

Chapter 9

Reporting and Interpreting Liabilities 负债的报告和解释

Learning Objectives

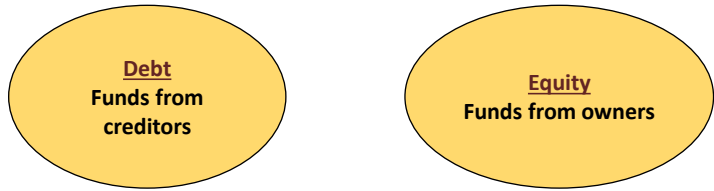
After studying this chapter, you should be able to:

- 9-1 Define, measure, and report current liabilities.
- 9-2 Compute and interpret the accounts payable turnover ratio.
- 9-3 Report notes payable and explain the time value of money.
- 9-4 Report contingent liabilities.
- 9-5 Explain the importance of working capital and its impact on cash flows.
- 9-6 Report long-term liabilities.
- 9-7 Compute and explain present values.
- 9-8 Apply the present value concept to the reporting of long-term liabilities.

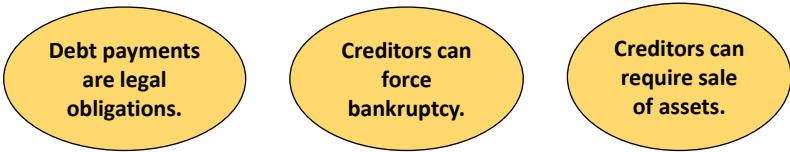
Understanding the Business

The acquisition of assets is financed from two sources:取得资产资金的来源

CAPITAL STRUCTURE资本结构

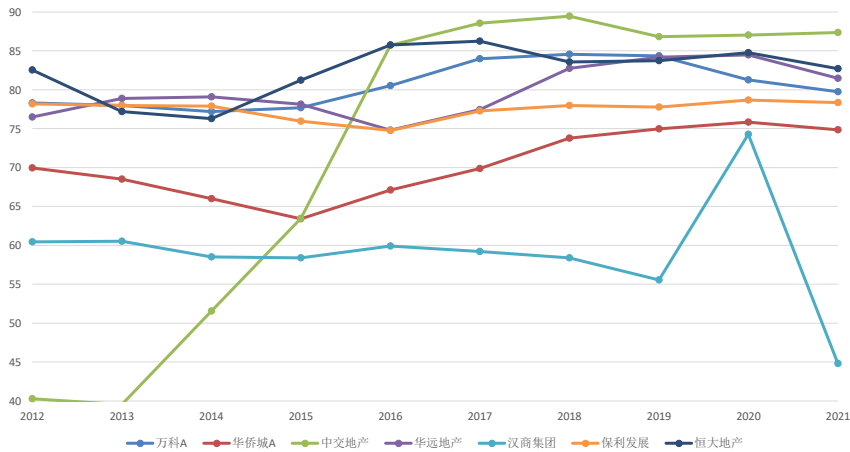


From the firm's perspective, debt is considered riskier than equity.



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地产企业资产负债率



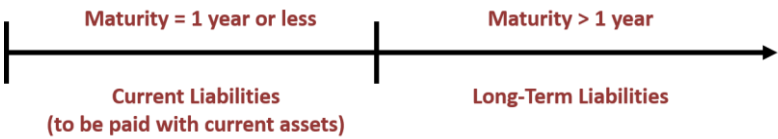
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恒大资本结构变化



Liabilities Defined and Classified

Defined as the probable future sacrifice of economic benefits that arise from past transactions. 由过去的交易事项产生，将以资产或服务的方式偿还的债务或义务

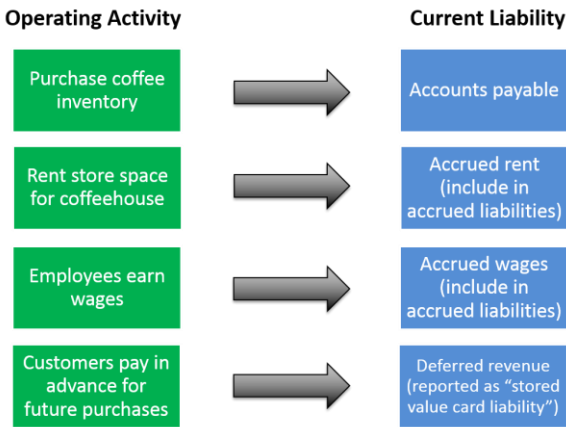


Liabilities are recorded at their current cash equivalent, which is the cash amount a creditor would accept to settle the liability immediately.

负债是以当前现金等价物的金额计量的（债权人愿意接受的立即取消这笔债务的现金的数额）。

Current Liabilities (1 of 3)

Many current liabilities have a direct relationship to the operating activities of a business. Below are some examples from Starbucks's balance sheet:



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Current Liabilities (2 of 3)

Account Name	Also Called	Definition
Accounts Payable	Trade Accounts Payable	Obligations to pay for goods and services used in the basic operating activities of the business.
Accrued Liabilities	Accrued Expenses	Obligations related to expenses that have been incurred but have not been paid at the end of the accounting period.
Deferred Revenues	Unearned Revenues	Obligations arising when cash is received prior to the related revenue being earned.
Notes Payable	N/A	Obligations supported by a formal written contract.

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Current Liabilities (3 of 3)

The whole picture.....

