Journal of Business Research 65 (2012) 92–99

Contents lists available at ScienceDirect

Journal of Business Research

How brand awareness relates to market outcome, brand equity, and the marketing mix☆

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ARTICLE INFO

Article history:
Received 1 June 2009
Received in revised form 1 October 2010
Accepted 1 February 2011
Available online 12 March 2011

Keywords:
Brand awareness
Market outcome
Brand equity
Marketing mix elements

ABSTRACT

Combining survey data with real-market data, this research investigates brand awareness from three perspectives. This study examines the relation between brand awareness and market outcome and explores the relation between brand awareness and brand equity. The study also investigates the effects of marketing mix elements on brand awareness. Results reveal consumers' brand usage experiences contribute to brand awareness, implying experience precedes awareness in some contexts. The results also confirm positive association between brand awareness and brand equity. Lastly, the current work demonstrates the importance of distribution and price promotion in building brand awareness in a consumer-packaged goods category.

1. Introduction

Brand awareness refers to whether consumers can recall or recognize a brand, or simply whether or not consumers know about a brand (Keller, 2008). Brand awareness precedes building brand equity. The brand name provides the memory nodes in consumers' minds (Aaker, 1991). Consumers may link the related brand knowledge to the brand name, which finally constitutes brand equity (Aaker, 1991; Keller, 1993). Hence, brand awareness provides a kind of learning advantage for the brand (Keller, 2008). Brand awareness affects consumer decision-making, especially for low-involvement packaged goods. Brands that consumers know are more likely to be included in the consumers' consideration set (Hoyer and Brown, 1990; MacDonald and Sharp, 2000). Consumers may use brand awareness as a purchase decision heuristic (Hoyer and Brown, 1990; MacDonald and Sharp, 2000). Therefore, brand awareness increases brand market performance.

Surprisingly, research on brand awareness is scarce. For instance, prior research explores brand awareness's affect on decision-making only through lab experiments at the individual consumer level (MacDonald and Sharp, 2000). Research linking brand awareness to actual market outcome primarily appears in service industry research (Kim and Kim, 2005; Kim et al., 2003) with the exception of one study in consumer-packaged goods (Srinivasan et al., 2008). Furthermore, causality's direction between brand awareness and brand market outcome remains unexplored. Finally, the literature only partially investigates the question of how to build and enhance brand awareness. Past research typically focuses on the impact of either advertising or distribution intensity on brand awareness; yet only two studies consider the impact of price promotion on brand awareness but with inconsistent results (Srinivasan et al., 2008; Yoo et al., 2000).

The current study contributes to research on brand awareness in three ways. First, this study provides a comprehensive study of the relationship between brand awareness and market outcome, thereby addressing marketing's accountability issues (Webster et al., 2003). Specifically, the study relates brand awareness to various real market outcomes, including sales and brand market share, using both correlational and causal analysis. Second, this research links brand awareness to overall brand equity, considering both customer mindset and product market outcome measures of brand equity (Keller and Lehmann, 2003). Although previous research demonstrates a positive association between brand awareness and customer mindset brand equity (Kim and Kum, 2004; Yoo and Donthu, 2001; Yoo et al., 2000), this result was confirmed on information from surveys only. In contrast, the present study utilizes real market time-series data. In addition, this research also explores the association between brand awareness and brand equity market outcome measures, including revenue premium, share premium, and price premium. Finally, the present study investigates the association between marketing mix elements and brand awareness. Specifically, this study examines price

☆ This research was supported by funds from McGill Institute of Marketing and by the 211 Project (Phase III) of Shanghai University of Finance and Economics. The authors thank Demetrios Vakratsas (Faculty of Management, McGill University), Georges Zaccour (HEC Montréal), George Alex Whitmore (Faculty of Management, McGill University) and Yoshio Takane (Department of Psychology, McGill University) for their insightful comments and constructive suggestions.

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doi:10.1016/j.jbusres.2011.02.003

promotion's impact on brand awareness, shedding light on inconsistent results in extant literature.

The next section reviews literature on brand awareness's relationship with market outcome, brand equity, and marketing mix elements. The latter sections propose research hypotheses, methodology and results, as well as a discussion of implications and future research directions.

2. Literature review

2.1. Association between brand awareness and market outcome

Brand awareness significantly impacts consumer decision-making; consumers generally use brand awareness as a decision heuristic. A known brand has a much better chance of being chosen by consumers over an unknown brand (Hoyer and Brown, 1990). This well-known brand likely performs better in the marketplace compared to a lesser known brand. Table 1 provides a literature overview on the relationship between brand awareness and market outcome. In general, the literature indicates a positive relationship between the two. For instance, Kim et al. (2003) find brand awareness positively associates with sales in the hotel industry. Silverman et al. (1999) find a weak correlation between brand awareness and market outcome (as measured by sales or brand valuations by Financial World). This weak correlation could be due to sampling error. The respondents (students) in the study, who are familiar with well-known corporate brands such as, GE or Cisco, are not necessarily customers of those brands. High corporate brand awareness does not necessarily translate directly into sales.

