

The Influence of Product Rating and Market Share on Product Sales

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ABSTRACT

This paper investigates the influence of product rating and market share on sales for consumer electronics products. Product ratings are used to measure the quality of the product. Market shares are used to measure the strength of the company. We investigate the relationship between product sales, product rating, and market share using regression analysis. Contrary to conventional wisdom, companies trying to enter new markets have a reasonable chance to succeed not only at the low-end but also at the high-end because market share is not a big factor in influencing product sales at the high-end. However, companies trying to enter new markets should not try to enter at the mid-range segment, because mid-range consumers are highly sensitive to market share. So, the results of this paper indicate that the best strategy for a new company trying to enter a new market is to enter either at the low-end or high-end segments, gain market share, and then enter the mid-range segment if desired.

INTRODUCTION

The proverbial and, in some cases literal, million (and sometimes billion) dollar question is how to forecast sales. Much research has been done to help answer this most important and difficult question. Many different methods have been developed to forecast sales, including time series analysis (McLaughlin, 1963; Kapoor, Madhok, and Wu 1981), regression analysis (Tauber, 1977), and artificial intelligence (Collins and Mauritson, 1987). In addition to these methods, a variety of the other models have been employed (Hart, 1982; Abdel-Khalik and El-Sheshai, 1984; Caselles-Moncho, 1986; Stojanovic, 1994).

Not only have many different types of models been used to forecast sales but also forecasting models have been used for many different companies and industries, including women's apparel (Frank, Garg, Sztandera, and Raheja, 2003), compact discs (Bayus, 1987), Mary Kay cosmetics (Wiser, 1995), homes (Zhong-Guo, 1997), the wholesale industry (Peterson and Minjoon, 1999); Ocean Spray Cranberries (Reese, 2001), and Nabisco (Amrute, 1998).

Although much significant work has been done in this very important area of forecasting sales, uncertainty will always make this an inexact science. Forecasting sales is by nature difficult and has inherent problems (Geurtz and Reinmuth, 1980; Lawrence and Geurtz, 1984; Crain, 1995). Although some (Brodsky, 2003) contend that every business has a "magic number" that can be used to help forecast sales, the "magic number" is still at best an aid to give an inexact forecast.

Given all of the above, we, of course, still need to forecast sales. Indeed, the sales forecast is generally considered the most important forecast of all, because it drives budgeting, manufacturing, and purchasing decisions. This paper looks at sales forecasting from the perspective of the consumer. All else being equal, any consumer would want to purchase the best product from the best company. Product ratings are used because they are perhaps the best quantitative measure of the quality of a product. Market shares are used because they are the best quantitative measure of the strength of a company in a particular market.

Any market can be broken into three main market segments. The first market segment is the low-end (or budget) segment. The second segment is the mid-range (or value) segment. The third segment is the high-end (or luxury) segment. A commonly held belief is that low-end market segments are less concerned with the relative strength of companies than are high-end market segments. An example would be from the car industry, where consumers interested in luxury cars generally only consider the strongest companies in the industry: Mercedes Benz, BMW, etc. In contrast, people who are interested in budget cars seem to be open to purchasing from a broader list of companies.

The basic premise is that beggars can't be choosers. This paper investigates this idea by looking at six different types of consumer electronics products: camcorders, digital cameras, LCD televisions, personal digital assistants (PDAs), plasma televisions, and printers. We choose all consumer electronics products to help focus our analysis.

METHODOLOGY

For each of the products, we have sales, product rating, and market share data. The sales and product rating data comes from amazon.com, and the market share data comes from various sources. The sales data are in rank order with 1 being the best-selling. We converted market share data into rank order (1 representing the highest market share) because market share data for every company for every product was not available. So, using rank order allows us to assign numerical values for market share for every company. For example, for digital cameras we have market share data for the top 7 companies, so a rank order of 8 was assigned for any company not included in the top 7. The product rating data comes from consumers and is on a 1-5 scale with 5 being the highest.

In general, we have data on about the top 100 selling products in each product category. We divide the products into the three market segments: low-end, mid-range, and high-end. We do the segmentation through a combination of common sense, taking into account the number of products in each category, and price points. For example, for digital cameras the low-end is \leq \$200, the mid-range is $>$ \$200 and \leq \$300, and the high end is $>$ \$300. As an example of the data we collected, please see Appendix 1 for data on the digital camera mid-range segment.

After dividing the products into each segment, we perform regression analyses. Of course, sales is the dependent variable, while market share and product rating are the independent variables. Table 1 summarizes the findings. Only those variables which had a statistically significant relationship with sales are listed. The level of significance used is $\alpha = .10$.

Table 1: Significant Relationships Between Sales -- Product Rating, Market Share

Product	Low-End (p-values)	Mid-Range (p-values)	High-End (p-values)
Camcorders	Product Rating (.043)	Market Share (0.083)	
Digital Cameras	Product Rating (0.077)	Product Rating (.005)	Product Rating (0.096) Market share (.005)
LCD TVs		Product Rating (.048) Market Share (.003)	
PDAs		Market Share (.047)	Market share (.024)
Plasma TVs	Product Rating (.020) Market Share (.010)	Market Share (.011)	
Printers		Market Share (.038)	

FINDINGS

The results from this study are both telling and fascinating. At the low-end, product rating has a statistically significant (p-value \leq .10) in three of the six product categories. This result falls somewhat in line with the idea that low-end consumers are less "company sensitive" and more "product sensitive."

