Technical Appendix

Application of Strategy Dynamics: Starbucks Corporation

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The following material illustrates the worksheets from the Strategy Dynamics approach that support the results in the paper: Application of Strategy Dynamics: Starbucks Corporation. The referenced worksheets are described in Kim Warren's book Strategic Management Dynamics (2008).

Contents

Worksheet 1 – Performance over Time

1.1. Principal Objective

The principal objective is an increase in profits over time. The following figure represents actual profits through fiscal 2008. The decrease in profits in 2008

represents what Starbucks hopes is a temporary setback that would result in some strategy changes

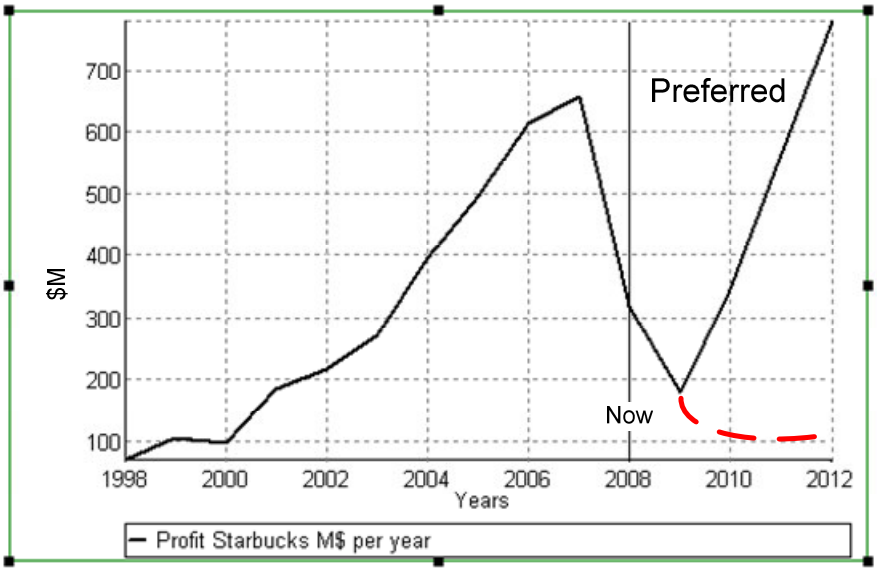

FIGURE 1
Starbucks Profit (Net Earnings)

1.2. Supporting Objectives

The scope of the analysis focuses on Starbuck's store business, both licensed and company-owned. However the body of the main paper just covers company-owned stores.

The following are supporting objectives that were not covered in the body of the report, but yet may be important to Starbucks.

- **Average Revenue from a Licensed Store (from license fees)** (from Worksheet 1). To derive the historical data in the following figure, I assumed that "specialty licensing" revenue as reported in Starbucks annual reports comes just from licensed stores. Since licensed stores may compete with company-owned stores, Starbucks may chose to limit its licensing. So the "feared" plot that is listed in the figure below may actually become "preferred."

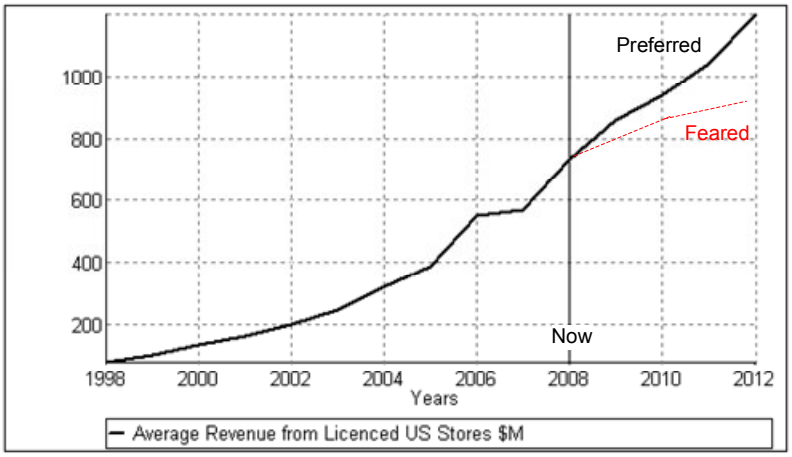

FIGURE 2
Average Revenue from Licensed Stores

- **Average Sales from a Comparable Starbuck Company-Owned Store.** Starbucks reports on the percent growth in comparable stores, which are those stores opened for 13 months or more. This objective, which is translated to average sales here, indicates desired growth in settled stores. Although Starbucks gains new customers by opening new stores, it also wants to grow the business in its settled stores. The information from this objective comes from Worksheet 2 since the information in that worksheet is needed to derive the information.

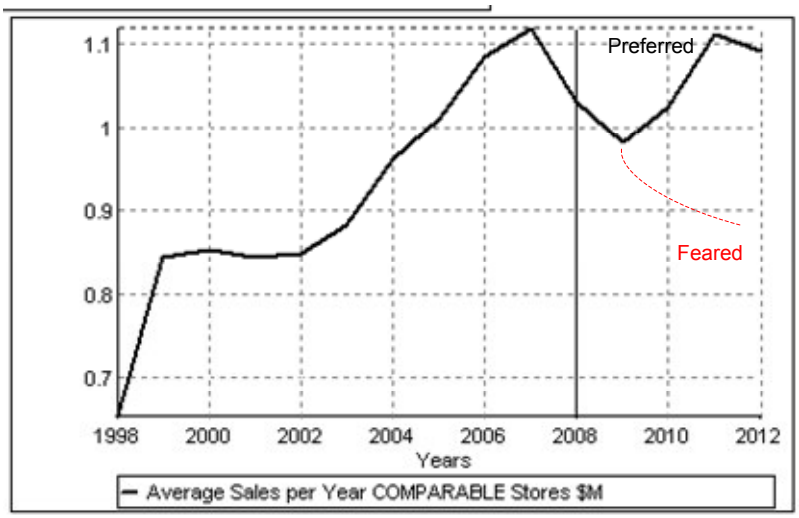

FIGURE 3
Average Sales from Comparable Starbuck-Owned Stores

Worksheet 2 – Resources Driving Performance

This analysis will not distinguish between international and US owned stores for two reasons:

- To simplify the problem. A future analysis can make the distinction if necessary.
- Starbucks does not report differences in revenue from its international and US stores.

TABLE 1. Tangible Resources

	Tangible Resource	Measure	Comment
Supply-side	**Company-Owned US Stores**	#stores	
	Specialty Staff	#people	
	Store Staff	#people	
Demand-side	**Store Customers**	**# customers**	Starbucks finds a local partner in international stores
	Licensed Stores	**# licensed stores**	Could be at airports. No Starbucks company staff, however Starbucks provides training.
	[Licensees – Products]	[# licenses to manufacturers]	Not in model – except as "Other Revenue-Non-Stores." An example is Pepsi Cola for Frappuccino Drinks sold in non-Starbucks retail outlets (e.g., convenience stores, gas stations)
	[Retailers - Products]		Not in model Distribution of products to retailers probably done by licensees of products
	[Consumers of Retail Products]		Not in model

Assumptions (The **bolded** variables on right side of equations come from annual reports)

- Average company store spend per visit = $5
- Company store visits per week per person = 6
- Store Costs = 0.3***Store Operating Expenses** +0.5 * **Costs of Sales and Occupancy**
- Specialty Staff Costs =0.7***Other Operating Expenses**