The literature linking brand awareness to market outcome is limited and lacks external generalizability. Most studies are examining the service industry (Kim and Kim, 2005; Kim et al., 2003; Kim and Kum, 2004) and principally rely on perceptual data from surveys or experiments, with the exception of Srinivasan et al. (2008). Furthermore, previous research typically measures brand market outcome in terms of sales. Only Silverman et al. (1999) consider brand equity as market outcome.

Finally, the direction of causality between brand awareness and brand market outcome has not been explicitly explored. Theoretically, previous studies treat brand awareness as an antecedent to brand market outcome (Keller and Lehmann, 2003). For product categories involving low financial risk and little time investment for purchase (e.g., convenience goods), consumers may not necessarily go through the "cognition–affection–action" procedure (Mowen and Minor, 2001). Other factors, such as the shopping environment, product placement, and on-the-spot promotion, likely influence the decision to purchase and, consequently, market outcome. Consumers' purchase and subsequent usage experience may predict brand awareness better, rather than the vice versa (Olshavsky and Granbois, 1979). They do not even need brand awareness prior to purchase. Previous empirical research does not investigate a causal relationship between brand awareness and brand market outcome; instead, these studies contend with only correlational association (e.g., Baldauf et al., 2003; Kim and Kim, 2005; Kim et al., 2003; Silverman et al., 1999).

Baldauf et al. (2003) study is one exception; they find brand awareness is an antecedent to brand market outcome (measured as profitability and sales). However, they do not explicitly test for the causality relationship between brand awareness and market outcome. Their study does not tell whether brand awareness predicts brand market outcome or brand market outcome improves brand awareness. The causality relationship between brand awareness and brand performance requires empirical confirmation, and the current research takes on this challenge.

The following hypothesis advances the extant theory (Keller and Lehmann, 2003).

H1. Brand awareness predicts product–market performance.

In short, this research undertakes a comprehensive exploration of the relationship between brand awareness and various brand market outcomes, including sales, market share and overall brand equity.

2.2. Association between brand awareness and overall brand equity

Most brand equity measures are classifiable into three subsets: customer mindset measures, brand performance measures, and shareholder value measures (Keller and Lehmann, 2003). Customer mindset measures gauge customers' general attitude directly toward a brand and include two important components: brand awareness and brand association. Brand association refers to any brand knowledge relating to the brand in the customer's mind. This knowledge represents overall brand equity in the customer's mind. The following discussion uses customer mindset brand equity as synonymous with brand association. The second group of brand equity measures, called product–market performance measures, assesses the brand market performance resulting from customer mindset measures and includes dollar sales, volume sales, revenue premium, price premium, volume premium, and share premium. Finally, firm level performance measures assess the value created by the brand to the overall corporation.

The current study examines the association of brand awareness with both customer mindset and product market outcome measures. Previous research finds a positive association between brand awareness and overall customer mindset brand equity (Kim and Kum, 2004; Yoo and Donthu, 2001; Yoo et al., 2000), with the exception of Gil, Andres, and Salinas (Gil et al., 2007)'s work. These past studies generally treat brand awareness as a component of overall brand equity and suffer a few shortcomings. For example, some studies consider brand awareness and brand associations as a joint dimension, causing difficulty in untangling the effect of brand awareness from brand association (e.g., Gil et al., 2007; Yoo et al., 2000).

Past studies use only survey research to explore the relationship between brand awareness and mindset brand equity, calling their external generalizability into question. In contrast, the present study contains time-series dataset including market outcome metrics, brand

Table 1
Extant research regarding brand awareness and market outcome.

	Market outcome	Industry/product category	Findings
Baldauf et al. (2003)	Profit sales	Tile	Brand awareness is the antecedent of brand profitability and sales.
Kim et al. (2003)	Sales	Hotel industry	Brand awareness has a positive relationship to market performance. Significant differences in brand awareness are found between high and low market performance hotels.
Kim and Kum (2004)	Sales	Restaurant	Brand awareness has a positive relationship to market performance.
Kim and Kim (2005)	Sales	Hotel restaurant	Brand awareness has a positive relationship to market performance.
Silverman et al. (1999)	Sales brand valuation	Brands valuated by financial world	Brand awareness has a weak correlation to sales and brand valuations.
Srinivasan et al. (2008)	Sales	Consumer-packaged goods	Brand awareness could explain for approximately 3% of the variations in sales.

equity, and marketing mix information for 11 brands of consumer-packaged goods over a period of three years. In addition to mindset measures of brand equity, the current research also considers market outcome measures, such as revenue premium, share premium, and price premium as well as exploring their association with brand awareness.

