

Chapter 3

Accounting and Finance

Financial Management (DOM1047)

Preview

- Understanding **financial accounting** is essential to understanding corporate finance.
- Outlines
 - The **balance sheet** (資產負債表)
 - The **income statement** (損益表)
 - The **statement of cash flows** (現金流量表)
 - Accounting practice and malpractice
 - Taxes

(描述存量)

The Balance Sheet (3.1)

- The **balance sheet** is a financial statement that shows the firm's assets and liabilities at a particular time.
 - **Assets**: representing the uses of the funds raised
 - **Liabilities**: representing the sources of fundings
- Why is it useful?
- **Shareholders' Equity** = Total Assets – Total Liabilities

$CA - CL = NWC$ (net working capital) > 0 較好 (不然可能會倒帳)

The Balance Sheet (continued)

(流動資產)

Current Assets

- Cash & Securities
- Receivables (該收還未收)
- Inventories

+

Fixed Assets

- Tangible Assets
- Intangible Assets (專利)

Total Assets

=

Current Liabilities

- Payables (該付還未付)
- Short-term Debt

+

Long-term Liabilities

+

Shareholders' Equity

**Total Liabilities &
Shareholders' Equity**

The Balance Sheet (continued)

- **Assets** show what the firm owns
 - They are listed based on level of **liquidity**.
 - Liquid assets can be converted easily into cash.
 - The accountant puts the most liquid assets at the top of the list.
 - Examples: cash, marketable securities, account receivables, inventories...etc.

The Balance Sheet (continued)

- Assets are often categorized into current assets and fixed assets.
 - **Current assets** are the ones that can be converted to cash in short period of time.
 - **Fixed assets** are longer-lived assets.
 - Tangible assets such as buildings, plants, equipments, vehicles
 - Intangible assets such as goodwill, brand name, skilled management

Assets: Examples

Which of the following assets is typically considered most liquid? Least liquid?

- ② • Marketable securities
- ① • Accounts receivable
- ③ • Inventories

Which of the following is a current asset? (無1年定义)

- Property that a firm owns
- A firm's production equipment
- ✓ • Unsold inventories

Assets: Examples II

- *Which of the following represent tangible assets? Intangible assets?*

T • Property

T • Production Facilities

I • Patents

T • Production Equipment

I • Trademarks

I • Copyrights

The Balance Sheet (continued)

- **Liabilities** show what the firm owes
 - They are listed based on how soon they should be paid off.
 - They are classified into current liabilities and long-term debt.
 - The **current liabilities** often include debt that need to be repaid before the end of a year.
 - **Net Working Capital** = Current Assets – Current Liabilities

Liabilities: Example

(should be within 1 year)

- *Which of the following is a current liability?*

N • Bond debt that matures in 3 years

N • A bank loan that is due in 24 months

C • An obligation to pay a supplier within 6 months

receivable ↓, cash ↑

BALANCE SHEET OF HOME DEPOT (Figures in \$ milions)					
Assets	2009	2008	Liabilities and Shareholders' Equity	2009	2008
Current assets			Current liabilities		
Cash and marketable securities	1,421	519	Debt due for repayment	1,020	1,767
Receivables	964	972	Accounts payable	8,185	8,221
Inventories	10,188	10,673	Other current liabilities	1,158	1,165
Other current assets	1,327	1,198	Total current liabilities	10,363	11,153
Total current assets	13,900	13,362			
Fixed Assets			Long-term debt	8,662	9,667
Tangible fixed assets			Deferred income taxes	319	369
Property, plant, and equipment	37,345	36,223	Other long-term liabilities	2,140	2,198
Less accumulated depreciation	11,795	9,989	Total liabilities	21,484	23,387
Net tangible fixed assets	25,550	26,234	Shareholders' equity:		
Intangible asset (goodwill)	1,171	1,134	Common stock and other paid-in capital	6,390	6,133
Long-term investments	33	36	Retained earnings	13,588	12,452
Other assets	223	398	Treasury stock	\$ (585)	(808)
Total Assets	40,877	41,164	Total shareholders' equity	19,393	17,777
			Total liabilities and shareholders' equity	40,877	41,164

PPE

併購其他公司

(資本公積)

扣完的結果

In the balance sheet below, what was the value of net working capital in 2008? 2009?

