The Pennsylvania State University

Schreyer Honors College

Department of Supply Chain & Information Systems

ANALYSIS OF THE HYUNDAI ASSURANCE SYSTEM

By

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Fall 2009

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree in Supply Chain & Information Systems
with honors in Supply Chain & Information Systems

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Abstract

The Hyundai Assurance Program is a program in which the dealership essentially buys back a car if a person is unable to afford the car within the first year of purchase. Hyundai is a pioneer within this program because it has never been done before. Hyundai has in turn entered a kind of closed loop supply chain in dealing with returns and the reverse logistics of the transaction. The research in the paper will investigate the factors leading to the development of a closed-loop supply chain, describe the closed-loop supply chain design, and focus on the collection of challenges faced. Ultimately, this paper will show that Hyundai's buyback policy can create value to the customer and to Hyundai by taking advantage of the shortened life cycle and resale. Although the buyback can potentially hurt the line of car brands within Hyundai along with various other issues the assurance system can bring value to Hyundai. Hyundai's five brands of cars will be analyzed with the Hyundai Assurance program and resale value. Along with the analysis and Hyundai current progress with its Assurance program a recommendation on what Hyundai should do with its Assurance program will be accessed.

Keywords

Closed Loop Supply Chain Management, profitability, Hyundai, Assurance

Table of Contents

Introduction

The increased concerns in the past decade show that there is a global acknowledgment of improving product quality that should also be addressed alongside in the operational process of supply chain management. All solutions, including logistics management, for managing the overall lifecycle of products are looking to be become more of a comprehensive supply chain procedure (Sheu 2005). Factors such as the tightening of environmental regulations, increasing product returns in hopes of exchange for new products, and value of an end-of-life product are inducing manufacturers to experiment with or implement closed-loop supply chains.

In addition the impact of consumer behavior in the 21st century has played a big role on how companies much carry themselves. Consumers nowadays are likely to sacrifice cost in order to buy from a company with a positive corporate image. The corporate image of being friendly with its resources has played a big part in pursuing consumer confidence in a company and as a result, companies are increasingly taking responsibility and are being accountable for their actions. It is recognized that traditional supply chain companies of all sizes, including suppliers, importers, manufacturers and customers, can all contribute in their own way, to the successful application of Closed Loop Supply Chains (Pappis et al. 2004).

This is what Hyundai Assurance policy has done. It has managed to apply closed loop supply chain principles by buying back cars and create awareness for its product. In this thesis, a background of closed loop principles will be covered and five brands on the Hyundai line will be analyzed with the Hyundai Assurance system to determine what scenarios can make the dealerships profitable with recommendations on future uses of a buyback system in the car manufacturing industry.

Chapter 1: Background

Closed Loop Supply Chain Network

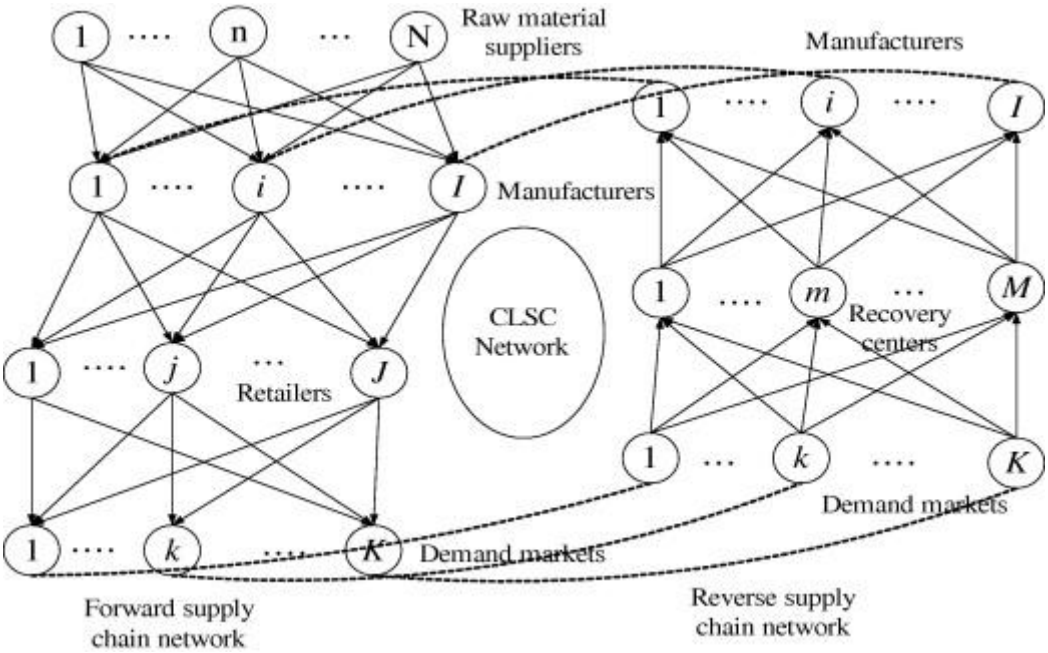


Figure 1: The closed loop supply chain system (Yang 2009)

