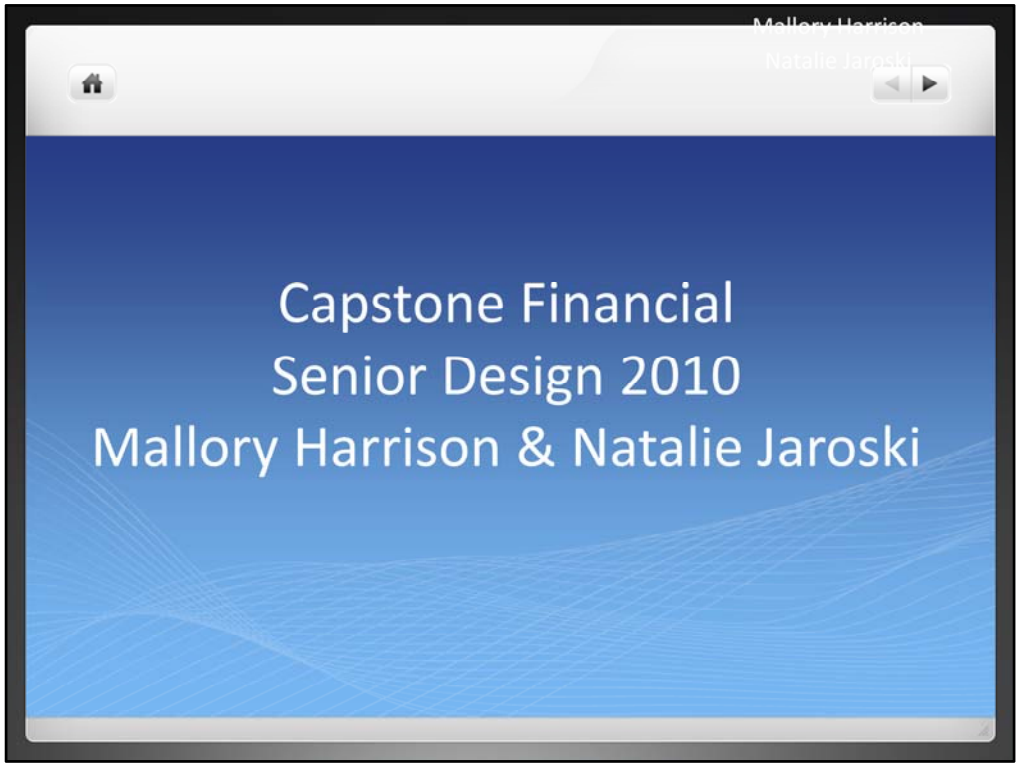
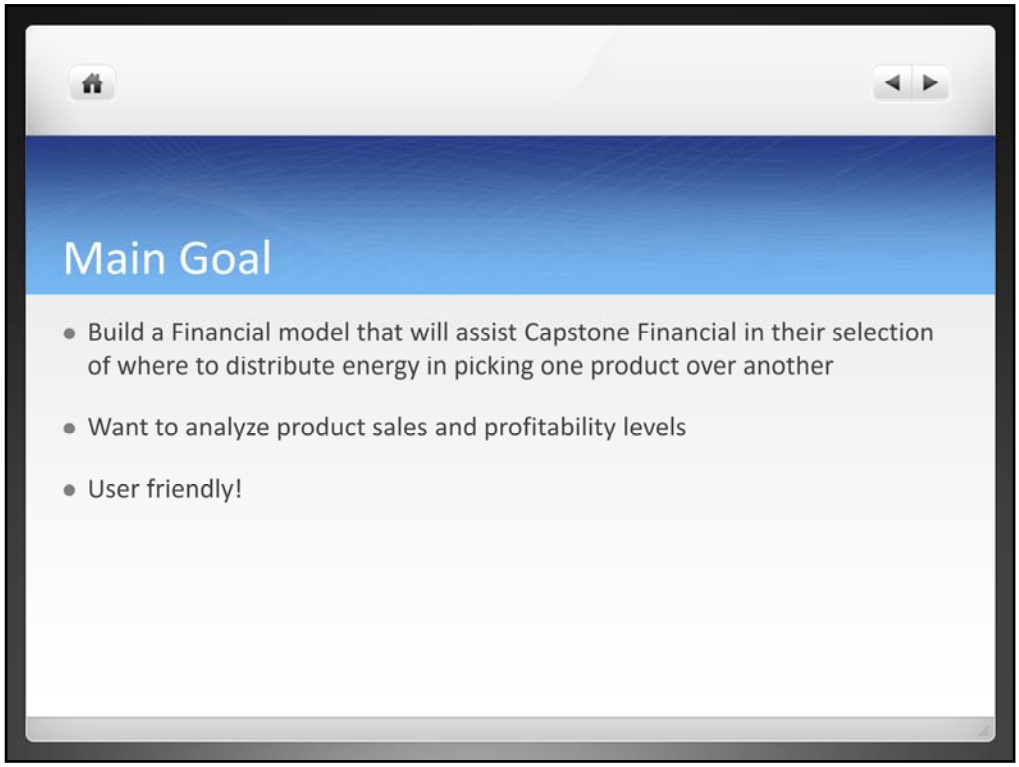

