Financial Reporting Financial Statement Analysis and Valuation 10th edition Wahlen Solutions Manual

SKU: 9780357722091-SOLUTIONS

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CHAPTER 1

OVERVIEW OF FINANCIAL REPORTING, FINANCIAL STATEMENT ANALYSIS, AND VALUATION

Solutions to Questions, Exercises, Problems, and Teaching Notes to Cases

1.1 Porter's Five Forces Applied to the Air Courier Industry.

Buyer Power. Air courier services are a commodity. Firms in the industry offer similar overnight or two-day deliveries. Firms also provide opportunities to track shipments. Business customers can negotiate favorable shipping terms based on the volume of shipments. Thus, buyer power among large corporate customers is high.

Supplier Power. The principal inputs are labor services, equipment, and information systems. Except for pilots and some information-processing specialists, the skill required to offer air courier services is relatively low. Therefore, competition for jobs reduces supplier power. The principal items of equipment are airplanes, trucks, and sorting equipment. The number of suppliers of this equipment is relatively small, but the equipment offered is largely a commodity. Thus, equipment supplier power is relatively low. Information systems are critical to scheduling, tracking, and delivering parcels. Hiring individuals with the education and skills needed to design and maintain this information system is not difficult because these skills and education are not unique. Thus, supplier power is low.

Rivalry among Existing Firms. Seven air couriers now carry a 90% market share. FedEx and UPS have the largest market shares and compete heavily. Smaller firms compete more in particular geographical or customer markets. Thus, rivalry is relatively high.

Threat of New Entrants. The cost of acquiring equipment, developing national and international delivery networks, and overcoming entrenched firms in an already-crowded market makes the threat of new entrants low.

Threat of Substitutes. The main threat to transportation of letter parcels is digital transmission, and that threat is high. The threat of substitutes for transportation of packages is low.

1.2 Economic Attributes Framework Applied to the Specialty Retailing Apparel Industry.

Demand. Firms attempt to compete on design, colors, and other product attributes, but apparel is largely a commodity. Demand is somewhat cyclical with economic

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conditions; customers tend to delay purchases or trade down during economic downturns. Demand is seasonal within the year. Demand grows at the growth rate in population, which suggests that apparel retailing is a relatively mature market. To the extent that retailers can generate customer loyalty, demand is not highly price-sensitive. However, given the similarity of product offerings across firms, firms cannot price their goods too much out of line with those of their competitors.

Supply. In most markets, there are many firms selling similar apparel. The barriers to entry are not particularly high because an apparel line and retail space are the most important ingredients.

Manufacturing. The manufacturing process is labor-intensive. The manufacturing process is relatively simple, and firms source their apparel from Asia, which has low wages.

Marketing. Because of the large number of suppliers selling similar products, apparel-retail firms must stimulate demand with attractive store layouts, colorful product offerings, and various sales promotions.

Investing and Financing. Firms must finance inventory, usually with a combination of supplier and bank financing. The risk of inventory obsolescence is somewhat high if the product offerings in a particular season do not sell. Firms tend to rent retail space in shopping malls, so they need to engage in extensive long-term borrowing.

1.3 Identification of Commodity Businesses.

Dell. Dell's products—computers, servers, and printers—are commodities. Dell tends not to develop the technologies underlying these products. Instead, it purchases the components from firms that develop the technologies (semiconductors and computer software). Dell's direct-to-customer marketing strategy is not unique, but the extent to which Dell performs this strategy better than anyone else in the industry gives it a competitive advantage. Its size, purchasing power, quality control, and efficiency permit it to operate as a low-cost provider.

Southwest Airlines. Airline transportation is a commodity service in the sense that seats on one airline cannot be differentiated from seats on another airline. Southwest Airlines' strategy is to be the lowest-cost provider of such services, thereby differentiating itself on low prices.

Microsoft. The basic idea of a commodity product is that the product offerings of one firm are so similar to those of other firms that customers can easily switch to competitors' products if price becomes an issue. The technological attributes of

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computer software are duplicated relatively easily, a commodity attribute. However, Microsoft's size permits it to invest in new technology development and keep it on the leading edge of new technologies. Microsoft also has a huge advantage in terms of installed base, meaning that most customers almost have to purchase its software to be able to use application programs and to communicate with other computer users. Thus, its products are inherently commodities, but Microsoft is able to overcome some of the disadvantages of commodity status.

Johnson & Johnson. Johnson & Johnson operates in three business segments: consumer health care, pharmaceuticals, and medical equipment. It derives the majority of its revenue and profits from the latter two industries. Patents protect the products of these two industries, which give the firm a degree of market power. Until another firm creates a new product that dominates the patented product of Johnson & Johnson, its product is not a commodity. However, rapid technological change makes most products obsolete before the end of the patent's life. Johnson & Johnson's products probably have fewer commodity attributes than the other three firms in this exercise.

One of the purposes of this exercise is to illustrate that firms can pursue product differentiation strategies and low-cost leadership strategies and, if performed well, can gain "most admired status."

1.4 Identification of Company Strategies. The strategies of Home Depot and Lowe's are marked more by their similarities than by their differences. Both firms sell to the do-it-yourself homeowner and the professional builder, plumber, or electrician at competitively low prices. Their in-store product offerings are similar, roughly evenly split between building materials, electrical and plumbing supplies, hardware, paint, and floor coverings. Their store sizes are approximately the same. Both use sales personnel with expertise in a particular home improvement area to offer advice to customers. Both rely on third-party credit cards for a large portion of their sales to customers. They are similar in size in terms of number of stores, which are located primarily throughout North America.

1.5 Researching the FASB Website. The answer will change over time as the FASB updates its activities. The purpose of the exercise is to familiarize students with the FASB website and the kinds of information they can find there.

1.6 Researching the IASB Website. The answer will change over time as the IASB updates its activities. The purpose of the exercise is to familiarize students with the IASB website and the kinds of information they can find there.

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1.7 Effect of Industry Economics on Balance Sheets. Among the three firms, Intel faces the greatest risk of technological change for its products. Although the manufacture of semiconductors is capital-intensive, Intel does not add financial risk to its already high business risk. Thus, Firm B is Intel. The revenues of American Airlines and Walt Disney change with changes in economic conditions, subjecting them to cyclical risk and, thereby, reducing their use of long-term debt. Besides producing movies and family entertainment, Disney operates theme parks, which the firm does not include in property, plant, and equipment. This will reduce its property, plant, and equipment to total assets percentage. American Airlines has few assets other than its flight and ground support equipment. Thus, Firm A is Disney and Firm C is American Airlines. It may seem strange that Disney has smaller proportions of long-term debt in its capital structure compared to American Airlines. One possible explanation is that the assets of American Airlines have a ready market in case a lender repossesses and sells them than do the more unique assets of Disney. This reduces the borrowing cost. In this case, however, the explanation lies in the fact that American Airlines has operated at a net loss for several years and has negative shareholders' equity. The result is a higher ratio of long-term debt to assets for American Airlines than for Disney.

1.8 Effect of Business Strategy on Common-Size Income Statements. Firm A is Dell and Firm B is Apple Computer. The clues appear next.

Cost of Goods Sold to Sales Percentages. One would expect Dell to have a higher cost of goods sold to sales percentage because it adds less value, essentially following an assembly strategy, and competes based on low prices. Apple Computer can obtain a higher markup on its manufacturing costs because it creates more unique products with a somewhat unique consumer following.

Selling and Administrative Expense to Sales Percentages. Both Dell and Apple Computer engage in extensive promotion to market their products to consumers, thereby increasing their selling expenses. One might expect Apple Computer to spend more on marketing and advertising than Dell would spend. One also might expect Dell, as a producer of commodities, to be more focused on controlling costs such as administrative expenses. So it is interesting that Apple's selling and administrative expenses are considerably smaller than Dell's.

Research and Development Expense to Sales Percentages. Apple Computer is more of a technology innovator than Dell, thereby giving Apple Computer a higher R&D (research and development) expense to sales percentage.

Net Income to Sales Percentages. These percentages are consistent with the strategies of these firms. Compared to Dell, Apple Computer has a much higher profit margin.

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1.9 Effect of Business Strategy on Common-Size Income Statements. Firm A is Dollar General and Firm B is Macy's. Department stores sell branded products, for which the stores can obtain a higher markup on their acquisition cost. Discount stores price low in an effort to gain volume. Thus, the cost of goods sold to sales percentage of Macy's should be lower than that of Dollar General. Department stores engage in advertising and other promotions to stimulate demand. Also, their cost for space is higher. These factors should increase their selling and administrative expense to sales percentage. Dollar General maintains a high level of debt, so interest expense (included in all other items) is much higher than it is for Macy's. One would expect that the department stores have a higher net income to sales percentage.

1.10 Effect of Industry Characteristics on Financial Statement Relations. There are various strategies for approaching this problem. One strategy begins with a particular company, identifies unique financial characteristics (for example, hotel and casino companies have a high proportion of property, plant, and equipment among their assets), and then searches the common-size data in Text Exhibit 1.15 to identify the company with that unique characteristic. Another approach begins with the common-size data in Text Exhibit 1.15, identifies unusual financial statement relations [for example, Firm (**8**) has a high proportion of receivables], and then looks over the list of companies to identify the one most likely to have substantial receivables among its assets. We follow both strategies here. All of the data are scaled by total revenues (except for the final data item, which is cash flow from operations over capital expenditures); so throughout this discussion when we refer to a "percentage," it is a percentage of revenues. The data from Text Exhibit 1.15, with company names as column headings, are presented at the end of this solution in Exhibit 1.A.

The two financial services firms will have balance sheets dominated by cash, securities, and loans receivable. Firms (**8**) and (**1**) meet this description. Cash and securities present 2,256% for Firm (**1**), typical of a securities firm, suggesting that it is Goldman Sachs. Firm (**8**) also has a high percentage of cash and securities (2,198%), consistent with Citigroup's involvement in a wide range of financial services. In addition, receivables comprise a higher percentage for Firm (**8**) than for Firm (**1**) [1,384% for Firm (**8**) versus 352% for Firm (**1**)], distinguishing Firm (**8**) as Citigroup and Firm (**1**) as Goldman Sachs. Neither firm is fixed-asset-intensive, reporting immaterial amounts of PP&E relative to revenues.

Firms (**2**), (**5**), and (**7**) have high percentages of property, plant, and equipment and are clearly fixed-asset-intensive. These firms are Carnival Corporation (**2**), Verizon Communications (**5**), and MGM Mirage (**7**). These firms are capital-asset-intensive business models—operating cruise ships, telecommunications networks, and hotel and casino chains, respectively. Firm (**2**) and Firm (**7**) have similar property, plant, and equipment percentages and depreciation and amortization expense percentages. Firm (**5**) has the highest depreciation and amortization expense percentage, which implies a shorter depreciable life for its depreciable

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assets compared to Firm (**2**) and Firm (**7**). Due to technological obsolescence, the depreciable assets of Verizon likely have a shorter life than the casinos and hotels of MGM or the ships of Carnival. Thus, Firm (**5**) is Verizon. Note that Verizon does not amortize its wireless licenses, meaning amortization of these licenses will not explain the higher depreciation and amortization expense to revenues percentage for Firm (**5**). The percentage of accumulated depreciation to the cost of property, plant, and equipment also is much higher for Firm (**5**) than for Firm (**2**) or Firm (**7**), a consequence of Firm (**5**)'s higher depreciation and amortization expense. Another distinguishing characteristic of Firm (**5**) is that it has a lower cost of sales percentage than does Firm (**2**) or Firm (**7**). Verizon's services are more capital-intensive, not labor-intensive, compared to those of Carnival and MGM, which lowers Verizon's operating expense line. Also, Carnival and MGM sell meals as part of their services, including the cost in cost of sales. Of the three firms, Firm (**5**) has the highest selling and administrative expense to revenues percentage. Telecommunication services are more competitive than luxury entertainment, which increases marketing expenses and lowers revenues for Verizon.

To distinguish Firm (**2**) (Carnival) from Firm (**7**) (MGM Mirage), recognize that Firm (**7**) finances more heavily with long-term debt, consistent with hotel and casino properties supporting higher leverage than cruise ships. Firm (**7**)'s higher proportion of long-term debt might suggest that compared to ships, hotels and casinos serve as better collateral for loans. Another possibility is that MGM simply chose to use debt more extensively than did Carnival. Firm (**7**) has a higher selling and administrative expense percentage and thereby a lower net income percentage. Distinguishing these two firms is a close call. The land-based services of MGM are probably more competitive because of the direct competition located nearby and the low switching costs for customers. Once customers commit to a cruise, their switching costs are higher. Thus, one would expect MGM to have higher marketing costs and a lower net income to revenues percentage. This reasoning suggests that Firm (**7**) is MGM and Firm (**2**) is Carnival.

Three firms have R&D expenses: Firms (**3**), (**6**), and (**12**). These firms are Johnson & Johnson, Cisco Systems, and eBay, respectively. All three firms have high profit margins; high proportions of cash and marketable securities; low proportions of property, plant, and equipment; and low long-term debt. All are consistent with technology-based firms. These firms differ on their R&D percentages, with Firm (**12**) having the lowest percentage. Both Johnson & Johnson and Cisco invest in R&D to create new products, whereas eBay invests in technology to support the offering of its online services. The clue suggests that eBay is Firm (**12**). In addition, Firm (**12**) differs from Firm (**6**) and Firm (**3**) in that it has no inventory, consistent with eBay's business model of being a market-making intermediary rather than a producer. Firm (**12**) also differs from Firm (**6**) and Firm (**3**) in the amount of intangibles. Intangibles dominate the balance sheet of Firm (**12**). The problem indicates that eBay has grown its network of online services largely by acquiring other firms, which increases goodwill and other intangibles. Thus, Firm (**12**) is eBay.

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It is difficult to distinguish Firm (**3**) as Johnson & Johnson and Firm (**6**) as Cisco. A few subtle differences between the percentages for these two firms are as follows: As a high-tech company, Cisco requires more R&D than Johnson & Johnson does, which generates revenues from branded over-the-counter consumer health products, which do not require as much R&D investment. This suggests that Johnson & Johnson is Firm (**3**) and Cisco is Firm (**6**). In the same vein, Cisco will turn over inventory faster than Johnson & Johnson will, which is revealed in Cisco's having a lower inventory percentage compared to Johnson & Johnson.

