Financial Accounting (15.516)

SOLUTIONS - Final Examination – July 23, 2019

Contents

1 Inventory (10 points)

Note: BSE answers are in $ millions.

(a) What would **Thermo Fisher**'s ending inventory balance have been if they had used FIFO in 2017? (3 Points)

Answer:

	2017	2016
Inventories	2,971	2,213
LIFO Reserve	31	28
FIFO Inventory	**3,002**	2,241

(b) What would be **Thermo Fisher**'s reported COGS under FIFO for the fiscal year ending on **December 31, 2017**? (4 Points)

Answer:

COGS (FIFO) = COGS Reported – Δ LIFO Reserve = $8,976 - $3 = $8,973

(c) **Thermo Fisher**'s inventory turnover ratio would be HIGHER / **LOWER** (*circle one*) if it used FIFO. Explain why in 30 words or less (3 Points)

Answer: Under FIFO, COGS decrease and inventory increases. Thus, the inventory turnover ratio decreases.

2 Taxes (15 Points)

Note: BSE answers are in $ millions.

(a) Using the BSE, record the entry for the provision for income taxes for the fiscal year ended **December 31, 2017**, indicating clearly deferred taxes and taxes payable. (5 Points)

Answer:

Taxes payable = Current income tax provision = $1,897
Deferred income tax benefit = $1,696 (i.e., tax net assets increase)
Provision for income taxes = $201 (i.e., tax expense)

Cash (A)	Deferred tax benefit (A-L)		R/E (S/E)	
- $1,897	+ $~~1,691~~ 1696	=	- $201	(tax expense)

(Source: Note 7)

Note that parts b and c ask for information about a fiscal year other than 2017.

(b) Calculate **Thermo Fisher**'s effective tax rate for the fiscal year ended **December 31, 2016**. Show your work and round your answer to two decimal places (e.g., 34.509% = 34.51%). (4 points)

Answer:

Effective tax rate for 2016 = - $1 / $2,024 = -0.00%.

(Source: Note 7) ignore Discontinued Operations

(c) In one or two sentences, explain the main reason(s) that **Thermo Fisher**'s effective tax rate for the fiscal year ended **December 31, 2016** was different than the US statutory rate of 35.00%. (3 Points)

Answer: For 2016, the largest factors appears to be foreign activity and tax credits.

(Source: Note 7)

(d) Use the BSE to record the change in **Thermo Fisher**'s valuation allowance for the fiscal year ended **December 31, 2017**. (3 Points)

Answer:

Change in valuation allowance = $256m (2017) - $113m (2016) = $143m

Valuation allowance (CA)		R/E (S/E)	
+ $143	=	- $143	(tax expense)

3 Investments (12 Points)

Note: BSE answers are in $ millions.

(a) In August 2017, **Thermo Fisher** acquired Patheon, a leading global provider of high-quality drug development. Use the BSE to record the acquisition of Patheon, assuming that **Thermo Fisher** purchased 100% of the outstanding equity for $7,358 million in cash. (5 Points)

Answer:

- $7,358 Cash	+$1,046 Other current assets	+$1,288 PP&E	+$3,784 Intangible assets	+$3,255 Goodwill	=	+$1,091 Deferred tax liabilities	+$924 Other liabilities assumed	+$0 R/E

(b) Suppose instead that **Thermo Fisher** acquired a 40% stake in Patheon for $2,950 million in cash in August 2017. Use the BSE to record the appropriate entry at the acquisition date. (3 Points)

Answer:

Equity method used. At time of purchase:

Cash	Investments		
- $2,950	+ $2,950	=	$0

(c) Suppose instead that **Thermo Fisher** acquired a 10% stake in Patheon for $740 million in cash in August 2017. Use the BSE to record the appropriate entry at the acquisition date. (2 Points)

Answer:

Passive investment. At time of purchase:

Cash	Marketable Securities		
- $740	+ $740	=	$0

(d) Building on your answer to part C, suppose that at **December 31, 2017**, this 10% stake is valued at $700 million. Use the BSE to identify any transactions that **Thermo Fisher** might record on **December 31, 2017**. (2 Points)

Answer:

Equity → Tradable security.

Marketable Securities		R/E	
- $40	=	- $40	(unrealized loss)

(-1 if students choose available-for-sale or OCI)

4 Long-Term Debt (15 points)

Note: BSE answers are in $ millions.