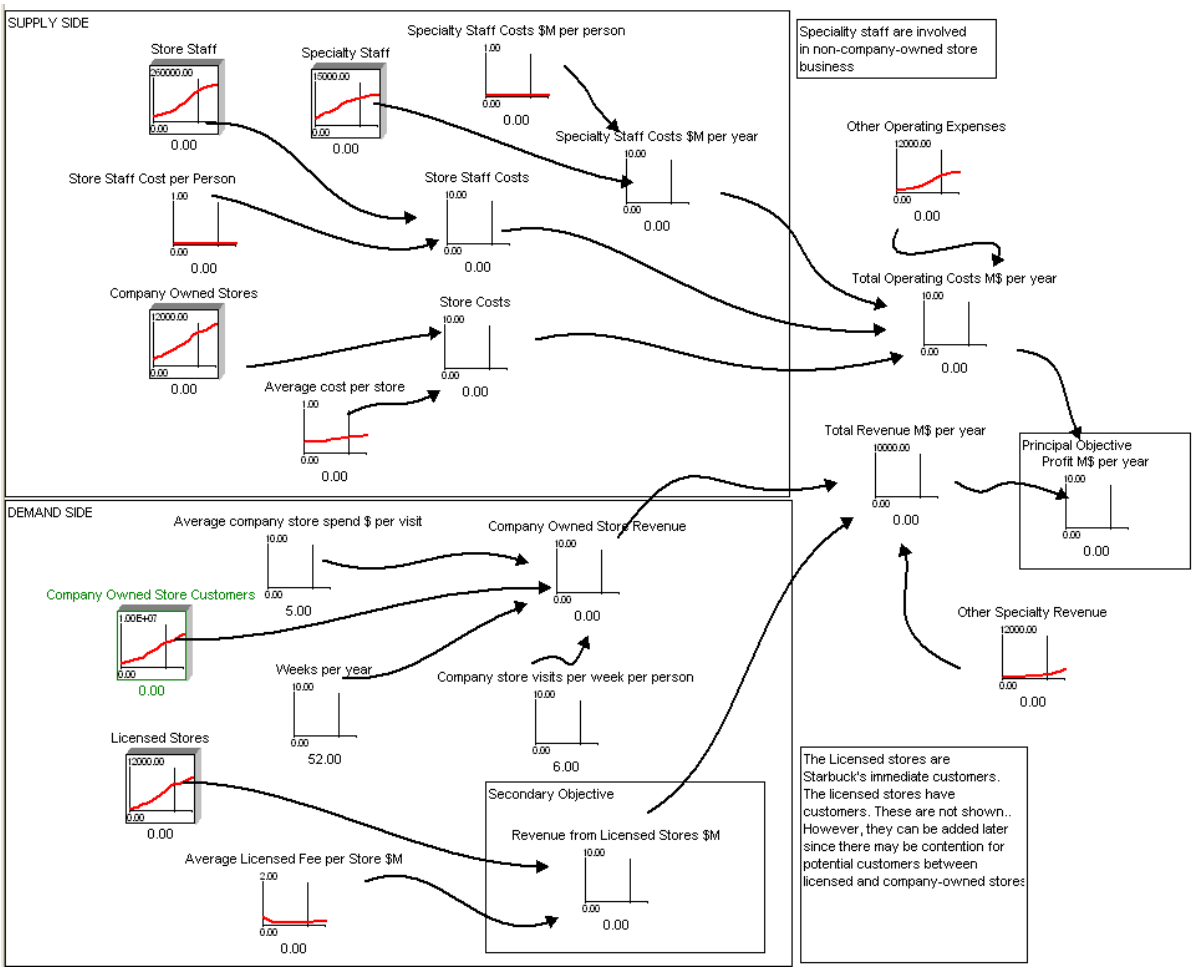

FIGURE 4
Model in Worksheet 2 – Starbucks Resources Driving Performance

So far, even though I have made assumptions (as listed above). I am trying to remain close to actual Starbucks data. In later worksheets this assumption will be relaxed. The goal is to remain at least in the same ball park so any simulation results will remain close to the actual situation.

The following figure provides comparison between the profits generated by the model and the profits from annual reports.

	From Simulation	From Annual Reports
	M$ per year	M$ per year
1998	67.42	68.400
1999	101.04	101.700
2000	111.37	94.600
2001	194.01	181.200
2002	193.93	215.100
2003	279.26	268.400
2004	389.24	391.800
2005	499.58	494.500
2006	514.62	564.300
2007	525.32	672.600
2008	252.56	315.500
2009	68.73	
2010	369.81	
2011	1678.13	
2012	2628.21	

FIGURE 5
Comparison between Simulated and Actual Profits

Equations from Worksheet 2

The variables with no equation are exogenous to the model and were estimated from Starbucks data. They appear as red lines in Figure 4.

Variable	Type	Equation
Average company store spend $ per visit	Variable	5
Average cost per store	Variable	
Average Licensed Fee per Store $M	Variable	
Average Sales per Year COMPARABLE Stores $M	Variable	Company_Owned_Store_Revenue /(DELAY(Company_Owned_Stores,1))
Company Owned Store Revenue	Variable	(Average_company_store_spend_$_per_visit * Company_Owned_Store_Customers * Company_store_visits_per_week_per_person * Weeks_per_year)/1000000
Company store visits per week per person	Variable	6
Other Operating Expenses	Variable	
Other Specialty Revenue	Variable	
Profit M$ per year	Variable	Total_Revenue_M$_per_year - Total_Operating_Costs_M$_per_year
Revenue from Licensed Stores $M	Variable	Licensed_Stores * Average_Licensed_Fee_per_Store_$M
Specialty Staff Costs $M per person	Variable	
Specialty Staff Costs $M per year	Variable	Specialty_Staff * Specialty_Staff_Costs_$M_per_person
Store Costs	Variable	Company_Owned_Stores * Average_cost_per_store
Store Staff Cost per Person	Variable	
Store Staff Costs	Variable	Store_Staff * Store_Staff_Cost_per_Person
Total Operating Costs M$ per year	Variable	Store_Staff_Costs + Other_Operating_Expenses + Specialty_Staff_Costs_$M_per_year + Store_Costs
Total Revenue M$ per year	Variable	Revenue_from_Licensed_Stores_$M + Other_Specialty_Revenue + Company_Owned_Store_Revenue
Weeks per year	Variable	52
Company Owned Store Customers	Resource	
Company Owned Stores	Resource	
Licensed Stores	Resource	
Specialty Staff	Resource	
Store Staff	Resource	

Worksheet 3 – Resource Inflow and Outflows

3.1. Company Owned Stores

Each year Starbucks reports on the following:

X = Number of stores open at end of year

Y = Net stores opened during year = (new stores opened – old stores closed)

Where A = new stores opened and B = old stores closed.

So at the beginning of year 1:

- A1 is inflow to stock of company owned stores
- B1 is outflow
- X1- (A1-B1) = X1-Y1 is stock value

To use this data in Mystrategy, I assumed B = 0.07 [X – Y)] (a 7 % loss rate) and then used the Derive function to get A (new stores opened):

The plots below correctly indicate that Starbuck did have less net stores opening in 2008. Also Starbucks did announce it would close 600 stores in 2008 – I assumed 597, which is in the right ball park.

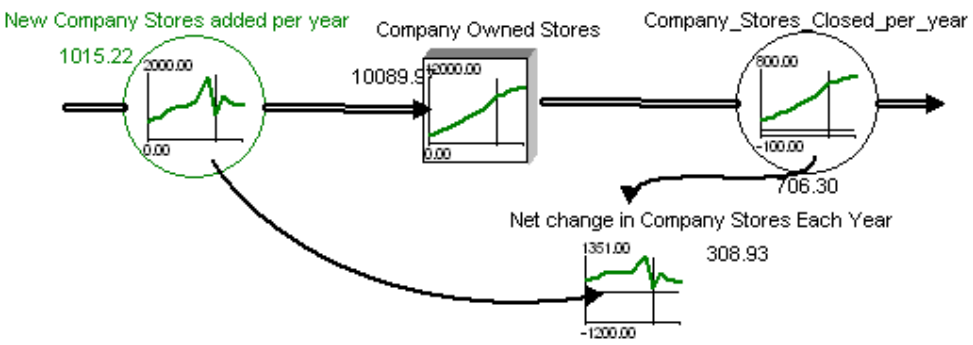

FIGURE 6
Company Owned Stores

3.2. Company Owned Store Customers

I assumed a 10% customer loss rate and used the Derive function to derive the new store customers.

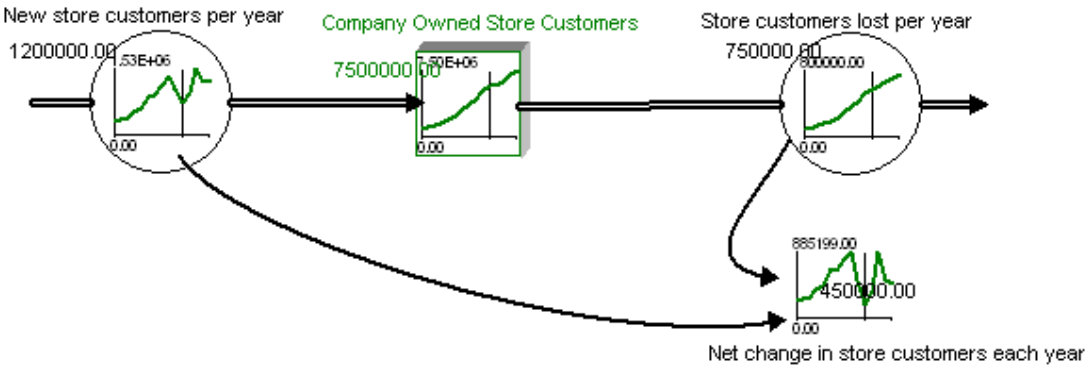

FIGURE 7
Company Owned Store Customers

3.3. Store Staff

I assumed 10% of the staff leaves each year and used the Derive function to get the Staff hired each year. This assumption will be changed in Worksheet 6c.

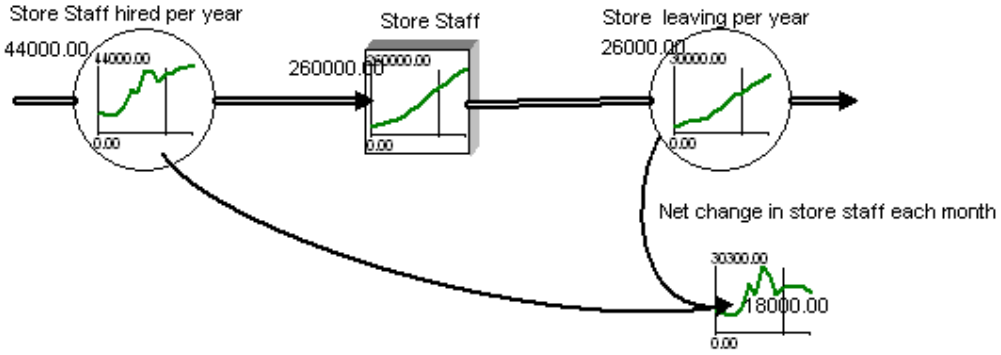

FIGURE 8
Store Staff

3.4. Specialty Staff

I assumed a 10% customer loss rate and used the Derive function to derive the new store customers.

