



Supply Chain Contracting at Winter Gear

Winter Gear is a manufacturer of high-end skiing and snowboarding equipment. Well-known for their experimental technology, Winter Gear produces equipment that is durable and stylish. Overall, its customer base consists primarily of die-hard extreme sports enthusiasts. Recently, Winter Gear developed a new product and is in the process of entering it into the marketplace. Therefore, Winter Gear is faced with a number of questions, primarily, negotiating a selling price to its retail customers.

Winter Gear Overview

Winter Gear is a manufacturer of assorted winter gear products that was founded in 1988 by Greg Snow, a recent MBA graduate. In addition to having a savvy business mind, Greg held an undergraduate degree in engineering. Greg decided that he wanted to do something that would incorporate his three passions, business, engineering design, and skiing. Therefore, Greg figured that the ideal solution for him would be to create his own small business that designed high end skiing equipment. Just one year after graduating, Greg had saved up some money and was finally able to purchase a small production operation that would allow him to manufacture skis and the complementing boots.

Initially, Greg found that sales were particularly slow. While there was considerable interest for his products from a number of “low-quality” stores, Greg wanted to focus on high end winter equipment. In his mind, he would produce the best products or give up the business. However, as head of the small business and the one responsible for its success, Greg knew that he would have to come up with a new strategy in order to augment sales and put Winter Gear into profitability.

Around 1990 Greg decided to start recruiting at MBA programs and focus on people with fresh thinking. He went back to his alma mater and hired an MBA named Diane White. Diane was a supply chain major and Greg was hoping she would not only assist in streamlining operations, but come up with some new ideas that would kick-start the business. It didn't take long. During the summer of 1990, immediately after her hiring, Diane decided that Winter Gear had to push beyond skiing and enter the snowboard market. At first, Greg didn't care much for the idea, being a long time lover of skiing, but within a few weeks he was on board.

This note was prepared as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

Sales were quickly on the rise. Greg found that he had a knack for designing the finest snowboards around, and as the sport increased in popularity, so did Winter Gear. Not only were sales and profits increasing, but Greg found that he didn't have to accept any "low-quality" or big-box retailers for customers (such as Wal-Mart). Specifically, Winter Gear was doing terrific focusing on smaller retailers that specialized in high end products and met rigorous requirements for customer service, something that Greg valued greatly.

Initially based as a northeast operation, Winter Gear found itself expanding over the entire U.S. within 10 years. Additionally, in 2005, Winter Gear's sales would exceed \$50 million. All in all, things were going well for Greg and Diane, the two top executives at Winter Gear.

The Customer and the Product

As Winter Gear began expanding into the west, Winter Gear and a medium size retail chain called "Pete's Extreme Sports" began a close business relationship. "Pete's Extreme Sports," founded by Pete Shivers, was based out of Boulder, CO and was one of the largest retail customers for Winter Gear. While Greg and Pete were friends, they both realized that business was business, and were constantly negotiating over various procurement specifics and contracts.

This year, 2010, Winter Gear has decided to launch a new line of snowboards, called the Daredavil 5000X. This product is a high-end version of the Daredavil 4500, which did well with sales last year for Winter Gear and its customers. This snowboard was one of the biggest new products for Winter Gear in years, and Greg needed to do as much research as possible before beginning talks with Pete over a contract. He realized that, while negotiations between Winter Gear and Pete's will establish the wholesale price of the new snowboards, the order quantity is completely up to Pete as the customer. Nevertheless, understanding how Pete's order will change with respect to the wholesale price will definitely help Winter Gear's CEO with the negotiation.

Greg asked one of his recently hired analysts, Kate Winters, to do some analysis. While Kate understood snowboarding basics, she still needed to learn the market for snowboards. Greg sat down with Kate and explained how the sales season starts in early fall and goes through about February. The lead-time for production and delivery of Daredavil 5000X is about 3 months, so the entire order for the season has to be in by mid July at the latest, in order for the product to be on the shelves in time.

Forecasting overall market demand can be extremely difficult, especially in this case with a new product like the Daredavil 5000X. In short, the product could be a huge hit or it might flop. For example, just last year the Daredavil 4500 sold very well, but the year before another product was introduced, the Suicide XJ5300, and it flopped. In general though, Greg found that he did a relatively good job working with his planning department in coming up with a demand forecast. In this case, Greg and the planners think that it is safe to assume that the demand for Daredevil 5000X will approximately follow a Normal distribution with standard deviation of 300 units. If the product is a hit, the mean will be about 1200 units. But if the product is not a hit, than the mean will be only about 800 units. Pete will have a better forecast of whether Daredevil 5000X

will be a hit or not. Without any more information from Pete, Greg thinks the chances are about 50/50.

