APPENDIX D

RETAIL INVENTORY METHOD

Accounting for inventory in a retail operation presents several challenges. Retailers with certain types of inventory may use the specific identification method to value their inventories. Such an approach makes sense when individual inventory units are significant, such as automobiles, pianos, or fur coats. However, imagine attempting to use such an approach at **Wal-Mart**, **True-Value Hardware**, **Sears**, or **Bloomingdale's**—high-volume retailers that have many different types of merchandise. It would be extremely difficult to determine the cost of each sale, to enter cost codes on the tickets, to change the codes to reflect declines in value of the merchandise, to allocate costs such as transportation, and so on.

An alternative is to compile the inventories at retail prices. In most retail concerns, an observable pattern between cost and price exists. Retail prices can therefore be converted to cost through use of a formula. This method, called the **retail inventory method**, **requires that a record be kept of (1) the total cost and retail value of goods purchased, (2) the total cost and retail value of the goods available for sale**, **and (3) the sales for the period**.

Here is how it works: The sales for the period are deducted from the retail value of the goods available for sale, to produce an estimated inventory (goods on hand) at retail. The ratio of cost to retail for all goods passing through a department or firm is then determined by dividing the total goods available for sale at cost by the total goods available at retail. The inventory valued at retail is converted to ending inventory at cost by applying the cost-to-retail ratio. Use of the retail inventory method is very common. For example, **Safeway** supermarkets uses the retail inventory method, as do the department stores of **Target Corp**. The retail inventory method is illustrated below with assumed data for **Best Buy**.

> **OBJECTIVE 1**
> **Determine ending inventory by applying the retail inventory method.**

Illustration D-1
Retail Inventory Method

Best Buy
(current period)

	Cost	Retail
Beginning inventory	$14,000	$ 20,000
Purchases	63,000	90,000
Goods available for sale	$77,000	110,000
Deduct: Sales		85,000
Ending inventory, at retail		$ 25,000
Ratio of cost to retail ($77,000 ÷ $110,000)		70%
Ending inventory at cost (70% of $25,000)		$17,500

To avoid a potential overstatement of the inventory, the retailer makes periodic inventory counts, especially in operations where loss due to shoplifting and breakage is common.

There are different versions of the retail inventory method—the conventional (lower-of-average-cost-or-market) method, the cost method, the LIFO retail method, and the dollar-value LIFO retail method. Regardless of which version is used, the retail inventory method is sanctioned by the IRS, various retail associations, and the accounting profession. One of its advantages is that the inventory balance **can be approximated without a physical count**.

The retail inventory method is particularly useful for any type of interim report, because a fairly quick and reliable measure of the inventory value is usually needed. Insurance adjusters often use this approach to estimate losses from fire, flood, or other type of casualty. This method also acts as a **control device** because any deviations from a physical count at the end of the year have to be explained. In addition, the retail method **expedites the physical inventory count** at the end of the year. The crew taking the physical inventory need record only the retail price of each item; there is no need to look up each item's invoice cost, thereby saving time and expense.

RETAIL METHOD CONCEPTS

The amounts shown in the Retail column of Illustration D-1 represent the original retail prices, assuming no price changes. Sales prices are frequently marked up or down. For retailers, the term **markup** means an additional markup of the original retail price. (In another context, such as the gross profit discussion in Chapter 9, we often think of markup on the basis of cost.) **Markup cancellations** are decreases in prices of merchandise that had been marked up above the original retail price.

Markdowns below the original sales prices may be necessary because of a decrease in the general level of prices, special sales, soiled or damaged goods, overstocking, and competition. Markdowns are common in retailing these days. **Markdown cancellations** occur when the markdowns are later offset by increases in the prices of goods that had been marked down—such as after a one-day sale. Neither a markup cancellation nor a markdown cancellation can exceed the original markup or markdown.