- Accounts Payable
- Accrued Liabilities
- Deferred Revenues
- Notes Payable
- Current Portion of Long-Term Debt
- Contingent Liabilities Reported on the Balance Sheet
- Contingent Liabilities Reported in the Footnotes

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Payroll Taxes 薪资税/个人所得税

Gross payroll

Less:

Employee portion of FICA tax (Social Security & Medicare) 社保医保

Federal income tax withheld 代扣代缴联邦所得税

State and local income taxes withheld 代扣代缴州地方所得税

= Net Payroll paid to employees

Employers also pay FICA taxes and are charged unemployment taxes through the Federal Unemployment Tax Act (FUTA) and State Unemployment Tax Acts (SUTA). 公司仍需缴纳社保医保

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Exercise 9-1

Alex Company completed the salary and wage payroll for February. The payroll provided the following details:

Salaries and wages earned by employees	\$159,000
Employee income taxes withheld	31,800
Employee government insurance premiums withheld	795
FICA payroll taxes*	11,925

* \$11,925 each for employer and employees.

Required:

- 1. Provide the journal entry to record the payroll for February, including employee deductions. Assume employees have been paid, but that Alex has yet to transfer any withholdings to the government.
- 2. Provide the journal entry to record the employer’s payroll taxes, which have not yet been paid to the government.
- 3. Provide a combined journal entry to show the payment of all amounts owed to governmental agencies.

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Requirement 1

	<u>Debit</u>	<u>Credit</u>
February 28		
Compensation Expense (+E, –SE)	159,000	
Liability for Income Taxes Withheld (employees) (+L)		31,800
Liability for Insurance Premiums Withheld (employees) (+L)		795
FICA Taxes Payable (employees) (+L)		11,925
Cash (–A)		114,480
Payroll for February including employee deductions.		

Requirement 2

February 28		
Compensation Expense (+E, –SE)	11,925	
FICA Taxes Payable (employer) (+L)		11,925
Employer payroll taxes on February payroll.		

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Requirement 3

	<u>Debit</u>	<u>Credit</u>
Liability for Income Taxes Withheld (employees) (– L)	31,800	
Liability for Insurance Premiums Withheld (employees) (– L)	795	
FICA Taxes Payable (employees) (– L)	11,925	
FICA Taxes Payable (employer) (– L)	11,925	
Cash (–A)		56,445
Remittance of payroll taxes and deductions for February payroll.		

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Deferred Revenues

Deferred revenues are reported as a liability because cash has been collected but the related revenue has not been earned by the end of the accounting period.

Starbucks, Inc., financial statement note:

“When an amount is loaded onto a stored value card . . . we recognize a corresponding liability for the full amount loaded onto the card, which is recorded within stored value card liability on our consolidated balance sheet.”

“When a stored value card is redeemed at a company-operated store or online, we recognize revenue by reducing the stored value card liability.”

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Big Data and Data Analytics

DATA ANALYTICS

Starbucks collects and analyzes data from 17 million customers using their **mobile app**.

Starbucks uses artificial intelligence software to analyze how a customer’s purchase history is associated with things like geographic location, weather, day of the week, and time of the day.

Starbucks uses information from the app and similar software to decide:

- what products to emphasize in a given geographic location
- when to push information about these products to customers
- where to locate new stores



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Accounts Payable Turnover 应付账款周转率

KEY RATIO ANALYSIS

Accounts Payable Turnover	=	Cost of Goods Sold	÷	Average Accounts Payable
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Measures how quickly management is paying its suppliers.

A high accounts payable ratio normally suggests that a company is paying its suppliers in a timely manner.

较高的比率一般表示公司能够及时地向供货商付款。

The ratio is more intuitive by dividing it into the number of days in a year:

Average Days to pay payables = 365 Days ÷ Accounts Payable Turnover Ratio



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应付账款周转率

2019年，General Mills公司销售成本2697美元。
年末的应付账款为647.4美元，
年初的应付账款为641.5美元。

应付账款
周转率

=

\$2,697

(\$641.5 + \$647.4) ÷ 2

= 4.19

2017 年度应付账款周转率比较		
General Mills	Kellogg	Quaker Oats
4.19	9.59	11.19

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Notes Payable 应付票据 (1 of 2)

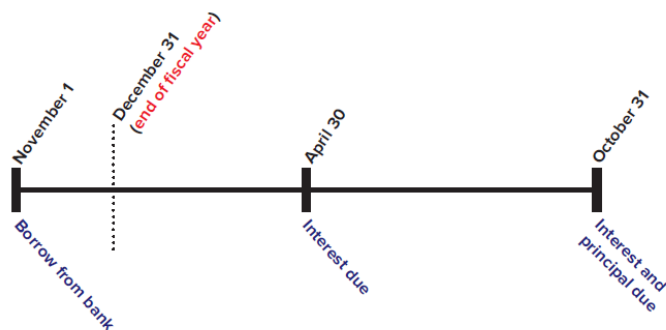
A note payable is a formal written contract that specifies:

- The amount borrowed
- The repayment date
- The annual interest rate associated with the borrowing
- To the lender, interest is a revenue.
- To the borrower, interest is an expense.

$$\text{Interest} = \text{Principal} \times \text{Annual Interest Rate} \times \text{Number of Months} / 12 \text{ Months}$$

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Notes Payable (2 of 2)



Interest is an expense incurred when companies borrow money.

Companies record interest expense for a given accounting period, regardless of when they actually pay the bank cash for interest.

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Notes Payable, illustration (1 of 2)

Assume that on November 1, a company with a December 31 fiscal year-end borrows \$100,000 cash for one year.

- The annual interest rate is 12%.
- The interest is payable on April 30 and October 31 of the following year.
- The principal (\$100,000) is payable at the maturity date, October 31 of next year.

