Wine, Francophobia and Boycotts

Frank Vannerson

The History

Political relations between France and the US in the post-WWII era have never been smooth. Beginning in the 1950s Charles de Gaulle used French foreign and defense policies as "counterweights" to US hegemony in Europe. More recently, French and US interests have collided in the Middle East. The French were reluctant allies of the US in the first Gulf war. But in the recent Iraqi war, they were in active opposition and, as a result, triggered well-publicized, anti-French reactions in the US. The time frame which best highlights these latest events is roughly the period from November 2002 through May 2003.

On November 8, 2002, with the active cooperation of France, the UN Security Council passed Resolution 1441 unanimously. Although this resolution declared that "serious consequences" would result if Iraq did not fully and completely comply with UN resolutions, cease all violations, etc., it was not, in itself, an automatic authorization for use of military force. For that, a second UN Security Council resolution would be required.

As it turned out the requirement of a second resolution was to be France's "hole card" in their fundamental opposition to war. They began the process of playing that card in early January 2003 when French Foreign Minister Dominique De Villepin used his position as chairman of the UN Security Council for the month of January to propose a full-scale ministerial meeting on terrorism. However, this meeting was not about terrorism at all, but was used by de Villepin to announce France's unequivocal opposition to a resolution for war. Secretary of State Colin Powell, who was not informed of de Villepin's intentions, was caught flat-footed and considered the announcement a virtual "ambush." The French thought their tactic justified because they were receiving strong indications that the US viewed war as inevitable and was beginning to mobilize for a military attack. It was a mockery, in the French view, for the US to ask for a UN resolution in support a military campaign they were going to undertake regardless of the UN outcome. From the perspective of the Bush administration the French were being devious obstructionists using their permanent seat on the UN Security Council to protect commercial and sovereign debt interests linked to the Hussein regime.

The Consequences

Whatever the true motives or intentions of the parties, after January 13, 2003 French-US relations declined rapidly. Across America there were reports of fierce backlashes against French products and French nomenclature. French fries were renamed "freedom fries" and French toast became "liberty toast. The

company that produces French's Mustard felt it necessary to hire a PR firm to explain that their product was not French, but named after an American founder, Robert T. French who started the company in 1904. Most notably, perhaps, a restaurateur in Palm Beach, FL was shown in nationwide, front-page photographs pouring French wine into the gutter in front of his establishment.

The Politicians were only a half-step behind. On Capital Hill a group of Congressmen called on Secretary of Defense Donald Rumsfeld to boycott a French firm, Sodexho that was catering for the U.S. Marine Corps. In Pennsylvania a state representative demanded that the Liquor Control Board bar all sales of French wine. And locally, back in Palm Beach County again, a county commissioner tried to block a subsidiary of the French Company, Vivendi Environmental, from getting a contract to build a sludge treatment factory nearby.

A Gallup Poll in early February showed that France's "approval rating" in the U.S. had dropped 20 points in less than two months. Then a crescendo of anti-French sentiment was reached in March 2003 when de Villepin refused to answer a direct question as to whether he would prefer to see the Coalition forces or Saddam Hussein win the war.

In the face of such an onslaught of negative publicity it would be natural to assume that a sales analysis of French products in the U.S. would show a significant effect of boycott activity, especially for products as ubiquitous and easily substitutable as French wine and cheese. Early reports, however, were mixed. Import data, for example, showed across the board increases in French products, but qualifications were given that these orders were placed before the "boycott" began. On June 18, 2003 the Wine Spectator reported the first hard data indicating that French wine sales measured by dollar value were off 26 % comparing May 2002 with May 2003. This comparison was relatively sophisticated since it compared a current month with same month a year earlier. Other reports, neglecting all seasonal factors, showed declines in French wine sales measured from December 2002 of nearly 50%.

The Surprising Conclusion

Contrary to these early reports, the conclusion of this paper is that there was, in fact, no effective French wine boycott. Viewed correctly, the data show that despite all of the anti-French hype, U.S. consumers continued buying French wine in a manner consistent with "pre-boycott" patterns. These patterns consist of a strong holiday seasonal in favor of French wine sales and a pre-existing, longer-term trend against French wine sales.