NWC ↑

2008: $13,362 - 11,153 = 2,209$

2009: $13,900 - 10,363 = 3,537$

The Balance Sheet (continued)

- **Shareholders' equity** shows the difference between assets and liabilities
 - Shareholders are sometimes called **residual claimants**.
 - It includes **retained earnings**.



- **Common-size balance sheet**

標準化 (=百分比) ▫ All balance sheet items are expressed as a percentage of total assets.

Common-Size Balance Sheet: Example

COMMON-SIZE BALANCE SHEET OF HOME DEPOT
(All items expressed as percentage of total assets)

Assets	2009	2008	Liabilities and Shareholders' Equity	2009	2008
Current assets			Current liabilities		
Cash and marketable securities	3.5%	1.3%	Debt due for repayment	2.5%	4.3%
Receivables	2.4%	2.4%	Accounts payable	20.0%	20.0%
Inventories	24.9%	25.9%	Other current liabilities	<u>2.8%</u>	<u>2.8%</u>
Other current assets	<u>3.2%</u>	<u>2.9%</u>	Total current liabilities	25.4%	27.1%
Total current assets	34.0%	32.5%			
Fixed Assets			Long-term debt	21.2%	23.5%
Tangible fixed assets			Deferred income taxes	0.8%	0.9%
Property, plant, and equipment	91.4%	88.0%	Other long-term liabilities	5.2%	5.3%
Less accumulated depreciation	<u>28.9%</u>	<u>24.3%</u>			
Net tangible fixed assets	62.5%	63.7%	Total liabilities	52.6%	56.8%
Intangible asset (goodwill)	2.9%	2.8%	Shareholders' equity:		
Long-term investments	0.1%	0.1%	Common stock and other paid-in capital	15.6%	14.9%
Other assets	0.5%	1.0%	Retained earnings	33.2%	30.2%
			Treasury stock	<u>-1.4%</u>	<u>-2.0%</u>
Total Assets	100.0%	100.0%	Total shareholders' equity	47.4%	43.2%
			Total liabilities and shareholders' equity	100.0%	100.0%

Note the changes from 2008 to 2009.

Q: In the balance sheet, which item would have the biggest difference between book value and market value?

A: common stock, as it derives from all the subtraction. (The smallest is cash)

The Balance Sheet (continued)

帳面價值 (根據財報)

- **Book value** are value of assets or liabilities according to balance sheet.
 - Items in balance sheet are valued based on the generally accepted accounting principles (GAAP)
 - They are shown as historical cost adjusted for depreciation.
 - Book value are backward-looking measures of value.
- The differences between book value and **market value** vary from one item to another.
 - The market value of **fixed assets** usually is much higher than the book value.

EBITDA amortization 攤還 (ex. 買五年份的授權)
depreciation 折舊

The Income Statement (3.2)

- **Income statement** shows the revenues, expenses, and net income of a firm over a period of time.
- Why is it useful?
- The **earnings before interest and taxes (EBIT)** are
 - $EBIT = \text{Total revenue} - \text{Costs} - \text{Depreciation}$
- Common-size income statement
 - Items in income statement are expressed as a percentage of revenues.

Q: same EBIT but different net income? A: interests of debit are different.

INCOME STATEMENT OF HOME DEPOT, 2009

	\$ million	% of sales
Net sales	66,176	100.0
Cost of goods sold	43,764	66.1
Selling, general & administrative expenses	15,907	24.0
Depreciation	1,806	2.7
Earnings before interest and income taxes	4,699	7.1
Interest expense	676	1.0
Taxable income	4,023	6.1
Taxes	1,362	2.1
Net income (bottom line)	2,661	4.0
Allocation of net income		
Dividends	1,525	2.3
Addition to retained earnings	1,136	1.7

amortization (攤還) intangible asset

Revenue
(中佔率)

(成本控制能力)

EBITDA

(固定資產能力)

EBIT

折舊 (攤銷金額) tangible asset

(負債規模)

Net Income

In the income statement, what was the value of Home Depot's EBIT in 2009?

net income / #outstanding share = EPS
在外流通股數

The Income Statement (continued)

- There are 2 reasons why *profits* and *cash* are not the same.
 - Depreciation
 - The capital expenditures (such as cost of machinery) are deducted over its forecast life to calculate profits.
 - The depreciation of assets previously purchased is deducted (even though no cash is made this period).
 - Cash vs. **accrual accounting** 應記項目
 - **Accrual accounting**: the practice of matching revenues and expenses during different periods.