2.3. Marketing mix elements and brand awareness

Past research does not investigate fully the question of how to build and enhance brand awareness. While most research focuses on advertising's impact, or distribution's intensity on brand awareness, only two studies consider price promotion; but they produce inconsistent findings (see below). The current study explores how to build and enhance brand awareness through marketing mix elements.

2.3.1. Advertising

Advertising creates and increases brand awareness by exposing brands to customers (Aaker, 1991; Batra et al., 1995; Keller, 1993; Rossiter and Percy, 1987; Yoo et al., 2000). Advertising also increases the brand's likelihood of being included in consumers' consideration set, thereby enhancing market performance of the brand (Krishnan and Chakravarti, 1993). Brand association (brand awareness) positively relates to advertising expenditure invested in the brand (Yoo et al., 2000). In summary, evidence indicates a positive relationship between advertising expenditure and brand awareness.

Most evidence is based on consumer perceptions obtained either through surveys or laboratory experiments. External generalizability is questionable. The present study addresses this deficiency by validating previous research findings on real market data.

H2. Advertising affects brand awareness positively.

2.3.2. Distribution

Anything causing exposure of a brand to consumers contributes to the establishment of brand awareness (Keller, 2008). Repeat brand exposure in stores improves consumers' ability to recognize and recall the brand. In addition, since stores organize products by categories, consumers gain exposure to brands by category. The store environment naturally facilitates the linkage between brand and the related product category. Therefore, distribution helps to establish brand and product category linkages. Distribution (shelf visibility) alone generates brand awareness and trial for frequently purchased products (Smith and Park, 1992). Trials provide consumers with personal experience of products; and in turn, consumers' usage experience further improves brand awareness.

Previous studies confirm a positive association between brand awareness and distribution intensity (Yoo et al., 2000; Srinivasan et al., 2008).

H3. Distribution affects brand awareness positively.

2.3.3. Price promotion

Price promotions induce brand switchers and create product trials. Such product experiences enhance brand awareness (Keller, 2008). Only a few researchers empirically explore the association between brand awareness and price promotions and their findings are inconsistent. Yoo et al. (2000) find a negative relationship between price promotion and brand awareness. However, Srinivasan et al. (2008) identify a positive relationship between brand awareness and price promotion, as well as advertising and distribution. Contradictory findings may be due to the use of different brand awareness measures and research contexts in two studies. While Yoo et al. (2000) jointly measure brand awareness and brand association for durable goods, Srinivasan et al. (2008) assess pure brand awareness (e.g., whether customers know the brand) for convenience goods.

The current study measures brand awareness by asking whether customers know the brand and tests the following hypothesis.

H4. Price promotion affects brand awareness positively.

2.3.4. Price

Although prior literature finds a positive association between price level and perceived quality (Tellis and Wernerfelt, 1987; Yoo et al., 2000), the relevant literature does not explore the relationship between price and brand awareness. Consumers may use high price as a quality signal to achieve decision efficiency; on the other hand, a low-priced product give consumers more value in terms of the price. Hence, "consumers might be equally aware of both the high-priced product and the low-priced product" (Yoo et al., 2000, p.199). No evidence of a directional relationship exists between price and brand awareness. This research provides an initial attempt in exploring the relationship between price and brand awareness.

3. Methods

3.1. Data

This study's data are gathered from various sources. A consumer-packaged goods company provided the brand awareness and brand equity data. This company tracked 11 important brands in a consumer-packaged goods category for household use in the United States. The sales revenue of the 11 brands constitutes around 90% of the total category sales in the U.S. during the data collection period, from January 2004 to December 2006. This company conducted a weekly equity scan survey with 75 samples per week and summarized monthly. Respondents were recruited from a panel from one of the company's lead suppliers. The company calculated and tracked the overall brand equity every half year from 2004 to 2006.

Information on the four marketing mix elements (advertising, price, price promotion, and distribution intensity) for the same 11 brands comes from Information Resources, Inc. (IRI) and TNS media intelligence for the same period (2004–2006). To match with the customer mindset brand equity measures, the marketing mix data also was measured every half year.

3.2. Operationalization of variables

3.2.1. Brand awareness

The present work measures brand awareness by asking respondents: "Have you ever heard of or seen Brand X?" for each of the eleven brands. The percentage of respondents who checked "yes" for a brand provides the overall measure of brand awareness.

