Overview and Learning Objectives

Overview

This chapter introduces and emphasizes the concepts of **Financial Cash Flow** in section 2.5. This chapter also briefly reviews the two key financial statements, i.e., balance sheet and income statement, and discusses issues concerning the interpretation of these two key financial statements.

Since financial accounting (ACC 505) is a prerequisite for this course, you are expected to have adequate and working knowledge of the balance sheet, income statement, net working capital, and accounting statement of cash flows. As such, the lecture notes mainly contain supplemental materials on issues related to the use of information that these financial statements provide for making financial decisions.

Learning Objectives

After reading course materials on this chapter, students should be able to:

- Explain and interpret basic financial statements.
- Apply the concepts of accounting liquidity, debt versus equity, and value versus cost to the interpretation of the balance sheet, especially the recognition of the difference between book value and market value of a company.
- Apply the GAAP (Generally Accepted Accounting Principles), non-cash items, and time and costs issues to the interpretation of the income statement, especially the recognition of the difference between accounting earnings and cash flows.
- Identify the biases in the U.S. taxation system and how they may influence the financing decision and the financial security investment decision of a company.
- Prepare thoroughly the **Financial Cash Flow Identity** based on information from the balance sheet and the income statement.
- Explain the differences between the Financial Cash Flow Identity and the accounting statement of cash flows.

The Balance Sheet (Section 2.1)

Remember:

Assets ≡ Liabilities + Stockholder's Equity

Where asset items on the balance sheet of a corporation represent what this legal entity owns. The liabilities and equity items represent what this legal entity owes to its various stakeholders.

For instance, the accounts payable item indicates suppliers' stake, while common equity section indicates owners' stake, in the corporation (Slide).

When interpreting the balance sheet, we need to recognize these three issues:

1. **Accounting liquidity:** Refers to how fast an asset item can be converted into cash at its fair market value. Liquidity is valuable because it increases the firm's ability to meet short-term obligations. However, there is a tradeoff between liquidity and foregone potential returns because more liquid assets tend to generate lower returns. The various asset items on the left-hand side of a balance sheet are typically listed in the descending order of their liquidity. For example, cash & marketable securities in the current assets section are the most liquid, while intangible assets such as goodwill and patent are the least liquid (Slide).
2. **Debt versus Equity:** Where debt holders have higher seniority than equity holders in claiming the firm's resources. On the right-hand side of a balance sheet, debt and equity are typically listed in the descending order of their seniority. For example, suppliers and government have senior claims over bond holders, while preferred stockholders have senior claims over common stockholders, who are entitled only to residual claims on the firm's cash flows and assets, i.e., the portion that remains after all other stakeholders' claims are satisfied.
3. **Value versus Cost:** Under GAAP, asset items are mainly carried at their (historical) costs. As such, the book value of an asset can be substantially different from its fair market value, and thus greatly misrepresents the true value of the company. For example, the market value of a piece of land that the company owns typically appreciates over time. However, its carrying value on the balance sheet is stated at its purchase cost. Hence, the book value of this piece of land tends to be below its true market value. On the other hand, an expensive piece of custom-made equipment might have a carrying value on the book, but have a practically zero market value because no other company could use it.

Financial management is about the management and valuation of resources, and cash flows are the main driver in valuation. As such, it is critical that we keep these three issues in mind when we draw implications on the financial position of a company from its balance sheet, and distinguish between its accounting (book) value and its market value.

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The Income Statement (Section 2.2)

The income statement summarizes the performance of a company from both its operations and its non-operating activities during the fiscal year. The income statement measures the company's performance over a specific period of time.

Revenue − Expenses = Income

Although financial press often refers to net income after taxes as the 'bottom line' item, we need to recognize the difference between accounting earnings and cash flows (Slide).

When interpreting the income statement, we need to recognize three issues:

1. **GAAP (Generally Accepted Accounting Principles):** Regardless of the actual timing of cash outflows associated with the provision of products/services and that of cash inflows resulting from the sales of those products/services, the GAAP's **Realization Principle** on revenues and **Matching Principle** on expenses require that revenues be recorded on the income statement when they are earned (or accrued), and costs be matched with the revenues they produce. Thus, revenues and costs recorded for a period may NOT reflect actual cash flows during that period. Given that cash due to suppliers is likely to precede cash to be collected from customers in a typical operating cycle, a company might show accounting profits on its income statement, but still be UNABLE to pay its suppliers and hence faces the threat of lawsuit and bankruptcy.
2. **Non-Cash Items:** There are some non-cash items, such as depreciation and deferred taxes, on the income statement. Although depreciation is treated as an expense that lowers accounting income, this is NOT a cash outflow of the company. As far as cash flow is concerned, depreciation is a helper because its role as an expense on the income statement can lower the taxable income and hence tax liability. By lowering the tax liability, depreciation can reduce the cash outflow going to the government. In summary, while depreciation by itself is not a cash flow item, it generates cash inflow in the form of reduced tax liability, i.e., depreciation tax shield. The deferred tax portion, which does not represent a cash outflow for the current fiscal year, will be added to the deferred tax liability item on the balance sheet.
3. **Time and Costs:** The distinction between the accounting approach and the economic approach to costs. Economics distinguishes between fixed and variable costs, while accounting distinguishes between direct versus indirect costs. In the short run, certain equipment, resources, and commitments of the firm are fixed, but the firm can vary such inputs as labor and raw materials. However, in the long run, all inputs of production (and hence costs) are variable.

