Comparing Structural Equation Models with Discrete Choice Experiments for Modelling Brand Equity and Predicting Brand Choices

Paul Z. Wang, Constantinos Menictas & Jordan J. Louviere

Abstract

Brands play an important role in consumers' perception and choice of a product. Measuring brand equity has thus become a topic of growing interest among both practitioners and researchers in marketing. This paper examines the Erdem and Swait (1998) brand equity framework, which is one of the key consumer-based brand equity models developed in the brand literature. Specifically, it investigates the external validity of the Erdem-Swait framework using two alternative approaches: One is based on structural equation models (SEMs) and the other is based on discrete choice experiments (DCE). Four data sets pertaining to four different product categories were collected from the Australian financial services sector to compare the ability of expected utilities calculated from SEMs and DCEs to predict the actual brand choices of real consumers in real markets. Although both models performed well, results showed that the predictions of the DCE models were consistently better than those of the SEMs in all cases. These findings have implications for both academics and practitioners in brand evaluation and management.

Keywords: Brand equity measurement, External validity, Structural equation model, Discrete choice experiment

1. Introduction

With the rapid growth of multinational brands and the need for effective branding strategies in today's increasingly competitive business environment, there has been growing interest in the study of brand equity and ways to measure it. Several different ways have been proposed to measure brand equity (Keller, 2003). They include using stock price analysis (Simon and Sullivan, 1993), replacement cost and price premiums (Aaker, 1991; Kamakura and Russell, 1993), equalization price (Swait et al., 1993), brand attributes (Lassar et al., 1995), brand loyalty analysis (Feldwick, 1996), and incremental value added by brand name (Srinivasan et al., 2005; Yoo et al., 2000).

In this paper, we adopt one theoretical brand equity framework developed by Erdem and Swait (1998) for the following reasons. First, their framework possesses a sound theoretical basis drawn from information economics and signalling theory for explaining how brand equity is created, how it evolves over time, and how it can be managed and transferred. Second, the Erdem-Swait framework can be integrated with random utility theory in economics and psychology (McFadden, 1974; Thurstone, 1929) to develop a tractable and practical way to model and measure brand equity. This integrated approach has been successfully applied to a number of research settings, including the study of the impact of brand credibility on consumer price sensitivity (Erdem et al., 2002) and the role of brand credibility on brand consideration and choice (Erdem and Swait, 2004). Third, the Erdem-Swait framework has recently been confirmed in an extensive cross-cultural validation study that involved seven countries across the world (Erdem et al., 2006).

Most conceptual frameworks of brand equity, including the Erdem-Swait framework, have been tested using the structural equation modelling (SEM) approach (Bollen, 1989). Despite tremendous interest in brand equity and the popularity of using SEM to test brand equity frameworks (e.g., Erdem et al., 2002, 2006; Yoo et al., 2000), no empirical research has so far been conducted to assess the external validity of brand choice predictions made by the SEM models. In other words, to our knowledge, no one has used the expected utility scores calculated from the SEM models to predict the actual brand choices of real people in real markets. Likewise, no previously published research has attempted to test the external validity of the Erdem-Swait framework of brand equity using the discrete choice experiment (DCE) approach (Louviere et al., 2000).

Not only have there been few attempts to test the external validity of the brand equity frameworks against real market choices, but there have also been no comparisons of the ability of the two modelling approaches to predict real market choices. Thus it remains unknown which approach, SEM or DCE, would achieve better external validity. In an attempt to bridge these research gaps, we apply the Erdem-Swait framework of brand equity to financial services and compare and contrast the performance of SEM with that of DCE using data sets in four different product categories. The findings highlight the need for more DCE-based research on brand equity. As the first study of this kind, this paper provides a good starting point for further research on comparing the performance of SEM with that of DCE.

The rest of the paper is organised as follows. We first review relevant literature on brand equity in general and the Erdem and Swait (1998) brand equity framework in particular. We then provide a brief discussion on SEM and DCE, which is followed by the presentation of our research questions. Next, we discuss research methodology and the analytical results from four data sets. We conclude by discussing the research findings, limitations of the study, and avenues for future research.

2. Literature Review

A brand is defined as a name, sign, symbol, or a combination intended to identify goods and/or services of one seller or group of sellers so as to differentiate them from the competition (Kotler, 1997). For centuries brands have been used by firms as a way to identify and differentiate to obtain competitive advantages (Aaker, 1991). While several different definitions of brand equity have been proposed since the late 1980s (Keller, 2003), many of them are consistent with Farquhar's (1989) original definition of brand equity as the added value that a brand gives a product based on its name, reputation, and history in the market. Brands with higher equity attract higher premiums, whereas lower equity brands have to discount to buy market share to achieve parity.

A review of extant literature on brand equity indicates that three principal frameworks for understanding and measuring brand equity have emerged as dominant themes in academic marketing research over the past two decades. They include (1) Aaker's (1991) framework, which is a managerial view of brand equity; (2) Keller's (1993) psychological, memory-based view of brand equity; and (3) Erdem and Swait's (1998) brand equity framework based on information economics and signalling theory. Although there are other views of brand equity (Kapferer, 1992), we focus on the three mentioned above because they represent the dominant conceptual frameworks in the study of brand equity. The following sections describe briefly each of these perspectives on brand equity.

2.1 Aaker's (1991) Managerial View of Brand Equity

Pioneered by Aaker (1991), his managerial perspective views brand equity as consisting of five brand assets, including (1) brand loyalty, (2) brand awareness, (3) perceived quality, (4) brand associations, and (5) other proprietary assets. According to Aaker (1991, 1996), brand equity creates value for both the customer and the firm and the value for the customer enhances value for the firm. Firms should manage brand equity by investing in customer recognition of their brands, such as launching advertising campaigns to boost brand awareness and create positive brand associations. Higher brand awareness and associations are likely to lead to higher perceived quality and more brand loyalty.

Aaker's (1991) concept of brand equity provides a useful platform from which brands can be practically managed. Thus, it has played a major role in encouraging the practice of managing brand equity as well as calling attention to brand equity as a research topic. However, Aaker does not provide a theoretical framework to measure the utility of each brand asset, nor does he propose a rigorous behavioural theory for explaining how the five brand assets interrelate to create brand equity (Feldwick, 1996; Jourdan, 2002; McWilliams, 1993). Other authors suggest that Aaker's managerial view of brand equity is overly simplistic; hence, it is incomplete theoretically and empirically (e.g., Chen, 2001; Erdem and Swait, 1998).

2.2 Keller's (1993) Psychological View of Brand Equity

Keller's (1993) view of brand equity is based on cognitive psychology, and focuses on consumer cognitive processes. He suggests that brand equity arises from brand associations held in consumer memory in the