Inventory Valuation

Wholesale distribution business accountants, owners, and managers have long struggled with the valuation of inventory. What the accountant views as the true value of inventory may not suit the owner or manager.

* Accounting wants an inventory that meets the requirements of standard accounting practices and can be supported in the event of an audit by a CPA or the I.R.S. Within those constrictions accountants will typically try to minimize the tax liability of the company.
* Ownership, especially if the company is a partnership or corporation, or if there is an interest in selling the company, is also interested in an inventory value that represents its value in the marketplace if it were to be liquidated.
* Management is most concerned with performance. Is inventory turning? Is the selling price generating an acceptable gross profit considering the cost of replacement of the stock? Are these measurements being made in a consistent method so that they are meaningful over time?

So the word true is a highly relative term in this case. With thousands of different products that are constantly being sold and replenished at different costs, the value of the stock in the warehouse at any given time is a matter of viewpoint. Even if the cost of the stock of an item was constant, subsequent market fluctuations may be said to influence the value of that stock. If you purchased gold at a lower cost than its current cost, is the value of that gold only what you paid for it or what you would have to pay to replace it?

Titan can value your inventory in a variety of ways via the general ledger and ad hoc reports. Because every inventory receipt and shipment is retained as an individual record with its own cost, this valuation can be extremely accurate depending on the method of valuation you prefer and how rigorously costs and postings are maintained. Also, with some methods of valuation, the value of the inventory shown in your general ledger may never match exactly the valuation shown on a report of inventory value of the total on hand quantities and costs of individual items in inventory. At the very least, if a journal entry is made to the inventory account, this will cause the account to be different from a report that totals the inventory on hand in Titan. Knowing what affects the inventory account in Titan GL and how the inventory is valued in non-GL based reports, especially the Titan Inventory Valuation report, is key to understanding these figures and what may cause them to vary.

Inventory values in the general ledger are typically held in one or more asset accounts. For the purpose of this document we will assume that just one account, INVENTORY, is used. Other GL accounts named here are generic and may not be the same in your chart of accounts. Debits (increases) to the INVENTORY account mostly come as a result of purchase order receipts (a credit to the AP CLEARING account), or an adjustment to the inventory account due to a physical count correction resulting in an increase in the count (a credit to the expense INVENTORY SHRINKAGE.) Credits (decreases) mostly result from sales (a debit to the COGS) or adjustments resulting in a decrease in the count (a debit to INVENTORY SHRINKAGE.) Note that the COGS of an invoice is as of the point when the invoice is posted, not when the order is created, since it may have changed before the item was actually shipped.

The amount of inventory related GL postings is determined by the cost of the item in question. The cost used in the posting to PURCHASES is relatively straight forward because it is dictated by the vendor’s charge for the item. But the posting of item cost to COGS or any adjustments, or just a valuation of the current inventory on hand, is not nearly so obvious. Since Titan maintains multiple costs per item, the question is which cost. This depends on the setting for inventory valuation in your system setup. This setting is displayed at the top of a number of Titan module screens and on the System Defaults IP tab. This setting cannot be changed from System Defaults. It can only be changed in the Titan system database. Changing this setting results in dramatic changes to costs used in the posting above and should only be done with careful consideration and in consultation with BCR support. If changed, it would normally be changed at the beginning of a fiscal year.

The four choices are LIFO, FIFO, Averaging and Standard.

* **LIFO** stands for Last In, First Out. LIFO has been a popular valuation method since the Eighties when high inflation rates were causing values and taxes to soar. With LIFO, during a period of inflation, the net value of inventory favors the costs earlier rather than later. If a unit of an item is first purchased for $1 and later another unit is purchased for $2, when a unit is sold it is costed at $2, leaving the remaining unit valued at $1. The last unit in at $2 was the first out.
* **FIFO** stands for First In, First Out. FIFO is the opposite of LIFO and tends to push the value towards the current cost. In the LIFO example above the cost of the unit sold would be $1 and the unit remaining would be valued at $2. The first unit in at $1 was the first out.
* **Averaging**, as it implies, costs units sold based on the average cost of the units on hand at the time. In the example above the cost of the unit sold and the unit remaining would both be $1.50.
* **Standard** uses the current standard cost of the item regardless of its previous costs. The cost of the unit sold and the unit remaining in this case would be $2. But if the cost of the item (its standard cost setting in Titan item maintenance) had been increased $2.50 to reflect the new cost of the item from the vendor then the cost of the units sold and remaining would be $2.50, even though that price had never been paid for the items in inventory.

Determining which method to use is a matter to be discussed between management and your company accountant. Generally LIFO is preferred by companies trying to minimize their taxes. But some accountants produce a LIFO inventory value off line using IRS approved value factors, and then just post the difference between the GL INVENTORY and the LIFO value figured off line as a LIFO RESERVE. This allows management to use whatever method suits its purposes without being concerned with the tax value.

