How CSR reputation, sustainability signals, and country-of-origin sustainability reputation contribute to corporate brand performance

An exploratory study

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1. Introduction

"A good reputation is more valuable than money." – Publilius Syrus

Just how valuable is a good reputation? Corporate brands—an expression of an organization's identity combined with various stakeholders' perceptions of this identity (Abratt & Kleyn, 2010)—have in recent years invested exponentially in their reputations through corporate social responsibility (CSR) and sustainability, as their stakeholders increasingly expect such practices (Landrum, 2017; Torelli, Monga, & Kaikati, 2012). Research suggests not only that a positive reputation is essential for the corporate brand (Baalbaki & Guzmán, 2016) and an integral component of brand equity (Heinberg, Ozkaya, & Taube, 2018), but also that reputation building as a business strategy offers several benefits. Namely, it increases long-term shareholder value (McKinsey, 2010), access to new markets, profitability, price premiums, corporate brand trust, loyalty, and competitive advantages, and facilitates staff recruitment (Chen, 2010; Homburg, Stierl, & Bornermann, 2013). It might even build social brand equity (Naidoo & Abratt, 2018). In fact, nearly 70% of consumers report their willingness to pay more for brands that invest in CSR and/or sustainability efforts, influencing value (Landrum, 2017). We consider CSR as any activity in which a corporate brand takes part in voluntarily in order to enhance reputation and corporate brand image (Torelli et al., 2012). Sustainability, in this case, is conceptualized as an approach to conduct business ethically worldwide shifting the focus of business goals from purely economic goals to a balance among economic, environmental, and social goals (Chabowski, Mena & Gonzalez-Padron, 2011).

However, it is still unclear how CSR and sustainability signals combine to influence consumer perceptions, thereby affecting corporate brand performance and financial value. For

instance, Interbrand (2012) revealed that consumers undervalue brand sustainability efforts. Consequently, investing in sustainability and CSR initiatives may increase costs for a corporate brand without delivering the desired benefits (Sen & Bhattacharya, 2001). In other words, although consumers use corporate reputation as a signal globally (Swoboda, Puchert, & Morschett, 2016), low consumer awareness can reduce the effectiveness of reputation signals (e.g., CSR or sustainability) that brands use to enhance brand performance (Sen, Bhattachayra, & Korschun, 2006), especially in global markets (Sen & Bhattacharya, 2001; Sen et al., 2006). Furthermore, when consumers are unaware of corporate brand reputation, they rely on other signals, including corporate brand rankings—e.g., Fortune's "World Most Admired Companies"—(Chabowski et al., 2011). However, the effectiveness of these signals can be affected by corporate brand country of origin (Heinberg et al., 2018; Walsh & Bartikowski, 2013). Most prior studies either cover a single country (e.g., Burghausen & Balmer, 2014; Hur, Kim, & Woo, 2014) or focus on western countries (e.g., Souiden, Kassim, & Hong, 2006; Walsh & Bartikowski, 2013). Even when examining country of origin as a moderator, these studies treat differences as culturally based, finding weak differences (e.g., Bartikowski, Walsh, & Beatty, 2011; Jin, Park, & Kim, 2008).

Our exploratory study contributes to the literature in four ways. First, it advances knowledge on the impact of reputation signals (e.g., both CSR and sustainability) on firm performance and brand equity, using secondary data. The literature investigating these signals, separately or in combination, remains underdeveloped (de Leaniz & del Bosque Rodríguez, 2016; Heinberg et al., 2018). We enhance this literature by using signaling theory (e.g., Erdem, Swait, & Valenzuela, 2006; Heinberg et al., 2018), which is particularly appropriate given that reputation signals (e.g., CSR and sustainability signals) inform consumers, reduce information asymmetry, and build brand performance (e.g., growth in revenue, based on financial documents) and brand equity (e.g., Interbrand valuation). Second,