(a) Use the Balance Sheet Equation (BSE) to identify **Thermo Fisher**'s debt repayments during the year ended **December 31, 2017**. Assume that the repayments were made because the debt matured (i.e., the debt reached its maturity date). (3 points)

Answer:

Cash (A)		Debt Payable (L)	
- $3,299	=	- $3,299	(Source: Statement of Cash Flows, Repayment of debt)

(b) **Thermo Fisher** did not mark their debt obligations to fair value. Use the BSE to identify the transaction **Thermo Fisher** would record on **December 31, 2017** if they chose to mark their debt obligations to fair value. (4 points)

Answer:

	2017	**2016**
Carrying value	21,008	16,627
Fair value	21,623	16.975
FV Adjustment	615	348
Δ FV Adjustment	267	

long–term debt

	Assets		Net debt payable (L)	Fair market value adjustment		SE (OCI) (unrealized loss)
	$0	=		+ $615	+	(- $615)
OR	$0	=		+ $267	+	(- $267)

not RE

(c) In August 2017, **Thermo Fisher** issued 4.10%, 30-year Senior Notes for cash. Assume that the notes were issued on **August 15, 2017** and that the notes pay interest **annually** on August 15. Assume that the market rate of interest on the issuance date was 4.00%. Ignore issuance expenses. Use the BSE to identify the transaction(s) **Thermo Fisher** would have recorded on **August 15, 2017** when it issued the notes. Ignore taxes. (4 points)

Answer:

Face value: $750m

PV: $750 \times 0.041 \times \text{PV(Ann, 0.04, 30)} + 750 \frac{1}{(1+i)^{30}} = \$762.97\text{m}$

PV coupon: $750 \times 0.041 \times 17.29203 = \$531.72\text{m}$

PV principal: $750 \times 0.30832 = \$231.24\text{m}$

Cash (A)		Bonds Payable (L)	Premium (L)
$763	=	$750	+ $13

(d) Regardless of your answer to Part C, suppose that on **August 15, 2018**, the net 4.10% 30-year Senior Notes outstanding are $765 million and that interest is paid annually on August 15. Ignore issuance expenses. Record the payment of interest on **August 15, 2019**. (4 points)

Answer:

Interest expense = $765m × 4% = $30.6m Coupon paid = $30.75

Cash (A)		Premium (L)		R/E (S/E)
-30.75	=	-0.15	+	(-30.6)

5 Leases (10 points)

Note: BSE answers are in $ millions.

Recall that there is a new standard for leases. Suppose that **Thermo Fisher** executes a new lease on **January 1, 2020**, and accounts for it using the new standard. The six payments on the lease are $20 million per year, and are due each December 31. The terms of the lease are summarized below:

Annual lease payment	$20,000,000
Term of lease:	6 years
Interest rate:	5.00%
Lease commences on:	January 1, 2020
Payments due:	December 31st of each year in lease term
Present value of lease payments	$102 million

(a) Use the BSE to identify the transactions **Thermo Fisher** would record on **December 31, 2020**, assuming the lease is classified as an **finance lease**. (4 points)

Answer:

Interest expense = $102 × 5% = $5.1

Cash (A)		Debt Payable (L)		R/E (S/E)
- $20	=	- $14.9	+	(- $5.1)

do not directly decrease asset

Accumulated Depreciation (CA)		R/E (S/E)
+ $17	=	- $102 / 6

(b) Use the BSE to identify the transactions **Thermo Fisher** would record on **December 31, 2020**, assuming the lease is classified as an **operating lease**. (3 points)

Answer:

"Amortization" = Lease payment - "Interest expense"
Interest expense = $102 × 5% = $5.1

Cash (A)	Lease Asset (A)		Lease Obligation (L)	R/E (S/E)
- $20		=	- $20	
	- $14.9	=	$5.1	- $20
		OR		
- $20	- $14.9	=	- $14.9	- $20

(c) Net income would be HIGHER / **LOWER** / THE SAME (*circle one*) under the finance lease classification. Explain why in one sentence. (3 Points)

Answer: Early years of finance lease have greater total interest and depreciation expense.

6 Equity (15 points)

Note: BSE answers are in $ millions.

(a) Use the BSE to show how **Thermo Fisher** accounted for its repurchase of stock during the fiscal year ended **December 31, 2017**. (3 points).