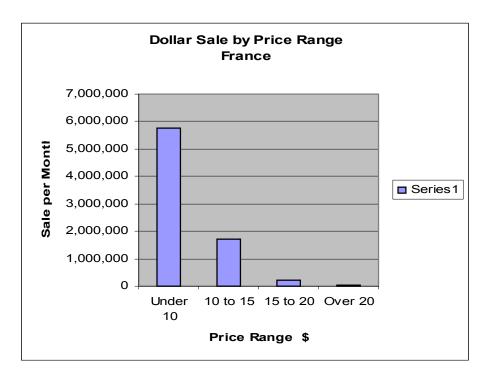
The Data

The data base for this study was developed by Information Resources, Inc. (IRI) using scanner feeds from high volume super market chains in 64 major

markets in the US. In the case of wine, the data comprised dollar sales and prices organized by country of origin, type of wine (table, dessert, fortified, etc.), label information and the market where sold. In my opinion the great strength of the IRI data base is its consistency, accuracy and comprehensiveness. I believe it allows reliable comparisons of wine data through time and across labels and sales locations. However, it does have limitations. Significant quantities of wine are sold in restaurants and wine specialty shops and these sales are not included in the IRI super market data base. This is potentially important because sales of high-end wines occur more frequently in restaurants and wine shops than in super markets and are therefore under represented in the IRI data. I was unable to quantify the extent of this under representation, but a general sense of the omission can be seen in Chart I where dollar sales of French wine in US supermarkets are organized by price range for the 4-week period from October 6 to Nov 3, 2002.

As shown, most French wine in U.S. super markets costs less than \$10 per bottle. The average bottle price in this particular 4-week period was \$8.55. The pattern shown in Chart I is typical of other time periods and also of other countries of origin. For example, in the same period, the average price for Italian wine, Australian wine and Spanish wine was \$8.21, \$8.60, and \$9.16 per bottle, respectively. California wine averaged \$8.36 per bottle. Clearly sales of wine in super markets costing more than \$20 a bottle are rare events and more expensive wine is sold mainly in other outlets.

CHART I



Another limitation of the IRI data arises from state laws governing the manner in which alcoholic beverages are sold. Four large northeastern states, Massachusetts, New York, New Jersey and Pennsylvania forbid wine sales in super markets. Other states, here and there, have similar bans, but as a geographic region the northeast is definitely under represented in the IRI wine data base.

Both these limitations might present problems if one could establish that consumers who buy high-end French wine or who buy wine in the northeast are more likely to boycott French wine than people who make their purchases in super markets or live outside the northeast. However, there is no reason to believe that this is the case. If anything, I would argue that it is just the reverse.

In the case of high-end consumers, they should be less likely to boycott because there are fewer close substitutes for fine wines and hence the "cost" of boycotting in terms of foregone utility is higher. Also, it seems implausible to me that the northeast has a higher percentage of potential boycotters than the rest of the country. Again, the reverse would seem more likely. To the extent there is a "cultural divide" in the US one would think that the "heartland", not the northeast, would be more boycott prone. In fact, the specific major market data show surprisingly little variation from region to region. Places as disparate as Miami, Chicago, Houston, San Diego and Seattle show very similar patterns with regard to super market wine sales. I see no reason to think the northeast would be different.

Based on this reasoning, I proceeded with the analysis using IRI super market data as though these representation issues based on region and price level were not serious factors.

The Analysis

The data set used for the analysis is shown in Table I. There are 22 observations beginning with the 4-week period ending October 7, 2001 and extending through the 4-week period ending May 18, 2003

The dates are in the left hand column and the dependent variable and three explanatory variables are in column sequence from left to right.

Table I

Dates	FS	BV	HV	TV
				_
4 Week Ending Oct 7, 2001	3.17%	0	0	1
4 Week Ending Nov 4, 2001	3.21%	0	0	2
4 Week Ending Dec 2, 2001	3.88%	0	1	3
4 Week Ending Dec 30, 2001	3.63%	0	1	4
4 Week Ending Jan 27, 2002	3.37%	0	1	5
4 Week Ending Feb 24, 2002	3.28%	0	0	6
4 Week Ending Mar 24, 2002	3.17%	0	0	7
4 Week Ending Apr 21, 2002	3.10%	0	0	8
4 Week Ending May 19, 2002	3.01%	0	0	9
4 Week Ending Jun 16, 2002	2.88%	0	0	10
4 Week Ending Jul 14, 2002	2.87%	0	0	11
4 Week Ending Aug 11, 2002	2.80%	0	0	12
4 Week Ending Sep 8, 2002	2.81%	0	0	13
4 Week Ending Oct 6, 2002	2.78%	0	0	14
4 Week Ending Nov 3, 2002	2.79%	0	0	15
4 Week Ending Dec 1, 2002	3.32%	0	1	16
4 Week Ending Dec 29, 2002	3.30%	0	1	17
4 Week Ending Jan 26, 2003	3.02%	0	1	18
4 Week Ending Feb 23, 2003	2.91%	1	0	19
4 Week Ending Mar 23, 2003	2.66%	1	0	20
4 Week Ending Apr 20, 2003	2.33%	1	0	21
4 Week Ending May 18, 2003	2.29%	1	0	22