we examine how sustainability signals influence performance and brand equity, another under-researched area replete with conflicting findings (Flammer, 2015; Tang, Hull, & Rothenberg, 2012). A third goal of this research is to investigate how a corporate brand's country origin influences the effectiveness of reputation signals. Given that past research only offers evidence as to how cultural (Bartikowski et al., 2011; Jin et al., 2008), institutional (Heinberg et al., 2018; Sun, Paswan & Tieslau, 2016), or development-based (Jo, Kim, & Par, 2015) country factors influence signal effectiveness, this research offers a new perspective, specifically considering how the country of origin sustainability reputation (COSR) influences signal effectiveness. Fourth, by using secondary data integrating consumer perceptions and reputation signals, this research contributes to the debate on reconciling consumer-based brand equity (CBBE) and financial-based brand equity—as called for by scholars (e.g., Baalbaki & Guzmán, 2016; Nguyen, Dadzie, Davari, & Guzmán, 2015) and —building on recent scholarship (de Oliveira, Silveira, & Luce, 2015; Datta, Ailawadi, van Heerde, 2017).

Thus, this research, exploratory in nature, responds to the following questions: do reputation signals (e.g., sustainability and CSR) influence corporate performance and brand equity? If so, does the corporate brands' COSR moderate the relationship between these signals and corporate performance and brand equity? To respond to these questions, we have structured the paper as follows. First, we introduce the background and theoretical foundation of the study, which leads to the development of the hypotheses. Then, we discuss our methodology, including the acquisition of the sample, description of variables, and procedure for analysis. Finally, we present the results and implications.

2. Corporate Brand Reputation Signals and Performance

Brand reputation is defined as the perceptual representation of a brand's past actions and future prospects that describes a brand's overall appeal to all its key constituencies when

compared to other leading rivals (Fombrun, 1996); reputation solidifies a brand's ability to deliver value to its stakeholders (Fombrun & Gardberg, 2000). Most literature on brand reputation has focused on consumers' deliberate associations between reputation and concrete factors, such as product features (Du, Bhattachayra, & Sen, 2007). However, recent literature has begun focusing on less concrete factors that impact reputation, such as sustainability and CSR initiatives. While mostly focused on CSR, this research suggests that consumers' perceptions of reputable business practices impact brand associations (Hur et al., 2014; Iglesias, Markovic, Singh, & Sierra, 2017), attitudes toward the brand (Guzmán & Davis, 2017), and the effectiveness of the corporate brand's marketing activities (Sweetin, Knowles, Summey, & McQueen, 2013).

However, much of this literature focuses on a single field, such as consumer behavior (e.g., Heinberg et al., 2018; Swoboda et al., 2016), human relations (e.g., Powell, Davies, & Norton, 2013), corporate brand strategy (e.g., Sweetin et al., 2013), and even specific industries (e.g., Jo et al., 2015; Sierra, Iglesias, Markovic, & Singh, 2017). From a consumer perspective, CSR and sustainability increase evaluations of the corporate brand rather than just the product brand (Sweetin et al., 2013). It also increases consumer identification (Sen & Bhattacharya, 2001), satisfaction (Luo & Bhattacharya, 2006), trust (Stanaland, Lwin, & Murphy, 2011), loyalty (Du et al., 2007), price premiums (Marquina & Morales, 2012), purchase intentions (Sen et al., 2006), and brand equity (Guzmán & Davis, 2017; Naidoo & Abratt, 2018). From a corporate brand strategy perspective, investment in positive reputation signals increases performance (Kiessling, Isaksson, & Yassar, 2016; Price & Sun, 2017) and corporate brand equity (Heinberg et al., 2018; Wang & Sengupta, 2016). However, investments in reputation (e.g., sustainability and CSR) do not guarantee increased brand equity (Page & Fearn, 2005; Sierra et al., 2017). In fact, some research only finds an indirect

reputation-brand equity relationship (Lee, 2016; Sierra et al., 2017). We predict that this could be due to other signals that undermine or enhance reputation signal effectiveness.

