



# Brand equity and firm performance: the complementary role of corporate social responsibility

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## Abstract

Previous studies have demonstrated the impact of corporate brand equity on firm performance but have not yet investigated moderating effects on this relationship from other dimensions of firm strategy. This study puts forward a contingency model of the relationship between corporate brand equity and firm performance and investigates the moderating effect of one important contingency variable which is the firm's corporate social responsibility (CSR) strategy. It is tested on a panel dataset of 62 US firms/corporate brands. The results of this study corroborate previous evidence that corporate brand equity has a significant positive impact on market-based performance, measured by market share, as well as on financial performance, measured by Tobin's  $q$ . In addition, the findings indicate that CSR plays a complementary role, positively moderating the relationship between corporate brand equity and firm performance. That is, there is a synergistic connection between brand equity and CSR which increases long-term value over and above the direct impact of corporate brand equity.

**Keywords** Brand equity · Firm performance · Corporate social responsibility

## Introduction

Firms expend considerable resources and effort to build strong corporate brands, and this investment is based on the premise that corporate brands with strong brand equity will assist them in achieving a competitive advantage in the marketplace, thereby positively affecting performance (Stahl et al. 2012; Wang and Sengupta 2016). Within the resource-based view (RBV) of the firm, corporate brand equity is viewed as one of the most significant strategic assets (Vomberg et al. 2015).

In recognition of the strategic importance of corporate brand equity, several studies have explored the link between

it and firm performance and, typically, they found a positive effect (Yeung and Ramasamy 2008; Kirk et al. 2013; Wang et al. 2015). Based on this body of work, there seems to be unanimity among scholars that brand equity positively affects firm performance. However, these studies followed a relatively narrow approach, investigating the direct and immediate impact of corporate brand equity on firm financial performance, excluding other dimensions of firm strategy and other possible contingency factors.

Most of these earlier studies took the resource-based view (RBV) of the firm as their theoretical underpinning (Vomberg et al. 2015; Wang and Sengupta 2016). The proponents of the RBV view of the firm acknowledge, however, that while it is a suitable theoretical base to consider the impact of strategic assets such as brand equity on firm performance, it cannot fully explain this relationship (Richard 2000; Aragón-Correa and Sharma 2003). The reason is that the RBV does not consider the context within which firm resources and strategy are used to create competitive advantage (Aragón-Correa and Sharma 2003). That is to say, it does not consider how contextual variables such as a firm's strategy to build and maintain a positive image among its various stakeholders through corporate social responsibility (CSR) activities may moderate the relationship between strategic assets and performance (Richard 2000; Aragón-Correa and Sharma 2003).

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We believe further research is needed, therefore, to understand how other dimensions of corporate strategy moderate the relationship between corporate brand equity and firm performance. Future research needs to address the question: under what circumstances do firms benefit particularly from brand equity? Or, more specifically, “when is the impact of brand equity on firm performance strongest or weakest?” This type of question suggests the need for a contingency approach that moves beyond the basic question: “does brand equity pay off?” to ask instead “when does brand equity pay off more or less?”

The study reported in this paper takes up this challenge by adopting a contingency approach to explore the relationship between corporate brand equity and firm performance. It examines whether and how a firm’s strategy to enhance its image among its various stakeholders through corporate social responsibility (CSR) programs moderates the relationship between corporate brand equity and firm performance. It also questions whether firms using CSR as a way to manage the relationship with their stakeholders derive additional benefits in the form of higher performance such as market share and/or market value. The findings of this study show that there is a positive synergistic interaction between corporate brand equity and CSR which enhance firm performance beyond the direct effect of brand equity.

This paper makes a contribution to the existing body of literature as well as to managerial practice. Drawing on the resource-based view (RBV) and instrumental stakeholder theory, the paper contributes to the conceptual literature by making an argument for investing in CSR as a matter of enlightened self-interest. It also contributes to theory development by constructing a contingency model that sees CSR as a moderating variable in the relationship between corporate brand equity and firm performance. It is hypothesized that firms investing in CSR enjoy enhanced performance and this is due mainly to a synergistic interaction between corporate brand equity and CSR activities.

These hypotheses were tested on a sample of 62 US-based firms examined from 2000 to 2013. Data on CSR activities are collected from the KLD database, data on brand equity were collected from Interbrand, and data on firm performance came from Compustat. The results show that CSR activity does positively moderate the relationship between brand equity and firm performance. That is, the relationship between corporate brand equity and firm performance is enhanced where the firm also invests in CSR initiatives, evidence of a significant interaction effect.

The paper is organized as follows. Section two outlines the theoretical background to the study and develops the hypotheses to be tested. Section three describes the research methodology and identifies the data sources and measurement issues. Section four presents the results, and section five discusses the significance of the findings and offers some implications for theory and for practice.

## Theoretical background and hypothesis development

### Corporate brand equity and firm performance

The resource-based view (RBV) of the firm provides a theoretical framework for the relationship between brand equity and firm performance. According to the RBV, firms consist of a bundle of resources that are utilized to create competitive advantage in the marketplace (Barney 1991). These resources can be both tangible i.e. plant, and intangible i.e. brand equity (Russo and Fouts 1997). A firm’s resources become valuable when the firm employs them to take advantage of the opportunities in the marketplace (Russo and Fouts 1997). That is, having a resource is not enough in itself, firms must also have the ambition and capabilities to utilize that resource to take advantage of it (Russo and Fouts 1997). A unique combination of resources and capabilities should enable firms to be competitive in the market place and this, in turn, should positively affect firm performance (Russo and Fouts 1997).

A further corollary of this view is that not all resources are equally important for the achievement of strategic goals (Barney 1991; Vomberg et al. 2015). Resources are considered to be strategic only when they are valuable, rare, inimitable and non-substitutable (VRIN criteria) (Barney et al. 2001). Among the various types of strategic assets that firms possess, brand equity is widely viewed as one of the most important because it fulfils the VRIN criteria (Vomberg et al. 2015; Wang et al. 2015; Wang and Sengupta 2016).

