Retail KPI: GMROII vs. BEP

Introduction

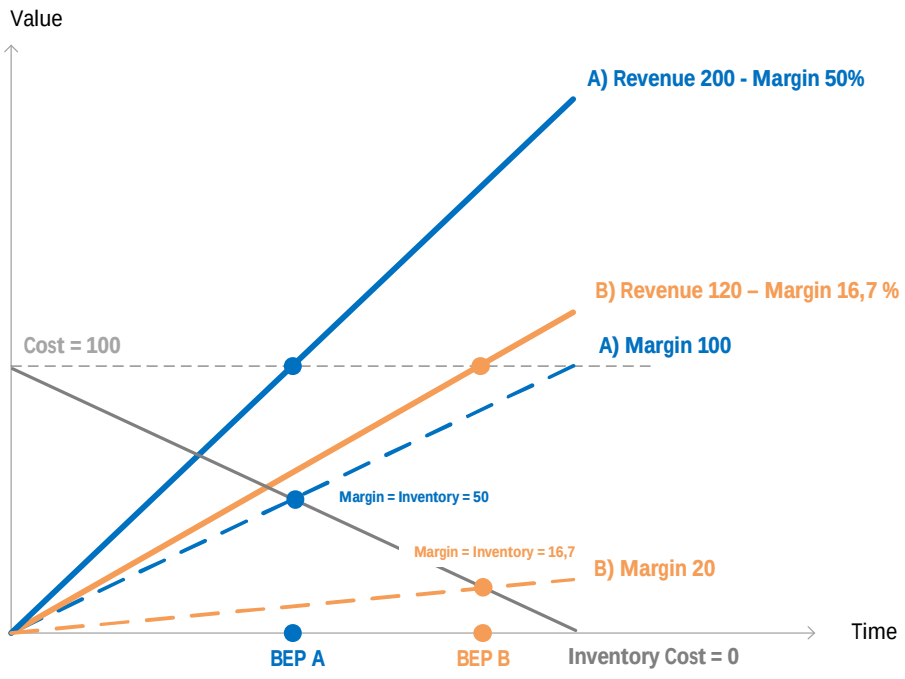
GMROII (Gross Margin Return on Inventory Investment), the ratio between Margin and Average Stock Value is one of the most important KPI (Key Performance Indicator) in Retail because it condenses two different and essential sides: **Margin and Inventory turns** (see http://akite.net/en/news/key-performance-indicators-in-retail). GMROII is significant and quite popular especially for continuative products, those with a long/medium life cycle and frequently replenished, because the financially important Average Stock Value is embedded on this KPI.

For products with short life cycle, such as the season in the fashion industry, rarely replenished and where stock lose value quickly, a popular KPI is the **BEP (Break Even Point)**, when **Revenue equals Cost** (of purchase) and profit start. % Sell-through is a similar KPI (when referred to Revenue vs Cost) and 100% is equivalent to the BEP.

We will demonstrate how GMROII can give indications on BEP reaching and % Sell-through, but also about the efficiency of the route to that point, with the advantage of "Less is More". In modern computing it is not a problem to add new KPIs, but doing so often produce the effect of obscuring the facts which require immediate attention (not seeing the forest, because hidden by the trees). Having a unique and powerful KPI suited to handle both continuative and "spot" products, is a great advantage in a time when the scarcest resource is human attention.

BEP (Break Even Point)

The following graph shows the BEP for two products with identical cost and selling pace, but different margins: a theoretical case that highlights quite intuitively that, the higher is the margin, the earliest is the BEP.



From the graph also follows that BEP is reached not only when Revenue equals Cost (or initial value of the stock), but also when Margin equals Stock value. Not being a geometric coincidence, is demonstrated by the following simple formula :

$$Margin = Revenue - Cost\ of\ Goods\ Sold$$

$$Margin = Revenue - (\ Cost - Inventory\ Cost)$$

But as at BEP $Revenue_{BEP} = Cost$

then $Margin_{BEP} = Inventory\ Cost_{BEP}$

In other words, BEP is when

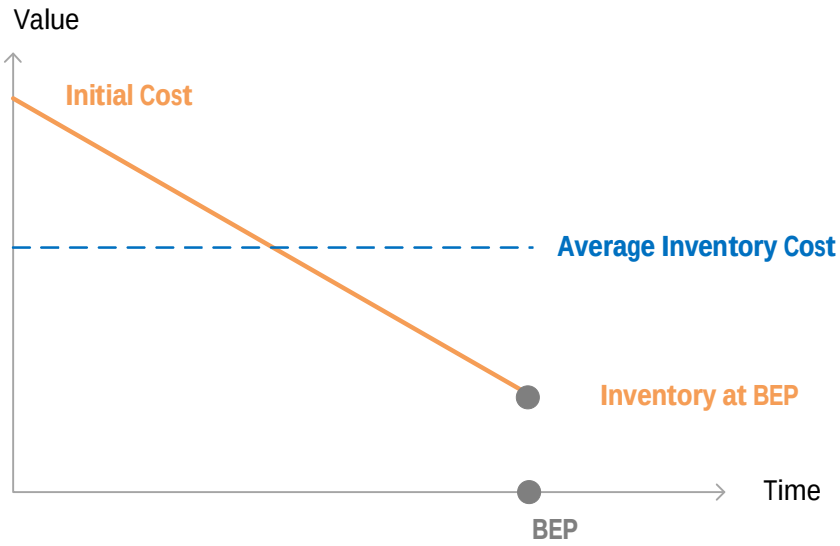
$$\frac{Revenue}{Cost} = 100\% \quad or \quad \frac{Margin}{Inventory\ Cost} = 100\%$$

The similarity with

$$GMROII = \frac{Margin}{\boldsymbol{Average}\ Inventory\ Cost}$$

is immediately apparent.