Past research based on consumer surveys (Baalbaki & Guzmán, 2016; Heinberg et al., 2018) and secondary data (Roberts & Dowling, 2002; Wang, Chen, Yu, & Hsiao, 2015), has established that CSR or sustainability signals can increase performance and brand equity. Because CSR and sustainability efforts increase brand equity, they provide the corporate brand with similar benefits to other reputation signals, such as new product launch success, shelf space allocation, value perceptions, and premium pricing (Schiffman & Kanuk, 1997). Financially, a brand is an asset, and the firm derives equity from the additional economic value a brand offers relative to its potential to generate future cash flows (Wong, 2010). Interbrand data, however, suggests consumers are unaware of corporate brands' actual commitments to sustainability, which can negatively impact the brand's financial performance and value (Brady, 2003). Thus, corporate brand signals are important to maintain and grow a firm's global revenue and brand equity. To examine how and when consumers can receive corporate brand reputation signals more effectively, we turn to signaling theory.

According to signaling theory, brands send signals to inform consumers about corporate attributes, increase trust, highlight quality, lower risks, and increase utility expectations (Erdem & Swait, 1998; Erdem et al., 2006), because of information asymmetry—sellers have more information about the brand than consumers (Akdeniz & Talay, 2013). In other words, signals help consumers overcome information asymmetry (Bartikowski et al., 2011; Kirmani & Rao, 2000). Likewise, consumers look for signals regarding corporate reputation and corporate image (Schmid & Dauth, 2014) to alleviate this uncertainty (Ali et al., 2016; Spence, 1974). It is important, however, to differentiate between corporate reputation and image. While corporate image can be built quickly through advertising and PR campaigns, corporate reputation needs time to develop (Heinberg et al.,

2018). For instance, advertising, a common signal, can convey corporate brands' commitment to sustainability, impacting long-term brand reputation (Peter & Olsen 2008).

Moreover, signals that are perceived as more authentic and reliable help to form attitudes toward corporate brand reputations (Guzmán & Davis, 2017). To be considered authentic and useful, a signal must meet several criteria. First, it must be sufficiently observable (Spence, 1974) and its motives must be clear, to avoid questions that spur greenwashing (Pancer, McShane, & Noseworthy, 2017). For example, authentic signals result in greater consumer-brand relationships (Karaosmanoglu, Altinigne, & Isiksa, 2016). Second, the signal must be costly (Spence, 1974). Organizations are more prone to adopt costlier signals when they know receivers search for signals and make decisions from them (Gupta, Govindarajan, & Malhorta, 1999). Because advertising is costly, it is useful for making sustainability and CSR claims, but can also influence consumer perceptions of corporate brand reputation negatively, by misrepresenting the brand's actual efforts (Pancer et al., 2017). Moreover, effective signals must be consistent and clear (Erdem & Swait, 1998), and thus, take time to build and maintain, as consumers recognize and learn about these associations (Karaosmanoglu et al., 2016). Third, effective signals require diagnosticity—informational cues that aid in diagnosing the brand (e.g., green or not)—since individuals have predisposed biases toward corporate brands (Voss & Mohan, 2016). Diagnostic signals are used most for high-risk decisions (Gürhan-Canli & Batra, 2004), or when consumers have little or no brand information (Voss & Gammoh, 2004). They influence product quality perceptions and purchase decisions (Purohit & Srivastava, 2001).

One signal that meets all of the requirements is reputation lists. CSR and green lists involve actual improvements in green practices, giving back to communities, and changing the way business is conducted, regardless of the motivations. Only when engaged in CSR and sustainability do corporate brands make highly observable, costly, diagnostic signals that can

improve their consumer evaluations. When it invests in CSR and sustainability, a business may appear on lists such as the "100 Best Corporate Citizens," "America's Greenest Companies," and "World Most Admired Companies" (Chabowski et al., 2011). Third-party signals, such as these sustainability or CSR rankings, influence how consumers relate to these brands (Nikkie BP Consulting Inc., 2014), as they are highly credible and signal commitment to good behavior. Ultimately, maintaining continuous, highly observable, costly, and diganostic CSR and sustainability signals influences brand performance (Heinberg et al., 2018; Janiszewski & Van Osselaer, 2000) given that a brand's sustainability directly impacts CBBE (Baalbaki & Guzmán, 2016). Thus:

Hypothesis 1: Corporate brands making positive CSR signals have higher a) domestic and international performance and b) brand equity.

