ASSETS										LIABILITIES				SHAREHOLDERS EQUITY	
$ Cash	A/R	- ADA (XA)	Inv.	PPE	-Acc. Dep. (XA)	Prepaid (rent, asset)	Marketable Securities	Goodwill	Intangible	A/P	Deferred/ unearned Revenue	Wages Payable	Rent Payable	CC	RE

Accrual accounting is an attempt to measure firm performance in a particular period regardless of when cash is exchanged
Revenue Recognition: 1) Confirm contract exists, (2) Confirm obligations, (3) Determine transaction price, (4) Allocate transaction price (% for bundles, or recognize over time), (5) Obligations are met ➔ Must be earned and collectible; **Matching principle:** recognize expenses in same period as associated revenue

(Impact on ROA) SAMPLE TRANSACTIONS & CORRESPONDING BSE

(-) **Raise Capital:** +Cash (A) = +Contributed Capital (E)
(+) **Cash Sales:** +Cash (A) = +Retained Earnings (E) from sales revenue
(-) **Cost of Sales:** -Inventory (A) = -Retained Earnings (E) from COGS
(-) **Cash Expenses:** -Cash (A) = -RE (E) from … expenses
(+) **Sales on Account:** +A/R (A) = +RE(E) from sales revenue
(-) **Expenses on Account:** +.. Expenses Payable (L) –RE(E) from .. expenses
(N) **Buying Inventory:** -Cash (A) +Inventory(A)
(-) **Buying Inventory on Account:** +Inventory(A) = +A/P (L)
(N) **Prepaid Expenses:** -Cash(A) +Prepaid … (A) e.g. Rent/asset/…
(-) **Received Cash on Unearned Revenue:** +Cash(A) = +Def. Revenue(L)
(+) **Recognizing Revenue:** -Deferred Revenue(L) +RE(E) from revenue
(N) **Received Cash on Receivables:** +Cash(A) – A/R(A)
(+) **Paying Cash on Payables:** -Cash(A) = -A/P(L)
(-) **Provision for Uncollectible Amt:** +ADA(-XA) = -RE(E) from BDExpense
(N) **Write off Provision/Receivables:** -A/R(A) –ADA(-XA)
(N) **Acquiring Assets:** -Cash(A) + PPE(A)
(-) **Depreciation:** + AccDep(-XA) = -RE(E) from Depreciation Expense
(+/-) **Sale Asset:** +Cash(A) – PPE(A) –AccDep(-XA) = +/-RE(E) frm Gain/Loss
(-) **Impairment of Asset:** +AccDep (-XA) = -RE(E) from Impairment Loss

AccDep: Accumulated Depreciation

ACCOUNTS RECEIVABLE (A/R)

A/R (A)
Beginning Gross A/R
+ Credit Sales
- Cash Collected
- Write offs*
= Ending Gross A/R

ADA (XA)
Beginning ADA (XA)
+BDE
- Write-offs*
= Ending ADA (XA)

A/R, net = A/R, gross – ADA
**Write-offs = A/R that "goes bad" in time period (i.e. customer cannot pay). No impact on I/S but need to reduce ADA and A/R*

		Assets		S/E	
Date	**Trans**	**AR**	**-ADA**	**R/E**	**Explanation**
1/1/2020: Apollo sells $1 million in class enrollments & estimates that 4% of their sales will ultimately be uncollectible (i.e., bad debts). Ignore cost of goods sold.					
1/1/20	Rec. Rev.	+$1m		+$1m	Revenue
1/1/20	Accrue BDE		+$40k	-$40k	BDE (est. 4% not paid)
On 12/31/20, Apollo realizes that customer accounts totaling $40k will never be paid. Apollo records appropriate write-offs.					
12/31/20	Write off	-$40k	-$40k		No impact on R/E

EXAMPLE ADJUSTMENTS TO ADA

Date	Trans	AR	-ADA	R/E	Explanation
Scenario A: On 6/30/2001, Apollo has an ADA of $1m. A court rules that one of their agents engaged in unfair lending, and allows any students that enrolled through that agent to have their debts set aside. Apollo estimates the allowance should be $5m.					
6/30/01	Inc. ADA		+$4m	-$4m	BDE
Scenario B: On 6/30/2001: Apollo has an ADA of $1m. The allowance balance is too high. Apollo decides the allowance should be 0. (Assume write-offs are $0.)					
6/30/021	Dec. ADA		-$1m	+$1m	Gain on BDE re-estimation

