**Huanyu Liu**

Cohort 2

**Q 14.17.** Although accounting numbers are sometimes thought of as imaginary presentations, why is a firm not just a firm, and accounting numbers not just “funny numbers”? That is, what is the most important direct cash-flow influence of accounting in most corporations?

The most important direct cash flow influence of accounting in most corporations is the fact that the accounting cash flow will affect the firm’s free cash flow and the firm’s valuation.

**Q 14.18.** Which statements on the firm’s financial reports are about flows, and which are about stocks?

Income statement and cash flow statement are about flows. And equity on balance sheet are about stocks.

**Q 14.19.** Use an appropriate website to find out how MACRS works. How would you depreciate $10,000 in computer equipment?

MACRS depreciation is the tax depreciation system used in the United States. MACRS is an acronym for Modified Accelerated Cost Recovery System.

The depreciation period of computers is 5 years. In straight line depreciation calculation, the computers depreciate $2,000 per year.

**Q 14.20.** What would be the most common accounting value of residential investment property in each of the next 50 years when you purchased it for $3 million? (Hint: Use a straight line 40-year depreciation schedule.)

$3 million / 40 = $75,000 depreciation per year for the first 40 years. Therefore, the accounting value will decrease $75,000 per year. And for the last 10 years, the accounting value will be 0.

**Q 14.21.** What is an accrual? How do long-term and short- term accruals differ?

Accrual refers to any individual entry recording revenue or expense in the absence of a cash transaction.

Long-term accruals are usually longer than 1 year, while short-term accruals are less than 1 year.

**Q 14.22.** Consider a $50,000 SUV that you expect to last for 10 years. The IRS uses an MACRS 5-year depreciation schedule on cars. It allows depreciating 20% in year 1, 32%, 19.2%, 11.52%, 11.52%, and 5.76% in the following years. You can finance this car yourself. You can produce sales of $100,000 per year with it. Maintenance costs will be $5,000 per year. Your income tax rate is 30% per annum. Your cost of capital is 12% per annum.

1. What are the income and cash-flow statements for this car?

Income statement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 2 | Year 4 | Year 5 |
| Revenue | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Maintenance Costs | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| Depreciation expense | 10,000 | 16,000 | 9,600 | 5,760 | 2,880 |
| Income before tax | 85,000 | 79,000 | 85,400 | 89,240 | 92,120 |
| Tax Expense | 25,500 | 23,700 | 25,620 | 26,772 | 27,636 |
| Net Income | 59,500 | 55,300 | 59,780 | 62,468 | 64,484 |

Cash flow statement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Y1 | Y2 | Y3 | Y4 | Y5 |
| Beginning cash | 0 | 69,500 | 140,800 | 210,180 | 278,408 |
| NI | 59,500 | 55,300 | 59,780 | 62,468 | 64,484 |
| Adj.Dep | 10,000 | 16,000 | 9,600 | 5,760 | 2,880 |
| CF | 69,500 | 140,800 | 210,180 | 278,408 | 345,772 |

2. What is the net present value of this car?

NPV = 69500/1.12 + 140800 / 1.12^2 + 210180 / 1.12^3 + 278408 / 1.12^4 + 345772 / 1.12^5 = 697034

3. Show how you can infer the economic value of the car from the financials.

Economic value = 697034

**Q 14.23.** Repeat the previous question, but assume that you finance the entire car with a loan that charges 10% interest per annum. (The net present value now is the bundle “loan plus car,” of course.)

Income statement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Year 1 | Year 2 | Year 2 | Year 4 | Year 5 |
| Revenue | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Maintenance Costs | 5,000 | 5,000 | 5,000 | 5,000 | 5,000 |
| Depreciation expense | 10,000 | 16,000 | 9,600 | 5,760 | 2,880 |
| Interest Expense | 5000 | 5000 | 5000 | 5000 | 5000 |
| Income before tax | 80,000 | 74,000 | 80,400 | 84,240 | 87,120 |
| Tax Expense | 24,000 | 22,200 | 24,120 | 25,272 | 26,136 |
| Net Income | 56,000 | 51,800 | 56,280 | 58,968 | 60,984 |