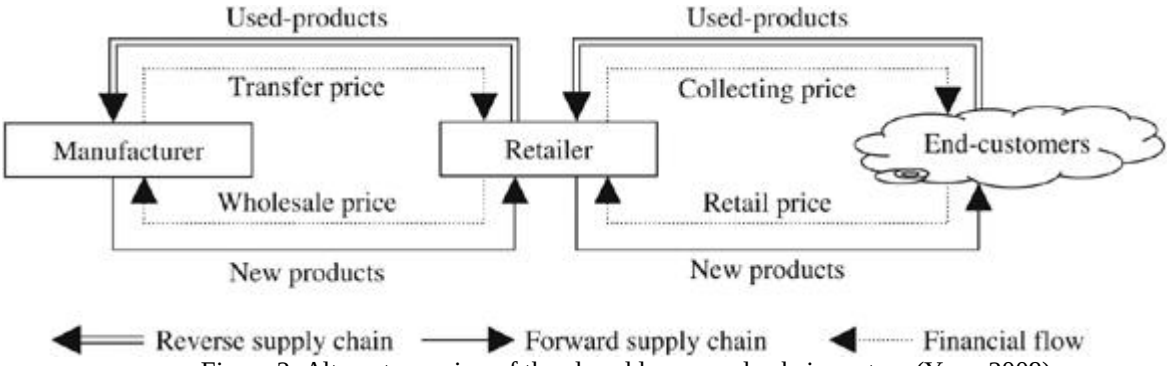


Figure 2: Alternate version of the closed loop supply chain system (Yang 2009)

As can be seen in the network, these chain members can be classified into two groups: The first group is the forward logistics chain members shown at the left side of figure 1. This includes manufacturers, retailers and demand markets. The second group is the reverse logistics chain members shown at the right side of figure 1. This includes recovery centers, manufacturers, and

demand markets as well. The manufacturers are the link that combines the forward supply chain network and the reverse supply chain network together to form the closed-loop supply chain network. This can be defined as *the design, control, and operation of a system to maximize value creation over the entire life cycle of a product with the dynamic recovery of value from different types and volumes of returns over time* (Guide and Van Wassenhove 2006).

Forward Supply Chain Resources

Much of the forward supply chain interactions with the closed loop supply chain system have been in new product design phases. Its initiatives are to create an environmentally favored product which can make the process of reverse logistics much easier. Environmental product design consists of the integration of environmental considerations during the product development process. The product design phase helps enhance the product's environmental performance. Much focus has been on processes such as lean manufacturing, continuous improvement, just in time manufacturing, and environmentally friendly supply selection processes. Recently, empirical links were consistent with firms that aim to elevate organizational performance and firms' ability to govern their own operations' environmental impacts (King and Lennox 2001, Talbot and Lefebvre 2007).

Reverse Supply Chain Resources

The portion is the process of planning, implementing and controlling the efficient, effective inbound flow and storage of secondary goods and related information opposite to the traditional supply chain direction for the purpose of recovering value or proper disposal (Rogers Tiben-Lembke 1999). Attention has been brought on the activities the companies seek out after a product has reached its useful life. It is no coincidence that packaging and transportation have become much more significant in the case of products. Strategies to reduce packing weight and

eliminating useless parts have been deployed. Also, the use of reusable packaging has been favored. Because of the gradual saturation of landfill and incineration capacities, the costs of these activities are steadily rising, forcing manufacturing firms, among others, to reduce the waste generated by their products (Talbot and Lefebvre 2007).

The reverse processes are defined as follows according to (Fleischmann et al 2001)

Collection refers to all activities rendering used products available and physically moving them to some point for further treatment. Collection may include purchasing, transportation, and storage activities.

Inspection / separation denotes all operations determining whether a given product is in fact reusable and in which way. Thus, inspection and separation results in splitting the flow of used products to distinct re-use (and disposal) options, inspection and separation may encompass disassembly, shredding, testing, sorting, and storage steps.

Re-processing means the actual transformation of a used product into a usable product/component/material again. This transformation may take different forms including recycling, repair, and remanufacturing. In addition, activities such as cleaning, replacement, and re-assembly may be involved.

Disposal is required for products that cannot be re-used for technical or cost reasons. This applies,

e.g., to products rejected at the separation level due to excessive repair requirements but also to products without satisfactory market potential, e.g., due to obsolescence. Disposal may include transportation, land filling, and incineration steps.

Re-distribution refers to directing re-usable products to a potential market and to physically moving them to future users. This may include sales, transportation, and storage activities.

Other types of Closed Loop Supply Chains

There are different types closed loop supply chain processes which make it much different from the next. In particular this happens during the return process. Commercial returns are products returned to the reseller by consumers between 30, 60, or 90 days after purchase (Tibben-Lembke 2004). This is what the Hyundai Assurance program is, a closed loop supply chain with commercial returns. There are also end of use returns, which is when a product becomes technically obsolete or no longer contains any utility for the current user. CLSC also differ in their product recovery activities, these activities include used product acquisition, product disposition, remanufacturing/repair, and remarketing (Guide and Van Wassenhove 2002). The issue of who collects used products has also been a topic of interest (Savaskan 2004).

Challenges of the Closed Loop Supply Chain

The closed loop supply chain encompasses both the process of forward supply chain activities as well as the returns processes of the reverse logistics. The process of returning materials leaves it an open process where the returns process is out of the hands of the manufacturers. Does a company want to manage the recycling process themselves? Bring it to another third party and make the process into a service offering? Then there are the long term options, for example would it be more profitable for a company to redesign an old product or to sustain their

recyclability costs. Progress is slow since closed loop supply chains are rarely considered as value-creating systems, and much of the focus is on the operational aspects, rather than the larger strategic issues. Interest is growing in the US because of the potential (Guide and Van Wassenhove 2003).

