MITx – Financial Accounting

Exam: Ans - Unit – Delete EXCEL perm – negative = (x)

1

Accrual (earned, collectible, match) – Relevant **vs Cash** (Reliability)

Retain Earning: (End) RE(t+1) = (Begin) RE(t) + (NI – Div)

NI = Revenue – Expenses +/- Gain/Loss = **Operating + Accruals**

When in doubt (BSE), put in **Retain Earning**

BASE: **B**eginning + **A**dd – **S**ubtract = **E**nding

Bad Debt Expense = Contra-A (XA): (-) BDE; *(BSE)* - CA↑ = RE↓

A/R Turnover *(cash collect)* = Rev / (**Avg**. AR-net): *bigger = faster*

Day *(collect)* **Receivable** = 365/ART: *smaller = faster*

AR (Net) = AR (Gross) – ADA *= BB + Sales -Cash – W/O = EB*

ADA (Contra Assets, XA, -) *= EB= BB + **BDE** – Write-off*

	Def → Affect:	I/S *(Period)*	B/S *(Snapshot)*
AR	Sales "On account"	Rev	Assets
ADA *(Allowance for doubtful Account)*	provision for uncollectable AR (un-AR)	Income	Contra-A
BadDebtExp	Future est. of un-AR	% Sales	+ ADA
Write-off	A/R sure cannot pay	~~Affect~~	↓ AR - ↓ADA (XA) = RE(0)

Aging *gives **EB (=AR*Est.Uncollect)*** → **BDE** = **EB** – BB + W/o

%Sale *(Est %loss) give **BDE*** → **EB** = BB + **BDE** – W/o

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FIFO --- Old $ @Income --- New $ @**Balance** *(more accurate)*

LIFO --- New $ @Balance --- Old $ @**Income** *(more accurate)*

→ *COGS (LIFO) >= COGS (FIFO)* (**Product** only, no service)

Beginning Inv + **Additions** – **COGS** = Ending Inv;

(Additions/Purchase price ∉ LIFO/FIFO)

LIFOreserve = *aggregate replacement cost of INV exceed LIFO carrying value… = additional amount charged to COGS since LIFO*

LIFO (reserve) = EInv **(FIFO)** [current cost] – EInv **(LIFO)**

Tax benefit (saving) = LIFO (reserve) * Tax-rate (τ)

ΔLIFO (reserve) = COGS (LIFO) – COGS (FIFO)

Inventory Turnover = COGS / (Avg) Inventory (**IT:** FIFO < LIFO)

Day Inventory = 365/Inv.Turnover (Lower = Better)

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Dep. Expense = (EB – BB) + **Accum.Dep;** *(BSE)* - CA↑ = RE↓

Dep. Expense/year = (Acq. Cost – Salvage V$)/*Est. Useful Life*

Net Book Value = Acq.Cost (Gross) – Accum.Depreciation

Gain (Loss) = Cash(Sale$) – NBV = **Acc.Dep** – (Gross PPE – Sale$)

Impairment = *freq. check* = only stay the **same or decrease**.

EB = BB + **CAPEX (Gross PPE)** – **Gross Assets (Disposal/Sold)**

Beg-Accumulated Depreciation + Dep-Expense **–** (already) Accum-Dep on **sold assets** = **Ending Accumulated dep.**

Depreciation Base = Cost – Salvage Valuey; ΔDepre **∉ CFO**.

Economic Depreciation = GrossPPE(fix)–Sale$; **Dep. ∉ Cash Flow**

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***CFO**: daily operating, income, dividend received, interest exp*

***CFI**: AFS, PPE (buy & sell), stock, other mkt security = ΔPPE..*

***CFF**: raise debt, bond, repay div, issue stock…*

ΔCash = ΔCFO + ΔCFI + ΔCFF = **-** ΔNon$-Assets + ΔL + ΔSE

NI = CFO + Accruals *[+non$ expense, +/- gain/loss, +/- ΔNon$WC]*

Indirect Method to calculate CFO:

(1) **CFO** = NI – (Depreciation) – (StockComp) + Others – (ΔWC)

(2) **CFO** = NI + Dep.Exp – Gain on Sales PPE – Inc↑AR - Inc↑Inv + Inc↑AP *[Inc↑ = increase in… = this year – last year; all +ve]*

CFO = NI + Dep - ΔNon$CA + ΔCL; **FCF = CFO – CAPEX**

CFF = ΔDebt (new) + ΔEquity – Div – ΔDebt (repay)

