# Calculating 'Turn' with WordStock

"Turn" is a retail term that refers to *the ratio of Sales to stock OnHand*. It is an abbreviation of "turnover" and denotes the number of times a store's inventory is "turned over" or "turned", *i.e.*, *the number of times the stock sells through, within a certain period*. The formula for calculating turn is:

$$\frac{\textbf{Sales for a period}}{\textbf{average stock OnHand for the same period}}$$

For example, to calculate the turn for the first quarter, you must know what the OnHand figure was at the beginning of the period (Jan 1) and at the end of the period (March 31) as well as some points in between, such as Feb 1 and March 1. The average OnHand is determined by adding these figures and dividing by the number of samplings. Then, Sales from Jan 1 through Mar 31 are divided by this average OnHand. Thus, turn for the first quarter is formulated as:

$$\frac{\textbf{Sales Jan 1 through Mar 31}}{\textbf{((OnHand Jan1 + OH Feb1 + OH Mar1 + OH Apr1)/4)}}$$

Many people assume that turn is being stated for a yearly period.

**Turn is often used as an indicator of a store's profitability because increasing turn typically improves cash flow.**

If you wish to extend the above formula for first quarter turn into a yearly figure, multiply it by 4 (the number of months in a year divided by the number of months in the period : 12/3 = 4).

In retail, stock levels, in units and dollars are changing constantly as items are received, sold, returned or transferred in and out. WordStock does not store what the OnHand figures were at points in the past.

Therefore, calculating turn from data printed on successive end-of-month reports is the most accurate method for deriving turn figures.

However, manually tracking and manipulating the data necessary to calculate turn precisely can be very labor intensive.

### Technical Note 1

In all of the turn calculations, the average OnHand is based in part by extrapolating from the current OnHand back to what the OnHand was at a point in the past. The extrapolation is based on recorded history — Sales, Purchases, Returns, Transfers. The inventory turn calculation can factor in manual changes to the record's OnHand but not if the Q O/S field has been cleared out, which happens during count updates. The turn calculations for the Product and Section files can not factor in manual changes to the On Hand figures or changes from inventory reconciliations. Therefore there is a certain margin of error in all of the calculations. It should be small for most stores, but may be significant in extreme cases, such as those stores who routinely receive books by modifying the OnHand quantities.

Your store's profitability depends upon having adequate stock to meet demand without overloading in items that are not selling.

Your aim should be to achieve a high turnover rate on your inventory because the fewer dollars you tie up in stock the more you can free up funds ['working capital'] for other business expenses. In determining an optimal level of goods in inventory, sales must be forecast.

Since sales depend on many factors outside of your control, inventory management can be very challenging: holding inventory levels at less than what is needed to support sales will cost you sales, while too much inventory cuts into profitability. Consequently, sales must be predicted and sufficient inventories held to satisfy the expected demand.

Moreover, to prepare for potential sales increases, some level of "safety stocks" must also be held. The amount of safety stock is determined by comparing the cost of maintaining this additional inventory against potential sales losses.

For example, last year you sold goods which cost $300,000 and your average inventory for the year was worth $75,000. The inventory turnover rate for last year was $300,000/ $75,000, or 4 times. Furthermore, your 'inventory turnover days' were 360 days/4 or 90 days.

These numbers indicate that during the past year, your inventory turned over 4 times and, on average, it took 90 days to sell the entire inventory. Remember: a low rate of turn often means too much stock, while high inventory turnover days can represent slow sales.

Finally, if the average industry turnover rate is 5 times, your business' ideal inventory levels for the year should have been $300,000/5, or $60,000. To the extent that both your operations and the industry's operations remain stable, this figure may be used as a guideline for determining appropriate inventory levels during the current year.

