Brochado, A. & Oliveira-Brochado, F. (2018). Brand equity in the Portuguese vinho verde “green wine” market. *International Journal of Wine Business Research*.

Brand equity in the green wine market

Abstract

Purpose: This study sought to examine the main determinants of brand equity in the context of brands defined by their region of origin, as is the case for Portuguese *vinho verde* (‘green wine’).

Design/methodology/approach: Data were collected from a sample of wine consumers (N = 200) in Portugal through personal interviews. Structural equation modelling was applied to study the causal relationships between brand equity and its dimensions (i.e. brand loyalty, brand awareness, perceived quality and brand association) for top-of-mind green wine brands, based on Aaker’s conceptual framework (Aaker, 1991).

Findings: The study’s results reveal that brand loyalty is the most influential dimension of brand equity for Portuguese green wine and that the links between brand equity and both brand association and perceived quality are significant. These findings can help Portuguese wineries to prioritise and allocate resources across brand equity dimensions.

Originality/value: Previous studies in the literature have mainly identified dimensions of wine brand equity based on Aaker’s model at the wine region level. This research, therefore, contributes to expanding this field’s body of knowledge by studying the brand equity of specific brands of green wine produced in Portugal.

Keywords: Brand awareness, brand equity, brand loyalty, wine market, Portuguese green wine market

Classification: Research paper

Introduction

This paper builds on the literature on brand equity by researching brands defined by their region of origin, as is the case for wine (Atkin and Johnson, 2010). In the wine market, designation of origin acts as a brand. Wine regions, thus, establish a perception of the authenticity of products and make them hard to copy.

Brand equity is an important concept in brand management that has been extensively discussed by both academicians and practitioners (Davcik *et al*., 2015; Keller and Lehman, 2006). From a theoretical standpoint, it is extremely important to understand what key elements make up brand equity and to measure these determinants objectively (Punj and Hillyer, 2004). From a managerial perspective, it is essential to figure out how brand equity can be improved to enhance overall brand experiences. Creating brand equity by building a strong brand plays a strategic role in how firms gain and sustain competitive advantages (Lin and Kao, 2004).

Previous research has confirmed the positive effect of brand equity on merger and acquisition decision making (Mahajan *et al*., 1994), shareholder value (Kerin and Sethuraman, 1998), market share (Agarwal and Rao, 1996; Shuv-Ami, 2016) and stock market response (Lane and Jacobson, 1995; Simon and Sullivan, 1993). Moreover, the literature shows that products' brand equity is widely regarded as having a positive effect on both consumer price insensitivity and consumers' willingness to pay premium prices. Brand equity also decreases vulnerability to competing marketing actions (Erdem *et al*., 2002), supports the effectiveness of marketing communications and stimulates cooperation in trade and with other intermediaries. Brand equity further enhances the success of brand extensions and licensing opportunities and increases consumer preference, purchase intention and probability of brand choice (Keller and Lehmann, 2006). In summary, brand equity needs to be viewed from a managerial perspective as a key concept for marketing scholars and one of the most prized assets of firms (Chistodoulides *et al*., 2015), providing companies with strong and sustainable competitive advantages.

In previous studies, brand equity has been assessed from three different perspectives, namely, customers' mindset, product market outcomes and financial market outcomes (Nella and Chistou, 2014). However, measuring brand equity can be challenging for managers because it is a multi-dimensional concept. Among the various brand equity models in the literature, one of the most cited and tested models in empirical investigations (e.g. Atilgan *et al*., 2005; Buil *et al*., 2008; Ha *et al*., 2010; Kim and Kim, 2004; Tong and Hawley, 2009; Yoo, Donthu *et al*., 2000; Yoo, Naveen *et al*., 2000) was developed by Aaker (1991). This approach has not only been proved to be valid and reliable but also parsimonious, which can help practitioners to track brand equity regularly (Christodoulides *et al*., 2015).

Understanding brand equity determinants properly is particularly important for symbolic products such as wine (Boudreaux and Palmer, 2007). From the consumer's point of view, wine consumption is considered a high-risk purchase (Mitchell and Greatorex, 1989). Wine brands can act as a heuristic of choice and risk limiter by providing an indication of the wine's quality prior to consumption or helping consumers to recall the level of quality associated with a wine they have already consumed (Viot and Passebois-Ducros, 2010).

Previous research has attempted to study wine region brand equity (e.g. Gómez and Molina, 2012; Gómez *et al.*, 2015; Orth *et al*., 2005). However, the literature, which was extensively reviewed for the present study, contains no research that both seeks to shed light on specific wine brands' equity in the wine industry and applies the dimensions of Aaker's (1991) brand equity model.

The present study, therefore, sought to identify theoretically and test empirically the relationship between brand equity and brand awareness, perceived quality brand associations and brand loyalty in the Portuguese wine market, based on Aaker's (1991) well-known conceptual framework. 'Green wine' – a literal translation of *vinho verde* – is a traditional product of Portugal, and consumers of this wine were the target market of this study. Green wines are made from grape varieties grown in the demarcated region of green wine, a protected designation of origin. Vinho verde is a young wine that requires the wine to be released to consumers three to six months after harvest and to be consumed mainly in summer.

This paper is organised as follows. In the next section, a selective review of the literature on branding provides the necessary theoretical support for this research. The third section describes the study's methodology, data sources and data analysis techniques. The empirical results are then presented and analysed. Finally, the findings are discussed in terms of their implications.

Literature Review

The Wine Market Context

The global wine market is characterised by an ever-increasing plethora of brands (Bruwer and Buller, 2012), which makes it harder for consumers to recognise brands and complicates differentiation and sales processes. Researchers have found what appears to be a diminishing consumer awareness of wine brands, and brand repertoires are usually larger than many other consumer good categories (Lockshin *et al*., 2000). As a result, building a brand is extremely important in a wine market in which consumers can be overwhelmed by too many choices. By having strong brands, companies can acquire and sustain a competitive advantage (Santos and Ribeiro, 2012). Successful brands also have the potential to generate consumer loyalty since they provide an expected level of quality and, thereby, generate trust. In international markets, branding in the wine industry is quickly growing in importance (Vrontis and Papasolomou, 2007).

