Simulation Report – MANA 4322
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Letter to Investors

Dear Investor:

Over the past eight years, Andrews Co. has grown from a small start-up to one of the most respected brands in the industry. During this short span of time, and through a period of drastic change in the sensor industry we have come out on top, and poised to be the leading supplier of sensors to the high tech sector.

While the stage is set for rapid growth in the coming years, I would be remiss if I didn’t recognize the hard work and dedication shown by our managers—each of which were forced to make some difficult decisions to help our company grow and compete. It was our managers that led us through two difficult years in 2010 and 2011, and helped Andrews Co. re-define its business and strategy.

Today, Andrews Co. has one of the best product portfolios in our segment of the market. And this past year marked our best profits since its founding. We have created a results-driven environment with common values, and we have maintained continued to investment in the growth and advancement of our employees.

While there is always more to do, we have come through an important phase in the evolution of Andrews Co. I’m excited at the opportunity we have in front of us, and I’m confident that Andrews Co. will continue to produce results for our customers and higher returns for our shareowners in the years ahead.

Sincerely,

John Smith
Firm Description

Andrews Co. was founded with the intention of developing and building the most advanced sensors on the market. The company’s founder wanted to gain a competitive advantage by combining excellent design and superior products with an aggressive sales and marketing force. The company sought to exploit a growing market for cutting-edge sensor technology that would allow its customers to stay one step ahead of their competitors. For these reasons, Andrews Co. employed the niche differentiator strategy and focused on the high tech segment. From the beginning, the company set out to differentiate itself by investing in its R&D unit and developing new products with a variety of size and performance combinations—each with a higher price point. Over time, as demand increased for products, Andrews Co.’s management team planned to expand the size of their plant.

Andrews Co. developed the following corporate mission statement, which guided its business strategy:

Andrews Co. is committed to providing the widest variety of premium products, designed to help our customers achieve their goals. We will listen to our customers and strive to provide them with reliable and professional service. Our goal is to be part of our customer’s success.
Environmental Analysis

The sensor industry has changed quite dramatically in the last eight years. In its infancy, six companies sold relatively similar products to customers. However, with the advancement of technology, customers began to differentiate themselves, creating unique market segments. Those preferring the most advanced sensors were grouped in the high tech segment. Others, who placed more emphasis on the reliability and price of the product, were considered low tech customers.

Out of the five major companies competing in the sensor industry, two others (Digby and Ferris) competed head to head in the high tech segment with Andrews Co. Out of these two companies, Ferris’ business strategy most closely resembled the strategy of Andrews Co. By the end of 2015, both Andrews Co. and Ferris had three products each competing in the high tech sector. Therefore, it would seem that Ferris also employed a niche differentiator strategy.

Digby, with four products, competed in both the high and low tech sectors and used a broad differentiation strategy. Only one other company (Baldwin) sold a product in the high tech segment.
Internal Analysis

In 2008, Andrews sold only one product, which was very similar to the products offered by its competitors. Today, it sells three cutting-edge products to customers in the high tech sector of the sensor industry. Andrews Co.’s strengths include its high bond rating among competitors which will give the company additional flexibility in increasing its plant and share of the high tech sector in the coming years. Andrews Co. ended the 2015 calendar year with its largest annual stock price increase ($7.54) in eight years. And the company has more than doubled the price in that same eight year span.

Andrews Co. also has gained the second highest market share in the high tech segment with 26% of the sales, which is one 4% less than Ferris’s share. With respect to Andrew’s products themselves, all have contribution margins in excess of 32%, and the continual investments in automation are poised to keep variable costs down in the coming years as each product undergoes revisions.

While Andrews Co.’s stock price has increased, it has not increased at the pace of its competitor’s stock price. In fact, one of Andrew’s weaknesses is that it has the lowest stock price of any competitor at the end of 2015. Likewise, the company’s cumulative profits are lower than its competitors.

Andrews Co. has many opportunities to continue to grow its market share and increase its value to shareholders. One advantage that only Andrews and Ferris share is the ability to reduce their sales budget because they are only focused on one market segment. As was mentioned previously, because of Andrews Co.’s continued investment in automation, the company has an
opportunity to gain an advantage with respect to labor costs in the years ahead. Andrews Co. has also chosen to compete in a market segment that is growing at a much faster rate (10% more) than the low tech segment, which gives Andrews Co. a favorable sales outlook.

Threats to the company include the continued fast-paced advancement of products competing in the high tech segment. Even with annual product revisions, sometimes it is still hard to stay ahead of competitors like Ferris. At the same time, Andrews Co. will need to allocate funds to expanding its capacity to keep up with other products in the high tech segment.
Decisions and Evaluation of Results

Round 1: Following the business plan, I decided to slightly improve my one product, Able, as well as develop a new product called Axis that would be the most advanced product in my portfolio. With Able, I tried to position it on the perpetual map so that it would be ideal for the high tech segment and also appealing to low tech customers. Given these improvements and keeping with my strategy, I raised the price by of Able by $1 but still priced it for the low tech segment at $35. Knowing that my awareness and accessibility would be decreasing, I also increased both my sales and promotion budgets by at least double their previous amounts. I produced 1600 units of Able—more than double the amount of units from the prior year, hoping to sell Able in both the high tech and low tech segments. I also increased Able’s production capacity by 100 units. To finance these decisions, I issued stock, secured a short-term loan, and issued long-term bonds. Able’s revision resulted in the highest sales ($58,501,324) for that year among all competitors, and a 3.8% increase in overall market share. Additionally, my stock price increased by $3.60. However, I lost potential sales because Able sold out during the year. Able was also the highest selling product in both segments. On the negative side, I had the second lowest contribution margin at 22.6%.