The closed loop supply chain reverse supply chain requires a careful plan, preparation, and organization. There have been established common activities for reverse supply chains; there is not a complete understanding these activities in different contexts because they vary in complexity and importance from situation to situation. The situation is further complicated because users may return products during the product life cycle (commercial returns: a result of liberal reseller policies that permit customers to return products for any reason during a 30-, 60-, or 90-day period after purchase, warranties, repairs), at end of use, and at end of life. Each type of return requires a reverse supply chain appropriate to the characteristics of the returned products to optimize value recovery (Guide Van Wassenhove 2003). Closed Loop Supply chains are growing in importance as the future looms. This is one of the fields in business where academics are ahead of industrial practice. There are many reasons for this, with one being the financial aspect of implementing a program (Flapper et al. 2005).

Also a lack of a grounded theory of framework for a closed loop supply chain has possibly added to challenges within industries. Firstly, contributors in the field of closed loop supply chain management and remanufacturing research have generally not sought after the theories from the environmental social sciences. These theories had often examined only the recovery operation itself, rather than the whole closed loop supply chain. The closed loop supply chain management is only represented by a relatively short research history. The earliest contributions in the field

were made on reverse logistics in the early 1990s. Publications on closed loop supply chain management followed in the beginning of this century with leading articles by Guide and Van Wassenhove. (Seitz 2004).

Chapter 2: The Case of Hyundai

In the case of Hyundai and its customers, the re-distribution system of the reverse logistics stage is used if they choose to return the car in a non-manufacturing case. Hyundai's dealerships go through a form a semi closed loop supply chain system. The product returns done by the customer are workable cars and are not trash. The real value of Hyundai cars lie in the re-sale value of the car from the dealership once it is returned by the customer. The total value of returns can run in the hundreds of millions of dollars for a single retailer as is the case for Home Depot (Stock 2002). The profit is therefore earned by the dealership of the Hyundai vehicles. Ferguson et al. (2006) first introduced the idea that returns rates can be influenced extending the system to the behavior of the reseller. With the right incentives there could be incentive to return.

Hyundai Assurance Program

Hyundai has implemented a program in the automotive industry that has been relatively unheard of. It offers customers the opportunity to return a car within the year you purchase a Hyundai vehicle if you go through a “life changing” event. As defined by Hyundai a “life changing” event includes but is not limited to involuntary job loss, personal bankruptcy if self employed, getting transferred overseas and accidental death. In order to get the benefit the customer must have at least made two payments before filing for the benefit. With no extra charge to the sticker price, the program pays the difference between the car's trade-in value at the time the owner files a claim and any remaining balance on the loan up to a maximum of $7,500. To many this may seem like an idea that could turn for the worst. Hyundai is aiming to be the first automobile manufacturer to introduce the program nationally. The following is the program outlined in Hyundai Assurance Program.

- The program lasts one year from lease or purchase date of a new Hyundai vehicle, which is financed through Hyundai Motor Finance Company and some other third-party lenders.
- New car buyers must have made at least two scheduled payments on their loan or lease, be current on all payments and pay for any outstanding balance above the $7,500 benefit amount which results from negative equity.
- The circumstances covered on the assurance program include involuntary unemployment (being laid off), physical disability, loss of driver’s license due to medical impairment, international employment transfer and self-employed personal bankruptcy.
- Once the benefit is approved by the Hyundai Assurance administrator and the customer pays any outstanding balance, the customer returns the vehicle to the selling dealer,

whose appraisal is factored into the valuation formula, and the consumer avoids further financial obligation or negative impact to his/her credit. The dealer is then able to remarket the vehicle.

Just by the general first impressions of the program, according to analysis done by Edmunds.com the purchase intent for Hyundai vehicles to soar 15 percent during initial reaction to the program and has remained at least 7 percent above its seasonal norm ever since. So from the early stages of the program it seems to be successful and could act as a standard for the automobile industry to come.

Product Life Cycle in the Automobile Industry

Managing product life cycles in the auto industry have gotten dramatically shorter. However, the reduction does not apply to maturity and the saturation phase (Volpato and Stocchetti 2008). According to Volpato and Stocchetti carmakers tend to support sales with a policy of product line extension. Cars much like other product lose value as soon as you purchase one. For example the life cycle of a PC is 3 to 4 months, and its value deteriorates at 1% per week. A brand new car can lose up to 25% of its value within the first year. By the 5^{th} year a brand new car can lose up to 65% of its value. Of course it can differ based on supply and demand of the car, overall economy status, and the type of car it is (Ferrari vs Ford). The key component within the Hyundai Assurance Program and the PLC is when the return of the vehicle occurs. As always, the financial impact of product life cycle is what many are concerned about. The seven stages of the PLC are the following: New Product Basic Research, New Product Capacity Planning, and Introduction to Market, Growth, Maturation, Decline, and Termination (Meeting

the Product Lifecycle Challenge Edward J. Marien). The later the vehicle is returned within the PLC the less profitable the vehicle will be to the Hyundai dealership. The most ideal situation would be the vehicle to be bought in the growth stage, and be returned during the growth stage, before the maturation phase.

Tables #1-3

Table #1: Car price w/ depreciation by months

Car	Base Price	3 months	6 months	9 months	12 months	% depreciated
Hyundai Accent	$9,970	$9,346.88	$8,723.75	$8,100.63	$7,477.50	25
Hyundai Elantra	$14,120	$13,237.50	$12,355.00	$11,472.50	$10,590.00	25
Hyundai Sonata	$18,700	$17,531.25	$16,362.50	$15,193.75	$14,025.00	25
Hyundai SantaFe	$21,695	$20,339.06	$18,983.13	$17,627.19	$16,271.25	25
Hyundai Genesis	$32,250	$30,234.38	$28,218.75	$26,203.13	$24,187.50	25

As stated the real value lies in the re-sale value of the car once it is returned to a Hyundai dealership. The following graph shows the price of the car with depreciation every 3 months.