This leaves four firms: Firms (**4**), (**9**), (**10**), and (**11**). The four remaining firms are Kellogg's, Amazon.com, Molson Coors, and Yum! Brands, respectively. Amazon.com is likely the least fixed-asset-intensive of the firms. It must invest in information systems but does not need manufacturing or retailing assets, as the other three do. In addition, Amazon will require the highest levels of R&D among the four firms. This suggests that Firm (**9**) is Amazon.com. Firm (**9**) also has the highest cost of sales percentage of the four firms, consistent with Amazon.com's low value added for its online services. It is interesting to compare the cost of sales to revenues percentages for Amazon.com and eBay [Firm (**12**)]. Amazon.com includes the full selling price of goods sold in its revenues whenever it takes product risk and the cost of the product sold in the cost of sales. On the other hand, eBay does not assume product risk, so its revenue includes only customer posting and transaction fees and advertising fees. Its cost of sales percentage is quite low because it includes primarily compensation of personnel maintaining its auction sites.

This leaves Firm (**4**), Firm (**10**), and Firm (**11**). Firm (**11**) has the smallest inventories percentage, consistent with a restaurant selling perishable foods. The cost of sales percentage for Firm (**11**) is the highest of these three remaining firms. The extent of competition in the restaurant business is likely higher than that for the branded food products of Molson Coors and Kellogg's, consistent with lower value added (higher cost of sales percentage) for Firm (**11**). Thus, Firm (**11**) is Yum! Brands.

Firm (**10**) has a significantly higher intangibles to revenues percentage than does Firm (**4**). Molson Coors has made significant investments in acquisitions of other beer companies in recent years, which increased its goodwill. Kellogg's has a smaller yet still significant goodwill percentage, consistent with Kellogg's' strategy of acquiring other branded foods companies and recognizing goodwill. Firm (**10**) is Molson Coors and Firm (**4**) is Kellogg's.

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Exhibit 1.A—(Problem 1.10)

	Goldman Sachs 1	Carnival Corp 2	J&J 3	Kellogg's 4	Verizon 5	Cisco 6	MGM Mirage 7	Citigroup 8	Amazon .com 9	Molson Coors 10	Yum! Brands 11	eBay 12
BALANCE SHEET												
Cash & marketable securities	2,256.1%	4.1%	20.1%	2.0%	10.6%	96.9%	4.1%	2,198.0%	26.0%	4.5%	1.9%	39.3%
Receivables	352.8	2.8	15.2	8.9	12.0	8.8	4.2	1,384.8	4.0	13.3	2.0	5.1
Inventories	—	2.4	7.9	7.0	2.1	3.0	1.5	—	8.9	4.0	1.3	—
Property, plant, and equipment, at cost	—	286.8	43.0	55.4	221.5	33.8	278.8	—	7.8	41.4	61.1	32.9
Accumulated depreciation	—	(59.8)	(20.4)	(32.5)	(132.6)	(22.6)	(52.8)	—	(2.6)	(14.1)	(28.3)	(18.9)
Property, plant, and equipment, net	—%	227.0%	22.5%	22.9%	88.9%	11.2%	226.0%	—%	5.3%	27.3%	32.9%	14.0%
Intangibles	—	36.5	43.4	39.8	75.2	40.5	6.0	101.9	5.0	109.4	8.3	90.9
Other assets	57.3	7.2	24.0	4.8	19.0	28.3	81.0	208.5	7.2	59.7	11.4	33.3
Total assets	2,666.2%	280.0%	33.2%	85.4%	207.9%	188.6%	322.9%	3,893.3%	56.4%	218.2%	57.9%	182.6%
Current liabilities	2,080.8%	37.8%	32.7%	27.7%	26.6%	37.8%	41.7%	2,878.4%	30.0%	20.7%	15.3%	43.4%
Long-term debt	390.9	69.1	12.7	31.7	48.2	28.5	172.2	596.1	0.4	38.4	31.6	—
Other long-term liabilities	92.6	5.6	21.1	14.6	90.2	15.3	53.8	171.3	4.4	33.9	12.0	9.4
Shareholders' equity	101.9	167.5	66.7	11.3	42.8	107.0	55.1	247.5	21.4	125.3	(1.0)	129.8
Total Liabilities and Shareholders' Equity	2666.2%	280.0%	133.2%	85.4%	207.9%	188.6%	322.9%	3893.3%	56.4%	218.2%	57.9%	182.6%
INCOME STATEMENT												
Operating revenues	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales (excluding depreciation) or operating expenses	(54.6)	(61.6)	(29.0)	(58.1)	(40.1)	(36.1)	(56.0)	(73.4)	(85.8)	(59.5)	(75.1)	(26.1)
Depreciation and amortization	(2.0)	(9.9)	(4.4)	(2.9)	(15.0)	(1.5)	(10.8)	(5.0)	(1.5)	(5.7)	(4.9)	(2.8)
Selling and administrative	(1.4)	(12.1)	(29.3)	(23.7)	(27.6)	(27.6)	(19.3)	(5.1)	(2.6)	(27.9)	(7.6)	(33.7)
Research and development	(1.6)	—	(12.2)	—	—	(14.6)	—	(7.7)	(5.1)	—	—	(8.5)
Interest (expense)/income	9.5	(2.8)	(0.1)	(2.5)	(1.9)	1.0	(8.5)	78.4	—	(1.8)	(2.0)	1.3
Income taxes	(14.3)	(0.1)	(6.2)	(3.8)	(3.4)	(4.3)	(2.6)	(16.0)	(1.0)	(2.2)	(2.8)	(4.7)
All other items, net	(8.0)	0.1	1.6	—	(5.5)	—	2.3	(28.8)	(0.3)	5.2	0.4	—
Net income	27.6%	13.6%	20.3%	9.0%	6.6%	17.0%	5.3%	42.3%	3.7%	8.0%	8.0%	25.5%
Cash flow from operations/capital expenditures	n.m.	1.0	4.9	2.7	1.5	9.8	1.0	n.m.	8.8	1.8	1.6	5.1

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1.11 Effect of Industry Characteristics on Financial Statement Relations. There are various strategies for approaching this problem. One strategy begins with a particular company, identifies unique financial characteristics (for example, electric utilities have a high proportion of property, plant, and equipment among their assets), and then searches the common-size data in Text Exhibit 1.16 to identify the company with that unique characteristic. Another approach begins with the common-size data in Text Exhibit 1.16, identifies unusual financial statement relations [for example, Firm (**10**) has a high proportion of receivables], and then looks over the list of companies to identify the one most likely to have substantial receivables among its assets. We follow both strategies here. All of the data are scaled by total revenues (except for the final data item, which is cash flow from operations over capital expenditures); so throughout this discussion when we refer to a "percentage," it is a percentage of revenues. The data from Text Exhibit 1.16, with company names as column headings, are presented at the end of this solution in Exhibit 1.B.

Firm (**10**) stands out because it has the highest proportion of receivables among its assets and the most substantial borrowing in its capital structure. This balance sheet structure is typical of the finance company, HSBC Finance. We ask students why the capital markets allow a finance company to have such a high proportion of borrowing in its capital structure. The answer is threefold: (1) Finance companies have contractual rights to receive future cash flows from borrowers (the cash flow tends to be highly predictable); (2) finance companies lend to many different individuals, which diversifies their risk; and (3) borrowers often pledge collateral to back up the loan, which provides the finance companies with an alternative for collecting cash if borrowers default on their loans. Thus, the low risk in the asset structure allows the firm to assume high risk on the financing side. We use this opportunity to ask students how this firm can justify recognizing interest revenue on its loans as the revenue accrues each period when it has an uncollectible loan provision of 29.1% of revenues. Two points are noteworthy: (1) The concern with uncollectibles is not with the size of the provision, but with how much uncertainty there is in the amount of the provision (a high mean with a low standard deviation is not a concern, but a high mean with a high standard deviation is a concern) and (2) revenues represent interest revenues on loans, whereas the provision for uncollectibles includes both unpaid principal and interest (thus, the 29.1% provision does not mean that the firm experiences defaults on 29.1% of its customers each year). Given that loans are nearly 700% of revenues and the provision for uncollectible loans is 29% of revenues, it implies a roughly 4% loan loss provision. The cash flow from operations to capital expenditures ratio is high because of the low capital intensity of this firm.

Firm (**4**) also is likely to be a financial services firm because it has a high proportion of cash and marketable securities among its assets and a high proportion of liabilities in its capital structure. This balance sheet structure is typical of the insurance company, Allstate Insurance. Allstate receives cash from policyholders each period as premium revenues. It pays out the cash to policyholders as they make insurance claims. There is a lag between the receipt and disbursement of cash,

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which for a property and casualty insurance company can span periods up to several years. Allstate invests the cash in the interim to generate a return. The high proportion of current liabilities represents Allstate's estimate of the amount of future claims arising from insurance coverage in force in the current and previous periods. We ask students at this point to comment on the quality of earnings of an insurance company. Our objective is to get students to see the extent of estimates that go into recognizing claims expenses in a particular period. Claims made from accidents or injuries during the current year related to insurance in force during that year require relatively little estimation. However, policyholders may sustain a loss during the current period but not file a claim immediately. Also, estimating the cost of a claim may present difficulties if the claim amount is difficult to estimate (such as with malpractice insurance) or if policyholders contest the amount Allstate is willing to pay and the case goes through adjudication. Thus, the potential for low-quality earnings is present with insurance companies. We then point out that the amount shown for other assets represents the unamortized portion of the cost of writing a new policy (costs of investigating new policyholders to assess risk levels, commissions paid to insurance agents for writing the new policy, and filing fees with state insurance regulators). We ask why insurance companies do not write off this amount in the year of initiating the policy. The explanation is one of matching. Insurance companies recognize premium revenues over several future periods and should match both policy initiation costs and claims costs against these revenues. The cash flow from operations to capital expenditures ratio is high because of the low capital intensity of this firm.

Four firms report R&D expenditures: Firm (**1**), Firm (**2**), Firm (**5**), and Firm (**12**). 3M, Hewlett-Packard, Merck, and Procter & Gamble will incur costs to discover new technologies or to develop new products. By far, Firm (**2**) has the highest R&D expense percentage and the highest profit margin. This firm is Merck. Pharmaceutical companies must invest heavily in new drugs to remain competitive. Also, the drug development process is lengthy, which increases R&D costs. Pharmaceutical companies have patents on most of their drugs, providing such firms with a degree of monopoly power. The demand for most pharmaceuticals is relatively price inelastic because customers need the drugs and because the cost of the drugs is often covered by insurance. The manufacturing process for pharmaceuticals is capital-intensive, in part because of the need for precise measurement of ingredients and in part because of the need for purity. Note that Merck has a relatively high selling and administrative expense percentage. This high percentage reflects the cost of maintaining a sales staff to market products to physicians and hospitals and heavy advertising outlays to stimulate demand from consumers.

Hewlett-Packard, on the other hand, outsources the manufacturing of many of its computer components and therefore does not have as much property, plant, and equipment. Thus, Firm (**12**) is Hewlett-Packard. We ask students why Hewlett-Packard has such a small proportion of long-term debt in its capital structure. Computer firms experience considerable technological risk related to the introduction of new products by competitors. Product life cycles are short at

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approximately one to two years. Hewlett-Packard does not want to add financial risk to its already high business (asset side) risk. Also, computer firms have relatively few assets (other than property, plant, and equipment) that can serve as collateral for borrowing. Their most important resources, their technologies and their people, do not show up on the balance sheet. The relatively low profit margin evidences the increasingly commodity nature of most computer products and the intense competition in the industry.

This leaves Firm (**1**) and Firm (**5**) as being 3M and Procter & Gamble, respectively. Firm (**5**) has a higher cost of sales to revenues percentage and a higher selling and administrative expense to revenues percentage. It also has a high profit margin. Firm (**5**) is Procter & Gamble. The high profit margin reflects the brand names of Procter & Gamble's products. The high selling and administrative expense percentage results from advertising and other expenditures to stimulate demand and to maintain and enhance brand names. One final clue is that investments in R&D are less critical for a consumer products company than for firms in which technology development is important. Note that Procter & Gamble shows a very high percentage for intangibles, the result of goodwill and other intangibles from companies it has acquired.

This leaves Firm (**1**) as 3M. Its income statement percentages are similar to those for Procter & Gamble. However, 3M invests more heavily in R&D than Procter & Gamble because a greater proportion of its products are industrial or healthcare-related. 3M also has been less aggressive than Procter & Gamble in making acquisitions, so intangible assets are less significant on the balance sheet.

We move next to Pacific Gas & Electric. Utilities are very capital-intensive and carry high levels of debt. Firm (**3**) displays these characteristics. Note that depreciation and amortization as a percentage of revenues is the highest for this firm, reflective of its capital intensity. Also, its interest expense to revenues percentage is the second highest among these firms, which one would expect from the high levels of debt.

We move next to the two professional service firms, Kelly Services and Omnicom Group. Neither firm will have a high proportion of property, plant, and equipment. Thus, Firms (**6**), (**7**), and (**9**) are possibilities. Kelly Services should have no inventories, and inventories for Omnicom Group should be small, representing advertising work in process. This suggests that Firm (**7**) and Firm (**9**) are the most likely candidates. One would expect the value added by employees of Kelly (temporary help services) to be less than that of Omnicom (creative advertising services). Thus, Firm (**7**) is Kelly and Firm (**9**) is Omnicom. Another clue that Firm (**7**) is Kelly is that receivables relative to operating revenues indicate a turnover of 6.4 (100.0%/15.7%) times per year and current liabilities relative to operating expenses indicate a turnover of 8.0 (82.5%/10.3%) times per year. One would expect faster turnovers for a temporary help business that pays its employees more regularly for temporary work done. The corresponding turnovers for Firm (**9**) are 2.3 (100.0%/43.2%) and 1.2 (87.4%/73.0%). The turnovers for Omnicom are difficult to interpret because its operating revenues represent the commission and fee earned on advertising work, whereas accounts receivable represent the full

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amount (media time plus commission or fee) billed to clients and accounts payable represent the full amount payable to various media. The higher percentages for receivables and current liabilities for Firm (**9**) indicate the agency nature of advertising firms. Firm (**9**) shows a relatively high proportion for intangibles, consistent with recognizing goodwill in Omnicom's acquisition of other marketing services firms in recent years. The surprising result is that the cash flow from operations to capital expenditures ratio for Kelly is so low. Given its low capital intensity, one would expect a high ratio. The explanation relates to its very low profitability, which leads to low cash flow from operations.