Quality is an implicit requirement of wine, so wine brands can be viewed as a sign of quality and these brands can be a strong strategic asset. This was confirmed by Viot and Passebois-Ducros's (2010) study, which revealed that consumers associate wine brands with high quality, prestige, good reputation and attentiveness to details.

As every wine purchase decision involves some degree of risk (Mitchell and Greatorex, 1989), consumers seek out regions and brands whose track records have fully satisfied them in the past (Bruwer and Wood, 2005). Wine is one of only a few products that are legally presented and marked in terms of their place of origin: a country or a region within a country. Wine industries around the world have, therefore, demarcated areas associated with regional specificities (e.g. terroir, soil, climate, expertise, grape variety, history, geography and culture) that are used as indicators of wines' overall quality and that have an impact on consumer choices.

According to Orth *et al*. (2005), consumer preferences for wines from different regions vary with respect to the benefits sought (e.g. price, functional quality and social, emotional and environmental value), which can be regarded as wine region equity dimensions. The cited authors suggest that a collective promotion of place-based umbrella brands could be effective. Several other studies have examined the effect of region of origin within the wine market, that is, how consumers use geographical information in their wine purchase decisions (e.g. Bruwer and Buller, 2012). Overall, this research has highlighted the challenges of regional branding development and the importance of cooperation between wineries in promoting the salience of wine regions. Since the wine industry is fragmented – even within the same viticulture regions – hundreds of wine brands compete against each other, so wineries within these regions face difficult decisions when promoting their wines (Vrontis and Papasolomou, 2007).

In a market in which consumers must make choices between many brands, wines that have greater brand equity are more likely to be chosen (Koll and Wallpach, 2009). In addition, brand equity can be increased through a judicious leveraging of wines' designation of origin (Lockshin and Spawton, 2001).

Consumer-Based Brand Equity (CBBE)

Brand equity has been defined and measured by different researchers in different ways. Although no definition is universally accepted for brand equity, there is some consensus that brand equity denotes the added value contributed by a brand to products. This value can serve as a bridge that links what has happened to a brand in the past and what should happen to that brand in the future (Keller, 2003). Moreover, past research has suggested that brand equity represents an important asset to companies, which needs to be managed properly (Christodoulides and de Chernatony, 2010).

Despite the large body of research on brand equity, the resulting literature is quite fragmented. However, the concept of brand equity has generally been examined from two major perspectives in this literature. The first approach focuses on the financial value (i.e. profit and sales margins) created by brand equity for businesses as an outcome of consumer responses to brands (Simon and Sullivan, 1993) – often referred to as 'firm-based brand equity'. The second perspective is based on the market's perceptions or 'customer-based brand equity' (CBBE) (e.g. Aaker, 1991; Keller, 1993). The present research focused on a more consumer perception-based framework of brand equity.

The dominant stream of research on CBBE has been grounded in cognitive psychology (Aaker, 1991; Keller, 1993). Keller (1993: 2), which views brand equity as 'the differential effect of brand knowledge on consumer response to the marketing of the brand'. Therefore, a brand has a positive value if consumers react more favourably to the marketing mix at various stages of making a purchase decision about a known product versus the way consumers respond to the marketing mix of an identical but unbranded product. According to Keller (1993), brand knowledge is a key antecedent of CBBE, which comprises two separate constructs: brand awareness and brand image (i.e. associations).

One of the most generally accepted and comprehensive definitions of brand equity is 'a set of brand assets and liabilities linked to a brand, its name and symbol, that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers' (Aaker, 1991: 15). Based on this conceptualisation, Aaker (1991) proposes that brand equity creates value for firms, as well as for customers, and that value for customers enhances value for firms. According to Aaker (1991, 1996), brand equity is a multidimensional concept, determined by four conceptual dimensions that represent consumer perceptions and reactions to brands: brand awareness, brand association or image, perceived quality and brand loyalty. The cited author also considers other proprietary brand assets such as patents, trademarks and channel relationships. However, due to CBBE's particular nature, the latter aspects are not pertinent to this perspective (Buil *et al*., 2008) and, therefore, to the present study.

Much work has been carried out to identify dimensions in order to capture and measure brand equity. Most conceptual studies on brand equity took place in the 90s, and subsequent research has been mostly empirical. In addition, according to Christodoulides *et al*. (2015), many academic researchers tend to rely mainly on Aaker's (1991) conceptual framework of brand equity (e.g. Atilgan *et al*., 2005; Buil *et al*., 2008; Kim and Kim, 2004; Tong and Hawley, 2009; Torres *et al*., 2015; Yoo *et al*., 2000). The present study also adopted Aaker's (1991) popular brand equity model.

Conceptual Model for Measuring CBBE

The present research conceptualises brand equity based on consumer perceptions, in accordance with Aaker (1991) and Keller (1993). These authors report that CBBE occurs when consumers have a high level of awareness of, and familiarity with, a brand name, which encourages them to consider that brand at the point of purchase. High brand equity implies that customers are aware of a brand; they have many strong, positive associations related to this brand; they perceive the brand as high quality; and they are loyal to the brand. Thus, by strengthening certain dimensions, brand equity can be created, maintained and expanded. These dimensions can be used to explore the findings of marketing and consumer behaviour research in relation to brand equity. Thus, a measurement of brand equity that capitalises on these dimensions was developed for the present study. The following section provides a description of the four dimensions of CBBE examined in the present study.

Dimensions of Brand Equity

Brand awareness

Brand awareness is an extremely important component of brand equity (Aaker, 1991; Keller, 1993). Brand awareness is the ability consumers have to recognise a particular brand, as well as to identify it in specific situations (Aaker, 1991). This awareness can be conceptualised as having different levels ranging from, at the lowest level, brand recognition – the basic, first step in brand communication – to, at the highest level, brand dominance – the point at which the brand referred to is the only brand recalled by consumers (Aaker, 1991; Keller, 1993).

