Debt securities (e.g., notes, bonds & debentures)
 - Equity securities (e.g., common shares & preferred shares)
 - Derivative contracts (e.g., forwards, futures, options and swaps)
 - A forward contract is an agreement between two parties to buy or sell an asset at a certain future time for a certain price agreed today
 - A futures contract is a standardized forward contract that is traded on an exchange (examples of assets traded on exchanges are agricultural products, oil, gas, electricity and U.S. & foreign currencies)
 - An option is the right to buy (call option) or sell (put option) an asset at a specified exercise or strike price on or before a specified exercise date. We saw an example of an employee call option in Lecture 17
 - An interest rate swap is a contract to swap payments on a fixed rate loan for payments on a variable rate loan or vice-versa. There are also currency swaps.

only did employee stock options

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Why do firms invest in securities?



- Normal part of the business
 - Banks
 - Mutual funds
 - Pension funds
 - Insurance companies
 - Hedging exposures (e.g. foreign currency)
- Temporary investments
 - Excess cash at certain times of the year due to seasonality
 - Future expansion of the business
- Strategic reasons
 - Influence another company
 - Control another company
- Retention of free cash flow
 - Risk aversion
 - Empire building

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Classification of investments in securities



- **Minority, passive investments**
 - Investment in another company's shares is passive if investment is < 20% of that company's shares
 - Investment in debt securities is also passive
 - These investments appear in the balance sheet in either
 - current assets as marketable securities or
 - Investments
 According to when the management intends to convert them into cash
- **Minority, active investments in shares (significant influence)**
 - Investments in between 20% & 50% of another company's shares
 - Appear under "Investments" in balance sheet
- **Majority, active investments in shares (control)**
 - Investments in more than 50% of another company's shares
 - Consolidated into the controlling ("parent") company's financial reports
 - Effectively the subsidiary's transactions are melded in with the parent's transactions

Which investments are covered in exam?



- You should understand the nature of accounting for minority investments with significant influence and for majority active investments with control
- You will only have to be able to do the actual accounting for non-strategic equity investments
 - i.e., investments in less than 20% of a firm's equity
- These investments appear in either current assets or investments in the balance sheet

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Different classes of **passive debt & equity investments** *< 20%*



- Classifications based on intent
 - **Trading securities** (debt & equity)
 - Management intends to actively buy & sell for trading profits
 - **Available for sale securities AFS** (debt & equity)
 - Management intends to hold for capital gains & dividend revenue, but may sell if the price is right
 - **Held-to-maturity** (debt only)
 - Management intends to hold to maturity
- Accounting is different for each classification

Different classes of **passive** debt & equity investments



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Trading securities (debt & equity)



- Acquired for short-term profit potential
- Investment marked-to-market on balance sheet & value changes reported on income statement
- Purchases & sales reported in operating section of cash flow statement

Held to maturity (debt only)



- Acquired with ability & intent to hold to maturity
- Investment carried at historical cost on the balance sheet
- Interest income reported on income statement & operating section of cash flow statement

When sell?

Available-for-sale (debt & equity)



- Securities not classified as trading or held to maturity
- Investment marked-to-market on balance sheet & value changes reported in "other equity" account in stockholders' equity
- Purchases & sales reported in investing section of cash flow statement

What Is "Other Equity"?



- Includes items in Other Comprehensive income
- One of which is MV changes in available-for-sale securities *AFS*

Acquisition & sale of **passive** marketable security investments



- Recorded at cost (fair market value) at acquisition
- Investment's value in the B/S is marked to market at end of each period
- Whether the gain or loss on sale goes to
 - the income statement
 - or
 - accumulated *other comprehensive income* (OCI)depends on whether the investment is classified as a **trading security** or an **available for sale security**
- Management has to classify the security at purchase