We move next to the fast-food restaurant, McDonald's. The firm should have inventories, but those inventories should turn over rapidly. The remaining firm with the lowest inventory percentage is Firm (**11**), representing McDonald's. Note that the firm has a high proportion of its assets in property, plant, and equipment. McDonald's owns its company-operated restaurants and owns but leases other restaurants to its franchisees. The relatively high profit margin percentage results from McDonald's dominance in its market and from its brand name.

We are left with two unidentified firms in Text Exhibit 1.16, Firm (**6**) and Firm (**8**). They are Best Buy and Abercrombie & Fitch, respectively. Both of these firms have inventories. Firm (**8**) has a substantially lower cost of sales percentage, a substantially higher selling and administrative percentage, and a higher profit margin compared to Firm (**6**). Abercrombie & Fitch sells brand name clothing products with a degree of fashion emphasis, whereas Best Buy sells electronic products with near-commodity status at low prices. One would expect much greater gross profits on sales of fashion apparel than on commodity-like electronic and appliance products. However, the cost of retail store space for Best Buy should be less than that of Abercrombie & Fitch because the latter firm tends to locate in malls. Thus, Firm (**6**) is Best Buy and Firm (**8**) is Abercrombie & Fitch.

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Exhibit 1.B—(Problem 1.11)

	3M 1	Merck 2	Pacific Gas & Electric 3	Allstate 4	P&G 5	Best Buy 6	Kelly Services 7	A&F 8	Omnicom Group 9	HSBC Finance 10	McDonald's 11	HP 12
BALANCE SHEET												
Cash & marketable securities	6.7%	23.0%	9.2%	362.6%	6.0%	1.1%	1.6%	14.7%	8.3%	27.3%	8.8%	11.6%
Receivables	13.7	48.4	25.0	47.7	8.9	4.1	15.7	2.7	43.2	697.5	4.0	16.8
Inventories	11.6	9.6	2.9	—	8.7	10.6	—	10.5	5.0	—	0.5	5.3
Property, plant, and equipment, at cost	76.3	101.2	272.3	10.3	46.4	15.4	6.9	66.1	13.1	3.2	132.4	18.3
Accumulated depreciation	(48.2)	(50.9)	(92.8)	(6.7)	(21.8)	(6.1)	(3.7)	(26.6)	(7.7)	(1.3)	(46.3)	(8.5)
Property, plant, and equipment, net	28.1	50.3	179.5	3.6	24.6	9.3	3.1	39.5	5.4	1.9	86.1	9.8
Intangibles	39.1	8.2	—	2.8	112.8	6.0	2.6	—	55.7	40.9	9.5	34.7
Other assets	4.1	58.4	60.5	120.7	9.5	4.1	4.7	12.9	12.0	26.7	12.2	22.0
Total assets	108.1%	197.9%	277.1%	537.5%	170.6%	35.2%	27.8%	80.5%	129.6%	794.3%	121.0%	100.2%
Current liabilities	23.5%	60.0%	51.2%	391.7%	39.1%	18.7%	10.3%	12.7%	73.0%	122.1%	10.8%	37.5%
Long-term debt	28.9	16.5	70.1	19.4	26.1	2.5	0.9	2.8	22.9	565.5	43.3	12.2
Other long-term liabilities	16.8	42.7	88.9	51.3	25.5	3.6	2.7	12.8	7.4	20.2	10.0	15.1
Shareholders' equity	38.8	78.7	66.9	75.1	79.8	10.3	13.9	52.1	26.4	86.5	56.9	35.4
Total Liabilities and Shareholders' Equity	108.1%	197.9%	277.1%	537.5%	170.6%	35.2%	27.8%	80.5%	129.6%	794.3%	121.0%	100.2%
INCOME STATEMENT												
Operating revenues	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales (excluding depreciation) or operating expenses	(46.1)	(23.4)	(60.7)	(91.6)	(49.2)	(75.6)	(82.5)	(33.3)	(87.4)	(29.1)	(63.3)	(76.4)
Depreciation and amortization	(4.7)	(6.8)	(12.6)	(0.9)	(3.9)	(1.8)	(0.8)	(5.1)	(1.8)	(1.7)	(5.1)	(4.2)
Selling and administrative	(20.4)	(24.1)	—	(10.7)	(23.9)	(18.2)	(15.3)	(49.4)	—	(25.0)	(4.9)	(6.0)
Research and development	(5.8)	(20.1)	—	—	(2.6)	—	—	—	—	—	—	(2.5)
Interest (expense)/income	(0.4)	(1.1)	(4.8)	21.0	(1.7)	(0.2)	—	0.3	(0.6)	(32.7)	(2.2)	(0.6)
Income taxes	(6.5)	(8.4)	(3.3)	(6.9)	(5.1)	(1.5)	(0.5)	(5.0)	(4.1)	(3.7)	(7.8)	(1.5)
All other items, net	(0.0)	16.7	(10.6)	4.2	0.7	(0.5)	(0.1)	—	1.2	(3.3)	1.7	(2.1)
Net income	16.1%	32.7%	8.1%	15.2%	14.3%	2.2%	0.8%	7.4%	7.5%	4.5%	18.3%	6.7%
Cash flow from operations/capital expenditures	4.3	5.1	0.8	18.7	4.6	1.4	1.6	1.3	6.6	100.9	2.8	3.6

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1.12 Effect of Industry Characteristics on Financial Statement Relations: A Global Perspective. There are various approaches to this problem. One approach begins with a particular company, identifies unique financial characteristics (for example, steel companies have a high proportion of property, plant, and equipment among their assets), and then searches the common-size financial data to identify the company with that unique characteristic.

Another approach begins with the common-size data, identifies unusual financial statement relationships [for example, Firm (**12**) has a high proportion of cash, marketable securities, and receivables among its assets], and then looks over the list of companies to identify the one most likely to have that unusual financial statement relationship. This teaching note employs both approaches. All of the data are scaled by total revenues (except for the final data item, which is cash flow from operations over capital expenditures); so throughout this discussion, when we refer to a "percentage," it is a percentage of revenues. The data from Text Exhibit 1.17, with company names as column headings, are presented at the end of this solution in Exhibit 1.C.

The high proportions of cash, marketable securities, and receivables for Firm (**1**) suggest that it is BNP Paribas, the French multinational bank, insurance, and financial services company. On the banking side, BNP Paribas recognizes interest revenue from loans each year and must match against this revenue the cost of any loans that will not be repaid. Operating revenues include interest revenue on loans made. BNP Paribas also has a high proportion of financing in the form of current liabilities. This balance sheet category includes the deposits from banking customers, as well as estimated cost of claims not yet paid from insurance in force. Insurance companies receive cash from premiums each year and invest the funds in various investment vehicles until the money is needed to pay insurance claims. They recognize premium revenue from the cash received and investment income from investments each year. They must match against this revenue an appropriate portion of the expected cost of insurance claims from policies in force during the year. BNP Paribas includes this amount in Text Exhibit 1.17 on the line labeled "Operating Expenses." It also includes deposits by customers in its banks. One also might ask what types of quality of earnings issues arise for a company such as BNP Paribas. One issue relates to the measurement of bad debts expenses on loans as well as insurance claims expense each period. The ultimate cost of credit losses will not be known until borrowers default, and the actual cost of claims will not be known with certainty until customers make claims and settlement is made. Prior to that time, BNP Paribas must estimate what the costs of these risks will be. The need to make such estimates creates the opportunity to manage earnings and lowers the quality of earnings.

Firm (**6**) stands out because it is the only other firm [besides BNP Paribas, Firm (**1**)] with zero inventory. Firm (**6**) also has an unusually high proportion of assets in receivables and in current liabilities. The pattern is typical for a professional service firm, such as an advertising agency, which creates and sells advertising copy for clients (for which it has a receivable) and purchasing time and space from various media to display it (for which it has a current liability). Additional evidence that

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Firm (**6**) is Interpublic Group is the high percentage for intangibles, representing goodwill from acquisitions.

Four firms have R&D expenses: Firms (**3**), (**7**), (**9**), and (**12**). These are Toyota Motor, Oracle, Roche Holding, and Nestlé, respectively.

Roche Holding and Oracle are more technology-oriented and, therefore, likely to have higher percentages of R&D compared to Toyota and Nestlé. This suggests that they are Firms (**7**) and (**9**). Both firms have low cost of sales percentages, but Firm (**9**) has a higher cost of sales percentage than Firm (**7**), suggesting that Firm (**9**) is Roche Holdings because pharmaceutical products are generally more expensive to produce than cloud-based computing applications and networking solutions sold by Oracle. For Roche, the manufacturing cost of pharmaceutical products includes primarily the cost of the chemical raw materials, which machines combine into various drugs. Pharmaceutical firms must price their products significantly above manufacturing costs to recoup their investments in R&D. The inventories of Firm (**9**) turn over more slowly at 2.3 times per year (28.5%/12.2%) than those of Firm (**7**) at 29.7 times per year (17.8%/0.6%). The inventory turnover of Roche is consistent with the making of fewer production runs on each pharmaceutical product to gain production efficiencies. Firm (**9**) also is more capital-intensive compared to Firm (**7**). This suggests that Firm (**7**) is Oracle and Firm (**9**) is Roche Holdings. Oracle uses only 10.8 cents in fixed assets for each dollar of sales generated. These ratios are consistent with Oracle's strategy of outsourcing most of its manufacturing operations. The manufacture of pharmaceuticals is highly automated, consistent with the slower fixed-asset turnover of Roche. Also note that Oracle has a large proportion of long-term debt in its capital structure, but at the same time has huge holdings of cash and marketable securities. This is consistent with some other large, successful tech companies (for example, Apple and Microsoft). This leaves Firms (**3**) and (**12**) as Nestlé and Toyota Motor in some combination. Firm (**3**) has a larger amount of receivables relative to sales than Firm (**12**) does, consistent with Toyota Motor providing financing for its customers' purchases of automobiles. Nestlé will have receivables from wholesalers and distributors of its food products but not to the extent of the multiyear financing of automobiles. The inventory turnover of Firm (**12**) is 6.0 times a year (51.3%/8.5%), whereas the inventory turnover of Firm (**3**) is 11.0 times a year (76.2%/6.9%). At first, one might expect a food processor to have a much higher inventory turnover than an automobile manufacturer, suggesting that Firm (**12**) is Toyota Motor and Firm (**3**) is Nestlé. However, Toyota Motor has implemented just-in-time inventory systems, which speed its inventory turnover. Nestlé tends to manufacture chocolates to meet seasonal demands and therefore carries inventory somewhat longer than one might expect. Firm (**12**) has a much higher percentage of selling and administrative expense to sales than Firm (**3**) does. Both of these firms advertise their products heavily. It is difficult to know why one would have a substantially different percentage than the other. The profit margin of Firm (**12**) is substantially higher than that of Firm (**3**). The auto industry is more competitive than at least the chocolate side of the food industry. However, other food products encounter extensive competition. Firm (**3**) has a high proportion of

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intercorporate investments. Japanese companies tend to operate in groups, called *kieretsu*. The members of the group make investments in the securities of other firms in the group. This would suggest that Firm (**3**) is Toyota Motor. Another characteristic of Japanese companies is a heavier use of debt in their capital structures. One of the members of these Japanese corporate groups is typically a bank, which lends to group members as needed. With this more-or-less assured source of funds, Japanese firms tend to take on more debt. Although the ratios give somewhat confusing signals, Firm (**12**) is Nestlé and Firm (**3**) is Toyota Motor.

Firms (**2**), (**4**), (**5**), (**8**), and (**10**) are fixed-asset-intensive, with net fixed assets exceeding 50% of revenues, but it is difficult to clearly distinguish between them. Among the industries represented, at least six rely extensively on fixed assets to deliver products and services: steel manufacturing (Nippon Steel), telecommunications (Deutche Telekom), hotel chains (Accor), electric utilities (E.ON), retail store chains (Marks & Spencer and Carrefour), and auto manufacturing (Toyota). We have already identified Toyota, so we need to distinguish only between the other five.

Of those five firms, Firms (**2**), (**4**), (**5**), and (**8**) have made the largest investments in gross fixed assets, all of which exceed 100% of revenues. Electric utilities, steel manufacturers, hotel chains, and telecommunication firms most heavily utilize fixed assets in the delivery of their products and services. Within these four industries, steel manufacturers will likely have the most significant inventories; so Firm (**2**) is Nippon Steel. Firm (**8**) carries a higher proportion of long-term debt and is depreciating its assets more slowly than Firm (**4**) is. Electricity-generating plants are likely to support more leverage and are likely to have longer useful lives compared to the more technology-based fixed assets needed for distribution of telecommunication services. This would suggest that Firm (**4**) is Deutsche Telekom and Firm (**8**) is E.ON. The difference in the accounts receivable turnovers is somewhat surprising. It is not clear why the accounts receivable turnover for Deutsche Telekom is significantly faster than that of its German counterpart E.ON. This leaves firm (**5**), which we will carry forward.

The remaining firms are (**5**), (**10**), and (**11**), and they represent the hotel group Accor and the retail chains Marks & Spencer and Carrefour. Clearly, Firm (**5**) is not a retailer because it has very little inventory, which indicates it is Accor, the hotel group. Comparing Firm (**10**) and Firm (**11**), Firm (**11**) is distinguished by its high cost of goods sold percentage and small profit margin percentage. This pattern suggests commodity products with low value added. This characterizes a supermarket/grocery business. Firm (**11**) is Carrefour. Its combination of a rapid receivables turnover of 15.2 times per year (100/6.6) and rapid inventory turnover of 10.0 times per year (77.9/7.8) also are consistent with a grocery business. The remaining firm is Firm (**10**), which is Marks & Spencer, the department store chain. Compared to Firm (**11**), which is Carrefour, Firm (**10**) has a lower cost of sales percentage but a higher selling and administrative expense percentage and higher profit margins, consistent with it being a department store chain rather than a grocery chain.