To illustrate these different concepts, assume that Designer Clothing Store recently purchased 100 dress shirts from Marroway, Inc. The cost for these shirts was $1,500, or $15 a shirt. Designer Clothing established the selling price on these shirts at $30 a shirt. The manager noted that the shirts were selling quickly, so he added a markup of $5 per shirt. This markup made the price too high for customers, and sales lagged. The manager then reduced the price to $32. At this point we would say that Designer Clothing has had a markup of $5 and a markup cancellation of $3. As soon as the major marketing season passed, the manager marked the remaining shirts down to a sales price of $23. At this point, an additional markup cancellation of $2 has taken place, and a $7 markdown has occurred. If the shirts are later written up to $24, a markdown cancellation of $1 would occur.

RETAIL INVENTORY METHOD WITH MARKUPS AND MARKDOWNS—CONVENTIONAL METHOD

Retailers use markup and markdown concepts in developing the proper inventory valuation at the end of the accounting period. To obtain the appropriate inventory figures, proper treatment must be given to markups, markup cancellations, markdowns, and markdown cancellations.

To illustrate the different possibilities, consider the data for In-Fashion Stores Inc., shown in Illustration D-2 (page 1088). In-Fashion's ending inventory at cost can be calculated under two assumptions, A and B. (The reasons for the two will be explained later.)

Assumption A: Computes a cost ratio after markups (and markup cancellations) but before markdowns.

Assumption B: Computes a cost ratio after both markups and markdowns (and cancellations).

	Cost	Retail
Beginning inventory	$ 500	$ 1,000
Purchases (net)	20,000	35,000
Markups		3,000
Markup cancellations		1,000
Markdowns		2,500
Markdown cancellations		2,000
Sales (net)		25,000

In-Fashion Stores Inc.

	Cost	Retail
Beginning inventory	$ 500	$ 1,000
Purchases (net)	20,000	35,000
Merchandise available for sale	20,500	36,000
Add:		
Markups	$ 3,000	
Less: Markup cancellations	(1,000)	
Net markups		2,000
	20,500	38,000

Cost-to-retail ratio $\dfrac{\$20,500}{\$38,000}$ = 53.9% .... **(A)**

	Cost	Retail
Deduct:		
Markdowns		2,500
Less: Markdown cancellations		(2,000)
Net markdowns		500
	$20,500	37,500

Cost-to-retail ratio $\dfrac{\$20,500}{\$37,500}$ = 54.7% .... **(B)**

	Retail
Deduct: Sales (net)	25,000
Ending inventory at retail	$12,500

The computations for In-Fashion Stores are:

Ending Inventory at Retail	×	**Cost Ratio**	=	**Value of Ending Inventory**
Assumption A: $12,500	×	53.9%	=	$6,737.50
Assumption B: $12,500	×	54.7%	=	$6,837.50

The question becomes: Which assumption and which percentage should be employed to compute the ending inventory valuation?

The answer depends on the retail inventory method chosen. **The conventional retail inventory method uses only assumption A. It is designed to approximate the lower-of-average-cost-or-market.** We will refer to this approach as the **lower-of-cost-or-market-approach** or the **conventional retail inventory method**. To understand why the markups but not the markdowns are considered in the cost percentage, we must understand how a retail outlet operates. Markup normally indicates that the market value of

the item has increased. On the other hand, a markdown means that a decline in the utility of that item has occurred. Therefore, if we attempt to approximate the lower-of-cost-or-market, markdowns are considered a current loss and are not involved in the calculation of the cost-to-retail ratio. Thus, the cost-to-retail ratio is lower, which leads to an approximate lower-of-cost-or-market.

An example will make this clear. Assume that **Office Depot** purchased two items for $5 apiece, and established an original sales price of $10 each. One item was subsequently written down to $2. Assuming no sales for the period, **if markdowns are considered** in the cost-to-retail ratio (assumption B, above), the company would compute the ending inventory as follows.