Brand equity is defined as the *additional value* that a brand name and its related properties add to a product or service (Johansson et al. 2012; Steenkamp 2014). It is intrinsically tied to the brand’s name and other properties associated with it, and these properties can be both positive and negative i.e. assets and liabilities (Aaker 1992; Kirk et al. 2013). Aaker (1991) classified these brand assets and liabilities into five categories: name awareness, perceived quality, brand associations and brand loyalty, together with other proprietary brand assets such as patents, trademarks, channel relationships. The net balance of these assets and liabilities determines whether brand equity is positive or negative, with the general hope and expectation that brand equity will be positive and therefore make a material contribution to overall firm performance (Vomberg et al. 2015; Keller 2016).

The assets linked to a specific brand may create competitive advantages to a firm in a multitude of ways, each of which may impact performance (Johansson et al. 2012). Brands with a high level of awareness among target customers may reduce customers’ search cost and encourage repeat purchase (Johansson et al. 2012). A high level of brand loyalty may insulate a brand from competitive pressure by



making customers less susceptible to competitors' marketing activities (Vomberg et al. 2015; Wang et al. 2015). Brand loyalty may also reduce customers' inclination for comparison shopping (Johansson et al. 2012). Employees of firms with strong brands are usually more motivated to create greater customer value, thereby increasing customer loyalty and consequently leading to more stable cash flows (Steenkamp 2014; Vomberg et al. 2015). Furthermore, perceived quality may positively affect customer's satisfaction (Johansson et al. 2012)

Products or services with high brand equity are also more likely to be able to achieve and sustain a price premium as compared to products or services with low brand equity (Johansson et al. 2012; Steenkamp 2014). Furthermore, firms with strong brands tend to have a stable revenue stream (Johansson et al. 2012). The proprietary assets associated with a brand may also engender significant benefits. For instance, a well-designed brand logo may bolster the brand-customer relationship, and the aesthetic appeal of a logo can affect customers' commitment towards a brand (Park et al. 2013).

In sum, brand equity is considered to be a key strategic asset and, as such, one of the most significant determinants of both *current* and *future* firm performance (Wang and Sengupta 2016). That is, it will positively affect various measures of *current* as well as *future* firm performance. Based on the foregoing, we propose our first hypothesis ( $H_1$ ). Our first hypothesis is not a novel hypothesis. However, it is necessary for the completeness of the framework of the current study.

**$H_1$**  Corporate brand equity has a positive impact on the current and future firm performance.

### Corporate brand equity and firm performance: a contingency approach

Both marketing and economics theorists posit that when firms assets and capabilities are deployed together with other dimensions of corporate strategy, those assets and resources generate even greater value (Feng et al. 2017). In other words, the extent of financial benefit derived from brand equity will be contingent upon organizational context and other strategies of the focal firm in relation to its internal and external environment (Vomberg et al. 2015; Feng et al. 2017). More specifically, the effect of a firm's strategic assets on its financial performance might be accentuated or attenuated depending on how effectively the focal firm aligns its other strategies to its strategic assets i.e. brand equity (Vomberg et al. 2015). It stands to reason that the impact of brand equity will not be universal across

firms or that not all firms will benefit equally from brand equity.

The RBV theory argues that resource heterogeneity among competing firms eventually determines the success or failure of each firm, but the impact of *contingent factors* on this relationship is also widely acknowledged (Barney et al. 2001; Vomberg et al. 2015). Exponents of RBV theory acknowledge that a single strategic asset such as brand equity may only partially explain firm performance because the nexus between a strategic asset and financial performance might be contingent upon other factors such as a firm's strategy to build and maintain relationship with its various types of stakeholders (Lockett et al. 2009; Aguinis and Glavas 2012).

Brand management theorists follow a similar line of reasoning by arguing that while brand equity may have an impact on firm performance, it is not the sole performance driver (Wang et al. 2015; Wang and Sengupta 2016). That is, the effect of brand equity on firm performance might be moderated by other dimensions of a firm's corporate strategy such as stakeholder relationship management strategy (Aguinis and Glavas 2012; Wang and Sengupta 2016). One dimension of corporate strategy that is particularly apposite in the context of brand equity is a firm's corporate social responsibility (CSR) strategy that firms utilize to build and maintain relationship with its various types of stakeholders such as employees and community people (Sen et al. 2006).

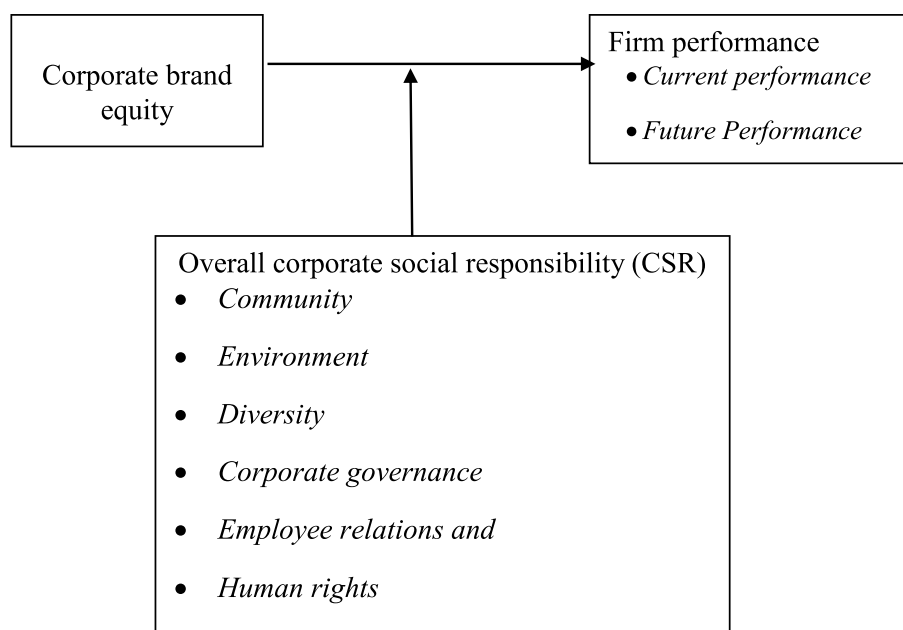
Stakeholders are defined as the individuals or groups who can directly or indirectly affect, or be affected by, a company's activities (Donaldson and Preston 1995; Maignan et al. 2005). Stakeholders can either be internal i.e. employees, or external i.e. customers and community people. Both the internal and external stakeholders may influence firm performance (Ruf et al. 2001; Jamali 2008). In a competitive market, firms pay attention to stakeholders' interests since these are critical to their success (Jamali 2008). Since a typical firm has different types of stakeholders, CSR-active firms tend to conduct a variety of activities aimed at different stakeholder groups (Sen et al. 2006; Jamali 2008), e.g. environmental, community, diversity activities etc.