Cash Flows: Example

Consider a firm that spends \$1,000 to produce goods in period 1. In period 2, it sells half of these goods for \$750 and collects payment one period later. The firm sells the other half in period 3 for another \$750, and collects payment on these sales in period 4.

What are the cash flows in each of the 4 periods for the firm?

Period:	1	2	3	4
Sales (\$)	0	750	750	0
-Accounts Receivable	0	750	0	(750)
- Cost of Goods Sold	0	500	500	0
- Changes in Inventories	1000	(500)	(500)	0
= Net Cash Flow	(1000)	0	750	750

Profit

0

250

250

0

The Statement of Cash Flows (3.3)

- **Statement of cash flow** shows the firms' cash receipts, and cash payments over a period of time.
- Why is it useful?
- It has 3 sections
 - Cash flows provided by operations
 - Cash flows for new investments
 - Cash flows provided by new financing

The Statement of Cash Flows (continued)

Structure:

$$\begin{array}{r} \text{Cash flow from operations} \\ - \\ \text{Cash flow from investments} \\ + \\ \text{Cash flow from financing} \\ \hline \text{Change in cash balance} \end{array}$$

STATEMENT OF CASH FLOWS OF HOME DEPOT, 2009
(Figures in \$ millions)

Cash provided by operations

Net income	2,661
Noncash expenses	
Depreciation and amortization	1,806
Changes in working capital	
Decrease (increase) in accounts receivable	8
Decrease (increase) in inventories	485
Increase (decrease) in accounts payable	-36
Decrease (increase) in other current assets	-129
Increase (decrease) in other current liabilities	-7
Total decrease (increase) in working capital	321
Cash provided by operations	4,788

Cash flows from investments

Cash provided by (used for) disposal of (additions to) property, plant, and equipment	-1,122
Sales (acquisitions) of other investments	141
Cash provided by (used for) investments	-981

Cash provided by (used for) financing activities

Additions to (reduction in) short-term debt	-747
Additions to (reduction in) long-term debt	-1,005
Dividends paid	-1,525
Net issues (repurchases) of stock	480
Other	-108
Cash provided by (used for) financing activities	-2,905
Net increase (decrease) in cash and cash equivalents	902



Cash Flow: Example

Net income for your firm was \$10,000 last year. The depreciation expense was \$2,500; accounts receivable increased \$1,250; accounts payable increased \$800; and inventories increased by \$2,000.

What was the total cash flow from operations?

Net income:	10,000
Depreciation:	2,500
Accounts Receivable:	(1,250)
Accounts Payable:	800
Inventories:	<u>(2,000)</u>
Cash flow from operations:	10,050

The Statement of Cash Flows (continued)

- *(already include interest)*
Free cash flow (FCF) is cash available for distribution to investors after the firm pays for new investments or additions to working capital.
 - The cash that the firm generates from its ongoing operations is $(\text{EBIT} - \text{taxes} + \text{depreciation})$
 - Not all above cash is available to investors.
 - $\text{FCF} = (\text{EBIT} - \text{taxes} + \text{depreciation})$
 - change in net working capital
 - capital expenditures

Free Cash Flow (example of Home Depot)

= Net Income + Interest

- $\text{FCF} = (\text{EBIT} - \text{taxes} + \text{depreciation})$
 - change in net working capital
 - capital expenditures
 - Cash flow from operation:
 $(4,699 - 1,362 + 1,806) + 321 = 5,464$
 - Change in working capital: 321
 - Capital expenditures: 981
 - $\text{FCF} = 5,464 - 981 = \$4,483$ million

Accounting Practice (3.4)

- Most managers say that **accounting earnings** is the single most important number reported to investors.
 - Security analysts forecast **earnings per share (EPS)**, and investors wait to see if the firm can meet or beat the forecasts
- What implications does this have for the investor?

Accounting Practice (continued)

- There are **grey areas** for financial managers that demand judgment call:

- Revenue recognition

- 大水庫理論 • The date of sale is not always obvious.

- Cookie-jar reserves (把部分收益記錄到別季, 使營收曲線平滑易讀)

- Example of Freddie Mac – earnings management.