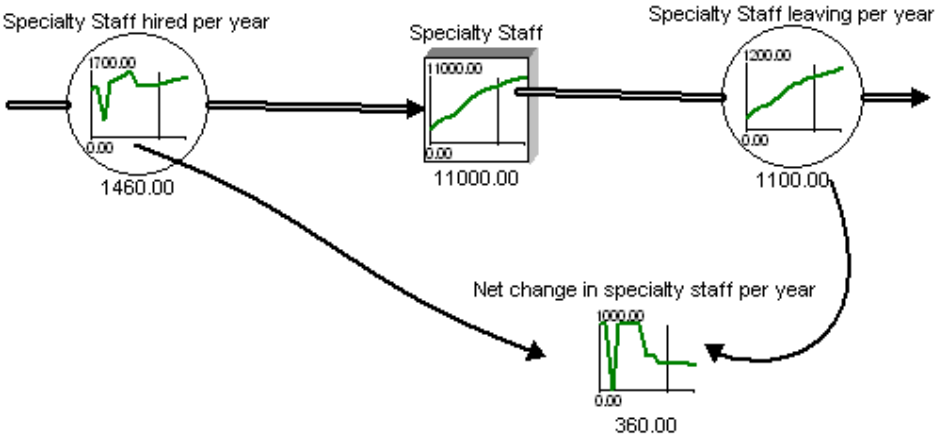

FIGURE 9
Specialty Staff

3.5. Licensed Stores

Each year Starbucks reports on the following:

X = Number of licensed stores open at end of year

Y = Net stores licensed opened during year = (new licensed stores opened – old licensed stores closed).

I assumed 8 percent of existing licensed stores were closed each year and used the Derive function to compute the new stores added each year. I chose 8% percent because lower values gave a negative number for the new stores opening.

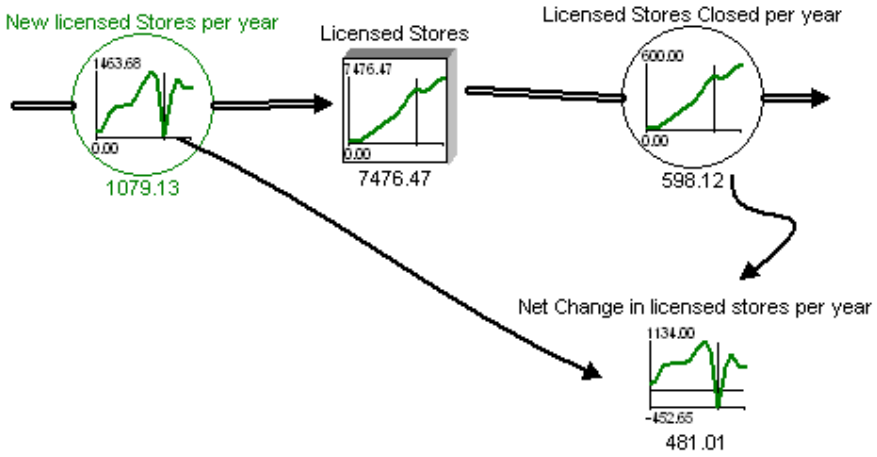

FIGURE 10
Licensed Stores

Equations for Worksheet 3

The variables with no equation are exogenous to the model and were estimated from Starbucks data.

Variable	Type	Equation
Company Owned Store Customers	Resource	=+ New store customers per year * dt - store customers lost per year * dt
Company Owned Stores	Resource	=+ New Company Stores added per year * dt - Company_Stores_Closed_per_year * dt
Company_Stores_Closed_per_year	Flow	
Licensed Stores	Resource	=+ New licensed Stores per year * dt - licensed Stores Closed per year * dt
Licensed Stores Closed per year	Flow	
Net change in Company Stores Each Year	Constant	New_Company_Stores_added_per_year - Company_Stores_Closed_per_year
Net Change in licensed stores per year	Variable	New_licensed_Stores_per_year - Licensed_Stores_Closed_per_year
Net change in specialty staff per year	Variable	Specialty_Staff_hired_per_year - Specialty_Staff_leaving_per_year
Net change in store customers each year	Constant	New_store_customers_per_year - Store_customers_lost_per_year
Net change in store staff each month	Constant	Store_Staff_hired_per_year - Store__leaving_per_year
New Company Stores added per year	Flow	
New licensed Stores per year	Flow	
New store customers per year	Flow	
Specialty Staff	Resource	=+ Specialty Staff hired per year * dt - Specialty Staff leaving per year * dt
Specialty Staff hired per year	Flow	

Variable	Type	Equation
Specialty Staff leaving per year	Flow	
Store leaving per year	Flow	
Store customers lost per year	Flow	
Store Staff	Resource	=+ store Staff hired per year * dt - store leaving per year * dt
Store Staff hired per year	Flow	

Worksheet 4 – Drivers of Resource Win and Lose Rates

The drivers of the customer win and lose rates are indicated in the following figure. The parameters (e.g., new customers per store) were chosen so that the simulated data came at least close to the Starbucks-derived data.

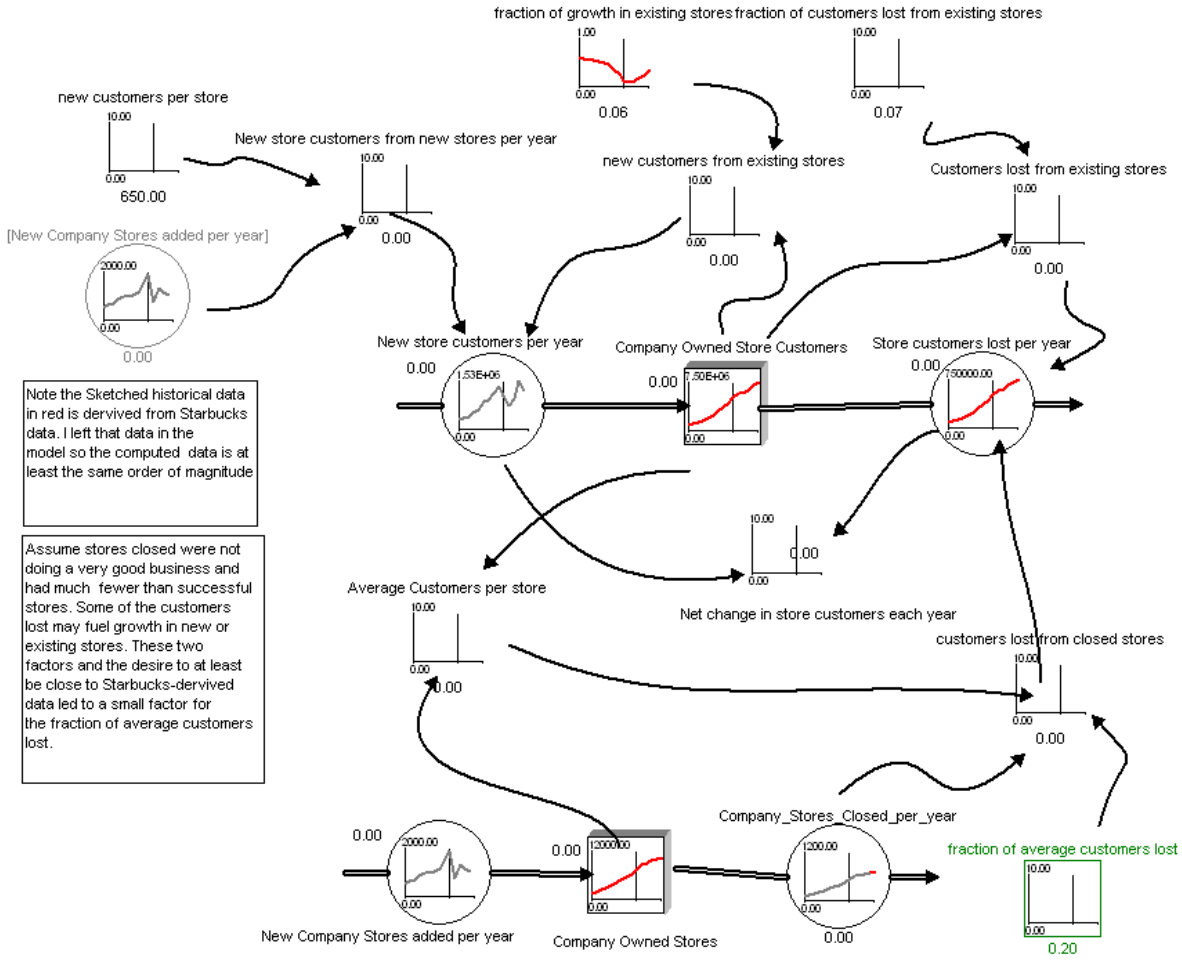

FIGURE 11
Drivers of Customer Win and Lose Rates

In the following figure, the **red** plots indicate Starbucks-derived data (discussed in worksheet 3) and the **black** plots indicate simulated data.

