



ELSEVIER

Contents lists available at ScienceDirect

## Journal of Business Research

journal homepage: [www.elsevier.com/locate/jbusres](http://www.elsevier.com/locate/jbusres)

## Talent or popularity: What drives market value and brand image for human brands?

Julian Hofmann<sup>a,\*</sup>, Oliver Schnittka<sup>b</sup>, Marius Johnen<sup>c</sup>, Pascal Kottemann<sup>d</sup><sup>a</sup> EM Normandie Business School, Métis Lab, 30 Rue de Richelieu, F-76087 Le Havre Cedex, France<sup>b</sup> University of Southern Denmark, Department of Sociology, Environmental and Business Economics, Niels Bohrs Vej 9, DK-6700 Esbjerg, Denmark<sup>c</sup> University of Hamburg, Institute of Marketing, Moorweidenstraße 18, D-20148 Hamburg, Germany<sup>d</sup> Bielefeld University, Department of Business Administration and Economics, Universitätsstraße 25, D-33615 Bielefeld, Germany

## ARTICLE INFO

## Keywords:

Brand image  
Human brands  
Market value  
Superstars

## ABSTRACT

Superstar and human brand theories predict that the strategic management of athletes as human brands can improve their brand image and increase their market value. This article offers the first empirical analysis of whether and how the favorable brand image of a soccer player affects his or her market value by focusing on which performance- or popularity-based attributes affect the favorability of the player's brand image and according market value. Combined primary and secondary data confirm that a positive brand image enhances the market value of human brands; several performance-based (e.g., competences, quality) and popularity-based (e.g., media effectiveness, temper) factors determine this positive brand image. In addition, popularity-based attributes mediate the impact of performance-based attributes on the market value of human brands.

## 1. Introduction

How can superstars establish a successful image? Prior research has frequently shown that superstars represent branded individuals or human brands and provide important cues about consumption experiences, similar to physical brands (Thomson, 2006). However, a long-lasting debate on the comparison of drivers of a human brand's success has not yet provided final answers. Two major approaches can explain the development of a favorable brand image of superstars: According to Rosen (1981), talent and performance ensure a distinctive brand image, but Adler (1985, 2006) cites popularity as the crucial criterion. Generally, consumers prefer human brands that rank at the top of their field, prompting disproportional demand for highly ranked human brands (Krueger, 2005), such that even marginal differences in performance or popularity may be essential for brand success.

For example, professional soccer clubs seek to maximize the market values of their players so that they can earn higher profits from trading or transferring them to other clubs. Empirical evidence about whether performance or popularity is more important for driving this market value in turn has great managerial interest, considering that the 20 clubs in England's Premier League spent £1.4 billion on transfers of professional players during just the summer months of 2017 (The Guardian, 2017). Average transfer fees for single superstar players (i.e.,

human brands that rank highest in their field) have reached € 3 million; Neymar's record fee was € 222 million. Transfer fees thus generally reflect soccer players' market values (except for players whose contracts will expire at the end of the season). In addition, soccer players seek to maximize their own market values to strengthen their salary negotiations. Indirectly, the players' agents also profit from brokering more valuable players.

Thus, many actors in the industry are interested in how to enhance players' brand images and market value, yet extant research has not yet established whether performance-based (e.g., play quality, success) or popularity-based (e.g., player's media appeal, attractiveness, temper) attributes have more influence over human brand images. Existing literature, using secondary field data (e.g., Franck & Nüesch, 2012; Garcia-del-Barrio & Pujol, 2007; Lehmann & Schulze, 2008), shows that performance- and popularity-based attributes both affect market value, but such studies tend to exclude a) a holistic branding perspective in which brand image drives market value, b) the potential mediating effect of popularity-based attributes on the effect of performance-based attributes on brand image, and c) a primary data approach which could provide further insights into perceptions of human brands, notably from the perspective of club managers.

Against this background, this paper for the first time empirically analyzes the antecedents of a soccer player's brand image and its

\* Corresponding author.

E-mail addresses: [jhofmann@em-normandie.fr](mailto:jhofmann@em-normandie.fr) (J. Hofmann), [oliver@sam.sdu.dk](mailto:oliver@sam.sdu.dk) (O. Schnittka), [marius.johnen@uni-hamburg.de](mailto:marius.johnen@uni-hamburg.de) (M. Johnen), [pkottemann@wiwi.uni-bielefeld.de](mailto:pkottemann@wiwi.uni-bielefeld.de) (P. Kottemann).<https://doi.org/10.1016/j.jbusres.2019.03.045>

Received 1 April 2018; Received in revised form 22 March 2019; Accepted 23 March 2019

0148-2963/ © 2019 Published by Elsevier Inc.

influence on market value, which leads to three main contributions. First, this research links theories about the development of human brands (Adler, 1985, 2006; Rosen, 1981) with Keller's (1993) conceptualization of brand image, providing novel insights into which performance- and popularity-based attributes determine players' human brand images. Second, this study includes a mediating effect of popularity-based attributes on the effect of performance-based attributes on brand image. Third, we combine a novel primary and secondary data approach to test our hypotheses. Considering a holistic branding perspective, we rely on a primary data approach as we aim to show how performance and popularity make up perception-based brand image of human brands. Furthermore, we validate our initial findings by analyzing a secondary dataset of market value data for 316 soccer players. Table 1 summarizes the contributions of this study, relative to existing research.

To establish these contributions, the next section outlines the theoretical framework and corresponding research hypotheses. Sections 3 and 4 detail the research designs for Studies 1 and 2 and establish the structural equation model. Section 5 offers some relevant managerial and research implications, potential applications to other sectors, and study limitations and ideas for further research.

## 2. Theoretical framework

Keller's (1993) well-established framework of brand knowledge and brand image pertains to *product* brands. Rosen (1981) and Adler (1985, 2006) provide insights on the concept of *human* brands. This study, for the first time, combines these theories into an overall framework (as depicted graphically in Fig. A.1 in the Appendix).

From Keller's theory on brand knowledge, we focus on defining brand image according to product- and non-product-related attributes. Thus far, previous research remains only on the level of defining *product* brands' image through product- and non-product-related attributes.

Theories on superstar or *human* brand formation are integrated by Nüesch (2008) tracing back to Rosen (1981) and Adler (1985, 2006). Rosen (1981) argues in favor of talent and performance driving superstar or *human* brand formation whereas Adler (1985, 2006) refers to accumulated consumption capital (Stigler & Becker, 1977) and, thus, popularity as the main driver.

Based on the aforementioned theories we are matching *product* and *human* brand image, which has, thus far in the literature, not been linked and discussed in an integrated manner. More precisely, we link performance and popularity to product- and non-product related attributes. Next, we derive the different integrated concepts in more particular and, moreover, explain how they are linked to each other.

### 2.1. Brand image as a key element of brand knowledge

According to the brand knowledge framework (Keller, 1993), brand knowledge arises from brand awareness and brand image, such that it relates directly to brand equity, or the aggregated knowledge consumers have about a brand. Brand awareness is a necessary condition to establish knowledge structures and reflects consumers' ability to recall or recognize the brand (Keller, 1993). In economic terms, brand image indicates the utility that consumers gain from consuming the brand, reflecting their evaluations of the brand associations that they make and consolidate implicitly. Keller (1993) also differentiates several types of brand associations, though he argues that most associations are integrated into an "attributes" construct. Attributes vary in their favorability, strength, and uniqueness, but in general, they pertain to how consumers perceive product characteristics, whether related to the product itself or not. Product-related attributes entail technical or physical parts of the product (Keller, 1993), which directly determine its performance. For human brands, they reflect primarily a performance-based component of brand image. Non-product-related attributes also can influence brand images, though they relate only

**Table 1**  
Overview of existing research.

	García-del-Barrío and Pujol (2007)	Franck and Nüesch (2008)	Lehmann and Schulze (2008)	Franck and Nüesch (2012)	Our study
Data sample of the secondary data approach	Data for 369 players in the Spanish Primera Division	Data for 427 players in the German Bundesliga	Data for 264 players in the German Bundesliga	Data for 427 and 605 players in the German Bundesliga	Data for 316 players in the German Bundesliga
Primary data reflecting perceptions of human brands from club managers' perspective	No additional primary data approach	No additional primary data approach	No additional primary data approach	No additional primary data approach	Yes – additional primary data approach
Players market value as dependent variable analyzing secondary data	Yes – Dependent variable: players market value	Yes – Dependent variable: players market value	No – Dependent variable: players salary	Yes – Dependent variable: players market value	Yes – Dependent variable: players market value analyzing secondary data
Brand image as a focal driver of market value and as dependent variable analyzing primary data	No	No	No	No	Yes – Dependent variable: players brand image analyzing primary data
Potential mediating effect of popularity-based attributes on the effect of performance-based attributes	No mediating effect	No mediating effect	No mediating effect	No mediating effect	Yes – Mediating effect considered
Updated multi-item measure of popularity (with social media network sites)	No variables related to social media network sites	No variables related to social media network sites	No variables related to social media network sites	No variables related to social media network sites	Yes – Three variables related to social media network sites

indirectly to measurable performance components; in the current study context, these attributes can be summarized as popularity-based features.