FIFO is sometimes thought to be more accurate because older inventory is sold at its cost before newer inventory. But, unless the items rapidly depreciate after receipt, the difference in value between older and newer inventory of the same item, especially with hard-goods or durable goods, is probably nonexistent.

The best argument for average costing may simply be that it is a good compromise.

Standard costing, sometimes referred to as “replacement” or “next” cost because it is typically is what the item will cost the next time it is purchased, has the advantage of always forcing the perspective of what would it cost to replace the items currently in the warehouse and what is the profit when the item is sold if it is to be replaced. In the example above if the item is sold for $3 then the gross margin might be measured as 33% (LIFO), 67% (FIFO), or 50% (Average.) But if it costs $2.50 to replace the item then one might argue that the true gross margin should be 17%. Since most items are inventoried on a continuing basis many managers feel this is a more realistic measurement of performance. Of course, if costs are rising, this means that the total value of inventory will be higher. This is especially true if costs are rising dramatically, as in periods of high inflation. So some companies cost sales using standard costs as a measure of gross margin in pricing, but then run their inventory value at the end of the fiscal year based on another method, typically LIFO or FIFO, as described above.

The cost that is posted to COGS is determined by the valuation method at the time the invoice is posted UNLESS it is overridden prior to the posting of the invoice to the GL. The cost that appears in an order at the time the order is created may not be the cost posted because the cost may have changed depending on the valuation method.

# How Titan Calculates LIFO or FIFO Costs

The example used above simplifies the cost question by selling a quantity equal to the quantity received at one cost and leaving a quantity received at another cost. Obviously receipts and sales do not always occur in equal measures. In Titan, because information on all transactions is retained as distinct events, the software can calculate true LIFO or FIFO costs. For example, in a LIFO setting the software will compare the sales quantity to the quantity of the item on hand and the quantity of each receipt to determine which cost to use. If the last receipt was for ten units but you have sold eleven units since that receipt then clearly you have exhausted the ten and are now shipping from the previous receipt, which may have had a different cost. The ten last in have been sold so the eleventh unit was from the previous receiving. Titan keeps track of this with separate item cost records for each receipt. As quantities are sold the quantity on the appropriate record is reduced until it is completely depleted and then the next record is used. The total quantity of the records will equal the total quantity on hand. The order that the records are chosen to be reduced depends on whether the inventory method is LIFO or FIFO. If it is LIFO then the most recent receipt is depleted first. If it is FIFO then the oldest receipt is reduced first.

# How Titan Calculates Average Costs

Average costs are changed whenever there is a receipt at a cost that is different from the current average cost. Unless the cost of an item has never changed, the average cost will change with each receipt. For example, suppose that three units of an item were purchased at $1. Obviously the average cost is also $1. One unit is sold. Then three more units are purchased at $2. The new average cost is figured by adding the total value of two units remaining on hand at the current average cost (2 \* $1 = $2) to the value of the received (3 \* $2 = $6) and dividing by the total on hand (($2 + $6) / 5 = $1.60). Even if two units are then sold and five more are received at $2 the next average will not be $2. It will be the old on hand average value (3 \* $1.60 = $4.80) plus the new receipt’s value (5 \* $2 = $10) divided by the total now on hand ($14.80 / 8 = $1.85.) This is sometimes referred to as a “moving” or “weighted” average. If the cost remains at $2 then eventually the average will come within rounding of $2. It would only be exactly $2 when all of the on hand is depleted before the next receipt since there would not be any old on hand at average cost in the calculation.

Note that an average cost is maintained for items regardless of the inventory valuation method.

Titan maintains the separate item cost records in the ITEMCOST table. The creation and maintenance of the records in this table varies depending on the inventory valuation method. LIFO and FIFO creates new records for each receiving but depletes and deletes records in opposite order as quantities are sold, LIFO starting with the newest and FIFO the oldest. The total of the quantities for all records tied to a given item should equal the total on hand of that item. For average and standard methods only one record is maintained with the current quantity on hand and the current average cost. Another table, ITEMACT, contains a records of every transaction that affects the item quantity or settings that affect the way the item is inventoried, and the cost posted with that transaction. These tables, combined with the master ITEM table, can be extremely useful in creating specialized inventory valuation reports.

# The INVENTORY account in General Ledger

Is the value of inventory the amount of the INVENTORY account in GL or is it the total value of the on hand? If a single cost is associated with all of the units of an item on hand at any given time then it is very unlikely that the two figures would be the same unless the costs of all items had been static since the INVENTORY account was initially given a balance. Since Titan can calculate the current inventory value based on records of true LIFO or FIFO receipts, i.e., multiple costs per item, it is theoretically possible that the GL INVENTORY account and a valuation using those item cost records could match. But, as noted earlier there are generally four types of postings to GL that could affect INVENTORY account: purchases, sales, inventory quantity adjustments, and journal adjustments. The amount of the posting for purchases is largely an automated function and should consistently reflect the actual amount invoiced. But if the invoice from the vendor is not the anticipated cost and the difference is not accounted for properly then the received cost may not be consistent with the posting to INVENTORY. Likewise, the cost posted from a sale should be consistent with the inventory valuation method but if the cost is overridden by the user then the consistency is lost. The dollar amount of an inventory quantity adjustment can be overridden as well. And obviously any journal adjustment to the INVENTORY account would cause the account and the item cost records not to match. So even with a true LIFO or FIFO system great care must be taken if the GL and total of current item values are to match.