Experience-induced antecedents have an impact on brand awareness, which is the strength of a brand's presence in the mind of consumers. Thus, measures of brand awareness seek to evaluate the accessibility of brands in consumers' memory. Brand awareness encompasses brand identity awareness of such aspects as physical characteristics, brand name, packaging and colour (Keller and Lehmann, 2006). This awareness allows a brand to become more easily a part of the set of options that customers will consider when making purchase decisions (Aaker, 1991), thus significantly increasing the likelihood that the brand will be chosen for purchase. According to Keller (2003), brand awareness plays an important role in consumer decision making by offering three advantages: a choice, an opportunity to learn and a consideration set. The higher the level of awareness, the more likely it is that a brand will be included in consumers' consideration set and that the brand will influence purchase decisions.

Awareness is the necessary condition for brand familiarity, brand preference or dislike and brand loyalty. In the context of wine, brand awareness is also a necessary condition for consumers to try a wine or visit a winery (Lockshin and Spawton, 2001). Wilcox *et al*.'s (2008) study found a strong positive relationship between brand recognition and probability of brand survival in an extremely crowded brand space. Therefore, the present research suggested that:

***H_1**: Brand awareness has a significantly positive, direct effect on brand equity.*

Brand association

Brand association is another important component of brand equity, which is believed to include whatever is linked to a brand in the memory of customers (Aaker, 1991, 1996). Brand association, in any form, can be what reflects the features of products in consumers' mind (Chen, 2001) including a set of images, ideas, facts or any elements that have created a strong relationship with brand knowledge (Yoo *et al*., 2000). Therefore, this association contains some meaning connected to brands and consists of multiple ideas, episodes and facts that establish a solid network of brand knowledge.

Since brand association can be derived from a range of sources, this aspect has different levels of strength, and it is believed to increase with the number of experiences or exposures to brand-related communication and the presence of networks of other links that support brand association. When a set of associations is organised in a meaningful way, it creates a brand image. Brand equity rises when brands hold a strong, positive, favourable and unique brand association in customers' memories. Aaker (1991) suggests that brand association can add value to consumers' experiences by providing a reason to buy a brand and creating positive attitudes or feelings among consumers, which may result in a greater willingness to purchase the product (Yoo *et al*., 2000). Therefore, the present study assumed that:

H*$_2$*: Brand association has a significantly positive, direct effect on brand equity.

Perceived quality

Perceived quality is a core CBBE component (Aaker, 1991; Netemeyer *et al*., 2004). It is defined as consumers' 'judgment about a product's overall excellence or superiority' (Zeithaml, 1988: 3) and is related to their subjective response to the different characteristics or attributes of brands or products. Customers' perception of overall product quality may be influenced by personal product experiences, unique needs and consumption situations.

Marketers of all product categories have recognised the importance of perceived quality when making marketing decisions regarding their brands. It influences consumers' purchasing decisions as it provides an adequate basis on which consumers can choose a given brand among a set of competing brands. High perceived quality means that consumers recognise the differentiation and superiority of a brand in relation to other competing brands, allowing brands to charge premium prices (Aaker, 1991). The more that brand quality is perceived by consumers, the stronger the brand equity will be. Netemeyer *et al*. (2004) write that perceived quality has been associated with brand purchase intent, brand choice and a willingness to pay a premium price.

In the context of wine, perceived quality is not the winemakers' view of quality. It is, instead, quality as seen by the target market (Lockshin and Spawton, 2001). Perceived quality can come from both intrinsic cues, such as colour and taste, and extrinsic cues, such as the winery, the label and awards that the wine has won (Lockshin and Spawton, 2001; Nowak *et al*., 2006). Previous research (Nowak and Washburn, 2002) has identified service quality, in particular, as a critical success factor in brand equity. Orth *et al*. (2005) also concluded that quality is a significant predictor of consumer preferences for wine in the international market.

In terms of wineries, Athina and Evangelos (2014) and Nella and Chistou (2014) argue that the perceived service quality of winery visits has the strongest impact on winery brands. Wilcox *et al*.'s (2008) study, in turn, revealed that a positive relationship exists between wine's perceived quality and the probability of wine brand survival. Therefore, the following hypothesis was proposed in the present study:

***H*$_3$**: *Perceived quality has a significantly positive, direct effect on brand equity.*

Brand loyalty

Numerous studies have shown that consumer loyalty to a brand is one of the main factors with a positive influence on brand equity (Yoo *et al*., 2000). Aaker (1991: 39) defines brand loyalty as 'the attachment that a customer has to a brand'. In research, brand loyalty can be defined according to behavioural, attitudinal and choice perspectives (Javalgi and Moberg, 1997). Definitions from a behavioural perspective emphasise consumers' actual loyalty to a brand as reflected in the degree to which buyers concentrate their purchases over time repeatedly on that particular brand (Schoell and Guiltinan, 1990). The attitudinal perspective accentuates consumers' intentions to be loyal to a brand and, thus, incorporates consumers' preferences and dispositions towards that brand, that is, the intention to make brand a primary choice in purchases (Oliver, 1997; Yoo and Donthu, 2001). Finally, the choice perspective focuses on the reasons for purchases or the factors that may influence choices. Loyal consumers show more favourable responses to a brand than non-loyal or switching consumers do, purchasing that brand routinely and resisting switching to another brand, even while remaining price conscious.

The above definitions of brand loyalty point to a direct relationship between brand loyalty and brand equity (Aaker, 1991). In the context of the wine market, Gómez and Molina (2012) concluded that brand loyalty is the most prominent dimension of wine region brand equity. Therefore, to the extent that consumers are loyal to brands, brand equity will increase. Hence, brand loyalty also was conceptualised in the present study from an attitudinal perspective and based on consumer perceptions. The following hypothesis, thus, was considered in this research:

***H*$_4$**: *Brand loyalty has a significantly positive, direct effect on brand equity.*

To summarise, this study considered a direct effects model that treats brand association, perceived quality, brand loyalty and brand awareness as antecedent constructs that affect brand equity (Aaker, 1996). Based on the relationships suggested in the literature and the four hypotheses formulated for the Portuguese green wine market, the final model shown in Figure 1 was constructed.

Please insert Figure 1 here.