Answer:

Cash		Treasury Stock
- $750	=	- (+ $750)

(b) How many shares were repurchased in the fiscal year ended **December 31, 2017**? (3 Points)

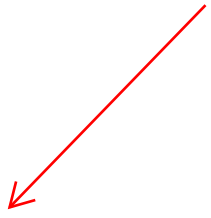
Answer:

5 million shares
(Source: Statement of S/E)

(c) Regardless of your answer to Part B, suppose that **Thermo Fisher** repurchased 10 million shares in the fiscal year ended **December 31, 2017**. Assume that all of these shares were repurchased on **January 1, 2017**, and further assume that **Thermo Fisher** earns no interest on cash. What would Basic EPS have been **if there were no repurchase**? (3 Points)

Answer:

Average shares out if no repurchase = 395 + 10 = 405
Under no repurchase: EPS = 2,225 / (395 + 10) = **$5.49**
(Source: Income Statement)



(d) Use the BSE to identify the transaction(s) associated with **Thermo Fisher**'s share issuance in fiscal year 2017. (4 Points)

Answer:

Cash		Common Stock Par	APIC
$1,690	=	$10	+ $1,680

(Source: Statement of S/E)

(e) How did Thermo Fisher's account for the underwriting expenses on the offering (circle one best answer). (2 points)

(i) It capitalized them.

(ii) It deferred them.

(iii) It reduced paid-in capital by them.
(Note that Cash = Par + APIC; if capitalized, Cash < Par + APIC)

(iv) None of the above

(v) All of the above

7 PP&E (10 points)

Note: BSE answers are in $ millions.

(a) Use the BSE to record **Thermo Fisher**'s purchase of fixed assets for cash in the fiscal year ended **December 31, 2017**. (3 Points)

Answer:

Cash (A)	PP&E (A)	
- $508	+ $508	= 0

(Source: Statement of Cash Flows, Purchase of PPE: $508 million)

(b) Suppose that due to political issues, **Thermo Fisher** must move much of its production to Europe. As a consequence, the value of their PPE falls to $2,500 million on **January 1, 2018**. Use the BSE to identify the transaction (if any) that they would record to reflect this decline in value. (3 Points)

Answer: do not directly decrease PPE

Accum. Depreciation (CA)		R/E (S/E)
+ $1,547	=	- $1,547

Impairment to PP&E: From $4,047m to $2,500m → - $1,547m

(c) Suppose that on December 31, 2016, **Thermo Fisher** lengthens the depreciable lives of its PPE by 5 years (but does not change salvage values). Would the following amounts for the year ended **December 31, 2017** have been higher, lower or the same as the respective number shown in their financial statements? Assume **Thermo Fisher**'s tax rate is 0.0% (circle the correct answer) (4 Points)

Net Income:	**higher**	lower	the same
Operating Cash Flows:	higher	lower	**the same**

8 Miscellaneous (15 points)

Note: BSE answers are in $ millions.

(a) Use the BSE to show the entry **Thermo Fisher** used to record bad debt expense for the fiscal year ended **December 31, 2017**. (3 Points)

Answer:

Allowance for doubtful accounts (CA)		R/E (S/E)
+ $32	=	- $32

(Source: Note 1, Provision charged to expense)

(b) Suppose that due to an audit that takes place on January 1, 2018, **Thermo Fisher** has to write off $200 million in receivables immediately. **Thermo Fisher** estimates its allowance for doubtful accounts should be $100 million after the write-off. Use the BSE to record the transaction **Thermo Fisher** used to recognize write-offs on **January 1, 2018**. Record any other transactions that Thermo Fisher makes. (5 Points)

Answer:

Allowance is $109 before. After -$200 write-off, allowance is -$91.
→ Increase allowance by $191 to get to $100 estimate for ADA.

	AR (A)	ADA (CA)		
Writeoff:	- $200	+ (- $200)		
		ADA (CA)		R/E (S/E)
Bad debt expense:		+ $191	=	- $191

(c) Use the following ratio definitions and 2016 ratio values to answer the question.

Ratio	Definition	2016 Ratio
Return on Equity	Net Income / Ending Shareholders' Equity	0.094
Net Margin	Net Income/Sales	0.111
Asset Turnover	Sales / Ending Assets	0.399
Leverage	Ending Total Assets / Ending Shareholders' Equity	2.131

Return on equity was lower in 2017 than in 2016. Which of the following helps explain this decrease in ROE? *(circle only one best answer)* (5 Points)

(i) **2017 net margin was lower than 2016 net margin.**

(ii) 2017 asset turnover was higher than 2016 asset turnover.

(iii) 2017 leverage was lower than 2016 leverage.

(iv) None of the above

(v) All of the above

Answer:

	ROE	Net Margin	Asset Turnover	Leverage
2016:	0.094	**0.111**	0.399	2.13
2017:	0.088	**0.106**	0.369	2.23