# Technical Note 2

The calculation called "CYr_YTD_Turn" is turn for the period of the YEAR TO DATE. If you rolled your yearly Sales on Jan 1 and it is is Dec 31, this figure will be your current year yearly turn. If not, this figure must be multiplied by 12 and divided by the number of months in the year to date in order to generate a yearly turn figure.

**Data printed on successive end-of-month reports is the most accurate method for deriving turn figures.**

However, manually tracking and manipulating the data necessary to calculate turn precisely can be very labor intensive. As an alternative, WordStock's report generator contains two calculating fields that print accurate estimations of turn: **CYr_YTD_Turn**, which is an abbreviation for "turn for the current year to date"; and **LYr_Turn**, which abbreviates "turn for last year". Using them, you can quickly generate a profile of your store's turn.

Calculation Name: **CYr_YTD_Turn**
Data file used: Inventory
Column Header: **TURN CYR YTD**

**Explanation:** The average OnHand is calculated by adding the current OnHand to an extrapolation of what the OnHand was at the beginning of the year. This sum is divided by 2 to get the average. Current year [CYR] Year-to-Date Sales [YTD] is divided by this average OnHand to yield turn.

Calculation Name: **CYr_YTD_Turn**
Data file used: Product & Section
Column Header: **TURN  CYR YTD**

**Explanation:** The average OnHand is calculated by adding the current OnHand to an extrapolation of what the OnHand was at the beginning of the year. This sum is divided by 2 to get the average. Current year [CYR] Year-to-Date Sales [YTD] is divided by this average OnHand to yield turn.

Calculation Name: **LYr_Turn**
Data file used: Product & Section
Column Header: **TURN  LYR**

**Explanation:** The denominator is an average of last year's OnHand. It starts by adding CYr Sales, Returns and Transfers Out to the current OnHand and then subtracting purchases and Transfers in. This results in an **estimate** of what the OnHand was at the end of last year/beginning of current year. Call this figure A. To calculate B, the OnHand at the beginning of last year, start with A and add last year's Sales Returns and Transfers Out and subtract last year's purchases and transfers in. Add A and B and divide by 2 to get last year's average OnHand. Last year turn for the full year is Lyr Sales divided by the last year average OnHand.

This illustration shows a sample WordStock calculating report that shows Turn by Product.

The report shows:
- Product Number
- Product Name
- Current Year Sales
- Current Year Purchases
- Year-to-Date Turn and
- Last Year's Turn

The report can be printed or exported to other programs if you use our Export module.

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Product Turn                                                    Viewing # 1 of 51
                                        CYR_DOL        CYR_DOL  CYRTD   LYR
PRD PROD NAME                            SALES        PURCHASES  TURN   TURN

 53 25% OFF SALE ITEMS                   26.94                   .16    .72
 54 35% OFF SALE ITEMS                   11.70                   .06    .71
 55 50% OFF SALE ITEMS                   16.48                   .05    .20
 88 99 PC DISC
 51 ADULT GAMES/GIFTS                   321.60         124.75    .21   4.03
 39 AUDIO                              1567.58        1824.51    .13   4.84
 99 B&T ADDITIONS                       525.99        2962.31  -1.15   -.74
 27 BLANK BOOKS                          12.94                   .01   2.11
 92 BOOKFAIR ONLY
 32 CALENDARS                         12614.04                   .91   3.39
  5 CD-ROMS/SOFTWARE                                                   4.08
  3 CHILDREN'S MAGAZINES                 73.65                   .27   5.45
  4 CHILDREN'S- FOOD                     76.32                   .27   8.20
 19 CHILDREN'S-AUDIO                   1808.10         786.16    .13   4.83
 16 CHILDREN'S-CALENDARS              1146.47          79.50    .81   2.51
 80 CHILDREN'S-CLOTHING                 218.43                   .05   1.88
 60 CHILDREN'S-GIFTS                   2117.47        1072.00    .08   3.04
 11 CHILDREN'S-HARDCOVER              19816.48       17143.92    .15   6.34

Messages:
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