## 2.2. Importance of brand image for human brands

Human brands resemble hedonic products or experience goods, in the sense that their consumption tends to induce emotions such as joy, fun, and pleasure (Vorderer, Klimmt, & Ritterfeld, 2004), though they can only assess those benefits after having consumed the offering. Therefore, consumers face substantial uncertainty about the utility they might gain, before they enter into the consumption experience. This situation prioritizes one of the main functions of brands in general, namely, to reduce consumers' uncertainty. Prior research confirms that human brands similarly have identification and differentiation functions (Thomson, 2006). By referring to their perceptions of the human brand image, (potential) consumers thus can reduce their consumption uncertainty prior to their consumption of the human brand.

## 2.3. Market value as an outcome of brand image for human brands

In the soccer industry, human brand images should correlate with players' market value. The market value of a tradable good is reflected in the market price; for intangible assets, this price typically is represented by acquisition costs. However, such an accounting-based perspective ignores the value of trademark rights for brand names. The current study accordingly investigates soccer clubs, which engage in volatile buying and selling activities, frequently trading and seeking soccer players. Most clubs hold the rights to the players for a few seasons and then sell or trade them to other clubs. This high volatility indicates that the brand image of human brands should have a significant impact on their market value.

The monetary, measurable, market value of human brands in turn should depend on both brand value and brand image, suggesting that both the original and acquired brand images of soccer players are important. Considering these aspects through a traditional product brand lens, consumers should be willing to pay a significant price premium for strong brands—that is, brands that rank higher in provided utility, with favorable brand images (Aaker, 1997). Due to the disproportional utility of highly ranked players, the higher market values of soccer players likely reflect a price premium in this sense. The use of strategic branding to strengthen a human brand image thus could be a promising strategy to increase a soccer player's market value, in addition to the success of the club.

## 2.4. Developing brand images for human brands

Developing a brand image is unique for human brands, because they show certain distinctive features. Specifically, human brands are not equally likely to achieve a positive brand image. Due to the considerable concentration on top positions, human brands benefit from their position relative to competitors, rather than from their absolute degree of awareness. Such markets, driven by hierarchies, commonly are referred to as “winner-take-all” markets (Frank & Cook, 1995; Hoeghele, Schmidt, & Torgler, 2014). The utility of consuming entertainment products featuring human brands thus tends to establish a convex, nonlinear distribution across various human brands.

According to Rosen (1981), the performance-based attributes of a human brand (e.g., talent, expertise) lead to the development of a superior human brand image, due to the imperfect substitutability of talent. That is, for consumers, an athlete's or artist's strong performance cannot be substituted for by a greater quantity of mediocre performances. In these settings, consumers rarely are satisfied with the second-best option and concentrate their demand on the brand that offers the best performance (Rosen, 1981). For instance, this is why a boxing match between the eighth and ninth ranked fighters does not

provide the same utility as a match between the first and second ranked boxers (Frank & Cook, 1995). The nonlinear relationship in the ranking of human brands thus appears to reflect performance considerations (Rosen, 1981). Despite the relevance of this approach to human brands in general, empirical verifications mainly focus in the sports sector, because it offers clear performance measures. Most of these studies indicate a positive performance impact (e.g., Brown, Spiro, & Keenan, 1991; Hamilton, 1997; Jones & Walsh, 1988; Kahn & Sherer, 1988; Lucifora & Simmons, 2003; Yang & Shi, 2011). With a meta-analysis of the development of human brands in sports, Hofmann (2013) finds a correlation equivalent to  $r = 0.24$  between human brands' performance parameters and their salary, which suggests their market value should correlate closely with their human brand image. Therefore, we predict:

**H1a.** Performance-based attributes of a human brand positively affect brand image.

Adler (1985, 2006) instead refers to Stigler and Becker's (1977) theory of consumption capital to predict that, beyond disparities in measurable performance, rankings depend on popularity levels, determined by accumulated consumption capital. In this setting, consumption capital refers to the capital stock of previous consumption, which determines the utility of current consumption. Consumers accumulate knowledge about a human brand from their temporally prior consumption. Each additional consumption experience involves reference to previous knowledge and increases existing knowledge, and, eventually, a human brand's popularity. Furthermore, interactions with like-minded others and media coverage on human brands can raise consumption capital. Economically, the accumulation of consumption capital results from cognitive and social forms of positive network externalities, such that the marginal utility of each further consumption experience of a human brand not only depends on his or her talent, but instead on the size of the network (Franck & Nüesch, 2012).

This reasoning provides an alternative explanation of the nonlinear correlation between the ranking of human brands and their positive brand images. However, research evidence to support this assumption is rarer than that which affirms Rosen's (1981) performance-based approach (e.g., Franck & Nüesch, 2008; Garcia-del-Barrio & Pujol, 2007; Lehmann & Schulze, 2008). Still, Hofmann (2013) cites an even higher correlation between salaries earned by human brands and popularity-based parameters ( $r = 0.39$ ), though this aggregation only includes three studies,<sup>1</sup> reflecting the emphasis in prior research on the performance-based parameters, so the generalizability of this finding remains questionable.

Furthermore, existing operationalizations of popularity may be limited (Franck & Nüesch, 2008, 2012; Garcia-del-Barrio & Pujol, 2007; Lehmann & Schulze, 2008), in that they rely on press releases or hits on Google. Other indicators of popularity should be considered; for example, social media network sites can offer an updated measurement of popularity. Using such popularity indicators, the current study further predicts:

**H1b.** Popularity-based attributes of a human brand positively affect brand image.

## 2.5. Linking performance and popularity

Adler (1985, 2006) suggests that human brand images, and thus skewed remuneration, do not necessarily reflect more talent or better performance. The formal basis for the presence of skewed remuneration traces back to Yule (1925) and Simon (1955). Roughly, the Yule-Simon discrete probability distribution estimates the probability that consumers choose consecutive experiences with the same star (Spierdijk &

<sup>1</sup> Franck and Nüesch (2012) published their work after this meta-analytic integration was calculated.

Voorneveld, 2009). The resulting stochastic model represents consumer choice behavior (Chung & Cox, 1994) and allows superstardom to occur even if talent were equal, because it is a random process (Giles, 2006). Therefore, with certain assumptions, Adler's (1985, 2006) model is similar to a Yule-Simon distribution (Strobl & Tucker, 2000). However, it remains an open question whether it is really “pure luck” that creates a popular human brand or if other reasons exist for superstars to emerge from the mass of options.

We assume that the higher the previous performance of a human brand, the higher the probability that the human brand will be recognized, which should enhance the popularity-based brand image. That is, higher levels of the performance-based attributes of a human brand increase consumers' awareness of that human brand (Yang & Shi, 2011), which could create increased consumption capital and popularity-based attributes. The higher awareness of a human brand (e.g., larger fan base) lowers the search costs for interacting with this consumption network, too, such that it is easy to find similarly minded peers, many of whom are attracted by the same human brand. Because search costs relate negatively to the level of accumulated consumption capital, low search costs can maximize consumers' consumption capital and, eventually, the human brand's popularity. If the distinction of performance-based attributes strengthens popularity-based attributes through higher awareness and lower search costs for consumers, then:

**H2a.** Popularity-based attributes of a human brand mediate the impact of performance-based attributes of a human brand on brand images.

**H2b.** Popularity-based attributes of a human brand mediate the impact of performance-based attributes of a human brand on market values.