3.2.2. Customer mindset brand equity

Keller's (2001) findings constitute the theoretical background of the customer mindset brand equity measures. The current research considers four types of brand equity measures; namely, brand performance, brand image, brand judgment, and brand feelings. Brand performance, image, and judgment are each measured by 9 items. Brand feelings are measured by 10 items. Each item describes how a customer might feel/think about a brand. For instance, the brand image items include, "allows me to present my family at their very best", "helps me to always make a good impression with my appearance"; "is currently a leading brand"; "a brand I grew up with"; "a family favorite for years"; "a brand my mother used"; "has been a leading brand in this category for years"; "is dependable and trustworthy"; and "will be a leading brand in the future". The brand judgment items include: "makes life easier"; "makes the usage experience more enjoyable than I would expect"; "helps me feel in

Table 2
Definition of market performance variables and data source.

Definitions of variables		
Variable	Definition	Source
Price	Net selling price per unit volume	IRI
Brand volume	Volume of the brand sold	IRI
Price premium charged	Brand's price − private label's price	IRI
Percentage market share	(Brand's unit volume sold)/(Category's unit volume sold)	IRI
Market share premium	Brand's market share − private label's market share	IRI
Volume premium	Brand's unit volume − private label's unit volume	IRI
Sales	Dollar sales of the brand	IRI
Revenue premium	(Brand's unit volume∗brand's net price per unit volume) − (private label's unit volume∗ private label's net price per unit volume)	IRI
Distribution	ACV	IRI
Price promotion	% of brand's dollar sales made on a price promotion	IRI
Advertising	Total advertising expenditure (millions of dollars) across 10 media, computed by monitoring advertisements in each medium/program and applying a relevant rate to each advertisement	TNS

control in the process"; and "makes me feel confident". In summary, brand image and performance constructs inquire about brand meaning and brand feelings; and brand judgment constructs assess response based on brand meaning (Keller, 2001). Cronbach's alpha statistic applied to these proportions (averages) shows excellent internal consistency, exceeding 0.98 for each construct.

The questionnaire lists all the items and the 11 brands, and asks respondents to check the items that describe how they feel or think about a certain brand. Respondents only consider the brands they know. Hence, the percentage of respondents who check "yes", out of all the respondents who know the brand, constitutes the measure of the brand's performance, image, judgment, and feelings. The average ratings of all statements indicate the overall brand equity. In general, the four constructs identify the major brand associations in customers' minds.

3.2.3. Market outcome measures

Brand sales and market share gauge the market outcome.

3.2.4. Brand market performance and brand equity

This research considers multiple measures of brand market performance; namely, revenue premium (Ailawadi et al., 2003), price premium (Bello and Holbrook, 1995; Holbrook, 1992), volume premium (Ailawadi et al., 2003), and share premium (Ailawadi et al., 2003). Table 2 provides descriptions of these variables and their respective data sources.

The present study employs revenue premium (Ailawadi et al., 2003) as the principal performance measure. Revenue premium offers a more complete view than other brand market performance measures, such as market share or price premium. A brand may obtain a big market share due to a deep price cut. Brand price premium may represent only a small market segment; however, revenue premium considers both the brand's price and sales. Revenue premium considers competitors' performance which symbolizes the brand's strength in the marketplace relative to competitors. Ailawadi et al. (2003) confirm this measure's reliability and validity. Revenue premium is a convenient method for computing brand equity since the necessary data readily are available. A potential shortcoming of the revenue premium measure, the requirement of a private label as a benchmark, is not a concern here because our dataset includes private labels.

3.2.5. Information on private label

Since price premium, market share premium, and volume premium are measured relative to the private label, this research provides basic information on the private label (Table 3). While some stores might carry multi-levels of private labels, all private labels in this product category are grouped together to calculate the average price and distribution intensity. The sales value and sales volume are the total value of all private labels in this product category.

The average price of private label is around $0.47 per unit volume with a very small variance versus the average net price of the branded products of $0.90. The private label's distribution intensity is high with an average ACV (all commodity volume) percentage around 85%, which is higher than some branded products in the dataset. Since a private label generally carries the retailer's name, the distribution intensity reflects a retailer's tendency to promote the private label. The average market share of the private label is around 2.5% which is higher than some national brands' shares. Finally, as a private label's market position increased; the dollar market share grew 19% and sales grew 24% from 2004 to 2006. By comparison during this period of time, the entire category grew only about 5% in total market dollar sales.

3.2.6. Marketing mix elements

This research adopts the standard operationalization of marketing mix variables. Advertising is measured as brand's advertising expenditure from TNS media intelligence. Price, price promotion, and distribution data are obtained from Information Resources, Inc. (IRI). Average regular price (e.g., the non-promotion price) measures the price. Percentage of sales made on price promotion assesses price promotion. Finally, the average percentage of ACV measures distribution intensity.

