Apparel Brand

(Optimal Pricing Analyses)

Determined **optimal pricing for Promotions** based on historical volume and price trends, to maximize gross margins at an apparel retailer

PROMOTION EFFECTIVENESS FOR AN APPAREL BRAND

ABOUT THE CLIENT

Company is a **large U.S. based apparel and lifestyle brand**, with ~100 stores across the U.S., along with e-commerce and catalog platforms

SITUATION

- Company had a wide range of departments and was offering **significantly higher discounts** across all departments on a regular basis leading to lower gross profits and margins

- Merilytics partnered with the Finance, Operations and Sales teams to **evaluate the promotions strategy** at a department and channel level, and **recommend an optimal promotion calendar** for the Holiday season, Spring & Fall

VALUE ADDITION

- **Aggregated sales transaction data** at a "item-day" level by department (e.g., Men's Sweaters, Boys Pants, Women's accessories etc.) and channel (e.g., Internet, Retail, Outlets etc.) using past 24 months data. **Adjusted data** for day of week variance, Seasonality, YoY organic growth, and special discount days (Black Friday, Cyber Monday etc.)

- Calculated the **promotion lift for each season** (Summer, Spring, Fall, Holiday season etc.) to identify the impact on volumes from discounts

- Recommended **optimal discounts to be offered** on a daily basis for each department and season in order to maximize the gross profit

- Applied **business constraints** based on inventory availability, total promotion spend etc. to develop a promotion calendar for the season
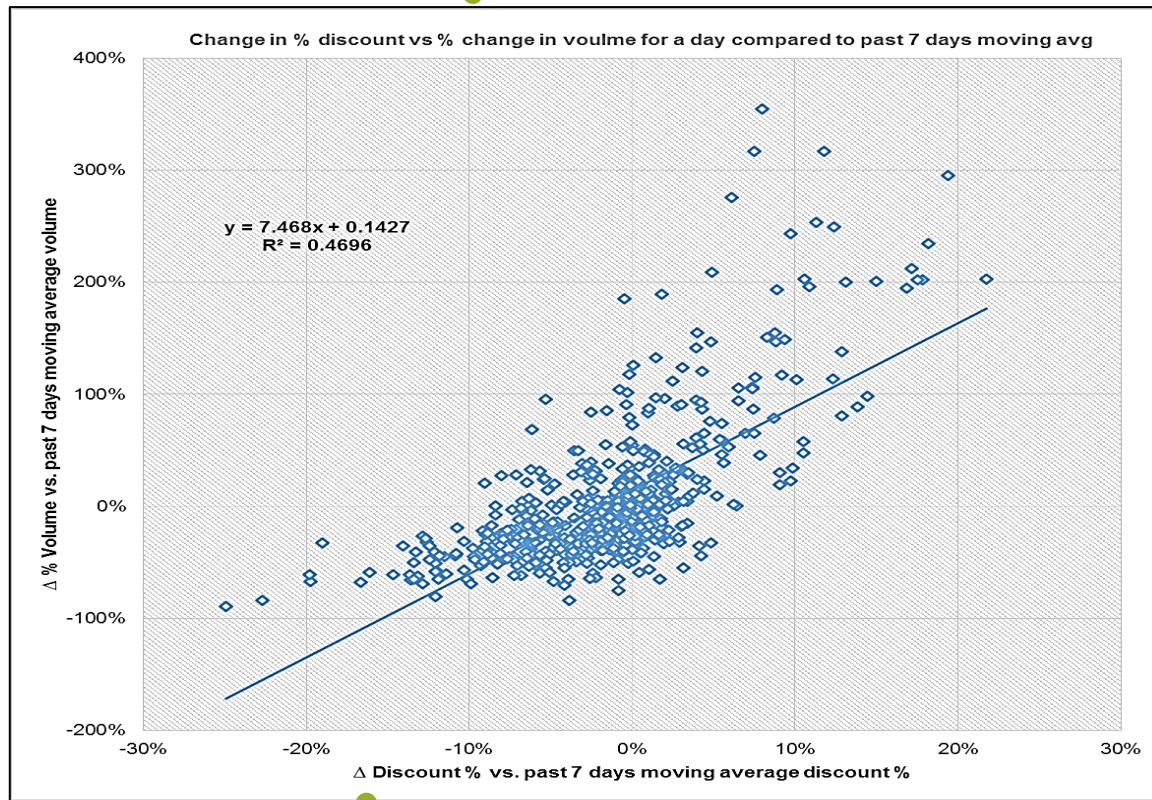
IMPACT

- Our **promotion calendar recommendations** at a daily department-channel level could help the company **potentially improve gross profit by ~20%**

- Identified **systematic way to track promotions and its impact** on volumes, so that **performance can be tracked real-time** and mid-season adjustments to the calendar can be made if required