Hypothesis 2: Corporate brands making positive sustainability signals have higher a) domestic and international performance and b) brand equity.

Especially when expanding globally into new regions, corporate brands have to use effective signals to overcome barriers and enhance credibility (Fombrun & Gardberg, 2000). Brands entering new markets face several challenges related to information asymmetry, credibility, and appeal, and for these foreign brands, consumers rely on extrinsic cues (Huber & McCann, 1982). However, the effectiveness of reputation signals is affected by several other signals, such as industry reputation (Öberseder, Schlegelmilch, & Murphy, 2013; Torelli et al., 2012), advertising intensity (Rahman, Rodriguez-Serrano, & Lambkin, 2018), the institutional environment (Xie, Jia, Meng, & Li, 2017), and even corporate brand country of origin (Heinberg et al., 2018; Walsh & Bartikowski, 2013). We posit that corporate brand origin signals should influence the effectiveness of reputation signals in contributing to corporate brand performance and equity. These extraneous signals may explain why past

research has found an indirect relationship between corporate brand reputation and equity (e.g. Lee, 2016; Sierra et al., 2017).

While western contexts dominate most of the reputation signal-brand performance/equity literature (e.g. Souiden et al*.,* 2006; Walsh & Bartikowski, 2013), more recent research has examined these relationships in eastern contexts (e.g., Heinberg et al., 2018). The research that controls for country of origin effects and measures the impact of country of origin, examines country of origin as a cultural facet (e.g., Bartikowski et al., 2011; Jin et a., 2008), and overlooks similarities between countries (comparing Germany and South Korea, Ireland and Japan, etc.). Rather, this research, consistent with other research on country of origin signaling (e.g., Brodie & Benson-Rea, 2016; Magnusson, Westjohn, & Zdrakovic, 2011), contends that the country of origin's reputation is a visible and consistent signal, though not necessarily diagnostic. It can influence how consumers perceive corporate brand reputation signals, product evaluations (Magnusson et al., 2011; Sharm, 2011), brand equity dimensions such as perceived product quality, and acceptance in foreign markets (Dalmoro, Pinoto, Borges, & Nique, 2015).

Signaling theory suggests a positive relationship between corporate reputation and consumer loyalty across nations (Swoboda et al., 2016). Other research finds that positive reputation signals from favorable countries of origin are assessed more favorably than those from negative countries of origin are (Magnusson et al., 2011). For example, U.S. brands are often related to amicableness, resourcefulness, and self-centeredness, and when new brands exhibit these complementary identities, product acceptance increases (Rojas-Méndez, Murphy, & Papadopoulos*,* 2013). Additionally, global identification is an important factor influencing attitudes toward brands newly introduced in foreign markets (Magnusson et al*.*, 2011). Brands from advanced economies, especially European countries, tend to leverage their more favorable country images, based on associations with the country's social,

economic, and political activities (Wong, 2010). When the brand has a clear identity associated to a positive country of origin, the good country reputation serves as a buffer against negative corporate brand information (Zuckerman & Kim, 2003).

The effects of origin can be more pronounced in some cases, such as when the economic climate is uncertain (George, 2004), or when the product category is new (Usunier, 2000). More importantly, a brand's origin may affect the ability to communicate reputation signals. However, origin also influences how consumers judge corporate brand reputation globally (Öberseder et al., 2013). For instance, though U.S. brands are perceived as resourceful and courteous, yet egocentric, they may be seen differently at home than in foreign markets (Rojas-Méndez et al. 2013). Thus, country of origin may influence how reputation signals relate to performance, such that corporate brands headquartered in countries without a strong reputation for sustainability may benefit more from authentic reputation signals. On the other hand, corporate brands from countries with more favorable sustainability reputations may not benefit from engaging in CSR or sustainability, as these reputation-building strategies may be expected. Therefore, we predict that the reputation of the country of origin moderates the effectiveness of the reputation signal on performance and value. Thus:

Hypothesis 3: Country of origin sustainable reputation (COSR) will moderate the relationship between a corporate brand's CSR signals and the firm's a) domestic and international performance and b) brand equity.