Where,

FS = the French share of total US super market wine sales, percent

BV = the boycott vector, 1 for Feb through May 2003, 0 otherwise.

HV = the holiday vector, 1 in Nov through Jan, 0 otherwise.

TV = trend vector, an integer 1 through 22.

The functional form of the regression equation I eventually estimated from these data was,

(1)
$$FS = Const + B_1(BV) + B_2(HV) + B_3(TV) + e$$

However, I did not get to equation (1) immediately. Since my interest was primarily in the boycott, the first data set I considered is that shown in the boxed

area of Table I. This covers the four months just prior to and just subsequent to the anti-French outbreak in the US (eight months total). This initial equation was,

(1)'
$$FS = Const + B_1(BV) + e$$

As before, BV takes values of 1 during the "boycott" months and 0 otherwise. When I ran this regression the results were:

Coeffic	cient	t Statistic	R^2	
Const	3.11	22.74	0.58	
BV	0.56	-2.90		

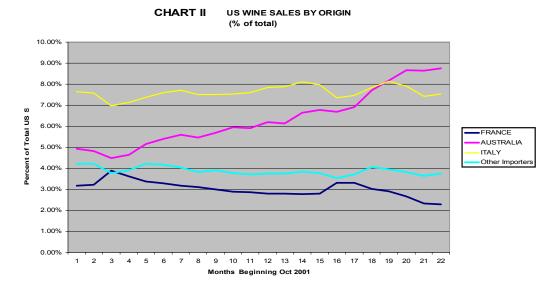
At this point in the research I believed an effective boycott was quite plausible. Hence, these results seemed reasonable and seemed to confirm that the boycott was quite potent. BV was statistically significant and its coefficient suggested that the boycott reduced FS by about 15 percent a month (using the constant 3.11 as the base). While this is less than some of the drops reported earlier from comparing dollar sales, it is nevertheless in the same ballpark.

However, as it turned out, the statistical significance of BV was spurious. BV was picking up explanatory power more appropriately attributable to omitted variables with which it happened to be somewhat correlated. What led me to discover these omitted variables was an examination of some plots I made of the market shares of other importing countries during this same eight-week period. After comparing them with the French plots it became clear that something unusual happened to the French share, FS, around the holidays—it went up.

It is important to understand exactly what this means. There is no question that dollar sales of all alcoholic beverages are higher during Nov, Dec and Jan than in the rest of the year. But in the case of French wine the *share* of sales went up also. This means that wine consumers buy relatively more French wine during the holidays. No other importing country showed this behavior in their sales. It is as though consumers consider French wine "special" in some way and more appropriate to the seasonal celebrations.

To make sure about this I obtained IRI data going back to October 2001 so I could check the previous holiday period. The result was the same. Only French wine showed a seasonal rise in sales share during the holidays. The full data set for wine sales from the major origins including US is given in Appendix

A. The plots I observed are shown in Chart II.



Note that the seasonal rise in the French share coincides with seasonal slumps in the shares of the other importers, especially the Italian share.

The extended data period revealed another omitted factor in French wine sales and suggested yet another explanatory variable. The French share has been in a steady downtrend starting well before the latest tiff between the US and France in 2003. It has been in effect since late 2001, at least. Since both the trend and the seasonal effects of holidays are independent of the boycott, I developed the data set shown in Table I to test the boycott hypothesis in a multiple regression with trend and seasonal variables included.

