

Chapter

8

Management of cash flow

Lecture 8

Introduction to finance

Prepared by
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Chapter

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Lecture 8

Management of cash flow

Study Objectives

1. Indicate the usefulness of the statement of cash flows.
2. Distinguish among operating, investing, and financing activities.
3. Explain the impact of the product life cycle on a company's cash flows.
4. Prepare a statement of cash flows using the indirect method.
5. Use the statement of cash flows to evaluate a company.

Statement of Cash Flows

The Statement of Cash Flows: Usefulness and Format

- Usefulness
- Classifications
- Significant noncash activities
- Format
- Corporate life cycle
- Preparation
- Indirect and direct methods

Preparing the Statement of Cash Flows—Indirect Method

- Step 1: Operating activities
- Step 2: Investing and financing activities
- Step 3: Net change in cash

Using Cash Flows to Evaluate a Company

- Free cash flow
- Assessing liquidity and solvency

Usefulness and Format

Usefulness of the Statement of Cash Flows

Provides information to help assess:

1. Entity's ability to generate future cash flows.
2. Entity's ability to pay dividends and obligations.
3. Reasons for difference between net income and net cash provided (used) by operating activities.
4. Cash investing and financing transactions during the period.

Usefulness and Format

Classification of Cash Flows

Operating
Activities

Income
Statement Items

Investing
Activities

Changes in
Investments
and Long-Term
Asset Items

Financing
Activities

Changes in
Long-Term
Liabilities and
Stockholders'
Equity

Usefulness and Format

Classification of Cash Flows

Illustration 12-1

Typical receipt and
payment classifications

Operating activities—Income statement items

Cash inflows:

- From sale of goods or services.
- From interest received and dividends received.

Cash outflows:

- To suppliers for inventory.
- To employees for services.
- To government for taxes.
- To lenders for interest.
- To others for expenses.

Usefulness and Format

Classification of Cash Flows

Illustration 12-1

Typical receipt and payment classifications

Investing activities—Changes in investments and long-term assets

Cash inflows:

- From sale of property, plant, and equipment.
- From sale of investments in debt or equity securities of other entities.
- From collection of principal on loans to other entities.

Cash outflows:

- To purchase property, plant, and equipment.
- To purchase investments in debt or equity securities of other entities.
- To make loans to other entities.

Financing activities—Changes in long-term liabilities and stockholders' equity

Cash inflows:

- From sale of common stock.
- From issuance of debt (bonds and notes).

Cash outflows:

- To stockholders as dividends.
- To redeem long-term debt or reacquire capital stock (treasury stock).

Usefulness and Format

Significant Noncash Activities

1. Issuance of common stock to purchase assets.
2. Conversion of bonds into common stock.
3. Issuance of debt to purchase assets.
4. Exchanges of plant assets.

Companies report noncash activities in either a

- ◆ **separate schedule** (bottom of the statement) or
- ◆ **separate note** to the financial statements.



Accounting Across the Organization

Net What?

Net income is not the same as net cash provided by operations. The differences are illustrated by the following results from recent annual reports (\$ in millions). Note the wide disparity among these companies that all engaged in retail merchandising.

Company	Net Income	Net Cash Provided by Operations
Kohl's Corporation	\$ 1,083	\$ 1,234
Wal-Mart Stores, Inc.	11,284	20,169
JCPenney Company, Inc.	1,153	1,255
Costco Wholesale Corp.	1,082	2,076
Target Corporation	2,849	4,125

? In general, why do differences exist between net income and net cash provided by operating activities? (See page 680.)

Usefulness and Format

Format of the Statement of Cash Flows

Order of Presentation:

1. Operating activities.
2. Investing activities.
3. Financing activities.



Direct Method

Indirect Method

Format of the Statement of Cash Flows

COMPANY NAME		
Statement of Cash Flows		
Period Covered		
Cash flows from operating activities		
(List of individual items)	<u>XX</u>	
Net cash provided (used) by operating activities		XXX
Cash flows from investing activities		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by investing activities		XXX
Cash flows from financing activities		
(List of individual inflows and outflows)	<u>XX</u>	
Net cash provided (used) by financing activities		<u>XXX</u>
Net increase (decrease) in cash		XXX
Cash at beginning of period		<u>XXX</u>
Cash at end of period		<u>XXX</u>
Noncash investing and financing activities		
(List of individual noncash transactions)		<u>XXX</u>

Format of the Statement of Cash Flows

Illustration: Classify each of these transactions by type of cash flow activity.