Table #2: Car Price w/ Hyundai Assurance Basic Requirements

Car	Base Price	Hyundai Assurance Max coverage	Down payment	Loan per month	Interest Rate	Profit
Hyundai Accent	$9,970	$7,500	$1,994	$191.34	7.3%	$ 2,376.69
Hyundai Elantra	$14,120	$7,500	$2,824	$270.99	7.3%	$ 3,365.98
Hyundai Sonata	$18,700	$7,500	$3,740	$358.89	7.3%	$ 4,457.78
Hyundai SantaFe	$21,695	$7,500	$4,339	$416.37	7.3%	$ 5,171.74
Hyundai Genesis	$32,250	$7,500	$6,450	$618.94	7.3%	$ 7,687.88

A 20% down payment was used. And loan length was set at 48 months. Rates were determined by the national average on 10/2/09. The loan per month price was determined by the Hyundai Financing Estimator based on a 7.3% interest rate. The profit values were found by adding the mandatory down payment plus the 2 months of loan required to be considered for the Hyundai Assurance program.
http://www.hyundaiusa.com/financing/estimator/estimator.aspx

Table #3: Updated Loan Payments

Car	Loan per month	3 months	6 months	9 months	12 months
Hyundai Accent	$191.34	$2,568	$3,142	$3,716	$4,290
Hyundai Elantra	$270.99	$3,637	$4,450	$5,263	$6,076
Hyundai Sonata	$358.89	$4,817	$5,893	$6,970	$8,047
Hyundai SantaFe	$416.37	$5,588	$6,837	$8,086	$9,335
Hyundai Genesis	$618.94	$8,307	$10,164	$12,020	$13,877

Table #3a: Profits w/Updated loan payments

Car	Down payment	Profit after 3 months	Profit after 6 months	Profit after 9 months	Profit after 12 months
Hyundai Accent	$191.34	$4,562	$5,136	$5,710	$6,284
Hyundai Elantra	$270.99	$6,461	$7,274	$8,087	$8,900
Hyundai Sonata	$358.89	$8,557	$9,633	$10,710	$11,787
Hyundai SantaFe	$416.37	$9,927	$11,176	$12,425	$13,674
Hyundai Genesis	$618.94	$14,757	$16,614	$18,470	$20,327

Table #1-3 Explanation

The first table represents the top 5 selling Hyundai cars in the United States in order by price based on the Hyundai website. A car is expected to lose 25% of its value when bought brand new after the first year. This statistic is according to both Edmunds.com and Carfacts.com.

The second table represents the price of the car with the required down payment and loan payments based on standard values given by Hyundai. The graphs represent the Hyundai Assurance program being used when a Hyundai vehicle is bought, not leased. The down payment value of 20% was used, it is known as an industry standard according to Edmunds.

Tables 3 and 3a represent the updated loan payments required for the program and the profits earned by the dealership (Popely 1999). The difference between the two is the 3a incorporates the required down payment of the line of car, and table 3 does not.

Hyundai Car Analysis

The case of Hyundai is unique and has never been done before by any automotive company. The dominating view was that product returns cost money and, therefore, firms must always minimize the costs of the returns (Stock et al. 2002). The car received will likely be re-sold back into the market through the partnering dealership. The totals profit in the graphs reflect the dealership selling the car in the open market for the trade in value plus the money received in the requirements of the Assurance program (down payment, two loan payments, and updated loan payments). The key trade off is between opportunity cost of the value of the product and if the price economies. For Hyundai, if the customer were to take the maximum amount of time for the assurance program it can still obtain a profit and use the value of the car for re-sale value. The cost of the assurance backup maximum of $7,500 is not equivalent to the profit that can be made if the car was returned in a year or less and then resold to the market. Working with time sensitivities and returns over the product life cycle creates different resale values of Hyundai cars being brought in.

Hyundai's Line of Cars: Graphs

There are following variables that cannot be accounted for in determining the true selling price of the cars. So instead the trade in value of the car will be used. This is the value of a used automobile that you trade in to a dealership as part of a purchase. The trade-in value will usually be approximately equal to the wholesale blue book value. Factors such as the quality of the car, condition of the car, and the maintenance of the car will he held constant. The graphs will assume a "good condition" as described in KBB. The car will be free of any major defects, clean title history; minor body/interior blemishes little or no rust, and has substantial wear left on the tires. The trade in value was composed by The Kelley Blue Book which is the US's largest

automotive vehicle valuation company. It is important to note that the scenarios and the conditions of the cars are not factored in with any variable conditions in the real world; it is limited to just the Kelly Blue Book specifications.

For the analysis of the graphs, mileage per month will be set at 1,000 miles. The y axis will show intervals of mileage held on the vehicle 3 months, 6 months, 9 months, and 1 year, with each month being 1,000 miles respectively. The x graph will represent the cost. The blue bar will represent the coverage of Hyundai Assurance maximum coverage of $7,500 (although the maximum coverage is unlikely, the graphs will represent the worst case scenario). The red bar will represent the trade in value of the car after the mileage given. The yellow bar will represent the profit from table 1 added to the trade in value subtracted by the Hyundai Assurance.

