Building Up New Product Development Strategy by Product Pricing and Marketing Analysis Chart

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Abstract

In product development and planning, enterprises often adopt matrix chart for strategic study. For example, QFD for the quality control of product parts and their best combination of quality control analysis or image words for two-dimension image scale for product appearance analysis or product appealing, purchase intention for consumer's preference study. Furthermore, value evaluation by the weights of product form, operation, quality, safety, and purchase intention and product prices for strategy matrix analysis are often used in new product development. The Pricing and Marketing Analysis chart (PMA) collects the functional items and sales of data of enterprise products and competing brands to establish product database. With product prices and sales of the enterprise and competing brands as the analytic variables, market share, major enterprise products, and major competition products in the same setting price range will be analyzed through related data. The product marketing strategy squares can help make decisions for new product price, functions and marketing strategies. Through PMA, YAMAHA 125cc motorcycle is used as an example to illustrate how to conduct marketing strategy analysis to enhance competitiveness of new products.

Key words: product pricing, turnover, marketing analysis chart.

Background and Motivation

In a highly competitive market, a proper marketing strategy introduced in line with consumer demands is a key issue for enterprises to maintain their market competitiveness. In the process of selling products, the price, functions and appearance of the product are important factors to determine product sales in addition to the corporate brand image. In this study, the YAMAHA motorcycle is used as the target case to conduct a price and marketing analysis in the comparison with other four competitors. It is hoped to find out a proper pricing and marketing strategy for enterprises through quantitative analyses of appropriate market sectors for high, medium, and low product prices. The market demands and major products of different companies are analyzed in terms of their design features in high, medium, and low product price ranges.

In product analysis, studies regarding brand values in terms of product form, functions, and prices are frequently seen. However, studies related to product price and marketing strategy are rarely seen. In light of this, the monthly turnover of motorcycles in different brands is adopted for quantitative analysis. Moreover, differences between the pros and cons of product marketing are investigated through sales weight. The results can serve as a reference for product price setting and marketing strategy. The purposes of this study are as follows:

(1)Through literature review, organize marketing and pricing policies from scholars and set up product price and marketing criteria in PMA chart, rendering the price axis (Y-axis) and sales axis (X axis) for further price setting pricing and marketing strategy.

(2)To identify and assess the level of share price range of major competitive product distribution and functions for products in different price ranges.

(3)Through marketing matrix, analyze the major products of YAMAHA brands and its competitors to propose suggestions for proper marketing strategy.

Literature Review

In this study, studies related to product strategy, product development strategy, price setting, and marketing strategy are collected and reviewed for further study. In studying new product strategy, Pressemier approached the issue from two dimensions: the newness of target product market (Y-axis, divided into existing market, strengthening market, and new market) and the degree of technological innovation of product (X-axis, divided into original technology, improved technology, and new technology). From these two dimensions, eight product strategies can be identified [1]. Through market newness and product technological innovation matrix, the product strategy model can be specified for the reference of PMA chart in this study. Furthermore, the study attempted to analyze the differences of YAMAHA and other competitors in terms of their price setting, features, and product functions by price and marketing analysis. Major competition products and proper strategic directions in different price ranges will be identified for the reference of new product development in enterprises. The viewpoints of marketing strategy in product life cycle proposed by Kotler et al. are synthesized. Due to the fierce competition of products in mature and growth phases, it is possible to reduce the product price [3]. The 125cc scooter motorcycle analyzed in this study belongs to products of mature phase. Therefore, in terms of the pricing strategy, scooters in each price range are likely to enhance their product competition ability by reducing product prices. Muhammad once proposed the price setting process, where the pricing strategy can be built through the creation of product value and communication [2]. According to Kotler and Armstrong ., there are three price setting methods: (a) cost-oriented: add a certain

amount or percentage of products, services and indirect costs for the product price; (b) competition-oriented: use the competitor's price, rather than cost, as the major consideration for product price; (c) customer-oriented (market-oriented, demand-oriented): set the price according to the market demand and consumers' feelings about products. From the above studies, it is clear that there exists a relative correlation among product price, value, and quality. When the price changes, the sense of value and quality will follow accordingly [4]. Similar to Kotler and Armstrong, Lin proposed marketing strategies for market leaders, challengers, and followers [4, 5]. According to Lin a market leader should adopt the following three actions: to defense market share, expand market share, and expand the overall market. The sense of the value of products is not necessarily proportional to the product price level [6]. By using child safety seats as an example, Baxter clarified the distribution of product prices and values of products and specified the ideal ranges for product prices and values. But the setting of the value criteria, and weights are more subjective. Moreover, Minoru Owada adopted sales as the horizontal axis and product price as the vertical axis in the analytical chart to clearly show market share in each price range, pricing strategies for the main products of each company, competitor's product features and prices in different price ranges [7]. However, it is subjective to have the sales data from experienced marketing personnel or dealers, which may influence the reliability of subsequent price setting strategy. Based upon the product price and sales data, the sales axe is changed into the actual product sales turnover, and obtained the quantitative data of market share in each price range and the weight of product sales to provide an objective analytical model for price setting and marketing strategy.