Do it!

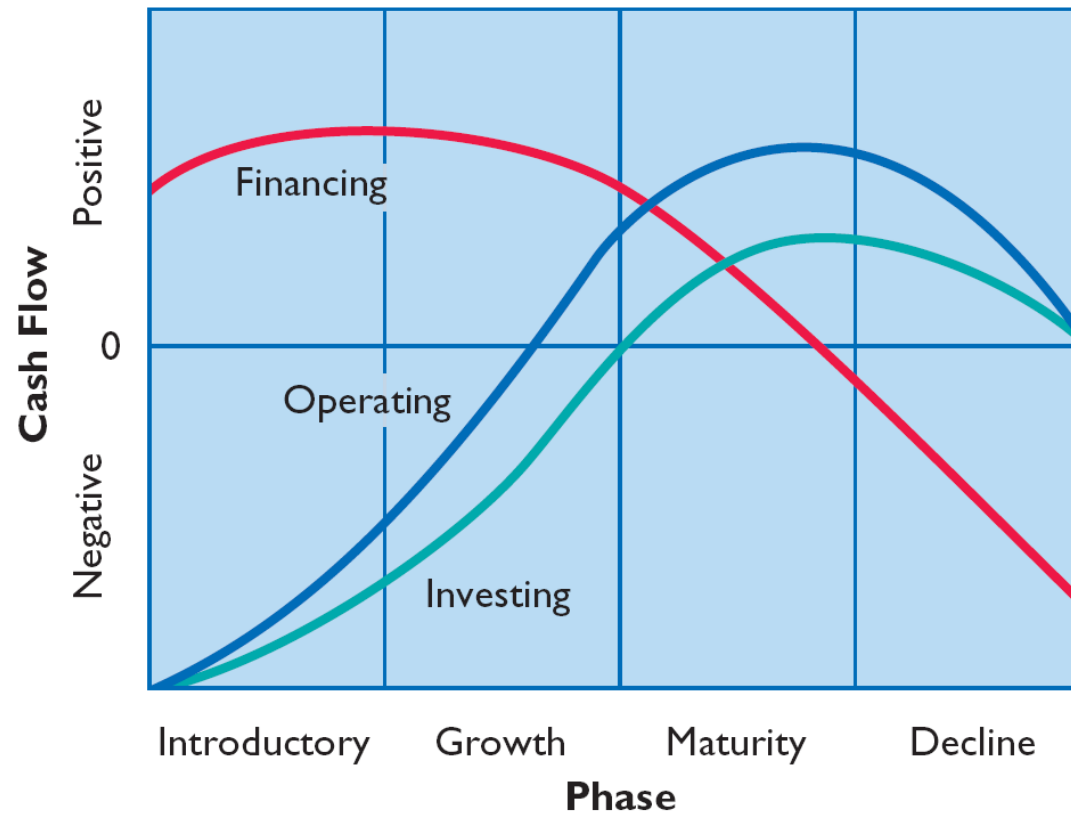
- | | |
|--|------------------|
| 1. Issued 100,000 shares of \$5 par value common stock for \$800,000 cash. | Financing |
| 2. Borrowed \$200,000, signing a 5-year note bearing 8% interest. | Financing |
| 3. Purchased two semi-trailer trucks for \$170,000 cash. | Investing |
| 4. Paid employees \$12,000 for salaries and wages. | Operating |
| 5. Collected \$20,000 cash for services provided. | Operating |

Usefulness and Format

The Corporate Life Cycle

Impact
of **product life
cycle** on
cash flows.

Illustration 12-3



Chapter

8



Investor Insight

Operating with Negative Cash

Listed here are recent amounts of net income and cash provided (used) by operations, investing, and financing for a variety of companies. The final column suggests their likely phase in the life cycle based on these figures.