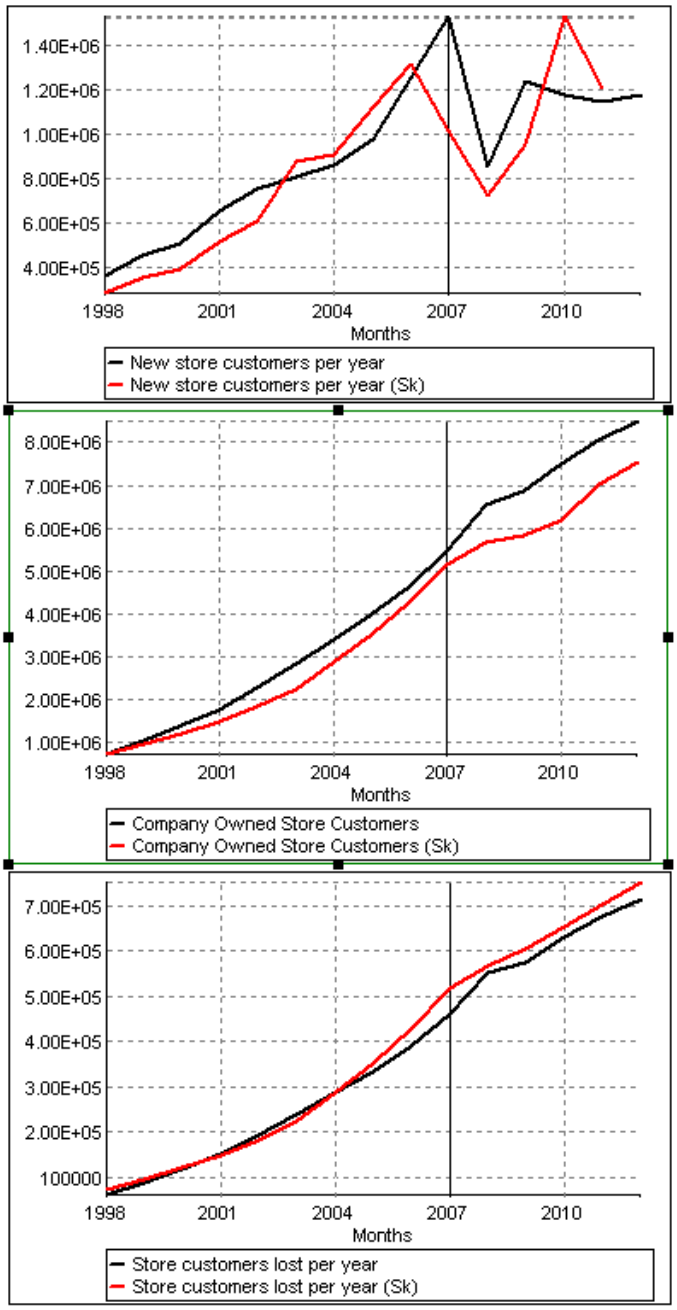

FIGURE 12
Results – Customer Win and Loss Rates

Equations from Worksheet 4

The variables with no equation are exogenous to the model and were estimated from Starbucks data.

Variable	Type	Equation
Average Customers per store	Variable	Company_Owned_Store_Customers / Company_Owned_Stores
Company Owned Store Customers	Resource	=+ New store customers per year * dt - store customers lost per year * dt
Company Owned Stores	Resource	=+ New Company Stores added per year * dt - Company_Stores_Closed_per_year * dt
Company_Stores_Closed_per_year	Flow	
customers lost from closed stores	Variable	Average_Customers_per_store * Company_Stores_Closed_per_year* fraction_of_average_customers_lost
Customers lost from existing stores	Variable	fraction_of_customers_lost_from_existing_stores * Company_Owned_Store_Customers
fraction of average customers lost	Variable	0.2
fraction of customers lost from existing stores	Variable	0.07
fraction of growth in existing stores	Variable	0.06
Net change in store customers each year	Constant	New_store_customers_per_year - Store_customers_lost_per_year
New Company Stores added per year	Flow	
new customers from existing stores	Variable	Company_Owned_Store_Customers * fraction_of_growth_in_existing_stores
new customers per store	Variable	650
New store customers from new stores per year	Variable	new_customers_per_store * New_Company_Stores_added_per_year
New store customers per year	Flow	New_store_customers_from_new_stores_per_year + new_customers_from_existing_stores
Store customers lost per year	Flow	Customers_lost_from_existing_stores + customers_lost_from_closed_stores

Worksheet 5 – Strategic Architecture

The following figures contain the Strategic Architecture. The data in red is derived from Starbucks fiscal reports.

