GILT-Y AS CHARGED

The Effect That Discounts Have on Sale-through Ratios

Gilt Groupe Inc. first appeared in 2007 dealing in the online luxury shopping market. The company is renown for its implementation of "flash sales". Flash sales are high discount sales that last for only a few days. Their purpose, naturally, is to incentivize customers into buying discounted clothing. However, a secondary effect is to create a buzz to drive shoppers to purchase before the discount expired.

Only consumers who have signed up as members can view products on the website. The attractiveness of promotional offers and discounts play a large role in whether or not a consumer becomes a member.

Due to this significance, we have based our hypothesis on the stance that discount rates and discount lengths have large effect on sale-through ratios. Although our machine learning results suggest that other factors (such as color, SKUs and season) are also important predictors of sale-through ratios (Fig. 1), discount rates and discount lengths are the most workable factors that Gilt can manipulate to enhance sale-through ratios.

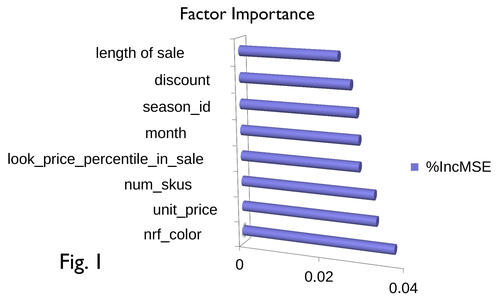

Fig. 1

This 3D scatter plot in Fig. 2 showcases the effect that two factors have on sales-through ratios (look_st_rate). Sale-through ratios are calculated on a scale of 0 to 1. When the blue curve reaches 1, all items up for sale were sold. At 0.5, half of all items for sale were sold, and so on. On the left side of the graph is the effect of discount rates ((msrp – unit_price)/msrp) on the sale-through ratios. Discounts are measured on a scale of 0 to 99% off of the original price. On the right side of the graph is the effect that sale length (look_sale_end – look_sale_start) has on sale-through ratios. This axis uses a scale of 0.07 to 300 hours.

It is evident that sale-through ratios increase conversely with discount rates up to point. At about a discount rate of 25%, sale-through ratios begin to plummet, bottoming out at around 50%. Ratios begin to trend upwards again at around 45% discount rates. Furthermore, sale-through ratios are maximized during the first 24 hours of a sale and then begin to taper off every hour afterwards. This creates a hypothesis that shorter flash sales lead to larger buzz and shopper frenzy.

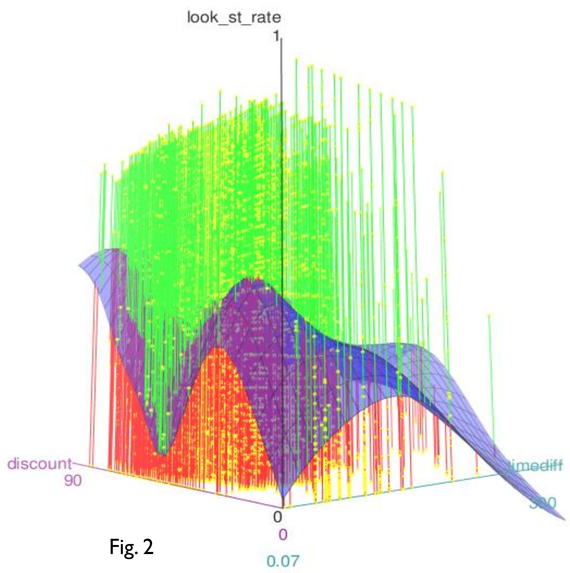

Fig. 2

This decision tree (Fig. 3) shows the optimal discount lengths and optimal discount sizes needed in order to achieve the highest sale-through ratios.

Sale-through ratios are highest when (ordered highest to lowest):

1. The discount is greater than 65.5%.
2. The discount is between 47.5% and 65.5% and the length of the sale lasts between 11.8 and 23.7 hours.
3. The discount is between 47.5% and 65.5% and the length of the sale lasts between 71.7 and 79.1 hours.