Research Methodology

Research Context

Wine was already widely cultivated in Portugal at the time of the Roman Empire. Its production has gone through many phases over time, but, most notably, Portugal was the first country in the world to have a demarcated wine region (i.e. in 1756). The quality and genuineness of the vinho verde or green wine-growing region was officially recognised in 1908 through the designation of the relevant geographical area of production.

Today, the Green Wine Region covers the northwest of Portugal. The main grape varieties are Alvarinho, Arinto, Loureiro, Trajadura, Espadeiro, Vinhão, Padeiro, Azal and Avesso. In 2016, the Viticulture Commission of the Vinho Verde Region (CVRVV) invested in the promotion of the Vinho Verde designation of origin, the Minho geographical indication and the wine tourism product: the Vinho Verde Route. Although Portugal accounts for about 50% of vinho verde sales, exportation has more than doubled in the last 20 years in terms of quantity and more than tripled in its financial value. In the international markets, green wine is recognised for the increasing quality of wines from this designation of origin, as well as its diversity of styles and native grape varieties (CVRVV, 2016).

Procedures and Measures

The five above-mentioned constructs were measured using questions adapted from published scales. All items were measured on five-point Likert-type scales (1 = ‘Strongly disagree’ and 5 = ‘Strongly agree’). Brand equity was considered the endogenous factor, comprising four items adapted from Yoo and Donthu (2001) and Yoo *et al*. (2000). The other four variables were treated as exogenous factors. Brand awareness (3 items), brand association (3 items) and brand loyalty (4 items) also were measured by items proposed by Yoo and Donthu (2001) and Yoo *et al*. (2000). To measure perceived quality, Netemeyer *et al*.'s (2004) approach was followed (4 items).

To ensure the accuracy of the translation of the questionnaire items, a parallel translation approach with two bilingual interpreters was used (Malhotra and Birks, 2007). The first Portuguese draft of the questionnaire was pre-tested to assess and purify the measures in personal interviews (N = 12) conducted in a wine exhibition held in the green wine region. Next, the main survey to gather data to test the hypotheses was conducted. The purpose of the study was described to respondents, and the importance of their cooperation to ensure valid and meaningful findings was stressed. The final questionnaire comprised items regarding wine brand awareness and wine consumer behaviour and items measuring the dimensions of brand equity and collecting demographic data. To minimise potential respondent bias, the preliminary instructions stated: 'There are no right or wrong answers; only your personal opinions matter.'

Product Stimuli

Top-of-mind Portuguese green wine brands were selected as stimuli in the above survey. To identify the most appropriate product stimuli, an online survey was conducted. A total of 107 brands were spontaneously recalled by 209 participants. The first brand identified by each consumer was also counted to obtain frequencies, in order to provide data regarding top-of-mind brands. Muralhas de Monção (29.5%), Casal Garcia (13.5%), Deu-la-Deu (11%), Gazela (8.5%), Quinta Aveleda (6.5%) and Ponte de Lima (5%) were the brands that registered the highest unaided recall rates. Therefore, six versions of the main survey were developed, of which 34 questionnaires were distributed per wine brand. The six top-of-mind brands match those identified by Brochado *et al*. (2015).

Sample Design

The target population for this study comprised Portuguese consumers of green wine who were residents in or nearby the demarcated region of green wine, since green wine is mostly consumed in the north of Portugal. A convenience sampling procedure was used, and data were collected through personal interviews by two fieldworkers in two retail stores. Having considered the likelihood that green wine consumption is strongly linked to summer, the data were collected in July. This sampling method was chosen as an easier way to target respondents who purchase and consume green wine.

Potential respondents were screened for at least occasional green wine consumption during the previous six months before participating the survey. After accounting for missing values, a total of 200 questionnaires were considered in this study. The respondents comprised 125 males and 75 females. With respect to age groups, 28% of the respondents were between 20 and 29 years old, 43% between 30 and 39, 16% between 40 and 49 and 10% between 50 and 60. The majority of respondents (54%) were married.

Data Analysis

From the total sample collected, 200 responses were valid and used for the final analysis. To test the theoretical framework of CBBE, confirmatory factor analysis was done using structural equation modelling (SEM). The analysis took place in two stages. In the first stage, the measurement model was prepared by correlating all the constructs including exogenous and endogenous factors and then analysed to check the reliability and validity of the constructs (See Figure 2).

Please insert Figure 2 here

In the second stage, the hypotheses about the relationships between the constructs were tested. The proposed model fit the criteria proposed by Hair *et al*. (2010), which was used for both the measurement and structural models. To be accepted, the models needed to have the following indicators, taking into account the sample size (i.e. N = 200): ($\chi 2$)/df ≤ 3; goodness of fit (GFI) ≥ 0.90; adjusted GFI (AGFI) ≥ 0.80; comparative fit index (CFI) ≥ 0.90; root mean square residual (RMR) ≤ 0.10 and root mean square error of approximation (RMSEA) ≤ 0.10.

Research Results

Evaluation of Measurement Model

The first step of the analysis was an evaluation of the measurement model. This study assumed that items were influenced by latent variables, and, thus, the measurement model was considered to be a reflective model. Confirmatory factor analysis and the maximum likelihood estimation method were used to assess convergent and divergent validity.

Cronbach's alpha coefficients were used to examine the internal consistency of the items. As a result, one brand loyalty statement was excluded from the final scale due to a low item-total correlation. Items with adequate Cronbach's alpha coefficients were retained in the scales. The Cronbach's alpha coefficients for the five factors range from 0.85 to 0.92, exceeding the traditionally acceptable threshold value of 0.70.

The factor loadings are significant, ranging from 0.71 to 0.88 and satisfying convergent validity criteria. The dimensionality of the constructs was assessed by measuring composite reliability, which produced scores ranging from 0.70 to 0.90 that exceeded the minimum criterion of 0.70. The convergent validity of the constructs was assessed by computing the average variance extracted (AVE). The AVE varies from 0.53 to 0.70, thus satisfying the threshold criterion of 0.50. Moreover, the discriminant validity of the scales was evaluated for all possible paired combinations of the constructs. All χ^2 differences are significant, demonstrating the good discriminant validity of all scales. The correlation matrix between the items also confirms discriminant validity. Paired correlations inter-constructs are < 0.40 and paired correlations intra constructs are all > 0.6. Moreover, the maximum shared squared variance and the average shared squared variance are both lower than the AVE. Based on these results, the four dimensions of brand equity were retained for further analysis. Table 1 shows the factor loadings, and Table 2 displays reliability and validity tests.