### 3. Study 1

#### 3.1. Research design and data collection

To test the research hypotheses, we conducted an empirical study among different human brands in professional soccer. Four selection criteria guided the determination of which players to include in the empirical study. First, we included players representing each position (except goalkeepers). Second, the players had to come from different countries. Third, they all played in one of the three top-rated soccer leagues (i.e., Liga BBVA, German Bundesliga, and Barclays Premier League, according to the UEFA's (2016) club coefficients ranking) and had also played at some point in the German Bundesliga, to ensure a sufficient degree of familiarity among the respondents. Fourth, we sought to include both younger and older players, to address potential differences in their market value. With these criteria, we conducted a pretest and asked 77 respondents (94.8% male, average age: 25.75 years) to answer questions about a list of 25 players (e.g., awareness, uniqueness). These results led to the exclusion of several players, such as those who evoked lower levels of brand awareness. Finally, we selected seven players for the main study: Mats Hummels ( Borussia Dortmund<sup>2</sup>), Philipp Lahm (FC Bayern Munich), Toni Kroos (Real Madrid CF), Arturo Vidal (FC Bayern Munich), Kevin De Bruyne (Manchester City FC), Arjen Robben (FC Bayern Munich), and Robert Lewandowski (FC Bayern Munich).

The main study used a scenario-based research design that asked respondents to imagine they were the assistant to Klaus Allofs, the former managing director of VfL Wolfsburg GmbH, who had to make managerial decisions about the club (i.e., VfL Wolfsburg). This approach is appropriate because the focal brand image construct is perception based and requires primary data. We identified Klaus Allofs as a good candidate for the scenario from the same pretest, using perceived

sympathy ( $M = 4.86$ ;  $SD = 1.42$ ) and perceived working quality ( $M = 5.84$ ;  $SD = 1.12$ ) criteria (measured on seven-point agreement scales). Moreover, VfL Wolfsburg has great financial power due to its sponsorship by Volkswagen, so the scenario appears realistic.<sup>3</sup>

A web-based survey conducted in 2015 collected data from a convenience sample of German soccer fans. To check their level of interest and self-assessment as soccer experts, we used two one-item, seven-point Likert scales: “I am interested in soccer” and “I would describe myself as an expert with respect to the German Bundesliga.” The survey also included several questions to assess respondents' knowledge about professional soccer (e.g., “Which team won the Champions League final in 2015?”) and determine their personal favorite teams. Respondents who did not indicate at least a minimum degree of interest and expertise ( $M_{interest} \geq 5$  and  $M_{expert} \geq 5$ ) or who failed to answer the control questions were excluded from further analyses, to guarantee that all respondents could evaluate the players validly.

We obtained 220 responses (average age: 25.8 years), from respondents who indicated a high level of interest ( $M = 6.89$ ;  $SD = 0.33$ ) and a high self-assessment of expertise with the German Bundesliga ( $M = 6.10$ ;  $SD = 0.74$ ). Male respondents were greatly overrepresented (94.5%). Nevertheless, we believe these data are suitable for the study purposes, because the vast majority of soccer fans and managers/experts are men (Lenneis & Pfister, 2015).

#### 3.2. Variable operationalization

We measured both performance- and popularity-based attributes as multidimensional constructs, in accordance with their substantial breadth (Wetzels, Odekerken-Schröder, & Van Oppen, 2009), and applied a formative–reflective hierarchical latent variable model (Becker, Klein, & Wetzels, 2012), such that we split both higher-order constructs into several lower-order subconstructs. For example, performance-based attributes consist of subconstructs that refer to both physical (e.g., condition) and non-physical (e.g., success) attributes. The use of formative model constructs also reflects the complexity of the constructs and exploratory nature of the study. Multidimensional constructs require researchers to differentiate between (at least) two levels of analysis: the relationship between the manifest indicators and the (lower-order) dimensions and the link between the individual dimensions and the (higher-order) components (e.g., Jarvis, MacKenzie, & Podsakoff, 2003). As recommended by Ringle, Sarstedt, and Straub (2012), we combined a repeated indicators approach with the use of latent variable scores in a two-stage hierarchical component analysis.

##### 3.2.1. Performance-based attributes

Performance-based attributes are features that can be assigned to a human brand based on her or his activities, which then signal a star and prompt the development of a human brand (Rosen, 1981). That is, a human brand image depends on the perceived (athletic) quality of the player (Thomson, 2006). The measure of quality relies on a multi-item construct with three indicators related to playing ability (e.g., ball dexterity), ball-winning ability, and goal-scoring ability. For tactics, we used two items related to understanding of gameplay and tactical flexibility. In line with Aaker (1997) and Geuens, Weijters, and De Wulf (2009), the competency measure consisted of four indicators pertaining to responsibility, reliability, ability to play as a team (i.e., integrative), and fairness (i.e., honest and sincere). Soccer players' condition was measured with indicators of endurance and speed. The success measure reflects the performance-based attributes of a human brand (Franck & Nüesch, 2008). Gladen and Funk (2002) and Bauer, Sauer, and Schmitt (2005) show that athletic success is an important determinant of a human brand's equity. Therefore, we measured success with indicators

<sup>2</sup> These team links reflect the teams for which each player played at the time of the data collection.

<sup>3</sup> The data collection took place before the Volkswagen scandal was uncovered.



**Table 2**  
Bootstrapping results for outer weights (first-order constructs).

	Original estimate	Bootstrapping means	Standard error	t-Value
Playing ability → quality	0.868	0.847	0.106	8.154**
Ball-winning ability → quality	0.556	0.543	0.152	3.651**
Goal-scoring ability → quality	-0.281	-0.249	0.166	1.692
Understanding of gameplay → tactics	0.991	0.983	0.035	28.205**
Tactical flexibility → tactics	0.039	0.042	0.123	0.314
Responsibility → competency	0.258	0.254	0.098	2.620**
Reliability → competency	0.287	0.284	0.092	3.108**
Integrative → competency	0.110	0.125	0.109	1.017
Fairness → competency	0.564	0.548	0.119	4.730**
Endurance → condition	1.036	1.011	0.048	21.431**
Speed → condition	-0.297	-0.258	0.231	1.284
Awards → athletic success	0.839	0.797	0.211	3.974**
National achievements → athletic success	0.605	0.579	0.261	2.319*
International achievements → athletic success	-0.577	-0.555	0.266	2.173*
Classical media → media effectiveness	0.004	0.016	0.132	0.034
Social media → media effectiveness	0.283	0.267	0.119	2.369*
Potential for a scandal → media effectiveness	0.811	0.781	0.100	8.130**
Celebrity endorser → media effectiveness	0.033	0.030	0.121	0.278
Merchandising → media effectiveness	0.418	0.412	0.135	3.105**
Self-staging → eccentric appearance	-0.696	-0.681	0.105	6.613**
Outward appearance → eccentric appearance	-0.081	-0.068	0.149	0.542
Way of playing → eccentric appearance	0.731	0.733	0.091	8.062**
Charisma → attractiveness	-0.047	-0.033	0.108	0.438
Sympathy → attractiveness	0.936	0.922	0.068	13.791**
Attractive body → attractiveness	0.173	0.175	0.101	1.702*
Attractive face → attractiveness	0.087	0.076	0.091	0.955
Aspiring → temper	0.228	0.222	0.107	2.132*
Emotional → temper	-0.461	-0.447	0.126	3.657**
Coolness → temper	0.844	0.840	0.076	11.057**

\*\*  $p < .01$ .

\*  $p < .05$ .

of achievements in a player's previous career, including specific awards (Franck & Nüesch, 2008; Sommers, 1990) and national and international championships by the player's team.

### 3.2.2. Popularity-based attributes

Adler (1985, 2006) claims popularity-based attributes determine the brand image of a star and cites Stigler and Becker (1977) in defining the attributes that express a star's ability to build consumption capital. Media effectiveness is an important element in this regard, measured with a five-item scale that includes media presence in classical (e.g., TV) and social (e.g., Facebook) media, players' celebrity endorsements (e.g., Manuel Neuer for Coca-Cola; McCracken, 1989; Stone, Mathew, & Jones, 2003), and players' potential for causing scandals (Carrillat, D'Astous, & Christianis, 2014). Merchandise associated with a player (e.g., jersey sales) also can enhance the player's media effectiveness. The measure of eccentric appearance indicates whether the human brand is visually distinct from other human brands who are equivalently talented (Netemeyer et al., 2004). The three-item scale includes an eccentric self-staging, extraordinary outward appearances, and an exaggerated way of playing (Fenn, 2015; Gilbert & Gorris, 2008). Such elements create opportunities for differentiation and thus would enable a player to stand out from the homogenous mass of (equally talented) soccer players (Adler, 1985, 2006), as it is necessary condition for a popularity-related buildup of consumption capital. Finally, we measured human brands' attractiveness and temper, in line with brand personality research (Aaker, 1997; Geuens et al., 2009). Attractiveness consists of items reflecting charisma, sympathy (friendly and charming), and body and face attractiveness; temper was captured with items indicating aspiring, coolness, and emotionality. Table 2 contains an overview of all the performance- and popularity-based attributes and items.