Mallory Harrison
Natalie Jaroski
Capstone Financial
Senior Design 2010
Mallory Harrison & Natalie Jaroski

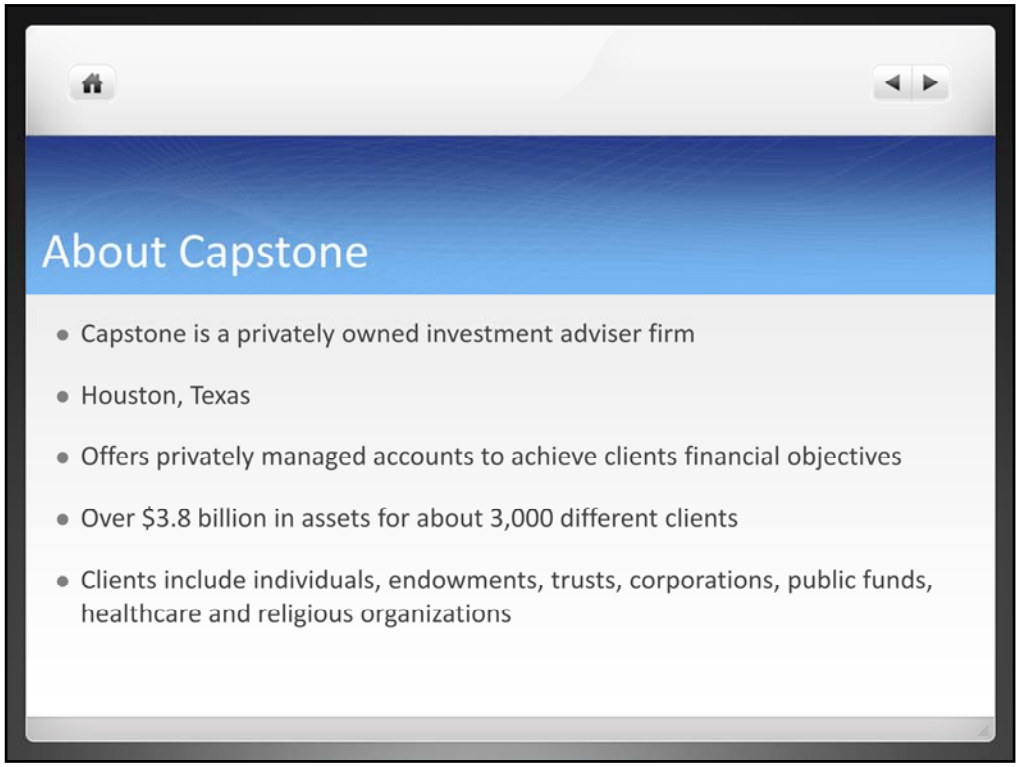


The main goal of this project was to build a Financial Model that will assist Capstone Financial in their selection of where to distribute energy in selling one product over another. They need a new way to analyze their product sales and profitability levels. In order to fulfill our clients' needs we are developing a program to determine the optimal profitability levels.