The regression results for equation (1) are as follows:

	Coefficient	t Statistic	R^2	0.864
Const	3.330	44.4		
BV	-0.007	-0.057		
HV	0.487	6.467		
TV	-0.038	-5.550		

We now see that BV is no longer statistically significant—it's not even close. However, the holiday variable, HV, and the trend variable, TV, are highly significant and explain well over 80 percent of the variation in the French share over this period. If we interpret these coefficients using the constant term as the base for FS, then the holiday swings in the French share are about 15 percent a month. The coefficient of TV suggests the French share is falling at a rate of about one percent a month due to trend.

The effectiveness of organized consumer boycotts provides a strong test of whether consumer preferences are stable or whether they may be manipulated for political purposes. In the case of the French wine boycott the test is especially strong because: (1) the time period in which French-American political relations deteriorated is known precisely and the incidence of consumer protests against French goods during this time were widely reported in the American press and (2) it is generally believed that French wine is particularly vulnerable to boycott because it is sold nationwide in all price ranges and it faces many close substitutes. However, contrary to the expectations of many in the popular press, my analysis shows that there was no change in American wine buying patterns compared to those that existed before the war. The obvious conclusion is that the boycott effect was extremely weak or non-existent.

FURTHER RESEARCH PLANS

Next Spring I plan to update this study in time for the VDQS meeting in Dijon, France. Of particular interest will be whether the trend and seasonal pattern in French wine sales in the US continue through 2003 and early 2004.