### 3.2.3. Brand image and market value

We conceptualize brand image as a higher-order construct,

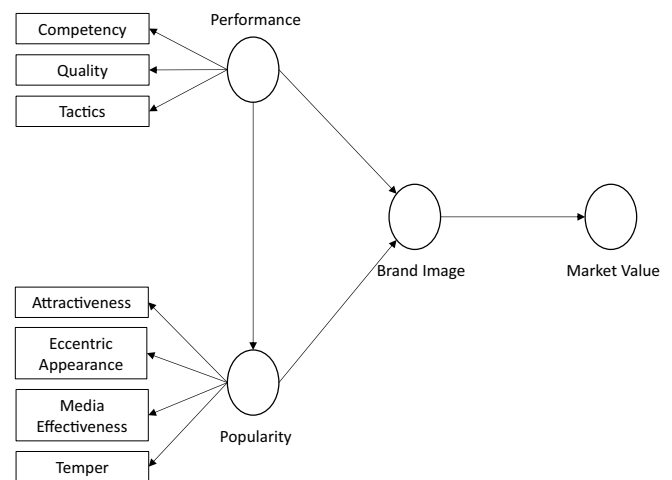


Fig. 1. Conceptual model, Study 1.

determined by the dimensions that constitute players' performance- and popularity-based attributes. Following Keller (1993), we operationalize brand image with three indicators (strength, favorability, and uniqueness) in a reflective measurement model. It provides the first dependent variable.

The second dependent variable, market value, used an open-ended approach (e.g., Miller, Hofstetter, Krohmer, & Zhang, 2011; Völckner, 2006), such that respondents had to imagine they had a limited budget and indicated their willingness to pay for a particular human brand. Specifically, respondents had to allocate a budget of € 430 million, so their responses indicate the perceived individual market value for each soccer player, as well as the relations among players. To check the external validity of these measured market values, we compared them

to market values listed on the website [www.transfermarkt.com](http://www.transfermarkt.com) at the time of our survey for each soccer player. Overall, we found a high level of correlation between the “official” market value published on the website and the corresponding market value for the player that the respondent assigned ( $r = 0.655$ ,  $p < .01$ ). The stated market values thus are fairly realistic. Fig. 1 depicts the resulting conceptual model.

### 3.3. Model estimation

Following Hair, Ringle, and Sarstedt (2011), Ringle et al. (2012), and Sarstedt, Hair, Ringle, Thiele, and Gudergan (2016), we adopt partial least squares structural equation modeling (PLS-SEM) (Hair, Sarstedt, Pieper, & Ringle, 2012; Hair, Sarstedt, Ringle, & Mena, 2012), which is based on a series of ordinary least squares regressions and is not sensitive to small sample sizes or non-normal data (Hair et al., 2011). As Reinartz, Haenlein, and Henseler (2009) show, PLS-SEM achieves equal or higher levels of statistical power than its covariance-based complement, especially for smaller sample sizes (Hair, Hult, Ringle, Sarstedt, & Thiele, 2017). Therefore, we used SmartPLS 3 (Ringle, Wende, & Becker, 2015) to compute the path model and path weighting for the parameter estimation (Henseler, Ringle, & Sinkovics, 2009). To evaluate our results, we followed the guidelines for PLS-SEM provided by Chin (2010) and Hair et al. (2011) and evaluated the measurement models before evaluating the structural model. All the items came from standardized questionnaires, so common method variance is a potential concern, and we used Harman's (1976) single-factor test to address it (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Podsakoff & Organ, 1986). The first factor, extracted using principal axis factoring without rotation, only accounts for 21.88% of the overall variance, so common method variance is unlikely to affect our results (Podsakoff & Organ, 1986).

#### 3.3.1. First-order constructs

We used each indicator's variance inflation factor (VIF) to test for multicollinearity. The VIF values for the formative first-order constructs are all less than the critical value of 5, so multicollinearity is not a concern. We also examined each indicator's outer weights to determine their relative importance, using a bootstrapping procedure to assess their level of significance across 500 bootstrap samples. Table 2 summarizes the results for the original estimates and bootstrapping means for the formative constructs.

The items mostly exhibit positive, significant impacts on their corresponding constructs. However, the self-staging item from the eccentric appearance construct ( $-0.696$ ), the goal-scoring ability ( $-0.281$ ; construct: quality), the number of international achievements a player earned thus far ( $-0.577$ ; construct: athletic success), and the player's emotionality ( $-0.461$ ; construct: temper) have (slightly) significant negative weights. For the second part of our analysis, we used the latent variable scores to assess the influence of the first-order constructs on the higher-order dimensions, namely, performance-based attributes and popularity-based attributes. All constructs are below the critical value of 5 and thus do not create multicollinearity issues. To assess the level of significance for the first-order constructs, we used a bootstrapping procedure with 500 bootstrap samples (Table 3).

Most of the first-order constructs positively influence the higher-order constructs. Competency (outer weight of 0.856,  $p < .01$ ), quality (outer weight of 0.695,  $p < .01$ ), and tactics (outer weight of 0.826,  $p < .01$ ) have significant impacts on performance-based attributes; all constructs used to assess popularity-based attributes are significant at the 1% level.

#### 3.3.2. Second-order constructs

We checked our reflective measurement models for reliability (indicator and internal consistency reliability) and validity (convergent validity). We confirm the indicator reliability of competency, quality, and tactics as elements of performance-based attributes, and we affirm

the reliability for all the constructs used to assess popularity-based attributes and brand image. In support of the measures' convergent validity, the average variances extracted (AVE) are all higher than the critical threshold value of 0.50 (Bagozzi & Yi, 1988). Furthermore, each squared construct correlation is smaller than the AVE, in support of discriminant validity (Furrer, Tjemkes, & Henseler, 2012). The explained variance of popularity ( $R^2 = 0.42$ ) and the endogenous brand image construct ( $R^2 = 0.55$ ) reaches a medium or moderate level in the structural model; the values for the endogenous construct market value ( $R^2 = 0.15$ ) are weak (Chin, 1998; Hair, Hult, Ringle, & Sarstedt, 2017).

### 3.4. Results

To investigate the research hypotheses, we first evaluated the influence of brand image on market value. The direct effect of brand image on market value indicates a significant ( $p < .01$ ) path coefficient of 0.389. In support of H1a and H1b, performance-based attributes and popularity-based attributes both significantly influence brand image. With regard to H2a and the predicted mediating relationship between performance-based attributes and brand image through popularity-based attributes (Klarner, Sarstedt, Hoeck, & Ringle, 2013), we used a bootstrapping technique to derive the significance levels for the indirect and total effects (Hair, Hult, Ringle, & Sarstedt, 2017). The analysis revealed a significant indirect effect between performance-based attributes and brand image through popularity-based attributes (path coefficient = 0.317,  $p < .01$ ), together with a significant total effect between performance-based attributes and brand image (path coefficient = 0.650,  $p < .01$ ). To investigate how much the mediator variable absorbs, we calculated the variance accounted for (VAF) value (i.e., ratio of indirect to total effect); the VAF value of 48.787% indicates that the relationship between performance-based attributes and brand image is partially mediated by popularity-based attributes, in partial support for H2a.

### 3.5. Discussion

Study 1 provided support for our hypotheses 1a, 1b, and 2a, showing that both performance-based and popularity-based attributes drive human brand image, and that the latter mediates the impact of the former. We used primary data and a survey design including a scenario technique with respondents who have an adequate expertise of the soccer industry. Our results suggest that competence, quality, and tactics are reliable indicators of a player's performance-based attributes, while attractiveness, eccentric appearance, media effectiveness, and temper are reliable indicators of popularity-based attributes. Some of the indicators are especially suited for survey-based approaches (e.g., competency, attractiveness) as they rely directly on perceptions of human brands, i.e., subjective assessments. In the following study, we test whether our results are robust when using some more ‘hard’ indicators, i.e., less perception-based criteria, for both types of attributes, but also for our dependent variable market value. Therefore, in line with previous research (e.g., Franck & Nüesch, 2012), we use a secondary data approach, which also aims to strengthen the external validity of our previous findings.

## 4. Study 2

### 4.1. Research design and description of database

To validate the initial insights, we analyze an extensive set of secondary data pertaining to the market value of professional soccer players, as well as many performance- and popularity-based attributes. These data include all players of the German Bundesliga for the 2014–2015 season, as long as they played at least 30 min of one match. The data set thus consists of data for 316 soccer players with a mean age of 25.89 years (SD = 3.714).