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Exhibit 1.C—(Problem 1.12)

	BNP 1	Nippon Steel 2	Toyota Motor 3	Deutsche Telekom 4	Accor 5	Inter-public Group 6	Oracle 7	E.ON 8	Roche Holding 9	Marks & Spencer 10	Carrefour 11	Nestlé 12
BALANCE SHEET												
Cash & marketable securities	2,649.8%	15.8%	21.8%	4.9%	53.1%	32.7%	151.5%	17.9%	43.4%	4.7%	6.0%	6.5%
Receivables	1,754.2	11.9	48.8	12.0	17.7	69.6	14.5	38.8	20.4	6.9	6.6	12.2
Inventories	—	22.4	6.9	2.1	0.7	—	0.6	5.8	12.2	5.9	7.8	8.5
Property, plant, and equipment, at cost	83.7	172.5	66.2	195.3	102.7	23.2	21.9	134.7	62.9	82.6	34.5	42.0
Accumulated depreciation	(31.5)	(126.2)	(36.5)	(127.9)	(48.5)	(15.2)	(11.1)	(76.0)	(24.9)	(29.3)	(17.7)	(22.8)
Property, plant, and equipment, net	52.5%	46.3%	29.7%	67.4%	54.2%	8.1%	10.8%	58.7%	38.0%	53.3%	6.8%	19.2%
Intangibles	32.4	1.8	—	87.5	18.0	46.3	13.3	26.5	32.3	4.4	14.1	34.1
Other assets	330.4	29.5	16.2	25.9	16.8	17.5	18.7	28.5	12.7	4.9	7.7	16.1
Total assets	4,819.1%	127.6%	123.5%	199.7%	160.4%	174.1%	302.8%	176.2%	158.8%	80.1%	59.0%	96.6%
Current liabilities	3,445.8%	30.1%	45.4%	40.3%	36.4%	98.8%	46.4%	40.6%	25.3%	25.5%	32.2%	30.2%
Long-term debt	425.3	27.7	22.8	8.8	49.2	25.7	105.6	21.3	6.2	23.4	10.8	5.8
Other long-term liabilities	706.2	34.2	10.1	80.7	3.4	14.2	21.8	43.5	15.0	8.1	3.6	10.7
Shareholders' equity	241.8	63.2	45.1	69.9	71.4	35.6	129.0	70.8	112.4	23.2	12.4	50.0
Total Liabilities and Shareholders' Equity	4,819.1%	127.6%	123.5%	199.7%	160.4%	174.1%	302.8%	176.2%	158.8%	80.1%	59.0%	96.6%
INCOME STATEMENT												
Operating revenues	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales (excluding depreciation) or operating expenses	(20.0)	(80.0)	(76.2)	(56.1)	(68.1)	(62.4)	(17.8)	(64.5)	(28.5)	(62.8)	(77.9)	(51.3)
Depreciation and amortization	(4.0)	(5.6)	(5.7)	(17.8)	(5.8)	(2.5)	(6.8)	(5.1)	(3.5)	(4.5)	(2.1)	(2.4)
Selling and administrative	(5.0)	(8.2)	(5.9)	(15.9)	(14.2)	(26.4)	(24.4)	(22.7)	(20.5)	(24.7)	(16.3)	(30.2)
Research and development	—	—	(3.6)	—	—	—	(15.6)	—	(18.5)	—	—	(1.8)
Interest (expense)/income	(45.5)	(0.4)	0.5	(4.0)	(1.1)	(1.7)	(3.1)	(1.4)	0.5	(1.8)	(0.6)	(1.0)
Income taxes	(8.1)	(2.6)	(3.5)	(2.3)	(2.4)	(2.2)	(6.9)	(0.1)	(6.9)	(2.2)	(0.8)	(3.4)
All other items, net	(1.0)	(0.3)	0.9	(0.1)	(3.5)	(0.5)	(1.3)	1.1	0.1	1.6	0.1	7.6
Net income	16.2%	3.8%	6.5%	3.8%	4.9%	4.2%	24.0%	7.3%	22.6%	5.6%	2.3%	7.3%
Cash flow from operations/capital expenditures	4.2	1.9	2.1	2.3	0.6	6.3	7.2	1.7	4.0	2.7	1.8	2.2

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1.13 Value Chain Analysis and Financial Statement Relations. There are various approaches to this problem. One approach begins with a particular company, identifies unique financial characteristics (for example, profit margin potential), and then searches the common-size financial data to identify the company with that unique characteristic.

Another approach begins with the common-size data, identifies unusual financial statement relationships (for example, R&D intensity), and then looks over the list of companies to identify the one most likely to have that unusual financial statement relationship. This teaching note employs both approaches. All of the data are scaled by total revenues (except for the final data item, which is cash flow from operations over capital expenditures); so throughout this discussion when we refer to a "percentage," it is a percentage of revenues. The data from Text Exhibit 1.18, with company names as column headings, are presented at the end of this solution in Exhibit 1.D.

Four firms, Firms (**1**), (**3**), (**4**), and (**7**), incur R&D expenditures, and three do not. Wyeth, Amgen, Mylan, and Johnson & Johnson engage in research to develop new products. Thus, they represent these four numbered firms in some combination. One would expect the firms enjoying patent protection (Wyeth and Amgen) to have the highest profit margins (that is, net income divided by sales). This would suggest that Firm (**1**) is neither Wyeth nor Amgen. Also, Firm (**1**) has the highest cost of goods sold percentage of the four companies and its R&D percentage is the lowest, which are inconsistent with this being Wyeth or Amgen. Products with patent protection should have the lowest cost of goods sold percentages (resulting from high markups on cost to arrive at selling prices). Thus, following another line of logic, the need to continually discover new drugs should lead Wyeth and Amgen to have the highest R&D percentages, which would be Firm (**3**) or Firm (**4**), as discussed below.

With this being the case, the other two firms—Firm (**1**) and Firm (**7**)—are Mylan and Johnson & Johnson in some combination. The brand recognition of Johnson & Johnson's products should give it a high profit margin. Price competition among generic firms should give Mylan a lower profit margin. This reasoning would suggest that Johnson & Johnson is Firm (**7**) and Mylan is Firm (**1**). Firm (**7**) also has higher selling and administrative expenses versus Firm (**1**), consistent with Johnson & Johnson. The low profit margin of Mylan is the result of major ethical drug firms now competing aggressively in the generic market.

This leaves Firms (**3**) and (**4**) as Wyeth and Amgen in some order. The biotechnology industry is significantly less mature than the ethical drug industry. Few biotechnology drugs have received FDA approval, and research to develop new drugs is intensive. Given the few biotechnology drugs available in the market, Amgen's profit margin as well as its R&D expense percentage should be higher than those of Wyeth. Thus, Firm (**3**) is Amgen and Firm (**4**) is Wyeth. Wyeth's higher selling and administrative expense percentage results from its need to maintain a sales force. The biotechnology products of Amgen are fewer in number and at this point are essentially pulled through the distribution process by customer demand. Thus, it has less need for a sales force.

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We are now left with Covance, Cardinal Health, and Walgreens as Firms (**2**), (**5**), and (**6**). Covance will have very low inventories, whereas Cardinal Health (wholesaler) and Walgreens (retailer) will have larger inventories. Thus, Firm (**5**) is Covance. This firm will need property, plant, and equipment to conduct the testing of new drugs. Of the remaining two firms, Cardinal Health and Walgreens, Walgreens will likely have a higher proportion of assets in property, plant, and equipment for retail space. Cardinal Health needs only warehousing facilities for its drug wholesaling activities. Thus, Firm (**6**) is Walgreens and Firm (**2**) is Cardinal Health. Advertising expenditures by Walgreens drive up its selling and administrative expense percentage relative to that of Cardinal Health. Walgreens accepts cash and third-party credit cards for sales; therefore, it will have less receivables than Cardinal Health, which sells to businesses on credit. Also notice that Cardinal Health, as a wholesaler, has a very high cost of sales percentage relative to Walgreens and all other firms in this set.

It is interesting to note that the highest profit margins in the pharmaceutical industry occur with the upstream activities (discovery of new drugs) instead of the downstream activities (wholesaling and retailing). It also is interesting that the profit margin of Covance lies between the high profit margins of the creators of new drugs and the low profit margins of those firms involved in distribution. Covance must possess some technical expertise in order to offer drug-testing services, thus providing the rationale for a higher profit margin than those achieved by the wholesalers and retailers. The higher profit margin for Walgreens over Cardinal Health is probably attributable to brand-name recognition and the large number of retail stores nationwide. The wholesaling function of Cardinal is low value added. The pharmaceutical benefit management services are somewhat differentiable but quickly copied by competitors.

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Exhibit 1.D—(Problem 1.13)

	Mylan Laboratories 1	Cardinal Health 2	Amgen 3	Wyeth 4	Covance 5	Walgreens 6	J&J 7
BALANCE SHEET							
Cash & marketable securities	12.5%	1.9%	63.7%	63.7%	12.1%	4.1%	20.1%
Receivables	22.7	5.7	13.8	16.0	18.7	3.9	15.2
Inventories	20.7	7.2	13.8	13.1	3.7	10.7	7.9
Property, plant, and equipment, at cost	34.2	3.9	66.6	73.9	74.2	22.6	43.0
Accumulated depreciation	(13.5)	(2.0)	(27.4)	(24.9)	(27.1)	(5.5)	(20.4)
Property, plant, and equipment, net	20.7	1.9	39.2	49.0	47.1	17.1	22.5
Intangibles	109.3	6.1	95.5	20.5	5.8	2.3	43.4
Other assets	16.8	2.5	16.9	30.5	8.5	1.6	24.0
Total assets	202.6%	25.2%	242.9%	192.8%	96.0%	39.7%	133.2%
Current liabilities	30.1%	11.5%	32.6%	30.0%	25.2%	10.7%	32.7%
Long-term debt	100.5	3.3	61.2	47.4	—	3.7	12.7
Other long-term liabilities	19.4	1.7	13.3	31.5	5.4	2.6	21.1
Shareholders' equity	52.6	8.8	135.9	84.0	65.4	22.7	66.7
Total Liabilities and Shareholders' Equity	202.6%	25.2%	242.9%	192.8%	96.0%	39.7%	133.2%
INCOME STATEMENT							
Operating Revenues	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of sales (excluding depreciation) or operating expenses	(59.7)	(94.4)	(15.3)	(27.4)	(62.5)	(72.2)	(29.0)
Depreciation and amortization	(8.3)	(0.4)	(7.2)	(4.1)	(3.9)	(1.5)	(4.4)
Selling and administrative	(12.2)	(3.1)	(20.1)	(25.9)	(13.7)	(21.1)	(29.3)
Research and development	(6.2)	—	(20.2)	(14.8)	—	—	(12.2)
Interest (expense)/income	(6.9)	(0.2)	0.2	(0.1)	0.4	(0.1)	(0.1)
Income taxes	(2.7)	(0.5)	(7.0)	(8.4)	(4.3)	(1.8)	(6.2)
All other items, net	0.1	—	(2.5)	(0.1)	(5.3)	—	1.6
Net income	4.1%	1.3%	28.0%	19.3%	10.5%	3.2%	20.3%
Cash flow from operations/capital expenditures	2.3	3.0	8.9	4.4	4.0	2.2	4.9

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Integrative Case 1.1: Walmart

I. Objectives

A. Identify the economics characteristics of the retail industry and Walmart's strategy for competing in this industry as background for the integrative case on Walmart used throughout the book.

B. Review the purpose, format, terminology, and accounting principles underlying the balance sheet, income statement, and statement of cash flows.

C. Introduce common-size and percentage-change income statements and balance sheets and the insights such statements provide.

D. Establish an understanding of Walmart's business so that it can be used as a case throughout the course to illustrate all of the steps of the six-step analysis and valuation framework. Our experience suggests that Walmart works well because it is a company that most students understand and find interesting.

II. Teaching Strategy—We have taught this case with two approaches. If an opportunity exists to distribute the case prior to the first class, we give students the solutions to the questions involving the balance sheet, income statement, statement of cash flows, and relations between financial statements. We ask them to review these parts on their own and to prepare solutions to the questions under the sections labeled "Industry and Strategy Analysis" and "Interpreting Financial Statement Relationships." We devote the first class to discussing these two sections of the case. If we cannot distribute the case ahead of time, we devote approximately three hours of class time to discuss the entire case. Alternatively, you can choose to emphasize particular questions based on the amount of time available and refer students to the solution for the remaining parts.

Note to Instructors:

Walmart is a good company to use for classroom discussion and demonstration of the techniques throughout this book. Students generally relate easily and readily to Walmart because they are familiar with Walmart's retail stores. As a company and a set of financial statements, Walmart is a good setting for illustrating the techniques of analysis, accounting quality assessment, forecasting, and valuation because the business model is straightforward and not complex. This case relies on fiscal 2020 data (fiscal year ended January 31, 2021); so in following years, you can easily bring students up to date by distributing more recent financial statements and numbers and types of stores open. These data are readily available from Walmart's website or from the SEC.

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Industry and Strategy Analysis

a. Porter's five forces applied to the retail industry:

1. **Buyer Power:** Buyer power for consumer goods from large retail chains is low. Consumers view many of the products offered by retail chain stores as day-to-day necessities, such as food and clothing. Consumers tend to be price-sensitive, but they are price takers, not price setters. Students may be tempted to argue that buyer power is high because buyers buy (they pay, and firms depend on revenues), or because buyers can easily switch and purchase consumer goods from other retailers. While these characteristics are certainly true, they do not empower consumers to set prices in the industry; instead, these factors make the rivalry between retailers more competitive.

2. **Supplier Power:** Suppliers of consumer goods to the retail industry are diffuse, and the competition between them is intense. Some suppliers of popular, branded consumer products may have a competitive advantage, but because of the high level of competition between suppliers, it gives them limited power over the retail industry, a primary channel for their sales to consumers. (Think of Coke and Pepsi as an example.) Thus, we deem supplier power to be low.

3. **Rivalry among Existing Firms:** There are many direct competitors in the retail industry. The competitors span a wide range of sizes, including large-scale chains (for example, Walmart, Target, Carrefour), department store chains (for example, Macy's, Marks & Spencer), and smaller retail chains and boutique stores. In addition, the retail industry has to compete with online sales of consumer goods, from sellers such as Amazon. Rivalry among firms appears to be high.

4. **Threat of New Entrants:** No barriers to entry exist. Opening a retail store requires very little capital, technology, or expertise. In addition to new retail stores springing up, established retail chains have the ability to add new stores. A major, large retail chain like Walmart and Target does have a competitive advantage, relative to new entrants, in its established brand name. It also has a scale advantage because it has saturated the United States with retail stores and is growing its business in other countries (further evidence of the lack of barriers to entry). Thus, the threat of new entrants appears to be high at the industry level, but not as threatening to large brand-name chains.