Please insert Table 1 here.

Please insert Table 2 here.

The confirmatory factor analysis of the measurement model of the five constructs revealed a good fit to the data, meeting the cut-off criteria. The goodness-of-fit statistics indicate that all criteria meet the recommended values for the measurement model, as follows: $\chi 2/df = 2.84$; GFI = 0.94; AGFI = 0.91; CFI = 0.93; RMR = 0.067 and RMSEA = 0.071.

Structural Model

The next step was to examine the strength of relationships among the constructs of the model presented in Figure 1. SEM was used to assess the statistical significance of the proposed relationships in which brand equity was the endogenous variable and perceived quality, brand awareness, brand association and brand loyalty were the exogenous variables. This research model exhibits a good fit to the data as shown by the following scores: $\chi 2/df = 2.87$; GFI = 0.92; AGFI =

0.90; CFI = 0.92; RMR = 0.066 and RMSEA = 0.068. These scores meet the goodness of fit criteria defined by Hair *et al*. (2010).

In addition to the model's general fit to the data, its parameters were tested in terms of the proposed relationships between the exogenous and endogenous constructs (Hair *et al*., 2010). While the four exogenous constructs (i.e. perceived quality, brand awareness, brand association and brand loyalty) were proposed as the antecedents of brand equity, the results for the estimated model support only three of the four hypotheses (see Table 3).

Please insert Table 3 here.

The brand awareness to brand equity link was not statistically significant. Thus, the conclusion was reached that brand awareness does not have a direct, significant influence on brand equity. However, when the correlations among dimensions were specified in the structural model, the intercorrelations between brand awareness and brand loyalty ($r = 0.59$), brand association ($r = 0.46$) and perceived quality ($r = 0.40$) proved to be significant and positive. Thus, brand awareness might affect brand equity by first influencing other dimensions of brand equity. Previous studies have also suggested the existence of a potential causal order among brand equity dimensions (Yoo *et al*., 2000).

The signs of the coefficients for the significant brand equity determinants are in the proposed directions. Moreover, the study's results support the conclusion that brand loyalty is the most influential dimension of brand equity (i.e. the estimate of the standardised path coefficient is $b = 0.58$ and $p < 0.001$). The other estimates of the standardised path coefficients indicate that the links between perceived quality and brand equity ($b = 0.\ 26$; $p < 0.01$) and between brand associations and brand equity ($b = 0.\ 183$; $p < 0.05$) are also significant. Therefore, the results provide strong support for H_2, H_3 and H_4.

Conclusions

Hundreds of wine labels and operators are present in the wine market, and some wines are produced by relatively small family businesses. Therefore, building brand equity is of utmost importance in the context of this highly competitive and fragmented marketplace. Even though brand equity creates competitive barriers based on consumer behaviours, it also offers sustainable competitive advantages.

The present study contributes to a better understanding of CBBE measurement in the wine market by examining the dimensionality of CBBE. The goal of this research was to examine and retest the applicability of Aaker's brand equity model – the most popular approach to measuring CBBE – within the context of vinho verde or green wine brands and Portuguese consumers.

The results of this study offer theoretical and managerial implications. This paper offers additional insights into wine brand equity through an analysis of Aaker's brand equity dimensions in a specific product category – the Portuguese green wine market. Not much research has been published on Portugal's wine market, and previous studies have mainly targeted wine regions instead of wine brands.

Although the above-discussed results do not provide support for all of Aaker's brand dimensions, the results reveal that brand associations, brand loyalty and perceived quality act can be used to understand brand equity formation. This paper contributes to the literature by assessing the importance of each brand equity dimension. Brand loyalty has the strongest effect on brand equity in the wine market studied, suggesting that developing brand loyalty is essential when building brand equity in the Portuguese green wine market. This result is consistent with previous studies' findings conducted in different research contexts, such as Kim and Kim (2004), Torres *et al*. (2015) and Yoo *et al*. (2000).

In addition, the results reveal that brand association has a positive relationship with brand equity. This means that strong associations that support a distinct brand position could create favourable feelings and behaviours towards brands and lead to strong Portuguese green wine brands (Kim and Kim, 2004; Yoo *et al*., 2000). However, the empirical data and statistical tests in the present study do not provide enough support for the existence of a direct causal relationship between brand awareness and brand equity in the green wine market. This result is also in line with some previous studies (e.g. Swait *et al*., 1993; Yoo *et al*., 2000).

To summarise, the brand equity of green wines is a competitive asset that has developed over time. It is a combination of factors such as brand loyalty, perceived quality and brand associations with these wines.

Managerial Implications

The statistical significance of the proposed model enhances its applicability for green wine brand managers, who can develop marketing plans and assess their performance by taking into consideration the measurement scale and causal relationships discussed in this paper. Brand loyalty, perceived quality and brand associations are positively related to wine brand equity in the green wine market. Therefore, brand managers need to capitalise on their current strengths in these dimensions. In practice, wineries rarely have unlimited resources, so this research indicates that, for top-of-mind wine brands, brand loyalty, perceived quality and brand associations are critical factors that will sustain these wineries.

Although the present findings are based on data obtained from the Portuguese green wine market, the methods used could also be useful to managers of Portuguese wines from other demarcated areas. Since a major investment has been made in promoting Portuguese wines and particularly green wines – both nationally and abroad – the present results could be useful to national and regional institutions that need to prioritise and allocate resources across important dimensions when implementing branding strategies. According to these results, green wine wineries' brand managers need to concentrate primarily on brand loyalty, which is the most important dimension in the construction of brand equity.