The difference is that BEP consider the Inventory Cost, while GMROII the **Average** Inventory Cost. In a regime of declining stock, as happens in the fashion industry, where traditionally purchases are made at the beginning of the season and later re-assortments are more an exception than a rule, the Average Inventory Cost is higher than the current Inventory value and thus GMROII is lower.



When GMROII reaches 100%, the Break-Even Point has already been reached. But what is the GMROII value that corresponds to BEP?

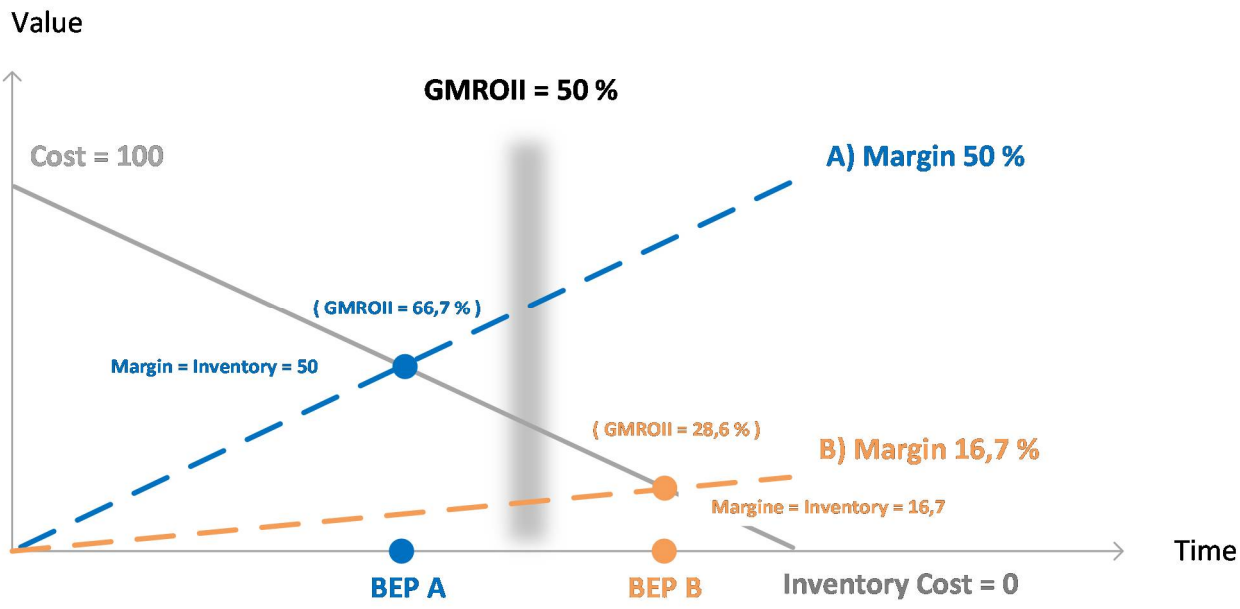
Relation between GMROII and BEP

In the theoretical case of a constant sales rate, without any re-assortment, the Average Value is the arithmetic average between initial Cost and present Inventory cost.

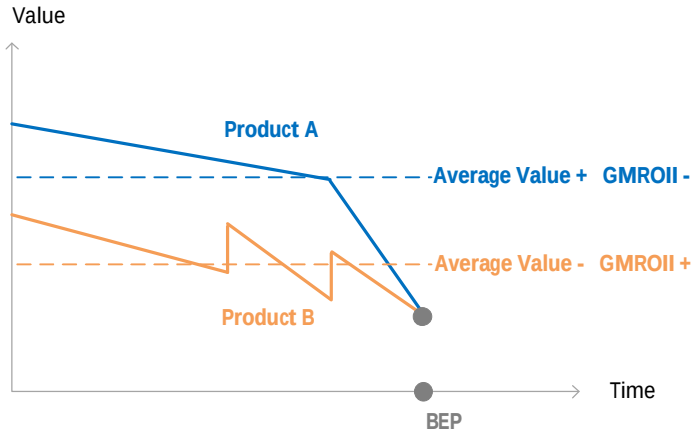
$$GMROII = \frac{Margin}{\boldsymbol{Average}\ Inventory\ Cost} = \frac{Margin}{\frac{Cost\ +\ Inventory\ Cost}{2}}$$

At BEP, the **50** % Margin product will have a GMROII equal to $\frac{50}{\frac{100+50}{2}}$ = **66,7**%

While the **16,7** % Margin product will have a GMROII equal to $\frac{16,7}{\frac{100+16,7}{2}}$ = **28,6**%



When **GMROII is around 50%,** the product is **near BEP** and the similar 100% of % Sell-trough. The approximation due to the Margin effect should not worry, because the GMROII also incorporates the financial efficiency of the path to reach the same point, as shown below:



Products A and B have both reached the BEP and a 100% of sell-through, but B had an initial lower supply and two replenishment, with a significantly lower Average Inventory Value. Product B owns therefore a higher GMROII reflecting the increased profitability due to the lower capital needed to get the same results. For fashion, the re-assortment of variants sold early in the season also facilitates the inventory clearance at the end.

With the increasing availability from manufactures to allow collections restock during the season, the GMROII is better suited also to highlight the efficiency on this front.