On November 1, the note is recorded in the accounts as follows:

	Debit	Credit
Cash (+A)	100,000	
Notes payable (+L)		100,000

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Notes Payable, illustration (2 of 2)

By the end of the fiscal year, December 31, the company incurred two months of interest, \$2,000 ($\$100,000 \times 0.12 \times 2/12 \text{ months} = \$2,000$). The entry to record interest expense and interest payable for the two months is:

	Debit	Credit
Interest expense (+E, -SE)	2,000	
Interest payable (+ L)		2,000

On April 30, the company has incurred an additional four months of interest expense for the period January–April. The entry to record the interest is:

	Debit	Credit
Interest expense (+E, -SE)	4,000	
Interest payable (+L)		4,000

Also on April 30, the company pays the bank \$6,000 cash for six months of interest:

	Debit	Credit
Interest payable (-L)	6,000	
Cash (-A)		6,000

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Exercise 9-2

Many businesses borrow money during periods of increased business activity to finance inventory and accounts receivable. Southport Boutiques is a nationwide retailer. Each Christmas season, Southport Boutiques builds up its inventory to meet the needs of Christmas shoppers. A large portion of these Christmas sales are on credit. As a result, Southport often collects cash from the sales several months after Christmas.

Assume that on November 1 of this year, Southport borrowed \$5.4 million cash from Wells Fargo Bank to meet short-term obligations. Southport signed an interest-bearing note and promised to repay the \$5.4 million in six months. The annual interest rate was 8%. All interest will accrue and be paid when the note is due in six months. Southport's accounting period ends December 31.

Required:

- 1. Provide the journal entry to record the note on November 1, Year 1.
- 2. Provide any adjusting entry required at the end of the accounting period on December 31, Year 1.
- 3. Provide the journal entry to record payment of the note and interest on the maturity date, April 30, Year 2.

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Requirement 1

	<u>Debit</u>	<u>Credit</u>
November 1, Year 1		
Cash (+A)	5,400,000	
Notes Payable (+L)		5,400,000
Borrowed on 6-month, 8%, notes payable.		

Requirement 2

December 31, Year 1 (end of the accounting period):		
Interest Expense (+E, -SE) $(\$5,400,000 \times 0.08 \times 2/12 = \$72,000)$	72,000	
Interest Payable (+L)		72,000
Adjusting entry for 2 months' accrued interest.		

Requirement 3

April 30, Year 2 (maturity date):		
Notes Payable (-L)	5,400,000	
Interest Payable (-L)	72,000	
Interest Expense (+E, -SE) $(\$5,400,000 \times 0.08 \times 4/12)$	144,000	
Cash (-A)		5,616,000
Paid note plus interest at maturity.		

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Current Portion of Long-Term Debt 一年内到期的长期负债

To provide accurate information on how much of its long-term debt is due in the current year, a company must reclassify its long-term debt as a current liability within a year of its maturity date.

Assume that a company signed a note to borrow \$5 million at the end of December 2018. Half of the loan must be repaid in January 2020 and the other half is due in January 2021. The **2019** Balance Sheet would report the following:

December 31, 2019	
Current liabilities:	
Current portion of long-term note	\$2,500,000
Long-term liabilities:	
Note payable	\$2,500,000

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Refinancing Debt: Current or Long-Term Liability?

FINANCIAL ANALYSIS



Instead of paying off a loan, a company may choose to refinance by renegotiating the loan or by taking out a new loan and using the proceeds to pay off the old loan. 借新还旧

If a company intends to refinance a current maturing loan with a new long-term loan and has the ability to do so, the current loan should be classified as a long-term liability. 短债长还，需要记入长期负债

U.S. GAAP and IFRS require that refinancing of debt must take place by the balance sheet date to affect the classification as current or long term.



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Contingent Liabilities或有负债

A **contingent liability** is a potential liability that has arisen as the result of a past event; it is not a definitive liability until some future event occurs.

PROBABILITY OF OCCURRENCE			
	Probable	Reasonably Possible	Remote
Amount can be reasonably estimated	Record as liability	Disclose in footnotes	Disclosure not required
Amount cannot be reasonably estimated	Disclose in footnote	Disclose in footnotes	Disclosure not required

The probabilities of occurrence are defined in the following manner:

- Probable—The future event or events are likely to occur.
- Reasonably possible—The chance of the future event or events occurring is more than remote but less than likely.
- Remote—The chance of the future event or events occurring is slight.

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或有负债

由已经发生的事项或交易而造成的可能的负债。

未来产生亏损的可能性

	很可能	有一定可能	极小能性
可以估计金额	记为或有负债	在附注中披露	不要求披露
不能估计金额	在附注中披露	在附注中披露	不要求披露

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International Perspective: It's a Matter of Degree

The assessment of future probabilities is inherently subjective, but both U.S. GAAP and IFRS provide some guidance.

Under GAAP, "probable" has been defined as *likely to occur*, which is interpreted as having a greater than 70 percent chance of occurring.

In the case of IFRS, "probable" is defined as *more likely than not to occur*, which implies more than a 50 percent chance of occurring.

This difference means that for some contingent liabilities, IFRS would require the reporting of a liability on the balance sheet, whereas GAAP would simply require footnote disclosure.

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Exercise 9-3

Marvel Soda is a regional soda manufacturer. Marvel is currently facing three lawsuits, summarized below:

- A customer is suing Marvel for \$1 million because he claims to have found a piece of glass in his soda. Management deems the probability that Marvel will lose the lawsuit and have to pay \$1 million as reasonably possible.
- An employee is suing Marvel for \$500,000 for an injury she incurred in the parking lot while walking to work. Management deems the probability that Marvel will lose the lawsuit as probable but estimates that a reasonable payout will be \$100,000, not \$500,000.
- A customer is suing Marvel for \$300,000 because her last name is Marvel and she claims Marvel stole her name. Management deems the probability that Marvel will lose the lawsuit and have to pay \$300,000 as remote.

Required:

How should Marvel report each of the lawsuits in its financial statements and footnotes?

9-30

Whether a contingent liability is to be reported on the balance sheet, in the footnotes, or not at all depends on two factors: (1) the probability of a future economic sacrifice and (2) the ability of management to estimate the amount of the liability.

- A liability that is both probable and the amount can be reasonably estimated must be recorded and reported on the balance sheet.
- A liability that is 1) probable but the amount cannot be reasonably estimated, or 2) reasonably possible regardless of whether the amount can be estimated, must be disclosed in a footnote.
- Remote contingencies do not require any type of disclosure.

