Passport Software, Inc.

Tips and Tricks #56 T-bars and Costing

Earlier this year we spent several issues of the T&T's covering the details of how PBS creates coordinated Orders and Purchase Orders. These essays discussed the necessary interconnects between the generating Order Entry order and the resulting Purchase Order. One very prominent aspect of this was the Purchase Order had to be shipped to the customer (instead of your warehouse) so the shipped items would not be received into your inventory and, in parallel, the Order Entry order had to be drop-shipped to the customer so the shipped items would remove these items, your local inventory. This, of course, has important ramifications about inventory costing, cost of sales and therefore the distribution transactions that go into the GL for costs and margins.

A second important element was the introduction of accrual accounts – accounts that held a value temporarily until the overall transaction was completed. (Here think about a purchase, on terms, where the purchase is made and you receive the material or items, but you don't pay for it for 20 or 30 days. Since you have the goods but don't have an invoice or statement for it, the transaction must be accrued in a holding account from the time you receive the goods until you pay for them. At which time the pay cycle will reverse that entry in the accrual account.

The final part of this exploration (Tips &Tricks #54 - The internal magic of creating Purchase Orders from OE Orders) had a verbal description of these GL transactions. E.g.:

1) OE Invoices create a drop ship line item which when posting costs will **credit** the **DSC (Drop Ship Clearing)** account and **debit** **CoS (Cost of Sales)**.

2) An auto created PO generated from the OE Order will be of the non-Inventory ("Other") type –meaning a receiving will not update (local) Inventory. As a result, the received value will **debit** the **DSC** account (which replaces the Inventory account for (local) warehouse Receivings). A **credit** to the **UIR (Uninvoiced Receivings)** account will be its offset.

3) The net effect of 1) and 2) will be a **net zero in the DSC.**

The DSC/ Drop Ship Clearing Account, CoS/ Cost of Sales and UIR/ UnInvoiced Receivings (i.e. inventory for which the vendor has not yet sent the invoice and therefore the cost of the goods, is strictly speaking, not yet a liability. The overall "net" of these three steps is that the Cost of Sales has been debited and the UIR account has been credited. When the invoice is received the UIR should be debited as part of creating the voucher distributions – the "expense" side – and the A/P account will be credited. This move from UIR to A/P and followed by the payment will effectively "move" this credit from UIR to Cash which means we then have a reduction of cash paying for the cost of sales as you would logically expect.

The purpose of the remainder of this piece is to introduce T-bars and show how T-bars work and provide you with a very "readable" graphical way of examining how the various generated GL transactions, like the above example, interact to give the correct set of distributions to your GL for cost and revenue. In a contrary fashion if you are already seeing problems with the accumulation of dollars and accounts in the wrong accounts in your GL, a T-bar analysis should allow you to see what is going wrong.

If you are already familiar with T-Bar you can skip down to the Analysis of Costs Section.

T-Bars – a simple example

T-Bars are a compact and clear way of graphically documenting both the timing (distribution date) and the target account(s) of GL transactions as they should be set up in the system. Let's use this easy example to get the idea clear. The scenario is on March 1st we purchased paper and printer in cartridges to the tune of $250. These are purchased from our local business supply store and so we walk out of the store with our purchases and with a register chit, but no invoice. Ten days later we get our statement from the store showing the purchase. Since we have 30-day terms, in 20 days (30 days from purchase date – March 1), we write a check for the materials. Here are the T-bars for these transactions:

Date	Transaction	Description	Cash		A/P		Office Supplies		Transaction Total
			DB	CR	DB	CR	DB	CR	
03/01/24	Purchase Supplies	We have Terms so this is not a recorded as a business transaction … yet							0.00
03/10/24	AP voucher	Receive Vendor Invoice/Statement. Enter it and post the voucher				250.00	250.00		0.00
03/30/24	Cut a Check	Pay Vendor for Office Supplies		250.00	250.00				0.00
		Totals:	**(250.00)**		**0.00**		**250.00**		**0.00**

Explanation:

- The table has rows corresponding to each transaction and columns for each possible GL account that might be hit. The columns are only populated when the transaction for a particular line uses a particular account. In other words, the combination of all entries in the line summarizes all the debit and credit amounts distributed for that transaction line. (In this simple example there is only one debit and credit per line, but in real life, this is frequently not the case.)