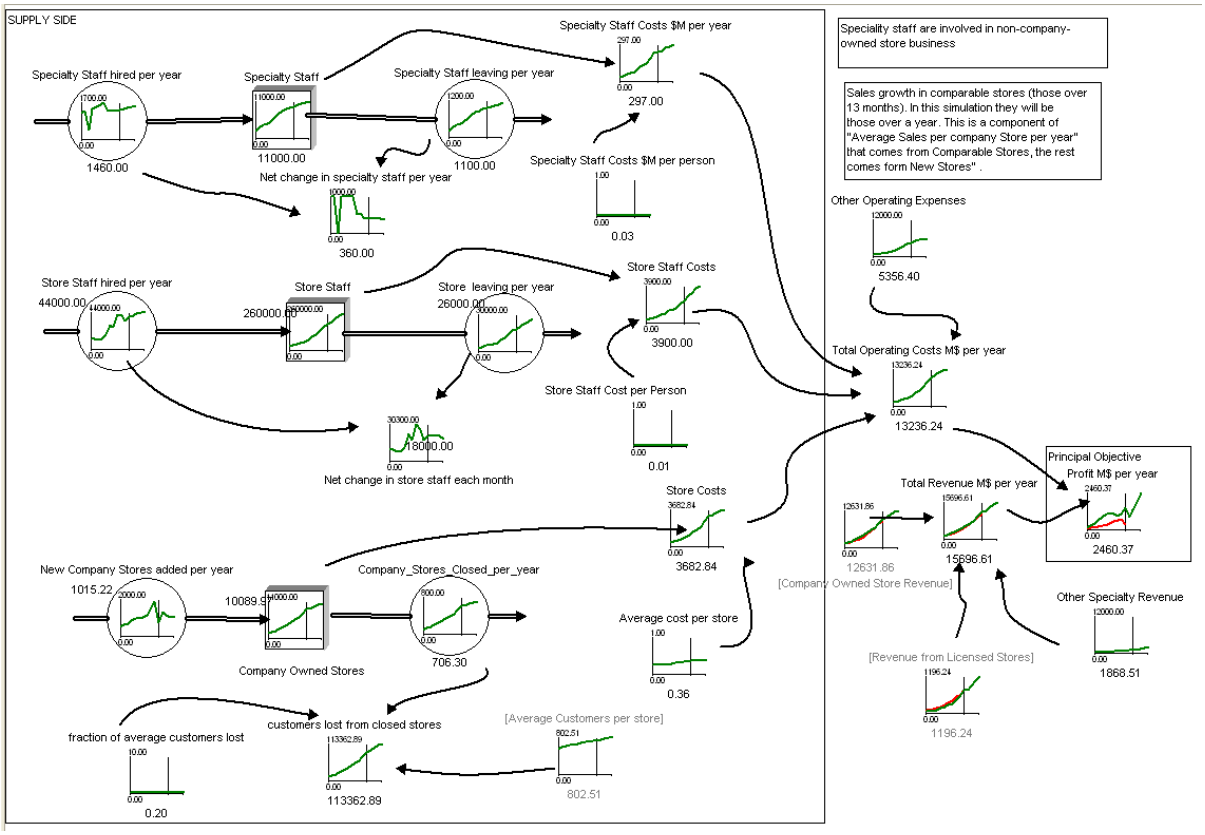

FIGURE 13
Supply Side of Strategic Architecture

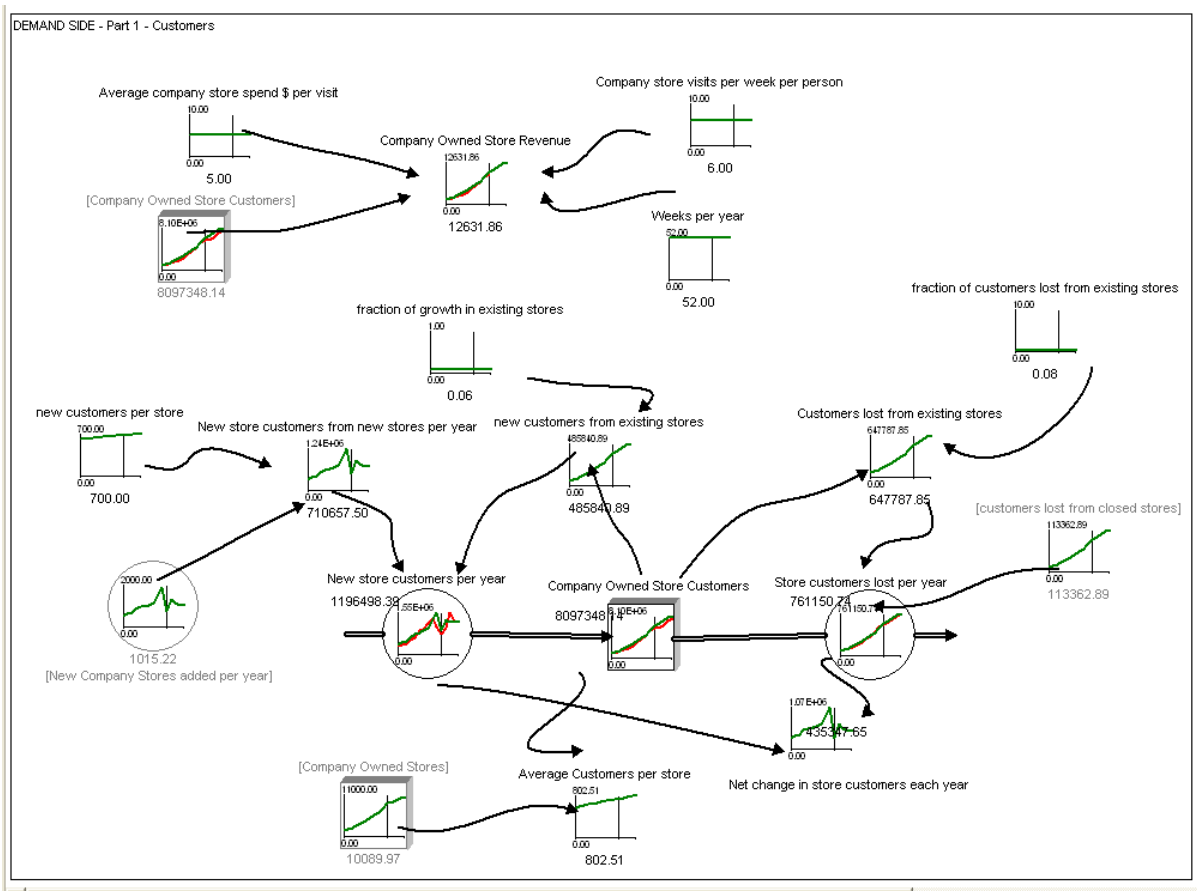

FIGURE 14
Demand Side – Part 1 - Customers

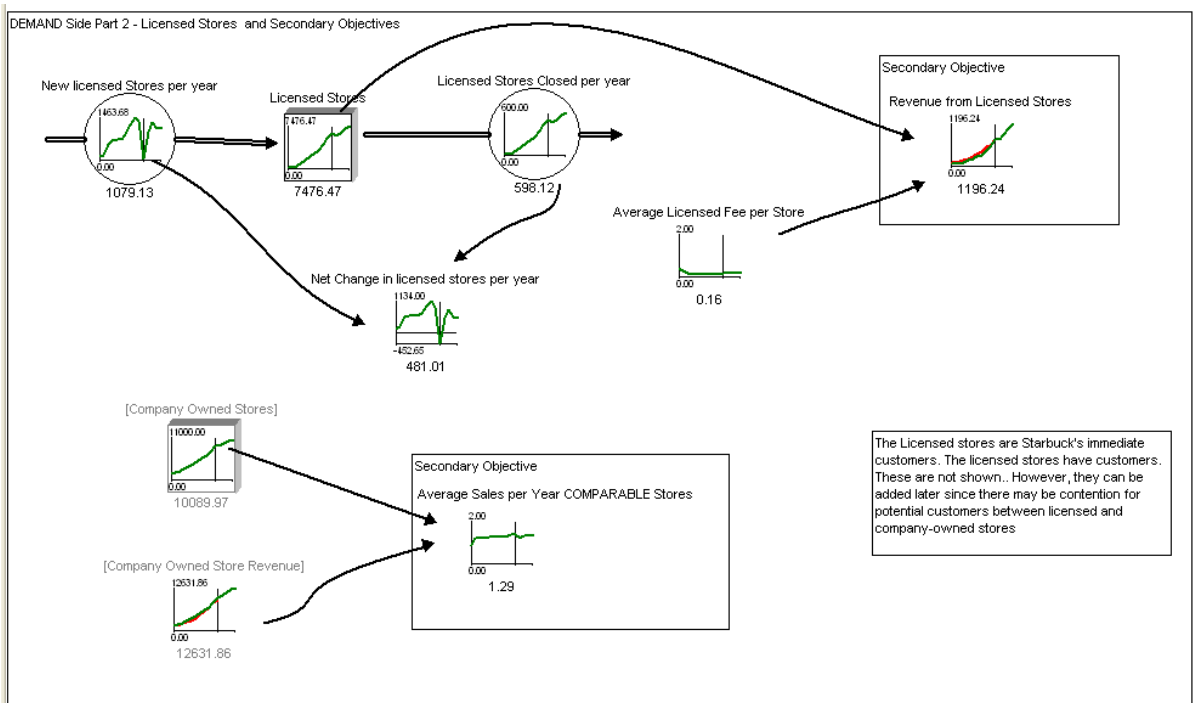

FIGURE 15
Demand Side – Part 2 – Licensed Stores and Secondary Objectives

To promote further analysis I wanted to set the parameters to get close to the data derived from Starbucks fiscal reports (in red). At this point not all factors have been accounted for in the model (e.g., lose of customers in recent years because of the economic crisis). The following plots indicate how close the model comes to actual data.

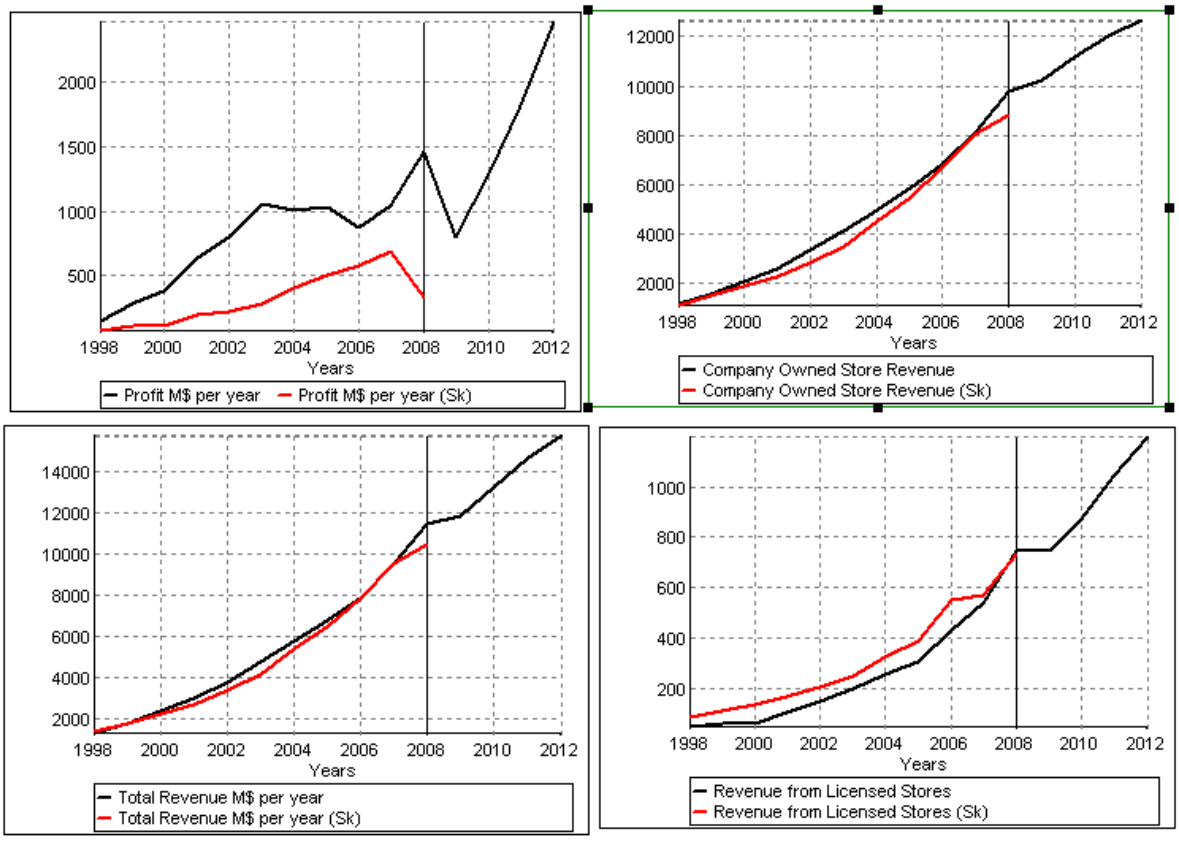

FIGURE 16
Comparison of Model Data to Starbucks FY Report Derived Data

I made the following changes from the values in Worksheet 4 to arrive at the above data.

- **New Customers per Store (existing store per year).** Instead of a constant value of 650, I assumed the curve below since I would expect this value to grow with the increasing recognition of the Starbucks brand over the years. However, we could also argue that as the number of stores increases this value declines because of the higher density of stores.

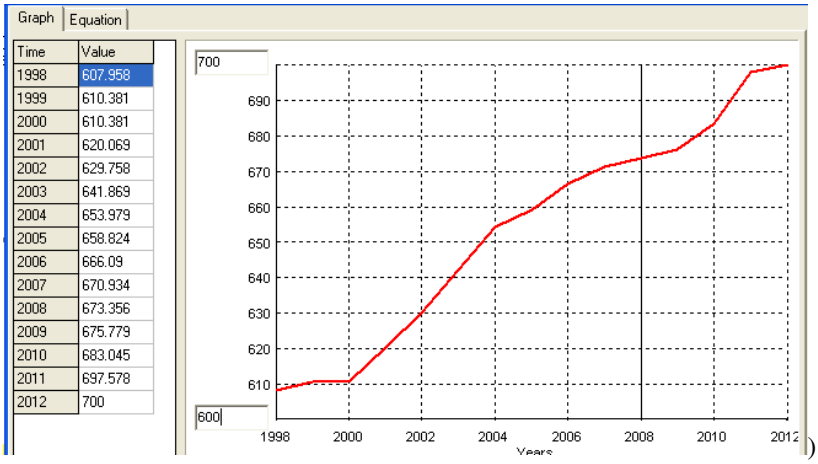

FIGURE 17
New Customers per Store (existing store per year

- **Fraction of Customers Lost from Existing Stores**. Change from 0.07 to 0.08.