Hyundai Accent:

Accent Table 1: Basic Requirements of Program

Car	Base Price	Hyundai Assurance	Down payment	Loan per month	Interest Rate	Profit
Hyundai Accent	$9,970	$7,500	$1,994	$191.34	7.3%	$ 2,376.69

Accent Table 2: Trade in Value

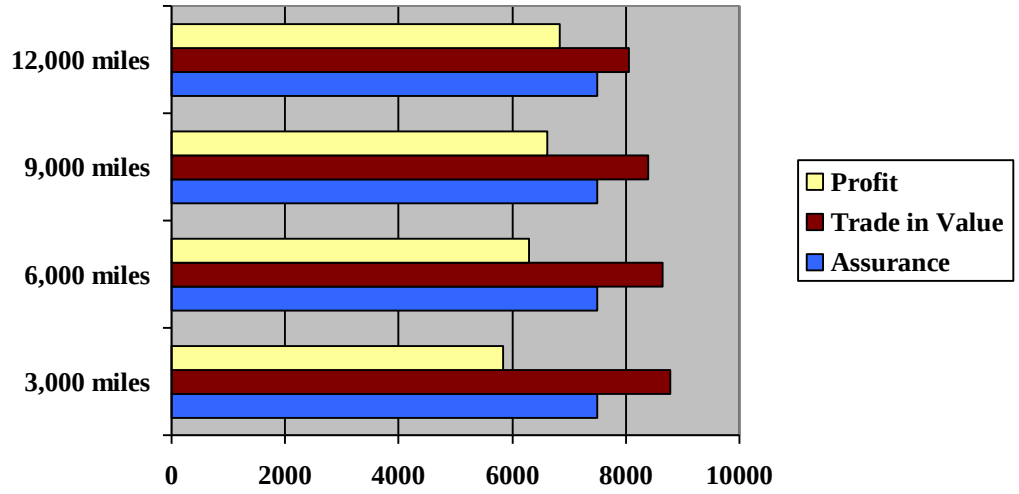
Trade In Value After	Base Price	3,000 miles	6,000 miles	9,000 miles	12,000 miles	Total Depreciation
Hyundai Accent	$9,970	$8,775	$8,650	$8,400	$8,050	19.3%

Accent Table 3: Summary

Summary	3,000 miles	6,000 miles	9,000 miles	12,000 miles
Hyundai Assurance	$7,500	$7,500	$7,500	$7,500
Trade In Value	$8,775	$8,650	$8,400	$8,050
Profit Sum	$5,837	$6,286	$6,610	$6,834

**Total profit= Price after mileage – assurance + profit from Table #3a

Accent Graph 1: Summary



Hyundai Elantra:

Elantra Table 1: Basic Information

Car	Base Price	Hyundai Assurance	Down payment	Loan per month	Interest Rate	Profit
Hyundai Elantra	$14,120	$7,500	$2,824	$270.99	7.3%	$ 3,365.98

Elantra Table 2: Trade in Value

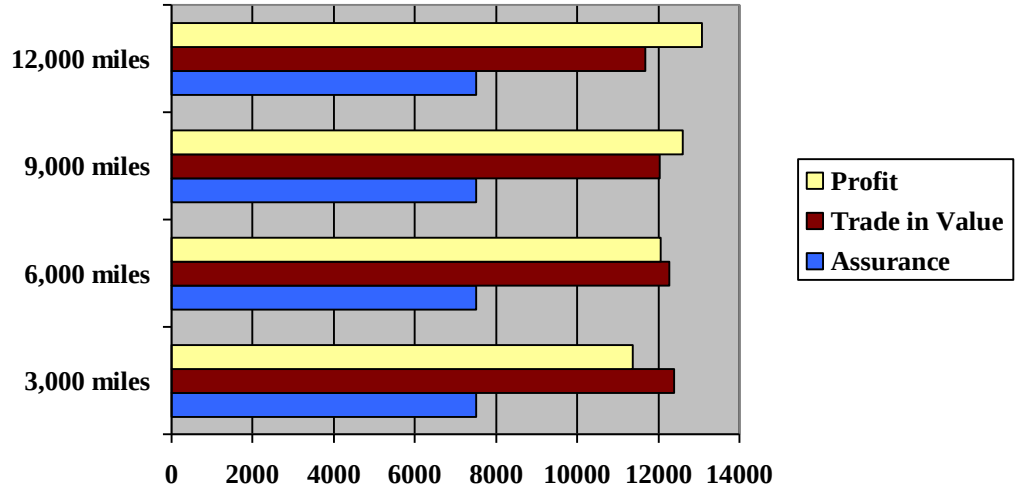
Trade In Value After	Base Price	3,000 miles	6,000 miles	9,000 miles	12,000 miles	Total Depreciation
Hyundai Elantra	$14,120	$12,400	$12,275	$12,025	$11,675	17.3%

Elantra table 3: Summary

Summary	3,000 miles	6,000 miles	9,000 miles	12,000 miles
Hyundai Assurance	$7,500	$7,500	$7,500	$7,500
Trade In Value	$12,400	$12,275	$12,025	$11,675
Total Profit	$11,361	$12,049	$12,612	$13,075

**Total profit= Price after mileage – assurance + profit from Table #3a

Elantra Graph 1: Summary



Hyundai Sonata:

Sonata Table 1: Basic Information

Car	Base Price	Hyundai Assurance	Down payment	Loan per month	Interest Rate	Profit
Hyundai Sonata	$18,700	$7,500	$3,740	$358.89	7.3%	$ 4,457.78