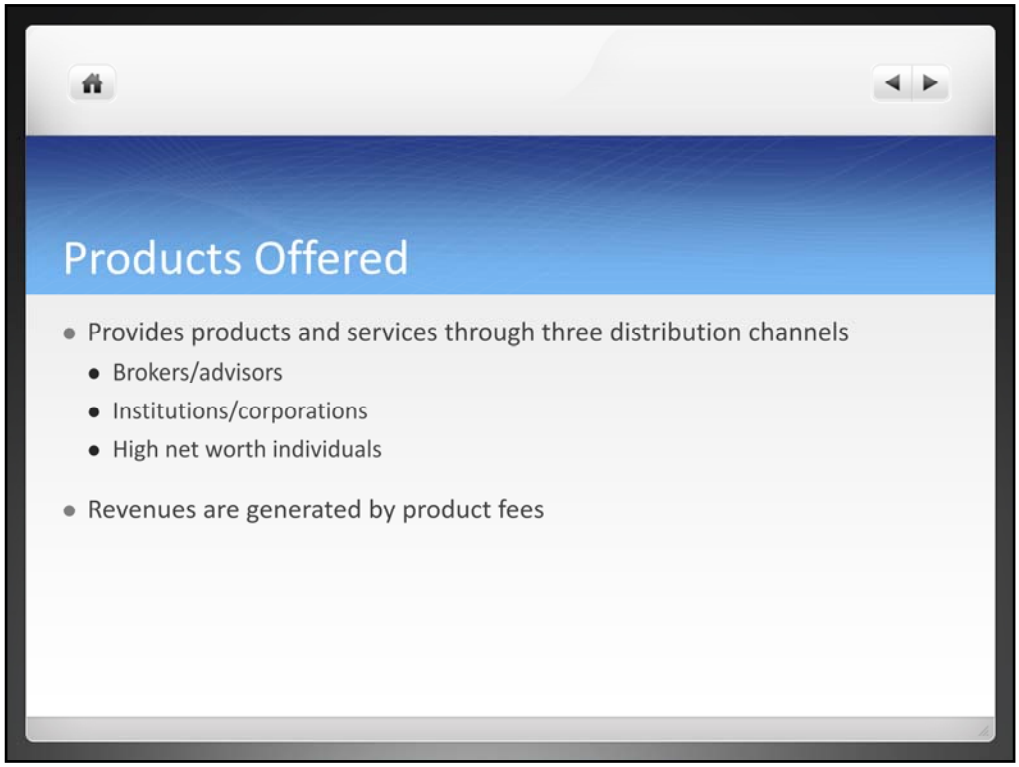
The financial model uses an OPL based program to find solutions that are unique to Capstone's assets. To make the model more user-friendly, the program connects to an excel spreadsheet. This will also allow Capstone to reuse the model as they expand in the future. By developing this program the user only needs to input the data into the Excel file, open the program, run the program and the final data will automatically be put back into the original excel file in an easy to read format.

Essentially, the program we have developed extracts data from the spreadsheet provided by Capstone, analyzes the data, and recommends solutions. The analysis of the data is based on 13 constraints and 12 decision variables. The objective function is the net income equation, and the program determines the final solution by maximizing the objective function.

The program we have developed has given us an innovative approach to analyzing financial data from many different angles.