Instrumental stakeholder theory suggests an argument that high brand equity firms consider CSR activities as a synergistic investment which they engage in with the expectation of reaping performance benefits. We can propose therefore that CSR activities, if well designed and executed, should positively moderate the relationship between corporate brand equity and firm performance.

The model in Fig. 1 summarizes the key relationship that we envisage among the three variables: brand equity, corporate social responsibility (CSR), and firm performance.



Fig. 1 Conceptual framework



### CSR: an instrumental approach to stakeholder relationship management

According to instrumental stakeholder theory, firms are engaged in both *implicit* and *explicit contractual relationships* with different internal and external stakeholders (Ruf et al. 2001; Jamali 2008) and must fulfil those contractual obligations with their stakeholders (Donaldson and Preston 1995; Ruf et al. 2001). *Explicit contracts* are formal in nature and are governed by law (Tashman and Raelin 2013). For example, firms must abide by the labour laws that are enacted by government when dealing with the employees. By contrast, *implicit contracts* are informal in nature and are viewed as an ‘invisible handshake’ between firms and their stakeholders (Godley 2013). Altruistic activities such as carrying out charitable activities in the local community, the domain of CSR, fall into this implicit, informal category.

Instrumental stakeholder theory contends that, as *implicit contracts* lack any legal basis, firms may show a propensity to breach these contractual obligations (Jones 1995; Ruf et al. 2001; Jamali 2008). However, firms with high corporate brand equity are more likely to honour their implicit contracts if the present value of the future benefits gained from fulfilling them is greater than the loss that will result from a breach (Melo and Galan 2011; Ruf et al. 2001; Wang et al. 2015). That is, firms with high corporate brand equity may engage in CSR initiatives out of *enlightened self-interest* because the synergistic interaction between brand equity and CSR initiatives may create additional value, beyond the direct impact of brand equity (Moir 2001; Jamali 2008; Aguinis and Glavas 2012). Also, it stands to reason that CSR initiatives carried out by high corporate brand equity firms

will be more visible among their stakeholders as opposed to others due to the fact that brands with high brand equity have high level of awareness and visibility among their stakeholders (Melo and Galan 2011; Aguinis and Glavas 2012; Vomberg et al. 2015; Wang et al. 2015).

According to the enlightened self-interest perspective, firms use CSR initiatives as a strategic instrument to manage their relationship with key stakeholders who have a particular impact on their success or failure (Moir 2001; Lamberti and Lettieri 2009). High brand equity firms engage in CSR activities proactively to fulfil implicit contractual obligations with a view to communicating to the market that they are more socially responsible than their competitors (Lamberti and Lettieri 2009; Melo and Galan 2011; Dixon-Fowler et al. 2013). It stands to reason that CSR initiatives carried out by a high brand equity firm will receive relatively more attention from the focal firm’s various types of stakeholders because high brand equity firms have higher level of awareness in the marketplace (Wang et al. 2015). This awareness about the firm’s CSR activities will reinforce the brand’s positive associations (Vomberg et al. 2015; Wang et al. 2015). This suggests that firms with relatively higher corporate brand equity may benefit more from CSR activities than will firms with lower levels of brand equity (Jamali 2008; Melo and Galan 2011; Torres et al. 2012).

High brand equity firms may benefit more from CSR as a result of eliciting a more favourable response from their various stakeholders (Jamali 2008; Lai et al. 2010; Melo and Galan 2011). For instance, customers may be willing to switch to a brand that is engaged in CSR activities such as environmental protection, better human rights records, if price and quality are the same (Bhattacharya and Sen 2010;





Servaes and Tamayo 2013). This implies that customers are more willing to switch to the products of firms with high brand equity as opposed to firms with low brand equity even though both types of firms might be engaged in CSR activities (Bhattacharya and Sen 2010; Melo and Galan 2011; Torres et al. 2012; Servaes and Tamayo 2013). Furthermore, customers may even be willing to pay a higher price for products and services of well-known brands that are known to engage in CSR activities (Lai et al. 2010; Servaes and Tamayo 2013). This seems to suggest that firms with high brand equity that carry out CSR activities will have more control over their pricing strategy, and the customers of such firms are less price sensitive (Bhattacharya and Sen 2010; Torres et al. 2012; Servaes and Tamayo 2013). In essence, high corporate brand equity firms receive a more favourable response from their customers for their CRS activities as compared to low brand equity firms which implies a positive interaction effect between CRS and corporate brand equity (Sen et al. 2006; Melo and Galan 2011).

