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ZIBS Technical Report

Producing a Measure of Brand Equity by Decomposing Brand Beliefs Into Brand and Attribute Sources

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Technical Report Series

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Producing a Measure of Brand Equity by Decomposing Brand Beliefs Into Brand and Attribute Sources

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Summary

Companies spend billions of dollars trying to figure out what consumers believe about their brands and competing brands. But Randy Raggio and Bob Leone from The Ohio State University have found that there's more to it than *what* consumers believe. It is also important to understand *where* those beliefs come from, that is, the type of information stored in memory that consumers draw from to provide these beliefs. Loaded with both pieces of information and working in cooperation with Procter & Gamble they have developed a method that helps companies understand the sources that consumers draw on to provide brand beliefs, and ultimately produces a measure of brand equity.

Even when consumers evaluate "performance" benefits (e.g., how well a brand of detergent cleans or whitens), they can take one of two perspectives with respect to brands: an "engineering" perspective (i.e., focus on price/performance ratio) or a "relationship" perspective (i.e., what does this brand mean to me). When consumers take the engineering perspective, they tend to draw on information stored in memory about the attributes of the brand and how these attributes give rise to certain benefits (e.g., bleach providing the benefit of whitening). When consumers take the relationship perspective, they tend to think about the brand from a high-level, focusing on the brand as a whole and what it means to them. While most surveys focus on how favorable consumers' evaluations are, the research done by Raggio and Leone has shown that strategically, a combination of (1) favorable impressions, (2) based on a higher-level or "relationship" perspective is needed to achieve higher brand equity.

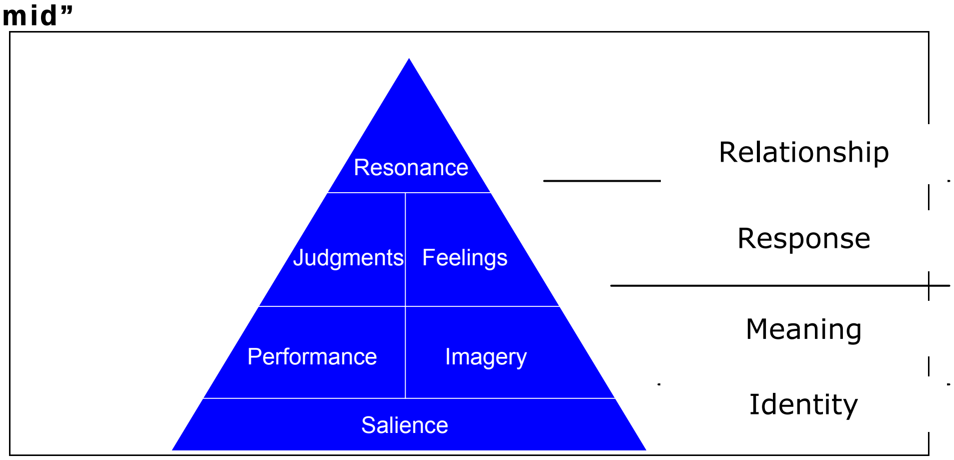
The Raggio-Leone approach estimates the degree to which consumers rely on the high-level brand source or the lower-level attribute source, which they combine with the overall favorability of the consumer's evaluation to produce a measure of brand equity. Their measure of brand equity requires only 10 questions but correlates highly with that produced by P&G's existing system, which requires hundreds of questions. The major benefits to P&G are an understanding of where consumers' brand beliefs come from, and a

reliable measure of brand equity at much less cost and with fewer questions. The benefit to marketing management is the implication that by using the approach proposed by Raggio and Leone in their paper, other companies also can better understand where their consumers' brand beliefs come from, and now can develop their own measure of brand equity that does not require the costs associated with developing a customized procedure and fielding a large complex survey instrument.

BACKGROUND ON P&G's SYSTEM

In 2003, P&G rolled out a new proprietary brand tracking system based on Kevin Keller's consumer-based brand equity (CBBE) conceptual framework. Keller (2003, p.76) states, "Creating significant brand equity involves reaching the pinnacle of the CBBE brand pyramid and will only occur if the right building blocks are put into place" (Figure 1). Keller's CBBE framework maintains that building a strong brand involves a sequence of steps, where "each step is contingent on successfully achieving the previous step" (p.75). The four steps are (1) establish the proper brand identity, (2) create the appropriate brand meaning, (3) elicit the right brand responses, and (4) forge appropriate brand relationships with customers. P&G's market research group developed a proprietary system and consumer survey to produce a measure of how well a brand has climbed these steps. The survey asks consumers their beliefs about the benefits that different brands provide (brand beliefs), related to the four levels and all six blocks of Keller's (2003) CBBE brand pyramid: salience, performance, imagery, judgments, feelings, and resonance.