Notice that my simulated profit at 2008 is much greater than the actual profit. My model overshoots the revenue in 2008 by 1129 M$ and the profit by 973 M$ so the increased revenue accounts for the increased profit. At this point, without a lot of work, it is not easy to make the "model profits" match "Starbucks profits" since profit is the difference between two large numbers: revenue and operating costs.

Equations from Worksheet 5

The variables with no equation are exogenous to the model and were estimated from Starbucks data.

Variable	Type	Equation
Average company store spend $ per visit	Variable	5
Average cost per store	Variable	
Average Customers per store	Variable	Company_Owned_Store_Customers / Company_Owned_Stores
Average Licensed Fee per Store	Variable	
Average Sales per Year COMPARABLE Stores	Variable	Company_Owned_Store_Revenue /(DELAY(Company_Owned_Stores,1))
Company Owned Store Customers	Resource	=+ New store customers per year * dt - store customers lost per year * dt
Company Owned Store Revenue	Variable	(Average_company_store_spend_$_per_visit * Company_Owned_Store_Customers * Company_store_visits_per_week_per_person * Weeks_per_year)/1000000
Company Owned Stores	Resource	=+ New Company Stores added per year * dt - Company_Stores_Closed_per_year * dt
Company store visits per week per person	Variable	6
Company_Stores_Closed_per_year	Flow	
customers lost from closed stores	Variable	Average_Customers_per_store * Company_Stores_Closed_per_year* fraction_of_average_customers_lost
Customers lost from existing stores	Variable	fraction_of_customers_lost_from_existing_stores * Company_Owned_Store_Customers
fraction of average customers lost	Variable	0.2
fraction of customers lost from existing stores	Variable	0.08
fraction of growth in existing stores	Variable	0.06
Licensed Stores	Resource	=+ New licensed Stores per year * dt - licensed Stores Closed per year * dt
Licensed Stores Closed per year	Flow	
Net Change in licensed stores per year	Variable	New_licensed_Stores_per_year - Licensed_Stores_Closed_per_year
Net change in specialty staff per year	Variable	Specialty_Staff_hired_per_year - Specialty_Staff_leaving_per_year
Net change in store customers each year	Constant	New_store_customers_per_year - Store_customers_lost_per_year

Variable	Type	Equation
Net change in store staff each month	Constant	Store_Staff_hired_per_year - Store__leaving_per_year
New Company Stores added per year	Flow	
new customers from existing stores	Variable	Company_Owned_Store_Customers * fraction_of_growth_in_existing_stores
new customers per store	Variable	
New licensed Stores per year	Flow	
New store customers from new stores per year	Variable	new_customers_per_store * New_Company_Stores_added_per_year
New store customers per year	Flow	New_store_customers_from_new_stores_per_year + new_customers_from_existing_stores
Other Operating Expenses	Variable	
Other Specialty Revenue	Variable	
Profit M$ per year	Variable	Total_Revenue_M$_per_year - Total_Operating_Costs_M$_per_year
Revenue from Licensed Stores	Variable	Licensed_Stores * Average_Licensed_Fee_per_Store
Specialty Staff	Resource	=+ Specialty Staff hired per year * dt - Specialty Staff leaving per year * dt
Specialty Staff Costs $M per person	Variable	
Specialty Staff Costs $M per year	Variable	Specialty_Staff * Specialty_Staff_Costs_$M_per_person
Specialty Staff hired per year	Flow	
Specialty Staff leaving per year	Flow	
Store leaving per year	Flow	
Store Costs	Variable	Company_Owned_Stores * Average_cost_per_store
Store customers lost per year	Flow	Customers_lost_from_existing_stores + customers_lost_from_closed_stores
Store Staff	Resource	=+ store Staff hired per year * dt - store leaving per year * dt
Store Staff Cost per Person	Variable	
Store Staff Costs	Variable	Store_Staff * Store_Staff_Cost_per_Person
Store Staff hired per year	Flow	
Total Operating Costs M$ per year	Variable	Store_Staff_Costs + Other_Operating_Expenses + Specialty_Staff_Costs_$M_per_year + Store_Costs

Variable	Type	Equation
Total Revenue M$ per year	Variable	Revenue_from_Licensed_Stores + Other_Specialty_Revenue + Company_Owned_Store_Revenue
Weeks per year	Variable	52

Worksheet 6a – Resource Attribute Analysis

Worksheet 6a examines Starbucks staff and the associated attribute of total experience.

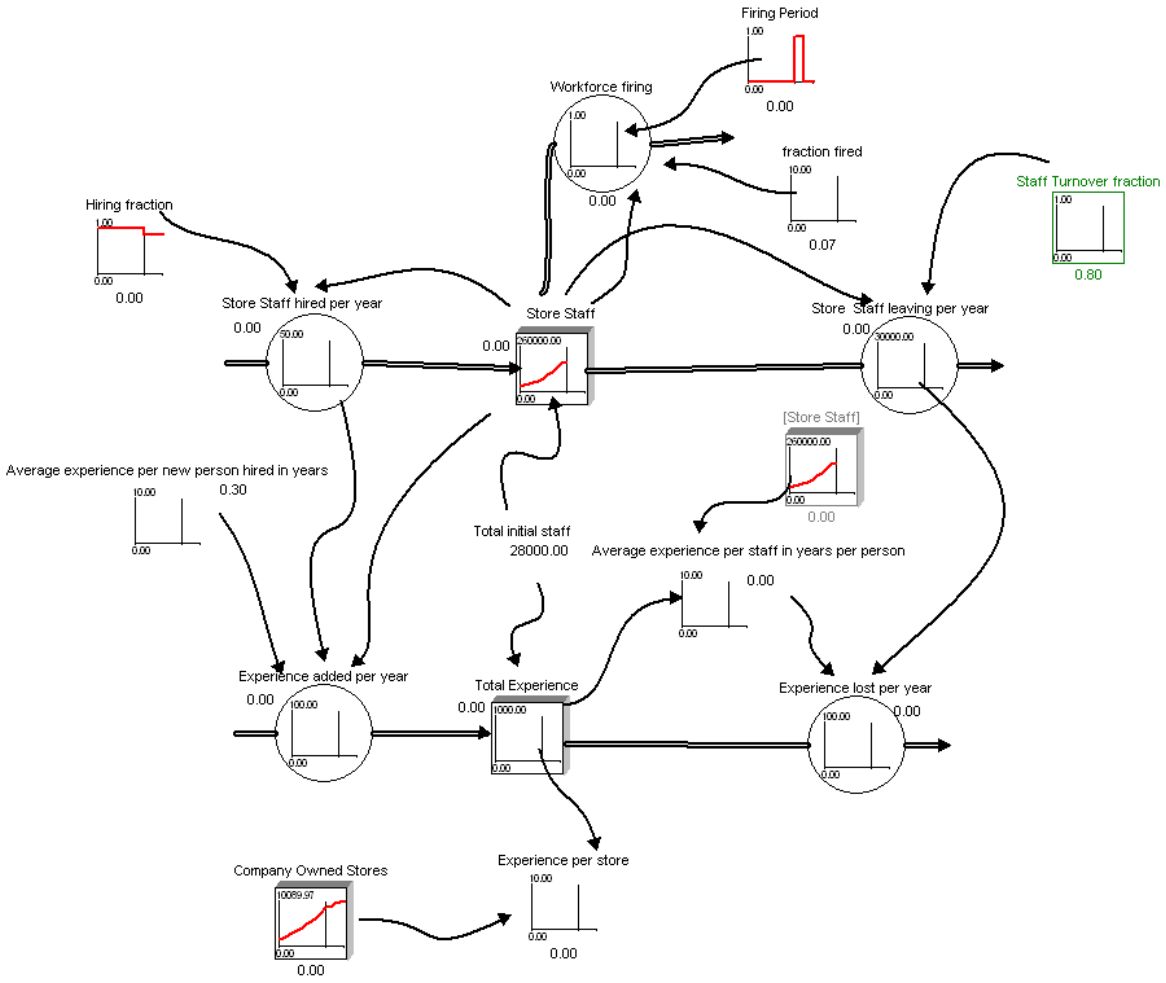

FIGURE 18
Store Staff and Total Experience

I assumed:

- The hiring and turnover fractions as indicated in Figure 2-8 of the main paper.
- The average experience per new person that starts work is 0.3 years, which may be from previous experience or training

The store staff from 1998 to 2007 was estimated from Starbucks annual reports and is indicated in **red** in the diagrams.