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- a. A customer is suing Marvel for \$1 million because he claims to have found a piece of glass in his soda. Management deems the probability that Marvel will lose the lawsuit and have to pay \$1 million as reasonably possible.

The probability of a contingent liability is reasonably possible. Therefore, Marvel Soda must disclose the liability as a footnote. Recognizing a liability in the balance sheet is not required.

- b. An employee is suing Marvel for \$500,000 for an injury she incurred in the parking lot while walking to work. Management deems the probability that Marvel will lose the lawsuit as probable but estimates that a reasonable payout will be \$100,000, not \$500,000.

The probability of a contingent liability is probable, the future event or events are likely to occur, and a reasonable payout is estimated. In this case Marvel Soda is required to record a liability on the balance sheet.

9-32

- c. A customer is suing Marvel for \$300,000 because her last name is Marvel and she claims Marvel stole her name. Management deems the probability that Marvel will lose the lawsuit and have to pay \$300,000 as remote.

As the probability of contingent liability is remote. Therefore, this lawsuit does not require any type of disclosure.

9-33

Working Capital Management 营运资本管理

A company has **liquidity** if it has the ability to pay current obligations. *Liquidity is measured using the current ratio and the dollar amount of working capital.*

Working Capital = Current Assets – Current Liabilities

Working capital has a significant impact on the health and profitability of the company.

Changes in working capital accounts are important to managers and analysts because they have a direct impact on the cash flows from operating activities reported on the statement of cash flows.

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Working Capital and Cash Flows

DATA ANALYTICS

Many working capital accounts have a direct relationship to income-producing activities.

For example:

- Accounts receivable increase when sales are made on credit.
- Accounts payable increase when inventory is purchased on credit.



Changes in working capital accounts that are related to income-producing activities must be considered when computing cash flows from operating activities using the indirect method.

9-35

Exercise 9-4

Dudley Corporation is preparing its year-end balance sheet. The company records show the following selected amounts at the end of the year:

Total assets	\$344,500
Total noncurrent assets	235,300
Liabilities:	
Notes payable (8%, due in 5 years)	9,750
Accounts payable	36,400
Income taxes payable	9,100
Liability for withholding taxes	1,950
Rent revenue collected in advance	4,550
Bonds payable (due in 15 years)	58,500
Wages payable	4,550
Property taxes payable	1,950
Note payable (10%, due in 6 months)	7,800
Interest payable	260
Common Stock	65,000

Required:

1. Identify current liabilities and compute working capital. Why is working capital important to management?
2. Would your computation be different if the company reported \$200,000 worth of contingent liabilities in the notes to its financial statements? Explain.

9-36

1. Identify current liabilities and compute working capital. Why is working capital important to management?

Current assets: (\$344,500 – \$235,300)		\$109,200
Current liabilities:		
Accounts payable	\$36,400	
Income taxes payable	9,100	
Liability for withholding taxes	1,950	
Rent revenue collected in advance	4,550	
Wages payable	4,550	
Property taxes payable	1,950	
Note payable (10%, due in 6 months)	7,800	
Interest payable	260	(66,560)
Working capital		<u>\$ 42,640</u>

Working capital is important to both managers and financial analysts because it has a significant impact on the health and profitability of a company. Working capital reflects the amount a company would have left over if it used all of its current assets to pay off all of its current liabilities. Changes in working capital accounts have a direct impact on the cash flows from operating activities reported in the statement of cash flows.

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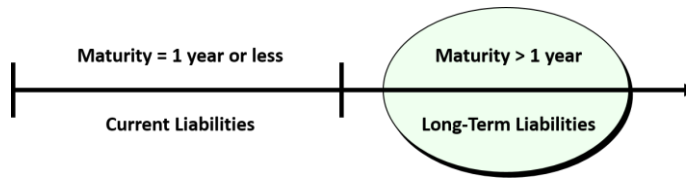
2. Would your computation be different if the company reported \$200,000 worth of contingent liabilities in the notes to its financial statements? Explain.

It will not affect the working capital computation. Some transactions or events create only a reasonably possible (but not probable) future sacrifice of economic benefits. These situations create contingent liabilities that are reported in the footnotes, but not on a company’s balance sheet.

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Long-Term Liabilities 长期负债

Long-term liabilities include all obligations not classified as current liabilities, such as long-term notes payable and bonds payable.



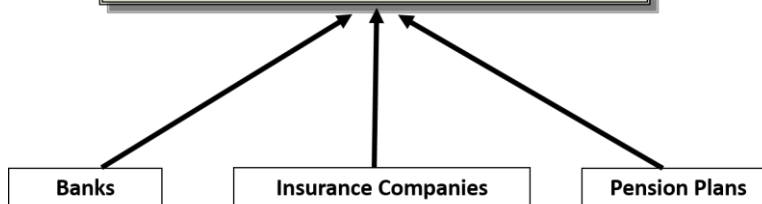
Secured debt 有抵押负债: when creditors require the borrower to pledge specific assets as security for long-term liabilities.

Unsecured debt 无抵押负债: when the lender relies on the borrower's integrity and general earning power to repay the loan.

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Long-Term Notes Payable 长期应付票据 and Bonds 债券

Companies can raise capital from a number of financial service organizations in a **private placement** (notes payable).



If a company needs more capital than any single creditor can provide, the company may issue **publicly traded** bonds to the public (bonds payable).

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International Perspective: Borrowing in Foreign Currencies 外币借款

Corporations with foreign operations may elect to finance those operations with foreign debt to lessen exchange rate risk. 境外分公司选择外币借款，降低汇率风险

- Exchange rate risk exists because the relative value of each nation's currency varies on a daily basis.