	Cost	Retail
Markdowns Included in Cost-to-Retail Ratio		
Purchases	$10	$20
Deduct: Markdowns		8
Ending inventory, at retail		$12

Cost-to-retail ratio $\dfrac{\$10}{\$12} = 83.3\%$

Ending inventory at cost ($12 × .833) = $10

Illustration D-4
Retail Inventory Method Including Markdowns — Cost Method

This approach is the **cost method**. It reflects an average cost of the two items of the commodity without considering the loss on the one item.

If markdowns are not considered, the result is the lower-of-cost-or-market method (assumption A). The calculation is made as shown below.

	Cost	Retail
Markdowns Not Included in Cost-to-Retail Ratio		
Purchases	$10	$20

Cost-to-retail ratio $\dfrac{\$10}{\$20} = 50\%$

		Retail
Deduct: Markdowns		8
Ending inventory, at retail		$12

Ending inventory, at cost ($12 × .50) = $6

Illustration D-5
Retail Inventory Method Excluding Markdowns — Conventional Method (LCM)

Under the conventional retail inventory method (when markdowns are **not** considered in computing the cost-to-retail ratio), the ratio would be 50% ($10/$20), and ending inventory would be $6 ($12 × 0.50).

The inventory valuation of $6 reflects two inventory items, one inventoried at $5, the other at $1. Basically, the sales price was reduced from $10 to $2, and the cost was reduced from $5 to $1.[1] To approximate the lower-of-cost-or-market, therefore, the

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[1]This figure is really not market (replacement cost) but is net realizable value less the normal margin that is allowed. In other words, the sale price of the goods written down is $2, but subtracting a normal margin of 50% ($5 cost, $10 price), the figure becomes $1.

cost-to-retail ratio must be established by dividing the cost of goods available by the sum of the original retail price of these goods plus the net markups; the markdowns and markdown cancellations are excluded. The basic format for the retail inventory method using the lower of cost or market approach is shown in Illustration D-6 using the In-Fashion Stores information.

Illustration D-6
Comprehensive
Conventional Retail
Inventory Method Format

In-Fashion Stores Inc.

	Cost		Retail
Beginning inventory	$ 500		$ 1,000
Purchases (net)	20,000		35,000
Totals	20,500		36,000
Add: Net markups			
Markups		$3,000	
Markup cancellations		1,000	2,000
Totals	$20,500	→	38,000
Deduct: Net markdowns			
Markdowns		2,500	
Markdown cancellations		2,000	500
Sales price of goods available			37,500
Deduct: Sales (net)			25,000
Ending inventory, at retail			$12,500

$$\text{Cost-to-Retail Ratio} = \frac{\text{Cost of Goods Available}}{\text{Original Retail Price of Goods Available, Plus Net Markups}}$$

$$= \frac{\$20,500}{\$38,000} = 53.9\%$$

Ending inventory at lower of cost or market (53.9% × $12,500) $6,737.50

Because an averaging effect occurs, an exact lower of cost or market inventory valuation is ordinarily not obtained, but an adequate approximation can be achieved. In contrast, adding net markups **and** deducting net markdowns yields **approximate cost**.

SPECIAL ITEMS RELATING TO RETAIL METHOD

The retail inventory method becomes more complicated when such items as freight-in, purchase returns and allowances, and purchase discounts are involved. **Freight costs** are treated as a part of the purchase cost. **Purchase returns** are ordinarily considered as a reduction of the price at both cost and retail. And **purchase discounts and allowances** usually are considered as a reduction of the cost of purchases. When the purchase allowance is not reflected by a reduction in the selling price, no adjustment is made to the retail column. In short, the treatment for the items affecting the cost column of the retail inventory approach follows the computation for cost of goods available for sale.

Note also that **sales returns and allowances** are considered as proper adjustments to gross sales; **sales discounts**, however, are not recognized when sales are recorded gross. To adjust for the sales discount account in such a situation would provide an ending inventory figure at retail that would be overvalued.