Figure 1. Keller's (2003, p.76) CBBE "brand pyramid"



P&G asks consumers more than 20 questions from each block in Keller's pyramid. Other questions related to category usage, purchase frequency, demographics, etc., are also on the survey, resulting in a very long, complex consumer survey with hundreds of questions. P&G collects most of its data in "check-box" format (Figure 2). In the past eight to ten years this has become the typical way companies collect data, as consumer surveys have become more lengthy and complex.

Figure 2. An example of brand belief questions in the toothpaste category for three benefits across four brands.

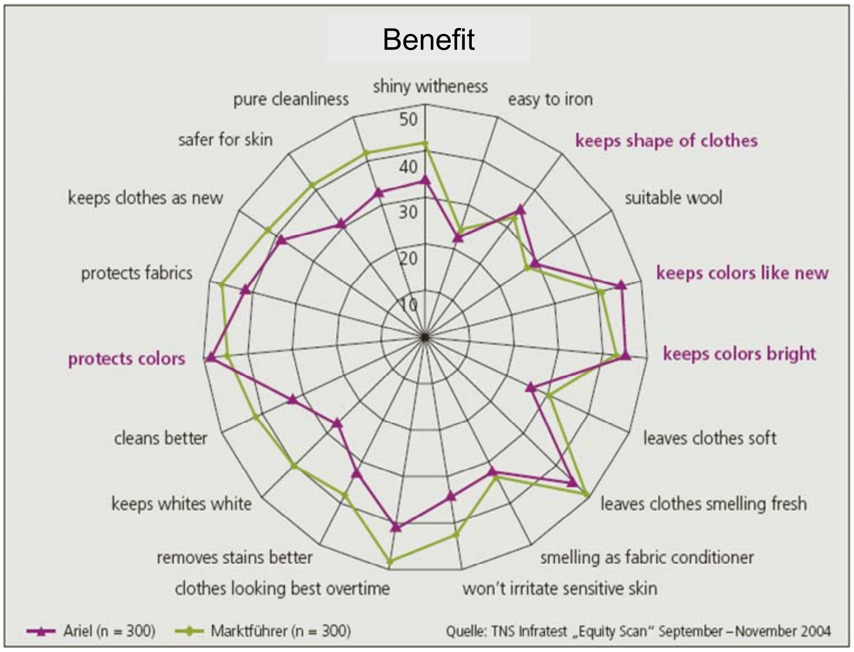
Check all that apply:

	AquaFresh	Colgate	Crest	Mentadent
Whitens my teeth	☐	☐	☐	☐
Fights cavities	☐	☐	☐	☐
Prevents gingivitis	☐	☐	☐	☐

P&G's procedure distills all of this survey data into a single brand equity score for each brand in the categories in which it competes.

Since its inception, P&G has already studied 1,800 brands (including all of its billion dollar brands) across more than 40 categories, in more than 40 countries, and has its brands slated for continuous tracking. In this short period of time, P&G has fully embraced this new system, with managers and executives using this brand equity measure as an indicator of brand health, as well as for reward and compensation.
The data collected from the consumer survey are used to produce P&G's equity measure. The data also are analyzed by P&G's internal market research group to gain additional insights. These insights are compiled into a report given to brand managers after each survey period is over, usually every year for large brands and every other year for smaller ones. At the beginning of the project P&G managers indicated that while its procedures and the consumer survey data could give an idea of how favorable consumers' beliefs are about different brands, neither the raw survey data nor P&G's existing analysis approach were able to indicate how consumers draw from different types of information stored in memory to provide their brand beliefs on the survey (i.e., checking or not checking the boxes). That is, its analysis can only tell what consumer brand beliefs *are*. For example, Figure 3, an example from Germany, demonstrates that consumers believe that Ariel performs better than the leading brand on benefits related to colors and shape, but does not deal with the issue of the type of information stored in memory that consumers draw from to provide these beliefs, important information that brand managers were lacking.

Figure 3. Sample Output from P&G's Proprietary System Comparing Ariel with the Leading Brand in Germany.