- For double entry bookkeeping we must have all the debits equaling all the credits i.e. the total across each line must be zero e.g. the right-hand column.
- The first line is simply a statement of the purchase, but since we walked out of the store with the goods but no invoice or statement, the transaction has not been formally started.
- On the 10th of the month, we receive the invoice/statement from the vendor, and we record it as a voucher. As part of the vouchering process, we are Debiting the Office Supplies account (the expense account) and Crediting the Accounts Payable account (acknowledging the liability). There could have been several "expense" columns that added up to the total sale if we had wanted to distribute the amounts to two or more different GL account e.g. Office Supplies (paper and Hardware Maintenance Parts and Supplies (printer, printer ink supplies).
- On the 30th of the month we write a check which will reduce the Cash account (credit Cash) and will clear the AP entry by offsetting it with a debit.
- Note both the last two transactions net to zero in each line.
- The Totals row gives us a summary of the net of the transaction set which is to reduce Cash showing the offsetting expense and as an Office Supply transaction. And this is exactly what you would expect when everything is netted out – you spent $250 in Cash and that bought you $250 in office supplies which you expensed to the Office Supplies account.
- If we ordered the materials through the Purchase Order System and these materials were to be placed into stock, three important additions will be made:
    - The first line would be replaced by a purchase receiving function that would create a debit in the amount of the received inventory.
    - The offset to this would be a credit to the UIR account which is an accrual/holding account, holding the cost value of the received inventory until it is processed through Accounts Payable.
    - In Accounts Payable (the second line above) the normal debit distribution to expense accounts (as in the example above) is changed to point to the UIR account instead of the expense account as above. So, the UIR is reversed. The AP Account distribution remains unchanged.

    The Check Pay portion of the cycle remains unchanged.

    The upshot of this is that the UIR is reversed and so the "net" of the processing through Receivings and then Accounts Payable is that the inventory is increased (debited) and the cash account is decreased (credited).

    Additionally, the above implies that, as a matter of efficiency, vendors that you normally use for purchasing inventory should have their default expense account set to the UIR value so that the expense distribution account defaulted to you during distribution entry in vouchering, is the UIR. Besides being more efficient this will also avoid the mistake (quite common) of accidentally distributing inventory invoices to an expense account i.e. to the P&L.

T-Bars for the Cost of Drop Ship Invoice that generates a Purchase Order

In this example we are retreading the ground that we covered in T&T #53 and #54 in documenting what happens when we create a PO through Order Entry. In this particular case we assume that we purchased $5,500 worth of goods and sold it to the customer for $7,000. Since this transaction included an auto generated Purchase Order coming from an OE Invoice and since there are gaps in time between the various steps that complete the transaction, there will be several accrual/suspense accounts invoked to hold the cost values through the process.

Costing side of the Customer Order and Purchase Order cycle:

Date	Transaction	Description	Cash		Inventory		A/P		Inventory Accrual = UnInv Rcv (UIR)		Cost of Sales		Drop Ship Clearing (DSC)		Trans Ttl
			DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	
04/01/24	OE Invoicing of PO'd items	Drop ship invoice									5,500.00			5,500.00	0.00
04/10/24	PO "Receiving"	Receiving does not update inventory but does record the receipt by the customer of the goods								5,500.00			5,500.00		0.00
04/15/24	Vendor Invoice	Vendor's invoice for delivered items						5,500.00	5,500.00						0.00
05/14/24	Pay for Goods	Cut check against voucher		5,500.00			5,500.00								0.00
		Totals:	(5,500.00)		0.00		0.00		0.00		5,500.00		0.00		0.00

Explanation:

- The first line corresponds to the Order Entry cycle including entry, pick ticket, invoice printing and posting. Only the last (posting) step generates GL distribution transactions and these correspond the recording of the Cost of Sales side of the transaction. Normally that cost will come from the inventory cost (typically average cost) of the item being shipped and the offset will be a credit to inventory (inventory asset value changed). In this case because this is a drop ship, no inventory will be shipped from your warehouse so the offset to the CoS Entry is a “holding account” (Drop Ship Clearing) that will hold the cost until the purchase cycle has registered the actual vendor costs that the vendor is charging you for the items being directly shipped to the customer.

  [The Drop Ship Clearing account is setup in the Order Entry Control, second tab and is automatically invoked when you hit F1 on the quantity to ship in the line-item entry part of an order. The Cost of Sales account is generated in the normal way i.e. typically based on the “Expense account” entry on the fourth tab of the Item master file entry for the item being ordered.]

