Pricing Analysis

(Retail Gas Station Stores)

Identified key competitors for each site, **recommended optimal daily pricing** based on corresponding competitors for a site and **developed a dynamic pricing model**

PRICING ANALYSIS FOR A PE-OWNED GAS STATION CHAIN

ABOUT THE CLIENT

Company is a PE-owned chain of **gas stations** in U.S. and Canada

SITUATION

- Client had an opportunity to maximize the gross profit earned from sales of gas through identification of optimal pricing premium in comparison to its competitors
- Merilytics partnered with the client **to identify key competitors** for each site, **recommended optimal daily pricing** based on corresponding competitors for a site and **developed a dynamic pricing model**

VALUE ADDITION

- Analyzed daily **price and volume data** for each site and all the competitors within 5-mile radius of that site
- Identified **key competitors for each site** based on the correlation between the company's price premiums (compared to each competitor) and their sales volumes
- Determined the **optimal price premium with respect to a particular competitor**, and the resulting daily price, in order to **maximize the gross profit** at site level
- Automated the model to **update recommended prices based on latest competitor prices** and list of key competitors (based on defined thresholds for price premium vs. volume correlations)

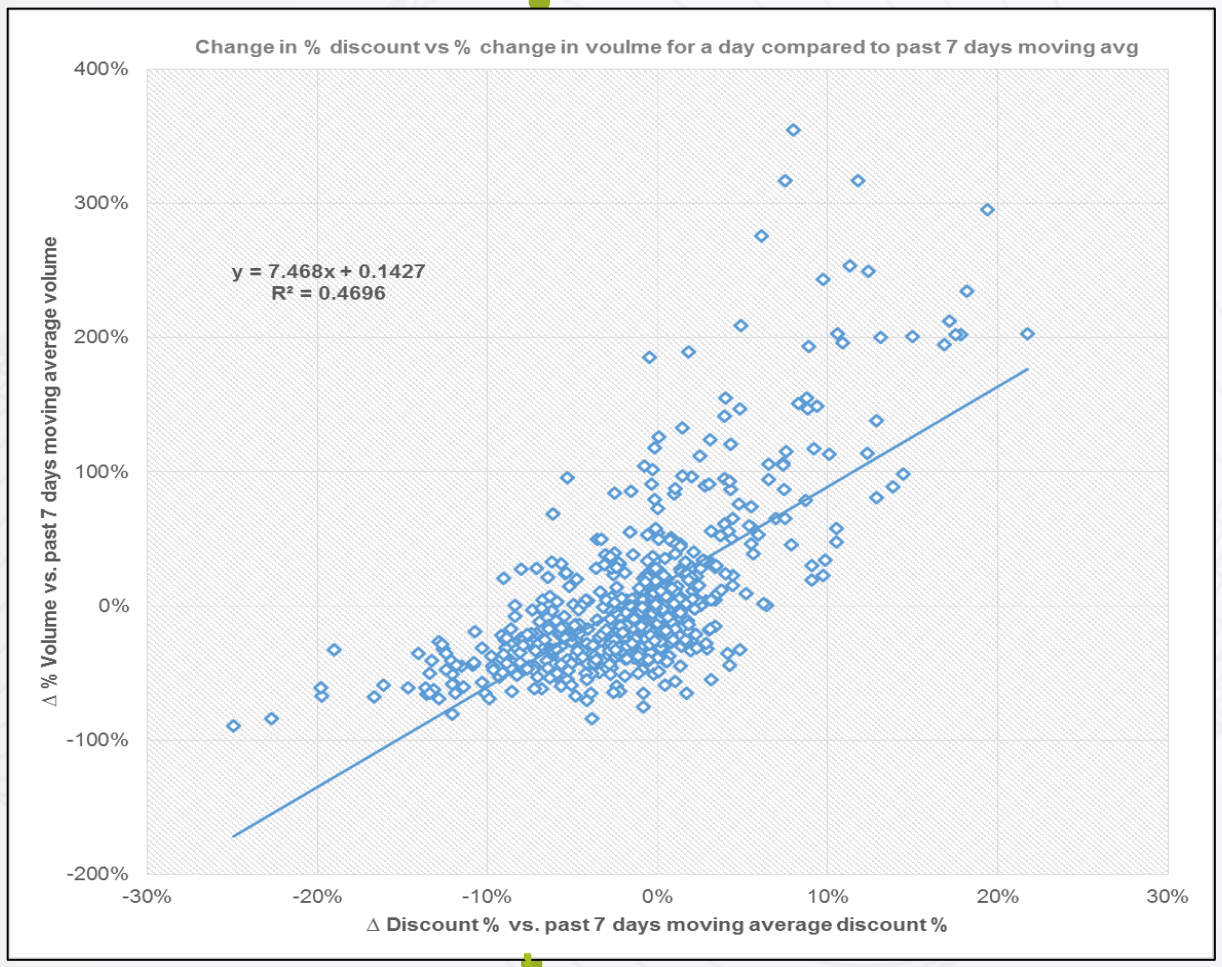
IMPACT

- Identified the **key competitors** at site level which helped the Management drive their pricing and locations strategy
- Determined the **optimal daily price in order to maximize the gross profit** at a site level
- Developed a dynamic model allowed for **continued use of the analysis based on latest data and new inputs**

APPROACH & METHODOLOGY

ILLUSTRATIVE

Relationship between Volume and Price Premium determined as $V = aO_p + b$



Profit ($\boldsymbol{\pi}$)
= [Revenues at optimal premium %] – [COGS dollars]
= [Optimal vol.*(Competitor Price*+Optimal premium)] – [Optimal vol*unit COGS]
= $[V_O*(P_C + O_p)] - V_O*C)$
= ….
= ….
= $[\![aO_P^2]\!] + \left(O_p * (aP_c + b - aC)\right) + bP_c - bC$