Company (\$ in millions)	Net Income	Cash Provided (Used) by Operations	Cash Provided (Used) by Investing	Cash Provided (Used) by Financing	Likely Phase in Life Cycle
Amazon.com	\$ 476	\$1,405	\$ (42)	\$ (50)	Early maturity
LDK Solar	(144)	(81)	(329)	462	Introductory/ early growth
United States Steel	879	1,745	(4,675)	(1,891)	Maturity
Kellogg	1,103	1,503	(601)	(788)	Early decline
Southwest Airlines	645	2,845	(1,529)	493	Maturity
Starbucks	673	1,331	(1,202)	(172)	Maturity

Usefulness and Format

Preparing the Statement of Cash Flows

Three Sources of Information:

1. Comparative balance sheets
2. Current income statement
3. Additional information

Usefulness and Format

Preparing the Statement of Cash Flows

Three Major Steps:

Illustration 12-4

Step 1: Determine net cash provided/used by operating activities by converting net income from an accrual basis to a cash basis.



This step involves analyzing not only the current year's income statement but also comparative balance sheets and selected additional data.

Usefulness and Format

Preparing the Statement of Cash Flows

Three Major Steps:

Illustration 12-4

Step 2: Analyze changes in noncurrent asset and liability accounts and record as investing and financing activities, or disclose as noncash transactions.



This step involves analyzing comparative balance sheet data and selected additional information for their effects on cash.

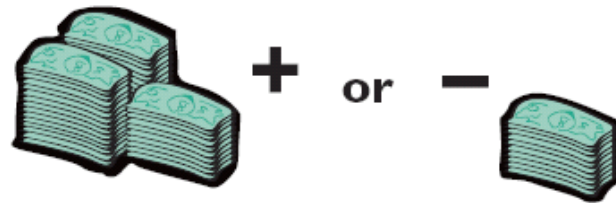
Usefulness and Format

Preparing the Statement of Cash Flows

Three Major Steps:

Illustration 12-4

Step 3: Compare the net change in cash on the statement of cash flows with the change in the cash account reported on the balance sheet to make sure the amounts agree.



The difference between the beginning and ending cash balances can be easily computed from comparative balance sheets.

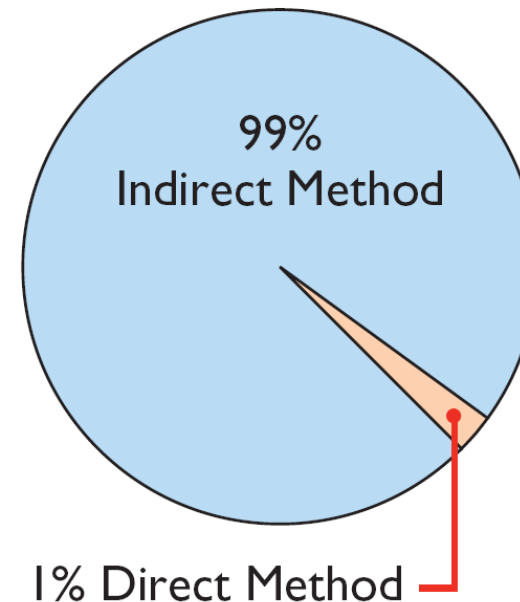
Usefulness and Format

Indirect and Direct Methods

Companies favor the indirect method for two reasons:

1. Easier and less costly to prepare.
2. Focuses on differences between net income and net cash flow from operating activities.

Usage of Methods



Preparing the Statement of Cash Flows

Illustration – Indirect Method

Illustration 12-5

COMPUTER SERVICES COMPANY		
Income Statement		
For the Year Ended December 31, 2012		
Revenues		\$507,000
Cost of goods sold	\$150,000	
Operating expenses (excluding depreciation)	111,000	
Depreciation expense	9,000	
Loss on sale of equipment	3,000	
Interest expense	42,000	315,000
Income before income tax		192,000
Income tax expense		47,000
Net income		<u>\$145,000</u>

Preparing the Statement of Cash Flows

Illustration 12-5

COMPUTER SERVICES COMPANY			
Comparative Balance Sheets December 31			
<u>Assets</u>	<u>2012</u>	<u>2011</u>	<u>Change in Account Balance Increase/Decrease</u>
Current assets			
Cash	\$ 55,000	\$ 33,000	\$ 22,000 Increase
Accounts receivable	20,000	30,000	10,000 Decrease
Inventory	15,000	10,000	5,000 Increase
Prepaid expenses	5,000	1,000	4,000 Increase
Property, plant, and equipment			
Land	130,000	20,000	110,000 Increase
Buildings	160,000	40,000	120,000 Increase
Accumulated depreciation—buildings	(11,000)	(5,000)	6,000 Increase
Equipment	27,000	10,000	17,000 Increase
Accumulated depreciation—equipment	(3,000)	(1,000)	2,000 Increase
Total assets	<u>\$398,000</u>	<u>\$138,000</u>	