Shareholders may also react positively to well-known brands engaged in CSR activities such as pro-environmental initiatives, better corporate governance (Lyon and Shimshack 2015). That is, high brand equity firms with visible CSR activities attract more investment from shareholders as compared to firms with low corporate brand equity (Sen et al. 2006) driving up the share price and the firm's market value. In other words, capital market's reaction to CRS activities by higher brand equity firms is relatively stronger and more positive (Lyon and Shimshack 2015). In essence, firms with higher brand equity will reap more financial gains due to positive synergetic interactions between brand equity and CSR initiatives.

Likewise, high brand equity firms with high profile CSR initiatives may be better able to attract and retain talented employees (Cable and Turban 2003; Sen et al. 2006). That is, attraction of workforce with firm-specific skill and expertise is easier for high brand equity firms with positive CSR reputation in the marketplace. Furthermore, CSR activities may enhance the commitment the existing employees towards their employer i.e. firms with high corporate brand equity (Kim et al. 2010) which in turn might help those firms to provide better customer service, leading to better financial gains (Tracey 1998). In sum, firms with higher corporate brand equity with an active CSR strategy will be able to enhance employee productivity, thereby having a positive impact on the firm financial performance (Cable and Turban 2003; Sen et al. 2006; Kim et al. 2010).

In sum, it may be argued that brands with high brand equity benefit more from engaging in CSR activities than firms with relatively lower levels of brand equity (Jamali 2008; Melo and Galan 2011; Torres et al. 2012). In other words, *ceteris paribus*, the financial performance of two hypothetical firms with identical levels of corporate brand

equity will vary depending on the extent to which those firms invest in CSR activities and are effective in using those activities to enhance their reputation and relationships with key stakeholders. Synergistic interactions between brand equity and CSR initiatives should create extra value for firms in addition to the value created by brand equity alone (Jamali 2008; Melo and Galan 2011; Torres et al. 2012). Based on the foregoing arguments, we hypothesize that:

**H<sub>2</sub>** CSR activities positively moderate the relationship between corporate brand equity and firm performance.

## Methodology

### Data sources and sample size

Data for this study were gathered from three separate databases which were then combined to produce a composite dataset to test the conceptual model. The three databases were: Interbrand's brand valuation data which were used to measure brand equity; Compustat data to measure firm performance and control variables, and the KLD database to capture firms' CSR activities. Each of these databases has been used extensively in academic research and can be considered internally valid (e.g. Melo and Galan 2011; Torres et al. 2012; Servaes and Tamayo 2013; Shahzad and Sharfman 2015). This study worked with a panel dataset involving 62 US-based firms, meaning firms headquartered in the US. The sample period for the study was from 2000 to 2013 involving 563 to 779 firm/year observations.

The study focused on corporate brands as opposed to product brands. It was limited to corporate brands because the focus was on firm-level performance. Product-level brands were excluded from the analysis mainly due to non-availability of performance-related data at product level as well as to align corporate brand equity data to corporate CSR data. It was also restricted to brands owned by public companies due to the necessity of access to accounting data; privately held brands such as Levi's were not included for this reason.

### Variable construction

#### Brand equity

Brand equity was measured using brand valuation estimates reported by Interbrand, a global brand consultancy firm (part of WPP plc), and the most accepted corporate brand valuation scheme internationally. Interbrand's brand valuation measure is comprehensive, encompassing a financial as well as a customer perspective (Madden et al. 2006). It has been used by numerous studies as a valid and reliable measure



of corporate brand equity in both single-country study and multi-country study (e.g. Melo and Galan 2011; Johansson et al. 2012; Kirk et al. 2013; Wang and Sengupta 2016). In the first phase, data relating to corporate brand value were collected from Interbrand for the period from 2000 to 2013. Only US-based corporate brands from Interbrand's global ranking were included.

### Firm performance

The selection of the performance variables was guided by the management and marketing literature on firm performance (Srinivasan and Hanssens 2009; Vomberg et al. 2015). Performance was defined to include market performance and financial performance. Market share was chosen to represent market performance, and Tobin's  $q$  was the financial performance measure (Carton and Hofer 2010; Steenkamp 2014; Vomberg et al. 2015). The performance data were collected from Compustat.

Market share was used as a measure of *current competitive* performance. There is still a debate about the relationship between market share and firm profitability, but market share is still widely used by both researchers and managers as a market-based performance measure and seems like a good indicator of competitive advantage (Menguc and Ozanne 2005; Baker and Sinkula 2005; Murray et al. 2011; Rego et al. 2013). Following similar studies (e.g. Rego et al. 2013) market share was calculated for each firm for each year, as sales revenue as a proportion of total sales in the industry at the four-digit SIC code.

Tobin's  $q$  was employed as a measure of *forward-looking, stock market-based firm performance*. It has been used extensively as a performance measure in management and marketing literature (Servaes and Tamayo 2013; Vomberg et al. 2015; Edeling and Fischer 2016) because it is independent of industry and is less affected by accounting practices (Vomberg et al. 2015). Following Lee and Min (2015), Tobin's  $q$  was measured as the book value of assets plus the market value of equity divided by the book value of assets.

### Corporate social responsibility (CSR)

Finally, corporate social responsibility (CSR) data for each of the corporate brands were collected from the KLD database which reports the yearly CSR activities of companies in the USA. In line with earlier studies (Servaes and Tamayo 2013; Lee et al. 2013), a conservative approach was adopted here, with CSR data based on the following six most significant categories: community, diversity, human rights,

corporate governance, environment and employee relations. Many firms carry out CSR initiatives in these CSR categories so as to build and retain a positive image among its various types of primary stakeholders.

Within each of the six categories, KLD defines a set of potential *strengths*, for example, "*charitable giving*", "*innovative giving*" are grouped under "Community", "*Recycling*", "*Clean Energy*" are grouped under "Environment". KLD also defines a set of potential *concerns*, for example, "*hazardous waste*", "*Substantial Emissions*" are grouped under "Environment". For each company, KLD assigns a value of "1" if the strength or concern exists and a "0" otherwise. In essence, as firms engage in both image-enhancing (strengths) and image-reducing (concerns) activities, the sample firms receive scores for both types of activities. Table in "[Appendix](#)" lists all the areas for "strengths" and "concerns" that are used within the six CSR categories.

