

Measure brand equity with structural equations modelling

The structural equations modelling method of brand equity measurement provides results that are easy to interpret, says **Michael Lieberman**, Multivariate Solutions

BRAND EQUITY is one of the more popular concepts in marketing today. It is loosely defined as: 'The added value that a brand brings to a product or service beyond the functional benefits provided. Major asset categories are: brand name awareness; brand equity; perceived quality; and brand associations.' In fact, there are several definitions of brand equity, all of which stem from the concept of 'brand'.

Understanding brand equity is a process by which the researcher identifies how overall satisfaction with a company's products and services, and loyalty to the brand relate to all specific areas affecting these key issues. Determining this relationship can uncover perhaps the most important facet of this kind of study – the drivers of overall brand identity.

If a product is not a brand, it is a commodity. This is where brand equity demonstrates its value by translating into revenue – through increased sales driven by branding, as well as the willingness of consumers to pay a premium.

There are many multivariate approaches to measuring brand identity, including key associations, dollar measurements and 'emotional drivers'. Here, we will examine the measurement of brand equity through an efficacious, yet simple-to-interpret statistical measure, structural equations modelling (SEM). Largely due to its powerful modelling capabilities and easy-to-understand graphical output, SEM gives marketers lucid visual evidence about what is truly driving equity to its brand, division of brand strength, and how all the pieces are related to one another.

A quick look at other methods

Regression analysis: the first approach is to model brand equity using multiple regression. In a regression model, 'satisfaction' is the dependent variable, and the list of attributes are independent variables. The results show how changes in the attributes affect the brand equity. The model allows us to predict brand equity scores using the ratings on the individual characteristics. Regression can be shown visually, in which case its output is similar to the visual output of an SEM.

FIGURE 1

Discrete choice model

Please choose from one of the following mouthwash brands:

- 1) Scope brand at \$2.49
- 2) Listerine brand at \$2.49
- 3) Plax brand at \$1.99
- 4) Generic brand at \$1.49
- 5) None of the above

Source: Multivariate Solutions

However, if one wants regression to reach the same depth as an SEM, it requires regression subcategories; each subcategory must have an overall satisfaction attribute. For example: 'How satisfied are you with, say, customer service?' plus a grand overall question: 'Overall, how satisfied are you with this company?' These can add length to the questionnaire – in marketing research, length of survey is time, and time is money.

Discrete choice model: Another approach to brand equity is to measure the dollar value of the brand's objective utility: how much extra customers are willing to pay for that brand name. Discrete choice analysis is used to simplify a description of reality and provide a better understanding of how consumers make product decisions. It can predict future states of the market, show where the market's behaviour can be influenced, and indicate how a product's performance in the market can be optimised. Respondents are asked to choose among several options, like the ones shown in Figure 1.

A respondent might rate nine of these scenarios, with the price levels changing with each scenario. The basic output for the discrete choice model is the baseline 'brand space' figure. This is the market share of each brand at the tested price mid-points. For example, at price mid-points of \$1.99, Scope captures 32% market share and Listerine captures 36%. With a simulator, a respondent can change the prices of each brand to see how market share changes.

A strength of discrete choice modelling is that the simulator allows the researcher to 'remove' brands from the scenario to see market share among fewer competitors.

Pertaining to brand equity, if we define the dollar value of brand equity as 'the price above a generic brand that consumers are willing to pay for the brand name', then the discrete choice simulator allows us to remove Listerine and Plax, and test Scope against a generic brand. To find the value of brand equity, we play with the discrete choice simulator with Scope and the generic brand until they each have 50% market share. The generic brand is priced at \$1.79. We start Scope high, say \$2.99, and work our way down. For example, if Scope accomplishes market parity with the generic brand at \$2.59, we can say that Scope has a brand image worth \$0.80 (\$2.59 – \$1.79).

Advantages of SEM

SEM is a very general, powerful multivariate technique that incorporates other versions of a number of multivariate techniques. It is an extension of general linear models that are simultaneously estimates of relationships among multiple independent, dependent, and latent variables.

The true strength of SEM is that it can be expressed in path diagrams, allowing clients and marketing managers to understand the output of a structural equations model with a minimum of explanation.

Path diagrams show variables interconnected with lines that are used to indicate causal flow. They illustrate which variables cause changes in other variables – in our case, we are saying that attribute Y causes change in rating X.

The other main advantage that the structural equations model has over other multivariate methods is that it includes the ability to handle latent variables in the analysis, with latent meaning 'present and capable of becoming, though not now visible, obvious, active, or symptomatic'. Thus SEM research makes more use of the data than is readily apparent.