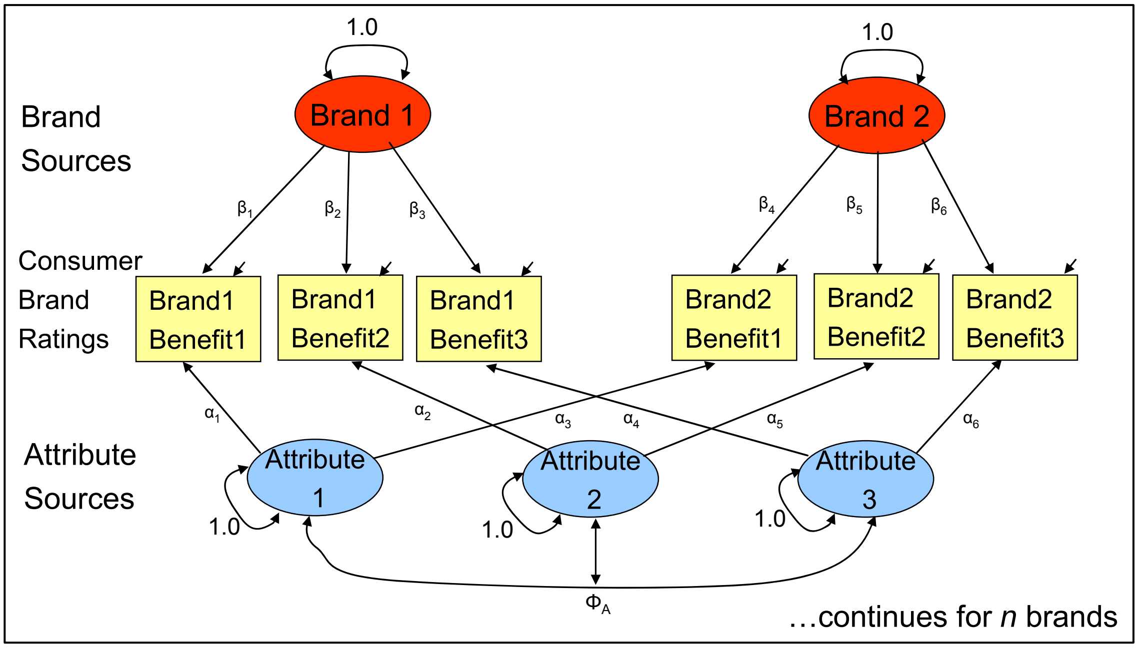
Source: "Ariel Color & Style" Saatchi and Saatchi
http://www.gwa.de/images/effie_db/2005/250965_212_Ariel.pdf , Oct. 22, 2005.

BACKGROUND AND THEORY

Dillon, et al. (2001) suggest that consumers can draw on a combination of mental sources to develop their brand beliefs: They may rely on high-level brand information (such as general brand impressions, positioning, or reputation) or detailed attribute information (such as the ingredients, features or attributes that a brand possesses that give rise to certain benefits) to develop their brand beliefs.

The Raggio-Leone procedure relies on a confirmatory factor model (Figure 4), which assumes that consumers' brand-benefit beliefs can be decomposed to reveal the latent mental sources that they draw from to provide those beliefs. . Raggio and Leone incorporate a Bayesian data augmentation procedure developed by Edwards and Allenby (2003) on the binary check-box data to generate a correlation matrix for input into the confirmatory factor model.

Figure 4. CFA Model with Unconstrained Brand-Benefit Loadings.



For example, in the paper towel category, strength is an important benefit. Assume that Brand1Benefit1 is "Strong." Consumers would rely to some degree on high-level brand information (β_1), and to some degree on detailed attribute information (α_1) to provide their belief about brand 1's strength, with some amount of error present (ε_1). Thus, interest is in the brand→benefit and attribute→benefit loadings, or the degree to which consumers *use* high-level brand or detailed attribute information. The Raggio-Leone brand equity index is based on the brand→benefit loadings (βs) produced by the model described above (Figure 4).

Keller (1993, p. **2**) states that "Customer-based brand equity occurs when the consumer is familiar with the brand and holds some favorable, strong, and unique brand associations in memory." The raw consumer brand beliefs data capture favorability, and the brand→benefit and attribute→benefit loadings derived from the method described above provide information about the strength and uniqueness of brand associations (through the degree to which they influence brand beliefs). Building on this idea, Raggio and Leone derive an index that sheds light on the issue of whether larger brand→benefit or attribute→benefit loadings are associated with more positive outcomes. For each brand within a market they create a brand component index (BCI):

(6) $$BCI = m[b/(b + a)],$$

which represents the average estimated brand→benefit loading (b) divided by the sum of the average estimated brand→benefit and attribute→benefit loadings (a) and multiplied by the average number of "checks" m that a brand received across the 10 most important benefits. The product, a weighted value, indicates the relative contribution of the high-level brand

and detailed attribute sources as consumers provide their brand beliefs.