Production Costs

Over the years, Winter Gear has improved its production times in almost each step of the manufacturing process. Typically, a snowboard must go through the following steps; rough cutting, molding, painting, and binding.

Rough cutting was the process associated with obtaining the raw materials and constructing a basic snowboard shape. Following this, the material would proceed into the molding process, where the materials would be heated and bent to the exact designs that Winter Gear's design teams (which Greg participated on) created. Next painting would take place. With skis, the ornamental design and graphics did not have a significant impact, however, with snowboards it is quite the opposite. Riders take pride in having the latest and coolest designs. Therefore, for the new Daredavil 5000X this was predicted to take a significant amount of time. Lastly, the snowboard would undergo binding, where the bindings for boots would be attached and screwed into place.

Kate sifted through some old files and researched the most similar snowboards to the Daredavil 5000X. After some effort, Kate finally located the production costs associated with each of those products. The data was somewhat odd, as the hours spent in each production step related to the time spent producing a full batch of 200 snowboards, yet the costs were already calculated per snowboard. Nevertheless, she thought that she would be able to use this data to forecast the possible production costs for the Daredavil 5000X.

After speaking with the manager of manufacturing, it appeared as though the hours required for a batch of 200 Daredavil 5000Xs will be high in terms of rough cutting and painting (since the big trend today for snowboards was towards the overall shape and graphics design of the product).

The rest of the details for production costs will be Winter Gear's private information.

Negotiation

Winter Gear's CEO spoke with Pete recently and discovered that the Daredavil is scheduled to have a final retail price anywhere between \$2500 and \$4000. The final retail price is Pete's private information. However, something else that had to be determined for Kate's analysis was the value of goodwill. This is also complicated to accurately value, but, after some discussion between various market experts, Greg and Kate estimated that, in this case, for Pete's, it is probably about \$150 per unit. For Winter Gear, however, it is 0 because customers tend to blame the retailer for stockouts.

Other Options

Kate knew that a basic wholesale price might not be the only option for Winter Gear and Pete.

There are two types of wholesale contracts that would be discussed. Under the "Push" contract, the entire production order will be delivered to Pete, who will then assume ownership of the

entire inventory, after paying Winter Gear the agreed-upon wholesale price per unit. Any inventory left-over at the end will belong to Pete, who is likely to salvage it on eBay.

Under the “Pull” arrangement, Winter Gear will maintain ownership of the inventory and will ship to Pete in small batches throughout the selling season. For this service Winter Gear can expect a higher wholesale price per unit, and any inventory left-over at the end of the season will belong to Winter Gear (and can be salvaged on eBay).

For the initial analysis it is OK to ignore any differences in transportation costs, as well as time-value of money (the selling season is short).

While, in many cases, a basic per unit wholesale price is ideal for a supplier contract, Kate also recognized that this contractual arrangement does not usually maximize total supply chain profits since each company only focuses on what’s best for it, not what is best for the entire supply chain. Specifically, Kate remembers this inefficiency being called “double marginalization.”

Kate needed to determine if there was a way for the supply chain partners to avoid this inefficiency. The additional contracts Kate would like to consider are:

- Buyback
- Minimum Order Quantity

Preparing to Negotiate

To prepare for the negotiation you should develop a spreadsheet model to evaluate contracting options for Winter Gear and Pete. You can use the Normal demand distribution. To check that your model is working correctly you can validate it by plugging in the parameters from the example in the Tutorial and checking that your numbers match the numbers in Tutorial’s Table 2.

Your model should be flexible so that you can easily change the contract parameters and have your model automatically calculate expected profits for both parties. Also keep in mind that the variability of profits depends on the contract you choose (for example, under the push wholesale price contract or the MOQ contract, the supplier’s profit is certain, while the retailer assumes the entire demand risk).

Come to class prepared to negotiate. Remember that in this negotiation each party will have private information. It is to your advantage to use your private information strategically when you negotiate. *Do not show your private information to the other party.*

The table below provides a summary of the information required in this negotiation.

Will the product be a hit or not?	
Winter Gear knows:	There is a 50/50 chance of a high or low demand
Pete knows	High or Low
Mean customer demand (μ)	If High $\mu = 1200$, if Low $\mu = 800$.
Retail Price (p)	
Winter Gear knows:	Between \$2500 and \$4000
Pete knows:	The exact retail price
Production Cost (c)	
Winter Gear knows	The exact production cost
Pete knows	Nothing
Information everyone knows	
Demand Distribution	Normal
Standard Deviation of Customer Demand (σ)	300
Salvage Value	\$800
Goodwill cost	\$150 for Pete; 0 for Winter Gear
Outside Option	Winter Gear knows it's own; Pete knows it's own.