We developed a measure which we called the *net corporate social responsibility (CSR)* score to capture the net effectiveness of firms' CSR efforts. Following (Servaes and Tamayo 2013), we scaled the number of strengths and concerns for each firm year to calculate two indices that range from 0 to 1. We divided the number of strengths and concerns for each firm year for each of the six CSR categories by the maximum possible number of strengths and concerns in each category year. We then subtracted the value for concerns from the value of strengths to compute a measure of net CSR in each category, ranging from  $-1$  to  $+1$  for each firm year. Finally, the net CSR scores for community, environment, diversity, corporate governance, employees, and human rights were added up to compute an overall net CSR measure ranging from  $-6$  to  $+6$ .

### Control variables

The study used a set of control variables. The selection of control variables was guided by the management and marketing literature on firm performance. Additional data relating to control variables were collected from Compustat and added into the model. Table 1 lists all of the variables included in the study and identifies how they were operationalised.

### Model specification

To estimate the relationship between brand equity and performance, and the possible moderating effect of corporate social responsibility (CSR), this study relied on the following specifications:



**Table 1** Variables of the study

Types of variables	Variable	Operationalization	Data source
Dependent variables	Firm value (Tobin's $q$ )	Book value of assets plus market value of equity divided by book value of assets	Compustat
	Market share	Firm sales revenue relative to total industry at 4-digit SIC level	Compustat
Independent variable	Brand equity	Yearly dollar value of corporate brand	Interbrand
Moderating variable	CSR performance (total score of 6 CSR categories)	CSR strengths minus CSR concerns	KLD database
Control variables	Firm size	Natural log of total Assets	Compustat
	Leverage	Total long-term debt/total assets	Compustat
	Advertising intensity	Advertising expenditure/sales	Compustat
	R&D intensity	R&D expenditure/sales	Compustat
	Selling intensity	Selling, general and administrative expenses/total assets	Compustat
	Capital intensity	Invested capital/number of employees	Compustat
	Employee productivity	Sales revenue/number of employees	Compustat
	GDP	Gross domestic product	US federal reserve

$$\begin{aligned}
\text{Tobin's } q_{it} = & \beta + \alpha_0 \text{Tobin's } q_{it-1} \\
& + \alpha_1 \text{Brand Value}_{it} + \alpha_2 \text{Corporate Social Responsibility} \times \text{Brand Value}_{it} \\
& + \alpha_3 \text{Corporate Social Responsibility}_{it} + \alpha_4 \text{Firm Size}_{it} \\
& + \alpha_5 \text{Leverage}_{it} + \alpha_6 \text{Advertising Intensity}_{it} \\
& + \alpha_7 \text{R\&D Intensity}_{it} + \alpha_8 \text{GDP}_{it} + \alpha_9 \text{Capital Intensity}_{it} \\
& + \alpha_{10} \text{Selling Intensity}_{it} + \alpha_{11} \text{Employee Productivity}_{it} \\
& + \text{Control (Year)} + \eta_i + \varepsilon_{it}
\end{aligned}$$

$$\begin{aligned}
\text{Market Share}_{it} = & \beta + \alpha_0 \text{Market Share}_{it-1} \\
& + \alpha_1 \text{Brand Value}_{it} + \alpha_2 \text{Corporate Social Responsibility} \times \text{Brand Value}_{it} \\
& + \alpha_3 \text{Corporate Social Responsibility}_{it} + \alpha_4 \text{Firm Size}_{it} \\
& + \alpha_5 \text{Leverage}_{it} + \alpha_6 \text{Advertising Intensity}_{it} \\
& + \alpha_7 \text{R\&D Intensity}_{it} + \alpha_8 \text{GDP}_{it} + \alpha_9 \text{Capital Intensity}_{it} \\
& + \alpha_{10} \text{Selling Intensity}_{it} + \alpha_{11} \text{Employee Productivity}_{it} \\
& + \text{Control (Year)} + \eta_i + \varepsilon_{it}
\end{aligned}$$

where  $i$  and  $t$  represent firm and year, respectively; controls (Years) are a set of dummy variables capturing temporal effects;  $\eta_i$  is the possible firm-specific component of the error term and  $\varepsilon_{it}$  is the error term.

## Endogeneity

It is believed that endogeneity is likely to be present in research settings like ours (Jean et al. 2016; Zaefarian et al. 2017). Endogeneity may arise for various reasons such as omitted variables, measurement errors and reverse causality (Zaefarian et al. 2017). Failing to account for endogeneity may lead to biased and unreliable results and poses the risk

of drawing wrong conclusions (Zaefarian et al. 2017). Therefore, studies investigating cause-effect relationships must address endogeneity issue (Zaefarian et al. 2017).

To test for potential endogeneity in our two models, we carried out a Durbin–Wu–Hausman (DWH) test. In the first model, where the dependent variable was Tobin's  $q$ , the results confirmed the presence of endogeneity in three variables: Leverage, GDP and Capital Intensity. (Leverage:  $\text{Chi}_{\text{Durbin-Wu-Hausman test}}^2 = 5.516, p \text{ value} = 0.0188$ ; GDP :  $\text{Chi}_{\text{Durbin-Wu-Hausman test}}^2 = 5.001, p \text{ value} = 0.0253$ ; Capital Intensity:  $\text{Chi}_{\text{Durbin-Wu-Hausman test}}^2 = 4.322, p \text{ value} =$



0.0376), as the null hypothesis established the absence of endogeneity.

In the second model, where the dependent variable is “market share”, the only endogenous variable is Firm Size ( $\chi^2_{\text{Durbin-Wu-Hausman test}} = 3.894, p \text{ value} = 0.0485$ ).

