Improving Performance with Out of Stock Analysis

A Step-by-Step Guide to Creating an Out of Stock Analysis

Accelerated Analytics ®

AcceleratedAnalytics

Improving Performance with Out of Stock Analysis

Introduction

Most vendors have in stock rates in the 98%+ range or you will find yourself on the short list to be replaced. As a result, many vendors don't see the need or benefit of working on improving the last 2%. However, there are several things to realize:

1. A 98% in stock rate is an average. In all likelihood, if a detailed store/SKU level analysis is conducted, some stores are much lower. Identifying and correcting those stores will yield an immediate increase in sales.

2. Promotions increase the likelihood of out of stocks and are often not accounted for in the calculated replenishment model retailers use to forecast demand and set inventory replenishment rates.

3. A 2% out of stock rate can mean hundreds of thousands of dollars in lost sales over the course of a year that can be easily avoided with the right analysis.

Key Considerations

It is important to understand that an out of stock analysis is a rear view diagnostic. In other words, when the out of stock is detected, lost sales have mostly likely already occurred. An out of stock analysis is different than a SKU forecast which is presented in another article in this series. The SKU forecast uses a historical rate of sale to predict a future rate of sale and recommends an inventory on hand to meet future demand. While the purpose of the two analyses is different, both are useful.

The out of stock analysis identifies stores where problems are occurring right now so you can take corrective action and code those stores for easy reference in the future. We also find some buyers are reluctant to act on a forecast presented by a vendor, but they are likely to take action to correct a list of stores with no inventory. Over time, the out of stock analysis can be used as an effective tool to build credibility with the buyer on data analysis competency and slowly move them to the more proactive forecasting approach.

AcceleratedAnalytics

Improving Performance with Out of Stock Analysis

Step-By-Step Construction

1. Set-up Out of Stock Report

To set-up for the out of stock report, you need a store/SKU level On Hand (OH) history by week for the past 52 weeks, a sum of total dollars sold for the 52-week period, and a sum of total units sold for the 52-week period. The data table example in Figure 1 has been shortened to show only 7 weeks of on hand, however your table will include 52 weeks of OH. The sample data table is for one SKU. In the SKU Analysis and Store Analysis articles in this series, you have created a list of A and B stores and SKU's which should be used in the out of stock analysis to limit the amount of data to be analyzed. Depending on the number of A and B SKU's/stores you are analyzing, you may be able to have one table with SKU in the first column and store in the next column, or you may need to conduct the analysis for one SKU at a time. ***See Figure 1.***

FIGURE 1

STORE	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	SALES	UNITS SOLD
151	53	0	28	26	0	77	70	$2,168.44	136
6315	74	63	46	68	59	88	83	$3,678.73	250
6320	28	102	96	83	76	71	65	$2,877.00	195
6367	97	90	87	84	74	63	58	$2,576.22	175
6346	33	67	57	44	74	63	96	$3,074.18	209
734	26	23	20	18	16	11	9	$1,115.52	73

2. Count the Out of Stock Weeks

The first task is to count the out of stock weeks in the 52 weeks of on hand data. To do this, you will use the Excel count function. Most data sets will contain two types of out of stock: a null OH week and a zero OH week. Most retailers will report some null OH's . Since it cannot be determined from the data if those are zeros or a store that did not report, count these as out of stock. Create two columns. Use the Excel count function to sum the blank cells by entering COUNTBLANK(RANGE). Next fill the second column using the Excel count function by entering COUNTIF(range, "<1"). By creating two columns, you will be able to break apart your analysis to only include zeros should you determine the nulls in your data are not actually out of stocks. ***See Figure 2***

FIGURE 2

STORE	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	SALES	UNITS SOLD	COUNT IF	
151	53	0	28	26	0	77	70	$2,168.44	136	0	2
6315	74	63	46	68	59	88	83	$3,678.73	250	1	0
6320	28	102	96	83	76	71	65	$2,877.00	195	1	1
6367	97	90	87	84	74	63	58	$2,576.22	175	0	0
6346	33	67	57	44	74	63	96	$3,074.18	209	2	0
734	26	23	20	18	16	11	9	$1,115.52	73	0	3

A null OH is sometimes reported by a retailer when the last OH was zero and there has been no change. So you might see data where the OH was zero and then one or more null weeks where the OH was not reported. This is a method used by retailers to reduce the size of data files. Although less common, you may also see instances where the OH was greater than 1, then a null week, and then an OH greater than 1. This may be a store/SKU with no sales activity for the null week, so no OH was reported to reduce the file size. Or, it could be an out of stock occurred, but an order was received the next week.

AcceleratedAnalytics