Securities example

On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading							

Avail. For Sale



Securities example

On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	-12,500	+12,500					

Avail. For Sale



Securities example

On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	-12,500	+12,500					

Avail. For Sale Same as above



Securities example

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Trading	-12,500	+12,500					

Avail. For Sale Same as above

Sale

On Nov. 30, 2002 ACE receives \$625 in MITCO dividends (\$1.25 per share)

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	+625						+625

Investment Income on I/S →

Avail. For Sale



Securities example

On Jan. 1, 2002 ACE acquires 500 shares of MITCO for \$25 each

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	-12,500	+12,500					

Avail. For Sale Same as above

On Nov. 30, 2002 ACE receives \$625 in MITCO dividends (\$1.25 per share)

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading	+625						+625

Avail. For Sale Same as above

Investment Income on I/S →



Securities example

On Dec. 31, 2002 MITCO is trading at \$30 per share and ACE has a 30% tax rate

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	=	Def. Taxes	Other Equity	RE
Trading							
		+2,500					+2,500
		(\$30-\$25)*500					
		Investment Income on I/S					
			+750				-750
		2,500 x 30% Income Tax Expense on I/S					
Avail. For Sale		+2,500				+750	+1,750

No I/S Effect →

Securities example



On Dec. 31, 2003 MITCO is trading at \$27 per share and ACE has a 30% tax rate

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading						
Beg Balance	1,500	-1,500				
(\$27-\$30) X 500 share investment						
Income on I/S						
-1,500 X 30% Income tax benefit on I/S						+450
Avail. For Sale						
Beg Balance		-1,500		-450		-1,050
No I/S Effect						

Securities example



On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading						
Beg Balance	12,500	1,000		300		
+18,000						
\$36 x 500 shares						
-12,500						
Remove existing accounts						
-1,000						
(\$36-\$27) x 500 shares						
Investment Income on I/S						+4,500
Avail. For Sale						
Beg Balance						

Securities example



On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading						
Beg Bal	12,500	1,000		300		
+18,000						
-12,500						
-1,000						
Pay full tax on gain						
(18,000-12,500)X30%						
-300						
Recognize tax on gain in current year's I/S						
.4500 x 30%						
-1,350						
+4,500						
Recognize tax on gain in current year's I/S						
5,500 x 30%						
-1,650						
Avail. For Sale						
Beg Bal	12,500	1,000		300	700	
+18,000						
-12,500						
-1,000						
-300						
-700						
+5,500						
(\$36-\$25) x 500 shares						
Investment Income on I/S						

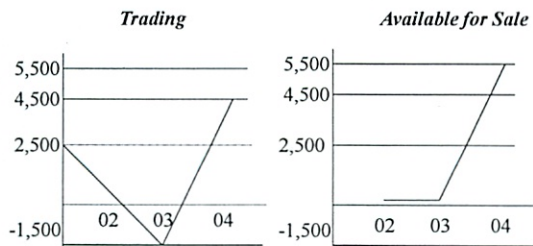
Securities example



On Feb. 14, 2004 ACE sells its investment in MITCO, then trading at \$36 per share

	Cash	Mkt. Sec.	Mkt. Sec. (Adjust)	= Def. Taxes	Other Equity	RE
Trading						
Beg Bal	12,500	1,000		300		
+18,000						
-12,500						
-1,000						
-300						
-1,650						
Pay tax on full gain						
(18,000-12,500) x 30%						
+4,500						
Recognize tax on gain in current year's I/S						
5,500 x 30%						
-1,650						
Avail. For Sale						
Beg Bal	12,500	1,000		300	700	
+18,000						
-12,500						
-1,000						
-300						
-700						
+5,500						
-1,650						

Securities: Income patterns



Reclassifications of Securities



- Trading to Available-for-sale
 - Gains or losses of the period recognized on reclassification date
 - Subsequent market value changes reported in "Other Equity"
- Available-for-sale to Trading
 - Cumulative gains or losses, including those of current period, recognized on reclassification date
 - Subsequent market value changes reported in the income statement



Good Luck