If Average or Standard valuation is used then the GL INVENTORY and current item values will almost certainly not match. This is because the INVENTORY account is changed with every transaction over time whereas a current valuation of items uses a single current cost, either average or standard.

# The Inventory Valuation Report

At different times accounting or management may wish to see a detailed valuation of the inventory. As noted, a report of the current inventory on hand of items and their value may not match the GL INVENTORY account balance. If LIFO, FIFO, or Average is used it may be very close, depending on the number of cost overrides, adjustments, and journal entries that will be outside of the true LIFO/FIFO/Avg tracking in the ITEMCOST table. If Standard, Most Recent, or Landed is used then the report and the GL INVENTORY balance are much less likely to match, depending on the point in time that the report is run and the vacillation in costs over time. Some companies choose to adjust the INVENTORY account to bring it back into line with the value shown on the report one or more times a year. This obviously affects the profit in GL. Other companies view the valuation purely from a manager’s standpoint and do not consider it to be related to the “book” value of inventory.

The Titan Inventory Valuation Report can be found on the Reports menu in the Inventory/Purchasing module. It allows valuation to be run using either the valuation method currently set (Actual) or using a single cost method like Standard (next), Most Recent (last), or Average. Actual will run from the ITEMCOST table and use the LIFO or FIFO method if that is the valuation setting. If the setting is either Average or Standard it still uses the ITEMCOST table but it will be exactly the same as Average. You can also change the date of the valuation and the system will use the on hand quantity as of that date. If the “Use current value only” option is checked for any cost method (it’s not an option for Actual) that cost will be pulled from the current item master file records. Otherwise it will pull costs from the item activity (ITEMACT) table records according to the Valuation Date. Reports can be run with different option setups for comparison purposes.

The following table will give you some idea of how values can vary depending on the method and whether you’re looking at the GL value or a valuation report. **Note that the example here uses extreme cost increases to make the differences more obvious.** Normally the differences would not be nearly as dramatic. The “Std Cost” is the replacement cost from the vendor at the time of the transaction. The last line indicates a cost increase prior to any additional transactions. This would only affect the valuation report using standard cost.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Purch/ (Sold) | Std Cost | posted to PURCHASES / (COGS) | INVENTORY account balance | On Hand | "Actual" on Inventory Valuation |
|  |  | LIFO | FIFO | AVG | STD | LIFO | FIFO | AVG | STD |  | LIFO | FIFO | AVG | STD |
| 3 | $1.00 | $3.00 | $3.00 | $3.00 | $3.00 | $3.00 | $3.00 | $3.00 | $3.00 | 3 | $3.00 | $3.00 | $3.00 | $3.00 |
| -1 | $2.00 | -$1.00 | -$1.00 | -$1.00 | -$2.00 | $2.00 | $2.00 | $2.00 | $1.00 | 2 | $2.00 | $2.00 | $2.00 | $4.00 |
| 3 | $2.00 | $6.00 | $6.00 | $6.00 | $6.00 | $8.00 | $8.00 | $8.00 | $7.00 | 5 | $8.00 | $8.00 | $8.00 | $10.00 |
| -2 | $2.00 | -$4.00 | -$2.00 | -$3.20 | -$4.00 | $4.00 | $6.00 | $4.80 | $3.00 | 3 | $4.00 | $6.00 | $4.80 | $6.00 |
| 5 | $2.00 | $10.00 | $10.00 | $10.00 | $10.00 | $14.00 | $16.00 | $14.80 | $13.00 | 8 | $14.00 | $16.00 | $14.80 | $16.00 |
|  | $3.00 |  |  |  |  |  |  |  |  |  | $14.00 | $16.00 | $14.80 | $24.00 |

As explained the costs are maintained in the ITEMCOST table. The table is updated after each receiving and sale. After the final receiving of 5 units in the example above the ITEMCOST table will hold dramatically different records:

LIFO will result in the table holding three records: a quantity of 2 at $2, a quantity of 1 at $2, and a quantity of 5 at $2. With the next sale the record of 5 at $2 will be depleted first. The last in is sold first.

FIFO will result in the table holding two records: a quantity of 3 at $2 and a quantity of 5 at $2. With the next sale the record of 3 at $2 will be depleted first. The first in is sold first.

Average will always result in just one record, in this case a quantity of 8 at $1.85 as of the last transaction. The quantity is updated with each sale and purchase and always matches the total on hand. The average cost is recalculated with each receiving. The on hand prior to receiving is multiplied by the average cost and added to the received quantity times the purchase cost. The total value is divided by the total on hand to determine the new average cost.