ASSET TURNOVER = Revenue / Total Assets ➔ better if higher
Measure of how efficiently you are generating revenue from your assets
A/R TURNOVER = Revenue / Avg. Accounts Receivable
Measure of how quickly you collect cash on credit sales ➔ If company has lots of credit revenue, but very low receivables, it implies that you collect cash on your credit revenues quickly (higher = good)
DAYS RECEIVABLE (or "Average Collection Period) = 365 / A/R Turnover
AVERAGE A/R = (beginning AR + ending AR) / 2

REVENUE TRANSACTION DIFFERENCES

Assets	Liabilities	S/E
Cash	**Def. Rev.**	**R/E**
If Kenny signs up for 1-day seminar, pays $20,000 cash (same for 10 day seminar)		
+20k	+20k	
If Kenny attends 1st day of class after paying for the 10-day seminar		
	(2k)	+2k (rev.)

Revenue Recog.	Cash received		Cash paid	
	Now	Later	Now	Later
Concurrent	+C = +R/E		C = R/E	
Before	+C = +DefRev	0 = -DefRev +R/E	0 = C + PrepA	PrepA = R/E
After	+A/R = +R/E	0 = +C -A/R	0 = AccPay +R/E	C = AccPay

ACCOUNTING FOR INVENTORY: LIFO vs. FIFO

KEY INVENTORY EQUATION
Beginning Inventory
+ Purchases
– COGS
= Ending Inventory

INVENTORY TURNOVER = COGS / Average Inventory
(Measure how fast firm can sell inventory.
Higher value = faster inv. Turnaround)

ADJUSTING LIFO to FIFO:
LIFO RESERVE* = Ending $\text{Inventory}_{\text{FIFO}}$ – Ending $\text{Inventory}_{\text{LIFO}}$
Δ LIFO Reserve* = $\text{COGS}_{\text{LIFO}}$ – $\text{COGS}_{\text{FIFO}}$
$\text{COGS}_{\text{FIFO}}$ = $\text{COGS}_{\text{LIFO}}$ – Δ LIFO Reserve* **Find COGS on I/S**
$\text{INVENTORY}_{\text{FIFO}}$ = $\text{INVENTORY}_{\text{LIFO}}$ + Δ LIFO Reserve*
LIFO INSTEAD OF FIFO TAX = LIFO Reserve * Tax Rate
**Info may be found in the footnotes and may be called LIFO provisions as well*

***Companies required to disclose cost of LIFO Inventory** b/c Inventory looks incredibly cheap, which is not reflective of reality (would cost a lot of money to replace) ➔ LIFO RESERVE - This number represents additional amount charged to COGS since firm began using LIFO.*
LIFO reserve is cumulative. If taking value over lifetime, keep as-is. If looking at in-year contribution, need to look at change in LIFO reserve y1-y2

Example: Using the LIFO Reserve to convert from LIFO to FIFO (black = given in financials)

	FY 2012	FY 2011	FY 2010
Total Inventory	712	647	651
COGS under LIFO	928	862	858
COGS under FIFO	928 – (213 – 204) = 919	862 - (204-219) = 877	828
LIFO Reserve	213	204	219
Total Inv. Under FIFO	712 + 213 = 925	647+204 = 851	870
Net Income	513	572	449
Effect LIFO on (pre-tax) income	919-928 = -9	877-862 = 15	-30

Impact on financial statements assuming rising prices (exception can occur in instances of LIFO liquidation*.)

	FIFO	**LIFO**
COGS (IS)	Lower	Higher
Gross Profit (IS)	Higher	Lower
Ending Inventory (BS)	Higher	Lower

LIFO LIQUIDITION*: LIFO COGS looks lower than FIFO if dipping into cheaper inventory.