4. Findings

4.1. Descriptive statistics of brand awareness

Table 4 summarizes descriptive information on brand awareness. The average brand awareness of the overall dataset is 76%, with a minimum value of 38% and a maximum value of 96%. Brand I has the highest brand awareness at 96%, while Brand K has the lowest (42%). Interestingly, Brand D has the lowest market share and sales, but the product has moderate brand awareness (67%). The standard deviation of each brand is relatively small (a range of 0.5% to 2.6%), indicating that brand awareness is rather stable, at least in the time interval covered by the data.

Table 3
Descriptive information of private label.

Variable	Mean	Std. deviation	Min	Max	Variance
Net price ($/unit volume)	0.47	0.009	0.46	0.49	0.00009
Distribution intensity (ACV)	84.7	6.4	70.9	89.6	41.2
Market share in dollar value (%)	2.5	0.14	2.3	2.7	0.02
Sales in dollars	43,518,711.7	3,174,651.3	38,755,170	48,203,700	1.00784E13

Table 4
Brand awareness: descriptive analysis.

Brand	N	Mean (%)	Std dev	Min	Max	Variance
Overall	66	76	13.50	38	96	183.7
A	6	72	1.97	69	75	3.9
B	6	76.8	1.30	75	79	1.7
C	6	89.2	1.47	88	91	2.2
D	6	66.7	1.63	65	69	2.7
E	6	73.2	2.22	71	76	4.9
F	6	84.5	1.05	83	86	1.1
G	6	75.5	1.40	74	77	2.0
H	6	72.6	1.90	71	76	3.6
I	6	95.5	0.54	95	96	0.3
J	6	84.2	2.20	82	87	4.8
K	6	42.2	2.60	38	45	6.8

4.2. Change in brand awareness over time

Table 5 provides a closer look at changes in brand awareness over the three years covered by the dataset. In general, very little change occurs in awareness of the 11 brands. Only Brand K exhibits an 18% increase in awareness over time. This change may be due to increased investment in promotions (see further). The median percentage change in brand awareness is zero.

4.3. Correlation of brand awareness and market outcome

Overall, the results indicate a positive correlation between brand awareness and brand market outcome (Table 6). Specifically, the correlation between brand awareness and sales is 0.50 ($p<0.001$), and between brand awareness and market share is also 0.50 ($p<0.001$). These findings confirm previous literature; brand awareness has a positive relationship with the brand's performance in the marketplace (e.g., Kim et al., 2003).

The present study also explores the correlation between brand awareness and brand equity measured as both customer mindset and market outcome. The findings confirm a positive association between brand awareness and overall brand equity; the correlation between brand awareness and customer mindset is 0.56, and the correlation between brand awareness and the revenue premium is 0.50.

The correlation of brand awareness with sales is lower than its correlation with customer mindset. Similarly, brand awareness's correlation with brand performance equity measures, such as revenue premium, is also lower than its correlation with customer mindset. These findings suggest brand awareness closely relates to customers' overall attitude toward a brand. Since both brand awareness and customer mindset measures assess customer mindset directly, the finding that brand awareness has higher correlation with customer mindset equity as opposed to other market outcome measures is reasonable.

Table 5
Change in brand awareness over time.

Brand	Percentage change in brand awareness (%)
A	4
B	0
C	−3
D	6
E	−5
F	1
G	3
H	−7
I	0
J	−5
K	18
Median of percentage change in brand equity measure	0

Table 6
Correlation of customer mindset measures and other product–market performance measures.

	Brand awareness
Customer mindset brand equity	0.56*
Price premium	0.49**
Volume premium	0.33***
Revenue premium	0.50*
Market share	0.50*
Share premium	0.50*
Sales	0.50*

* $p<0.0001$.
** $p<0.05$.
*** $p<0.01$.

Finally, the current work finds that price premium positively correlates to brand awareness ($r=0.49$, $p<0.001$). Price premium measures brand equity. As proposed, a high-equity brand is able to charge a higher price than competitors, ceteris paribus (Bello and Holbrook, 1995; Holbrook, 1992). This finding confirms a positive relation between brand awareness and overall market outcome of brand equity.

4.4. Brand awareness as antecedent of market outcome

The present study tests whether brand awareness is an antecedent of market outcome. The brand awareness measure of the previous time periods forecasts current revenue premium. And vice-versa, the revenue premium of the previous periods predicts current brand awareness.

In regression, the first five time periods in the dataset are used to obtain the parameter estimates, and then these parameter estimates predict the value in time 6. Table 7 and Table 8 present the results. The model is significant and produces better fit when brand awareness is regressed on the lagged revenue premium (estimated on the previous five periods). That is, the lagged revenue premium is a better predictor of brand awareness than vice-versa. This finding is inconsistent with literature that considers brand awareness as the antecedent of product market outcome. This finding will be discussed later.