In attempting to mitigate exchange rate risk, **Amazon.com** states the following in the footnotes to its 2017 Annual Report:

"We have internationally-focused websites for Australia, Brazil, Canada, China, France, Germany, India, Italy, Japan, Mexico, the Netherlands, Spain, and the United Kingdom. Net sales generated from these websites, as well as most of the related expenses directly incurred from those operations, are denominated in local functional currencies."

For reporting purposes, accountants must convert, or translate, foreign debt into U.S. dollars at the end of the accounting period in order to report the debt on a U.S. company's balance sheet. 外币负债按照会计期末日的汇率折算成美元

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Lease Liabilities 租赁负债 (1 of 3)

Companies often lease assets rather than purchase them.

When a company leases an asset, it enters into a contractual agreement with the owner of the asset.

For accounting purposes, a lessee can lease an asset by signing either a short-term lease (12 months or less) or a longer-term lease.

- Longer-term leases are more common and are classified as either **finance leases** 融资租赁 or **operating leases** 经营租赁 depending on whether effective control of the leased asset remains with the lessor or is transferred to the lessee.

Lessor 出租人: Party that owns the asset

Lessee 承租人: Party that pays for the right to use the asset

We focus on accounting for leases from the lessee's perspective.

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Lease Liabilities (2 of 3)

Classifying longer-term lease as finance lease or an operating lease:

Classify as **Finance Lease** if lease meets **any** of the finance lease criteria. *Effective control has been transferred to the lessee.*

Classify as **Operating Lease** if **none** of the Finance Lease Criteria are met. *Lessor maintains effective control of the asset.*

Finance Lease Criteria

- a. The lease transfers ownership of the underlying asset to the lessee by the end of the lease term.
- b. The lease grants the lessee an option to purchase the underlying asset that the lessee is reasonably certain to exercise.
- c. The lease term is for the major part of the remaining economic life of the underlying asset. . . .
- d. The present value of the sum of the lease payments and any residual value guaranteed by the lessee . . . equals or exceeds substantially all of the fair value of the underlying asset.
- e. The underlying asset is of such a specialized nature that it is expected to have no alternative use to the lessor at the end of the lease term.

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租赁负债 (2 of 3)

长期租赁可划分为融资租赁和经营租赁

满足下列条件之一的租赁是融资租赁. *承租人拥有对租入资产的实际控制权.*

如果不满足如下任何一条, 属于经营租赁. *出租人拥有对租入资产的实际控制权.*

融资租赁标准

- a. 所有权。租赁到期后, 承租人拥有租赁资产的所有权.
- b. 购买权。承租人有购买该租赁资产的选择权, 而且很可能会实施该选择权.
- c. 租期长。租期涵盖了租赁资产的主要寿命期. . . .
- d. 租金高。租金的折现值等于甚至超过租赁资产的公允价值.
- e. 专有性。租赁到期后, 出租人无法继续使用该租期资产.

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Lease Liabilities (3 of 3)

Accounting for leases differs depending on whether the lease is a short term or long term lease. 租赁资产的核算取决于长期租赁还是短期租赁

Long term leases (both Finance and Operating):

- Require recognition of a lease asset and lease liability.
- Amount recognized is the current cash equivalent of the required future lease payments.
- More details discussed in advanced accounting courses

Entry to record initial long term lease	Debit	Credit
Lease asset (+A)	250,000	
Lease liability (+L)		250,000

Short term leases:

- No lease asset or liability is recorded.
- Lessee records lease expense over the life of the lease.

Entry to record lease expense	Debit	Credit
Lease expense (+E, -SE)	10,000	
Cash (-A)		10,000

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Lease Liabilities租赁负债 (3 of 3)

租赁资产的核算取决于长期租赁还是短期租赁

长期租赁(融资租赁和经营租赁):

- 确认租赁资产和租赁负债.
- 未来租赁付款的现金等价额.
- 高级财务会计课程中会详细讨论

长期租赁的初始记录	Debit	Credit
租赁资产(+A)	250,000	
租赁负债(+L)		250,000

短期租赁:

- 不用确认租赁资产或者租赁负债.
- 在租赁期内, 承租人确认租赁费用.

租赁费用的确认	Debit	Credit
租赁费用(+E, -SE)	10,000	
现金(-A)		10,000

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2021年实施新租赁准则

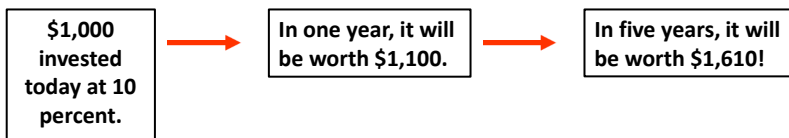
对于经营性租赁，若租期不确定，相当于短期租赁，与课本记录短租的方式相同

若租期确定，需要估计租赁负债，同时确认使用权资产

• \$\$\$

9-47

Present Value现值 Concepts



The value of money can grow over time because money can earn interest.

由于可以赚取利息，资金是有时间价值的。

9-48

Future Value 终值 of a Single Amount

If you deposited \$100 today in a savings account that earns 10% interest, how much would you have after one year?



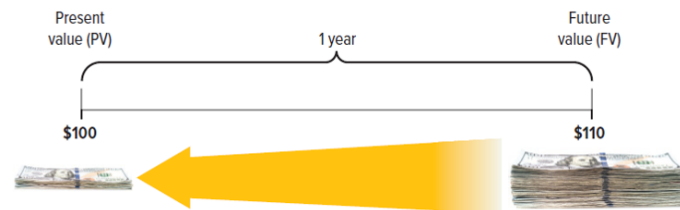
All images: ©Teerawut Masawat/123RF

Answer: \$110

9-49

Present Value 现值 of a Single Amount (1 of 2)

If you needed \$110 in one year, how much would you need to deposit in a savings account today if the savings account earns 10% interest?



All images: ©Teerawut Masawat/123RF

Answer: \$100

9-50

Present Value of a Single Amount (2 of 2)

Assume that you need to make a \$1,000 cash payment in three years.