In addition, a number of special items require careful analysis. **Transfers-in** from another department, for example, should be reported in the same way as purchases from an outside enterprise. **Normal shortages** (breakage, damage, theft, shrinkage) should reduce

the retail column because these goods are no longer available for sale. Such costs are reflected in the selling price because a certain amount of shortage is considered normal in a retail enterprise. As a result, this amount is not considered in computing the cost-to-retail percentage. Rather, it is shown as a deduction similar to sales to arrive at ending inventory at retail. **Abnormal shortages** should be deducted from both the cost and retail columns and reported as a special inventory amount or as a loss. To do otherwise distorts the cost-to-retail ratio and overstates ending inventory. Finally, companies often provide their employees with special discounts to encourage loyalty, better performance, and so on. **Employee discounts** should be deducted from the retail column in the same way as sales. These discounts should not be considered in the cost-to-retail percentage because they do not reflect an overall change in the selling price.

Illustration D-7 shows some of these concepts. The company, Feminine Executive Apparel, determines its inventory using the conventional retail inventory method.

Illustration D-7
Conventional Retail Inventory Method — Special Items Included

Tutorial on LIFO Retail Method

Feminine Executive Apparel			
	Cost		Retail
Beginning inventory	$ 1,000		$ 1,800
Purchases	30,000		60,000
Freight-in	600		—
Purchase returns	(1,500)		(3,000)
Totals	30,100		58,800
Net markups			9,000
Abnormal shortage	(1,200)		(2,000)
Totals	$28,900		65,800
Deduct:			
Net markdowns			1,400
Sales		$36,000	
Sales returns		(900)	35,100
Employee discounts			800
Normal shortage			1,300
			$27,200

Cost-to-retail ratio = $\dfrac{\$28,900}{\$65,800}$ = 43.9%

Ending inventory at lower of cost or market (43.9% × $27,200) = $11,940.80

EVALUATION OF RETAIL INVENTORY METHOD

The retail inventory method of computing inventory is used widely (1) to permit the computation of net income without a physical count of inventory, (2) as a control measure in determining inventory shortages, (3) in regulating quantities of merchandise on hand, and (4) for insurance information.

One characteristic of the retail inventory method is that it **has an averaging effect on varying rates of gross profit**. When applied to an entire business where rates of gross profit vary among departments, no allowance is made for possible distortion of results because of such differences. Some companies refine the retail method under such conditions by computing inventory separately by departments or by classes of merchandise with similar gross profits. In addition, the reliability of this method assumes that the distribution of items in inventory is similar to the "mix" in the total goods available for sale.

Key Terms

conventional retail inventory method, 1088
cost-to-retail ratio, 1090
lower-of-cost-or-market approach, 1088
markdown, 1087

markdown cancellations, 1087
markup, 1087
markup cancellations, 1087
retail inventory method, 1086

Summary of Learning Objective for Appendix D

1 **Determine ending inventory by applying the retail inventory method.** The steps to determine ending inventory by applying the conventional retail method are: (1) Deduct the sales for the period from the retail value of the goods available for sale to produce an estimated inventory at retail. (2) Then, determine the ratio of cost to retail for all goods passing through a department or firm by dividing the total goods available for sale at cost by the total goods available at retail. (3) Convert the inventory valued at retail to approximate cost by applying the cost-to-retail ratio.

Exercises

ED-1 **(Retail Inventory Method)** Presented below is information related to Bobby Engram Company.

	Cost	Retail
Beginning inventory	$ 58,000	$100,000
Purchases (net)	122,000	200,000
Net markups		10,345
Net markdowns		26,135
Sales		186,000

Instructions

(a) Compute the ending inventory at retail.
(b) Compute a cost-to-retail percentage for the following cases. (Round to two decimals.)
    (1) Excluding both markups and markdowns.
    (2) Excluding markups but including markdowns.
    (3) Excluding markdowns but including markups.
    (4) Including both markdowns and markups.
(c) Which of the methods (1, 2, 3, or 4) in (b) above:
    (1) Provides the most conservative estimate of ending inventory?
    (2) Provides an approximation of lower-of-cost-or-market?
    (3) Is used in the conventional retail method?
(d) Compute ending inventory at lower-of-cost-or-market. (Round to nearest dollar.)
(e) Compute cost of goods sold based on (d).
(f) Compute gross margin based on (d).