Preparing the Statement of Cash Flows

Liabilities and Stockholders' Equity

Current liabilities

Accounts payable	\$ 28,000	\$ 12,000	\$ 16,000	Increase
Income taxes payable	6,000	8,000	2,000	Decrease

Long-term liabilities

Bonds payable	130,000	20,000	110,000	Increase
---------------	---------	--------	---------	----------

Stockholders' equity

Common stock	70,000	50,000	20,000	Increase
Retained earnings	164,000	48,000	116,000	Increase

Total liabilities and stockholders' equity	<u>\$398,000</u>	<u>\$138,000</u>		
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Additional information for 2012:

1. Depreciation expense was comprised of \$6,000 for building and \$3,000 for equipment.
2. The company sold equipment with a book value of \$7,000 (cost \$8,000, less accumulated depreciation \$1,000) for \$4,000 cash.
3. Issued \$110,000 of long-term bonds in direct exchange for land.
4. A building costing \$120,000 was purchased for cash. Equipment costing \$25,000 was also purchased for cash.
5. Issued common stock for \$20,000 cash.
6. The company declared and paid a \$29,000 cash dividend.

Preparation of the Statement of Cash Flows – Indirect Method

Step 1: Operating Activities

Determine net cash provided/used by operating activities by converting net income from accrual basis to cash basis.

Common adjustments to Net Income (Loss):

- ◆ Add back non-cash expenses (depreciation, amortization, or depletion expense).
- ◆ Deduct gains and add losses.
- ◆ Changes in noncash current assets and current liabilities.

Step 1: Operating Activities

Question

Which is an example of a cash flow from an operating activity?

- ☒ a. Payment of cash to lenders for interest.
- b. Receipt of cash from the sale of capital stock.
- c. Payment of cash dividends to the company's stockholders.
- d. None of the above.

Step 1: Operating Activities

Depreciation Expense

Although depreciation expense reduces net income, it does not reduce cash. The company must add it back to net income.

Illustration 12-7

Cash flows from operating activities:

Net income	\$ 145,000
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation expense	<u>9,000</u>
Net cash provided by operating activities	<u>\$ 154,000</u>

Operating Activities

Loss on Sale of Equipment

Companies report as a source of cash in the investing activities section the actual amount of cash received from the sale.

- ◆ Any **loss** on sale is **added** to net income in the operating section.
- ◆ Any **gain** on sale is **deducted** from net income in the operating section.

Operating Activities

Loss on Sale of Equipment

Illustration 12-8

Cash flows from operating activities:

Net income	\$ 145,000
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Adjustments to reconcile net income to net cash
provided by operating activities:

Depreciation expense	9,000
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Loss on sale of equipment	3,000
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Net cash provided by operating activities	<u>\$ 157,000</u>
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Operating Activities

Changes to Noncash Current Asset Accounts

When the **Accounts Receivable** balance **decreases**, cash receipts are higher than revenue earned under the accrual basis.

Illustration 12-9

Accounts Receivable			
1/1/012	Balance	30,000	Receipts from customers 517,000
	Revenues	507,000	
12/31/12	Balance	20,000	

Company adds to net income the amount of the decrease in accounts receivable.

Operating Activities

Changes to Noncash Current Asset Accounts

Illustration 12-10

Cash flows from operating activities:

Net income	\$ 145,000
------------	------------

Adjustments to reconcile net income to net cash
provided by operating activities:

Depreciation expense	9,000
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Loss on sale of equipment	3,000
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Decrease in accounts receivable	10,000
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Net cash provided by operating activities	<u>\$ 167,000</u>
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Operating Activities

Changes to Noncash Current Asset Accounts

When the **Inventory** balance **increases**, the cost of merchandise purchased exceeds the cost of goods sold.

Inventory				
1/1/12	Balance	10,000	Cost of goods sold	150,000
	Purchases	155,000		
12/31/12	Balance	15,000		

Cost of goods sold does not reflect cash payments made for merchandise. The company deducts from net income this inventory increase.