To test whether this endogeneity was due to bi-directionality or reverse causality with the dependent variable, Granger causality test was conducted. The result confirmed that there is bi-directionality between several variables: between Tobin’s  $q$  and GDP, as well as between Tobin’s  $q$  and capital intensity, and also, between market share and firm size ( $F_{\text{Granger test}} = 0.30, p \text{ value} = 0.5828; F_{\text{Granger test}} = 3.49, p \text{ value} = 0.0620; F_{\text{Granger test}} = 1.93, p \text{ value} = 0.1655$ ).

Consequently, in our first model wherein Tobin’s  $q$  was the dependent variable, the variables leverage, GDP and capital intensity were treated as endogenous regressors. In the second model wherein market share was the dependent variable, firm size was treated as endogenous, and all the other variables were treated as exogenous. In all cases, the second lag was included as an instrument in the estimation.

As further tests to ascertain whether the instruments used in our models were valid, and the moment conditions

adequate (Roodman 2006), we carried out Hansen J test and Arellano–Bond second-order autocorrelation test [AR (2)] (Capezio et al. 2011). The result of the Hansen J test demonstrated that our instruments were valid, and the Arellano–Bond second-order autocorrelation test showed that there was no second-order autocorrelation.

### Model estimation method

The usual approach to estimate the relationship between brand equity and firm performance has been to use ordinary least squares (OLS) or static panel data estimation methods such as fixed effect or random effect estimation methods (Yeung and Ramasamy 2008; Kirk et al. 2013). Such estimation techniques are problematic, however, in the context of dynamic panel model estimation, because they cannot eradicate dynamic panel bias (Roodman 2006; Capezio et al. 2011). Moreover, OLS estimation is biased by endogeneity and serial correlation and does not consider the time dimension of the data (Yeung and Ramasamy 2008; Capezio et al. 2011). Consequently, such estimation techniques distort the real nature of the relationship between the focal variables (Capezio et al. 2011).

**Table 2** Descriptive statistics

Variables	Obs	Mean	SD	Min	Max	VIF
Tobin’s $q$	730	2.8942	1.8066	1	15.2787	
Market share	682	30.3723	23.8548	0.4523	100	
Brand value	606	15,564.41	16,582.9	1235	79,213	1.27
Total CSR	728	0.4342	0.7996	−1.7071	3.1547	1.44
Firm size	730	10.4066	1.6707	6.8358	14.6975	2.28
Leverage	725	0.1771	0.1518	0.0000	1.3167	1.13
Advertising intensity	730	0.0266	0.0377	0.0000	0.2069	2.00
R&D intensity	730	0.0323	0.0416	0.0000	0.2408	1.85
GDP	779	13,537.33	2004.98	10,284.8	16,691.5	1.38
Capital intensity	701	582.787	1053.42	8.625	8370.97	2.28
Selling intensity	563	0.2520	0.1667	0.0118	0.9822	1.97
Employee productivity	680	411.688	301.030	23.7136	2882.11	2.45

**Table 3** Correlation matrix I

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Tobin’s $q$	1.00										
2 Brand value	0.03	1.00									
3 CSR	0.03	0.11	1.00								
4 Firm size	−0.4	0.42	0.08	1.00							
5 Leverage	−0.2	−0.1	−0.2	0.00	1.00						
6 Advertising intensity	0.31	−0.1	0.06	−0.4	−0.04	1.00					
7 R&D intensity	0.28	0.10	0.22	0.15	−0.10	−0.2	1.00				
8 GDP	−0.3	0.04	0.36	0.20	0.06	−0.1	−0.0	1.00			
9 Capital intensity	−0.1	0.17	0.05	0.57	−0.05	−0.3	0.16	0.19	1.00		
10 Selling intensity	0.33	−0.2	0.15	−0.5	−0.04	0.56	−0.0	−0.1	−0.4	1.00	
11 Employee productivity	0.00	0.08	0.12	0.33	0.05	−0.0	0.46	0.20	0.57	−0.1	1.00





**Table 4** Correlation matrix II

Variables	1	2	3	4	5	6	7	8	9	10	11
1 Market share	1.00										
2 Brand value	0.03	1.00									
3 CSR	0.04	0.11	1.00								
4 Firm size	0.02	0.42	0.08	1.00							
5 Leverage	-0.0	-0.1	-0.2	0.00	1.00						
6 Advertising intensity	0.11	-0.1	0.06	-0.4	-0.04	1.0					
7 R&D intensity	-0.0	0.10	0.22	0.15	-0.10	-0.2	1.00				
8 GDP	0.06	0.04	0.36	0.20	0.06	-0.1	-0.0	1.00			
9 Capital intensity	-0.1	0.17	0.05	0.57	-0.05	-0.3	0.16	0.19	1.00		
10 Selling intensity	0.08	-0.2	0.15	-0.5	-0.04	0.56	-0.0	-0.1	-0.4	1.00	
11 Employee productivity	0.16	0.08	0.12	0.33	0.05	-0.0	0.46	0.20	0.57	-0.1	1.00

In view of the foregoing, our study utilized the System generalized method of moments (System GMM) estimation technique to examine the relationship between brand equity and firm performance. The System GMM has several benefits: it includes firm fixed effects to account for unobservable firm heterogeneity (Duru et al. 2016). System GMM is also a reliable technique for dynamic panel model estimation and is robust to panel-specific heteroscedasticity and serial correlation (Capezio et al. 2011; Feng et al. 2015; Duru et al. 2016). Moreover, it can account for sample gaps in unbalanced panels which is the case of the current study (Duru et al. 2016).

This method of estimation stands out among the others because of its greater efficiency, and because of its better performance when the dependent variable is persistent. In fact, this estimator is especially designed for autoregressive models where the dependent variables can have a strong dependency on its past values (De Miguel et al. 2004).