- Additional grey areas:

- Off-balance sheet assets and liabilities

- Mark-to-market accounting (拿土地跟市場兌價, ex. 台糖)

SIV (表外資產、負債)

Taxes (3.5)

- In the United States, corporations pay tax on their incomes.

U.S. **Corporate Tax** Rates, 2011

Taxable Income, \$	Tax Rate, %
0–50,000	15
50,001–75,000	25
75,001–100,000	34
100,001–18,333,333	Varies between 39 and 34
Over 18,333,333	35

Taxes (continued)

- Expenses and interest paid to debt-holders can be deducted from taxable income.
 - But not dividends paid to shareholders.

		Firm A	Firm B
EBIT		100	100
Interest	$40 \times 35\% = 14$ ★ (tax shield) 税盾	40	0
Pretax income		60	100
Tax (35% of pretax income)		21	35
Net income		39	65

Taxes (continued)

- U.S. **Personal Tax** Rates, 2011

Taxable Income (dollars)		(辺際税率) Marginal Tax Rate, %
Single Taxpayers	Married Taxpayers Filing Joint Returns	
0–8,500	0–17,000	10
8,500–34,500	17,000–69,000	15
34,500–83,600	69,000–139,350	25
83,600–174,400	139,350–212,300	28
174,400–379,150	212,300–379,150	33
379,150 and above	379,150 and above	35

Taxes (continued)

- The personal tax rates are **marginal tax rate**.
 - The additional taxes owed per dollar of additional income.
- The **average tax rate** is simply the total tax bill divided by total income.

Taxes (continued)

- What is the **marginal tax rate** for a corporation with \$60,000 taxable income and an average tax rate of 16.67% if the next-lowest marginal tax rate of 15% covers taxable incomes up to \$50,000.
 - $(\$60,000) * (16.67\%) = \$10,000$ total taxes paid
 - $(\$10,000) * (\text{marginal tax rate}) = \$2,500$

Income	Rate	Taxes Paid
\$0 - \$50,000	15%	\$7,500
\$50,001 - \$60,000	? 25%	<u>\$2,500</u>
Total:		\$10,000

Taxes (continued)

- Based on below table, find average tax rate of single taxpayer with taxable income of \$40,000.

Taxable Income (dollars)		
Single Taxpayers	Married Taxpayers Filing Joint Returns	Tax Rate, %
0–8,500	0–17,000	10
8,500–34,500	17,000–69,000	15
34,500–83,600	69,000–139,350	25
83,600–174,400	139,350–212,300	28
174,400–379,150	212,300–379,150	33
379,150 and above	379,150 and above	35

Taxes (continued)

- $8,500 * 0.1 + 26,000 * 0.15 + 5,500 * 0.25 = 6,125$
- $6,125 / 40,000 = 15.3\%$

Taxable Income (dollars)		
Single Taxpayers	Married Taxpayers Filing Joint Returns	Tax Rate, %
0–8,500	0–17,000	10
8,500–34,500	17,000–69,000	15
34,500–83,600	69,000–139,350	25
83,600–174,400	139,350–212,300	28
174,400–379,150	212,300–379,150	33
379,150 and above	379,150 and above	35

Taxes (continued)

- Incomes include salary, wages, interest earnings, dividend income, and capital gains.
- **Double taxation**: when a corporation issues a dividend, each dividend dollar is effectively taxed twice.
 - Each dollar of earnings taxed at corporate rate.
 - Shareholders pay personal income taxes on all dividends received.

Corporate Income Taxes

Tax Rates in Asia (2010–2011)

Australia

Corporate Tax: 30%

China

Corporate Tax: 25%

Hong Kong

Corporate Tax: 16.5%

India

Corporate Tax:

Domestic companies: 33.99%

Foreign companies: 42.23%

Indonesia

Corporate Tax: 25%

Japan

Corporate Tax: 40.87%

Malaysia

Corporate Tax: 25%

Philippines

Corporate Tax: 30%

Singapore

Corporate Tax: 17%

South Korea

Corporate Tax:

Taxable Income (million)	Tax rate
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Income up to ₩200	10%
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Income over ₩200	22%
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Taiwan

Corporate Tax: 17%

Thailand

Corporate Tax: 30%

Vietnam

Corporate Tax: 25%

Source: <http://www.taxrates.cc/index.html>