Working Capital = CA – CL; **Non$ WC** (AR, Inv, prepaid…) = WC – **Cash**

Change in WC: affect Cash, ~~Affect~~ Net Income (Inv, def.Rev…)

Passive Investment (Mark to Market): FV vs Historical Value

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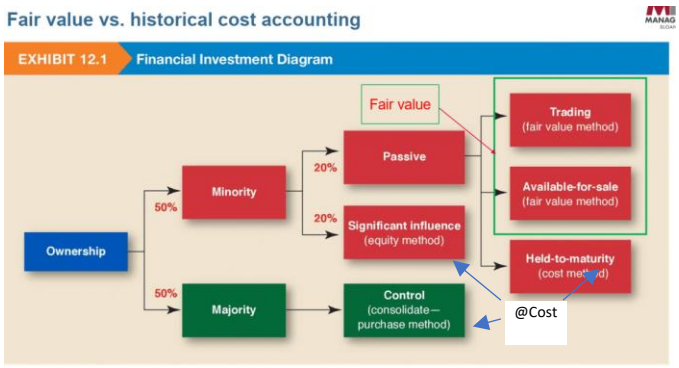

↑↓ Market price (**<20%**) → ↑↓ **AFS** & TS (OCI or Investment Account) → *update OCI*; Hold to Maturity (HTM) ∉ (Market ↑↓)

Held to Maturity (Debt only) ~~effect on~~ B/S or I/S

AFS Available for Sale [Debt] → (B/S, CFI, AOCI): Assets, **↕on OCI**

Trading Securities [D&E] → (B/S, I/S [NI], CFO, CFI, RE), **↕on RE**

OCI *(Other Comprehensive Income):* on SHE effects NI, Gain/Loss on **AFS** *(AFS → on OCI until sold then realized on RE/NI, balance on OCI)*

Option Value = #Options * (Strike – Current MV); *(longer way =* **Treasury Med:** (1) Sell @Cur (2) Use 1 to repur @Strike (3) ↓ #Share to net share (4) Reissue net share @ Strike = Option Value.)

Equity method (20<%<50): price ↕ ~~effect~~ (vs. historical cost)

* Buy (Sell) Equity → ↓Cash ↑Investment = ∉RE (Sell balance)

* Receive Dividend → ↑Cash ↓Investment = RE(0)

* ↕Market price → no entry or change.

* Earning/Amortize → ∉Cash ↑↓Investment (%) = ↑↓RE (%)

Consolidate (≥50%): (1) A/L/NI replaced related (2) Eliminate inter-corp transactions (investment)

Purchase Accounting (Purchased $ = paid for SE/Net Assets)

Cash + FairV (tang) + Identif (Intang) + **Goodwill** = FV (L) + SE

Goodwill *(re-eva /y)* = Acc.Paid – Tang.A – Indef.TangA – Liab

Goodwill Impairment, PPE: LCM (**Lower of Cost or Market**): BV > MV → reduce BV to MV (loss); BV <= MV → no change;

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ROE, D/E ∉ A/R; AT = Rev/Assets, ART = R/Net AR, InvT = CoGS/Inv

Dupont: **ROE** = NI/SE = (NI/Sales) * (Sales/Assets) * (Assets/SE)

= (Profit Margin) x (Asset Turnover) x (Leverage)

ROA* = Earning w/o Int Exp/Total Assets; **EWI** = NI + Int*(1-τ)

Tax Expense=↓RE*(prov for income tax=current + defer)* **# Cash Taxes** (Tax payable = Current Income Tax Prov *(in CFO)* = Cash↓)

DTL: Pretax Income **>** Tax Income; **DTA**: Pretax Income **<** Tax Income

Deferred Income Tax benefits = Net (DTA-DTL); **Net NOL** ↓ Tax Incom

Pre-tax income = Net Income + Tax Expense

GAPP higher income (Pre-tax) = Net Deferred Tax Assets / τ

Effective Tax Rate: **ETR** = **Tax Expense (Pro IT)** /Pre-tax Income

DTA Valuation Allowance (XA): *(not use DTA in fut)* - CA↑ = RE↓

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Net Bond Payable: **NBP(PV)** = PV0 (CF) = PV0(FV) + PV0(C)
[Cash flow present value discount at market rate, Rm or Rm/K]