Round 2: This year I decided again to improve Able, because the product had been so successful the previous year, and because of my strategy to continually create new product designs. I also decreased my sales and promo spending to levels that were similar to my competitors. My newest product, Axis, went on sale in March in the high tech segment and I gave it a premium price at $45. Since I had increase the stock price for two consecutive years, I decided to begin a regular dividend policy and rewarded stockholders with a dividend. I also retired a portion of long-term debt in order to keep my credit rating high. My goal was to make
the dividend a bi-annual event. At the end of the year (Dec. 31, 2010), however, my financial statements showed an unusually large amount of cash tied up in unsold inventory.

**Round 3:** Despite the cash issue with unsold inventory, I continued to produce the same amount of units of Able, without reducing the price. This oversight eventually led to problems with my company's performance. At the beginning of this round, Able had scored high in the December customer survey for the low tech segment, so I did not make any product improvements. Instead, I invested in improvements for Axis and began developing another product, Ace, for the high tech segment. I issued additional stock, secured a short-term loan, and issued long-term bonds to finance these decisions. By the end of this year (Dec. 31, 2011), the cash loss due to unsold inventory was almost 15 times that of my nearest competitor and my stock price had decreased for the first time since 2008.

**Round 4:** This round started off badly when, my financial statements showed that I had been forced to take out an emergency loan to cover my cash shortage. As a result, my stock decreased for a consecutive year by $5.27. I also needed to make a decision about what to do with Able, since I was getting away from my original strategy of competing solely in the high tech segment. However, because Able had performed so well in the low tech segment and made up such a large portion of my total sales, I was hesitant to eliminate the product. Because of my financial situation, I decided not to improve any of my products. But in order to increase the demand of Able and Axis, I lowered the prices for both. Ace went on sale in July, and I priced it at $45.00. I also continued with my dividend policy, despite the fact that the company was not doing well at this stage. On the positive side, this was the first year that I invested in Total Quality Management Initiatives, which I continued to do throughout the rest of the simulation.

**Round 5:** In this round, I lowered the price of Able to increase the demand since I had decided not to invest in improving the product. I also reduced the spending for promotions and sales for Able. On the other hand, I invested in improvements to Axis, and increased automation for both Axis and Ace.
**Round 6:** Because the contribution margin for Able was so low, I finally decided to discontinue the product and sold all of the product’s capacity except for 1 unit, so I could sell my remaining inventory. I then took steps to strengthen Ace and Axis by increasing their promotion and sales budgets, increasing their production capacity, and increasing the automation ratings for both. Additionally, I improved the performance and size for Axis and Ace and introduced a new product, Apex, for the high tech segment.

**Round 7:** In this round, I continued with my strategy from the previous two rounds. First, I sold off the last unit of capacity and completely discontinued Able. Then, I invested in R&D improvements for both Ace and Axis, while also increasing their production capacity and automation rating. Apex, which went on sale in April, was priced at $44.00.

At the end of this last round, it was apparent that my continued investments in automation and Total Quality Management Initiatives were paying off. My stock had increased by $7.54 and my contribution margin was at its highest at 34.6%. My profits were also at their highest point at $6,808,097.
Conclusions

Ultimately, there were three major mistakes made during the simulation which devalued the stock price for two consecutive years in 2010 and 2011. The first mistake relates to Andrews Co.’s business strategy. Despite the company’s decision to employ a niche differentiator strategy, Andrews Co. lost focus and tried to maintain products in both the high tech and low tech segments. Because sales were high for its Able product in the low tech segment from the beginning, Andrews Co. continued to invest in the product while trying to expand into the high tech segment with other products at the same time. Over time, as Andrews Co. began to concentrate on the high tech segment, the decision was made to sell its capacity for Able and discontinue the product. But it wasn’t until 2013, five years after its founding, that the Andrews Co. truly utilized the niche differentiator strategy.

Likewise, Andrews Co. did not fully comprehend the value of the Total Quality Management factors to its continued success in the long run. It wasn’t until December of 2010 when Andrews Co. first began to invest in Total Quality Management initiatives that would reduce R&D cycle time and administrative costs, as well as increase demand. Additionally, Andrews Co. initially placed little emphasis in recruiting and employee training in its first few years. Four years after its founding, the company finally increased its recruiting and employee training costs to keep pace with its competitors.

Lastly, Andrews Co.’s worst two years (2011 and 2012) were the result of having to take an emergency loan for more than $6 million. The loan was necessary because the company’s cash became tied up in unsold inventory during this time. The mismanagement of the company’s production schedule and inventory during this time was probably the biggest mistake and had the largest affect on the company’s decline in 2011 and 2012.
On the positive side, Andrews Co. did recover from these early mistakes and re-position itself according to its business strategy. The company eventually sold off its low tech segment product, Able, and allocated its resources to the high tech segment at the end of 2013. By that time, the contribution margin had become so low for the product that the decision was made to sell all of Able’s production capacity and discontinue the product. This decision allowed the company to steadily increase its overall contribution margin to above 30% in its last three years, with its highest margin (34.6 %) coming in 2015.