**Table 3**  
Bootstrapping results for the outer weights (second-order constructs) and PLS-SEM, Study 1.

	Original sample	Bootstrapping mean	Standard error	t-Value
Performance → competency	0.856	0.858	0.028	30.919**
Performance → quality	0.695	0.689	0.081	8.569**
Performance → tactics	0.826	0.823	0.040	20.718**
Popularity → attractiveness	0.841	0.841	0.029	29.437**
Popularity → media effectiveness	0.718	0.712	0.063	11.461**
Popularity → temper	0.786	0.786	0.045	17.473**
Popularity → eccentric appearance	0.743	0.741	0.055	13.479**
Performance → brand image	0.369	0.375	0.106	3.488**
Popularity → brand image	0.448	0.445	0.104	4.299**
Performance → popularity	0.645	0.652	0.053	12.233**
Brand image → market value	0.389	0.393	0.085	4.586**

\*\*  $p < .01$ ; \*  $p < .05$ .

#### 4.2. Variable operationalization

The market value of soccer players reflects their monetary value, as of a specific date just following the focal season, gathered from the well-known [www.transfermarkt.de](http://www.transfermarkt.de) website. In line with prior literature (e.g., Franck & Nüesch, 2012), we collect performance- and popularity-based attributes from [www.transfermarkt.de](http://www.transfermarkt.de) (unless otherwise noted), though the measurement level for these secondary data items differs from that we used for the primary data. The underlying constructs remain the same, but the measurement approach necessary is adapted.

##### 4.2.1. Performance-based measures

The number of scored goals offers an obvious and common performance measure (e.g., Jones, Nadeau, & Walsh, 1999; Jones & Walsh, 1988; Lucifora & Simmons, 2003). The data on [www.transfermarkt.de](http://www.transfermarkt.de) include all scored goals in various national and international leagues and championship series. For this investigation, we include scored goals in the German Bundesliga and German Cup; in foreign first leagues and foreign national cups; and in the Europe League and Champions League, including qualification rounds, up to and including the 2014–2015 season. Because this measure is biased toward strikers or offensive midfield players, relative to defenders, we also used other parameters.

Assists indicate another good performance indicator, because they contribute to the team's success (e.g., Franck & Nüesch, 2008; Hamilton, 1997). The number of shots on goal (Hill & Spellman, 1983; Krautmann & Cieccka, 2009; Sommers, 1990) is a good indicator of offensive performance. The data for this measure were supplemented by the online database [www.kicker.de](http://www.kicker.de), which obtains material from the international leading sport data company Opta. The rate of won tackles (Lehmann & Schulze, 2008) signals the player's defensive actions, so it represents a more important performance measure for defenders. This variable came from the online database [www.kicker.de](http://www.kicker.de). In addition, we use the passing rate to reflect the number of successful passes to the teammates, for which we relied on [www.kicker.de](http://www.kicker.de).

Every player in the Bundesliga receives an evaluation or grade for each match by the soccer magazine Kicker (Franck & Nüesch, 2008; Garcia-del-Barrio & Pujol, 2007; Sommers, 1990). These grades range from 1.0 (excellent performance) to 6.0 (very bad performance). The average of all single match grades during a season produces the player's per season evaluation, which we use as another performance variable, with data gathered from [www.kicker.de](http://www.kicker.de). In addition, experience in played matches for the respective team in that league or championship during the player's career may offer a performance measure (e.g., Brown et al., 1991; Idson & Kahane, 2000; Kahn & Sherer, 1988). We thus include national experience in league and cup club matches in the variable pool. To enhance this experience indicator, we collected all played matches in the Europe and Champions Leagues, including qualification rounds, in which the players participated, as well as matches played for national teams or national youth teams. The data for these

measures came from [transfermarkt.de](http://transfermarkt.de). Finally, we consider the number of search hits for the player's full name on the specialized media outlet [www.kicker.de](http://www.kicker.de) (Lehmann & Schulze, 2008). However, to limit the measure to performance-related hits, our search only includes the performance section in the online magazine platform.

##### 4.2.2. Popularity-based measures

For the conceptualization and measurement of players' popularity parameters with secondary data, in line with existing literature (Franck & Nüesch, 2008, 2012), we investigate media activities (classic and social). Popularity is a multi-item construct, so no single indicator is sufficient, but we combine the various measures into a single construct. In so doing, we update available popularity measures: Most previous studies rely on single indicators (e.g., press releases about a soccer player, Franck & Nüesch, 2012), whereas we consider more recently relevant media channels such as Facebook, Twitter, and Instagram. That is, we measure the number of fans of the players' individual pages or followers, according to a search of their accounts, on Facebook, Twitter, and Instagram. Athletes increasingly use these platforms to connect and share content with fans.

Moreover, we include existing variables. To measure general publicity and popularity, we searched Google, similar to Garcia-del-Barrio and Pujol (2007) and Franck and Nüesch (2008). Using the player's full name (first + last name) plus the term Bundesliga, we extracted the number of hits for this same search. Finally, to assess players' self-marketing efforts beyond social media, we searched both official and personal player websites, which enable the players to reach large groups of fans and share personal content (Franck & Nüesch, 2008). Using both links from players' social media accounts and Google searches, we identified players' homepages in a three-step process in which we searched for each player's full name plus (1) "homepage," (2) "website," or (3) "official page." The existence of a personal homepage is a binary variable. Fig. 2 depicts the resulting conceptual model.

#### 4.3. Model estimation

We confirm the indicator reliability for most of the constructs used to assess performance- and popularity-based attributes. After eliminating five indicators due to insufficient reliability, performance comprises assists, kicker\_hits, goals, national\_team, experience\_national, and experience\_international. The popularity construct comprises three items: facebook, google\_hits, and instagram. We excluded twitter and homepage, due to their insufficient reliability. Furthermore, the AVE estimates are all higher than 0.50 (Bagozzi & Yi, 1988), and in support of confirmed discriminant validity, the squared construct correlations were smaller than the AVE (Furrer et al., 2012). An R-square value of 0.64 confirms the high level of explained variance for market value, but we can confirm popularity only moderately, with an R-square value of 0.25.

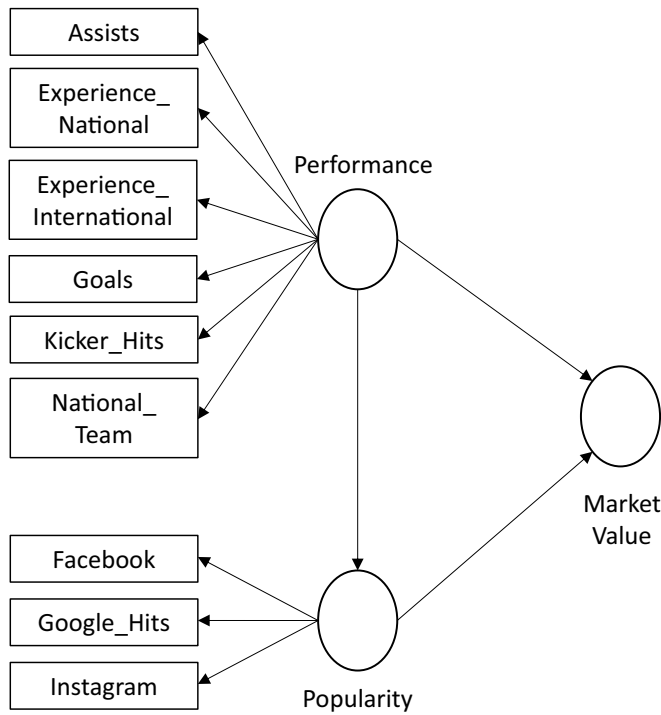


Fig. 2. Conceptual model, Study 2.

4.4. Results

Table 4 summarizes the bootstrapping results for the relationships in the structural model.

Specifically, six items (assists, kicker\_hits, goals, team\_national, experience\_national, and experience\_international) significantly capture the degree of performance. The items for facebook, google\_hits, and instagram effectively capture popularity. We cannot confirm a significant impact of performance on market value (path coefficient = 0.152, n.s.) but find a highly significant effect on popularity (path coefficient = 0.488,  $p < .01$ ) and then a significant influence of popularity on market value (path coefficient = 0.718,  $p < .01$ ).

To check for the mediating relationship between performance-based attributes and market value through popularity-based attributes, we again used the VAF, which reaches a value of 50.23%. That is, this relationship between performance-based attributes and market value is partially mediated by popularity-based attributes, in partial support for H2b.

