Key Insights

* Out of the three types of bikes being sold, mountain, touring, and road, mountain bikes overall are the most profitable. When taking a look at what may be causing this, the discounts for the bikes need to be taken into consideration. While certain models of mountain bikes are discounted, they are the least discounted type of bike. Both touring and road models are frequently discounted which cuts into the profit margin. Taking production costs into account there is little to be recovered profit wise after most bike models are discounted.
* Furthermore when looking into how the different types of models of bikes perform, it should be noted that touring and road bikes typically have the highest costs of production. This is a heavy factor in whether or not a specific bike model is able to make profit, and almost none of these models that are discounted are able to make any profit. Discounting these bikes does not appear to have a positive impact on selling more models either as the models that are not discounted are also the models that have the highest number of sales.
* By and large the mountain bikes are the most profitable type of bikes. There are only two mountain bikes that are not profitable, both of which marked as discounted for clearance. This further shows that discounts contribute heavily to cutting into profit, and is a factor that needs to be considered. Further looking into the profitability versus discounting, both of these models were more profitable before being discounted. This shows that there was no point in discounting these models so soon when they could have gone longer before needing to be discounted in order to move stock for more profitable models.
* There is an easy way to analyze which type of discount is leading to the highest loss of profit by comparing the models that are on sale without discounts, and the models that are on sale with discounts. Clearance sales led to the biggest discrepancy in sales, for example the difference in sales for the Mountain 100 on clearance is $135,114.92 and for the Mountain 500 on clearance it is $17,266.10. All discounts had an effect on sales, but most are negligible. Taking the outliers into consideration will be key in helping turn more profit
* Shipping costs are a key metric to consider when looking at profit. The cost of production for touring and road bikes per model high, and when combined with the number of discounts on these types of bikes it is hard to end up with any profit. If the cost unit is able to be lowered to that of the mountain bike models, there would be a better chance at ending up with more profit on the touring and road

models.

Recommendations

* Since touring and road models are constantly losing money, the price needs to be reconsidered for all models. Some of the mountain bikes escape this problem, but those two models suffer the most. It can be argued that bikes are sold as a loss leader and profit is made up for in sales of parts, but this is too many loss leaders to be considered sustainable. Especially the gap in profit. People are showing interest in new models of bikes, so the price needs to be raised in order recoup on some of the losses that are being accumulated through other facets of the supply chain.
* Similarly, a price floor should be implemented to stop the bleeding of profits through selling things for too low of a price or too high of a discount. At some point it is more worth it to just eat the cost of storing extra product than sell it at such a high loss. Timing for discounts plays heavily into this as discounting an item too late in its life cycle means eating more losses, more analysis on consumer tastes should be done in order to ensure the right product is being stocked, and that it is being processed and purchased in a timely fashion.
* Discounting products seems to be counterproductive as a whole. Focusing more on selling models that are not discounted could help the bottom line as sales of non-discounted models is always higher than discounted. Instead of offering a very wide array of models, focusing on a smaller product line could help reduce the overstock of models that do not sell.
* The discount rates appear to be too high to make any sort of profit. All discounted models lose the company money, so a simple solution would be to lower the discount rate. In the case of the two Mountain models that were on clearance an excessive amount of difference in sales was found. Further analysis also showed that there was no reason to discount one of the models in the first place, so discounting as a whole needs to be carefully reconsidered so only stock that needs to be discounted is done so in the first place.
* Shipping costs are weighing the company down, specifically for road and touring models. Shipping needs to be reconsidered and restructured in a more cost effective way that lowers the production cost per unit for all models. It should be structured after the shipping methods for the mountain bikes as those are the only models that manage to make any profit after all of the shipping and discounting costs associated.

All

Table

Description automatically generated with low confidenceRoad

Graphical user interface, application, table

Description automatically generated

Mountain

Table

Description automatically generated

Touring

Graphical user interface

Description automatically generated with medium confidence

Appendix / Queries

Insight 1: USE[AdventureWorksDW2014]

SELECT DISTINCT [ModelName]

,[EnglishPromotionName]

,SUM([OrderQuantity]) AS [Total Units]

,SUM([OrderQuantity]\*[UnitPrice]) AS [Sales without Discount]

,SUM([OrderQuantity] \* [UnitPrice]) - SUM(DiscountAmount) AS [Sales with Discount]

,(SUM([OrderQuantity]\*[UnitPrice])) - (SUM([OrderQuantity] \* [UnitPrice]) -

,SUM([TotalProductCost]) AS [Production Cost]