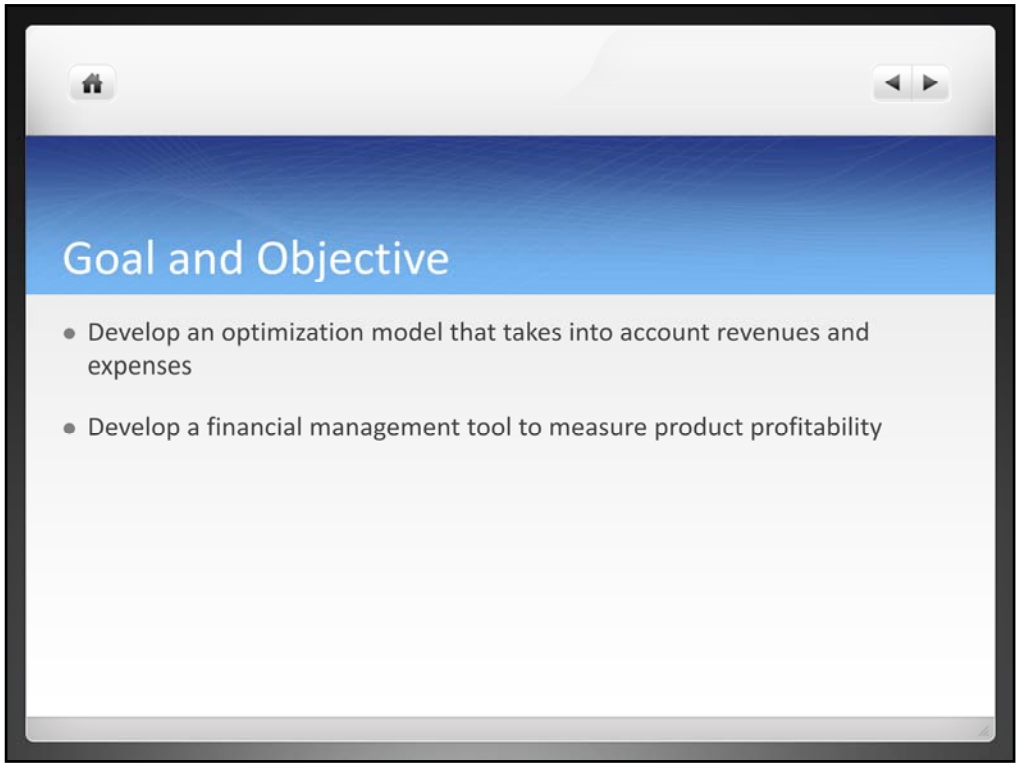


Capstone is a privately owned investment advisory firm in Houston, TX that offers privately managed accounts to achieve client's financial objectives. They currently have over $3.8 billion in assets for about 3,000 different clients. Clients include individuals, endowments, trusts, corporations, public funds, healthcare and religious organizations.



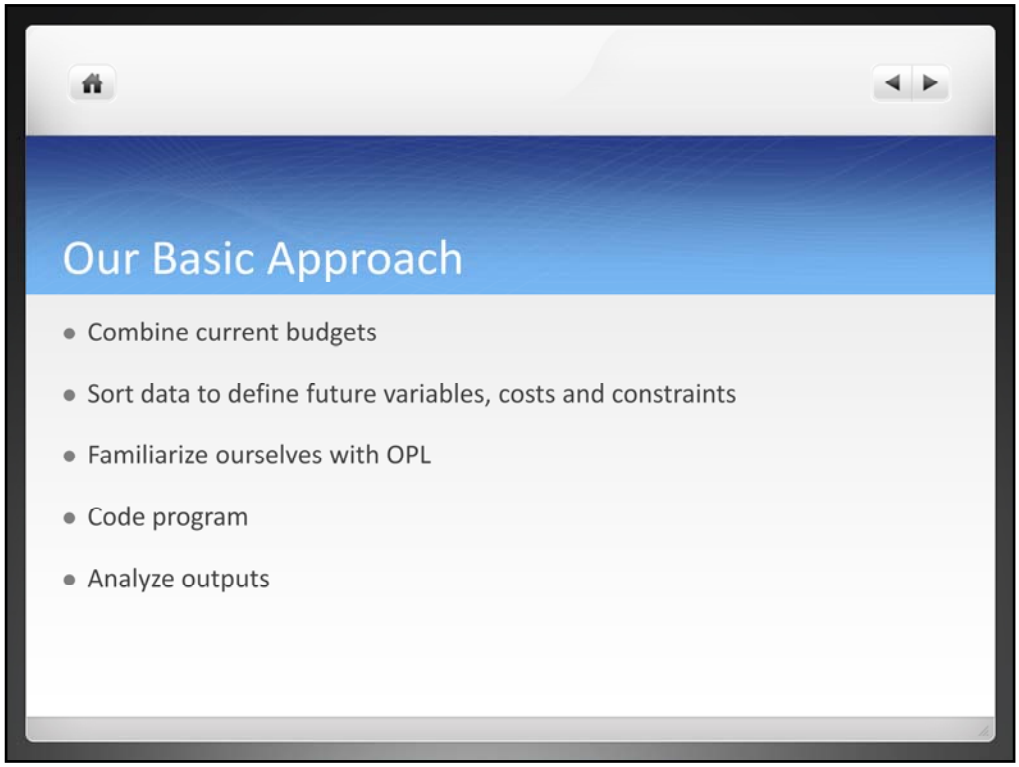
They provide products and services through three distribution channels: 1. Brokers/advisors 2. Institutions/corporations 3. High net-worth individuals. Revenues are generated by marginal product fees associated with assets under management allocated by product.