Sonata Table 2: Trade in Value

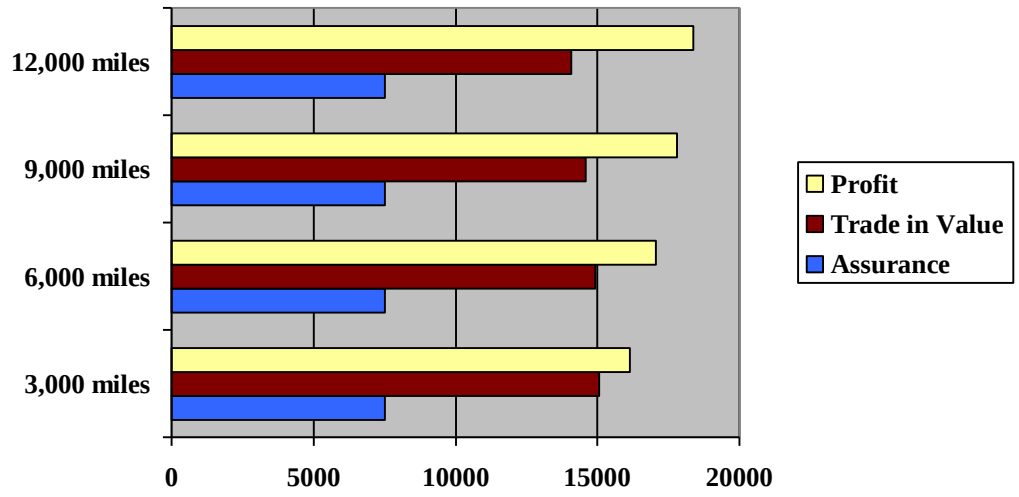
Trade In Value After	Base Price	3,000 miles	6,000 miles	9,000 miles	12,000 miles	Total Depreciation
Hyundai Sonata	$18,700	$15,075	$14,925	$14,575	$14,075	24.7%

Sonata Table 3: Summary

Summary	3,000 miles	6,000 miles	9,000 miles	12,000 miles
Hyundai Assurance	$7,500	$7,500	$7,500	$7,500
Trade In Value	$15,075	$14,925	$14,575	$14,075
Total Profit	$16,132	$17,058	$17,785	$18,362

**Total profit= Price after mileage – assurance + profit from Table #3a.

Sonata Graph 1: Summary



Hyundai Santa Fe:

Santa Fe Table 1: Basic Information

Car	Base Price	Hyundai Assurance	Down payment	Loan per month	Interest Rate	Profit
Hyundai Santa Fe	$21,695	$7,500	$4,339	$416.37	7.3%	$ 5,171.74

Santa Fe Table 2: Trade in Value

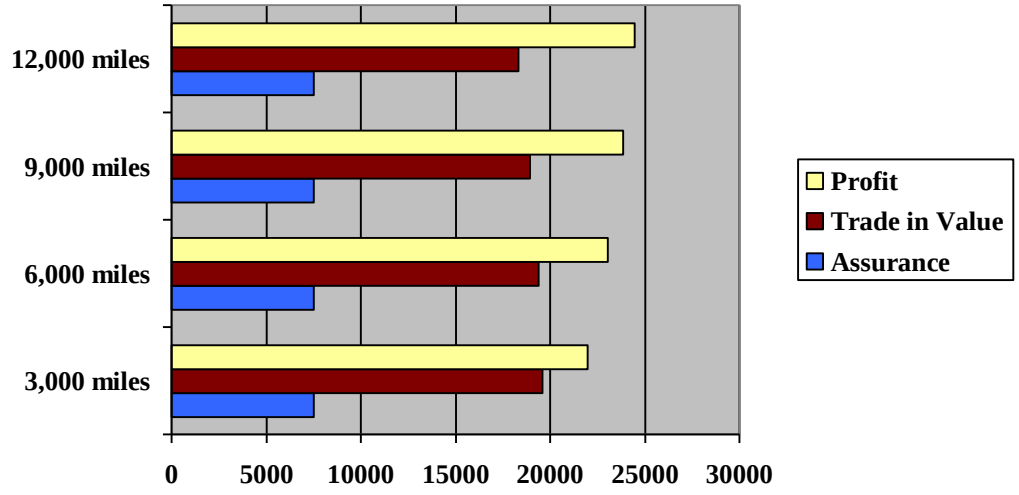
Trade In Value After	Base Price	3,000 miles	6,000 miles	9,000 miles	12,000 miles	Total Depreciation
Hyundai Santa Fe	$21,695	$19,575	$19,375	$18,950	$18,300	15.6%

Santa Fe Table 3: Summary

Summary	3,000 miles	6,000 miles	9,000 miles	12,000 miles
Hyundai Assurance	$7,500	$7,500	$7,500	$7,500
Trade In Value	$19,575	$19,375	$18,950	$18,300
Total Profit	$22,002	$23,051	$23,875	$24,474

**Total profit= Price after mileage – assurance + profit from Table #3a.

Santa Fe Graph 1: Summary



Hyundai Genesis:

Genesis Table 1: Basic Information

Car	Base Price	Hyundai Assurance	Down payment	Loan per month	Interest Rate	Profit
Hyundai Genesis	$32,250	$7,500	$6,450	$618.94	7.3%	$ 7,687.88