### Descriptive statistics and correlation

Descriptive statistics are shown in Table 2, and the correlation matrices for each of the models are shown in Tables 3 and 4. No outlier was detected in the data since there is no value outside the range ( $\mu - 3\sigma$ ,  $\mu + 3\sigma$ ).

To investigate the presence or absence of multicollinearity among the independent variables, variance inflation factors (VIF) were calculated. The VIF ranged from 1.13 to 2.45 (see Table 2) which is substantially lower than the cut-off of 10 for multiple regression models, indicating that multicollinearity is not a problem (Grewal et al. 2004).

### Results

The results of the model estimation are shown in Table 5. The first column reports the results of Model 1 where Tobin's  $q$  is the dependent variable, and the second column

**Table 5** Results of dynamic panel data regression analysis using system GMM

	Model 1: Tobin's $q$	Model 2: Market share
Tobin's $q$ ( $t-1$ )	0.30387* (0.12749)	
Market share ( $t-1$ )		0.98171*** (0.2414)
Brand value	0.00001* (4.75 $e^{-06}$ )	0.00003* (0.00001)
Corporate social responsibility	0.11983 (0.13841)	0.62903 (0.41843)
Corporate social responsibility $\times$ brand equity	0.00001** (3.83 $e^{-06}$ )	0.00003* (0.00001)
Firm size	-0.17289 (0.09426)	2.31650*** (0.64750)
Leverage	-3.10177** (0.74209)	0.91931 (3.79782)
Advertising intensity	3.68212 (3.85107)	28.1981 (16.4891)
R&D intensity	3.93829 (4.69139)	7.78791 (11.1966)
GDP	0.00022* (0.00009)	-0.0014*** (0.00039)
Capital intensity	-0.00042 (0.00043)	-0.00367 (0.00196)
Selling intensity	0.82546 (2.04101)	3.19976 (2.06730)
Employee productivity	0.00099 (0.00084)	0.00123 (0.00297)
Year fixed effect	Yes	Yes
Wald Chi <sup>2</sup>	39,565.41***	15,400,000***

Standard errors in parentheses

\* $p < 0.05$ ; \*\* $p < 0.01$ , \*\*\* $p < 0.001$

reports the results of Model 2 where the dependent variable is market share. In both models, brand equity has been used as the main independent variable. The findings demonstrate that the coefficient estimate of brand equity



is positive and significant at the 5% level in both models ( $\alpha_1 = 0.00001, p \text{ value} = 0.011; \alpha_1 = 0.00003, p \text{ value} = 0.047$ ).

The results indicate therefore that the higher the brand equity, the greater is firm performance, as measured both by Tobin's  $q$  and market share. Our results also indicate that corporate social responsibility (CSR) itself has no significant impact on performance—either Tobin's  $q$  or market share.

More pertinent to our study, however, the results show that the interaction between firm's corporate social responsibility (CSR) and brand equity is positive and significant ( $\alpha_2 = 0.00001, p \text{ value} = 0.002; \alpha_2 = 0.00003, p \text{ value} = 0.021$ ) in both of our models, indicating that the relationship between brand equity and Tobin's  $q$  and the relationship between brand equity and market share is stronger for firms with a higher level of corporate social responsibility (CSR). As a complementary measure of the fit of the model, the Wald Chi<sup>2</sup> statistic is presented which confirms that at least one coefficient is statistically different from zero in both models.

With respect to control variables, our findings show that firms which have less debt leverage and greater GDP in their country ( $\alpha_5 = -3.1017, p \text{ value} = 0.000; \alpha_8 = 0.0002, p \text{ value} = 0.013$ ) have a better Tobin's  $q$ . The analysis also showed, however, that larger companies with lower GDP in their country, ( $\alpha_4 = 2.3165, p \text{ value} = 0.000; \alpha_8 = -0.0014, p \text{ value} = 0.000$ ), have a higher market share.

## Discussion

Our first hypothesis predicted a positive relationship between corporate brand equity and firm performance. We found support for our first hypothesis. Our analysis demonstrates that corporate brand equity not only positively impact current firm performance as measured by market share but also the forward-looking performance measure, namely, Tobin's  $q$ . The findings suggest that stock markets perceive superior current performance of firms with high corporate brand equity will continue in the future.

Our second hypothesis predicted that the positive relationship between corporate brand equity and financial performance will be further accentuated if firms engage in corporate social responsibility (CSR) activities. Our second hypothesis was also supported. In other words, our analysis demonstrated that CSR activities positively influence the relationship between corporate brand equity and firm performance as measured by Tobin's  $q$  and market share.

Overall, our findings demonstrate the value of building strong corporate brands but also the importance of engaging in carefully orchestrated CSR activities aimed at various stakeholders of the firm. That is, the complimentary interaction between CSR and corporate brand equity engender

more financial benefit compared to corporate brand equity alone.

The finding that CSR moderates the relationship between corporate brand equity and performance is particularly interesting given the conflicting findings from earlier studies on the relationship between CSR and firm financial performance. According to the literature, the impact of CSR on performance is not always positive. That is, some firms benefit from CSR activities but others do not. It is not known, however, which types of firms benefit more from CSR activities (Aguinis and Glavas 2012).

The results of this study have been able to explain, at least partially, the mixed findings of earlier studies. According to our findings, CSR on its own does not assist firms to enhance their financial performance. In other words, there is a synergistic interaction between corporate brand equity and CSR activities which follows through into superior market and financial performance.

## Conclusions

A considerable body of research has examined the relationship between brand equity and firm performance and, typically, has found a positive effect (Yeung and Ramasamy 2008; Kirk et al. 2013; Wang et al. 2015). However, these studies followed a relatively narrow approach, investigating the direct and immediate impact of brand equity on firm financial performance, to the exclusion of other dimensions of strategy. No account has been taken of contingency factors even though the possible influence of contingency factors on firm performance has been highlighted in the literature.