At an interest rate of 10% per year, how much would you need to deposit today to have exactly \$1,000 at the end of three years?

- a. \$1,000.00
- b. \$ 990.00
- c. \$ 751.31
- d. \$ 970.00

The future amount is \$1,000.

$i = 10\%$ & $n = 3$ years

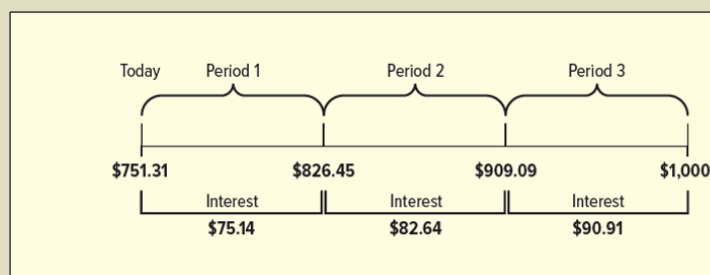
Using the Present Value of \$1 table, the factor is 0.75131.

$\$1,000 \times 0.75131 = \751.31

9-51

Exhibit 9.2

How a Deposit Grows to \$1,000

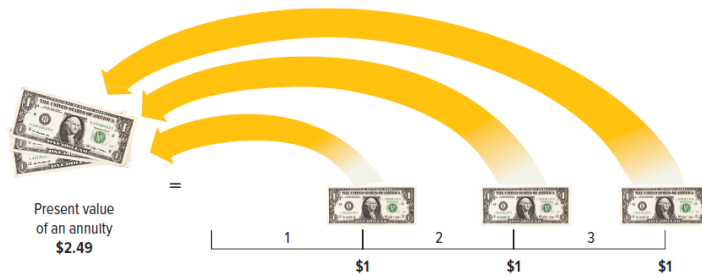


9-52

Present Value of an Annuity 年金现值 (1 of 2)

An annuity is a series of consecutive payments 年金是一系列等额支付:

1. An equal dollar amount each period
2. Interest periods of equal length (e.g., a year, half a year, quarterly, or monthly)



All images: ©nimon/Shutterstock

9-53

Present Value of an Annuity (2 of 2)

Assume you purchase a piece of equipment and agree to pay \$1,000 cash each December 31 for three years.

How much would you need to deposit today at an annual interest rate of 10% to make each \$1,000 payment?

- \$3,000.00
- \$2,910.00
- \$2,700.00
- \$2,486.85**

The consecutive equal payment amount is \$1,000.

$i = 10\%$ & $n = 3$ years

Using the Present Value of an Annuity table, the factor is 2.48685.

$$\$1,000 \times 2.48685 = \$2,486.85$$

9-54

Illustration of an Annuity over Time

Assume you purchase a piece of equipment and agree to pay \$1,000 cash each December 31 for three years. How much would you need to deposit today at an annual interest rate of 10% to make each \$1,000 payment?

The amount of the deposit, which is the present value of the annuity, is \$2,486.85.

The following chart shows the balance in the account as the \$1,000 payment is made each year:

Beginning of Year	+	Interest Earned During Year	=	End of Year	-	Payment	=	Remaining Balance
\$2,486.85		\$248.69		\$2,735.54	-	\$1,000.00		\$1,735.54
1,735.54		173.55		1,909.09	-	1,000.00		909.09
909.09		90.91		1,000.00	-	1,000.00		0

9-55

Truth in Advertising广告真相

QUESTION OF ETHICS

Online and television advertisements are easy to misinterpret if the consumer does not understand the time value of money. 资金的时间价值



Advertisements often promise “No payments for one year!” But “no payments” does not mean “no interest.” In almost all cases, during the “no payments” year, interest is accruing (being added to the amount owed). 零首付并不意味着没有利息哦

Another misleading advertisement relates to lotteries, which often promise to make winners instant millionaires. If the winner is paid \$1,000,000 over 40 years (\$25,000 per year) the present value of this annuity at 8% is only \$298,000. 分期收到的奖金，现值缩水啦

9-56

Accounting Applications of Present Values (1 of 3)

On January 1, 2019, **Starbucks** bought new delivery trucks by signing a note and agreeing to pay \$200,000 on December 31, 2020.

This note is a “non-interest-bearing-note 无息票据” because no interest payments are required over the life of the note. The interest is built into the final payment.

Assume that the market interest rate applicable to the note is 12%.

Compute the present value of the single amount to be paid in the future:

Future value PV of \$1	\$ 200,000
($i=12\%$, $n=2$)	\times 0.79719
Present value	\$ 159,438

9-57

Accounting Applications of Present Values (2 of 3)

Record the purchase of the delivery trucks:	Debit	Credit
Delivery trucks (+A)	159,438	
Note payable (+L)		159,438

At the end of each year, record the implied interest expense.

December 31, 2019 \$159,438 * 12% = \$19,133	Debit	Credit
Interest expense (+E, -SE)	19,133	
Note payable (+L)		19,133

December 31, 2020 \$159,438 + \$19,133 = \$178,571 * 12% = \$21,429	Debit	Credit
Interest expense (+E, -SE)	21,429	
Note payable (+L)		21,429

9-58

Accounting Applications of Present Values (3 of 3)

Initial loan balance	\$ 159,438
Interest added 12/31/2019	19,133
Interest added 12/31/2020	21,429
Loan balance at end of loan	\$ 200,000

At the end of two years, repay the loan amount.

	Debit	Credit
Note payable (-L)	200,000	
Cash (-A)		200,000

9-59

Computing the Amount of a Liability with an Annuity (1 of 3)

Starbucks purchased equipment with a note payable to be paid off in three end-of-year payments of \$163,685. Each payment includes principal plus interest on any unpaid balance. The annual interest rate is 11%.

What is the present value of this annuity?