Differentiating above equation to maximize the Profit ($\boldsymbol{\pi}$) and solving for optimal premium (O_p) we have optimal premium as

$$\boldsymbol{O_p = \frac{C}{2} - \frac{b}{2a} - \frac{P_c}{2}}$$

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

OPTIMAL FUEL PRICE PREMIUM ANALYSIS

		Competitor site information			Output metrics		Elasticity curve metrics			
Site ID	Competitor OPIS ID	Competitor brand	Address	Distance (miles)	Correlation (Monthly)	Optimal price premium ($)	Average competitor price over last one year ($)	Slope	Intercept	Average COGS per Gallon ($)
13232	33984	Shell	SHELL - 1501 N PARHAM RD, Richmond, VA – 23229	1.68	-0.66	0.18	3.37	-5,826	2,953	3.23
13232	627206	Kroger	KROGER FUEL CENTER (DISCOUNT AVAILABLE) - 1510 EASTRIDGE RD, Richmond, VA – 23229	1.86	-0.63	0.20	3.36	-5,827	3,132	3.23
13232	630021	BJ's	BJS WHOLESALE CLUB - 1320 STARLING DR, Richmond, VA - 23229	1.31	-0.55	0.30	3.28	-5,064	3,347	3.23
13232	202067	BP	SIEBERTS TUCKAHOE BP - 11310 PATTERSON AVE, Richmond, VA - 23238	1.62	-0.48	0.11	3.41	-6,910	2,813	3.23
13232	528289	Shell	SMO - 8600 PATTERSON AVE, Richmond, VA - 23229	1.51	-0.46	0.25	3.38	-4,455	2,923	3.23
13232	15391	BP	GORDONS THREE CHOP - 9100 THREE CHOPT RD, Richmond, VA - 23229	1.96	-0.39	0.27	3.41	-3,856	2,802	3.23
13232	482983	Exxon	RIDGEFIELD EXXON - 10400 RIDGEFIELD PKWY, Richmond, VA - 23233	1.90	-0.35	0.35	3.44	-2,987	2,754	3.23
13232	482967	Pure	PRESTONS AUTO REPAIR - 8930 PATTERSON AVE, Richmond, VA - 23229	1.07	-0.31	0.48	3.40	-2,491	2,816	3.23
13232	125224	Uppys Convenience Stores	UPPYS #27 - 8601 PATTERSON AVE, Richmond, VA - 23229	1.48	-0.26	0.38	3.38	-3,169	2,865	3.23
13232	482984	Unbranded	PATTERSON GAS MART - 10446 PATTERSON AVE, Richmond, VA - 23238	0.64	-0.11	0.81	3.37	-1,634	2,887	3.23
13232	107925	Citgo	RENNIES #664 - 9015 QUIOCCASIN RD, Richmond, VA - 23229	1.45	-0.04	3.49	3.37	-405	2,883	3.23
13232	59855	Valero	VALERO - 1504 EASTRIDGE RD, Richmond, VA - 23229	1.75	-0.02	11.89	3.37	-120	2,876	3.23

Analysis at site and specific competitor location level

Optimal price premium is estimated to maximize the gross profit

Correlations and relationship between site volumes and competitor price premium established