PROPERTY, PLANT & EQUIPMENT (PPE) / DEPRECIATION

Key Terminology/Equations
Acquisition Cost = purchase price
Salvage value = selling price at the end of the life
Depreciable base = Cost – salvage value
Accumulated depreciation = contra account that records value change
Book value aka net PPE = Cost – accumulated depreciation
Depreciation Rate = (Acquisition Cost – Salvage Value) / Estimated Useful Life
If adjusting ➔ ((Acuisition Cost – Acc. Dep.) – New Salvage Value)) / Remaining useful Life
Depreciation policy/rate affects I/S via depreciation and/or gains/losses and B/S (via NBV

	Assets			S/E	Notes
Date	**Cash**	**PPE**	**-Acc. Depr.**	**R/E**	
Purchase machine for $50k on 1/1/88 with estimated useful life of 9 yrs and salvage value= $5k. Calc ➔ Depreciation expense = (acquisition cost – salvage value)/ useful life = (50 – 5) / 9 = 5					
1/1/88	-50k	50k			
12/31/88			5k	-5k	Dep. Exp.
12/31/89			5k	-5k	Dep. Exp.
12/31/90			5k	-5k	Dep. Exp.
In January 1991, revised useful like to 6 years. ➔ Calc what new depreciation amount will be ➔ ((Acuisition cost – Acc. Depr.) – New Salvage Value) / Remaining useful life = ((50 – 15) – 5) / 3 = **10**					
12/31/91			10k	-10k	Dep. Exp.
In December 1992, sold the machine for $18k. 1. Record cash or 'market value of asset' received for the sold PPE 2. Record disposal of asset by removing (acquisition) cost of asset from PPE 3. Reverse or offset acc depreciation associated with asset 4. Calculate gain or loss: Cash – (Cost – Acc Dep) = Gain/Loss ➔ 18 – (50 – 35) = **3**					
12/31/92	18k	-50k	-35k	3k	Gain on sale

EQUATIONS & RATIOS

A/P TURNOVER = COGS / Accounts Payable
(How quickly can you pay your suppliers? Higher value = you pay faster)
CASH COLLECTED = Beg. AR + Credit Sales – End AR – Writeoffs
DEBT/EQUITY RATIO = Total Liabilities / Total Stockholders Equity
GROSS MARGIN % = Gross Profits / Revenues
INCOME STATEMENT EQUATION: Net Income = Revenues – Expenses
NET INCOME = Revenues – Expenses **OR** Retained Earnings + Dividends
(Doesn't get affected by dividends, dividends are what you can do with NI)
OPERATING MARGIN % = Operating Profits / Revenues
PROFIT MARGIN = Net Profit / Revenues
RETAINED EARNINGS (RE) = Beginning RE + Net Income – Dividends **OR** RE = SE – CC
RETURN ON EQUITY (ROE) = Net Income / Ending Stockholders Equity

ACQUISITIONS and GOODWILL

Entire acquisition payment is added to acquirer's balance sheet, distributed by:

1. **Fair value of net assets** (assets minus liabilities) (separable and tangible)
2. **Identifiable intangibles** (separable but intangible – could be sold alone) e.g., Customer lists, customer relationships, patents, other saleable technologies; NOT: an assembled workforce
3. **Goodwill** (not separable and intangible – cannot be sold alone)

Goodwill impairment = Reduction in value of goodwill (lower of cost or market)
Step 1: Compare the fair value of business unit to the book value of that unit.
Step 2: Compare implied fair value of the goodwill to book value of goodwill.

Company writes down the value of goodwill and recognizes loss in IS
*-If **Market value of asset < its book value**, then firm must (a) reduce book value of asset, and recognize corresponding loss in the income statement*
*-If **Market value of asset > book value**, no accounting transaction recorded*
For inventory and PPE, use lower of cost or market

MARKETABLE SECURITIES

~~Stock = equity; bond = debt~~

	Term	Value on BS	Impact to IS	Type
Held to Mature	Long	Original Value	(-) Dividend	D
Trading Sec.	Short	Original Value +/- ΔFV	(-) Dividend +/- ΔFV	D or E
Avail. For Sale	Other	Original Value +/- ΔFV (OCI)	(-) Dividend	D