Sale-through ratios are lowest when (ordered lowest to highest):

1. The discount is greater than 13.5% but the sale lasts less than 2.1 hours.
2. The discount is less than 13.5%.
3. The discount is between 47.5 and 65.5% but the sale lasts longer than 163.5 hours

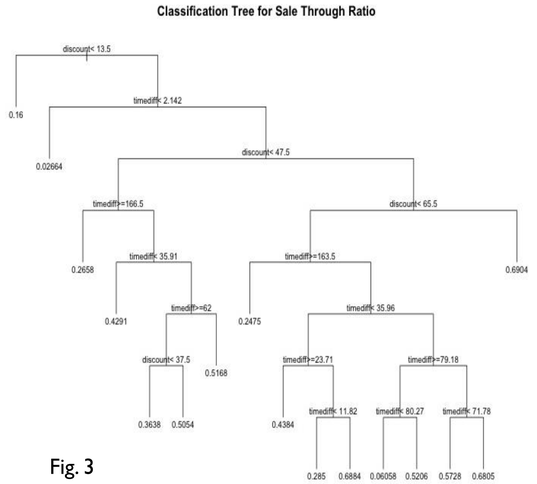

Fig. 3

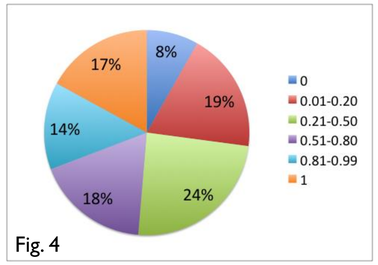

Fig. 4

The sale-through ratio (or sale_look_st_rate) is the number of items sold, divided by the number of items available when the sale started. In the accompanying Fig. 4, distribution of sale-through ratios shows that 51% of sales resulted in selling less than 50% of items available when the sale started.

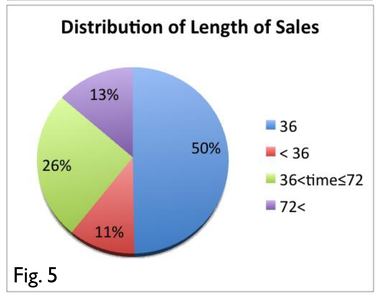

Fig. 5

The distribution of length of sales represents the lengths of time Gilt has been using for its flash sales. In the pie chart we can see that 50% of the time the sale lasts 36 hours and 26% of the time the sale lasts between 36 and 72 hours. Sales that last less than 36 hours make up only 11% of all sale lengths.

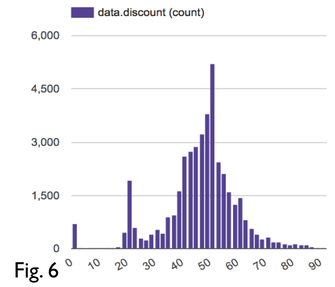

Fig. 6

The distribution of the discount rate shows at what percentage Guilt has been selling the most items at. In this histogram we can see that the majority of Guilt's discount range is in-between 40 and 50% off. Meanwhile, the least often used discount rates were between 80 and 90% and 10 to 20%.

CONCLUSION

Our data analysis on discount length and discount time, in correlation with sale-through ratios, has shown that Gilt repeatedly operates at the points with the low sale-through ratios. Listed below are our two suggestions on how Gilt can improve its sale-through ratios.

➡ Gilt Should Sell At More Efficient Discount Rates

By comparing the 3D graph in Fig. 2 to the histogram in Fig. 6, we can see that Gilt has been setting the discount rate to between 40 and 50%. This is in the range where sales rates are the lowest. Also, the discount ranges that result in the highest sales rates, according to Fig. 2, are where discounts are set the least often by Gilt according to Fig. 6. These rates are 80-90% off and 10-20% off. We believe that these two ranges are popular because they represent the "too good to be true deal" and the overall cheaper products respectfully.

According to the decision tree in Fig. 3, the most efficient discount percentage is anything greater than 65%. However, it is not always reasonable to set a discount that high. Therefore a close alternative would be to set the discount between 47.5 and 65.5% off. However, to make that discount range effective, Gilt will have to alter the length of discounts, which brings us to the next point.

➡ Gilt Should Reduce The Length Of Time Discounts Last

Comparing Fig. 2 and Fig. 5 shows that Gilt has been prolonging the length of its flash sales to over 36 hours. This represents the area where sales-through ratios begin sloping downwards. On the other hand, the time range where sales-through ratios are highest is the range Gilt least used. According to Fig. 3, Gilt should focus on running shorter discounts between 11.8 and 23.7 hours. This shorter length of time creates more shopper frenzy, encourages "impulse buys", and will ultimately increase membership and sales rates.

R — This is a powerful programming language we used to conduct machine learning and visualization. By inputting variables associated with the data we were issued, we were able to draw conclusions on how each data factor effected the other.

Excel — This is a Microsoft spread sheet application we used to organize the data and create a pivot table to support our other analysis. We also used it in order to create pie graphs and a histogram to display the current distribution of certain variables.

BlueMix — This is an IBM cloud platform server that is used to analyze large amounts of data. We used Bluemix in association with R in order to quickly process the data on the server's 64 cores.

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