Revenues are generated by product fees which is a really small percentage of the new assets. determined by multiplying the amount of assets per product by the unique fee factor for the product. The expenses vary according to the number of the new accounts created.



Capstone has in place a detailed budgeting process but desires to expand the process to include financial modeling that would enable the firm to measure profitability by product. Our goal for this project is to develop a model that would calculate existing profitability on assets under management by product. Our second goal is to develop an optimization model that takes into account the revenues and expenses associated with sales of existing products versus the revenues and expenses associated with the development of new products. The final output of the optimization model is to identify the most profitable mix for new product sales.

The main goal of our project is to develop a financial management tool, which would enable us to allocate expenses by product and in turn measure product profitability. We plan on doing this by using the user-friendly Excel interface along with an ILOG OPL Development Studio 5.5 platform that generates our final solution and rewrites it back into the original Excel data file.

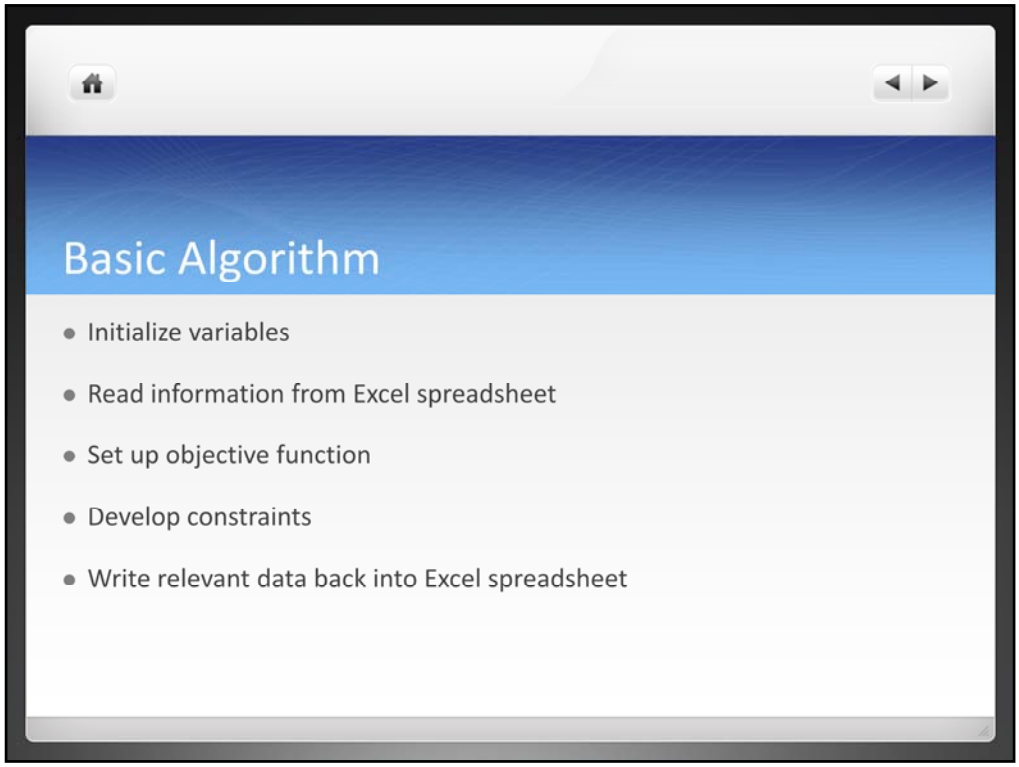


Originally we had separate budgets per department and product, which we combined into a master corporate budget. With a master corporate budget, we were then able to define the objective function, variables, costs and constraints for our model. We used the budget data not only to develop our optimization model, but also to conduct the final product analysis.

The data found in the corporate budget provided us with fixed and variable costs as well as constraints. Some of the data that we pulled from the spreadsheet and incorporated into our program includes the fee factor for each product, the average new account size, current number of assets, variable expense costs per product, as well as upper sales limits. Sales assumptions, averages and probabilities were also established in order to produce our model.

The first step in the approach of generating the model was to familiarize ourselves with the new Optimization Programming Language, or OPL. By reading parts of the OPL Language User Manual and looking at a number of various example problems we developed an understanding of the programming language.