5. **Threat of Substitutes:** Consumer goods, particularly necessities like food and clothing, do not have substitutes, so we deem the threat of substitutes to be low. Some students might argue that online retail purchases of consumer goods serve as a substitute for traditional retail shopping. This is a reasonable point of view, in which case the threat of substitutes appears to be high.

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b. Walmart competes on the bases of price, a very large selection of consumer goods, and convenient store locations. Walmart has a competitive advantage in its brand name, as a recognized retailer of consumer goods at relatively low prices. Walmart also has established a competitive advantage through its scale. Given its enormous size, it has tremendous buying power over suppliers of consumer goods. Walmart is further leveraging its brand name by selling consumer goods through large chains of "big box" retail stores, Sam's Club warehouse stores, and smaller scale retail stores.

Balance Sheet

c. Cash includes cash on hand and in checking accounts. Cash equivalents include amounts that a firm can easily convert into cash. Cash equivalents usually have a maturity date of less than three months at the time of purchase so that changes in interest rates have an insignificant effect on their market value. Cash equivalents might include investments in U.S. Treasury bills, commercial paper, and money market funds.

d. Walmart's two largest assets are inventories and property, plant, and equipment (net). These assets reflect the firm's strategy as a large chain of consumer retail stores. The many stores Walmart owns and operates required large investments in property, plant, and equipment. Because of the large selection of consumer goods, Walmart's inventory balances have to be very large.

e. The accounts receivable arise because Walmart recognizes revenue earlier than the time it collects cash. It is useful to query students on which specific lines of Walmart's business create accounts receivable. They will quickly realize that the majority of receivables arise from customers charging purchases using the Walmart-issued credit card (receivables from charges made on third-party credit cards like Visa or MasterCard are classified as cash equivalents). Because Walmart is not likely to collect 100% of the amount reported as receivables, it must recognize an expense for estimated uncollectible accounts and reduce gross accounts receivable to the amount it expects to collect in cash. Walmart subtracts the balance in the allowance for uncollectible accounts from gross accounts receivable, and only reports the net amount on the balance sheet. Walmart increases the balance in the allowance account for estimated uncollectible accounts arising from credit sales each year. It reduces the balance in the allowance account for actual customers' accounts deemed uncollectible.

f. The Accumulated Depreciation account reports the cumulative depreciation recognized since the firm acquired depreciable assets that appear on the balance sheet. Depreciation Expense reports only the amount of depreciation recognized for a particular accounting period.

g. Walmart's largest current liability is accounts payable, which represent purchases of inventory on credit from suppliers.

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h. Walmart's largest liability is accounts payable. This is somewhat unusual, as long-term debt is typically the largest liability. Walmart is well-known for exercising their market power to stretch out payables, which effectively provides no-cost financing for inventories.

i. Walmart reports a large amount of accumulated other comprehensive loss. U.S. GAAP require firms to report available-for-sale investment securities at fair value at the end of each accounting period. U.S. GAAP also require firms to translate the assets and liabilities of their foreign subsidiaries and branches into U.S. dollars using the current exchange rate. Changes in the valuations of assets and liabilities from these accounting principles give rise to unrealized gains and losses that firms will not realize until they convert the assets into cash or settle their liabilities with cash. The ultimate realized gain or loss depends on the market prices of securities and the exchange rate at the time of sale or settlement. At the time of sale or settlement, the amount of the gains or losses becomes realized. At that time, the firm includes the realized gain or loss in net income. The specific determinants of comprehensive income are covered in greater detail in Chapter 2 and Chapter 8.

Income Statement

j. Walmart's revenues primarily arise from retail sales of goods to consumers. Walmart earns the revenue (fulfills the contract with the customer) when consumers shop for and purchase goods. Walmart is reasonably certain it will collect most of its revenues, as customers pay in cash, with third-party credit cards, or with Walmart's own credit card. At fiscal year-end, Walmart must estimate the total amount of sales that may still be returned by customers for refunds of the purchase price. The total (net) revenues are reported net of the estimated allowance for sales returns. This may, in part, explain why Walmart uses a January 31 fiscal year-end, to allow customers time to make sales returns after the heavy holiday selling season.

k. Walmart is a retailer, and so it does not manufacture its products. Cost of goods sold includes the cost of the retail goods consumers purchased that period. Selling, general, and administrative expenses include compensation of its employees working in the retail stores, warehouses, and distribution centers, as well as advertising and other marketing expenses, and corporate overhead.

l. Wal-Mart reports much more interest expense than interest income because interest-bearing liabilities are much larger than interest-bearing assets. For example, on the balance sheet at the end of fiscal year 2020, short-term borrowings, current maturities of long-term debt, long-term debt, and finance lease obligations amount to almost $50 billion. The only interest-earning assets apparent on the balance sheet are cash and cash equivalents, which only amount to $17.7 billion.

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Statement of Cash Flows

m. Firms use the accrual basis of accounting in measuring net income. Firms usually recognize revenue at the time of sale of goods and services, not necessarily when they receive cash from customers. Firms attempt to match expenses with the time periods during which they consume economic resources, regardless of when they expend cash. The accrual basis gives a better indication of a firm's operating performance than the cash basis because of the matching of inputs and outputs. Cash flows from operating activities in the statement of cash flows report the amount of cash received from customers net of amounts paid to suppliers of goods and services, and other uses of cash in operating activities.

n. Depreciation and amortization expenses reduce net income but do not require cash expenditures in the year of their recognition. (The cash effect occurred in the year a firm acquired the depreciable or amortizable asset; the firm classified the cash outflow as an investing activity in the statement of cash flows at that time.) The addition adds back to net income the amount subtracted in calculating earnings for the year, in effect zeroing out its effect on cash flow from operations.

o. Net income on the first line of the statement of cash flows includes a subtraction for the cost of goods sold during each year. Walmart likely purchases a different amount of inventory than it uses or sells. An increase in inventories means that Walmart purchased more than it sold. Thus, the cash outflow for purchases potentially exceeds cost of goods sold and requires a subtraction from net income for the additional cash required. Whether additional cash was in fact required in any year depends on the change in accounts payable, discussed next.

p. Accounts payable reflect amounts owed to suppliers for inventory items purchased. Purchases of inventory items increase this liability, and cash payments reduce it. The adjustment for inventory in Solution n converts cost of goods sold to inventory purchases. The adjustment for accounts payable converts purchases to cash payments to suppliers. An increase in accounts payable means that Walmart's cash payments to suppliers during the year were less than the amounts purchased. Thus, the adjustments for the change in inventories and the change in accounts payable convert cost of goods sold included in net income to cash payments to suppliers of inventory items.

q. Walmart's single biggest use of cash each year during this three-year period was to acquire property, plant, and equipment. This is consistent with Walmart's strategy as a large retail chain because these amounts likely involve investing in opening new stores, opening new distribution centers, and renovating older stores.

r. Walmart's single biggest use of cash for financing activities during this three-year period was to pay dividends. This implies that Walmart is generating more cash flow from operating activities than it needs to acquire (or replace) property, plant, and equipment, or to pay back debt as it matures. As we discuss in Chapter 3, this suggests Walmart is a mature "cash cow."

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Relations between Financial Statements

s. Explain the change in retained earnings.

Retained Earnings, January 31, 2020	$83,943
Net income attributable to common shareholders for fiscal 2020	13,510
Cash dividends	(6,116)
Stock repurchases in fiscal 2020	(2,625)
Plug	(51)
Retained Earnings, January 31, 2021	$88,763

Net income, dividends, and stock repurchases explain almost all of the change in retained earnings, except for $51 million. This difference is attributable to differences between the company stock purchases shown on the statement of cash flows and the statement of shareholders' equity, as well as other small differences.

Interpreting Financial Statement Relations

t. A cautionary note with interpreting percentage changes is that large percentage changes in relatively small accounts may not have a large effect on the total. In the case of prepaid expenses and other current assets, the percentage changes were large and volatile, but the dollar amounts of this change was fairly small ($19,239), relative to Walmart's total assets ($252,496).

u. Total liabilities across 2018, 2019, 2020 were $139,661, $154,943, and $164,965, respectively. These totals represented 63.7%, 65.5%, and 65.3% of total assets respectively. Thus, Walmart increased the proportion of total assets finance with liabilities between 2018 and 2019, but it is relatively flat between 2019 and 2020. This suggests Walmart's leverage increased in 2019 but was maintained (with a very slight decrease) in 2020.

v. The percentage of net income to revenues (the net profit margin) increased from 1.3% in fiscal 2018 to 2.4% in fiscal 2020. The main reason for this decline is a loss recognized in 2018, which accounted for 1.6% of revenues. The absence of a similar loss in 2020 (or 2019) results in an increase in net income margin in 2020 (or 2019) relative to 2018.

w. Walmart generates fairly low profit margins (e.g., 2.4% in fiscal 2020). This is consistent with its strategy of being a very large, low-price retailer. Walmart sells a very high volume of consumer goods, but at very low profit margins.

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Case 1.2: Nike: Somewhere between a Swoosh and a Slam Dunk

I. Objectives

A. Review the purpose, format, terminology, and accounting principles underlying the balance sheet, income statement, and statement of cash flows.

B. Introduce common-size and percentage-change income statements and balance sheets and the insights that such statements provide.

II. Teaching Strategy—We have taught this case with two approaches. If an opportunity exists to distribute the case prior to the first class session, we give students the solutions to the questions involving the income statement, balance sheet, statement of cash flows, and relations between financial statement items. We ask them to review these parts on their own and to prepare the questions under the section labeled "Interpreting Financial Statement Relationships." We devote the first class session to discussing this last section of the case. If we cannot distribute the case ahead of time, we devote approximately three hours of class time to discussing the case. Alternatively, you can choose to emphasize particular questions based on the amount of time available and refer students to the solution for the remaining parts.

Income Statement

a. For wholesale and retail customers, Nike apparently recognizes revenues from the sale of products at the time of sale. Nike recognizes wholesale revenues when title and the risks and rewards of ownership have passed to the customer, based on the terms of sale. This occurs upon shipment or upon receipt by the customer, depending on the country of the sale and the agreement with the customer. Retail store revenues are recorded at the time of sale and online store revenues are recorded upon delivery to the customer. Provisions for post-invoice sales discounts, returns, and miscellaneous claims from customers are estimated and recorded as a reduction to revenue at the time of sale. Thus, Nike's revenue recognition appears appropriate.

b. The notes indicate that Nike states inventories at lower of cost or market, valued on either an average or specific-identification cost basis. For inventories in transit that represent direct shipments to customers, the related inventory and cost of sales are recognized on a specific-identification basis. These choices seem appropriate because they are practical. Nike likely purchases very large lots of product from its supplies (e.g., thousands of pairs of a particular type of shoe), so using average cost seems appropriate. Once a shipment of inventory is in transit to a customer, the costs of products in that shipment (which are based on the original average costs assigned) can be specifically identified.

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c. Nike outsources its manufacturing. Thus, depreciation expense relates to buildings and equipment used in selling and administrative activities. Nike's income statement classifies expenses by their function instead of their nature. Thus, Nike includes depreciation expense in demand creation expenses and in operating overhead.

d. Demand creation expense represents marketing and advertising expenses. In the notes, Nike states, "Demand creation expense consists of advertising and promotion costs, including costs of endorsement contracts, television, digital and print advertising, brand events and retail brand presentation. Advertising production costs are expensed the first time an advertisement is run."

e. The notes indicate that in 2016, income tax expense was $863 million, whereas the current amount of income taxes payable was $943 million, which means that Nike paid $80 million in tax that increased deferred tax assets or reduced deferred tax liabilities. Firms recognize deferred taxes for temporary differences between taxable income and income for financial reporting. The taxable income of Nike for 2016 was greater than its income before taxes for financial reporting. Note 9, "Income Taxes," in Nike's 2016 Form 10-K shows that the total deferred tax assets (net) increased by $108 million in 2016, while the total deferred tax liabilities increased by only $14 million. (Note: This information is not available in the case.) The increases in deferred tax assets arose from a combination of a variety of smaller changes (not a single large change), such as a $29 million increase related to inventories; a $39 million increase related to sales returns; a $16 million increase and a $27 million increase related to deferred compensation and stock-based compensation, respectively; a $34 million increase related to NOL carryforwards; and a $30 million increase related to undistributed earnings of foreign subsidiaries. The basis for measuring income tax *expense* is the amount of revenues and expenses recognized during the year for financial reporting. The basis for measuring income tax *payable* is the amount of revenues and expenses recognized during the year for tax reporting. Because these amounts are usually different, firms are required to recognize deferred tax assets and deferred tax liabilities on their balance sheets. Tax laws establish the manner of measuring taxable income. As long as firms apply these laws correctly in measuring their taxable income each year and pay the required taxes, they have no additional obligation to governmental entities at this time. The presence of a deferred tax liability on the balance sheet is not an indication that tax authorities have permitted firms to delay paying taxes. Rather, it indicates the desire of standard-setters to match accrual-based income tax expense with income before taxes for financial reporting.

Balance Sheet

f. The allowance for uncollectible accounts arises because, under accrual accounting, Nike recognizes revenue before it collects cash. The outstanding sales that have not yet been collected are reported in accounts receivable. Because Nike is not

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likely to collect 100% of the amount reported as sales revenue, it must recognize an expense for estimated uncollectible accounts and reduce gross accounts receivable to the amount it expects to collect in cash. Nike increases the balance in the allowance account for estimated uncollectible accounts arising from credit sales each year. It reduces the balance in the allowance account for actual customers' accounts deemed uncollectible.

g. The largest asset (in dollar amount) on Nike's balance sheet is Inventories. This reflects Nike's strategy as the world's leading seller of athletic footwear, apparel, and equipment. Because some of Nike sales occur through Nike's own stores and through Nike's online sales system, it must carry additional inventory. For many firms, property, plant, and equipment is often the largest asset category on the balance sheet, but this is not the case for Nike because it outsources its manufacturing of inventory.

h. The notes indicate that Nike uses the straight-line method for buildings and leasehold improvements, and machinery and equipment. As with the inventory cost-flow assumption, standard-setting bodies give firms freedom to select any depreciation method from those deemed acceptable, including accelerated depreciation methods. These bodies do not provide criteria as to which method is more "appropriate" for a particular firm. Nike likely uses accelerated depreciation methods for income tax reporting even though it uses straight-line methods for financial reporting. The accelerated methods that Nike uses for tax reporting are determined by the government's tax accounting rules, which permit accelerated deductions for depreciation to encourage capital investments. Thus, Nike incurs greater record-keeping costs by using different depreciation methods for financial and tax reporting, but likely defers payment of taxes.

i. U.S. GAAP require firms to expense in the year incurred any expenditures (for example, advertising, promotion, and quality control) to develop intangibles (for example, patents, trademarks, and brand names). Thus, expenditures made to develop the Nike name or its trademarks will not appear on the balance sheet as assets. Expenditures made to purchase intangibles from other firms will appear on the balance sheet as assets (in some cases subject to amortization). Most of the identifiable intangible assets and goodwill appearing on Nike's balance sheet arose from the acquisition of Converse Inc. in 2004 and Umbro in 2008.