Cash flow statement

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Y1 | Y2 | Y3 | Y4 | Y5 |
| Beginning cash | 0 | 66,000 | 133,800 | 199,680 | 264,408 |
| NI | 56,000 | 51,800 | 56,280 | 58,968 | 60,984 |
| Adj.Dep | 10,000 | 16,000 | 9,600 | 5,760 | 2,880 |
| CF | 66,000 | 133,800 | 199,680 | 264,408 | 328,272 |

NPV = 662028

**Q 14.24.** PepsiCo’s balance sheet lists its deferred income taxes as $1,367 million in 2000 and $1,496 million in 2001. Its net income statement further listed income tax payments of $1,367 million in 2001. How much did PepsiCo actually pay in income taxes in 2001?

1367 – (1496-1367) = 1238

**Q 14.25.** Construct the financials for a firm that has quarterly sales and net income of $100, $200, $300, $200, $100. One-quarter of all customers pay immediately, while the other three-quarters always pay *two* quarters after purchase.

**Q 14.26.**

Income statement

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Gross Output | 50 | 80 | 90 | 50 | 25 | 0 |
| Input cost | 5 | 5 | 5 | 5 | 5 | 5 |
| Selling cost | 5 | 5 | 5 | 5 | 5 | 5 |
| Depreciation cost | 50 | 50 | 50 | 0 | 0 | 0 |
| Interest expense | 5 | 5 | 5 | 5 | 5 | 5 |
| Income before tax | -15 | 15 | 25 | 25 | 10 | -15 |
| tax | 0 | 6 | 10 | 10 | 4 | 0 |
| Net income | -15 | 9 | 15 | 15 | 6 | -15 |

Balance Sheet

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Cash | -15 | 59 | 115 | 165 | 156 | 85 |
| Real Physical | 150 | 100 | 50 | 0 | 0 | 0 |
| Total Asset | 135 | 159 | 165 | 165 | 156 | 85 |
| Debt | 50 | 50 | 50 | 50 | 50 | 0 |
| Retained Earnings | -15 | 9 | 15 | 15 | 6 | -15 |
| Equity | 100 | 100 | 100 | 100 | 100 | 100 |
|  |  |  |  |  |  |  |

Cash flow statement

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Net income | -15 | 9 | 15 | 15 | 6 | -15 |
| Depreciation cost | 50 | 50 | 50 | 0 | 0 | 0 |
| Project | -150 | 0 | 0 | 0 | 0 | 0 |
| Debt | 50 | 0 | 0 | 0 | 0 | -50 |
| Total cash | -115 | 59 | 65 | 15 | 6 | -65 |
|  |  |  |  |  |  |  |

Value of the firm -29.4

**Q 14.27.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 1999 | 2000 | 2001 |
| NI | 2505 | 2543 | 2662 |
| AR |  | 2129 | 13 |
| Prepaid |  | -791 | 39 |
| AP |  | -4529 | +68 |
| NI adjusted | 2505 | -648 | 2782 |

**Q 14.28.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | 2003 | 2004 | 2005 |
| NI | 4347 | 4847 | 4872 |
| AR |  | 2244 | 37 |
| Prepaid |  | -1849 | -71 |
| AP |  | -4403 | -90 |
| NI adjusted | 4347 | 839 | 4748 |

**Q 14.29.** Give some examples of how a firm can depress the cash flows that it reports in order to report higher cash flows later.

Companies might securitize their receivables, which means they sell their outstanding receivables (money that is almost certain to come in but has not yet) to another company for a lump sum, which shortens the length of time that receivables are outstanding. This inflates operating cash flow figures for a short period of time.

**Q 14.30.** Explain why EBITDA is more difficult to manipulate than EBIT.

Because depreciation and amortization are subjected to different methods. Management can use different methods to manipulate depreciation and amortization.

**Q 14.31.** Among Intel’s working capital items, which items allowed Intel to pull cash out of the business, and which items forced Intel to put more back into the business?

Account payable allows Intel to pull cash out.

Account receivable forces Intel to put cash back.

**Q 14.32.** Preferably answer this question from memory: If you have access to a firm’s cash-flow statement and net income statement, how would you compute the economic cash flows that accrue to shareholders?