- The next line is the PO “receiving” step. This is in quotes because no inventory is actually received. This step is just an acknowledgement, based on notification by the vendor, that the items have been shipped (directly) to the customer. This notification should confirm the quantities and the amounts of the shipped items. Note that this step clears the DSC because the item costs are now entering the accounts payable system as Uninvoiced Receivings. As a result, you can see that from a costing point of view this step provides GL transactions that effectively reclass the DSC credit value into the UIR.

[Since this is non-inventory receiving, the debit side distribution account for the items cost will be explicitly prompted for entry during the process of creating the PO line. In this case because we are drop shipping the item, we will give the Cost of Sales account. (By contrast, if we were receiving office supplies – another non-inventory receiving, we might use an Office Supplies account.) In effect, the CoS account debit used here will replace the debit that would normally be generated to record the increase in inventory value as a result of the receiving. Receivings done through the Purchase Order system will always use the UIR account as the credit side offset because while the cost is acknowledged during the receiving process itself, with the debit to CoS, the liability side (credit) will processed through the Accounts Payable and so this account holds that cost value until the vendor invoice for this receiving is vouchered. The account number for the UIR is stored in the IC Control file, second tab and is called "Balance sheet liability".

Note – Steps 1 and 2 could be reversed by not selecting, printing and posting the invoice until the shipment notification to the customer has been received i.e. step 1 would not be done until step 2 was complete. This might have the potential advantage of making sure the shipped quantities and costs were the same as the issued purchase order but would have the disadvantage of accumulating a number of uninvoiced orders in the system waiting on the shipment confirmations. In addition, this option might not provide customers with a timely notification of the shipment and prices. (The latter could be overcome by creating a Customer Order Acknowledgement document and emailing it – but that is additional overhead.)

- The third step in this process is vouchering the vendor Invoice. You will note that the dates for each of the above steps are different. In other words, costs generated in one step are carried forward to the next step and this third step is no different except now the UIR is in effect reclassed as Accounts Payable i.e. debit UIR, credit A/P. In vouchering the vendor invoice, we have therefore "officially acknowledged" the shipment as a liability.

  [The debit side "expense account account is determined when you create the distributions for the voucher and here you must select the UIR account. It is stored in the IC Control file, second tab and is called "Balance sheet liability". Please note the "Additional hint" given above on page 3 is applicable.]

- The fourth step in this process is cutting the check for the vendor. There is nothing unusual about this step as the AP value for the invoice/voucher is reversed (debited) and the Cash account is the offset credit.

Summary for Costs:

From the OE order with the automated Purchase Order issued, the Net of all four transactions including the three

reversed accruals, is that we send a cost for the order to Cost of Sales and book a reduction of Cash to pay for it.

Sales/Revenue/Pricing side of the Customer Order and Purchase Order cycle:

The price side i.e. the sale/revenue side of these transactions is quite simple and absolutely standard compared with “normal” OE cycle transactions. The invoice total is credited revenue. This may be complicated by the invoice total being made up of merchandise total, freight, misc. and other charged items. All of these could have their own sales/revenue account. This simply adds additional columns beside the Revenue/Sales column shown below but it does not change the fundamentals of the relationships.

Date	Transaction	Description	Cash		Inventory		A/P		A/R		Inventory Accrual = Uninv Rcv (UIR)		Revenue/Sales		Cost of Sales		Drop Ship Clearing (DSC)		Trans Ttl
			DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	DB	CR	
04/01/24	OE Invoicing of PO'd items	Drop ship invoice							7,000.00					7,000.00					0.00
04/16/24	Cash Receipts	Check for the invoice is received	7,000.00							7,000.00									0.00
		Totals:	7,000.00		0.00		0.00		0.00		0.00		(7,000.00)		0.00		0.00		0.00

could be multiple columns

Explanation:

- The first line corresponds to posting of the Drop-ship order from the Order Entry cycle. Of the entry, pick ticket, invoice printing and posting steps, only the last (posting) step generates GL distributions. The debits side is a posting to the A/R account recording and AR Open Item and the credit is posted to one or more revenue accounts. (Note in this case and consistent with the postings being credits, taxes that are included in the invoice will also be included in what may the multiple columns representing the invoice total in the chart above. Instead of being treated in the Revenue section of the P&L, these will be posted to liability accounts (Balance Sheet accounts) as money due to the taxing authority and as such represent another accrual account which will be reversed when the tax money is paid.)
- The second line corresponds to the receipt of payment from the customer. With this step the AR account is reversed (debited) and the cash account receives a debit.

Summary for Sales/Revenue:

From the OE order, the Net Net of the two transactions, is that we send a credit for the order value to one or more Sales/Revenue accounts and book an increase of Cash. This is what you would expect from a paid sales transaction.