Statement of Cash Flows

j. Under U.S. GAAP and IFRS, firms must use the accrual basis of accounting when measuring net income. Firms usually recognize revenue at the time of sale of goods and services, not necessarily when they receive cash from customers. Regardless of when they expend cash, firms recognize expenses when they consume assets or incur obligations. The accrual basis gives a better indication of a firm's operating performance than the cash basis does because of the recognition

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of resources generated and consumed in a particular period, apart from the cash flows of the period. The operating activities section of the statement of cash flows reports the amount of cash received from customers net of amounts paid to suppliers of goods and services.

k. Depreciation expense reduces net income but does not require a cash expenditure in the year of the expense recognition. The cash outflow occurred in the year a firm acquired the property, plant, and equipment; the firm classified the cash outflow as an investing activity in the statement of cash flows at that time. The addition adds back to net income the amount subtracted in calculating earnings for the year.

l. Net income on the first line of the statement of cash flows includes revenues recognized each year. Nike does not necessarily collect cash each year in an amount exactly equal to revenues. It may collect cash during 20XX from sales made in prior years, and it may not collect cash on some sales made in 20XX until later years. The subtraction for the increase in accounts receivable means that Nike received less cash than it recognized as sales revenue.

m. Net income on the first line of the statement of cash flows includes a subtraction for the cost of goods sold during each year. Nike will likely purchase a different amount of inventory than it sells. An increase in inventories means that Nike purchased more than it sold. Thus, the cash outflow for purchases potentially exceeds cost of goods sold and requires a subtraction from net income for the additional cash required. Whether additional cash was in fact required in any year depends on the change in accounts payable, discussed next.

n. Accounts payable reflects amounts owed to suppliers for inventory items purchased. Purchases of inventory items increase this liability, and cash payments reduce it. The adjustment for inventory in Solution m converted cost of goods sold to inventory purchases. The adjustment for accounts payable converts purchases to cash payments to suppliers. An increase in accounts payable means that Nike purchased more than its cash payments for purchases. Thus, the adjustments for the change in inventories and the change in accounts payable convert cost of goods sold included in net income to cash payments to suppliers for inventory items.

o. The big drop in cash flows provided by operations from 2015 to 2016 appears to be driven primarily by changes in accounts payable, accrued liabilities, and income taxes payable. In fiscal 2015, those accounts were a source of $1,237 million in cash flows for Nike, whereas they were a use of $889 million in fiscal 2016.

p. Nike's primary financing activities during fiscal 2014, 2015, and 2016 involve distributing cash to shareholders through dividend payments and share repurchases. In aggregate over this period, Nike used a total of $8,400 million in cash for share repurchases and a total of $2,720 million in cash for dividend payments.

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Relations between Financial Statement Items (amounts in millions):

q. Cash collected from customers:

Sales Revenue	$ 32,376
Decrease in Accounts Receivable *	60
Cash Collected from Customers	$ 32,436

*Amount taken from the Consolidated Statement of Cash Flows.

r. Cash paid to suppliers:

Cost of Sales	$ 17,405
Increase in Inventories*	590
Cost of Inventories Purchased	$ 17,995
Increase in Accounts Payable**	(60)
Cash Paid for Purchases of Inventory	$ 17,935

*Amount taken from the Consolidated Statement of Cash Flows.
**Amount taken from the Consolidated Balance Sheet. It represents the change in Accounts Payable during the year.

s. Reconcile the change in retained earnings:

Retained Earnings:	
Balance, May 31, 2015	$ 4,685
Net Income in fiscal 2016	3,760
Dividends in fiscal 2016	(1,022)
Stock Repurchases in fiscal 2016	(3,238)
Other Adjustments (Plug)	(34)
Balance, May 31, 2016	$ 4,151

We can reconcile the change in retained earnings almost exactly, except for $34 million. From the 2016 Statement of Shareholders' Equity in Form 10-K (information that is not in the case), we can determine that a majority of this difference arise because the amounts of dividends declared in 2016 are greater than the amounts paid during 2016. This suggests there is some amount of dividends payable on the balance sheet at the end of fiscal 2016.

Interpreting Financial Statement Relationships

t. The improved net income/sales percentage in 2015 reflects the net result of several changes: a decrease in the cost of sales percentage, a decrease in the demand creation expenses, an increase in the other income, and a decrease in taxes, partially offset by an increase in the operating overhead expense percentage. From 2015 to 2016, the same primary reasons caused the increase in the net income/sales percentage.

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u. Nike outsources its manufacturing and most of the retailing of its products. Thus, the property, plant, and equipment needs of Nike for production purposes are minimal. The principal fixed assets are corporate headquarters, research facilities, warehouses, and transportation equipment. One might think of Nike as serving essentially a wholesaling function along with product development and promotion.

v. Nike has few fixed assets to serve as collateral for borrowing. Also, Nike generates more than sufficient cash flow from operations to finance the small amount of investments in fixed assets. Thus, Nike does not need significant notes payable or long-term debt financing.

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Instructor Manual

Wahlen, Financial Statement Analysis, 10e, 2023, 9780357722091; Chapter 1: Overview of Financial Reporting, Financial Statement Analysis, and Valuation

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Purpose and Perspective of the Chapter

Chapter 1 introduces the role of financial statement analysis and valuation in an efficient capital market and reviews the empirical evidence and association between changes in earnings and changes in stock prices. The purpose of Chapter 1 is to provide a broad overview of the six-step analysis and valuation framework that is the focus of this book and a logical process for analyzing and valuing companies. Various tools are introduced for assessing and identifying a firm's specific strategies for achieving and maintaining competitive advantage within an industry.

Financial statements play a central role in the analysis and valuation of a firm. The objective of financial statement analysis is to assess whether the market is over- or undervaluing a firm's shares. Security analysts collect and analyze a wide array of information from financial statements and other sources to evaluate a firm's current and past performance, predict its future performance, and then estimate the value of the firm's shares. The chapter explains the purpose, underlying concepts, and format of the balance sheet, income statement, and statement of cash flows, as well as the importance of accounting quality.

Beginning in Chapter 1 and throughout the text, useful tools for analyzing a firm's profitability, growth, and risk, including financial ratios, common-size financial statements, and percentage change financial statements are demonstrated, as well as how to use this information to forecast the future business activities and value of a firm.

Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Resource Center.

- Educator's Guide
- PowerPoint® slides
- Test bank powered by Cognero®

List of Student Downloads

Students should download the following items from the Student Companion Center to complete the activities and assignments related to this chapter:

- Financial Statement Analysis Package (FSAP)

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Chapter Objectives

The following objectives are addressed in this chapter:

Obj. 1 Describe the six-step analytical framework that is the logical structure for financial statement analysis and valuation. It is the foundation for this book.

Obj. 2 Apply tools for assessing the economic characteristics that drive competition in an industry, including (a) Porter's five forces framework, (b) value chain analysis, and (c) an economic attributes framework; then identify the firm's specific strategies for achieving and maintaining competitive advantage within that industry.

Obj. 3 Explain the purpose, underlying concepts, and format of the balance sheet, income statement, and statement of cash flows, and the importance of accounting quality.

Obj. 4 Obtain an overview of useful tools for analyzing a firm's profitability, growth, and risk, including financial ratios, common-size financial statements, and percentage change financial statements, as well as how to use this information to forecast the future business activities of a firm, and to value a firm.

Obj. 5 Consider the role of financial statement analysis and valuation in an efficient capital market, and review empirical evidence on the association between changes in earnings and changes in stock prices.

Obj. 6 Become familiar with sources of financial information available for publicly held firms.

Complete List of Chapter Activities and Assessments

For additional guidance refer to the Teaching Online Guide.

Chapter Objective	PPT slide	Activity/Assessment
Introduction	4	Icebreaker
Obj. 2	12–13	Knowledge Check Activity 1
Obj. 3	25–26	Knowledge Check Activity 2
Obj. 4	32–33	Knowledge Check Activity 3
Obj. 5	35–36	Discussion Activity 1
Obj. 6	38–39	Discussion Activity 2

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What's New in This Chapter

The following elements are improvements in this chapter from the previous edition:

- Introductory discussion of Clorox

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- Strategic framework analysis of Clorox
- Updated discussion of earnings and share prices
- New Walmart case

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Chapter Outline

In the outline below, each element includes references (in parentheses) to related content. "CH.##" refers to the chapter objective; "PPT Slide #" refers to the slide number in the PowerPoint deck for this chapter (provided in the PowerPoints section of the Instructor Resource Center); and, as applicable for each discipline, accreditation or certification standards ("BL 1.3.3"). Introduce the chapter and use the Ice Breaker in the PPT if desired, and if one is provided for this chapter. Review learning objectives for Chapter 1. (PPT Slides 2–3).

I. Overview of Financial Statement Analysis (1-1, PPT Slides 5–7, BUSPROG: Analytic, AICPA: FN-Measurement)
   a. Identify the economic characteristics of the industries in which a firm competes and map those characteristics into determinants of profitability, growth, and risk.
   b. Describe the strategies that a firm pursues to differentiate itself from competitors as a basis for evaluating a firm's competitive advantages, the sustainability and potential growth of a firm's earnings, and its risks.
   c. Evaluate the firm's financial statements, including the accounting concepts and methods that underlie them and the quality of the information they provide.
   d. Exhibit 1.2 (PPT Slide 6) illustrates the six interrelated sequential steps in financial statement analysis.
   e. Market prices reflect accounting information based on four links:
      - The accounting system mapping a firm's transactions and events into accounting fundamentals, such as earnings, cash flows, and book value of equity, reported on financial statements
      - Analysts and investors analyzing financial statement information to get a deep understanding of the firm's profitability, growth, and risk
      - Analysts and investors mapping accounting fundamentals into expectations of future earnings and cash flows, and then into estimates of share value
      - Trading activities mapping share value estimates into stock prices
   f. Clorox is a "golden-thread" case company throughout the book for three reasons.

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- First, most readers of this text are likely already familiar with Clorox as it is a leading multinational manufacturer of consumer and professional products.
- The second reason for using Clorox as an illustrative case throughout the book is that Clorox operates a fairly basic business—manufacturing, marketing, and distributing well recognized consumer products. This business model makes it more straightforward for us to understand the industry, Clorox's strategy, and its accounting information.
- Third, Clorox is an interesting business in light of the COVID-19 pandemic.

II. Step 1: Identify the Industry Economic Characteristics (1-2, PPT Slides 8–13, BUSPROG: Analytic, AICPA: FN-Measurement)

a. The economic characteristics and competitive dynamics of an industry play a key role in influencing the strategies employed by the firms in the industry.
b. Profitability, growth, and risk factors are relationships that can be observed in financial statements.
c. Porter suggests that five forces influence the level of competition and the profitability of firms in an industry.
d. PPT Slide 9 shows Porter's Five Forces Framework.
e. The value chain for an industry sets forth the sequence or chain of activities involved in the creation, manufacture, distribution, and sale of its products and services.
f. To the extent prices are available for products or services at each stage in the value chain, you can determine where value is added within an industry.
g. These items in the economics attributes framework can also be useful in studying an industry:
    - Demand
    - Supply
    - Manufacturing
    - Marketing
    - Investing and Financing

Step 2: Identify the Company Strategies

a. When a firm creates a strategy that successfully differentiates itself within its industry, it establishes a competitive advantage.
b. The framework for strategy analysis helps analyze the choices a firm makes in establishing its strategy within an industry, which includes:
    - Nature of product or service (Clorox describes itself as a multinational "manufacturer and marketer of consumer and professional products.")

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- Degree of integration in value chain (Clorox is heavily dependent on its retailers for distributions and sales and is not integrated downstream.)
- Degree of geographical diversification (Clorox has a limited degree of geographical diversification, with all non-U.S. sales aggregated in its international segment.)
- Degree of industry diversification (Clorox's products are concentrated in the consumer goods industry, within which Clorox has a moderate amount of product differentiation.)

c. **Knowledge Check Activity 1:** *Which of the following is a relationship that can be observed in financial statements?* (PPT Slides 12–13)
   - The answer is profitability.
   - Profitability, growth, and risk factors are relationships that can be observed in financial statements.