Method

Building the Pricing and Marketing Analysis chart

In building the PMA chart, it is necessary to understand the product sales volume, and product prices in the market. The accuracy of these data will influence the objective and accuracy of PMA chart. The following two steps can be adopted to help collect information:

(1)Select competition companies: it is more objective to select companies whose product sales volume is over 70% in total market share.

(2)Build up product database: Collect and establish product codes for YAMAHA and competition companies, in this case, the 125CC scooters. It is harder to collect the product sales volume. Some channels easier to access include related websites of motorcycle sales, motorcycle associations, corporate bodies, motorcycle dealers, third party procurement divisions, magazines and newspapers.

Pricing and Marketing Analysis chart (PMA)

PMA chart calls for the gathering of market information. Through the analysis of existing product price, function, sales volume, and the like data, products of YAMAHA and its competitors are compared to find better pricing and marketing strategy. In the matrix, the horizontal axis represents the sales volume and the vertical axis stands for the price. Product images of each brand is placed along the lines of image area. The left side shows the price range and market share data. Along the sales axis (horizontal axis), the sales volumes of different products in each company are illustrated. The more the product images are located to the right side, the better sales they represent. On the contrary, products located to the left side means that they don't sell well. In the main competitors, the vertical axis represents product price. The upper end represents the higher price while the lower end stands for lower product price. Along this axis, the scale represents different product prices. And not every price axis scale unit represent the same price difference. If there more products in the same price range and they are of less differences, then there will be more separated lines in the price range. Higher density in a price range makes it easier to show the differences among products. The left side column of PMA chart represents the product market share. The price ranges can be divided into high-price, mid-price, and low-price ranges. Let the turnover of all products as the denominator. Divide it by the turnover of products in each price range will get the market share of each price range.

Product Marketing Strategy Matrix

In this study, product price and marketing strategies proposed by Kotler et al. and Lin are integrated in the PMA strategy matrix [4, 5]. In the PMA chart, the horizontal axis is the sales axis and the vertical axis is the price axis. In terms of product innovation strategy, the area to the right side of sales axis belongs to market leader strategy; central area the market challenger strategy; the left side area the follower strategy. The above-mentioned product strategy is applied in the PMA Chart to identify the product strategy for products in different price ranges. For products in high price range, concepts of product differentiation strategy will be integrated for the references of product development, price setting and marketing strategies. Through PMA chart, we can understand the market share of products in specific price ranges and therefore, launch products into these price ranges. Moreover, the product strategy matrix can help researchers set up appropriate price setting and marketing strategy for further product development.

Sample Case

The source data are from Taiwan Transportation Vehicle Manufacturers association. Five brands of motorcycle manufacturers in Taiwan, YAMAHA, SYM, KMYCO, SUZUKI, and PGO and a total of 24 scooters are used for discussion and analysis.

Sales data

In this study, a questionnaire survey is adopted to assess the sales status of 24 scooters of 5 brands through a 10-point scale for the strength of sales in different major motorcycle dealers.

From the total sales turnover in 25 months of different brands, scooter sample of the highest turnover (e.g. K-4) is set as the denominator, divided by the total turnover of each scooter, and then multiplied by 10 will generate the weight of sales. The results indicate that there was some sales weight less than 1. To facilitate the production of subsequent PMA chart, the slope formula is used to adjust the range of sales weight from 1 to 10 according to the segmentation of sales for each

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scooter brand.In this study, the slope formula equation can be denoted as: Yn = aXn + b, where a is the slope of the line; b is the intercept. The highest original marketing weight value (K-4) X1 = 10, and it maintains the same 10 points (Y1 = 10) after adjustment. The lowest original marketing weight value (P-5)=0.014 (X2 = 0.014), and is adjusted to 1 point (Y2 = 1). From calculation, we can obtain the slope of the formula, a=0.901 (slope), and the intercept, b= 0.987 (intercept). From the formula, the relative marketing weight for scooters of various brands can be calculated.