NBP = Net Value, ↕ (Discount or Prem) $NBP_{end\text{-}value}$ = Face Value

NBP (t+1) **= NBP(t) – Principal Amt; PA** = Coupon – InterestExp

Int Exp (CL) = $R_{market}^{@issue} * NBP_{PV}$; **Int Payable** = $CR * ParV$

(1) NBP(0)= PV0@Rm (2) IE (3) PA = C-IE (4) NBP(1)=NBP(0)-PA

BSE: **Cash↓[Coupon paid]** = Prem/Disc (L/XL) + **RE↓[Int.Exp]**

	Cash (A)	Bond Payable (L)	-Bond Discount (CL)	R/E (E)	Payable	Balance
Issuance	9,484	10,000	516		9,484	516
Year 1	-600		-159	-759 int.exp.	9,643	357

Mark to Market = unrealized gain/loss on **OCI** (Fair Market V)

Finance lease (Own) (Bigger ↘ Lesser, ↓NI) amortize A (XA) = PV/#Year; (***BSE***) *Cash(paid)↓ + Non$(Accum.Dep)↓ = L↓(Principal) + RE (Int + Dep)* **; Interest Exp = Net Lease Obligation** * Interest Rate; **Principal** = Payment – Interest Expense.

B	C	D	E	F	G	H
Beginning Lease Liability	Interest Expense (B * 6%)	Lease Payment	Principal Reduction (D-C)	Ending Lease Liability (B-E)	Straight-line Amortization	Ending Net Lease Asset
300,000	$18,000	$21,795	$3,795	$296,205	$10,000	$290,000

Operating lease (**Rent**)(**Const**) (*Lease Exp = Lease Paid=Equal straightline*)**: Amortize=Principal=Lease Obligation** = Lease Pay – Int.Exp; *(BSE) $↓+Non$↓=L↓ + RE↓ [Cash=RE; Non$=Liab]*

B	C	D	E	F	G	H
Beginning Lease Liability	"Interest" Expense (B * 6%)	Lease Payment/ Expense	Principal Reduction (D-C)	Ending Lease Liability (B-E)	"Amortiz-ation" (= E)	Ending Net Lease Asset
300,000	$18,000	$21,795	$3,795	296,205	$3,795	296,205

OBS Calculation: Σ Thereafter/Prev.year → (round ↓)/year → Avg/year → Discount to PV. ***[OperLease:** reported ON BS **since 2019**]*

SHE = CC (Raised) + Treasury (XE) + RE + OCI

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Contributed Capital (Com/Pref) = **Par Value + APIC**

Outstanding = Issued – Treasury *[OS ≤ Issued ≤ Authorized]*

Stock insurance cost: (1) Capitalized (2) Reduce APIC

(BSE) *Cash (Net) + Non$(R-cost) = L(0) +CC(at Par) + APIC +RE(0)*

Treasury stock, XE (Repur – Reissue): Re-*issued*: ↓XE **Δ$APIC;** ***Repurchase*****:** ↓Outstanding↑ EPS; *(BSE) Cash ↓ Treasury↑*

Paying by stock ≅ sell CC (stock) & pay in $ ↓ RE

$$EPS\ (\boldsymbol{basic}) = \frac{NI^*(available\ for\ common\ stock)}{Weighted\ Avg\ (/y)Common\ OutstdShare}$$

$$\boldsymbol{NI^*} = NI - NI\ (non.control) - Preferred.\boldsymbol{Div}$$

$$EPS\ (\boldsymbol{diluted}) = \frac{NI^*(for\ CS) + Add.Backs}{W(Avg)\#OS + Diluted\ Share}$$

$$\boldsymbol{Add.Backs} = convert.pref.DIV + after.tax.Conv.Debt;$$

$$\boldsymbol{Diluted}\ (\text{If converted}) = Options - Deemed.Repurchase$$

Practical Note: ↓ **Depreciation** ↑RE ↑NI ↑ROE; ~~Affect~~ CashO

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Acquisitions = Ending PP&E - Beginning PP&E + PP&E Sold

New Net Book Value = **Historical** cost – Accu.**Dep** – **Impair.D**ep

Stock split: 2-to-1 split: Σ #OS: before (1) → after (2); Price ↓ ½

Convertible (hybrid security), **options**:→ stock OR → paid (debt); sell at Par (BSE): Cash↑=Liab↑ - (XL↑) +RE↓ (XL=RE)

Stock based compensation: (1) ↓ Cash ↓ RE (2) ↑CC ↓RE (3) ↑Cash ↑CC; (Compensation **share-based** ∉ cash)

Internal software dev cost: (1) GAAP = expense (2) Capitalized → B/S

Intangibles are subject to **amortization** with **zero salvage** value.

Excel: PV (Annuity, discount at market rate, number of year)

NPV (discount Rm, CF1, CF2…) → **present value of Bond**

Annuity formula: PV0 = (A/r) *[1-1/(1+r)^t]; (r=R/k; t = T/k).