Equations from Worksheet 6a

The variables with no equation are exogenous to the model and were estimated from Starbucks data

Variable	Type	Equation
Average experience per new person hired in years	Variable	0.3
Average experience per staff in years per person	Variable	Total_Experience / Store_Staff
Average Percent Growth In All Starbucks Comparative Stores %	Variable	
Company Owned Stores	Resource	
Comparable Store Revenue assuming $1M in 1997	Variable	
Experience added per year	Flow	Average_experience_per_new_person_hired_in_years * Store_Staff_hired_per_year + Store_Staff
Experience lost per year	Flow	Store__Staff_leaving_per_year * Average_experience_per_staff_in_years_per_person
Experience per store	Variable	Total_Experience / Company_Owned_Stores
Firing Period	Variable	0
fraction fired	Variable	0.07
Hiring Fraction Run 2	Variable	
Hiring Function Run 1	Variable	
Run Switch	Variable	1
Staff per Store	Variable	Store_Staff / Company_Owned_Stores
Staff Turnover Fraction Run 1	Variable	
Staff Turnover Fraction Run 2	Variable	
Store Staff leaving per year	Flow	If (Run_Switch =1, Staff_Turnover_Fraction_Run_1* Store_Staff , Store_Staff* Staff_Turnover_Fraction_Run_2)
Store Staff	Resource	init(Total_initial_staff) ; + Store Staff hired per year * dt - Store Staff leaving per year * dt - Workforce firing * dt
Store Staff hired per year	Flow	If (Run_Switch =1, Hiring_Function_Run_1* Store_Staff , Hiring_Fraction_Run_2* Store_Staff)
Total Experience	Resource	init(Total_initial_staff) ; + Experience added per year * dt - Experience lost per year * dt
Total initial staff	Constant	28000
Workforce firing	Flow	Store_Staff* fraction_fired * Firing_Period

Worksheet 7b – Customer Choice Pipeline

The following figure contains the customer choice pipeline for Starbucks. Unlike the worksheets thus far which are simulated yearly (from 1998 to 2012), this worksheet is simulated monthly and spans just three years because marketing decisions may need to be made on a finer scale than yearly. The model was adapted from a generic Mystrategy model provided by Kim Warren.

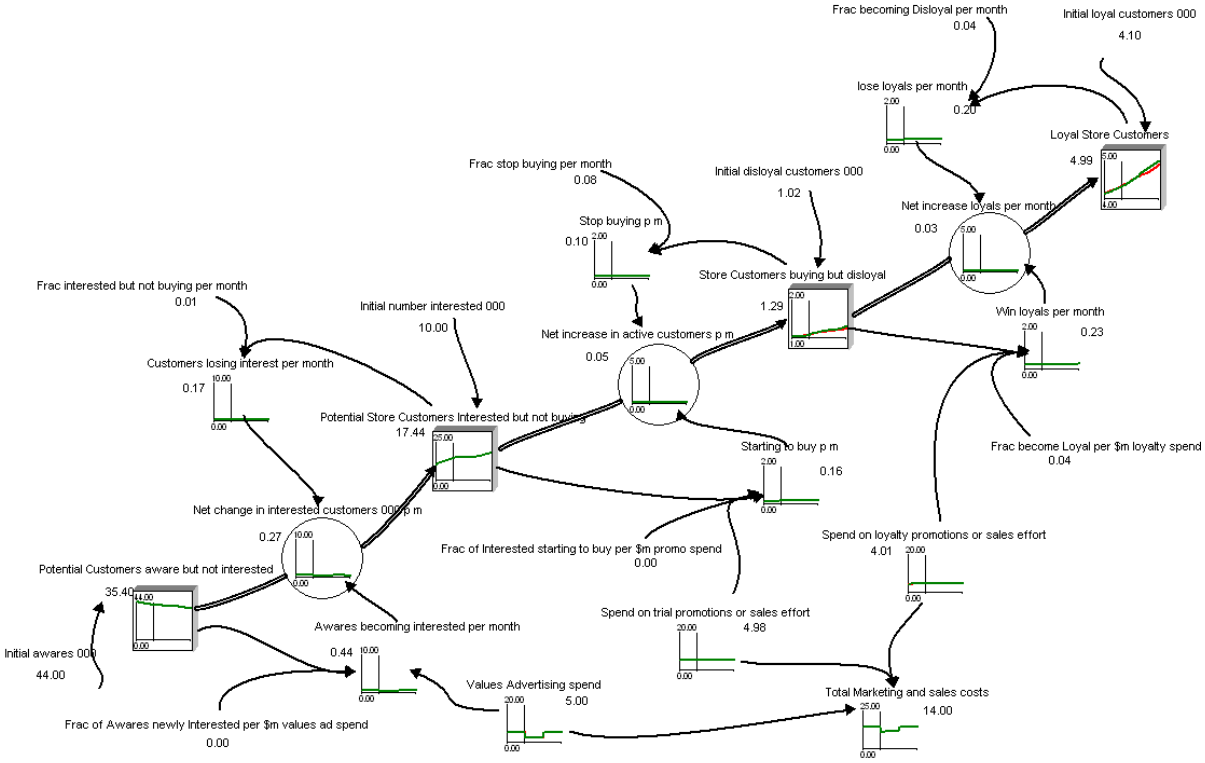

FIGURE 19
Starbucks Customer Choice Pipeline

According to Morningstar, Starbucks has less than 10% of US market of which 17% drink a cup of coffee each day. In the US this is a potential market of approximately 0.17 * 300000000 people = 51,000,000 people. Let's then assume a potential market of 60 million world wide. Earlier I assumed about 6 million Starbucks customers worldwide, which is about 10%. So these values are in the same ballpark.

Hence, assume that there are 6 million loyal and disloyal customers and the rest (assumed from the results of previous worksheets), 54 million are divided between Potential Store Customers Interested but not buying (10 million) and Potential Store Customers Aware but not interested (44 million). For the 6 million loyal and disloyal customers, I assume an 80/20 breakdown with 80% going to Loyal and 20% going to disloyal.

Starbucks does not do much advertising, except when dealing with partner products (e.g., Pepsi Cola deal with coffee drinks). The model described in this worksheet can

be explored to show the effects of advertising on the movement of potential customers from “Potential Customers aware but not interested” to “Loyal Store Customers.” The following figure shows the results of the run in more detail. I values in red indicate customers numbers from the strategic architecture worksheet. I chose the parameters in this run to match those initial values to get a reasonable baseline.

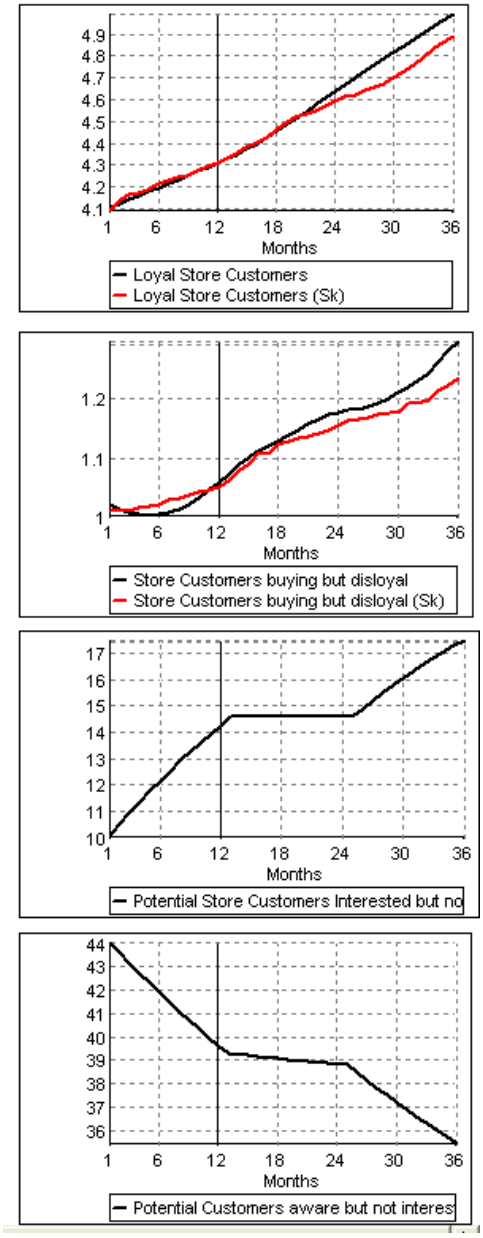

FIGURE 20
Sample Customer Pipeline Run

We could also add the effects on the availability of discretionary income to this model and explore the effects that advertising could have in countering the tendency of people to spend less during tough times. Of course Starbucks needs to consider

what value needs to be offered first and use advertising to communicate new benefits, services, products, etc.