Operating Activities

Changes to Noncash Current Asset Accounts

Illustration 12-10

Cash flows from operating activities:

Net income	\$ 145,000
------------	------------

Adjustments to reconcile net income to net cash
provided by operating activities:

Depreciation expense	9,000
----------------------	-------

Loss on sale of equipment	3,000
---------------------------	-------

Decrease in accounts receivable	10,000
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Increase in inventory	(5,000)
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Net cash provided by operating activities	<u>\$ 162,000</u>
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Operating Activities

Changes to Noncash Current Asset Accounts

When the **Prepaid Expense** balance **increases**, cash paid for expenses is higher than expenses reported on an accrual basis. The company **deducts the decrease** from net income to arrive at net cash provided by operating activities.

If **prepaid expenses decrease**, reported expenses are higher than the expenses paid.

Operating Activities

Changes to Noncash Current Asset Accounts

Illustration 12-10

Cash flows from operating activities:

Net income	\$ 145,000
------------	------------

Adjustments to reconcile net income to net cash
provided by operating activities:

Depreciation expense	9,000
----------------------	-------

Loss on sale of equipment	3,000
---------------------------	-------

Decrease in accounts receivable	10,000
---------------------------------	--------

Increase in inventory	(5,000)
-----------------------	---------

Increase in prepaid expenses	(4,000)
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Net cash provided by operating activities	<u>\$ 158,000</u>
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Operating Activities

Changes to Noncash Current Liability Accounts

When **Accounts Payable increases**, the company received more in goods than it actually paid for. The **increase is added** to net income to determine net cash provided by operating activities.

When **Income Tax Payable decreases**, the income tax expense reported on the income statement was less than the amount of taxes paid during the period. The **decrease is subtracted** from net income to determine net cash provided by operating activities.

Operating Activities

Changes to Noncash Current Liability Accounts

Cash flows from operating activities:

Net income

\$ 145,000

Illustration 12-11

Adjustments to reconcile net income to net cash
provided by operating activities:

Depreciation expense

9,000

Loss on sale of equipment

3,000

Decrease in accounts receivable

10,000

Increase in inventory

(5,000)

Increase in prepaid expenses

(4,000)

Increase in accounts payable

16,000

Decrease in income taxes payable

(2,000)

Net cash provided by operating activities

\$ 172,000

Operating Activities

Summary of Conversion to Net Cash Provided by Operating Activities—Indirect Method

Illustration 12-12

		<u>Adjustment Required to Convert Net Income to Net Cash Provided by Operating Activities</u>
Noncash charges	Depreciation expense	Add
	Patent amortization expense	Add
Gains and losses	Loss on sale of plant asset	Add
	Gain on sale of plant asset	Deduct
Changes in current assets and current liabilities	Increase in current asset account	Deduct
	Decrease in current asset account	Add
	Increase in current liability account	Add
	Decrease in current liability account	Deduct

ANATOMY OF A FRAUD

For more than a decade, the top executives at the Italian dairy products company **Parmalat** engaged in multiple frauds which overstated cash and other assets by more than \$1 billion while understating liabilities by between \$8 and \$12 billion. Much of the fraud involved creating fictitious sources and uses of cash. Some of these activities incorporated sophisticated financial transactions with subsidiaries created with the help of large international financial institutions. However, much of the fraud employed very basic, even sloppy, forgery of documents. For example, when outside auditors requested confirmation of bank accounts (such as a fake \$4.8 billion account in the Cayman Islands), documents were created on scanners, with signatures that were cut and pasted from other documents. These were then passed through a fax machine numerous times to make them look real (if difficult to read). Similarly, fictitious bills were created in order to divert funds to other businesses owned by the Tanzi family (who controlled Parmalat).

Total take: Billions of dollars

THE MISSING CONTROL

Independent internal verification. Internal auditors at the company should have independently verified bank accounts and major transfers of cash to outside companies that were controlled by the Tanzi family.

Step 2: Investing and Financing Activities

Company purchased **land** of \$110,000 by issuing **long-term bonds**. This is a significant noncash investing and financing activity that merits disclosure in a separate schedule.