APPENDIX A						
			US WINE SALE	S FROM ALL ORI	GINS	
•				AR VALUES)	OINO	
			(====			
	FRANCE	AUSTRALIA	ITALY	Other Importers	US	Total
4 Week Ending Oct 7, 2001	\$8,057,780	\$12,541,777	\$19,424,944	\$10,732,791	\$203,327,926	\$254,085,218
4 Week Ending Nov 4, 2001	\$8,594,873	\$12,877,328	\$20,241,563	\$11,310,585	\$214,313,178	\$267,337,526
4 Week Ending Dec 2, 2001	\$12,673,430	\$14,648,597	\$22,764,037	\$12,364,471	\$264,110,989	\$326,561,524
4 Week Ending Dec 30, 2001	\$12,806,518	\$16,416,996	\$25,209,427	\$13,784,461	\$284,827,461	\$353,044,863
4 Week Ending Jan 27, 2002	\$9,011,238	\$13,787,429	\$19,745,958	\$11,263,852	\$213,498,747	\$267,307,223
4 Week Ending Feb 24, 2002	\$9,140,355	\$15,039,510	\$21,175,196	\$11,644,802	\$221,343,043	\$278,342,906
4 Week Ending Mar 24, 2002	\$8,777,649	\$15,459,887	\$21,307,457	\$11,209,642	\$219,792,299	\$276,546,934
4 Week Ending Apr 21, 2002	\$8,722,560	\$15,392,334	\$21,099,741	\$10,715,461	\$225,091,391	\$281,021,487
4 Week Ending May 19, 2002	\$7,991,012	\$15,131,611	\$19,986,193	\$10,372,335	\$212,366,920	\$265,848,070
4 Week Ending Jun 16, 2002	\$7,563,714	\$15,605,387	\$19,730,162	\$9,911,874	\$209,387,661	\$262,198,799
4 Week Ending Jul 14, 2002	\$7,438,821	\$15,301,022	\$19,664,413	\$9,606,671	\$206,826,067	\$258,836,994
4 Week Ending Aug 11, 2002	\$7,134,483	\$15,782,165	\$19,989,196	\$9,578,919	\$202,305,230	\$254,789,992
4 Week Ending Sep 8, 2002	\$7,409,517	\$16,194,507	\$20,774,481	\$9,883,656	\$209,401,513	\$263,663,674
4 Week Ending Oct 6, 2002	\$7,204,567	\$17,277,394	\$21,080,048	\$9,984,347	\$204,051,191	\$259,597,547
4 Week Ending Nov 3, 2002	\$7,744,906	\$18,785,030	\$22,115,190	\$10,451,250	\$218,154,483	\$277,250,859
4 Week Ending Dec 1, 2002	\$11,538,670	\$23,264,590	\$25,549,000	\$12,287,633	\$274,912,359	\$347,552,253
4 Week Ending Dec 29, 2002	\$11,785,940	\$24,668,660	\$26,668,340	\$13,266,521	\$280,606,964	\$356,996,425
4 Week Ending Jan 26, 2003	\$8,341,914	\$21,258,710	\$21,619,120	\$11,202,494	\$213,528,903	\$275,951,141
4 Week Ending Feb 23, 2003	\$8,303,276	\$23,290,740	\$23,197,300	\$11,292,165	\$219,001,402	\$285,084,883
4 Week Ending Mar 23, 2003	\$7,364,100	\$23,999,520	\$21,933,000	\$10,603,810	\$213,317,794	\$277,218,223
4 Week Ending Apr 20, 2003	\$6,788,993	\$25,201,460	\$21,605,410	\$10,643,417	\$226,981,100	\$291,220,379
4 Week Ending May 18, 2003	\$6,161,519	\$23,535,130	\$20,266,690	\$10,113,175	\$209,039,582	\$269,116,096
	\$190,555,834	\$395,459,784	\$475,146,864	\$242,224,329	\$4,946,186,205	\$6,249,573,017
		US WINE SALES E	RY ORIGIN AS P	FROENT OF TOTA	AL SALES	
	FRANCE	AUSTRALIA	ITALY	Other Importers	US	Total
4 Week Ending Oct 7, 2001	3.17%	4.94%				100.00%
4 Week Ending Nov 4, 2001	3.21%	4.82%				100.009
4 Week Ending Dec 2, 2001	3.88%	4.49%				100.009
4 Week Ending Dec 30, 2001	3.63%	4.65%		3.90%		100.009
4 Week Ending Jan 27, 2002	3.37% 3.28%	5.16%		4.21% 4.18%		100.00%
				4.10%	79.52%	100.009
4 Week Ending Feb 24, 2002		5.40% 5.50%			70.499/.	
4 Week Ending Mar 24, 2002	3.17%	5.59%	7.70%	4.05%		
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002	3.17% 3.10%	5.59% 5.48%	7.70% 7.51%	4.05% 3.81%	80.10%	100.00%
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002	3.17% 3.10% 3.01%	5.59% 5.48% 5.69%	7.70% 7.51% 7.52%	4.05% 3.81% 3.90%	80.10% 79.88%	100.00% 100.00%
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002	3.17% 3.10% 3.01% 2.88%	5.59% 5.48% 5.69% 5.95%	7.70% 7.51% 7.52% 7.52%	4.05% 3.81% 3.90% 3.78%	80.10% 79.88% 79.86%	100.00% 100.00% 100.00%
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002	3.17% 3.10% 3.01% 2.88% 2.87%	5.59% 5.48% 5.69% 5.95% 5.91%	7.70% 7.51% 7.52% 7.52% 7.60%	4.05% 3.81% 3.90% 3.78% 3.71%	80.10% 79.88% 79.86% 79.91%	100.00% 100.00% 100.00% 100.00%
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76%	80.10% 79.88% 79.86% 79.91% 79.40%	100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75%	80.10% 79.88% 79.86% 79.91% 79.40% 79.42%	100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85%	80.10% 79.88% 79.86% 79.91% 79.40% 79.42% 78.60%	100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14% 6.66%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85%	80.10% 79.88% 79.86% 79.91% 79.40% 79.42% 78.60% 78.68%	100.009 100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78% 2.79% 3.32%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14% 6.66% 6.78%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77%	80.10% 79.88% 79.86% 79.91% 79.40% 79.42% 78.60% 78.68% 79.10%	100.009 100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002 4 Week Ending Dec 29, 2002	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78% 2.79% 3.32% 3.30%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14% 6.66% 6.78% 6.69%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98% 7.35%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77% 3.54%	80.10% 79.88% 79.86% 79.91% 79.40% 79.42% 78.60% 78.68% 79.10% 78.60%	100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002 4 Week Ending Dec 29, 2002 4 Week Ending Jan 26, 2003	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78% 2.79% 3.32% 3.30% 3.02%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14% 6.66% 6.78% 6.69% 6.91%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98% 7.35% 7.47% 7.83%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77% 3.54% 3.72% 4.06%	80.10% 79.88% 79.86% 79.91% 79.40% 78.60% 78.68% 79.10% 78.60% 77.38%	100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002 4 Week Ending Dec 29, 2002 4 Week Ending Jan 26, 2003 4 Week Ending Feb 23, 2003	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78% 2.79% 3.32% 3.30% 3.02% 2.91%	5.59% 5.48% 5.69% 5.95% 6.19% 6.14% 6.66% 6.78% 6.69% 6.91% 7.70% 8.17%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98% 7.35% 7.47% 7.83% 8.14%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77% 3.54% 3.72% 4.06% 3.96%	80.10% 79.88% 79.86% 79.91% 79.40% 78.60% 78.68% 79.10% 78.60% 77.38% 76.82%	100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002 4 Week Ending Dec 29, 2002 4 Week Ending Dec 29, 2002 4 Week Ending Jan 26, 2003 4 Week Ending Feb 23, 2003 4 Week Ending Mar 23, 2003	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.79% 3.32% 3.30% 3.02% 2.91% 2.66%	5.59% 5.48% 5.69% 5.95% 5.91% 6.19% 6.14% 6.66% 6.78% 6.69% 6.91% 7.70% 8.17%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98% 7.35% 7.47% 7.83% 8.14% 7.91%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77% 3.54% 3.72% 4.06% 3.96% 3.83%	80.10% 79.88% 79.86% 79.91% 79.40% 78.60% 78.68% 79.10% 78.60% 77.38% 76.82% 76.95%	100.00% 100.00% 100.00% 100.00% 100.00% 100.00% 100.00% 100.00% 100.00% 100.00%
4 Week Ending Mar 24, 2002 4 Week Ending Apr 21, 2002 4 Week Ending May 19, 2002 4 Week Ending Jun 16, 2002 4 Week Ending Jul 14, 2002 4 Week Ending Aug 11, 2002 4 Week Ending Sep 8, 2002 4 Week Ending Oct 6, 2002 4 Week Ending Nov 3, 2002 4 Week Ending Dec 1, 2002 4 Week Ending Dec 29, 2002 4 Week Ending Jan 26, 2003 4 Week Ending Feb 23, 2003	3.17% 3.10% 3.01% 2.88% 2.87% 2.80% 2.81% 2.78% 2.79% 3.32% 3.30% 3.02% 2.91%	5.59% 5.48% 5.69% 5.95% 6.19% 6.14% 6.66% 6.78% 6.69% 6.91% 7.70% 8.17%	7.70% 7.51% 7.52% 7.52% 7.60% 7.85% 7.88% 8.12% 7.98% 7.35% 7.47% 7.83% 8.14% 7.91%	4.05% 3.81% 3.90% 3.78% 3.71% 3.76% 3.75% 3.85% 3.77% 3.54% 3.72% 4.06% 3.96% 3.83% 3.65%	80.10% 79.88% 79.86% 79.91% 79.40% 78.60% 78.68% 79.10% 78.60% 77.38% 76.82% 76.95%	100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009 100.009