In the currently highly competitive wine market, wineries should work to retain consumer loyalty and increase repeat purchases. Given the large number of wine brands, wineries could develop marketing actions targeting wine consumers in a retail context during the summer months. In the Portuguese green wine industry, loyalty programmes including knowledge-building initiatives such as food pairing suggestions (Nowak *et al*., 2006) could produce stronger emotional bonds. Competitions and awards can also have an impact on perceived brand quality (Wilcox *et al*., 2008). In addition, high distribution intensity (i.e. retail stores and restaurants) may offer high brand equity through an increase in brand loyalty (Yoo *et al*., 2000).

Brand managers also need to pay special attention to perceived quality. This is an important result for green wines, since these are generally sold in a smaller range of brands than are wines from different wine regions – whether white or red. Wine brand managers could also enhance perceived brand equity by working on the indications of quality that have been identified in previous studies as those that affect perceived quality. These include, among others, appeals to the senses, prices, awards, ratings, growing regions, wineries' reputation, and recommendations from other wine drinkers (Nowak *et al*., 2006). As wine consumers frequently use price as a proxy for quality, wine brands need to avoid a consistent low-price strategy and use price deals with caution in order not to erode their brand equity in the long run (Yoo *et al*., 2000). Finally, brand associations are derived from multiple experiences, exposures to brand information and brand communications, so they take a long time to develop.

Limitations

As six top-of-mind brands were considered in the present study, the data could be skewed towards high equity brands. The results for the brand awareness dimension might be explained by this issue as well. Moreover, the use of a convenience sampling, a small sample size and only a few items for some dimensions are also limitations of this study. A caveat, thus, should be added regarding the projectability of the study.

The respondents were Portuguese consumers from the wine region in question, which means that the brand dimensions important to these consumers could have been different if the respondents were from other Portuguese wine regions or of a different nationality. When considering the possibility of Portuguese green wine exportation, further research needs to be done to test whether the brand dimensions identified are corroborated or are different from the present results.

Recommendations for Future Research

As brand awareness was not a significant dimension in the present research, future studies could develop conceptual models to test the evolution of brand equity throughout consumers' learning process, demonstrating how brand awareness could contribute to other brand equity dimensions (Huang and Cai, 2015). In addition, although the present study measured facets of brand equity for Portuguese green wine brands, the methodology used can be extended to other regional markets located in different countries. As the respondents lived in the wine region where Portuguese green wine is produced and sold, future studies could develop an approach that enhances the ability to test local consumers' brand awareness levels based on where specific products are made.

Another issue that merits future research would be to discover whether the determinants of brand equity vary according to consumers' wine knowledge and involvement. Research that could also be of interest is an investigation of the importance of region and/or country of origin image in consumer behaviour and the impact of designation of origin on brand equity. Finally, the relationship between wine tourism and wine brand equity also merits future research.

References

Aaker, D.A. (1991), *Managing Brand Equity: Capitalizing on the Value of a Brand Name*, The Free Press, New York.

Aaker, D.A. (1996), "Measuring brand equity across products and markets", *California Management Review*, Vol. 38 No. 3, pp. 102–122.

Agarwal, M.K. and Rao, V.R. (1996), "An empirical comparison of consumer-based measures of brand equity", *Marketing Letters*, Vol. 7 No. 3, pp. 237–247.

Athina, N. and Evangelos, C. (2014), "Linking service quality at the cellar door with brand equity building", *Journal of Hospitality Marketing & Management*, Vol. 23 No. 7, pp. 699–721.

Atilgan, E., Aksoy, S. and Akinci, S. (2005), "Determinants of brand equity: a verification approach in the beverage industry in Turkey", *Marketing Intelligence & Planning*, Vol. 23 No. 3, pp. 237–248.

Atkin, T. and Johnson, R. (2010), "Appellation as an indicator of quality", *International Journal of Wine Business Research*, Vol. 22 No. 1, pp. 42–61.

Boudreaux, C.A. and Palmer, S.E. (2007), "A charming little cabernet: effects of wine label design on purchase intent and brand personality", *International Journal of Wine Business Research*, Vol. 19 No. 3, pp. 170–186.

Brochado, A., Silva, R. and LaPlaca, P. (2015), "Assessing brand personality associations of top of mind wine brands", *International Journal of Wine Business Research*, Vol. 27 No. 2, pp. 125–142.

Bruwer, J. and Buller, C. (2012), "Country-of-origin (COO) brand preferences and associated knowledge levels of Japanese wine consumers", *Journal of Product and Brand Management*, Vol. 21 No. 5, pp. 307–316.

Bruwer, J. and Wood, G. (2005), "The Australian online wine-buying consumer: motivational and behavioural perspectives", *Journal of Wine Business Research*, Vol. 16 No. 3, pp. 193–211.

Buil, I., Chernatony, L. and Martínez, E. (2008), "A cross-national validation of the consumer-based brand equity scale", *Journal of Product and Brand Management*, Vol. 17 No. 6, pp. 384–392.

Chen, A.C.H. (2001), "Using free association to examine the relationship between the characteristics of brand associations and brand equity", *Journal of Product and Brand Management*, Vol. 10 No. 7, pp. 439–451.

Christodoulides, G., Cadogan, J.W. and Veloutsou, C. (2015), "Consumer-based brand equity measurement: lessons learned from an international study", *International Marketing Review*, Vol. 32 No. 3/4, pp. 307–328.

Christodoulides, G. and de Chernatony, L. (2010), "Consumer-based brand equity conceptualization and measurement: a literature review", *International Journal of Research in Marketing*, Vol. 52 No. 1, pp. 43–66.

CVRVV (2016), "Vinho verde grape varieties", available at, http://www.vinhoverde.pt/en/grape-varieties (accessed 14 December 2016).

Davcik, N.S., da Silva, R.V., and Hair, J.F. (2015), “Towards a unified theory of brand equity: conceptualizations, taxonomy and avenues for future research”, *Journal of Product and Brand Management,* Vol. 24 No. 1, pp. 33–39.

Erdem, T., Swait, J. and Louviere, J. (2002), “The impact of brand credibility on consumer price sensitivity”, *International Journal of Research in Marketing,* Vol. 19 No. 1, pp. 1–19.