RELATIONSHIP BETWEEN CHANGE IN DISCOUNTS AND INCREMENTAL VOLUMES WAS DETERMINED AND INCORPORATED INTO THE PROFIT EQUATION

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AN ACCORDION COMPANY

Relationship between discounts and volumes was determined

Change in % discount vs % change in voulme for a day compared to past 7 days moving avg

$y = 7.468x + 0.1427$
$R^2 = 0.4696$

Δ % Volume vs. past 7 days moving average volume

Δ Discount % vs. past 7 days moving average discount %

Plot absolute % change in discounts vs. % change in volumes for past 7 days, for each day

Profit (π)
= [Revenues at optimal discount %] – [COGS dollars]
= [Optimal vol.*MSRP*(1-Optimal disc.)] – [Optimal vol* unit Cost]
= ….
= ….
= ….
= $D_O * (a * (MSRP - CP) + MSRP * a * D_{MA} - MSRP * b) - D_O^2 * a * MSRP$

Differentiating above equation to maximize the Profit (π) and solving for optimal discount (D_O) we have optimal discount as

$$D_O = \frac{MSRP - CP}{2 * (MSRP)} + \frac{D_{MA}}{2} - \frac{1 + b'}{2a'}$$

PROMOTION CALENDAR AT DAILY, DEPARTMENT LEVEL WAS DETERMINED WITH ESTIMATED IMPACT ON VOLUMES, REVENUES AND GROSS MARGIN

Product Division	Kids Girls
Product Department	Dress/Skirt

User can select product division and department to evaluate

Date	Actual Discount %	7-day MA discount %	Optimal discount %	Incremental discount offered	Incremental volumes	Actual Volumes	Optimal volumes	Optimal Gross revenues $	Optimal Net revenues ($)	Optimal Gross margin ($)
Day 1	32%	27%	27%	-5%	-23%	768	591	$29,530	$21,557	$11,812
Day 2	29%	28%	31%	2%	29%	967	1,249	$62,459	$43,097	$24,984
Day 3	23%	30%	26%	3%	37%	823	1,125	$56,258	$41,631	$22,503
Day 4	30%	28%	32%	2%	29%	316	408	$20,404	$13,875	$8,162
Day 5	31%	28%	26%	-5%	-23%	200	154	$7,693	$5,693	$3,077
Day 6	25%	28%	26%	1%	22%	514	625	$31,275	$23,143	$12,510
Day 7	20%	29%	22%	2%	29%	684	884	$44,205	$34,480	$17,682
Day 8	30%	27%	33%	3%	37%	925	1,264	$63,216	$42,355	$25,286
Day 9	28%	27%	30%	2%	29%	514	664	$33,223	$23,256	$13,289
Day 10	24%	27%	26%	2%	29%	307	397	$19,835	$14,678	$7,934
Day 11	23%	27%	21%	-2%	-1%	200	199	$9,933	$7,847	$3,973
Day 12	25%	26%	21%	-4%	-16%	495	418	$20,891	$16,504	$8,356
Day 13	30%	25%	29%	-1%	7%	279	298	$14,900	$10,579	$5,960
Day 14	27%	26%	30%	3%	37%	200	273	$13,667	$9,567	$5,467
Day 15	24%	27%	25%	1%	22%	877	1,068	$53,391	$40,043	$21,356
Day 16	29%	26%	26%	-3%	-8%	419	385	$19,266	$14,257	$7,706
Day 17	23%	26%	25%	2%	29%	890	1,150	$57,513	$43,135	$23,005
Day 18	27%	26%	24%	-3%	-8%	200	184	$9,187	$6,982	$3,675
Day 19	29%	26%	26%	-3%	-8%	200	184	$9,187	$6,798	$3,675
Day 20	21%	27%	23%	2%	29%	200	258	$12,921	$9,949	$5,168
Day 21	31%	26%	33%	2%	29%	824	1,065	$53,262	$35,685	$21,305
Day 22	34%	26%	32%	-2%	-1%	528	524	$26,204	$17,819	$10,482
Day 23	31%	28%	33%	2%	29%	345	445	$22,264	$14,917	$8,906
Day 24	31%	28%	33%	2%	29%	200	258	$12,921	$8,657	$5,168
Day 25	24%	29%	25%	1%	22%	271	330	$16,476	$12,357	$6,590
Day 26	26%	29%	29%	3%	37%	780	1,066	$53,298	$37,841	$21,319
Day 27	23%	28%	25%	2%	29%	200	258	$12,921	$9,690	$5,168
Day 28	34%	29%	30%	-4%	-16%	294	248	$12,398	$8,679	$4,959
Day 29	23%	29%	25%	2%	29%	804	1,039	$51,966	$38,974	$20,786
Day 30	29%	27%	25%	-4%	-16%	510	430	$21,504	$16,128	$8,602

Optimal discount is calculated at daily level

Estimated implied revenues and $ gross margin are calculated