Using OPL we found a feasible solution to determine which products were profitable as well as an estimated value on the future sales of the company.



forall(e in Products)

Minimum number of new assets under each product

Maximum number of new assets under each product (Maximum Asset Capacity)

New number of accounts should be initialized

The estimated new assets

The new revenue for the period

The total revenue for the period

New Commission Expense

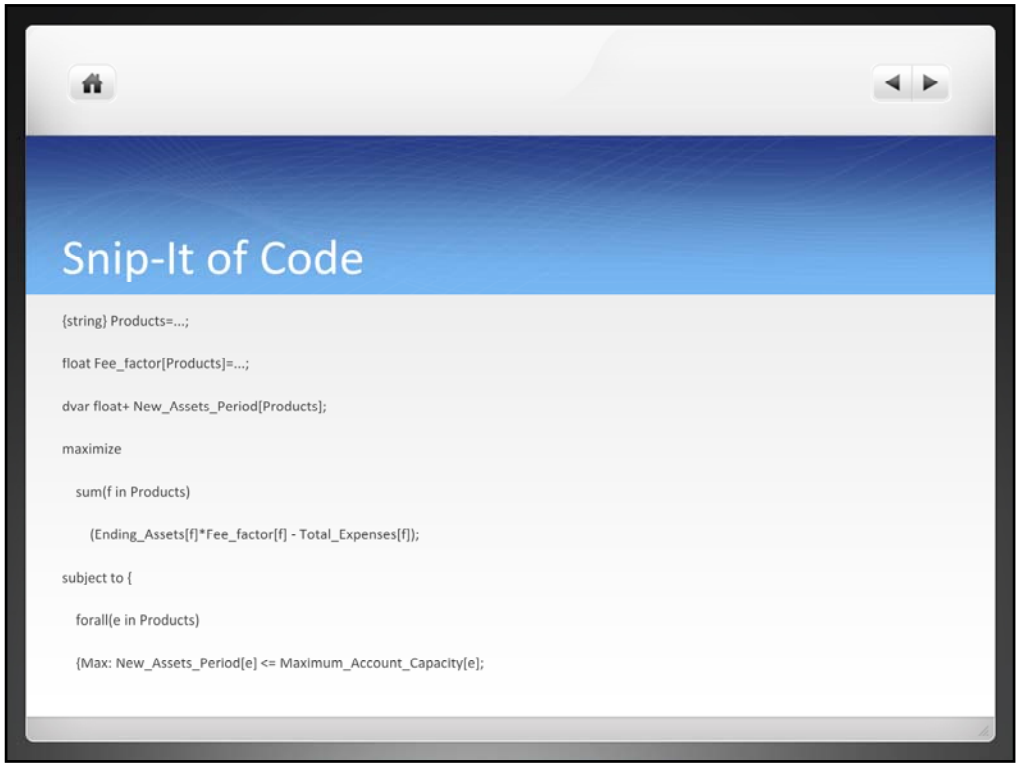
IT Account Expense

New Account Fee Expense

Ending Assets

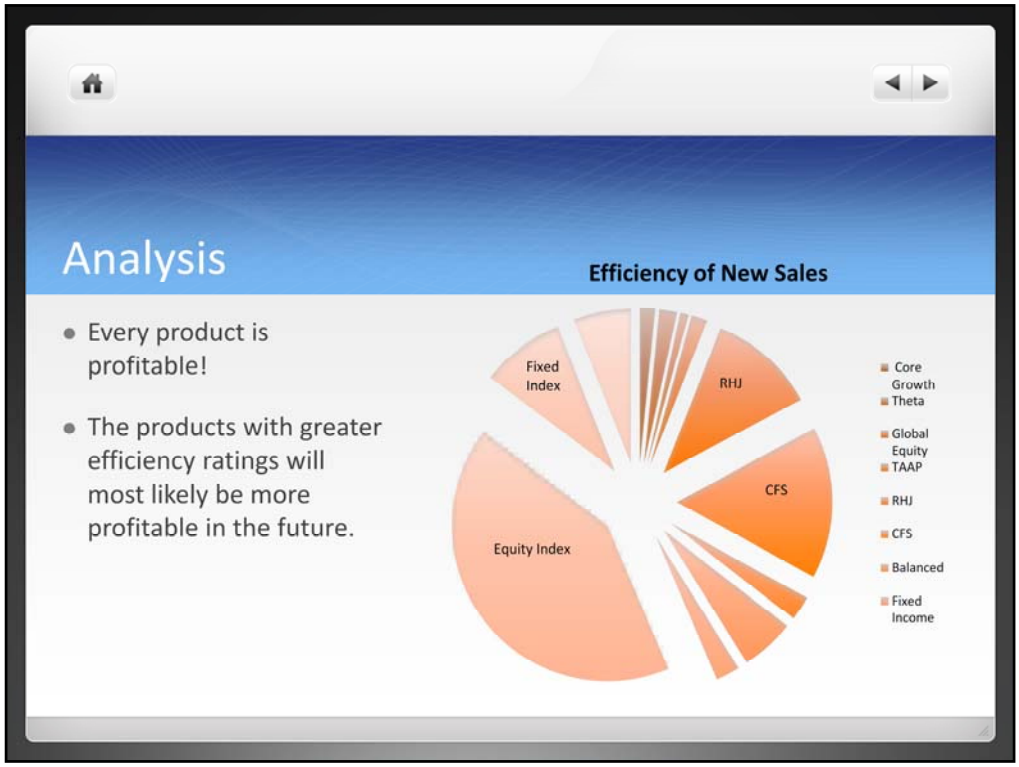
Ending Accounts

Net Income



We used 17 variables that held strings of float-type numbers, and these numbers were pulled from the Excel Sheet. Our 12 decision variables also held strings of float-type numbers, but the OPL program determined these numbers. By basing our program on strings we are able to easily add new products in the future by just adding a column in the Excel spreadsheet. The 13 constraints we developed were based on the relationships between all 29 variables.