ED-2 **(Retail Inventory Method)** Presented below is information related to Ricky Henderson Company.

	Cost	Retail
Beginning inventory	$ 200,000	$ 280,000
Purchases	1,375,000	2,140,000
Markups		95,000
Markup cancellations		15,000
Markdowns		35,000
Markdown cancellations		5,000
Sales		2,200,000

Instructions

Compute the inventory by the conventional retail inventory method.

ED-3 **(Retail Inventory Method)**   The records of Ellen's Boutique report the following data for the month of April.

Sales	$99,000	Purchases (at cost)	$48,000
Sales returns	2,000	Purchases (at sales price)	88,000
Markups	10,000	Purchase returns (at cost)	2,000
Markup cancellations	1,500	Purchase returns (at sales price)	3,000
Markdowns	9,300	Beginning inventory (at cost)	30,000
Markdown cancellations	2,800	Beginning inventory (at sales price)	46,500
Freight on purchases	2,400		

Instructions

Compute the ending inventory by the conventional retail inventory method.

Problems

PD-1 **(Retail Inventory Method)**   The records for the Clothing Department of Magdalena Aguilar's Discount Store are summarized below for the month of January.

Inventory; January 1:   at retail $25,000; at cost $17,000
Purchases in January: at retail $137,000; at cost $86,500
Freight-in: $7,000
Purchase returns: at retail $3,000; at cost $2,300
Purchase allowances: $2,200
Transfers in from suburb branch: at retail $13,000; at cost $9,200
Net markups: $8,000
Net markdowns: $4,000
Inventory losses due to normal breakage, etc.:   at retail $400
Sales at retail: $85,000
Sales returns: $2,400

Instructions

Compute the inventory for this department as of January 31, at **(a)** retail and **(b)** lower-of-average-cost-or-market.

PD-2 **(Retail Inventory Method)**   Presented below is information related to Edward Braddock Inc.

	Cost	Retail
Inventory, 12/31/07	$250,000	$ 390,000
Purchases	914,500	1,460,000
Purchase returns	60,000	80,000
Purchase discounts	18,000	—
Gross sales (after employee discounts)	—	1,460,000
Sales returns	—	97,500
Markups	—	120,000
Markup cancellations	—	40,000
Markdowns	—	45,000
Markdown cancellations	—	20,000
Freight-in	79,000	—
Employee discounts granted	—	8,000
Loss from breakage (normal)	—	2,500

Instructions

Assuming that Edward Braddock Inc. uses the conventional retail inventory method, compute the cost of its ending inventory at December 31, 2008.

PD-3 **(Retail Inventory Method)** Jared Jones Inc. uses the retail inventory method to estimate ending inventory for its monthly financial statements. The following data pertain to a single department for the month of October 2008.

Inventory, October 1, 2008		
At cost		$ 52,000
At retail		78,000
Purchases (exclusive of freight and returns)		
At cost		262,000
At retail		423,000
Freight-in		16,600
Purchase returns		
At cost		5,600
At retail		8,000
Markups		9,000
Markup cancellations		2,000
Markdowns (net)		3,600
Normal spoilage and breakage		10,000
Sales		380,000

Instructions

(a) Using the conventional retail method, prepare a schedule computing estimated lower-of-cost-or-market inventory for October 31, 2008.

(b) A department store using the conventional retail inventory method estimates the cost of its ending inventory as $60,000. An accurate physical count reveals only $47,000 of inventory at lower-of-cost-or-market. List the factors that may have caused the difference between the computed inventory and the physical count.