Quantitative Data Analysis of PMA

In this study, the total market turnover of 24 scooters is used as the denominator. The percentage of product market share in each price range can be obtained by dividing the denominator by the total market turnover in high, middle, and low price range (the molecule) respectively. For the middle price range, the total market turnover of 24 scooters (25 months) is NT$ 44,217,341,600. Divided by the total sales of 13 scooters of middle price range, which is NT$ 21,190,611,300, the market share of the total turnover of the market share in middle price range is equal to 48%. Similarly, the product market share percentage of high price range is 46%, and that of the low price range is 6%. There are three parts of product price range in the PMA chart, namely, high price, middle price, and low price areas. In each price range, the total market sales turnover of all scooters in 25 months serves as the analytical variable. Moreover, the codes of the price range are the categorical variables, denoted as 1 for high price area, 2 for middle price area, and 3 for low price area. Through one-way ANOVA, the F value= 137.034; P = 0.000 <0.05; indicating that there exist significant differences among three price ranges. Furthermore, the result of Duncan MRT shows that the market turnovers in the higher price ranges (high and middle price areas) are remarkably better than that of low price range and they can be considered as the main price ranges in the market. The result can be used as a reference for subsequent product development in the market.

(1) Main product analysis of YAMAHA

There are four models of 125CC scooter in YAMAHA. From the PMA chart, it is clear that Product Y-1 is the main product, as can be seen in Figure1. Product Y1 has the highest sales weight (7.765) in four scooters, so it is the main product of YAMAHA. Product Y1's sales weight =7.765, the highest in four scooters, so it is the main product of YAMAHA.

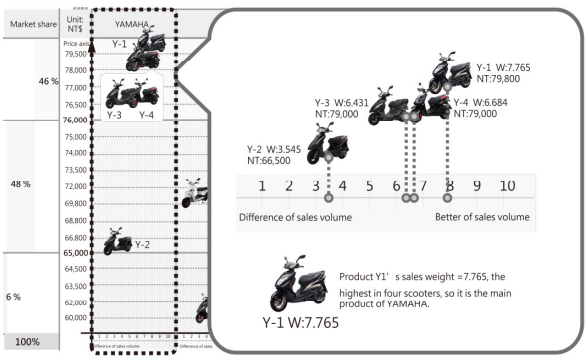

Fig. 1 Product Y-1 is the main product of YAMAHA

In this study, the total market turnovers in 25 months of products Y-4, Y-2, Y-3, Y-1 are used as the turnover analytical variable, and Y-1 ~ Y-4 serve as the categorical variable for one-way ANOVA to find out the main product of YAMAHA. Through ANOVA, F value =22.033; P = 0.000 <0.05, meaning that there are significant differences in the sales of four scooters. By Duncan post hoc, three clusters can be obtained. More importantly, product Y-1 has the highest average monthly turnover, so it is the main product of YAMAHA; products Y-3 and Y-4 the second. The price of main product of YAMAHA, Y-1, is set to be NT$ 79,800, and prices of products Y-3, Y-4 also fall in the high price area. It is, therefore, clear that the main product of YAMAHA is set in high-price area. Through the market share analysis of three price ranges in the market, it is evident that there are evident differences among high, middle, and low price ranges. Moreover, the market share of high price and middle price area is 46% and 48% respectively, accounting for the vast majority of the market. Therefore, products in the middle price range are used for the major competitor analysis in this study. Through one-way ANOVA, the major competitors are identified.

(2) Major competition product analysis for the middle price range

From the scatter diagram of PMA chart, it is clear that SYM and KYMCO have the better sales conditions, as shown in Figure 2.

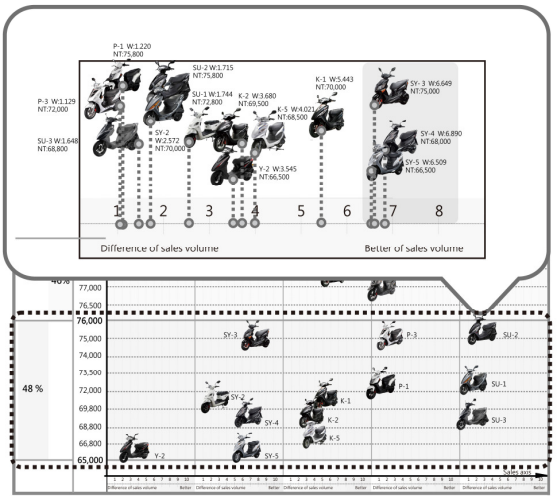

Fig. 2 The scatter diagram of product sales in the middle price area

In the middle price range, there are 13 scooters in total. To find the major competitors in this price range, the sales turnover in 25 months is used as the analytical variables and 13 scooters as the categorical variable for the reference of price setting in the future. Through one-way ANOVA, there are significant differences among these 13 scooters in terms of sales turnover (F=101.690; P = 0.000 <0.05). By Duncan post hoc, three products can be considered as the major competitors in middle price range. Their average monthly turnover reaches NT$ 147,464,800 (SY-4), NT$141,426,000 (SY-3), and NT$137,936,960 (SY-5) respectively. These three scooters are the major competitors for Product Y2 of YAMAHA in middle price range. In this study, the middle price range is further

divided into nine cells for the follow-up analysis of price setting and marketing strategies as shown in Figure 3.