Consider a situation in which two brands receive the same average number of checks across questions. When graphed, the BCI would offset the two brands horizontally to the extent that the brand→benefit loadings differ between the brands. Thus, the BCI provides additional diagnostic information, beyond either the brand→benefit loading or the number of checks alone.
To justify the usefulness of the measure, it would be important for the measure to correlate very highly with P&G's proprietary measure of brand equity. A strong positive relationship between the BCI and P&G's measure of equity indicates that the brand→benefit loading is associated with more positive outcomes, whereas a strong negative relationship suggests that attribute→benefit loadings are associated with more positive outcomes. Raggio and Leone have found that their index correlates highly with P&G's proprietary equity measure (Table 1).

Table 1.
Relationship Between Calculated Brand Index and Equity Across Categories

Category	R^2	Slope
Paper Product 1	0.8483	362.99[a]
Paper Product 2	0.8060	257.60[b]
Oral Care	0.9133	364.45[a]
Skin Care	0.4345	264.53[b]
Skin Care 2003	0.9583	
Skin Care 2004	0.8030	
Overall	**0.6264**	
Overall Excl. Skin Care	**0.8467**	

Notes: Slopes are statistically similar at α=.05 (two sided) in Paper Product 1 and Toothpaste; Paper Product 2 and Skin care.

SUMMARY AND CONCLUSION

The Raggio-Leone measure of brand equity is produced from only 10 questions from the "performance" box in Keller's pyramid, while P&G's system uses hundreds of questions from all six boxes. They provide a reliable measure of brand equity without requiring a lengthy survey or customized procedure.

Raggio and Leone have run the model on data for more than 80 brands from 17 different markets around the world and demonstrate how the procedure can be used to understand the different sources that consumers draw from to provide brand beliefs about the same brand in different countries, and how consumers in the same market use different sources depending on their brand usage or other characteristics (e.g., differences by age in skin care category). Unlike many papers that use data from a subset of brands in one category for a single market, their consistent results over a wide variety of markets offer a more robust test of the procedure, making it more generalizable.

The primary contribution of Raggio and Leone's research is the development and testing of a brand equity index based on the estimates provided by the empirical model. Table 1 demonstrates that their index correlates highly with P&G's proprietary equity measure across a variety of markets, even though their measure of brand equity is produced from only 10 questions from the "performance" box in Keller's pyramid, while P&G's system uses hundreds of questions from all six boxes. They also performed a validation study for P&G where they were given data from 3 unidentified categories, and P&G determined that their brand equity index also correlated highly in those categories as well (r's = .881, .943, .948). Raggio and Leone suggest that the reason they are able to capture so much of P&G's equity score with only a small number of questions is that while P&G asks directly about how consumers' judgments and feelings are impacted by a brand, they are capturing the same effects through the latent brand construct, which captures the degree to which consumers rely on the latent brand source to provide their beliefs about a brand's performance benefits. Any company can use this procedure to develop its own reliable measure of brand equity.

Conclusion

By using the approach proposed by Raggio and Leone and described in this paper, companies can better understand which latent mental sources consumers draw from when they provide their brand beliefs, and now can develop a measure of brand equity that does not require a large complex instrument.

Our Mission

The Zyman Institute of Brand Science pursues the advancement of brand-driven business performance.

Founded in 2004, the Zyman Institute of Brand Science is the definitive source for cutting-edge knowledge and thinking about brands. The Institute is an independently managed organization within the Goizueta Business School at Emory University.

Who we work with

The Institute works with top management teams to solve pressing issues in brand strategy.

What we do

The Institute's lauded scholars lead the development of new knowledge and insights for building, maintaining, enhancing, and revitalizing persistently profitable brands. We help companies link brand equity to business and shareholder value. We help management make decisions in managing brands to accelerate cash flows, enhance cash flows, and reduce vulnerability and volatility of cash flows, and optimize the long-term value of the organization.

How we do it

The Institute works collaboratively with its sponsors, other universities, research organizations, and its members to devise cross-disciplinary solutions for managing real world problems in brand strategy. We play an integrative role in problem solving, and capability building. We focus on viable actions

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