This study further investigates the predictive relationship between brand awareness and market outcome by cross-prediction. The revenue premiums of the last one, two and three time periods predict current brand awareness. Similarly, brand awareness from the last one, two and three time periods predict the current revenue premium. Then, the MAPE (mean absolute percent error) compares prediction accuracy and provides a unit-free scale of evaluation (Farnum and Stanton, 1989). Specifically, each absolute forecasting error converts into a percentage error relative to the corresponding actual value. The average magnitude of all resulting percentages is the

Table 7
Regress brand awareness on lag values of revenue premium.

Dependent variable	Model fit	Parameter	Estimate	P value
Brand awareness	R square = 0.27 F = 15.20 (p = 0.02, d.f. = 1)	Intercept Lag revenue premium	0.72 3.31E-10	<0.0001 <0.0003
	R square = 0.27 F = 11.5 (p = 0.009, d.f. = 1)	Intercept Lag 2 revenue premium	0.72 3.30E-10	<0.0001 0.0019
	R square = 0.30 F = 8.5 (p = 0.008, d.f. = 1)	Intercept Lag 3 revenue premium	0.71 3.48E-10	<0.0001 <0.0085
	R square = 0.29 F = 3.8 (p = 0.08, d.f. = 1)	Intercept Lag 4 revenue premium	0.71 3.49E-10	<0.0001 0.085

Table 8
Regress revenue premium on lag values of brand awareness.

Dependent variable	Model fit	Parameter	Estimate	P value
Revenue premium	R square = 0.23	Intercept	−458,289,972	0.0065
	F = 13.0	Lag customer	751,318,629	0.0008
	(p = 0.0008, d.f. = 1)	mindset measure		
	R square = 0.22	Intercept	−434,177,244	0.0276
	F = 8.7	Lag 2 customer	715,717,222	0.0006
	(p = 0.006, d.f. = 1)	mindset measure		
	R square = 0.22	Intercept	−420,437,296	0.08
	F = 5.5	Lag 3 customer	700,747,400	0.03
	(p = 0.03, d.f. = 1)	mindset measure		
	R square = 0.18	Intercept	−378,845,788	0.31
	F = 2.0	Lag 4 customer	645,384,682	0.19
	(p = 0.19, d.f. = 1)	mindset measure		

Note: d.f. = degrees of freedom.

final measure of the mean absolute percent error (MAPE), as expressed in the following equation:

$$\text{MAPE} = \frac{\sum_{t=1}^{n} \frac{|e_t|}{Y_t}}{n} \quad (1)$$

where, e_t is the forecast error in time period t; Y_t is the actual value in time period t; n is the number of forecast observations in the estimation period.

Since this research considers two dependent variables (i.e., customer mindset and revenue premium), the standardized deviation of the two measurements, respectively, constituteY_t.

As Table 9 illustrates, prediction accuracy of the revenue premium (0.52) is better than brand awareness. If the brand awareness measure from a previous time period forecasts the current revenue premium value, the MAPE is 0.62. However, if the revenue premium measure from the previous time period predicts the current brand awareness, the MAPE is 0.52. These results indicate prediction accuracy is better for revenue premium than brand awareness.

Findings from regression and cross-prediction analyses consistently demonstrate product–market performance predicts brand awareness better than vice versa. These findings do not support H1.

4.5. Impact of marketing mix elements on brand awareness

Regression analyses explore the association between marketing mix elements and brand awareness. Distribution intensity positively correlates with advertising expenditure (r = 0.45, p<0.05) and price (r = 0.35, p<0.05). To investigate the severity of multicollinearity, the study assesses two additional statistics for each independent variable: the tolerance value and VIF value. Although no formal criterion is available for deciding on the cut-offs for tolerance value or VIF, typically tolerance value less than 0.1 or VIF greater than 10 indicates serious multicollinearity (Neter et al., 1989). In this study, the tolerance values range from 0.58 to 0.94, and the VIFs are within the range of 1.06 to 1.73, which are thus acceptable values for subsequent multi-regression analysis (Hair et al., 1998).

Table 10 summarizes the regression analysis results between brand awareness and marketing mix variables. The overall regression is significant (p<0.001) and the model explains 68% of the data's variance (r-square = 0.68). Three independent variables, distribution, price promotion and price, are found significant in predicting brand awareness, confirming H3 and H4. The findings, also confirmed by a stepwise regression, support the proposition that a more intensive brand distribution leads to greater awareness (e.g. Srinivasan et al., 2008; Yoo et al., 2000). Similarly, the higher a brand spends on price promotion, the greater the awareness. Finally, the higher a brand's price, the greater is the awareness.