Gómez, M., Lopez, C. and Molina, A. (2015), “A model of tourism destination brand equity: the case of wine tourism destinations in Spain”, Tourism Management, Vol. 51, pp. 210–222.

Gómez, M., & Molina, A. (2012). “Wine tourism in Spain: denomination of origin effects on brand equity”, *International Journal of Tourism Research*, Vol.14 No. 4, pp. 353-368.

Ha, H-Y., Janda, S. and Muthaly, S. (2010), “Development of brand equity: evaluation of four alternative models”, *The Service Industries Journal*, Vol. 30 No. 6, pp. 911–928.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, Prentice Hall, Upper Saddle River, NJ.

Huang, Z. and Cai, L.A. (2015), “Modeling consumer-based brand equity for multinational hotel brands – when hosts become guests”, *Tourism Management*, Vol. 46, pp. 431–443.

Keller, K.L. (1993), “Conceptualizing, measuring, and managing customer-based brand equity”, *Journal of Marketing*, Vol. 57, pp. 1–22.

Keller, K.L. (2003), *Strategic Brand Management: Building, Measuring, and Managing Brand Equity*,” Prentice Hall, Upper Saddle River, NJ.

Keller, K.L. and Lehmann, D. (2006), “Brands and branding: research findings and future priorities”, *Marketing Science,* Vol. 25, pp. 740–759.

Kerin, R.A. and Sethuraman, R. (1998), “Exploring the brand value-shareholder value nexus for consumer goods companies”, *Journal of the Academy of Marketing Science*, Vol. 26 No. 4, pp. 260–273.

Kim, W.G. and Kim, H.B. (2004), “Measuring customer based restaurant brand equity: investigating the relationship between brand equity and firms’ performance”, *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 45 No. 2, pp. 115–131.

Koll, O. and Wallpach, S. (2009), “One brand perception or many? The heterogeneity of intra-brand knowledge”, *Journal of Product and Brand Management*, Vol. 18 No. 5, pp. 338–345.

Lane, V. and Jacobson, R. (1995), “Stock market reactions to brand extension announcements: the effects of brand attitude and familiarity”, *Journal of Marketing*, Vol. 59, pp. 63–77.

Lin, C.H. and Kao, D.T. (2004), “The impacts of country-of origin on brand equity”, *Journal of American Academy of Business*, Vol. 5 No. 1/2, pp. 37–40.

Lockshin, L., Rasmussen, M., and Cleary, F. (2000), “The nature and roles of a wine brand”, Australia and New Zealand Wine Industry Journal Special Issue on Wine Marketing, Vol. 15 No. 4, pp. 17–24.

Lockshin, L., and Spawton, T., (2001), “Using involvement and brand equity to develop a wine tourism strategy”, International Journal of Wine Marketing, Vol. 13 No. 1, pp. 72–81.

Mahajan, V., Rao V.R. and Srivastava R.K. (1994), “An approach to assess the importance of brand equity in acquisition decisions”, *Journal of Product Innovation Management*, Vol. 11, pp. 221–235.

Malhotra, N. and Birks., D.F. (2007), *Marketing Research: An Applied Orientation*, Prentice Hall, Upper Saddle River, NJ.

Mitchell, V. and Greatorex, M. (1989), “Risk reduction strategies used in the purchase of wine in the UK”, *European Journal of Marketing*, Vol. 23 No. 9, pp. 31–46.

Nella, A. and Christou, E. (2014), “Linking service quality at the cellar door with brand equity building”, *Journal of Hospitality Marketing & Management*, Vol. 23, p. 7.

Netemeyer, R.G., Krishnam, B.P., Chris, W., Guangping, Y., Mehmet, D.D., Ricks, J. and Wirth, F. (2004), “Developing and validating measures of facets of customer-based brand equity”, *Journal of Business Research*, Vol. 57, pp. 210–224.

Nowak, L., Thach, L. and Olsen, J.E. (2006),”Wowing the millennials: creating brand equity in the wine industry”, *Journal of Product & Brand Management*, Vol. 15 No. 5, pp. 316–323.

Nowak, L., and Washburn, J.H. (2002), “Building brand equity: consumer reactions to proactive environmental policies by the winery”, *International Journal of Wine Marketing*, Vol. 14 No. 3, pp. 5–19.

Oliver, R.L. (1997), *Satisfaction: A Behavioral Perspective on the Consumer*, The McGraw-Hill Companies, Inc., New York.

Orth, U.R., Wolf, M.M. and Dodd, T.H. (2005), “Dimensions of wine region equity and their impact on consumer preferences”, *Journal of Product & Brand Management*, Vol. 14 No. 2, pp. 88–97.

Punj, G.N. and Hillyer, C.L. (2004), “A cognitive model of customer-based brand equity for frequently purchased products: conceptual framework and empirical results”, *Journal of Consumer Psychology*, Vol. 14 No. 1/2, pp. 124–131.

Santos, J.F. and Ribeiro, J.C. (2012), "The Portuguese online wine buying consumer: characteristics, motivations and behaviour", *EuroMed Journal of Business*, Vol. 7 No. 3, pp. 294–311.

Schoell, W.F. and Guiltinan, J.P. (1990), *Marketing Contemporary Concepts and Practices*, Allyn and Bacon, Boston, MA.

Shuv-Ami, A. (2016), "A new market brand equity model (MBE)", *EuroMed Journal of Business*, Vol. 11 No. 3, pp. 322–346.

Simon, C.J. and Sullivan, M.V. (1993), "The measurement of determinants of brand equity: a financial approach", *Marketing Science*, Vol. 12 No. 1, pp. 28–52.

Swait, J., Erdem, T., Louviere, J. and Dubelaar, C. (1993), "The equalization price: a measure of consumer-perceived brand equity", *International Journal of Research in Marketing*, Vol. 10, pp. 23–45.

Tong, X. and Hawley, J.M. (2009), "Measuring customer-based brand equity: empirical evidence from the sportswear market in China", *Journal of Product and Brand Management*, Vol. 18 No. 4, pp. 262–271.