Table 4

Bootstrapping results for the outer weights (second-order constructs) and PLS-SEM model, Study 2.

	Original sample	Bootstrapping mean	Standard error	t-Value
Performance → assist	0.829	0.200	0.052	9.962**
Performance → experience_national	0.827	0.133	0.035	18.013**
Performance → experience_international	0.878	0.241	0.043	20.850**
Performance → goals	0.744	0.163	0.062	7.240**
Performance → kicker_hits	0.789	0.316	0.061	14.493**
Performance → national_team	0.715	0.194	0.037	8.040**
Popularity → facebook	0.926	0.383	0.027	25.632**
Popularity → google_hits	0.812	0.366	0.048	12.317**
Popularity → instagram	0.936	0.357	0.030	19.375**
Performance → market value	0.152	0.510	0.110	1.504*
Popularity → market value	0.718	0.742	0.098	7.291**
Performance → popularity	0.488	0.546	0.083	5.863**

\*\*  $p < .01$ .

\*  $p < .05$ .

4.5. Discussion

Although we do not find support for H1a, we find evidence for H1b and H2b such that popularity-based attributes drives market value and mediates the impact of performance-based attributes. Thereby, Study 2 confirms the pivotal role of popularity-based attributes by using secondary data and a greater sample of analyzed players. Thus, this study provides additional external validity of our model. The insignificance of performance-based attributes might be linked to the nature of the indicators used, which are purely statistical player assessments. In contrast, expert assessments as used in Study 1 might capture a more detailed picture of a player's actual performance, thus reflecting in more explanatory power regarding his market value. Nevertheless, our data still shows the relevant impact of performance-based attributes on a player's popularity, which in turn affects his market value.

5. Conclusion

5.1. General discussion

The primary data in Study 1 show that human brands' performance- and popularity-based attributes correlate positively with their brand images, and human brand images correlate positively with their market value. The lack of technical-physical product features makes it difficult to quantify a human brand's market value, such that intangible components become more important. Correspondingly, the intangible added value achieved through popularity-driven attributes substantially determines the market value of human brands.

We also find an important mediating effect of the popularity-based attributes in Study 1, which we confirm with secondary market data in Study 2. Performance-based attributes drive the effect of popularity-based attributes on brand image. That is, the results suggest that performance-based attributes are key drivers of human brand images as well as a necessary prerequisite for developing popularity-based attributes, which provides a seminal theoretical contribution to existing literature. Previous research merely identified the isolated positive effect of a) popularity-based and b) performance-based attributes on human brands' image and equity without considering the relationship between the two attribute-clusters (i.e., if one of the two attribute-clusters is potentially driving the other). We postulate for the first time that the higher the previous performance of a human brand, the higher the probability that the human brand will be recognized, which in turn enhances the popularity-based brand image. Thus, performance-based attributes gain an increasing theoretical and practical relevance in evoking positive outcomes for human brands due to the direct and indirect effects on popularity-based attributes as well as brand outcomes. Specifically, managers of human brands might first focus on the



implementation of performance-based attributes to form the basis for the development of human brand image before focusing on establishing popularity-based attributes. Thus, our results provide first insights into not yet uncovered interdependencies between performance-based and popularity-based attributes. Such interdependencies might extend the well-established theories by Rosen (1981) and Adler (1985, 2006). Until now, these two theories have existed independently from each other. However, we provide first insights into the connection between differences in measurable performance and the accumulation of consumption capital based on previous consumption. Hence, performance-based attributes might not solely be considered as only directly affecting human brands' image and equity.

The systematic management of human brand images is important, because brand image substantially affects market value, which is a foundation for club revenues. These results provide concrete evidence, extending beyond prior research that has used solely secondary data; because the findings reflect both primary and secondary data, they provide strong internal and external validity. Thus, our study goes beyond mere replication. This advantage grants clear benefits for managers who need to steer the human brand images of their stars, because this study identifies precisely which factors lead to either performance or popularity ratings. Moreover, brand image reflects perceptions by consumers (Keller, 1993), and the proposed primary data approach captures these perceptions on a granular level. Thus, in a first step, if a club manager wants to increase a player's market value while also enhancing team success, the focus should be primarily on promoting those aspects that managers can steer most easily. Based on our results (see Table 2) competency, quality, and tactics are primarily driven by understanding of gameplay, fairness, reliability, playing ability, and ball-winning ability. Managers should be able to utilize those aspects (maybe with the exception of the more talent-rooted playing ability) to put emphasis on enhancing players' performance. In a second step, a systematic management of human brands' media behavior (i.e., attractiveness, temper, media effectiveness, and eccentric appearance) offers another effective control mechanism, especially in social media. However, in the long run, a club manager will probably not configure a whole team according to popularity.

To sum up, noting the mediating effect revealed by the empirical studies, we propose that club managers and the human brands themselves should take two key steps: Invest in increasing performance-based attributes (e.g., tactics), which can support appropriate efforts to manage media-related attributes (e.g., eccentric appearance). Thus, we point out that the two presumably competing explanations based on performance or popularity are not mutually exclusive. To further sort out the interrelationship between performance and popularity, an important next step would be to quantify more precisely the extent of necessary performance as a prerequisite to benefit from further investments in popularity.

### 5.2. Applicability to other industries

These results may generalize to other entertainment sectors and other industries in which productivity depends on human beings as input factors. For example, the success of politicians, managers, and academic researchers tends to be driven by performance and popularity (e.g., Azoulay, Graff Zivin, & Wang, 2010; Baranchuk, MacDonald, & Yang, 2011; Lazear & Rosen, 1981). Despite some genuine differences between arts and sports sectors, Seaman (2003) finds many similarities, and Allison (1986) and Hutter (1996) argue that both athletes and artists generate cultural products through their skills and prowess. The relative importance of performance and popularity is also discussed in the motion picture industry. For instance, Bagella and Becchetti (1999) confirm a positive effect of the ex-ante popularity of actors on the total admissions of movies. Controversially, other studies (e.g., De Vany & Walls, 1999) confirm an impact of actors' previous success at the box

office on new movie admissions. The consumption of cultural products, whether sports or arts, also entails an expression of shared values, ritualistic performances, and consolidation of group identities among consumers (Throsby, 2001). In the music industry (Chung & Cox, 1994; Giles, 2006), superstars also are prevalent, and Hamlen (1991, 1994) tests the influence of the harmonic content of voice as a performance measure that leads to record sales and thus status as superstars. However, other factors likely determine this status, including sex appeal, stage performances, video clips, or lyrics (reflecting the unique routes to success for Britney Spears versus Bob Dylan, for example). In sports, the performance parameters tend to be easier to identify and measure, so not all the findings apply to other types of superstars. In particular, more effective sport performance measures may have reduced the level of uncertainty for consumers prior to their consumption decision (e.g., Rosen & Sanderson, 2001).

Although a similarly quantitative operationalization of performance in other entertainment segments is difficult, this study provides evidence that focusing on popularity-driven human brands can be a promising strategy (Strobl & Tucker, 2000). The increasing economic and managerial importance of celebrities fabricated solely through their popularity (e.g., winners of Pop Idol, Big Brother, America's Next Top Model) (e.g., Cowen, 2000; Turner, 2004) suggests the managerial need to understand how to create stars out of a mass of more or less equally talented others, shedding new light on the importance of popularity (Franck & Nüesch, 2007).

### 5.3. Limitations and further research

Our first study uses data based on responses by fictive club managers who have a sufficient expertise in the soccer industry. We used this scenario technique for temporal and financial reasons. Although we consider this procedure as a valid substitute, future studies with real club managers may provide more robust findings. Furthermore, our first study was limited to seven top players to ease the survey's procedure, and, consequently, increase respondents' motivation to participate in our study. Future studies with a larger base which also entails less popular players can broaden the scope of this research field. Additionally, in the first study, the explained variance of market value is rather low. As the second study with secondary data shows a satisfying  $R^2$  for this construct, we assume that this shortcoming in the first study is due to a limited operationalization of market value in the survey. Thus, improved measurement, such as an incentive-aligned approach (Völckner, 2006) might provide more realistic values, and, eventually, a higher explained variance.

In the second study, we observe that popularity is only moderately explained by our indicators, in contrast to our first study. We assume that secondary data such as Google Hits or Facebook followers might not capture this construct sufficiently, as more 'subjective' indicators reflecting consumer perceptions (e.g., attractiveness or eccentric appearance) are essential for a comprehensive assessment of this construct. Consequently, future studies may try to integrate a mix of primary and secondary data for the operationalization of popularity.