III. Step 3: Assess the Quality of Financial Statements (1-3, PPT Slides 14–26, BUSPROG: Analytic, AICPA: FN-Measurement)

a. Firms prepare four principal financial statements and two additional items to report the results of their activities:
   - Balance sheet
   - Income statement
   - Statement of comprehensive income
   - Statement of cash flows
   - Statement of shareholders' equity
   - Notes to the financial statements

b. Accounting information should be a fair and complete representation of the firm's economic performance, financial position, and risk.

c. Accounting information should provide relevant information to forecast the firm's expected future earnings and cash flows.

d. U.S. Generally Accepted Accounting Principles (GAAP) determine the measurement and reporting methods that American firms use in preparing financial statements.

e. The Financial Accounting Standards Board (FASB), a private-sector body within the accounting profession, specifies GAAP.

f. The International Accounting Standards Board (IASB) is responsible for developing International Financial Reporting Standards (IFRS).

g. The balance sheet, or statement of financial position, presents a snapshot of a firm's resources (assets) and claims on those resources (liabilities and shareholders' equity) as of a specific date.

h. The balance sheet derives its name from the fact that it reports the following balance, or equality:

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- Assets = Liabilities + Shareholders' Equity

i. A firm's assets are in balance with, or equal to, the claims on those assets by creditors (liabilities) and owners (shareholders' equity).
j. Assets are probable future economic benefits obtained or controlled by a particular entity because of past transactions or events.
k. A firm can only recognize assets as resources for which it:
    - Controls the rights to future economic benefits because of a past transaction or event
    - Can predict and measure, or quantify, the future benefits with a reasonable degree of precision and reliability
l. The principal asset categories include current assets, investments, property, plant and equipment, and intangibles.
m. Liabilities are probable future sacrifices of economic benefits arising from present obligations of a particular entity to transfer assets or provide services to other entities in the future because of past transactions or events.
n. Most liabilities are monetary, requiring future payments of cash.
o. Most firms (except banks) classify liabilities in either a current liabilities category, which includes obligations a firm expects to settle within one year, or a noncurrent liabilities category.
p. The shareholders' equity in a firm is a residual interest or claim, thus the owners are entitled to all the assets that are not required to pay creditors.
q. The valuation of assets and liabilities on the balance sheet determines the valuation of total shareholders' equity.
r. Balance sheets show shareholders' equity separated into:
    - Amounts invested by common shareholders for an ownership interest
    - Cumulative net income more than dividends declared
    - Shareholders' equity effects of the recognition or valuation of certain assets or liabilities
    - Treasury stock (for amounts a firm uses for repurchases of its own shares)
    - Noncontrolling interests
s. The income statement provides information about the profitability of a firm for a period of time.
t. Net income equals revenues and gains minus expenses and losses.
u. As a measure of performance for a period, revenues represent the resources generated by a firm and expenses represent the resources consumed during that period.
v. Gains and losses result from selling assets or settling liabilities for more or less than their book values.

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w. When using the income statement to assess a firm's profitability, it is important to focus not only its current and past profitability, but also the likeliness of sustainable earnings in the future.

x. The accrual basis provides a better measure of operating performance than the cash basis because it better captures the economics of a firm's periodic activities and performance than does simply reporting cash flows.

y. Under the accrual basis of accounting, a firm recognizes revenue when it meets the following two criteria:
   i. It has completed all or substantially all of the revenue-generating process by delivering products or services to customers.
   ii. It is reasonably certain it has satisfied a liability or generated an asset that it can measure reliably.

z. Firms often report income from recurring business activities separately from income effects from unusual or nonrecurring activities such as:
   - Asset impairments
   - Restructuring
   - Discontinued business segments
   - Extraordinary events

aa. U.S. GAAP and IFRS require that the income statement include separate sections for income from *continuing* operations and income from *discontinued* operations.

bb. Firms report discontinued operations separately from continuing operations so financial statement users can assess the portion of earnings that are likely to persist in the future.

cc. Comprehensive income equals all revenues, expenses, gains, and losses for a period, both realized and unrealized.

dd. Comprehensive income is measured as net income plus or minus the other comprehensive income items (if any). The five other comprehensive income items are unrealized gains and losses on:
   - Foreign currency translation
   - Cash flow hedges, net of tax
   - Pension and retired medical plan obligations, net of tax
   - Available-for-sale debt securities, net of tax
   - Revaluations of debt due to changes in the firm's own credit risk

ee. Other comprehensive income items are accumulated in a special equity account titled Accumulated Other Comprehensive Income or Loss (AOCI).

ff. The purpose of the statement of cash flows is to inform financial statement users about the sources and uses of cash.

gg. This statement is logically organized into its three business activities: operating, investing, and financing.

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hh. The notes to the financial statements explain the accounting principles, methods, and estimates used to prepare the financial statements.

ii. The Management Discussion and Analysis (MD&A) section of the financial statements provides insights into managers' strategies and their assessments and evaluation of the firm's performance.

jj. Independent auditors attest to the fairness and reliability of a firm's financial statements relative to U.S. GAAP.

kk. **Knowledge Check Activity 2:** *Which financial statement presents a snapshot of a company's assets, liabilities, and shareholders' equity as of a specific date?*

- The answer is balance sheet.
- The balance sheet, or statement of financial position, presents a snapshot of the resources of a firm (assets) and the claims on those resources (liabilities and shareholders' equity) as of a specific date.

IV. Step 4: Analyze Profitability and Risk (1-4, PPT Slides 27–33, BUSPROG: Analytic, AICPA: FN-Measurement)

a. Financial statements are useful for assessing the profitability and the risk of a firm.

b. Tools to assist in analyzing profitability and risk include:
   - Common-size financial statements
   - Percentage change financial statements
   - Financial statement ratios

c. Common-size financials are helpful in comparing firms of different size and comparing firms that prepare financials using different currencies.

d. Common-size percentages provide an insightful overview of financial position and operating performance:
   - Common-size balance sheets express all amounts as a percentage of total assets.
   - Common-size income statements express all items as a percentage of total revenues.

e. Percentage change financial statements are helpful in highlighting the relative rates of growth in financial statement amounts from year to year and over longer periods of time.

f. The amount of percentage change in an item is relative to its amount in the previous period and the compounded average percentage change over several prior periods.

g. Another form of percentage change is the compound annual growth rate (CAGR), which measures the average of the annual rate of return between two different years.

h. Financial statement ratios express relations among various items from the three financial statements.

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i. Ratios are effective indicators of various dimensions of profitability, growth, and risk and serve as useful signals of future profitability, growth, and risk.
j. Profitability ratios include earnings per share (EPS) and return on common equity (ROCE).
k. Risk ratios include the current ratio and calculating the standard deviation on the return on common equity (ROCE).

Step 5: Prepare Forecasted Financial Statements and Step 6: Value the Firm

a. The most difficult and crucial step is *forecasting* future financial statements because the quality of investment decisions rests on the reliability of forecasts.
b. Capital market participants most commonly use financial statement analysis to *value* firms.
c. Forecasts of future dividends, earnings, and cash flows form the basis for the most frequently used valuation models.
d. **Knowledge Check Activity 3:** *Which of the following is a tool to assist in analyzing profitability and risk?*
    - The answer is financial statement ratios.
    - Financial statement ratios express relations among various items from the three financial statements and are effective indicators of various dimensions of profitability, growth, and risk. The MD&A report, while helpful, is partially based on the opinions of management.

V. Role of Financial Statement Analysis in an Efficient Capital Market (1-5, PPT Slides 34–36, BUSPROG: Analytic, AICPA: FN-Measurement)

a. Security prices represent the aggregate information known by the capital markets about a firm.
b. Market efficiency describes the degree to which the capital market impounds information into security prices.
c. Research has shown that equity markets are not perfectly efficient.
d. With their expertise and access to information about firms, financial analysts and investors do the analysis and engage in the trading necessary to increase market efficiency.
e. **Discussion Activity 1:** *Analysts will often have varying opinions on the forecast of publicly traded companies. For example, investment firms will advise a decision on stock as "buy, hold, or sell". In groups of two to three students, go online to at least two finance websites such as finance.yahoo.com or cnbc.com. Look up a publicly traded company of your choice and scroll or search for the analysts' opinions of "buy, hold, or sell". What results did you find on the websites for the stock? Were the opinions consistent? If not, why do you think this is the case? Share your findings in a class discussion.*

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- Analysts may have different opinions on the "buy, hold, or sell" decision. While they may have conducted significant financial analysis of the profitability and risk of a company, there may be extenuating circumstances beyond what the numbers are saying.
- For example, there may be economic or global conditions that would reflect a negative opinion even when a stock has strong indicators or forecasts of profitability. There may also be a substantial threat from a competitor with a product or service that will impact the company. Likewise, a "rosy" picture of a company's future is not guaranteed. Due to a lot of possible financial issues within the economy, industries, and individual companies, analysts' opinions, while helpful, still involve risk.

VI. Sources of Financial Statement Information (1-6, PPT Slides 37–39, BUSPROG: Analytic, AICPA: FN-Measurement)

a. Publicly traded companies in the United States typically make the following information available:
   - Annual report to shareholders
     1. Includes two most recent years of balance sheets and income statements
     2. Includes management discussion and analysis letter (MD&A)
   - Form 10-K annual report
   - Form 10-Q quarterly report
   - Prospectus or registration statement (if firm intends to issue new bonds or equity shares)

b. **Discussion Activity 2:** *In groups of two to three students, go online to* ***www.sec.gov****. Click on Company Filings Search under the Filings menu, then enter the name or symbol of a large, publicly traded company of your choice. Select the company's latest 10-K annual report. Browse through the various components of the 10-K report, including the financial statements. What caught your attention in the 10-K report? Were you surprised at how much information it contains? Report your findings to your classmates in a class discussion.*
   - The 10-K report contains a lot of information about publicly traded companies. Most of the items are required per the SEC rules, although there may be additional information supplied as well.
   - While not necessarily easy to read, the purpose of the 10-K report is to provide publicly available information for external readers of financial statements so they can make decisions on potential or continued ownership of the company. For example, in the Disney filing, there is information about the various company segments, and

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students may find interesting data about the profitability of the company's theme parks and movie divisions.

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Discussion Questions

You can assign these questions several ways: in a discussion forum in your LMS; as whole-class discussions in person; or as a partner or group activity in class.

1. Discussion: Information Learned from the Balance Sheet (Step 3: Assess the Quality of the Financial Statements, 1-3, PPT Slides 16–19) Duration 10 minutes.
   a. As an investor, what information would you expect to learn from a company's balance sheet and why would this information be useful to you? Offer your thoughts in a class discussion.
      i. There are three categories of accounts listed on a company's balance sheet: assets, liabilities, and shareholders' equity accounts. The assets will include what the company owns of value. Items such as cash, inventory, accounts receivable, and property, plant and equipment will give investors an idea of how many resources a company has from which to run and prosper in their operations.
      ii. Liabilities will tell the investor what type of and how much debt a company owes to others. Examples include accounts payable, bonds payable, mortgages, and notes payable. This is vital information when considering how much debt is owed in comparison to a company's total assets. A high debt ratio can signal potential current or future liquidity issues that could increase the risk of a shareholder's investment in a company's stock.
      iii. Finally, the shareholders' equity accounts will indicate the ownership from outside investors, as well as a company's repurchased shares (if any). The net worth of a company can be determined using the accounting equation: Assets – Liabilities = Net Worth. An investor would like to see a company's net worth, as well as their retained earnings from operations, trend upward over time. This will give investors some measure of comfort that the company's operations are sustainable and the shareholder's investment in the company will provide a favorable return and perhaps dividends into the future.
      iv. There is much information to learn from analyzing a company's balance sheet, and the use of trend analysis, common-sizing, and financial statement ratios help investors to value a firm and determine to either buy, sell, or hold a company's stock.
2. Discussion: Information Learned from the Income Statement (Step 3: Assess the Quality of the Financial Statements, 1-3, PPT Slides 20–23) Duration 10 minutes.

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a. As an investor, what information would you expect to learn from a company's income statement and why would this information be useful to you? Offer your thoughts in a class discussion.
   i. The income statement provides information about the profitability of a firm for a period of time, typically a year, but it can also be reported on a quarterly or monthly basis. We often think of the income statement showing us "the bottom line," that is, the net income or loss located at the bottom of the statement. While this is an important amount to consider, many other line items listed in the income statement merit consideration.
   ii. When considering the performance of a firm for a given period, the revenues (top area of the income statement) are fairly important. Trends in sales, as well in all revenues, give a strong indication of the company's future, as does comparison of a firm's revenues to similar firms in the same industry. As mentioned in the chapter, it is important to focus not only on a company's current and past profitability, but also on the likeliness of sustainable earnings into the future.
   iii. It is also worthwhile to look closely at other items reported by a company, as indicated by cost of goods sold (if a manufacturer or retailer), and expenses, gains, losses, and discontinued operations. Horizontal and vertical analyses of these items, especially over a period of time, can help forecast trends such as increasing expenses that may become unsustainable in the future. The earnings per share ratio provided on a company's income statement is also valuable information for investors.

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Additional Activities and Assignments

1. **MindTap eReader**: Robust digital reading experience that allows note taking, highlighting, and is accessible with an online text-to-speech application.
2. **Chapter Quiz:** Assesses students' comprehension and retention of chapter reading material.

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APPENDIX

6-A

Other Examples of How SPEs Are Used to Obtain Off-Balance Sheet Financing

The purpose of this online appendix is to provide additional illustrations of how *special purpose entities (SPEs)* are used to obtain off-balance sheet financing. Concern over the misreporting of these arrangements prompted standard setters to define the concept of *variable interest entities (VIEs)* which encompass SPEs and other similar entity structures. Under financial accounting standards, In some cases, the SPEs described herein will be deemed VIEs that must be consolidated by the primary beneficiary of the VIE. The consolidation of VIEs is discussed more fully in Chapter 8. Given that the firm that must consolidate the VIE (i.e., the primary beneficiary of the VIE) is usually the firm that created it, the debt of the VIE will be added to the creating firm's balance sheet and off-balance sheet financing will not be achieved.

But, it is important to understand that SPEs have legitimate business purposes, often the isolation of some kind of risk at a entity that is legally separated from the creating firm. Accordingly, you should not equate the existence of an SPE with an attempt to hide liabilities. Instead, you should try to understand the basic SPE structure because creating an SPE is part of a firm's strategy.

Product Financing Arrangements

Product financing arrangements occur when a firm (sponsor) does either of the following:

- Sells inventory to another entity and, in a related transaction, agrees to repurchase the inventory at specified prices over specified times.
- Arranges for another entity to purchase inventory items on the firm's behalf and, in a related transaction, agrees to purchase the inventory items from the other entity.

The first arrangement is similar to the sale of receivables with recourse except that greater certainty exists that the inventory transaction will require a future cash outflow. The second arrangement is structured to appear as a purchase commitment. In this case, however, the sponsoring firm usually creates an SPE for the sole purpose of acquiring the inventory. The sponsoring firm usually guarantees the debt incurred by the SPE in acquiring the inventory.

Appendix Exhibit 6.1 illustrates the use of an SPE to accomplish the product financing arrangement. In transaction 1, the SPE acquires inventory from a supplier by issuing a note payable. The firm also agrees to purchase the inventory from the SPE in the future, which is a purchase commitment (transaction 2). Because it is executory, the firm records neither the inventory (i.e., the asset) nor the promise to pay for it (i.e., the liability). The firm generally guarantees the note, or the SPE uses the purchase commitment as evidence of lower lending risk. The firm purchases the inventory from the SPE with cash (transaction 3), which is then sent by the SPE to the supplier to pay off the note payable and interest.