	Trading Security	Available for Sale
Buy	-Cash +MktSec	-Cash +MktSec
Interest	+Cash = +R/E	+Cash = +R/E
Value up	+MktSec = +R/E	+MktSec = +OCI (Unrealized)
Value down	-MktSec = -R/E	-MktSec = -OCI (Unrealized)
Sell	+Cash -MktSec = +/-R/E	+Cash –MktSec = +/-OCT +/-R/E (Realized)

Record in AOCI (E/S)

LIFO vs. FIFO Example *QMart is a retail merchandiser. In 2014, QMart reports cost of goods sold **(COGS) of $32,558, on total sales of $63,112.** On analyzing QMart's financial statements for 2014, you find the following footnote: "Inventories are stated at lower of cost or market. The last-in-first-out method is used to determine the value of all its inventories.*

QMart's main competitor LMart uses FIFO for its inventory. LMart's reported cost of goods sold during 2014 equals $78,899, on total sales of $153,009. Calculate fiscal 2014 comparable gross margin percentages for LMart and QMart. *Gross Margin % = (Sales – COGS) / Sales . Lmart FIFO GM% = (153,009 – 78,899) / 153,009 = **0.48** Must figure out FIFO for Qmart*
FIFO COGS = LIFO COGS – CHANGE IN LIFO RESERVE
FIFO COGS = 32,588 – (821 – 314) = 32,080
*Qmart FIFO GM% = (63,112 – 32,080) / 63,112 = **0.49***

5. **What is QMart's inventory turnover ratio under LIFO? What is it under FIFO?**
Inventory Turnover = COGS / Average Inventory
We solved for Qmart COGS under FIFO in previous problem (32,080).
LIFO COGS are stated as 32,558.
Must solve for Average Inventory: (2014 Inv + 2013 Inv) / 2
LIFO Average Inv = (10,121 + 9,104) / 2 = 9,612.5
FIFO Average Inv = ((10,121 + 821) + (9,104 + 314)) / 2 = 10,180

6. **How much did QMart reduce its income taxes payable over the life of its operations by using LIFO instead of FIFO?**
Assume a constant tax rate of 30%. *Use the most recent LIFO Reserve to calculate. LIFO Reserve (2014) * 0.3 = 821 * 0.3 = **246.3***

REVENUE RECOGNITION EXAMPLE

Software bundle sells for 125K include license (120K Retail), 12 Training Sessions (18K) and 3Y support (12K). Record the sale of this bundle
1. Allocate price or each good: license = 125*120/(120+12+18) = 100K; repeat using formula allocated price = bundle price x retail price/retail price of all goods: Train = 15K Support = 10K

Record Sale in BSE: Cash(A)	= Deferred Rev (L)	+	Retained Earnings (E)
+125K	+15K Training		+100K License Revenue
	+10K Support		

After one year, 6 people trained. Record transactions in BSE

A	=	Deferred Revenue (L)	+	Retained Earnings (E)
		-15*(6/12) = -7.5K Training		+7.5K Training Revenue
		-10*(1/3) = -3.3K Support		+3.3K Support Revenue

UNREDEEMED GIFT CARDS: Sits in unearned revenue until card expires and rev is recognized OR Company makes an estimate based on historical usage of how much the remainder of the card would not be used and recognize revenue at that point

Statement of Cash Flows

- 3 sections >> Sum to actual change in cash during the year
1)Operating: Primary business activities
Selling goods or rendering services
'Other' non-investing/financing (e.g., interest on loans paid)
2)Investing: Acquiring and selling productive assets
-Acquisitions and disposal of PPE
-Purchase/sale of securities: other firms' stock or bonds
3)Financing: Related to external sources of financing
-Issuing stock or bonds, retiring stock or bonds
-Payment of dividends and settling of bonds payable

Goal: Arrive at CFO, starting from NI

	NI	CFO	Adjust. to NI (CFO - NI)
1. Incur $100 in depreciation expense.	-100	0	+100
2. Sell $200 PPE with $100 acc. dep. for $200.	+100	0	-100
3. Sell $100 on account (ignore COGS).	+100	0	-100
4. Collect $100 from an old account receivable.	0	+100	+100
5. Receive $100 for goods to be delivered next yr.	0	+100	+100
6. Deliver $100 in goods, not paid (ignore COGS).	+100	0	-100