Surprisingly, the results show advertising does not predict brand awareness; hence, this finding does not support H2. This finding contradicts theoretical literature, thus requires an explanation. The product category in this study is mature and includes brands with high awareness. Increasing advertising likely has little effect on increasing brand awareness. Typically, the market share leaders have higher advertising expenditures and may experience diminishing returns unless their advertising provides some unique/new information about products, such as new product development.

5. Discussion

The current research demonstrates a positive association between brand awareness and consumer preference for the brand, as well as brand market outcome. This study provides important implications for managers. First, the current study provides empirical evidence that brand awareness is important for consumer decision-making. Second, the results offer insights on the nature of the relationship between brand awareness and market outcome. Finally, the findings provide direction on how to build and enhance brand awareness.

This research for the first time tests the direction of causality between brand awareness and market outcome. Brand equity literature (e.g., brand value chain model) proposes brand awareness as an antecedent of brand market outcome. However, the current research finds empirical evidence to the contrary; market outcome is an antecedent of brand awareness. Specifically, revenue premium predicts brand awareness better than brand awareness predicts revenue premium. This finding is in the context of frequently purchased consumer-packaged goods which are low priced and involve little financial or social risk.

Consumers generally do not invest much time and effort searching for product information, comparing brands and making purchase decisions. In other words, consumers unlikely go through the process of "cognition → affect → behavior" when they make a purchase among

Table 9
MAPE measures of prediction accuracy.

	MAPE
Lag brand awareness to predict current revenue premium	0.62
Lag revenue premium to predict current brand awareness	0.52
Lag 2 brand awareness to predict revenue premium	0.60
Lag 2 revenue premium to predict current brand awareness	0.52
Lag 3 brand awareness to predict current revenue premium	0.65
Lag 3 revenue premium to predict brand awareness	0.52

Table 10
Regression of brand awareness on marketing mix elements.

	Brand awareness as dependent variable	
	R-square = 0.68	
	F = 26.22 (p<0.0001, d.f. = 5)	
	Regression coefficient	
Independent variables	Un-standardized	Standardized
Intercept	0.026 (0.08)	0
Advertising expenditure	0.000002 (0.000)	0.13
Distribution	0.004 (0.001)***	0.43
Price	0.21 (0.04)***	0.50
Price promotion	0.02(0.003)***	0.42
Time	0.004 (0.006)	0.05

Notes: The standard errors are in parentheses; d.f. = degrees of freedom.
*** p<0.0001.

consumer-packaged goods. Instead, they follow Ehrenberg (1974)'s awareness → trial → reinforcement sequence (originally proposed for the effect of advertising). This finding, also in the context of brand equity area, further confirms the general belief that consumers rarely follow the cognition–affection–behavior sequence (the authors thank a referee for providing suggestions for the theory background for discussion).

For low involvement purchases, consumers may follow the "beliefs–behavior–affect" hierarchy (Mowen and Minor, 2001). Sometimes, consumers do not go through an elaborate decision-making process before purchasing (Olshavsky and Granbois, 1979). This finding implies that purchase does not necessarily require brand awareness prior to a consumer's visit to the distribution outlet, at least for frequently purchased consumer-packaged goods. The purchase decision could be made right on the spot. Even when consumers do not know the brands before their visit to the store, shelf visibility may induce purchase behavior. This behavior supports the proposition that consumers form behavior directly given situational or environmental conditions, such as physical environment (Mowen and Minor, 2001; Nord and Peter, 1980). Product usage experiences enhance brand awareness. In other words, the more people buy a product, the higher their brand awareness for the product. This study's regression results also corroborate the significance attributed to distribution by cross-prediction analysis, where distribution turns out to be the most important element establishing brand awareness.

The current findings have important implications for enhancement of brand awareness and brand market performance. Brand awareness includes brand recognition and brand recall. Brand recognition refers to whether consumers are able to recognize the brand. Brand recall means consumers can recall a certain brand during their decision-making process without priming. Brand recognition requires consumers know the brand prior to their purchase. Brand recall assumes that consumers go through decision making process prior to the purchase.