Equations from Worksheet 7b

The variables with no equation are exogenous to the model and were estimated from Starbucks data

Variable	Type	Equation
Awares becoming interested per month	Variable	Potential_Customers_aware_but_not_interested * Frac_of_Awares_newly_Interested_per_$m_values_ad_spend * Values_Advertising_spend
Customers losing interest per month	Variable	Potential_Store_Customers_Interested_but_not_buying * Frac_interested_but_not_buying_per_month
Frac become Loyal per $m loyalty spend	Constant	0.045
Frac becoming Disloyal per month	Constant	0.04
Frac interested but not buying per month	Constant	0.01
Frac of Awares newly Interested per $m values ad spend	Constant	0.0025
Frac of Interested starting to buy per $m promo spend	Constant	0.0018
Frac stop buying per month	Constant	0.08
Initial awares 000	Constant	44
Initial disloyal customers 000	Constant	1.02
Initial loyal customers 000	Constant	4.1
Initial number interested 000	Constant	10
lose loyals per month	Variable	Loyal_store_customers * Frac_becoming_Disloyal_per_month
Loyal Store Customers	Resource	init(Initial_loyal_customers_000) ; + Net increase loyals per month * dt
Net change in interested customers 000 p m	Flow	Awares_becoming_interested_per_month - Customers_losing_interest_per_month
Net increase in active customers p m	Flow	Starting_to_buy_p_m - Stop_buying_p_m

Variable	Type	Equation
Net increase loyals per month	Flow	Win_loyals_per_month - lose_loyals_per_month
Potential Customers aware but not interested	Resource	init(Initial_awares_000) ; - Net change in interested customers 000 p m * dt
Potential Store Customers Interested but not buying	Resource	init(Initial_number_interested_000) ; - Net increase in active customers p m * dt + Net change in interested customers 000 p m * dt
Spend on loyalty promotions or sales effort	Variable	
Spend on trial promotions or sales effort	Variable	
Starting to buy p m	Variable	Potential_Store_Customers_Interested_but_not_buying * Spend_on_trial_promotions_or_sales_effort * Frac_of_Interested_starting_to_buy_per_$m_promo_spend
Stop buying p m	Variable	Store_Customers_buying_but_disloyal * Frac_stop_buying_per_month
Store Customers buying but disloyal	Resource	init(Initial_disloyal_customers_000) ; + Net increase in active customers p m * dt - Net increase loyals per month * dt
Total Marketing and sales costs	Variable	Spend_on_loyalty_promotions_or_sales_effort + Spend_on_trial_promotions_or_sales_effort + Values_Advertising_spend
Values Advertising spend	Variable	
Win loyals per month	Variable	Frac_become_Loyal_per_$m_loyalty_spend * Spend_on_loyalty_promotions_or_sales_effort * Store_Customers_buying_but_disloyal

Worksheet 11 – Type 2 Rivalry

We provide one example of a model that deals with type 2-rivalry (Warren, 2008) by considering the competition of Starbucks with other coffee-houses in the college town of Boulder Colorado. There are 10 Starbucks company-owned stores in Boulder, 5 have coffee-house atmosphere and the rest are in supermarkets or other establishments. There are currently no scheduled Starbucks events here. There are 13 rival coffee stores with a coffee house atmosphere. The population of Boulder is about 100000 people. 50 percent of population drink coffee; assume half go to coffee houses. Hence 25000 people in Boulder go to coffee houses. Based on the number of stores, assume ¼ (6250) go to Starbucks and ¾ (18750) go to other coffee houses.

The following figure illustrates the model. The model was adapted from a generic Mystrategy model provided by Kim Warren.

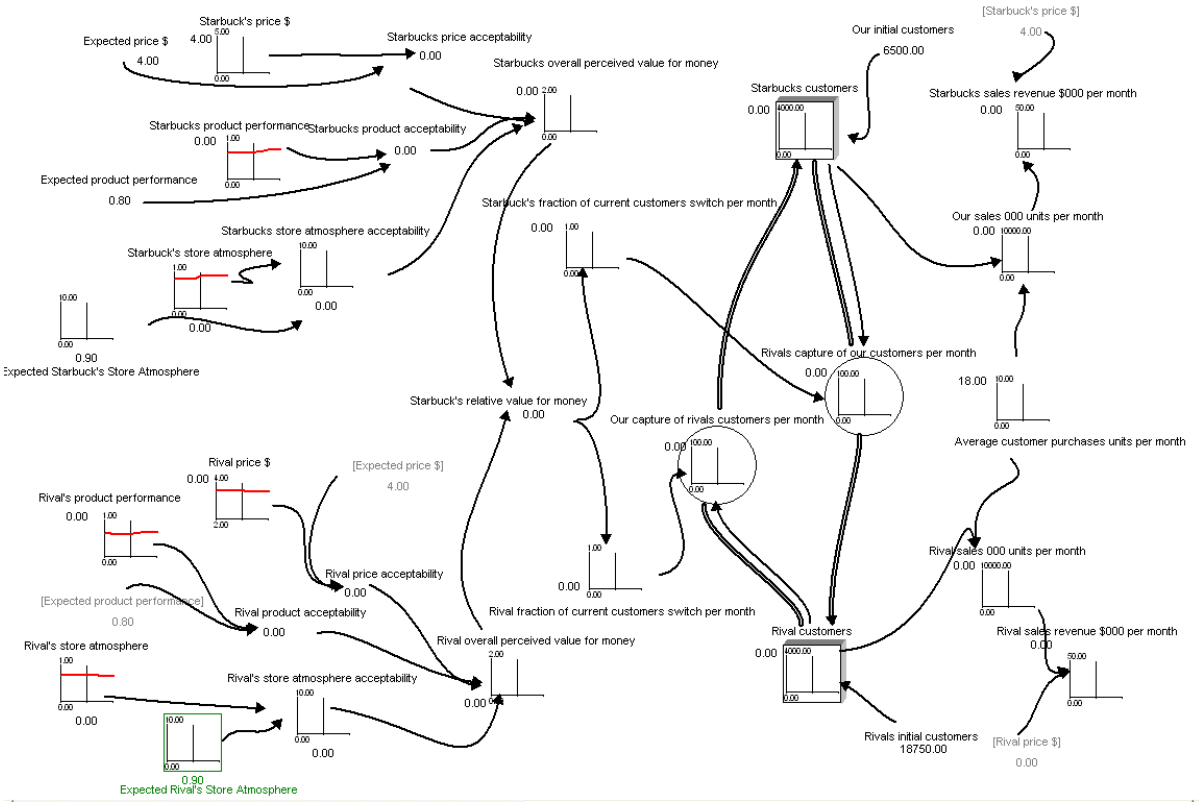

FIGURE 21
Rivalry between Starbucks and Other Coffee Houses in Boulder Colorado

Equations from Worksheet 11

The variables with no equation are exogenous to the model and were estimated from Starbucks data.

Variable	Type	Equation
Average customer purchases units per month	Constant	18
Expected price $	Constant	4
Expected product performance	Constant	0.8
Expected Rival's Store Atmosphere	Variable	0.9
Expected Starbuck's Store Atmosphere	Variable	0.9
Our capture of rivals customers per month	Flow	Rival_customers * Rival_fraction_of_current_customers_switch_per_month
Our initial customers	Constant	6500
Our sales 000 units per month	Variable	Starbucks_customers * Average_customer_purchases_units_per_month / 1000
Rival customers	Resource	init(Rivals_initial_customers) ; + Rivals capture of our customers per month * dt - Our capture of rivals customers per month * dt
Rival fraction of current customers switch per month	Variable	GRAPH((1/Starbuck's_relative_value_for_money) , 0, 0.1, 0.5, 0.45, 0.3, 0.2, 0.15, 0.11, 0.08, 0.06, 0.04, 0.02, 0)
Rival overall perceived value for money	Variable	Rival_price_acceptability * Rival_product_acceptability* Rival's_store_atmosphere_acceptability
Rival price $	Constant	3.4
Rival price acceptability	Constant	GRAPH((Rival_price_$ - Expected_price_$), -1, 0.2, 2, 1.9, 1.7, 1.35, 1.15, 1, 0.9, 0.7, 0.4, 0.15, 0)
Rival product acceptability	Constant	MIN (1, (Rival's_product_performance / Expected_product_performance))
Rival sales 000 units per month	Variable	Rival_customers * Average_customer_purchases_units_per_month / 1000
Rival sales revenue $000 per month	Variable	Rival_sales_000_units_per_month * Rival_price_$

Variable	Type	Equation
Rival's product performance	Constant	0.6
Rival's store atmosphere	Variable	0.7
Rival's store atmosphere acceptability	Variable	min(1, (Rival's_store_atmosphere / Expected_Rival's_Store_Atmosphere))
Rivals capture of our customers per month	Flow	Starbucks_customers * Starbuck's_fraction_of_current_customers_switch_per_month
Rivals initial customers	Constant	18750
Starbuck's fraction of current customers switch per month	Variable	GRAPH(Starbuck's_relative_value_for_money , 0, 0.1, 0.5, 0.45, 0.3, 0.2, 0.15, 0.11, 0.08, 0.06, 0.04, 0.02, 0)
Starbuck's price $	Constant	4
Starbuck's relative value for money	Constant	Starbucks_overall_perceived_value_for_money / Rival_overall_perceived_value_for_money
Starbuck's store atmosphere	Variable	
Starbucks customers	Resource	init(Our_initial_customers) ; - Rivals capture of our customers per month * dt + Our capture of rivals customers per month * dt
Starbucks overall perceived value for money	Variable	Starbucks_price_acceptability * Starbucks_product_acceptability* Starbucks_store_atmosphere_acceptability
Starbucks price acceptability	Constant	GRAPH((Starbuck's_price_$ - Expected_price_$), -1, 0.2, 2, 1.9, 1.7, 1.35, 1.15, 1, 0.9, 0.7, 0.4, 0.15, 0)
Starbucks product acceptability	Constant	MIN (1, (Starbucks_product_performance / Expected_product_performance))
Starbucks product performance	Constant	
Starbucks sales revenue $000 per month	Variable	Our_sales_000_units_per_month * Starbuck's_price_$
Starbucks store atmosphere acceptability	Variable	min(1, (Starbuck's_store_atmosphere / Expected_Starbuck's_Store_Atmosphere))