

# Chapter

## The Company Bank

Where did it go? You open your wallet and discover that the \$100 you withdrew from the bank just two days earlier is now a mere \$3—not enough walking-around money for the rest of the day. A quick glance at the checkbook register indicates that there are still a few hundred dollars in your account, so at lunchtime you rush to the bank, write another check for \$100, and enter the amount in the check register. The bank teller takes your check and keys your account number into his terminal. Yes, your balance will accommodate the amount of the check. Carefully, the teller counts the cash. When you ask for your computerized balance, the teller writes it down. Miraculously, the figure before you matches the balance in your register. With the cash tucked into your wallet, and the balance of your assets safely stored in the bank, you are once again ready to get on with your business.

Both you and your bank have been scrupulous in maintaining an accurate accounting of your personal assets. Why would we want to treat the inventory of our companies any differently? Shouldn't the records we keep for that inventory be as accurate and complete as those kept for our own bank accounts? For most companies, inventory is their greatest short-term asset. Yet few treat it that way. A careful examination of inventories for American manufacturing companies would find more than half of them inaccurate. In some companies, this is a real paradox. A company that carries \$15 million in inventory may easily be off in its accounting by half a million. The same company will proudly boast that its \$500 petty cash account is accurate to the penny. For some mysterious reason, business executives track currency closely, but as soon as that currency is converted into material, parts, or products, their interest or ability to account for them breaks down.

If a company's inventory records are inaccurate, that company cannot really know the state of its inventory assets. Without that knowledge, its ability to schedule or deliver what its customers want is significantly

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impaired. That impairment translates into a number of different costs, each of which reduces profits and negatively impacts operations. Individuals who do not maintain accurate checking records pay for their negligence in the form of excess cash balances (to guard against overdrafts), periodic overdraft penalties, and time spent straightening out the mess they invariably make of their financial affairs. Firms that treat inventory records casually likewise pay a price: large buffer stocks, periodic production interruptions, premiums paid for rush reorders, and wasted management time. Finally, as we will see, the MRP<sup>1</sup> and lean programs adopted by so many firms in recent years cannot hope to achieve their full potential when inventory records are unreliable.

### ■ WHAT ARE INVENTORY RECORDS?

Inventory records are hard copy or electronic documents that reflect how much and what kind of inventories a company has on hand, committed (allocated) to work-in-process, and on order. Just as a checkbook register is kept to tell us our balance at any given time without the necessity of going to the bank, these inventory records take the place of a laborious physical count every time we need to know our inventory status. Like a checking account, inventory levels are continually altered by purchases (deposits), allocations (checks outstanding), and sales (withdrawals and cashed checks written). The process is the same, but in the modern manufacturing firm, thousands of transactions may take place each day.

#### THE CASE OF THE VANISHING BEST-SELLER

A manager of a major New York book publisher was stunned by the reprint notice on his desk. It implied that he was almost out of stock on one of the firm's best-selling books. "Can't be," he thought. The monthly sales report indicated that there were 65,000 copies still in the warehouse. The firm used the *order point* inventory system to signal reorders of existing titles; that is, a reprint notice was generated and sent to the printer when the on-hand inventory balance

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<sup>1</sup>MRP: a set of techniques that uses bills of material, inventory data, and the master production schedule to calculate requirements for materials. For additional sources of information, see Darryl Landvater, *World Class Production and Inventory Management* (Essex Junction, VT: Oliver Wight Publications, 1993).

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reached a specified level—in the case of this book, 5,000 copies. The reprint quantity for this high-volume title was a whopping 100,000 units—not something you'd want to pile on top of an existing 65,000!

The publisher in question had a sophisticated and effective financial accounting system. With over 800 titles in print at any one time, and a continuous stream of individual books being shipped to and periodically returned from retail bookstores, it very effectively managed a complex burden of billings, credits, payments, and royalty statements. Errors were rare. Inventory accounting at the firm's several warehouses, however, did not operate with the same high level of precision: stock-outs of some titles and overstock of others were common, which made the manager immediately suspicious of the reprint order.

Sixty-five thousand books represented roughly 60 skids of packed cartons. The manager immediately called the warehouse manager, who responded, "All I have is 5,000. There's no way in hell there's an extra 60 skids of that title around here."

The manager insisted that they must be somewhere in the warehouse, and the next day he showed up at the warehouse door. The warehouse manager recruited two workers, and they all started combing the cavernous facility, which was about the size of a football field. Sometime around noon they found the missing 60 skids, which had been misidentified and placed in the back corner of the warehouse.

Had the manager not been so persistent, the firm would have generated an extra \$300,000 worth of inventory.

Material is received in the stockroom and its receipt is recorded. The material is moved to its proper place in the stockroom, and this, too, is recorded. The next day, the same material is moved to work center #1 for its first work-in-process step, and then on to work center #2, and so forth. When all work centers have finished with the material, it comes back to the stockroom. Each movement represents a transaction that is duly recorded. The following day, parts and materials are taken from the stockroom and sent to the assembly department, and those moves are recorded. When the assembly department has completed its work, the parts are moved back into stock, from which they are shipped to a customer, and the sales order is closed.

By keeping accurate and complete records of each transaction, we know where and how much we have at every point in the process.

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Unfortunately, many companies do not maintain a high level of inventory record accuracy. The result is confusion when accurate information is needed for making decisions on materials, production scheduling, marketing, and finance. These companies are forced either to make decisions based on questionable inventory records or to conduct time-consuming physical inventory checks before moving forward.