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Taxes (Section 2.3)

There are a few issues concerning the U.S. taxation for financial decisions:

A. Since financial decisions generally involve incremental cash flows, i.e., changes in cash flows from their existing levels, the **marginal** tax rate is the relevant tax rate in decision-making. The average tax rate is defined as the tax bill divided by taxable income, while the marginal tax rate is defined as the percentage of taxes on the next dollar earned. Please reference the text for numerical illustrations on taxes including the average versus marginal tax rates!

B. Depreciation, which is a non-cash item by itself, can generate cash inflow in the form of tax saving, i.e., depreciation tax shield. As such, a firm should consider adopting accelerated depreciation methods to take advantage of the timing of these cash inflows.

C. Given the differential treatments on interest expenses and dividends distributions, other factors being equal, there is a bias in favor of debt financing and against equity financing. On the other hand, the difference in taxation treatments on interest income versus dividends income received by a firm favors its investment in equity securities, but against debt securities, issued by another company.

- **Financing Decision**
  - Interest expenses are tax-deductible; paid with before-tax cash
  - Dividends, distribution of profit, are non-tax-deductible; paid with after-tax cash
  - The bias in financing decision favors debt financing and against equity financing
- **Investing Decision**
  - Dividend Income: only 30% is taxable
  - Interest Income: 100% is taxable
  - The bias in investing in financial securities favors equity securities and against debt securities

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Net Working Capital (Section 2.4)

Just a reminder that net working capital is defined as current assets minus current liabilities. An increase in net working capital represents a cash outflow (Slide). This concept is included here because it is part of the cash flow identity introduced in the next section.

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Balance Sheet and Income Statement

Balance Sheet

Assets	20X2	20X1
Current assets:		
Cash and equivalents	$140	$107
Accounts receivable	294	270
Inventories	269	280
Other	58	50
Total current assets	$761	$707
Fixed assets:		
Property, plant, and equipment	$1,423	$1,274
Less accumulated depreciation	-550	-460
Net property, plant, and equipment	873	814
Intangible assets and other	245	221
Total fixed assets	$1,118	$1,035
Total assets	$1,879	$1,742

Liabilities (Debt) and Stockholder's Equity	20X2	20X1
Current Liabilities:		
Accounts payable	$213	$197
Notes payable	50	53
Accrued expenses	223	205
Total current liabilities	$486	$455
Long-term liabilities:		
Deferred taxes	$117	$104
Long-term debt	471	458
Total long-term liabilities	$588	$562
Stockholder's equity:		
Preferred stock	$39	$39
Common stock ($1 per value)	55	32
Capital surplus	347	327
Accumulated retained earnings	390	347
Less treasury stock	-26	-20
Total equity	$805	$725
Total liabilities and stockholder's equity	$1,879	$1,742

Income Statement

Total operating revenues	$2,262
Cost of goods sold	- 1,655
Selling, general, and administrative expenses	- 327
Depreciation	- 90
Operating income	$190
Other income	29
Earnings before interest and taxes	$219
Interest expense	- 49
Pretax income	$170
Taxes	- 84
Current: $71	
Deferred: $13	
Net income	$86
Retained earnings:	$43
Dividends:	$43

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Financial Cash Flow

Cash flows from assets, CF(A) (Slide)

It has three components: operating cash flow (OCF), capital spending (CE), and additions to net working capital (ΔNWC), which are defined as follows:

OCF = EBIT + Depreciation − Taxes
e.g., **OCF** = $(219 + 90 − 71) = $238

CE = Change in (gross) fixed assets
= Change in net fixed assets + Depreciation
= $(FA_t - FA_{t-1}) + Dep_t$
e.g., **CE** = $(1,118 − 1,035) + $90 = $173

ΔNWC = Change in net working capital = $NWC_t - NWC_{t-1} = (CA_t - CL_t) - (CA_{t-1} - CL_{t-1})$
e.g., **ΔNWC** = $(761−486) − $(707−455) = $23

And **CF(A) = OCF − CE − ΔNWC**
e.g., **CF(A)** = $(238 − 173 − 23) = $42

Note that the cash flows from assets variable, CF(A), is a cash inflow based variable. In other words, cash inflows are associated with positive values while cash outflows are associated with negative values. Since increases in (gross) fixed assets and net working capital represent cash outflows, there are minus signs for these two items in the equation.