- a. \$399,999
- b. \$407,060
- c. \$450,783
- d. \$491,055

The annuity payment is \$163,685.

$i = 11\%$ & $n = 3$ years

Using the Present Value of an Annuity table, the factor is 2.44371.

$\$163,685 \times 2.44371 = \$399,999$

The present value of the note is the amount the company must deposit today at 11% interest to cover the \$163,685 payments.

9-60

Computing the Amount of a Liability with an Annuity (2 of 3)

Record the purchase of the espresso machines:	Debit	Credit
Espresso machines (+A)	399,999	
Note payable (+L)		399,999

Calculate interest expense for the first year:

\$399,999 note payable balance * 11% annual interest rate = \$44,000 interest expense.

At the end of the first year the company makes this journal entry:

December 31, 2019	Debit	Credit
Note payable (-L)	119,685	
Interest expense (+E, -SE)	44,000	
Cash (-A)		163,685

The remaining payable balance after recording this entry is \$280,314.

9-61

Computing the Amount of a Liability with an Annuity (3 of 3)

Calculate interest expense for the second year:

\$280,314 note payable balance * 11% annual interest rate = \$30,835 interest expense. The remaining payable balance after recording this entry is \$147,464.

December 31, 2020	Debit	Credit
Note payable (-L)	132,850	
Interest expense (+E, -SE)	30,835	
Cash (-A)		163,685

Calculate interest expense for the third year:

\$147,464 note payable balance * 11% annual interest rate = \$16,221 interest expense. The remaining payable balance after recording this entry is \$0.

December 31, 2021	Debit	Credit
Note payable (-L)	147,464	
Interest expense (+E, -SE)	16,221	
Cash (-A)		163,685

9-62

Present Values Involving Both an Annuity and a Single Payment

Starbucks bought new coffee roasting equipment and agreed to pay the supplier \$1,000 per month for 20 months and an additional \$40,000 at the end of 20 months. The supplier charges 12 percent interest per year, or 1% per month.

Step 1: Compute the present value of the annuity using Appendix E. The factor of 18.04555 is based on the interest rate of 1 percent over 20 periods.

$$\$1,000 \times 18.04555 = \$18,046$$

Step 2: Compute the present value of the single payment using Appendix E. The factor of 0.81954 is based on the interest rate of 1 percent over 20 periods.

$$\$40,000 \times 0.81954 = \$32,782$$

Step 3: Add the two amounts to determine the present value of the total obligation.

$$\$18,046 + \$32,782 = \$50,828$$

9-63

Exercise 9-5

On January 1 of this year, Red Springs Company completed the following transactions (assume a 10% annual interest rate):

- Bought a delivery truck and agreed to pay \$42,500 at the end of three years.
- Rented an office building and was given the option of paying \$8,500 at the end of each of the next three years or paying \$23,000 immediately.
- Established a savings account by depositing a single amount that will increase to \$34,000 at the end of seven years.
- Decided to deposit a single sum in the bank that will provide 10 equal annual year-end payments of \$12,750 to a retired employee (payments starting December 31 of this year).

Required (show computations and round to the nearest dollar):

- In (a), what is the cost of the truck that should be recorded at the time of purchase?
- In (b), which option for the office building results in the lowest present value?
- In (c), what single amount must be deposited in this account on January 1 of this year?
- In (d), what single sum must be deposited in the bank on January 1 of this year?

9-64

Exercise 9-5

Requirement 1

Value after 3 years $PVIF_{(3\text{yrs}, 10\%)}$
\$ 42,500 \times 0.75131 =

Present Value of \$1

Periods	8.0%	9.0%	10.0%	11.0%
1	0.92593	0.91743	0.90909	0.90090
2	0.85734	0.84168	0.82645	0.81162
3	0.79383	0.77218	0.75131	0.73119
4	0.73503	0.70843	0.68301	0.65873
5	0.68058	0.64993	0.62092	0.59345

Value after 3 years $PVIF_{(3\text{yrs}, 10\%)}$ Value at the time of purchase
\$ 42,500 \times 0.75131 = \$ 31,931

9-65

Requirement 2

Yearly installments $PVIFA_{(3\text{yrs}, 10\%)}$
\$ 8,500 \times 2.48685 =

Present Value of Annuity of \$1

Periods	8.0%	9.0%	10.0%	11.0%
1	0.92593	0.91743	0.90909	0.90090
2	1.78326	1.75911	1.73554	1.71252
3	2.57710	2.53129	2.48685	2.44371
4	3.31213	3.23972	3.16987	3.10245
5	3.99271	3.88965	3.79079	3.69590

Requirement 2

Yearly installments $PVIFA_{(3\text{yrs}, 10\%)}$ Economic Value
\$ 8,500 \times 2.48685 = \$ 21,138

9-66

Requirement 1

Value after 3 years		PVIF _(3yrs,10%)		Value at the time of purchase
\$ 42,500	×	0.75131	=	\$ 31,931

Requirement 2

Yearly installments		PVIFA _(3yrs,10%)		Economic Value
\$ 8,500	×	2.48685	=	\$ 21,138

It is better to pay in three installments as the economic cost is less

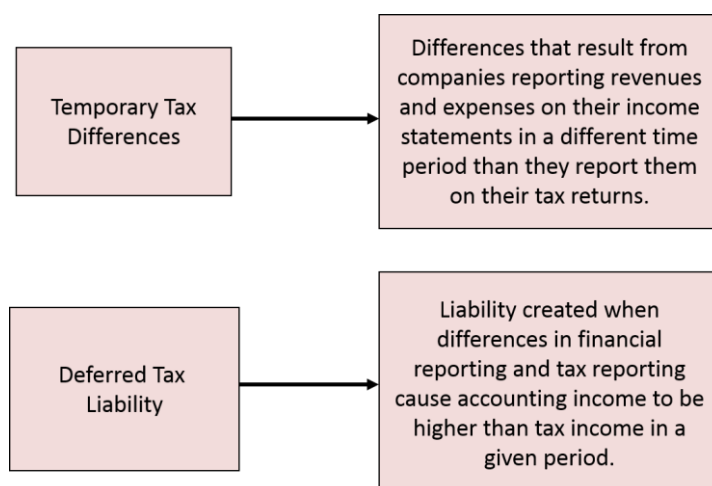
Requirement 3

Value after 7 years		PVIF _(7yrs,10%)		Single amount deposit
\$34,000	×	0.51316	=	\$17,447

Requirement 4

Yearly withdrawal		PVIFA _(10yrs,10%)		Single amount deposit
\$12,750	×	6.14457	=	\$78,343

3-47

Supplement B: Deferred Taxes

9-68

Deferred Tax Liabilities

GAAP is the set of rules for preparing financial statements.