Torres, P.M., Gomes, M. and Lisboa, A.J.V. (2015), "Determining the causal relationships that affect consumer-based brand equity", *Marketing Intelligence & Planning*, Vol. 33 No. 6, pp. 944–956.

Viot, C. and Passebois-Ducros, J. (2010), "Wine brands or branded wines? The specificity of the French market in terms of the brand", *International Journal of Wine Business Research*, Vol. 22 No. 4, pp. 406–422.

Vrontis, D. and Papasolomou, I. (2007), “Brand and product building: the case of Cyprus wine industry”, *Journal of Product and Brand Management*, Vol. 16 No. 3, 159–167.

Wilcox, J.B., Laverie, D.A., Kolyesnikova, N., Duhan, D.F. and Dodd, T.H. (2008), “Facets of brand equity and brand survival: a longitudinal examination”, *International Journal of Wine Business Research*, Vol. 20 No. 3, pp. 202–214.

Yoo, B. and Donthu, N. (2001), “Developing and validating a multidimensional consumer-based brand equity scale”, *Journal of Business Research*, Vol. 52 No. 1, pp. 1–14.

Yoo, B., Naveen, D. and Sungho, L. (2000), “An examinations of selected marketing mix elements and brand equity”, *Journal of Academy of Marketing Science*, Vol. 28 No. 2, pp. 197–213.

Zeithaml, V.A. (1988), “Consumer perceptions of price, quality, and value: a means-end model and synthesis of evidence”, *Journal of Marketing*, Vol. 52, pp. 2–22.

Table 1: Confirmatory factor analysis of constructs

Latent variables and observed indicators	Average	Std. dev.	Standardised factor loadings	*T*-value
Perceived Quality (α = 0.92; CR = 0.8; AVE = 0.57)[1]				
Compared to other brands, X is very high quality.	3.98	0.70	0.69	–
X is the best brand in its product class.	3.77	0.76	0.63	12.09
X consistently performs better than all other brands.	4.01	0.70	0.63	14.96
I can always count on X brand for consistently high quality.	4.14	0.63	0.70	11.91
Brand Loyalty (α = 0.85; CR = 0.79; AVE = 0.65)				
I consider myself to be loyal to X.	3.52	0.95	0.71	–
X would be my first choice.	3.73	0.84	0.73	12.08
I will not buy other brands if X is available at the store.*	2.80	1.10		
Brand Awareness (α = 0.89; CR = 0.90; AVE = 0.75)				
I am aware of X.	4.01	0.78	0.78	–
I can recognise X among other competing brands.	3.97	0.79	0.78	20.18
I am familiar with the X brand.	3.75	0.98	0.81	27.50
Brand Association (α = 0.88; CR = 0.89; AVE = 0.72)				
Some characteristics of X come to my mind quickly.	3.79	0.77	0.78	–
I can quickly recall the symbol or logo of X.	3.90	0.78	0.71	15.92
I have no difficulty picturing X in my mind.	3.86	0.78	0.82	15.07
Brand Equity (α = 0.85; CR = 0.76; AVE = 0.81)				
It makes sense to buy X instead of any other brand, even if they are the same.	3.35	0.93	0.75	–
Even if another brand has the same features as X, I would prefer to buy X.	3.29	0.91	0.87	12.28
If there is another brand as good as X, I prefer to buy X.	3.28	0.97	0.88	7.64
If another brand is not different from X in any way, it seems smarter to purchase X.	3.50	0.86	0.84	13.83

[1] Notes: α = Cronbach's alpha; CR = composite reliability; AVE = average variance extracted; X = specific brand; – = path parameter set to one, with no *t*-value given; * = eliminated; all loadings significant at the 0.001 level

Table 2: Reliability and Validity Tests

	Cronbach's Alpha	CR	AVE	MSV	ASV	PQ	BL	BAw	BA	BE
PQ	0.92	0.84	0.57	0.37	0.25	0.75				
BL	0.85	0.70	0.53	0.44	0.29	0.45	0.72			
BAw	0.89	0.83	0.62	0.35	0.25	0.40	0.59	0.79		
BA	0.88	0.81	0.59	0.31	0.24	0.51	0.41	0.46	0.77	
BE	0.85	0.90	0.70	0.44	0.34	0.65	0.72	0.49	0.56	0.84
Acceptable level	> 0.7	> 0.7 and > AVE	> 0.5	< AVE	< AVE	AVE square root of each variable listed on the diagonal > correlation coefficients with other variables				
	Reliability	Convergent Validity				Discriminant Validity				

Notes: PQ = perceived quality; BL = brand loyalty; BAw = brand awareness; BA = brand association; BE = brand equity; CR = composite reliability; AVE = average variance extracted; MSV = maximum shared squared variance; ASV = average squared variance explained

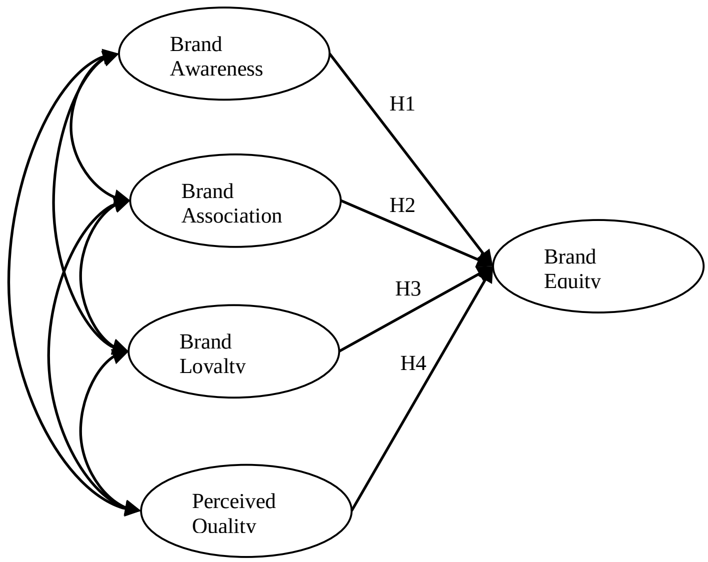

Figure 1: Conceptual model