Genesis Table 2: Trade in Value

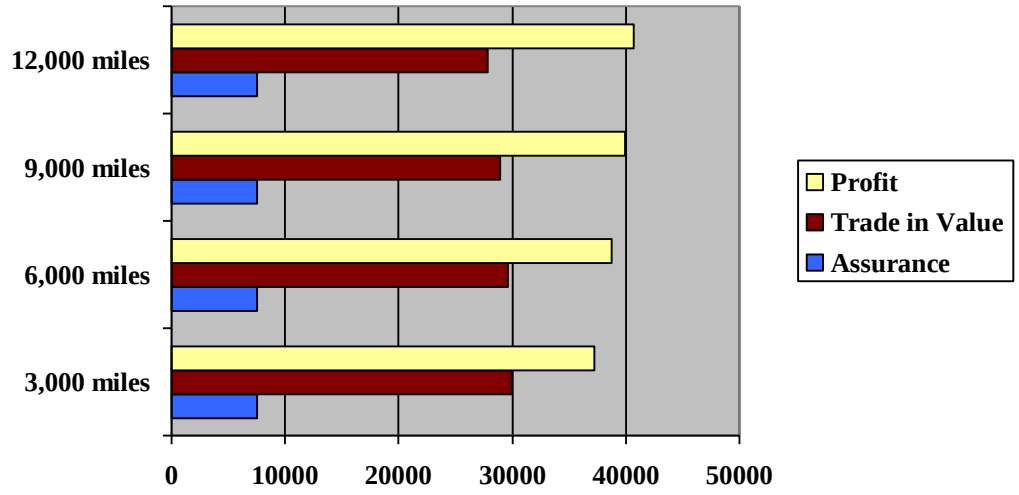
Trade In Value After	Base Price	3,000 miles	6,000 miles	9,000 miles	12,000 miles	Total Depreciation
Hyundai Genesis	$32,250	$29,975	$29,650	$28,925	$27,850	13.6%

Genesis Table 3: Summary

Summary	3,000 miles	6,000 miles	9,000 miles	12,000 miles
Hyundai Assurance	$7,500	$7,500	$7,500	$7,500
Trade In Value	$29,975	$29,650	$28,925	$27,850
Total Profit	$37,232	$38,764	$39,895	$40,677

**Total profit= Price after mileage – assurance + profit from Table #3a.

Genesis Graph 1: Summary



Chapter 3: Summary of Analysis of Hyundai's Line of Cars:

The five brands of cars and its respected graphs show a deeper analysis of how each brand react differently to depreciation and the Assurance program. It shows that the greater the base price of the car is, there is an increase in profit that could be obtained as time increases. The higher base price also shows the less of an effect the Assurance coverage has compared to the price and possible profit that could be obtained from the program. It is harder to generate a profit from the cars that have a lower base price due to the fact that the Assurance coverage price make up a high percentage of the car (ex: Accent and Elantra).

Tables #4-7

Table #4- Summary of Cars

Car	Base Price	Profit after 3,000 miles	Profit after 6,000 miles	Profit after 9,000 miles	Profit after 12,000 miles
Hyundai Accent	$9,970	$4,562	$5,136	$5,710	$6,284
Hyundai Elantra	$14,120	$6,461	$7,274	$8,087	$8,900
Hyundai Sonata	$18,700	$8,557	$9,633	$10,710	$11,787
Hyundai SantaFe	$21,695	$9,927	$11,176	$12,425	$13,674
Hyundai Genesis	$32,250	$14,757	$16,614	$18,470	$20,327

Table #5- Price differences, car not sold

Car	Base Price	Difference at 3,000 miles	Difference at 6,000 miles	Difference at 9,000 miles	Difference at 12,000 miles
Hyundai Accent	$9,970	-$5,408	-$4,834	-$4,260	-$3,686
Hyundai Elantra	$14,120	-$7,659	-$6,846	-$6,033	-$5,220
Hyundai Sonata	$18,700	-$10,143	-$9,067	-$7,990	-$6,913
Hyundai SantaFe	$21,695	-$11,768	-$10,519	-$9,270	-$8,021
Hyundai Genesis	$32,250	-$17,493	-$15,636	-$13,780	-$11,923

Table #6- Price differences, car sold at trade in price

Car	Base Price	Difference at 3,000 miles	Difference at 6,000 miles	Difference at 9,000 miles	Difference at 12,000 miles
Hyundai Accent	$9,970	-$4,133	-$3,684	-$3,360	-$3,136
Hyundai Elantra	$14,120	-$2,759	-$2,071	-$1,508	-$1,045
Hyundai Sonata	$18,700	-$2,568	-$1,642	-$915	-$338
Hyundai SantaFe	$21,695	$307	$1,356	$2,180	$2,779
Hyundai Genesis	$32,250	$4,982	$6,514	$7,645	$8,427

Table #7- Breakeven value for Hyundai Assurance compared to base price

Car	Base Price	Assurance Max Value	Assurance breakeven at 3,000 miles	Assurance breakeven at 6,000 miles	Assurance breakeven at 9,000 miles	Assurance breakeven at 12,000 miles
Hyundai Accent	$9,970	$7,500	$3,367	$3,816	$4,140	$4,364
Hyundai Elantra	$14,120	$7,500	$4,741	$5,429	$5,992	$6,455
Hyundai Sonata	$18,700	$7,500	$4,932	$5,858	$6,585	$7,162
Hyundai SantaFe	$21,695	$7,500	$7,807	$8,856	$9,680	$10,279
Hyundai Genesis	$32,250	$7,500	$12,482	$14,014	$15,145	$15,927

Tables #4-7 Calculation

Table #5 compares the profits earned compared to the base price of the car. The difference of prices was determined by the following equation:

Profit after mileage X - Base Price of Car

Ex: Hyundai Accent for 3,000 miles. Profit after 3,000 miles ($4,562) – Base price of Accent ($9,970) = -$5,408

The numbers turn out to be negative because of the Assurance coverage numbers. In a likely situation, a customer will not have a negative equity over $7,500 during the time span of a year. It is even more unlikely that a customer will reach close to $7,500 in negative equity over a period of 3-6 months. However, the graph was made to accommodate for the worst case scenario.

Table #6 displays the same result, except that the profit made from selling car back into the market at the trade in price is used.

Table #7 displays the necessary prices for the Assurance coverage in order to maintain a breakeven price of the base cost of the car.