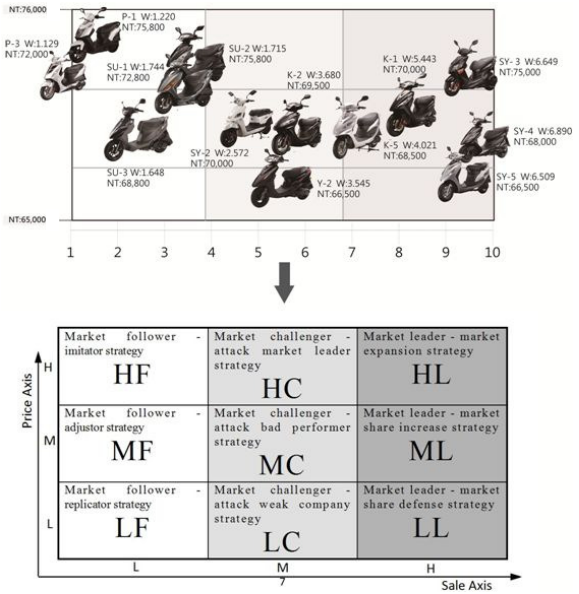

Fig. 3 The PMA chart of middle price range and the application of the product strategy matrix

In terms of product price strategy, it is suggested that Product Y-2 adopt the LC strategy in market challenger and try to attach the companies that are weak in organization. Other strategies include (a) improve service policy: to improve after-sales service to attack follower of weak competitiveness (SU-3) or to outstand low-price market leader (SY-5); (b) adopt the low manufacturing cost strategy: to obtain market share by reducing manufacturing costs through efficient procurement, reducing labor costs and updating devices; (c) intensive advertising and promotion strategy: to do promotion through increased advertising spending, and to seize the easier low-price market sector through following the prices of competitors and lower manufacturing costs.

As far as product development is concerned, it is suggested for YAMAHA to conduct the evaluation and application of product design strategy by referring to the design features, product functions and prices of competing products. In the middle price range in the PMA chart, products SY-4, SY-3, SY-5 are better than product Y-2 in sales. From comparison, it is found that except Y-2, all other scooters in middle price range have ceramic cylinders. So product Y-2 may consider to increase the ceramic cylinder set. Moreover, all of products SY- 4, SY-3, SY-5 adopt the front refueling port, but only product Y-2 adopts the inconvenient refueling port under the seat. So product Y-2 may choose the convenient front refueling port as other competitors. In terms of functions, the adjustable shock is suggested to increase the comfort of riding by adjusting the hardness of the shock absorbers. Moreover, they may pay attention to the touch-open patent to switch the seat cushion, and put the signals on two sides of the front tilting plates so as to improve the product appearance. Last but not the least, they should pay more attention to the color of the instrument panel, and try to make their product look neat and simple. For product price, they are suggested to set the price in the price range of competitors SY-4, SY-3, SY-5, about the range of NT$66,000 ~ 65,000 to attract consumers.

Conclusions

Different from the traditional subjective methods, the present study introduces quantitative analysis through the application of PMA chart. The PMA charts help to explore the sales and product price setting of existing products of the target company YAMAHA and its competitors. Their marketing and pricing strategies are discussed from the product strategy matrix to offer more concrete planning of product strategy. Moreover, the evaluation of new product development and its design strategy is conducted according to the product information database (product design features, product function, price, etc.) to help with the new product development in the target market and enhance the competitiveness of products in enterprises.

Through product development, product pricing and marketing strategies, a product strategy matrix is proposed in this study to be compared and contrasted with the PMA chart. Along the horizontal axis of product sales, product sales weights are used to remove product samples, from which researchers can obtain the market share, sales condition and product prices of the target company and its competitors. Based upon the monthly sales turnover data, quantitative analyses can be done to identify the main products in target company and the major competitors in different price ranges. From the product strategy matrix proposed in the study, innovation strategy can be inferred and the differences between the target company and its competitors in product information can offer a reference for enterprises to develop new products.

Due to the limitations of manpower, time and budget in this study, it is recommended the follow-up studies in the future:

(1) Consumer preference study in product form and colors of major competitors.

(2) Only product prices and functions are concerned in this study. From 4P theory in product marketing, subsequent researchers can further explore the channel and marketing promotion issues.

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