,SUM([OrderQuantity]\*[UnitPrice]) - SUM([TotalProductCost]) AS [Profit]

FROM [dbo].[FactResellerSales] f

INNER JOIN [dbo].[DimProduct] p

ON p.[ProductKey] = f.[ProductKey]

INNER JOIN [dbo].[DimProductSubcategory] s

ON s.[ProductSubcategoryKey] = p.[ProductSubcategoryKey]

INNER JOIN [dbo].[DimPromotion] pr

ON pr.[PromotionKey] = f.[PromotionKey]

WHERE [ProductSubcategoryAlternateKey] IN (1,2,3)

GROUP BY [ModelName],[EnglishPromotionName]

Insight 2 & 3: USE[AdventureWorksDW2014]

SELECT DISTINCT [ModelName]

,[EnglishPromotionName]

,SUM([OrderQuantity]) AS [Total Units]

,SUM([OrderQuantity]\*[UnitPrice]) AS [Sales without Discount]

,SUM([OrderQuantity] \* [UnitPrice]) - SUM(DiscountAmount) AS [Sales with Discount]

,SUM([OrderQuantity]\*[UnitPrice]) - SUM([TotalProductCost]) AS [Profit]

FROM [dbo].[FactResellerSales] f

INNER JOIN [dbo].[DimProduct] p

ON p.[ProductKey] = f.[ProductKey]

INNER JOIN [dbo].[DimProductSubcategory] s

ON s.[ProductSubcategoryKey] = p.[ProductSubcategoryKey]

INNER JOIN [dbo].[DimPromotion] pr

ON pr.[PromotionKey] = f.[PromotionKey]

WHERE [ProductSubcategoryAlternateKey] IN (1,2,3)

GROUP BY [ModelName],[EnglishPromotionName]

Insight 4: USE[AdventureWorksDW2014]

SELECT DISTINCT [ModelName]

,[EnglishPromotionName]

,SUM([OrderQuantity]) AS [Total Units]

,SUM([OrderQuantity]\*[UnitPrice]) AS [Sales without Discount]

,SUM([OrderQuantity] \* [UnitPrice]) - SUM(DiscountAmount) AS [Sales with Discount]

,(SUM([OrderQuantity]\*[UnitPrice])) - (SUM([OrderQuantity] \* [UnitPrice]) -

SUM(DiscountAmount)) AS [Difference]

,SUM([TotalProductCost]) AS [Production Cost]

FROM [dbo].[FactResellerSales] f

INNER JOIN [dbo].[DimProduct] p

ON p.[ProductKey] = f.[ProductKey]

INNER JOIN [dbo].[DimProductSubcategory] s

ON s.[ProductSubcategoryKey] = p.[ProductSubcategoryKey]

INNER JOIN [dbo].[DimPromotion] pr

ON pr.[PromotionKey] = f.[PromotionKey]

WHERE [ProductSubcategoryAlternateKey] IN (1,2,3)

GROUP BY [ModelName],[EnglishPromotionName]

Insight 5: USE[AdventureWorksDW2014]

SELECT DISTINCT [ModelName]

,[EnglishPromotionName]

,SUM([OrderQuantity]) AS [Total Units]

,SUM([OrderQuantity] \* [UnitPrice]) - SUM(DiscountAmount) AS [Sales with Discount]

,SUM([TotalProductCost]) AS [Production Cost]

,SUM([OrderQuantity]\*[UnitPrice]) - SUM([TotalProductCost]) AS [Profit]

,SUM([Freight]) AS [Total Shipping Expenses]

,SUM([OrderQuantity] \* [UnitPrice]) - (SUM([TotalProductCost]) + SUM([TaxAmt]) +

SUM([Freight]) - SUM([DiscountAmount])) as [Profit after Tax & Shipping]

FROM [dbo].[FactResellerSales] f

INNER JOIN [dbo].[DimProduct] p

ON p.[ProductKey] = f.[ProductKey]

INNER JOIN [dbo].[DimProductSubcategory] s

ON s.[ProductSubcategoryKey] = p.[ProductSubcategoryKey]

INNER JOIN [dbo].[DimPromotion] pr

ON pr.[PromotionKey] = f.[PromotionKey]

WHERE [ProductSubcategoryAlternateKey] IN (1,2,3)

GROUP BY [ModelName],[EnglishPromotionName]