In general, the operations of a financially healthy and growing company should generate cash inflows, i.e., positive operating cash flow (OCF>0). This company should have value-creating projects to support its growth such that it is expected to have cash outflows associated with its capital spending and a rising level of net working capital investment. Hence, the total cash flow, i.e., cash flow from assets (CF(A)), of a healthy fast growing company can be negative even it has a positive operation cash flow.

Cash flows to creditors, CF(B)

It has two components: interest and change in long-term debt.
CF(B) = Interest − Change in long-term debt
= Interest − (Long-term $debt_t$ − Long-term $debt_{t-1}$)
e.g., CF(B) = $49 − $(471 − 458) = $36

Cash flows to stockholders, CF(S)

It also has two components: dividends and change in stockholders' equity (excluding accumulated retained earnings).

CF(S) = Dividends − Change in stockholders' equity (excluding accumulated retained earnings)

e.g., **CF(S)** = $43 − [$(39+55+347−26) − $(39+32+327−20)] = $6

The reason why the accumulated retained earnings item is excluded is that the change in this item represents the amount of accounting earnings that the company retains for reinvestment purposes. As such, there is no cash flow involved and hence should be excluded from the cash flows to stockholders variable.

Note that both CF(B) and CF(S) are cash outflow based variables, i.e., cash outflows are associated with positive values and cash inflows are associated with negative values. Interest and dividends are what the company pays to its stakeholders, representing cash outflows. On the other hand, increases in long-term debt and stockholders' equity represent the company raising additional external capital from the public and hence cash inflows. As such, there are minus signs for these two items in the respective equations.

As the **financial cash flow** identity dictates, cash flows from assets, CF(A), of $42M must be equal to the sum of cash flows to creditors, CF(B), of $36M and cash flows to stockholders, CF(S), of $6M.

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Numerical Illustration: Financial Cash Flow

Construct Financial Cash Flows from the following information:

Balance Sheet

Balance Sheet (in thousands)	December 31, 20x0	December 31, 20x1
Assets		
Cash	$150	$100
Marketable securities	90	75
Accounts receivable	200	220
Inventory	350	380
Current assets	790	775
Gross plant and equipment	600	700
less Accumulated depreciation	(120)	(150)
Net fixed assets	480	550
Total assets	$1,270	$1,325
Liabilities and Owners' Equity		
Accounts payable	$70	$65
Notes payable	175	115
Accrued expenses	5	7
Accrued taxes	5	8
Current liabilities	255	195
Long-term debt	405	430
Common stock	200	220
Capital surplus	100	165
Retained earnings	400	415
less Treasury stock	(90)	(100)
Total liabilities and owners' equity	$1,270	$1,325

Income Statement

Income Statement for Year Ended December 31, 20X1

Revenues	$2000
Cost of goods sold	1750
Selling and administrative expense	50
Operating income	200
Depreciation	30
Operating Income	170
Interest expense	60
Income Before Tax	110
Taxes (at 50%)	55
Net income	55
Dividends	40
Retained earnings	15

Click here for solutions

Accounting Statement of Cash Flow and Cash Flow Management (Sections 2.6 and 2.7)

In ACC505, you have been introduced to the accounting Statement of Cash Flow (Slide), which is composed of cash flows from operating activities (Slide), investing activities (Slide) and financing activities (Slide). By summing up the cash flows from these three areas of activities, the result should be equal to the change in the cash account on the balance sheet. Please reference the text for a review of this Statement and the its three components, namely, operating cash flows, investing cash flows and financing cash flows.

While the accounting Statement of Cash Flow is similar to the Financial Cash Flow statement introduced and discussed earlier, their key difference is driven by the treatment of interest expense in these two statements. Note that the Financial Cash Flow (discussed in Section 2.5) considers interest expense as part of the financing activities via its role in the cash flow to creditors, but the Accounting Statement of Cash Flow includes interest expense as part of the operating activities via the net income item. Since interest expense is resulted from the use of debt financing, it is appropriate to consider it as part of the financing activities (rather than operating activities) via the cash flow to creditors.

Last but not least, please reference Section 2.7 of the text for real world examples on how companies manage their operating cash flows. However, the total cash flows of the firm are not affected.

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Course-wide Content
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Quizzes
Chapter Quiz
More Resources
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Contents

Chapter Quiz

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