The study reported in this paper adopted a contingency approach to explore the relationship between corporate brand equity and firm performance by treating CSR as a moderating variable. It examines whether and how a firm's CSR program moderates the relationship between brand equity and firm performance. The study undertaken demonstrates that firms using CSR as an instrument to enhance their relationship with their stakeholders derive additional benefit in the form of higher market share and higher firm value.

The current study confirms the positive relationship between brand equity and firm performance that has been demonstrated in earlier research. The results of this study are consistent with previous evidence that brand equity positively affects firm performance. Furthermore, the findings showed that corporate social responsibility initiatives play a complementary role and accentuate the positive relationship between corporate brand equity and firm financial performance.



This study adds to the literature on the relationship between brand equity and firm performance in several ways. Firstly, by introducing a contingency approach, we constructed a model that provides a deeper and more nuanced understanding of the context influencing the relationship between brand equity and firm performance. In particular, we questioned how one dimension of corporate strategy, namely corporate social responsibility (CSR), might moderate the relationship between brand equity and firm performance. This model could be extended to take into account other dimensions of corporate strategy that might also attenuate or attenuate the relationship between brand equity and firm performance. In this way, this study has been able to advance the literature from considering “*does brand equity pay off?*” to “*when does brand equity pay off more or less?*” by recognizing the possibility of synergistic interaction between various dimensions of strategy, corporate brand equity on firm performance.

Secondly, drawing on instrumental stakeholder theory and enlightened self-interest, our study provides a specific model to indicate how CSR might positively moderate the relationship between brand equity and firm performance. This is important given the increasing engagement of firms in CSR activities despite rather mixed evidence concerning the benefits of such investment on firm performance (Aguinis and Glavas 2012). Our model helps to advance understanding of the circumstances under which CSR activities may actually yield benefits to firms. In particular, the findings of this study demonstrated that stronger brands with higher brand equity benefit the most from carrying out CSR initiatives. This is intuitively plausible in that high brand equity tends to go with high visibility which suggests a high level of attention for CSR activities.

Thirdly, unlike previous studies which used simple estimation methods such as an ordinary least squares (OLS), or static panel data estimation methods such as fixed effect and random effect estimation methods (Yeung and Ramasamy 2008; Kirk et al. 2013), this study used a dynamic panel data estimation method. Economic relationships usually involve dynamic adjustment processes, however the use of lagged variables in static panel models produce biased and inconsistent estimations. To overcome this problem, this study used the generalized method of moments (GMM) which is a sophisticated estimation method for panel data, and therefore is able to generate much more reliable and robust results. Dynamic panel modelling contains one or more lagged dependent variables or covariates which allows the characterization of multiple economic dynamic adjustment processes. Also, dynamic panel data models enable consistent parameter estimates

and may provide asymptotically efficient inference employing a relatively minimal set of statistical assumptions (see e.g. Arellano and Bond 1991; Arellano and Bover 1995; Blundell and Bond 1998).

The findings of this study have significant managerial implications. They add further weight to existing evidence that firms with strong corporate brands benefit in the form of higher market share and higher firm value. That is, a strong corporate brand affects not only the firm’s current performance i.e. market share, but it also has positive implication for future firm performance i.e. Tobin’s  $q$ . The positive relationship between corporate brand equity and Tobin’s  $q$  testifies to the fact that shareholders perceive that the current strong performance of firms with high corporate brand equity will also continue in the future.

The results also showed that firms with stronger corporate brands can add further value by engaging in carefully chosen CSR initiatives aimed at various stakeholders such as employees, shareholders, community people. In other words, firms should use CSR as an *instrument* to manage their relationships with various stakeholders and, thereby, to enhance their competitive advantage and ultimately their financial performance. More specially, firms with strong corporate brands should carefully choose and align the CSR activities with the interests of various types of stakeholders so as to reap the optimum financial gains.

As with all research, this study has some limitations which suggest opportunities for further research. While we have been able to shed light on the relationship between brand equity and firm performance with one moderating variable—CSR, there are many other potentially interesting moderators to consider, which our data did not allow us to explore. Variables such as innovation capability would be interesting to examine if suitable data were available. Future studies might also consider how factors such as industry munificence, industry complexity and industry dynamism may moderate the relationship between corporate brand equity and firm performance.

It would also be important to test these relationships across a wider sample of firms, sectors and countries. It would be helpful to understand how the impact of corporate brand equity on financial performance varies across industries and countries. Our study was based on a relatively small cross-industry sample of US-based firms so the findings would need to be validated across a wider sample of firms. Finally, this study focused on corporate brand equity among a sample of firms. Future research might also consider the impact of product-level brand equity on financial performance.



## Appendix: KLD CSR ratings criteria

Strengths	Concerns
<i>Community</i>	
Charitable giving	Investment controversies
Innovative giving	Negative economic impact
Non-US charitable giving	Tax disputes
Support for education	Other concerns
Support for housing	
Volunteer programs	
Other strengths	
<i>Corporate governance</i>	
Compensation	Compensation
Ownership	Ownership
Political accountability	Political accountability
Transparency	Transparency
Other strengths	Accounting Other concerns
<i>Diversity</i>	
Board of directors	Controversies
CEO	Non-representation
Employment of the disabled	Other concerns
Promotion	
Women and minority contracting	
Work/life benefits	
Gay and lesbian policies	
Other strengths	
<i>Employee relations</i>	
Health and safety	Union relations
Retirement benefits	Health and safety
Union relations	Retirement benefits
Cash profit sharing	Workforce reductions
Employee involvement	Other concerns
Other strengths	
<i>Environment</i>	
Beneficial products and services	Agricultural chemicals
Clean energy	Climate change
Recycling	Hazardous waste
Pollution prevention	Ozone depleting chemicals
Other strengths	Regulatory problems Substantial emissions Other concerns
<i>Human rights</i>	
Labour rights	Labour rights
Relations with indigenous peoples	Relations with indigenous peoples
Other strengths	Other concerns

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