Results in . . .

Financial statement income tax expense.

The Internal Revenue Code is the set of rules for preparing tax returns.

Results in . . .

IRS income taxes payable.

Usually. . .

\neq

Permanent differences – one set recognizes a revenue or expense, the other does not
Temporary differences – while both sets recognize a revenue (income) or expense (deduction), they permit such at different times

Permanent Difference

- **Municipal bond interest**
 - FASB/SEC – include it on the income statement as revenue
 - IRS – exclude it as it is not taxable income
 - \$100 pretax income less \$20 municipal bond interest = \$80 on which taxes will be based. (40% tax rate)

Tax Expense	32
Taxes Payable	32

Note: a Deferred Tax Liability is not created

Income tax payable =
tax rate X (taxable income less allowable deductions)

Temporary Difference

Assume: Income before depreciation and taxes 40,000

Straight line (GAAP)

- Year 1 $(\$40,000 - \$5,000) \times 40\% = \$14,000$
- Year 2 $(\$40,000 - \$5,000) \times 40\% = \underline{\$14,000}$

\$28,000

Double declining balance (IRS)

- Year 1 $(\$40,000 - 10,000) \times 40\% = \$12,000$
- Year 2 $(\$40,000 - 0) \times 40\% = \underline{\$16,000}$

\$28,000

Same

9-71

Temporary Difference

Year 1

Income tax expense	14,000
Deferred tax liability	2,000
Taxes payable	12,000

Year 2

Income tax expense	14,000
Deferred tax liability	2,000
Taxes payable	16,000

Over the 2 year period, the same amount (\$28,000) was paid to the IRS and reported as income tax expense on the income statements

9-72

ST金正：虚构合同、空转资金

- ① 2015年至2018年上半年，金正大及其合并报表范围内的部分子公司通过与其供应商、客户和其他外部单位虚构合同，空转资金，开展无实物流转的虚构贸易业务
 - 累计虚增收入2,307,345.06万元
 - 虚增成本2,108,384.88万元
 - 虚增利润总额198,960.18万元。
- ② 2018年7月至2019年6月，金正大作为出票人和承兑人，通过包商银行、中国民生银行、华夏银行、浙商银行等四家银行向临沂凡高农资销售有限公司等7家参与前述虚构贸易业务的公司开具商业承兑汇票，累计金额102,800万元。

9-73

ST金正：虚构合同、空转资金

金正大对其开具的上述商业承兑汇票未进行账务处理，导致

- 《2018年年度报告》中虚减应付票据、其他应收款92,800万元，
- 《2019年半年度报告》中虚减应付票据、其他应收款102,800万元。

为解决大额预付账款余额和虚假暂估存货余额，消化存货盘亏问题

- 通过领用虚假暂估入库的原材料和实际已盘亏的存货、虚构电费和人工费等方式虚构生产过程
- 虚增产成品254,412.84万元，并通过虚假出库过程，计入发出商品科目。

- ③ 将从诺贝丰虚假采购并暂估入库的65,302.33万元货物计入发出商品科目，最终形成发出商品319,715.17万元。
 - 《2019年年度报告》虚增存货319,715.17万元
 - 虚增利润总额14,181.26万元
 - 虚增负债(其他应付款/应付职工薪酬)1,435.84万元。

9-74

龙力生物：删改、伪造大量会计凭证，造假方式“简单粗暴”

- ① 2015年至2017年，龙力生物通过删改财务数据、伪造会计凭证等
 - 2015年度虚增资产近5亿元，虚减负债17亿余元，虚增利润近1.4亿元
 - 2016年度虚增资产近1.3亿元，虚减负债28亿余元，虚增利润近2.5亿元
 - 2017半年度虚减负债29亿余元，虚增利润近2亿元。
- ② 2015年1月1日至2016年12月31日，龙力生物删除、修改、伪造大量会计凭证、相关单据，以及将部分募集资金从募集资金专户转入一般户用于日常经营和归还贷款。

9-75

龙力生物：删改、伪造大量会计凭证，造假方式“简单粗暴”

- ③ 通过删除应付票据及部分债务对应的保证金账户方式虚减银行存款。
 - 公司对外披露的银行存款科目下共有39个银行账户（账户代码为100201至100239），6月30日和12月31日的其他货币资金余额为0。
 - 龙力生物通过删除短期借款、长期借款、其他应付款、应付票据等科目中与借款相关记账凭证的方式，导致2015年年度、2016年半年度、2016年年度、2017年半年度报告中财务报表相关会计科目存在虚假记载。
- ④ 龙力生物通过删除与借款相关的利息费用、居间服务费等记账凭证的方式，导致2015年年度、2016年半年度、2016年年度、2017年半年度报告中财务报表相关会计科目存在虚假记载
 - 上述期间龙力生物少披露（即虚减）的财务费用（利息支出、服务费）、管理费用分别合计为13942.77万元、8631.39万元、24677.11万元、19729.54万元，
 - 导致虚增当期利润总额分别为13942.77万元、8631.39万元、24677.11万元、19729.54万元。

9-76

HW9

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