Land			
1/1/12	Balance	20,000	
	Issued bonds	110,000	
12/31/12	Balance	130,000	

Bonds Payable			
	1/1/12	Balance	20,000
		For land	110,000
	12/31/12	Balance	130,000

Investing and Financing Activities

Partial statement

Net cash provided by operating activities	<u>172,000</u>
Cash flows from investing activities:	
Purchase of building	(120,000)
Purchase of equipment	(25,000)
Sale of equipment	<u>4,000</u>
Net cash used by investing activities	<u>(141,000)</u>
Cash flows from financing activities:	
Issuance of common stock	20,000
Payment of cash dividends	<u>(29,000)</u>
Net cash used by financing activities	<u>(9,000)</u>
Net increase in cash	22,000
Cash at beginning of period	<u>33,000</u>
Cash at end of period	<u><u>\$ 55,000</u></u>
 Disclosure: Issuance of bonds to purchase land	 <u><u>\$ 110,000</u></u>

Investing and Financing Activities

From the additional information, the company acquired an **office building** for \$120,000 cash. This is a cash outflow reported in the investing section.

Building			
1/1/12	Balance	40,000	
	Office building	120,000	
12/31/12	Balance	160,000	

Investing and Financing Activities

Illustration 12-14

Partial statement

Net cash provided by operating activities	<u>172,000</u>
Cash flows from investing activities:	
Purchase of building	(120,000)
Purchase of equipment	(25,000)
Sale of equipment	<u>4,000</u>
Net cash used by investing activities	<u>(141,000)</u>
Cash flows from financing activities:	
Issuance of common stock	20,000
Payment of cash dividends	<u>(29,000)</u>
Net cash used by financing activities	<u>(9,000)</u>
Net increase in cash	22,000
Cash at beginning of period	<u>33,000</u>
Cash at end of period	<u><u>\$ 55,000</u></u>
 Disclosure: Issuance of bonds to purchase land	 <u><u>\$ 110,000</u></u>

Investing and Financing Activities

The additional information explains that the equipment increase resulted from two transactions: (1) a purchase of equipment of \$25,000, and (2) the sale for \$4,000 of equipment costing \$8,000.

Equipment				
1/1/12	Balance	10,000	Equipment sold	8,000
	Purchase	25,000		
12/31/12	Balance	27,000		

Journal Entry	Cash	4,000	
	Accumulated depreciation	1,000	
	Loss on sale of equipment	3,000	
	Equipment		8,000

Statement of Cash Flows

Illustration 12-14

Indirect Method

Cash flows from operating activities:	
Net income	\$ 145,000
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation expense	9,000
Loss on sale of equipment	3,000
Decrease in accounts receivable	10,000
Increase in inventory	(5,000)
Increase in prepaid expenses	(4,000)
Increase in accounts payable	16,000
Decrease in income taxes payable	(2,000)
Net cash provided by operating activities	<u>172,000</u>
Cash flows from investing activities:	
Purchase of building	(120,000)
Purchase of equipment	(25,000)
Sale of equipment	4,000
Net cash used by investing activities	<u>(141,000)</u>
Cash flows from financing activities:	
Issuance of common stock	20,000
Payment of cash dividends	(29,000)
Net cash used by financing activities	<u>(9,000)</u>
Net increase in cash	22,000
Cash at beginning of period	33,000
Cash at end of period	<u><u>\$ 55,000</u></u>

Investing and Financing Activities

The increase in common stock resulted from the issuance of new shares.

Common Stock			
1/1/12	Balance	50,000	
	Shares sold	20,000	
12/31/12	Balance	70,000	

Investing and Financing Activities

Partial statement

Illustration 12-14

Net cash provided by operating activities	<u>172,000</u>
Cash flows from investing activities:	
Purchase of building	(120,000)
Purchase of equipment	(25,000)
Sale of equipment	<u>4,000</u>
Net cash used by investing activities	<u>(141,000)</u>
Cash flows from financing activities:	
Issuance of common stock	20,000
Payment of cash dividends	<u>(29,000)</u>
Net cash used by financing activities	<u>(9,000)</u>
Net increase in cash	22,000
Cash at beginning of period	<u>33,000</u>
Cash at end of period	<u><u>\$ 55,000</u></u>
 Disclosure: Issuance of bonds to purchase land	 <u><u>\$ 110,000</u></u>

Investing and Financing Activities

Retained earnings increased \$116,000 during the year. This increase can be explained by two factors: (1) Net income of \$145,000 increased retained earnings, and (2) Dividends of \$29,000 decreased retained earnings.