The data we used was a combination of theoretical values as well as specific values and historical data. Theoretical values included the probability levels and percentages as well as the average new account size since new accounts can come in at various sizes. These numbers, although theoretical are as realistic as possible in the hypothetical model we developed. Specific & historical values included the current assets under management, fee factors, current number of accounts and expense factors (i.e commission, IT and new account).

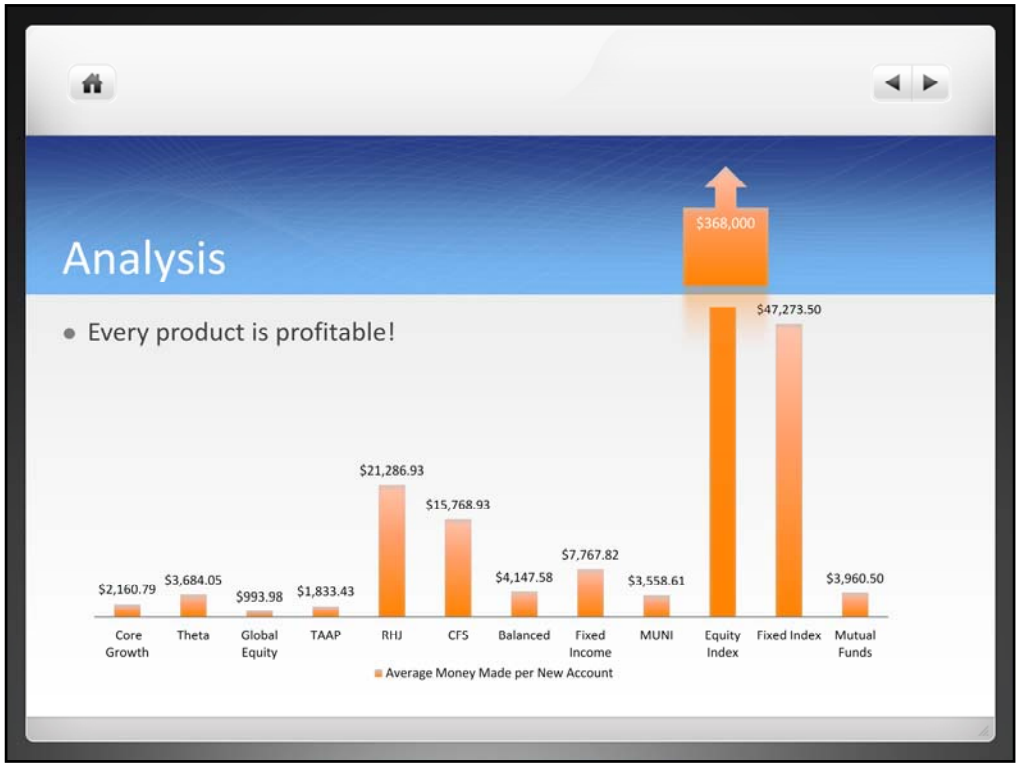


We found that every product under Capstones Management is essentially profitable. Our model proves this by telling us to max out each of the products. In order to really understand how well each of the products were really performing we developed two sets of data; the average amount of money made per new account and the efficiency ratio.