Selling PPE is an investing cash flow

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- **Operating Cash Flow (CFO) = Net Income – Accruals**
- **Working Capital** = Current Assets – Current Liabilities
- **Non-Cash Working Capital = Current Assets - Cash - Current Liabilities**
- **Indirect Method to arrive at CFO (Operating Cash Flow)**

1) Start with Net Income
2) **Add non-cash expenses:** expenses that reduce NI but did not require cash (e.g., depreciation expense, stock compensation)
3) **Add/Subtract:** any gains or losses associated with investing activities (e.g., PP&E disposal)
4) **Add/Subtract**: changes in non-cash working capital accounts -> Arrive at CFO

Intangibles:

*** If company has a large discrepancy between market cap and book value -> Intangible assets (e.g., Intellectual property, Brand, Human capital, Loyalty)**
*** Under GAAP, R&D expenditures are expensed (opposed to capitalized and put on B/S as assets). Two exceptions: (1) Certain software dev; (2) Acquired R&D**
*** Capitalizing software dev (SFAF 86) – Costs are recognized as R&D expenses that decrease income until "Tech feasibility" (completion of a detailed/working model). Once its achieved, costs are capitalized and expensed over useful life -> Amortization**
*** How to justify expenses over capitalizing? (1) tech feasibility happen very late; (2) useful life is very short; (3) Room for discretion: when is tech feasibility/amount of useful life**
*** Intangible assets are largely unrecognized on B/S except from software dev. after "tech feasibility" and acquired intangible assets**
*** Amortization for intangible assets is similar to Depreciation of tangible assets -> reduce value of asset on B/S and reduce R/E on the I/S**

On 12/31/2022, Apple uses cash to purchase two securities each costing $5 million. One is an equity security and the other is a debt security. They classify the debt security as available for sale and the equity security as trading. Assume the debt security does not pay interest and the equity security does not pay dividends.

```
Cash  MktbleSecDebt MktbleSecEquity = L + SE
-10M      5.0 M        5.0 M
```

On 3/31/2023 each security has depreciated in value by $1.5 million.

```
Cash  MktbleSecDebt MktbleSecEquity = (L) + OCI(SE) + R/E(SE)
           -1.5 M                                -1.5M (Unrealized loss)
       -1.5M                   -1.5M
```

On 6/30/2023 each security has increased in value by $0.8 million from the 3/31/2023 value.

```
Cash  MktbleSecDebt MktbleSecEquity = (L) + OCI(SE) + R/E(SE)
           0.8 M                                0.8M (Unrealized gain)
       0.8M                    0.8M
```

Suppose that on 7/1/2023, Apple wants to sell one of the two securities for $4.3 million. Which of the two should it sell to maximize net income for the quarter ending 6/30/2023? Please provide one or two sentences supporting your answer. Assume they mark the security to market before selling it.

```
Sell the Equity security—the realized gain will be 0. For the AFS, there
will be an $700k loss.
```

VW R&D Costs	2022
Total R&D Costs:	18,908
of which: capitalized D costs:	9,723
R&D costs recognized in profit/loss:	9,185

Assuming all R&D activity is paid for in cash, what transaction did Volkswagen record for the expenses on the income statement for Research Costs for the fiscal year ending 12/31/2022?

```
Cash   = R/E(SE)
-9,185  -9,185 (R&D Exp)
```

if Volkswagen instead followed U.S. GAAP, what transaction would they have had to record for research related activities for the fiscal year ending 12/31/2022?

```
Cash + Dev Asset - AccAmtz = R/E(SE)
-18,908                      -18,908(R&D Exp)
```

what transactions did Volkswagen record for Development Costs and the related amortization expense for the fiscal year ending 12/31/2022?

```
Cash + Dev Asset - AccAmtz = R/E(SE)
-9,723  -9,723
                   5,144     -5,144(Amtz Exp)
5,144: Capitalized development costs for products
currently in use --> Additions to cumulative amortization
```