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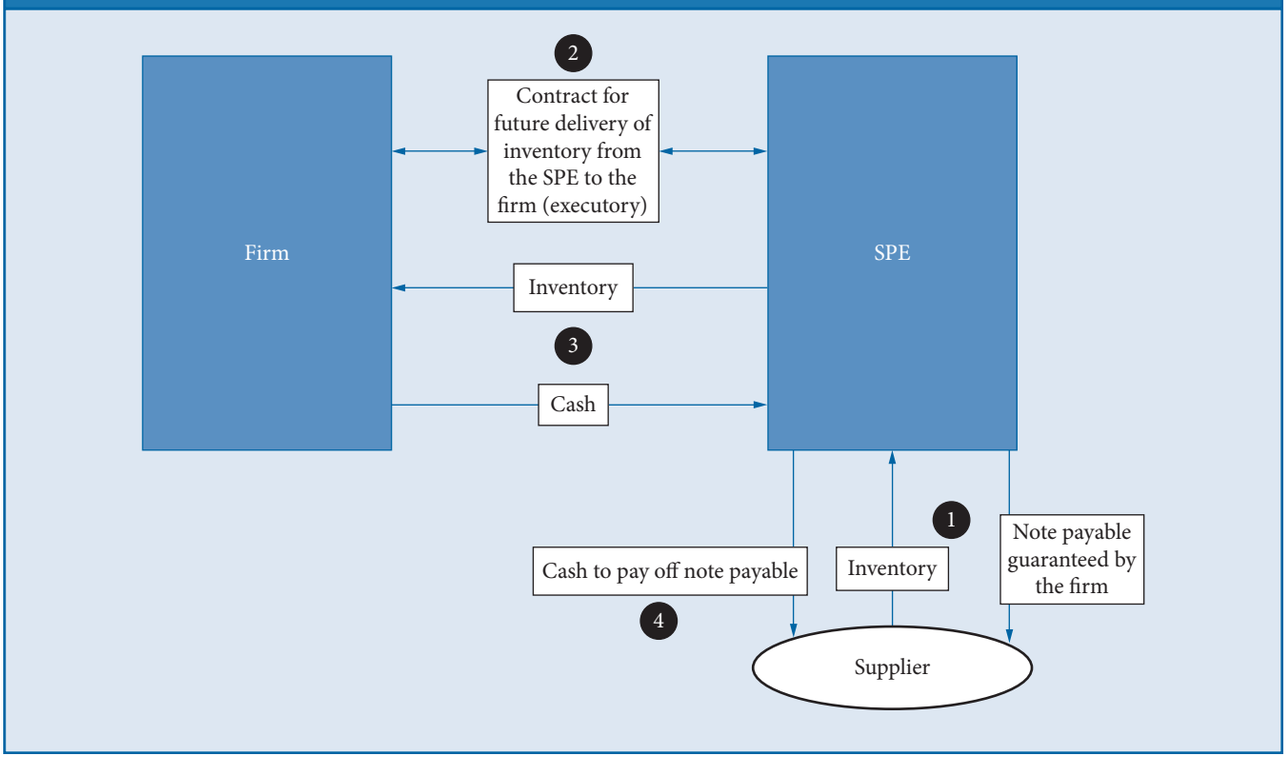
Appendix Exhibit 6.1

Product Financing Arrangement Using a Special-Purpose Entity (SPE)



Financial reporting requires that firms recognize product financing arrangements as liabilities if they meet two conditions:

- The arrangement requires the sponsoring firm to purchase the inventory, substantially identical inventory, or processed goods of which the inventory is a component at specified prices.
- The payments made to the other entity cover all acquisition, holding, and financing costs.[1]

The second criterion requires that the sponsoring firm recognize a liability whenever it incurs the economic risks (such as changing costs or interest rates) of purchasing and holding inventory, even though it may not physically control the inventory or have a legal obligation to the supplier of the inventory. Thus, as with sales of receivables with recourse, a firm recognizes a liability when it controls the determination of which party enjoys the economic benefits and incurs the economic risks of the asset involved. It also recognizes an asset of equal amount, usually inventory.

Use of Another Entity to Obtain Financing

Firms often use other entities to obtain asset financing in a way that permits neither the asset nor its financing to appear on the firm's balance sheet. Instead, they appear on the balance sheet of the other entity.

Suppose, for example, a firm needs additional manufacturing capacity but does not want to borrow funds to build the extra plant assets. Instead, it commits to purchase a certain amount of output from an unaffiliated company at a specified cost that covers operating and debt-service costs. The unaffiliated company takes the purchase commitment to a financial institution, obtains a loan, and uses the loan proceeds to construct the needed capacity. The new plant assets and

[1] *Financial Accounting Standards Board ASC 470.*

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the loan appear on the balance sheet of the unaffiliated company. The purchase commitment is a mutually unexecuted contract of the firm initially needing the additional manufacturing capacity. Recall that firms do not recognize executory contracts as liabilities.

Alternatively, the firm can accomplish the same result using an affiliated company, one over which the firm has a greater degree of influence than an unaffiliated one. The debt will not appear on the balance sheet if the firm is not required to prepare consolidated financial statements with the affiliated company. Consolidated statements aggregate the separate financial statements of two or more entities under the control of one of the entities. The debt will appear on the consolidated balance sheet as long as it appears on the balance sheet of any one entity in the consolidated group. To avoid consolidation, the firm needing the financing must not effectively *control* the entity obtaining the financing.

One way firms have avoided consolidation is to set up a joint venture with another entity, with each entity owning 50% of the common stock. In this case, neither firm controls the joint venture. U.S. GAAP currently does not require either firm to prepare consolidated financial statements with the joint venture. Another way firms have avoided consolidation is to set up an SPE to obtain financing. Then, the SPE either (1) constructs or acquires the asset desired by the firm attempting to keep debt off its balance sheet or (2) purchases the particular asset from this firm. In both cases, the asset held by the SPE serves as collateral for the loan. The lender to the SPE will likely require some commitment from the firm that sets up the SPE to ensure repayment of the loan. The commitment may take the form of a noncancelable purchase commitment or a loan guarantee. The key to avoiding consolidation is that effective control of the SPE must not reside primarily with the firm setting it up. The SPE must have economic substance of its own, and other parties—the lender or other equity owners—must be the primary beneficiaries of the SPE. The diagram of this type of arrangement is similar to Appendix Exhibit 6.1, except that, in transaction 1, the SPE obtains financing from a creditor and then constructs the productive asset and produces inventory in house.

Central to the bankruptcy of **Enron**, for example, was the misuse of SPEs to hold off-balance-sheet derivative instruments, securities, and other assets (such as power plants in India and Nigeria) while also keeping the related financing for these instruments and securities off the balance sheet. Enron did not consolidate these SPEs, maintaining that it did not control them. Later revelations showed that Enron had effective control, requiring it to restate its previously issued financial statements. The restatements increased assets and liabilities on the balance sheet and eliminated gains that Enron recognized on the "sale" of the assets to the SPEs.

Research and Development Financing Arrangements

When a firm borrows funds to conduct research and development (R&D), it recognizes a liability at the time of borrowing and recognizes expenses as it incurs R&D costs. Firms have engaged in innovative means of financing aimed at keeping liabilities off the balance sheet and effectively excluding R&D expenses from the income statement. For example, assume that two pharmaceutical firms form a joint venture to develop, manufacture, and market new products. Because joint ventures are owned equally by the two entities in each case, neither firm consolidates the financial statements of the joint venture with its own financial statements; instead, both report their share of ownership in the joint venture as an investment. Any liabilities of the joint venture appear only on the financial statements of the joint venture, not on either firm's balance sheet. Likewise, the R&D expense of the joint venture appears on neither firm's income statement.

Firms can also use other arrangements besides joint ventures. Although the structures vary somewhat across firms, they generally operate as follows (as illustrated in Appendix Exhibit 6.2):

- The sponsoring firm contributes either preliminary R&D work or rights to future products to a partnership in exchange for a general interest in the partnership (transaction 1).
- It obtains limited partners (often corporate directors or officers) who contribute cash for their partnership interests (transaction 2).

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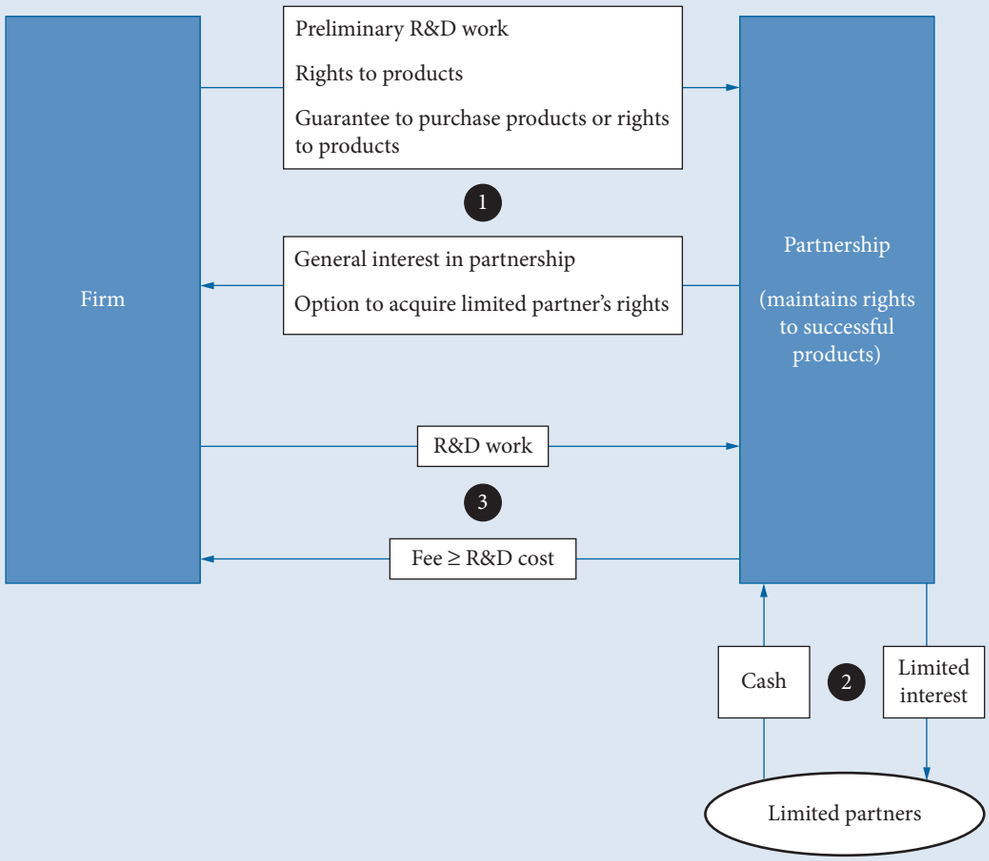
Appendix Exhibit 6.2

R&D Partnerships



- The sponsoring firm conducts R&D work for the partnership for a fee (transaction 3). The sponsoring firm usually performs the R&D on a best-efforts basis, with no guarantee of success. The sponsoring firm recognizes amounts received from the partnership for R&D services as revenues. The amount of revenue generally equals or exceeds the R&D costs it incurs.
- The rights to any resulting products usually reside in the partnership. However, the partnership agreement usually constrains the returns and risks of the limited partners. The sponsoring firm can often acquire the limited partners' interests in the partnership if valuable products emerge. The sponsoring firm may have to guarantee certain minimum royalty payments to the partnership or agree to purchase the partnership's rights to the product.

In arrangements such as these, a primary objective of the sponsoring firm involves obtaining financing for its R&D work without having to recognize a liability. Criteria exist for when firms must recognize such financing arrangements as liabilities.[2] The sponsoring firm must recognize a liability under either of the following conditions:

- The contractual agreement requires the sponsoring firm to repay any of the funds provided by the other parties regardless of the outcome of the R&D.
- Surrounding conditions indicate that the sponsoring firm bears the risk of failure of the R&D work even though the contractual agreement does not obligate it to repay the other

[2]*Financial Accounting Standards Board ASC 730.*

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parties. For example, if a sponsoring firm guarantees the debt of the partnership, must make minimum royalty payments to the partnership, or must acquire the partnership's interest in any product, the sponsoring firm will bear the risk of the R&D work.

As with the off-balance-sheet financing arrangements involving receivables and inventories discussed previously, firms recognize liabilities when they bear the risk associated with the asset or product involved in the financing of a joint venture for R&D.[3]

Take-or-Pay or Throughput Contracts

A take-or-pay contract is an agreement in which a purchaser agrees to pay specified amounts periodically to a seller for products or services. A throughput contract is similar to a take-or-pay contract except that the "product" purchased is transportation or processing services.

To understand the rationale for such arrangements, consider the following case. Suppose two petroleum companies need additional refining capacity. If either company builds a refinery, it will record an asset and any related financing on its balance sheet. Suppose instead that the two companies form a joint venture to construct a refinery. The joint venture obtains financing and constructs the refinery. To secure financing for the joint venture, the two petroleum companies sign take-or-pay contracts agreeing to make certain payments to the joint venture each period for refining services. The payments are sufficient to cover all of the refinery's operating and financing costs. The joint owners must make the payments even if they acquire no refinery services.

The economic substance of this arrangement is that each petroleum company owns half of the refinery and is obligated for half of the financing. The legal status of the arrangement is that the two firms have simply signed noncancelable purchase commitments (that is, executory contracts). Financial reporting treats these arrangements as executory contracts. At the time of signing the contract, the firms have not yet received any benefits that obligate them to pay. As they receive benefits or incur obligations over time, a liability arises. If one or the other entity guarantees the debt of the partnership, the guarantee is a contingent obligation, which is not recognized as a liability until future events indicate that payment is probable.

Financial reporting requires firms to disclose take-or-pay and throughput commitments in the notes.[4] You should examine the disclosures of these commitments in notes to the financial statements to assess whether the firm incurs the risks and rewards of the arrangement and should therefore recognize a liability.

[3]A study of firms that conduct their R&D through limited partnerships found that the stock market appears to consider the call option that firms have on research findings in the valuation of the firm. The author calls for improved disclosure of these arrangements instead of recognition of a liability in the balance sheet. See Terry Shevlin, "The Valuation of R&D Firms with R&D Limited Partnerships," *Accounting Review* (January 1991), pp. 1–21.

[4]*Financial Accounting Standards Board ASC 440.*

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