



15.516x Financial Accounting

Recitation 4

MIT Sloan School of Management

Finance at MIT

Where ingenuity drives results

Agenda

- Intangibles
- Cash flow statement

Tangible assets vs. intangible assets

- Tangible assets are things you can touch (e.g., inventory and PPE). Tangible assets have physical substance.
- Intangible assets are things you cannot touch (e.g., patents and brand value). Intangible assets do not have physical substance.
- Intangible assets include:
 - Intellectual property (Patents, Copyrights, Trademarks)
 - Licenses, Franchise rights
 - Brand value
 - Customer lists
 - Goodwill

Intangible assets

- Investing in R&D and other intangible assets is conceptually similar to CAPEX.
- What are the rules for the costs of internally developed intangible assets under US GAAP?
 - The costs of internally developed intangible assets are expensed (as opposed to capitalized and put on balance sheet as an asset).
- Logic?
 - Future economic benefit not reliably measurable.
 - Compare to “tangible” asset like building
- Exceptions:
 - Certain software development expenditures
 - Intangibles purchased from another company (more later)

Question 1 Software Development Cost Amortization

- Suppose software costs capitalized for 2015-2017 are as follows
- If the useful life is 2 years:
 - How much is amortization in 2017?

	2015	2016	2017
Software costs capitalized	100	110	120

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Amortize 2015 costs		50	50

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 - 2015 costs capitalized will be amortized over 2016 and 2017.
 - 2016 costs capitalized will be amortized over 2017 and 2018.

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Software costs capitalized	100	110	120
Amortize 2015 costs		50	50
Amortize 2016 costs			55

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Question 1 Software Development Cost Amortization

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	2015	2016	2017
Software costs capitalized	100	110	120
Amortize 2015 costs		50	50
Amortize 2016 costs			55
Total to be amortized			105

Question 2: Intangibles

ABC Corp. has the following intangibles information, during and at the end of fiscal year 2019 (12/31/2019):

US\$ millions	FY 2019
Internally developed software	83
Software costs, capitalized in 2018	170
Useful life	10 years

Question 2: Intangibles

US\$ millions	FY 2019
Internally developed software	83
Software costs, capitalized in 2018	170
Useful life	10 years

- How much R&D expense did ABC corp incur during fiscal year 2019?
 - \$83 million
- How much intangibles amortization expense did ABC corp incur during fiscal year 2019?
 - \$17 million

Agenda

- Intangibles
- Cash flow statement

Cash Flow Statement

Three Sections:

- Operating (Cash flow from operations, CFO): day-to-day business activities
 - E.g., pay employees/suppliers, collect from customers, ...
 - Also: Interest income, dividends received
- Investing (Cash flow from investing, CFI): purchase or sale of long-term assets
 - Purchase/sale of equipment, financial investments, etc.
- Financing (Cash flow from financing, CFF): raise or repay external capital
 - Issue equity/bonds, dividends, borrow/repay debt (BUT: interest payments are in the operating section).

Q3: Transactions affecting cash flow statement

(T1) Issues stock and receives \$3,000 in cash	+3000	Financing
(T2) Purchase equipment for \$20,000 in cash	-20000	Investing
(T3) Buys inventory for \$1,000 cash	-1000	Operating
(T4) Sells inventory costing \$300 for \$500 on account	[no cash]	
(T5) Collects \$200 worth of receivables	+200	Operating
(T6) Record depreciation of \$100 on the equipment	[no cash]	
(T7) Pays dividend to shareholder of \$600	-600	Financing

Q3 – Putting it altogether

Net Cash Flows:

1. Operating: -1000 (T3) + 800 (T5) = -200
2. Investing: -20,000 (T2)
3. Financing: 3,000 (T1) – 600 (T7) = 2,400

Total Net CF: -18,400

Q4: Cash-Flow Classification

- | | |
|------|--|
| O | 1) Payment of 96,900 to suppliers |
| F | 2) Receipt of 200,000 from issuing common stock |
| O | 3) Receipt of 49,200 from customers for sales made this period of goods originally costing 35,000 |
| O | 4) Receipt of 22,700 from customers this period for sales made last period |
| O | 5) Receipt of 1,800 from a customer for goods the firm will deliver next period |
| O | 6) Payment of 16,000 for interest expense on debt |
| I | 7) Payment of 40,000 to acquire land |
| O | 8) Payment of 25,300 as compensation to employees for services rendered this period |
| O | 9) Payment of 7,900 to employees for services rendered last period but not paid for last period |
| I | 10) Payment of 53,800 for a patent purchased from its inventor |
| None | 11) Acquisition of a 290,000 building by issuing a note payable to a bank |
| F | 12) Payment of 19,300 as a dividend to shareholders |
| I | 13) Receipt of 12,000 from the sale of equipment that originally cost 20,000 and had 8,000 of accumulated depreciation at the time of sale |
| F | 14) Payment of 100,000 to redeem bonds at maturity |
| I | 15) Payment of 40,000 to acquire shares of IBM stock |
| O | 16) Receipt of 200 in dividends from IBM relating to the shares of common stock acquired in transaction 15. |
| F | 17) Payment of 60,000 to repurchase the firm's own shares |

Indirect Method

Under indirect method: start with net income and then adjust it to end up at operating cash flows.

- Start with net income
- Adjustments
- End up with Net Income

Net Income = Operating Cash Flow + Operating Accruals

“Reconcile net income and cash flows from operations:”

Net Income

- + non-cash expenses (e.g., depreciation)
 - /+ gains/losses from investing activities (e.g., PP&E disposal)
 - /+ changes in relevant current asset/liabilities accounts (e.g., ΔAR , $\Delta Inv.$)
- = **Cash Flow from Operations**

Q5: Indirect Method – what was the cash flow from operations?

Income Statement		Changes in...	
Revenues	\$5,000	Cash	1,180
COGS	(600)	A/R	4,500
Interest Exp.	(320)	Inventory	400
Deprec. Exp.	(500)	Interest payable	200
Gain on Sale	800	Bond payable	2,500
Net Income	\$4,380		

- Deprec. Expense: 500 is NOT cash
 - Gain on Sale: 800 is Investment

- A/R: 4,500 is change in current assets
 - Inventory: 400 is change in current assets
 - Int Pay: 200 is change in current liab.

Cash from Operations	
Net Income	4,380
Plus: Depreciation Expense	500
Less: Gain on Sale of PP&E	(800)
Less: Increase in A/R	(4,500)
Less: Increase in Inventory	(400)
Plus: Increase in Payables	200
Total	\$(620)

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graph LR
    NI[4,380] -- "Add non cash expenses" --> DEP[500]
    DEP -- "Subtract investing gain/loss" --> G[800]
    G -- "Subtract (signed) changes in current assets" --> AR[4500]
    AR -- "Add (signed) changes in current liabilities" --> PAY[200]
    PAY -- "Total" --> T["$(620)"]
    
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