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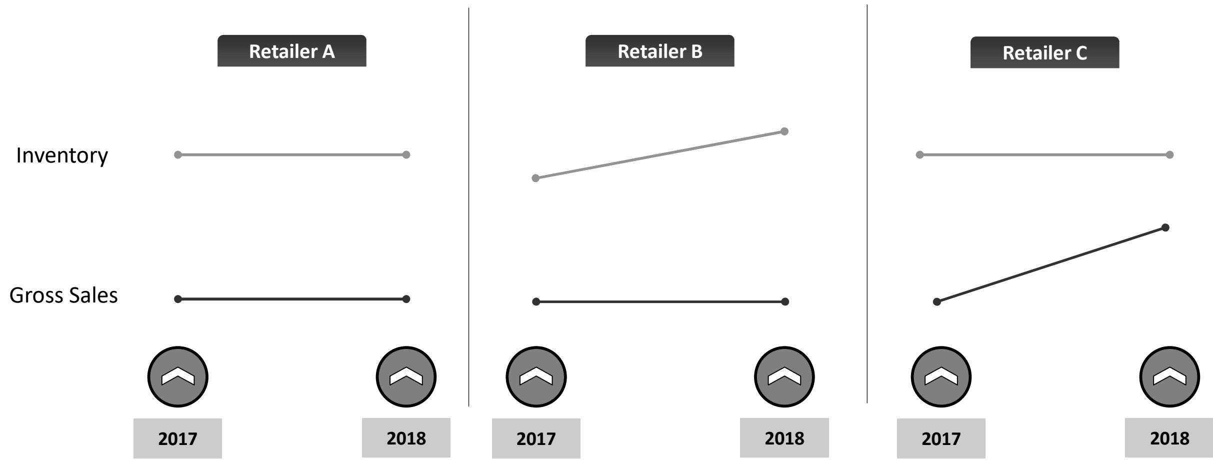
Which Retailer would you value the most?

And why?



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How do you value a Retailer when?

	Sales decreases	Sales Increases
Inventory Increases	**Underperforming company** The retailer has overestimated the demand for its products • Product demand was overestimated • Company loosing market share	**Responsive to demand increases** The retailer has responded appropriately to increase in demand • Has been able to augment its capacity • Replace this blurb with other details.
Inventory Decreases	**Responsive to demand decreases** The retailer has responded appropriately to a decrease in demand • Retailer is probably loosing market share. • Retailer’s products might be getting obsolete.	**Efficient** The retailer has performed quite well. • Has been able to reduce supplier lead time • Has invested in SC assets like IT software, warehouses to consolidate store inventory

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Do Inventory levels affect Retailer's valuation?

Rising Inventory levels can predict future earnings decline

Financial Metric	Retailer
Sales	$500M
Gross margin	40%
SG&A expenses	$180M
Sales growth (1 year)	3%

Inventory free Valuation
No impact of inventory on valuation
- $625M

Inventory ∝ Sales
Assuming 1 Inventory turn per year
- $578M

Inventory Growth Rate
Higher sales need higher Inventory
Inventory growing at 6% YoY
- $430M

Inventory write-off
Assuming $10M write off annually
- $339M

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Inventory & Retail Valuation

<u>Statement:</u> Keeping higher inventory results in higher sales.

1% Inventory Increase

- 0.224 % increase in sales across segments
- 0.188 % increase for furniture
- 0.233 % percent in apparel Industry

Higher Service Levels
Slicing demand at a higher quartile

Demand stimulation
Larger display is stimulating higher demand

Promotional Effort
Liquidation pressures are motivating higher promotional efforts

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Inventory Turns

The one metric that rules them all!

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"It was someone from corporate's idea to improve our inventory turns."

$$IT_{sit} = \frac{CGS_{sit}}{\frac{1}{4}\sum_{q=1}^{4} Inv_{sitq}},$$

$$\text{Inventory Turns} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

Should be as high/~~low~~ as possible.

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Inventory Turns

Dissecting the metric

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- Can vary substantially from one organization to the other
- Depends on a variety of factors
  - Gross Margins
  - Capital Intensity
  - Sales Surprise

$$\text{Gross margin, } GM_{sit} = \frac{S_{sit} - CGS_{sit}}{S_{sit}},$$

$$\text{Capital intensity, } CI_{sit} = \frac{\sum_{q=1}^{4} GFA_{sitq}}{\sum_{q=1}^{4} Inv_{sitq} + \sum_{q=1}^{4} GFA_{sitq}},$$

$$\text{Sales surprise, } SS_{sit} = \frac{S_{sit}}{\text{Sales Forecast}_{sit}}.$$

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Gross Margin
a.k.a Markup

- *Inventory turnover is negatively correlated with gross margin*
  - *Increase in gross margin warrants higher service level thus decreasing inventory turns*
  - *Anything leads to a price increase results in a higher turnover*
    - *Product variety*
    - *Length of the product lifecycle*
- ***Earns Retailers:** Retailers with high markup have low inventory turns. Eg: Radioshack (2.8 IT per year)*
- ***Turns Retailers**: Retailers with low markup have high inventory turns. Eg: Costco (11.5 IT per year)*

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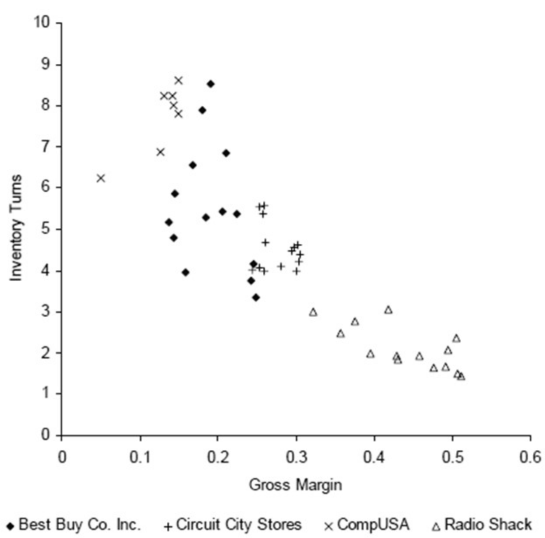
Figure 1: Plot of annual inventory turns vs. annual gross margin for four consumer electronics retailers for the years 1987-2000



Capital Intensity

Expenses on supply chain management assets

- Amount of non-inventory investment that a company makes.
- *Higher capital intensity increases inventory turnover*

Warehouses

- **Joint Ordering effect:** Enables the retailer to reduce safety stock over the supplier lead-time by postponing the decision to allocate inventory across stores
- **Depot effect:** The warehouse enables the retailer to centralize safety stock and re-balance store inventories between shipments from the supplier

IT Infrastructure

- Better allocation of the inventory to the stores
- Shorter ordering lead times,
- Smaller batch sizes,
- Lower cost of processing orders

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Sales Surprise

Now what is that!!

- *Inventory turnover is positively correlated with sales surprise.*
- Inventory turnover can be affected by unexpectedly high sales.
- If the sales realized by a retailer in a given period are higher than its forecast
  - average inventory level for the period will be lower than expected, and realized inventory turnover will be higher than expected.
- The outcome will be reversed if realized sales are lower than expected sales.

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Adjusted Inventory turns

- A 10% increase in markup would translate into a 2.3 percent reduction in IT
- A 10% increase in capital intensity would translate into 2.4% increase in IT
- A 10% increase in sales surprise translates to a 1.4% increase in inventory turns.

$$AIT_{sit} = IT_{sit} \left(GM_{sit}\right)^{-b^1} \left(CI_{sit}\right)^{-b^2} \left(SS_{sit}\right)^{-b^3} .$$