Retained Earnings					
Dividends		29,000	1/1/12	Balance	48,000
				Net income	145,000
			12/31/12	Balance	164,000

Statement of Cash Flows

Indirect Method

Cash flows from operating activities:

Net income \$ 145,000

Adjustments to reconcile net income to net cash provided by operating activities:

Depreciation expense	9,000
Loss on sale of equipment	3,000
Decrease in accounts receivable	10,000
Increase in inventory	(5,000)
Increase in prepaid expenses	(4,000)
Increase in accounts payable	16,000
Decrease in income taxes payable	(2,000)
Net cash provided by operating activities	<u>172,000</u>

Cash flows from investing activities:

Purchase of building	(120,000)
Purchase of equipment	(25,000)
Sale of equipment	4,000
Net cash used by investing activities	<u>(141,000)</u>

Cash flows from financing activities:

Issuance of common stock	20,000
Payment of cash dividends	<u>(29,000)</u>
Net cash used by financing activities	<u>(9,000)</u>

Net increase in cash	22,000
Cash at beginning of period	33,000
Cash at end of period	<u>\$ 55,000</u>

Step 3: Net Change in Cash

Compare the net change in cash on the Statement of Cash Flows with the change in the cash account reported on the Balance Sheet to make sure the amounts agree.

Investing and Financing Activities

Review Question

Which is an example of a cash flow from an investing activity?

- a. Receipt of cash from the issuance of bonds payable.
- b. Payment of cash to repurchase outstanding capital stock.
- ☒ c. Receipt of cash from the sale of equipment.
- d. Payment of cash to suppliers for inventory.

Using Cash Flows to Evaluate a Company

Free Cash Flow

Illustration 12-15

$$= \begin{array}{c} \text{Cash Provided by} \\ \text{Operating Activities} \end{array} - \begin{array}{c} \text{Capital} \\ \text{Expenditures} \end{array} - \begin{array}{c} \text{Cash} \\ \text{Dividends} \end{array}$$

Free cash flow describes the cash remaining from operations after adjustment for capital expenditures and dividends.

Chapter

8

Using Cash Flows to Evaluate a Company



MICROSOFT CORPORATION

Statement of Cash Flows Information (partial)

2009

Required:
Calculate
Microsoft's free
cash flow.

Cash provided by operations		\$19,037
Cash flows from investing activities		
Additions to property and equipment	\$ (3,119)	
Purchases of investments	(36,850)	
Sales of investments	19,806	
Acquisitions of companies	(868)	
Maturities of investments	6,191	
Securities lending payable	<u>(930)</u>	
Cash used by investing activities		(15,770)
Cash paid for dividends		(4,468)

Cash provided by operating activities	\$19,037
Less: Expenditures on property, plant, and equipment	3,119
Dividends paid	<u>4,468</u>
Free cash flow	<u><u>\$11,450</u></u>

Using Cash Flows to Evaluate a Company

Assessing Liquidity and Solvency

Liquidity is the ability to pay obligations expected to become due within the next year.

Illustration 12-18

Current Cash Debt Coverage Ratio = $\frac{\text{Cash Provided by Operations}}{\text{Average Current Liabilities}}$		
	Current cash debt coverage ratio	Current ratio
Microsoft (\$ in millions)	$\frac{\$19,037}{(\$27,034 + \$29,886)/2} = .67 \text{ times}$	1.82:1
Oracle	.86 times	2.03:1

A value below .40 times is cause for additional investigation.

Using Cash Flows to Evaluate a Company

Assessing Liquidity and Solvency

Solvency is the ability of a company to survive over the long term.

Illustration 12-19

Cash Debt Coverage Ratio = $\frac{\text{Cash Provided by Operations}}{\text{Average Total Liabilities}}$		
	Cash debt coverage ratio	Debt to total assets ratio
Microsoft (\$ in millions)	$\frac{\$19,037}{(\$38,330 + \$36,507)/2} = .51 \text{ times}$	50%
Oracle	.30 times	47%

A ratio below .20 times is cause for additional investigation.