### ■ THE NEED FOR ACCURATE INVENTORY RECORDS

A company needs accurate inventory records for many reasons, the most basic of which is to create valid management plans.

#### ► **Financial Planning**

An accurate statement of inventory assets, both on hand and on order, eliminates the need for periodic physical inventories, allows the chief financial officer (CFO) to better anticipate the need for short-term financing, and enhances the firm's ability to produce accurate and timely cash-flow and financial reports. Profitability—and thus taxes—is affected by inventories. It is not uncommon for companies projecting year-end profitability to be surprised and embarrassed by losses when physical inventories reveal wide discrepancies between inventory records and physical inventory counts.

#### ► **Marketing and Sales Planning**

An accurate statement of finished goods—item by item, not by dollars—is the best way to know exactly what can be sold to customers. Marketing plans can then be implemented to focus sales activity on specific products. (The most effective inventory reduction program ever devised is to sell existing inventory.)

#### ► **New Product Planning**

In many cases, a company's introduction of a new product renders one or more of its current products obsolete. To avoid many nonsalable older products and obsolete components, new product introductions are usually timed to roughly coincide with projected depletion of the old product inventory. Failure to keep accurate records makes this important timing impossible to finesse; the result is either premature introduction of the new product and lots of obsolete inventory left on hand, or a

stock-out of the discontinued older product before its replacement is available for sale.

### ► Procurement Planning

If a company knows what it is going to make, when it is going to make it, and what inventory is on hand and on order, determination of the quantity and schedule of future procurements is a simple calculation. The methodology utilized by most companies to perform these calculations is called Material Requirements Planning (MRP).

### ► Production Planning

An accurate statement of on-hand inventory allows a company to utilize its people and production facilities more fully because shortages can be predicted before materials are physically staged. This is another function commonly performed by MRP.

### ► Just-in-Time (JIT)/Continuous Improvement (CI)/Lean<sup>2</sup>

*Just-in-time*, *continuous improvement*, and *lean* are powerful approaches to helping companies continuously improve their operations in the face of a more demanding competitive environment. A prime target of these programs is waste; waste is defined as any activity that does not add value and can take the form of excess inventory, setup times, inspection, material movement, transactions, or rejects.<sup>3</sup> Implementation of lean programs can lead to dramatically lower inventories. Far from reducing concern for inventory accuracy, however, the need for accuracy actually *increases* with lean programs, because lower on-hand balances translate directly to a greater opportunity for stock-outs.

In companies that actively pursue lean programs, inventory stock-rooms are smaller or have been eliminated altogether in favor of *point-of-use storage*, and inventory balances are maintained through techniques called *backflushing*. These issues will be addressed in Chapter 8.

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<sup>2</sup>Just-in-Time (JIT) and Continuous Improvement (CI) have been defined as “the ongoing and relentless pursuit of the elimination of waste.” They encompass an ever-growing set of practices and techniques that firms are now employing to find and eliminate waste. The authors have noted that more and more practitioners are using a simpler term to articulate the implementation of those waste-reducing practices: *lean*. For this reason, lean is used throughout this book in place of JIT and/or CI.

<sup>3</sup>William A. Sandras, Jr., *Just-in-Time: Making It Happen* (Essex Junction, VT: Oliver Wight Limited Publications, Inc., 1989), p. 9.

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### ► **Reduced Need for Physical Inventories**

Maintaining accurate inventory records can also have a major impact on the time-consuming and ultimately wasteful process of taking physical inventories.

The modern manufacturing plant, with its dependence on high-cost equipment and skilled operators, must move at a tightly scheduled pace if it hopes to be competitive. But no matter how sophisticated its production scheduling, no matter how advanced its material planning, its elegant system is a house of cards if the underlying inventory record system is badly flawed.

### ► **U.S. Government Requirements**

In 1988, the U.S. government established ten Material Management and Accounting System (MMAS) standards for federal contractors. Standard #5 requires contractors and subcontractors to “establish and maintain adequate levels of inventory accuracy” and affirms that “95% inventory record accuracy is desirable.”

These are the more common purposes for which companies need the ability to create and maintain accurate inventory records. Others not listed here may be equally important to individual firms.

## ■ **THE GOAL OF THIS BOOK**

This book is intended as a step-by-step guide to creating and maintaining item-by-item inventory record accuracy of 95 percent or better to serve those previously mentioned purposes. It will thoroughly discuss the inventorying process, present the tools at the disposal of the materials management practitioner, and offer insights into how those tools can be effectively applied.

The core of the presentation is a three-phase approach to developing a solid inventory record system. The first of these phases is concerned with the design of the inventory record system and the creation of the internal capabilities to put it into place and keep it operating. The second phase is the straightforward development of initial inventory balances. The third and final phase is concerned with the ongoing operation and control of the inventory record system, one in which responsibilities are clearly delineated and the sources of errors can be located and eliminated.

Because of the importance of *lean* to so many inventory and industrial managers, an entire chapter is devoted to its requirements for

record accuracy, and specific references to lean will be made throughout the text as appropriate. The chapters that follow will render full discussions of the following:

- The records a company should keep and how they should be kept
- Physical tools such as racks, scales, and bins
- Locating and addressing systems
- The transactions required to properly report and record events
- Timeliness of recording
- Demonstration of cycle counting techniques
- The correct way to take a physical inventory
- Details on the training needed to maintain high item-by-item inventory record accuracy

These tools have been applied successfully by small and large firms, in a wide variety of industrial settings. Whether a company is a process industry, a batch manufacturer or job shop—with or without a stockroom, with or without paper transactions—the inventorying process is the same, and the concepts and tools discussed here are applicable.