The average amount of money made per new account helps Capstone by telling them how much their efforts to get one account is really paying off. As demonstrated in the following chart, our model determined that the Equity Index product is the most profitable per new account followed by the Fixed Index product and then the RHJ product.

The efficiency ratio essentially tells us how much Capstone spends in order to make a dollar. The products which had the highest rankings in efficiency were RHJ, CFS, Equity Index and Fixed Index. The pie chart on the left represents the future effort that will be put into creating new accounts for all of their products. It is recommended that Capstone allocates its energies towards the future sales of their products as demonstrated in this pie chart; the products with the greater efficiency ratings will most likely be more profitable in the future.

We also provided Capstone with a estimated value probability computation that they requested. They will be able to adjust these values each year to determine the possible new sales. This will help them estimate how much is probable to sell next year.



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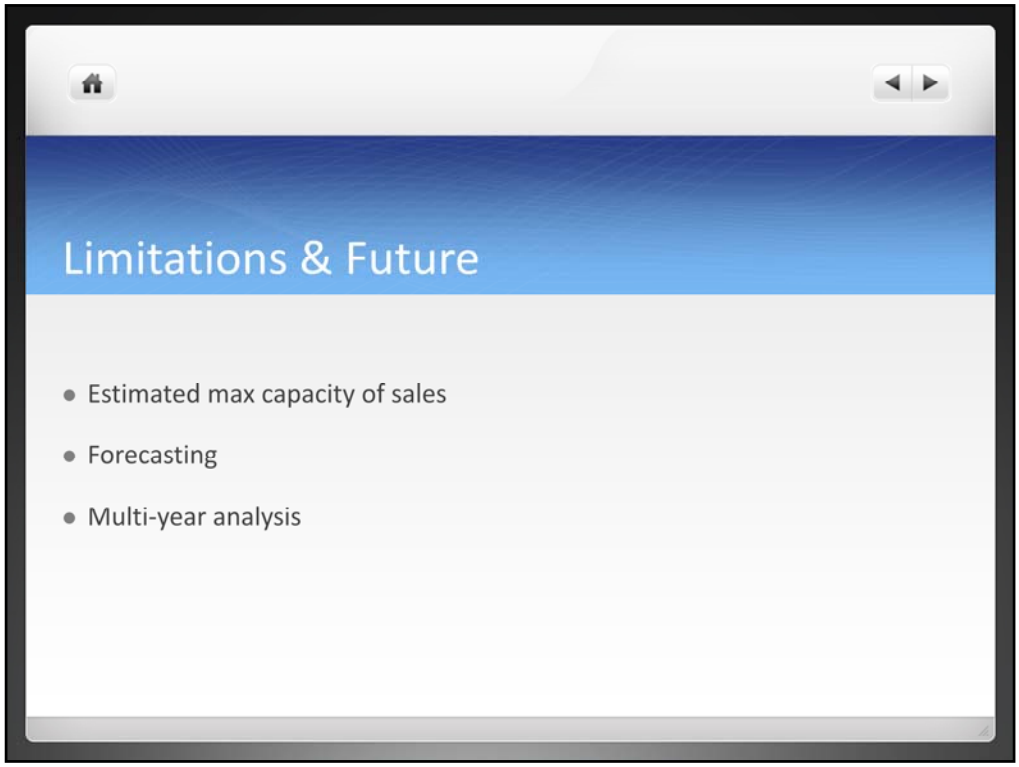

Furthermore, to make this model more realistic a few more constraints should be discussed and developed. We think that developing an estimated max capacity of sales of assets covering all products would help give a more reasonable goal then maxing out the possible sales. A possible way of obtaining this max capacity value could be to do a forecast of the next years values by using the past 5 years actual sales.

In the future Capstone wants us to continue development of this model. They want to add new constraints and new forecasting methods to make it even more helpful in the decision making process. Things such as the maximum employee capacity to sell, market forecasting and estimated returns over a multi-year period are being discussed to be added into the model.