SUMMARY OUTPUT

APPENDIX B

Regression	Statistics
Multiple R	0.763638
R Square	0.583144
Adjusted F	0.513667
Standard E	0.273359
Observatio	8

8 months, boycott varible BV only

ANOVA

	df		SS	MS	F	Significance F
Regression		1	0.6272	0.6272	8.393443	0.027436518
Residual		6	0.44835	0.074725		
Total		7	1.07555			

	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	pper 95.0%
Const	3.1075	0.136679	22.73569	4.74E-07	2.77305738	7 3.441943	2.773057	3.441943
BV	-0.56	0.193294	-2.897144	0.027437	-1.03297327	9 -0.087027	-1.032973	-0.087027

SUMMARY OUTPUT 22 months all variables

Regression Statistics						
Multiple	R R	0.92949313				
R Squa	re	0.86395748				
Adjuste	d R S	0.84128373				
Standa	rd Err	0.14938652				
Observa	ations	22				

ANOVA

	df	SS	MS	F	Significance F
Regression	3	2.551015109	0.850338	38.10386	5.26901E-08
Residual	18	0.401693982	0.022316		
Total	21	2.952709091			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	ower 95.0%	Ipper 95.0%
Const	3.32959331	0.074977708	44.40778	7.55E-20	3.172070864	3.487116	3.172071	3.487116
BV	-0.0066771	0.116537521	-0.057295	0.954941	-0.251513508	0.238159	-0.251514	0.238159
HV	0.48757111	0.075389535	6.467358	4.39E-06	0.329183448	0.645959	0.329183	0.645959
TV	-0.0378252	0.006814982	-5.550298	2.87E-05	-0.052142939	-0.023507	-0.052143	-0.023507