At the high-end, market share has a statistically significant (p-value \leq .10) in two of the six product categories. This does not give strong support to the idea that high-end consumers really desire to purchase from market leaders. The results suggest that there are other factors driving consumer purchasing decisions at the high-end other than product rating and market share. Perhaps, not surprisingly, it looks like high-end consumers have somewhat esoteric tastes which are hard to pinpoint and quantify.

The most interesting results come from the mid-range consumers. Market share has a statistically significant (p-value \leq .10) relationship with product sales for five out of the six products. And, for the remaining product, which is digital cameras, the p-value for market share was .121 meaning that this almost qualified as a statistically significant relationship. So, clearly market share is a key driver for mid-range product sales. Mid-range consumers are very conscious of the company they are purchasing from. Upon further reflection, this makes a lot of sense. Mid-range consumers are looking for great value; they are looking for a good benefit to cost ratio. Therefore, they would not want

to purchase from a company that is “risky” or that might not be here tomorrow. So, they would rather purchase from a company with a high market share. Furthermore, the mid-range consumers consist of a high percentage of pragmatists (Moore, 1991). And, pragmatists prefer to purchase from the market leader (Moore, 1991) which, of course, has the highest market share.

IMPLICATIONS

The results of this paper are very interesting and highly applicable. For one thing, companies that are trying to enter new markets would have a greater chance of success entering either at the low-end or high-end. If they are to enter the low-end, then focusing on a great product, which should reflect itself in high product ratings, would seem to be the best strategy. Contrary to conventional wisdom, companies trying to enter new markets also have a reasonable chance to succeed at the high-end because market share is not a big factor in influencing product sales at the high-end. However, companies trying to enter new markets should not try to enter at the mid-range segment, because mid-range consumers are highly sensitive to market share. So, the results from this paper indicate that the best strategy for a new company trying to enter a new market is to enter either at the low-end or high-end segments, gain market share, and then enter the mid-range segment if desired. Future research could involve doing similar studies for other types of products. Furthermore, more work could be done to investigate what factors (other than product rating and market share) influence purchasing decisions for low-end and high-end market segments.

Appendix 1: Digital Camera Mid-Range Segment

Company	Model	Sales Rank	Product Rating	Market Share Rank	Price
Casio	Exilim EX-S770 (Silver Grey)	103	4	8	\$205.50
Olympus	Stylus 760	80	4	5.5	\$206.00
Samsung	NV10	78	3.5	8	\$209.88
Canon	Powershot A620	105	4.5	2.5	\$212.85
Casio	Exilim EX-S770 (Dark Blue)	88	4	8	\$220.73
Casio	Exilim EX-Z1050 (Black)	35	4.5	8	\$223.00
Sony	Cybershot DSCW55	37	4.5	2.5	\$225.00
Olympus	Stylus 750	73	4	5.5	\$225.00
Casio	Exilim EX-Z1050 (Pink)	65	4.5	8	\$225.00
Casio	Exilim EX-Z1050 (Silver)	68	4.5	8	\$225.00
Casio	Exilim EX-Z1050 (Blue)	58	5	8	\$226.00
Casio	Exilim EX-Z1000	64	4	8	\$227.38
Fujifilm	Finepix F31fd	34	4.5	4	\$229.00
Kodak	EasyShare V570 5MP	96	4	1	\$229.95
Fujifilm	Finepix F40fd	45	4.5	4	\$234.99
Olympus	SP-510 Ultra Zoom	67	4	5.5	\$239.88
Canon	PowerShot A710 IS	4	4.5	2.5	\$244.00
Kodak	EasyShare Z710	76	4.5	1	\$244.99
HP	Photosmart R967	95	4	7	\$246.93
Panasonic	DMC-FX07R	63	4	8	\$249.97
Canon	PowerShot SD600	30	4.5	2.5	\$254.00
Panasonic	Lumix DMC-FX30K	99	4.5	8	\$254.95
Canon	PowerShot A640	8	4.5	2.5	\$256.00
Olympus	Stylus 720SW	49	4	5.5	\$259.00
Sony	Cybershot DSC-H2	22	4.5	2.5	\$265.00
Casio	Exilim EX-S770RD	84	4	8	\$266.35
Canon	PowerShot SD630	25	4.5	2.5	\$273.00
Panasonic	Lumix DMC-FZ8K	21	4.5	8	\$289.95
Panasonic	Lumix DMC-TZ3S	24	4.5	8	\$299.98
Kodak	EasyShare C875	28	4	1	\$299.99
Kodak	EasyShare Z612	32	4.5	1	\$299.99

Fujifilm	Finepix E900	70	4	4	\$299.99
Nikon	Coolpix S10	61	4.5	5.5	\$299.99
Panasonic	Lumix DMC-TZ3K	7	4.5	8	\$299.99

Notes for Appendix 1:

1. Sales rank, product rating, and price data obtained from amazon.com on June 2, 2007.
2. Market shares are for point and shoot digital still cameras for the third quarter of 2005; Financial times, November 26, 2005, p.9, from International Data Corp.
3. Some companies have the same market share, so their market share ranks are averaged. For example, Canon and Sony are tied for 2nd. So, their market shares are both 2.5 (an average of 2 and 3).

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