Prior studies about brand awareness focus on enhancing brand recognition or brand recall by utilizing advertising, public relation, or promotion. These studies propose consumers think about brands during their decision making process. For instance, Percy and Rossiter (1992) propose different strategies and tactics to improve brand recognition and brand recall depending on different consumer involvement in decision making. For low involvement product categories, managers should try their best to make consumers "purchase" the brand on-the-spot at the retail outlets. The current study suggests consumers' brand purchase and usage drive brand awareness. Accordingly, brand awareness creation and enhancement are accomplished by utilizing various on-the-spot factors in retail outlets. Distribution and in-store promotion induce consumers to purchase the brand in the first place. Managers should design and implement marketing activities, such as distribution, promotion, and personal selling to stimulate the purchase behavior directly. Firstly, managers should utilize the distribution element to its full potential in order to improve brand awareness and brand market performance, especially for brands with relatively low awareness and tight advertising budgets. Increasing distribution intensity is imperative. In addition, improving the product placement quality in retail outlets increases the odds consumers will choose the brand. Attractive brand packaging aides display effectiveness. Clear and easy-to-read product instructions and explanations support this recommendation. Both price and non-price promotions help to generate brand sales which in turn induce brand usage experience and hence increasing brand awareness.

Secondly, managers should use price promotions to create brand awareness. Specifically, price promotion encourages brand switching and provides consumers with an incentive to try those brands which they would not purchase otherwise at full price. The price promotion induces brand usage and creates awareness.

A final managerial implication involves sustaining brand awareness. High brand awareness remained rather stable over the time interval covered by the data (with the exception of Brand H and K, which are addressed later). This finding is consistent with that of the Boston Consulting Group study where the leading brands in 19 out of 22 product categories were the same in 1985 as in 1925 (Aaker, 1991). Furthermore, well-established brands are able to benefit from the awareness they have created for a reasonably long time, even if advertising support drops (Aaker, 1991).

Of the two brands whose brand awareness is less stable, Brand H's awareness declines whereas Brand K's improves. Brand H's distribution intensity decreases from 77% to 59% over time, which may account for the decrease in its brand awareness. As for Brand K, the increase in brand awareness accompanies a promotion investment increase over time. As promotion generates product experience, brand awareness might be enhanced due to product usage experience.

This study's product category is mature with several already well-established brands. Improving awareness is difficult due to the saturation effect. For well-established brands, price promotion should be used with caution. Frequent price promotions negatively influence overall brand equity (Angel and Manuel, 2005; Darke and Chung, 2005; Yoo et al., 2000). Price promotions or deep price cuts likely have a negative influence on the perceived brand quality as well. Furthermore, price promotion also may decrease the internal reference price in the customer's mind. Hence, brands with very high brand awareness should implement price promotions prudently. Marketing managers should focus on improving the brand's distribution intensity, which is likely to produce positive synergies with advertising and/or previous usage experience.

6. Conclusions and limitations

This study provides an in-depth investigation of brand awareness, a scarcely researched topic, and makes three contributions. To address marketing's accountability issues, the present work explores whether or not a link exists between brand awareness and desirable market outcomes, such as sales and market share, and finds that brand awareness and market outcomes have a positive association.

Second, this paper investigates the link between brand awareness and overall brand equity, a heavily researched topic with high practical relevance. The present work uses both customer mindset and product market outcome measures and demonstrates a positive association between brand awareness, customer mindset brand equity, and brand equity market outcome measures, including revenue premium, share premium and price premium. The current findings support the importance of brand awareness on market outcome metrics for low-involvement, consumer-packaged goods and generalize the past literature beyond the context of the service industry and survey-based methodology. However, this research finds that consumers' brand usage experience contributes more to brand awareness than vice versa. Experience precedes awareness in some cases.

Finally, the present work investigates the association between marketing mix elements and brand awareness, finding price promotion's impact on brand awareness is positive. Price promotions increase brand awareness through creating brand exposure and usage experience for consumers. The current research confirms past literature that distribution intensity has the largest impact on brand awareness.

This research has limitations providing challenges for further research. Firstly, the future research should replicate these results in other consumer-packaged goods categories, particularly fast-growing sectors with high levels of new product and advertising activities. To generalize the results, high-involvement decision products should be tested. Since consumers typically invest time and energy when gathering product information prior to purchase in high involvement categories, brand awareness may predict

revenue premium (rather than vice versa) contrary to this study's findings. Furthermore, future research should compare the impact of brand awareness and brand liking, or brand image on sales (the authors thank an anonymous referee who offered this suggestion.). The impact of different brand equity constructs may be different across different product categories.

Secondly, brand awareness includes both brand recall and brand recognition (Keller, 1993) but this study did not examine them separately. Future research should develop separate measures to assess brand recall and brand recognition respectively — further exploring their relationship with market outcomes. For other product categories, the impact of brand recall and brand recognition on market outcome may be different. The effects of marketing mix elements may also show differences on brand recall and brand recognition constructs.

Thirdly, future research could improve the operationalization of the price promotion variable. The measure used in the present work, "percentage of sales made on price promotion", neglects the depth and frequency of price promotion. Although managers were provided insight into the association between price promotion and brand equity, specifics on how to utilize price promotion in terms of the depth and frequency to improve brand awareness are lacking.

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