In marketing research, latent variables are concepts such as consumer intelligence, loyalty or satisfaction – all essential components of brand equity. SEM also

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Structural equations modelling: skincare case study

Figure 2 shows the results of structural equations modelling from a brand equity study of 'Skincare' – a generic cosmetic product. Brand components are broken up into four categories: Skincare benefits; product bouquet; personal indulgence; and quality and value.

The interpretation of Skincare brand equity is complete in the structural equations modelling output. It shows the strength of the five product categories that are driving the latent brand equity measure – for example, Skincare benefits (0.62), quality and value (0.52), and personal indulgence (0.38) are the main selling points for Skincare, more than five times more influential than product bouquet (0.08). These findings are derived importance, the same statistical inference from brand equity regression analysis.

Figure 2 also gives a numerical association with the three general Skincare measures that create the latent brand equity variable.

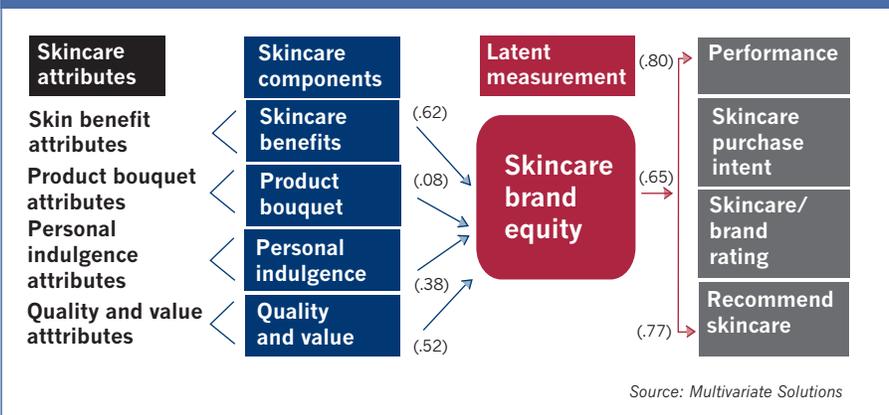
What this shows is that respondents' actions, such as 'purchase intent' (.80) and 'recommending Skincare' (.77) are more strongly related to brand equity than a simple 'overall rating of Skincare' (.65). It is possible that these categories can be pre-determined. However, in this case, a confirmatory factor analysis was run – an extension of factor analysis in which specific hypotheses about the structure of the factor loadings are tested.

We can gain a deeper understanding of the relationship of the individual statements with the resulting factors by looking at the coefficients in Figure 3. For example, the factor coefficients for 'Skincare benefits', the strongest category, are: 'Does not dry out skin' (0.77); 'Cleans well' (0.73); 'Leaves skin soft and smooth' (0.70); 'Does not leave skin itchy' (0.64); and 'Is for everyday use, rather than special occasions' (0.63).

These coefficients from the Skincare benefits factor provide a measure of the strength

FIGURE 2

Structural equation model: skincare brand equity



allows the researcher to use a combination of more than one technique, such as regression analysis and factor analysis. These are interlaced within the path diagram. If the researcher really wants to understand brand equity, satisfaction or loyalty, a combination of drivers and feelings is essential.

Marketers find that many issues in predicting brand equity and emotional drivers are highly interlaced. SEM produces correlations that describe, numerically,

the relationship between fundamental concepts. It can model the latent variables, key attributes and satisfaction attributes in the same computation. It provides a single comprehensive model of all variables and graphically displays the model in a path diagram that is easy to interpret and communicate to management.

There are many applications for the accurate measurement of brand image. It can be used to assess the extendibility of a brand name in its product category, to

FIGURE 3

Skincare benefits coefficients

Skincare benefits	
Does not dry out skin	0.77
Cleans well	0.73
Leaves skin soft and smooth	0.70
Does not leave skin itchy	0.64
Is for everyday use rather than special occasions	0.63
Product bouquet	
Has products that are fun to use	0.62
Has a long lasting fragrance	0.60
Has products that make you smell great	0.59
The colour of the product is natural in appearance	0.52
Skincare indulgence	
Is relaxing	0.70
Turns my everyday shower into a few special minutes for me	0.62
Has a calming effect	0.61
Helps keep my skin looking young	0.57
Quality and value	
Makes a great gift	0.72
Is a product I would be proud to display in my bathroom	0.58
Costs a little more, but worth it	0.51
Its products are made from natural ingredients	0.46

Source: Multivariate Solutions

that a specific statement has in explaining the underlying construct or theme captured by the factor. The higher the coefficient, the better the statement itself represents the factor's ideas. Additionally, the higher the coefficient, the bigger the driver that statement is for overall brand equity (relative to the other statements in the factor).

refine a brand's communication efforts by identifying segments in which a brand's image is strong, and/or as a way of monitoring the competition. Whatever its application, the structural equations modelling method of brand equity measurement is a sophisticated tool that helps to keep marketers one step ahead.

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