Tables #4-7 Explanation

The Assurance breakeven prices are the following miles are the prices that the Hyundai Assurance needs to be in order for the Hyundai dealership to breakeven assuming the conditions explained in the thesis. The down payment of the vehicle and the two mandatory loan payments plus the updated loan payments must be equal to the Assurance breakeven prices.

Table #5 explains that logically, the longer a customer keeps the car the better it is for Hyundai. It is important to remember the customer keeping the car throughout the allotted time of the Hyundai Assurance program is always better than the car being returned at any point. This is shown by the amount of money being lost being less as the months increase. Table #6 explains the same situation except when the car is sold at the trade in value price.

Graph #1: Break even prices

The values of the Hyundai Assurance breakeven value were found by the solver function on excel. The Difference in profit at X miles was set to equal zero while manipulating the Hyundai Assurance coverage numbers in the following formulas.

(Trade in value – Hyundai Assurance coverage) + (Down payment requirement for Assurance + 2 loan payments for Assurance) = Profit after mileage X.

Profit after mileage X – Base Price of Car = Difference in profit at X miles.

If the car were to be sold at the trade in value price, and the Hyundai Assurance prices were at the breakeven points, a profit could be made if the Hyundai Assurance program was less than the breakeven point.

The incline in Table #7 shows that the Assurance break even prices can deal withstand a higher Assurance price as the program progresses. Since the dealership receives update monthly loan payments as the program increases, the profit made by the dealership increases. Since the profit is higher, it affects the equation and the breakeven price increases. The graph also shows the program is more likely to be profitable if the car is returned earlier mileage stages. The results follow the principle of the PLC, if the car returned back earlier; it would still in the growth stage and could be sold back into the market at a competitive price. Clearly, speed is important and a failure to consider time in the design of a closed loop supply chain can be costly and this is shown by a study done previously. (Blackburn 2004, Guide et al. 2006). It is assumed that the dealership does not want to experience a breakeven or a loss in profits from the program. In order generate a profit the dealership needs to make sure that the Hyundai Assurance program does not need to cover up to the breakeven price. If the Assurance numbers turn out to be less than the breakeven, it will result in an increase in profitability for the dealership.

Hyundai Dealership Recommendations

In terms of controlling the variable breakeven price, the responsibility can be brought down to the dealership in giving loans to customers who are qualified to make payments without falling behind. Hyundai has also turned a big marketing win with its Hyundai Assurance program. So far, Hyundai dealerships have been doing a great job of this. The timing of remanufacturing production introduction can be used to compete against other companies. It considers the use of remanufacturing as a marketing strategy (Atasu el al 2008). As of March 2009, Hyundai spokesman Dan Bedore confirmed that so far no one has used the program. It's still early in the plan's lifecycle and final March figures have not come in, but the fact that no buyer has taken advantage of it says that at least the 55,133 people who bought a Hyundai this year probably still have their jobs (Neff 2009). John Krafcik, acting CEO of Hyundai Motor America also claimed that as of October, fewer than 50 customers have returned their vehicles under the program (Neff 2009). The fear of cannibalization prevents manufactures introducing remanufactured products and it may forgo market share and profits (Guide and Li 2007). However, not many have used the program so it cannot be determined on if profits are forgone.

Krafcik, (CEO of Hyundai Motor America) believes that it is responsible for a “10 to 15 percent incremental increase in interest."Recently, Hyundai went beyond the Assurance program and a Hyundai Assurance Plus program which provides a one-time, 90-day payment relief benefit in the event of involuntary unemployment or physical disability, basically the Hyundai Assurance Plus pays the lender a sum equal to 90 days of loan or lease payments. As of late October, Hyundai's U.S. sales are up 2% for the first nine months of this year, Hyundai’s sales also rose 20 percent to 342,217 vehicles in the United States during the first 9 months of 2009. Overall

U.S. auto sales fell almost 30 percent (Roth 2009). Although not all the credit is a direct result of the Hyundai Assurance program, the assurance program has undoubtedly given Hyundai a positive boost to add to its success. Krafcik also stated that the automaker will keep the program running through the end of 2009 (Calogera 2009 However, the status of the Hyundai Assurance program in 2010 is unknown as of right now.

Conclusion

Based on the results of the thesis, it would be beneficial for Hyundai to continue to pursue its Hyundai Assurance program into the next year possibly beyond 2010 as well. If the dealerships can continue to manage its returns in a timely manner within each brand of Hyundai, the program can be considered profitable. In the future, a best degree of responsiveness (design) for the reverse logistics process could be analyzed for Hyundai and its cars. Products with a high marginal value of time product and a low marginal value of time have been analyzed to maximize profits (Guide et al 2006). A network design can be used to take a step away from the cost minimization perspective of the typical CLSC and be used to maximize the value of a product by taking the returned cars and adding value back into the cars and selling it back into the market.

Also, in current news, it is known that the Hyundai Assurance program has used by fewer than 50 customers as of October 2009 (Neff 2009). Hyundai has mainly taken the marketing benefits of the program by attracting customers with the benefit of returning the car if it is purchased from Hyundai. Its cost benefit have been rather one sided so far, Hyundai has taken advantage of the market economy by providing consumers with assurance but not many have taken advantage

of the program. There have been other companies such as GM, Ford have emulated the Hyundai Assurance program to draw in customers. It is possible that more companies will take on the trend and provide a similar service in the future. As of right now, the Hyundai Assurance program has been beneficial for Hyundai and according to the analysis done, continuing the Hyundai Assurance program would be beneficial to Hyundai and its sales.

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