As indicated above, the operationalization of drivers of human brand image, with performance-indicators in particular, may be more difficult in other sectors. Thus, further studies that develop different operationalization approaches for these sectors and, thus, enhance the generalizability of our findings are desirable.

Despite the discussion of their potential applicability to other entertainment sectors, the transferability of our findings remains uncertain, which limits the generalizability of the results. The data availability for sports provides a good starting point for deriving generalizations or conclusions by analogy. Further studies should seek ways to overcome the challenges of operationalizing performance and talent in other entertainment segments.

## Appendix A

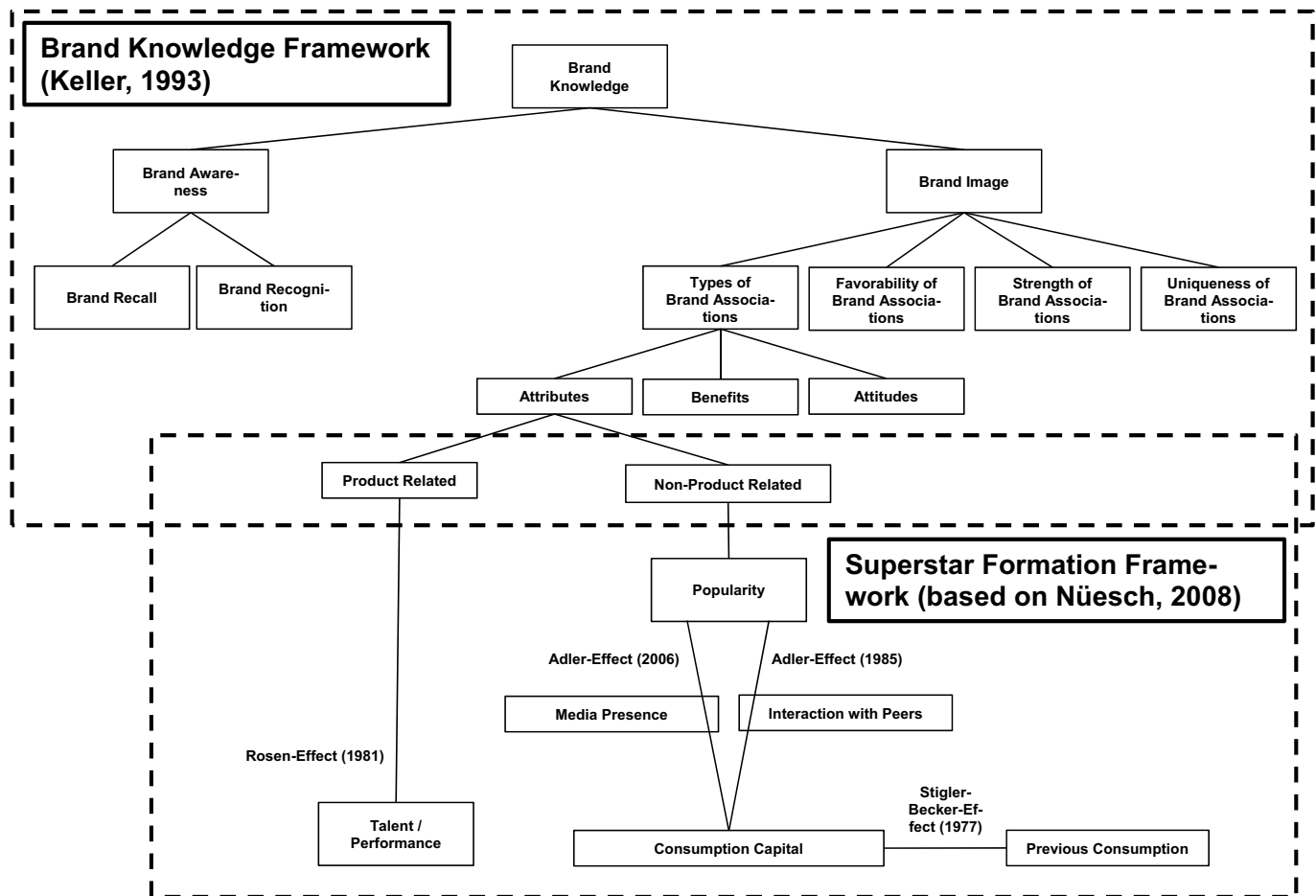


Fig. A.1. Conceptual framework.

## References

- Aaker, J. L. (1997). Dimensions of brand personality. *Journal of Marketing Research*, 34, 347–356.
- Adler, M. (1985). Stardom and talent. *American Economic Review*, 75, 208–212.
- Adler, M. (2006). Stardom and talent. In V. A. Ginsburgh, & D. Throsby (Eds.). *Handbook of the economics of art and culture* (pp. 895–906). Amsterdam: North Holland.
- Allison, L. (Ed.). (1986). *The politics of sport*. Manchester: Manchester University Press.
- Azoulay, P., Graff Zivim, J. S., & Wang, J. (2010). Superstar extinction. *The Quarterly Journal of Economics*, 125, 549–589.
- Bagella, M., & Becchetti, L. (1999). The determinants of motion picture box office performance: Evidence from movies produced in Italy. *Journal of Cultural Economics*, 23, 237–256.
- Bagozzi, R. P., & Yi, Y. (1988). On the evaluation of structural equation models. *Journal of the Academy of Marketing Science*, 16, 74–94.
- Baranchuk, N., MacDonald, G., & Yang, J. (2011). The economics of super managers. *The Review of Financial Studies*, 24, 3321–3368.
- Bauer, H. H., Sauer, N. E., & Schmitt, P. (2005). Customer-based brand equity in the team sport industry. *European Journal of Marketing*, 39, 496–513.
- Becker, J. M., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for using reflective-formative type models. *Long Range Planning*, 45, 359–394.
- Brown, E., Spiro, R., & Keenan, D. (1991). Wage and nonwage discrimination in professional basketball: Do fans affect it? *American Journal of Economics and Sociology*, 50, 333–345.
- Carrillat, F. A., D'Astous, A., & Christianis, H. (2014). Guilty by association: The perils of celebrity endorsement for endorsed brands and their direct competitors. *Psychology & Marketing*, 31, 1024–1039.
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.). *Modern methods for business research* (pp. 295–336). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Chin, W. W. (2010). How to write up and report PLS analyses. In V. Esposito Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.). *Handbook of partial least squares: Concepts, methods and applications* (pp. 655–690). Berlin: Springer.
- Chung, K. H., & Cox, R. A. (1994). A stochastic model of superstardom: An application of the Yule distribution. *Review of Economic and Statistics*, 76, 771–775.
- Cowen, T. (2000). *What price fame?* Cambridge/London: Harvard University Press.
- De Vany, A. S., & Walls, W. D. (1999). Uncertainty in the movie industry: Does star power reduce the terror of the box office. *Journal of Cultural Economics*, 23, 285–318.
- Fenn, A. (2015). Is a big ego crucial to achieving sporting greatness? Retrieved from <http://www.bbc.com/sport/football/33255194>, Accessed date: 28 February 2019.
- Franck, E., & Nüesch, S. (2007). Avoiding 'star wars' – Celebrity creation as media strategy. *Kyklos*, 60, 211–230.
- Franck, E., & Nüesch, S. (2008). Mechanisms of superstar formation in German soccer: Empirical evidence. *European Sport Management Quarterly*, 8, 145–164.
- Franck, E., & Nüesch, S. (2012). Talent and/or popularity: What does it take to be a superstar? *Economic Inquiry*, 50, 202–216.
- Frank, R., & Cook, P. (1995). *The winner-take-all society: Why the few at the top get so much more than the rest of us*. New York: Penguin.
- Furrer, O., Tjemkes, B., & Henseler, J. (2012). A model of response strategies in strategic alliances: A PLS analysis of circumplex structure. *Long Range Planning*, 45, 424–450.
- Garcia-del-Barrio, P., & Pujol, F. (2007). Hidden monopsony rents in winner-take-all markets—Sport and economic contribution of Spanish soccer players. *Managerial and Decision Economics*, 28, 57–70.
- Geuens, M., Weijters, B., & De Wulf, K. (2009). A new measure of brand personality. *International Journal of Research in Marketing*, 26, 97–107.
- Gilbert, C., & Gorris, L. (2008). The tears of a genius: Football's love-hate relationship with Cristiano Ronaldo. Retrieved from <http://www.spiegel.de/international/europe/the-tears-of-a-genius-football-s-love-hate-relationship-with-cristiano-ronaldo-a-558212.html>, Accessed date: 28 February 2019.
- Giles, D. E. (2006). Superstardom in the US popular music industry revisited. *Economic Letters*, 92, 68–74.
- Gladden, J. M., & Funk, D. C. (2002). Understanding brand loyalty in professional sport: Examining the link between brand associations and brand loyalty. *International Journal of Sports Marketing and Sponsorship*, 3, 67–94.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage.

- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., & Thiele, K. O. (2017). Mirror, mirror on the wall: A comparative evaluation of composite-based structural equation modeling methods. *Journal of the Academy of Marketing Science*, 45, 616–632.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19, 139–152.
- Hair, J. F., Sarstedt, M., Pieper, T. M., & Ringle, C. M. (2012). The use of partial least squares structural equation modeling in strategic management research: A review of past practices and recommendations for future applications. *Long Range Planning*, 45, 320–340.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, 40, 414–433.
- Hamilton, B. H. (1997). Racial discrimination and professional basketball salaries in the 1990s. *Applied Economics*, 29, 287–296.
- Hamlen, W. A. (1991). Superstardom in popular music: Empirical evidence. *Review of Economics and Statistics*, 73, 729–733.
- Hamlen, W. A. (1994). Variety and superstardom in popular music. *Economic Inquiry*, 32, 395–406.
- Harman, H. H. (1976). *Modern factor analysis*. Chicago: University of Chicago Press.
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. In R. R. Sinkovics, & P. N. Ghauri (Eds.). *New challenges to international marketing (advances in international marketing, volume 20)* (pp. 277–319). Bingley: Emerald Group Publishing Limited.
- Hill, J. R., & Spellman, W. (1983). Professional baseball: The reserve clause and salary structure. *Industrial Relations*, 22, 1–19.
- Hoegele, D., Schmidt, S. L., & Torgler, B. (2014). Superstars as drivers of organizational identification: Empirical findings from professional soccer. *Psychology & Marketing*, 31, 736–757.
- Hofmann, J. (2013). “Rosen-stars” or “Adler-stars”? A meta-analytic review. *Proceedings of 5th ESEA European Conference in Sports Economics, Esbjerg, Denmark*.
- Hutter, M. (1996). The value of play. In A. Klamer (Ed.). *The value of culture: On the relationship between economics and arts* (pp. 122–137). Amsterdam: Amsterdam University Press.
- Idson, T., & Kahane, L. (2000). Team effects on compensation: An application to salary determination in the National Hockey League. *Economic Inquiry*, 38, 345–357.
- Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer behavior. *Journal of Consumer Research*, 30, 199–218.
- Jones, J. C., & Walsh, W. D. (1988). Salary determination in the National Hockey League: The effects of skills, franchise characteristics, and discrimination. *ILR Review*, 41, 592–604.
- Jones, J. C. H., Nadeau, S., & Walsh, W. D. (1999). Ethnicity, productivity and salary: Player compensation and discrimination in the National Hockey League. *Applied Economics*, 31, 593–608.
- Kahn, L. M., & Sherer, P. D. (1988). Racial differences in professional basketball players' compensation. *Journal of Labor Economics*, 6, 40–61.
- Keller, K. L. (1993). Conceptualizing, measuring, & managing customer-based brand equity. *Journal of Marketing*, 57, 1–22.
- Klarner, P., Sarstedt, M., Hoeck, M., & Ringle, C. M. (2013). Disentangling the effects of team competences, team adaptability, and client communication on the performance of management consulting teams. *Long Range Planning*, 46, 258–286.
- Krautmann, A., & Ciecka, J. (2009). The postseason value of an elite player to a contending team. *Journal of Sports Economics*, 10, 168–179.
- Krueger, A. (2005). The economics of real superstars: The market for concerts in the material world. *Journal of Labor Economics*, 23, 1–30.
- Lazear, E. P., & Rosen, S. (1981). Rank-order tournaments as optimum labor contracts. *Journal of Political Economy*, 89, 841–864.
- Lehmann, E. E., & Schulze, G. G. (2008). What does it take to be a star? – The role of performance and the media for German soccer players. *Applied Economics Quarterly*, 54, 59–70.
- Lenneis, V., & Pfister, G. (2015). Gender constructions and negotiations of female football fans: A case study in Denmark. *European Journal for Sport and Society*, 12, 157–185.
- Lucifora, C., & Simmons, R. (2003). Superstar effects in sport. Evidence from Italian soccer. *Journal of Sports Economics*, 4, 35–55.
- McCracken, G. (1989). Who is the celebrity endorser? Cultural foundations of the endorsement process. *Journal of Consumer Research*, 16, 310–321.
- Miller, K. M., Hofstetter, R., Krohmer, H., & Zhang, Z. J. (2011). How should consumers' willingness to pay be measured? An empirical comparison of state-of-the-art approaches. *Journal of Marketing Research*, 48, 172–184.
- Netemeyer, R. G., Krishnan, B., Pullig, C., Wang, G., Yagci, M., Dean, D., ... Wirth, F. (2004). Developing and validating measures of facets of customer-based brand equity. *Journal of Business Research*, 57, 209–224.
- Nüesch, S. (2008). *Wettbewerbsverzerrungen auf Superstar Märkten [in German]*. (Presentation at University of Zurich, Switzerland).
- Podsakoff, N. P., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12, 531–544.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879–903.
- Reinartz, W., Haenlein, M., & Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of Research in Marketing*, 26, 332–344.
- Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). A critical look at the use of PLS-SEM in MIS Quarterly. *MIS Quarterly*, 36, 3–14.
- Ringle, C. M., Wende, S., & Becker, J. M. (2015). *SmartPLS 3*.
- Rosen, S. (1981). The economics of superstars. *American Economic Review*, 71, 845–858.
- Rosen, S., & Sanderson, A. (2001). Labour markets in professional sports. *The Economic Journal*, 111, 47–68.
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies!. *Journal of Business Research*, 69, 3998–4010.
- Seaman, B. A. (2003). Cultural and sport economics: Conceptual twins? *Journal of Cultural Economics*, 27, 81–126.
- Simon, H. A. (1955). On a class of skew distribution functions. *Biometrika*, 42, 425–440.
- Sommers, P. M. (1990). An empirical note on salaries in Major League Baseball. *Social Science Quarterly*, 71, 861–867.
- Spierdijk, L., & Voorneveld, M. (2009). Superstars without talent? The Yule distribution controversy. *Review of Economics and Statistics*, 91, 648–652.
- Stigler, G. J., & Becker, G. S. (1977). De Gustibus Non Est Disputandum. *American Economic Review*, 67, 76–90.
- Stone, G., Mathew, J., & Jones, M. (2003). An exploratory study on the use of sports celebrities in advertising: A content analysis. *Sport Marketing Quarterly*, 12, 94–102.
- Strobl, E. A., & Tucker, C. (2000). The dynamics of chart success in the UK pre-recorded popular music industry. *Journal of Cultural Economics*, 24, 113–134.
- The Guardian (2017). Premier League clubs spend £1.4bn to break summer transfer record. Retrieved from <https://www.theguardian.com/football/2017/sep/01/transfer-window-deadline-day-record-spend>, Accessed date: 28 February 2019.
- Thomson, M. (2006). Human brands: Investigating antecedents to consumers' strong attachments to celebrities. *Journal of Marketing*, 70, 104–119.
- Throsby, D. (2001). *Economics and culture*. Cambridge: Cambridge University Press.
- Turner, G. (2004). *Understanding celebrity*. London: Sage.
- UEFA (2016). UEFA rankings for club competitions: Association club coefficients. Retrieved from <http://www.uefa.com/memberassociations/uefarankings/country/index.html>, Accessed date: 28 February 2019.
- Völckner, F. (2006). An empirical comparison of methods for measuring consumers' willingness to pay. *Marketing Letters*, 17, 137–149.
- Vorderer, P., Klimmt, C., & Ritterfeld, U. (2004). Enjoyment: At the heart of media entertainment. *Communication Theory*, 14, 388–408.
- Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modeling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, 33, 177–195.
- Yang, Y., & Shi, M. (2011). Rise and fall of stars. Investigating the evolution of star status in professional team sports. *International Journal of Research in Marketing*, 28, 352–366.
- Yule, G. U. (1925). A mathematical theory of evolution, based on the conclusions of J. C. Willis. *Philosophical transactions of the Royal Society of London. Series B*, 213, 21–87 containing papers of a biological character.