Hypothesis 4: Country of origin sustainable reputation (COSR) will moderate the relationship between a corporate brand's sustainability signals and the firm's a) domestic and international performance and b) brand equity.

3. Methodology

3.1 Sample and population

To test the hypotheses of this exploratory study, we collected secondary data from publicized reports and financial reports, as described in Table 1 below. We included measures of equity and sales growth in the analysis, given that they are a sufficient indicator of business performance and are often used in similar research (Harjoto & Salas, 2017; Wong, 2010). Better performance indicates higher future growth prospects, raising brand equity (Wong, 2010). We included equity values over a wider time range (2010 to 2014) than corporate brand performance, since reputation variables have a latent impact on brand equity (Harjoto & Salas, 2017; Sweetin et al., 2013).

Insert Table 1 about Here

To assess sales growth performance, we further divided global revenue into domestic revenue, as defined by the corporate brand in shareholder reports, and international revenue (foreign generated). When the revenue was reported in currencies other than USD, we converted it to USD, using the annual average exchange rate, using the Oanda currency exchange rate calculation. The currencies used were USD, Sterling Pounds, Euros, Swedish Kron, Japanese Yen, South Korean Won, Swiss Franc (CHF), and Chinese Yen.

The dataset was limited to publicly available sources. For instance, the CSR scores only emerged in 2009 and Interbrand only began to share green indices from 2011. We eliminated brands not appearing on the Interbrand and Fortune lists at least once between 2010 and 2014 from the dataset, leading to a sample of 135 representative brands. These CSR and sustainability scores represent key antecedents of CBBE identified in prior research (Torres & Tribo, 2011; Lin, 2017), especially the green gap score, which represents the difference between consumer perceptions and actual behavior. The control variables, detailed in Table 1, included advertising and predominant buyer category and sector, as suggested in prior research. We also determined the corporate brand's COSR from secondary data.

3.2 COSR and the Creation of Moderator Variables

We took national sustainability rankings from the SSFI website—as indicated in Table 1, which provides details of the dummy variables. Table 2 provides the average rank of each cluster group, the name of the group, and the number of brands in each group. To examine potential moderators of business performance, we created new variables by multiplying the CSR reputation scores, sustainability ranks, and sustainability scores with each COSR dummy variable. We created the new moderator variables as interaction variables and to provide a basis on which to examine hypotheses 3 and 4.

Insert Table 2 about Here

3.2 Method of Analysis and Model Specification

To examine the hypotheses, we first ran Pearson-Product Moment Correlations to provide an initial understanding of the relationships, to rule out multicollinearity issues, and to provide descriptive statistics. Then, we used OLS regression models, a technique commonly employed by scholars measuring and analyzing brand performance (Paniagua, Rivelles, & Sapena, 2018; Wang et al., 2015), to test the combined effects of current CSR signals, current sustainability signals, and the moderating role of COSR, on prior signal effectiveness and on corporate brand domestic and international performance and brand equity.

Prior research suggests that brand signaling affects revenue generation more immediately than brand equity (Wong, 2010), and that signals tend to have a latent impact on brand equity measures (Sweetin et al., 2013). Since the relationships between performance and the signals should be more immediate, we include current year signal and prior year signals as moderators. However, since research has not yet compared the effect of reputation signals on domestic and international performance, we examined more signals for international performance since consumers may rely more signals to inform their decisions.

For brand equity, given that latent signals contribute to brand equity, we included two prior years' moderating variable signals in the analysis. Thus, the equations (in the Appendix) test the relationships between the variables.

4. Results and Discussion

4.1 Bivariate Correlation Analysis

Table 3 provides descriptive statistics and correlation matrix for the sales-growth model variables, and Table 4 includes these correlations for brand equity.

Insert Tables 3 and 4 about Here

As indicated in Table 3, corporate brand domestic performance is related more strongly and consistently to CSR than sustainability signals. This suggest that CSR is more important for domestic growth. Although international performance growth is positively related to the most recent CSR signal, the relationship with sustainability signals is stronger and more significant, demonstrated by a high negative correlation across multiple years. These correlations imply that superior rankings (e.g. 1 or 3) are related to higher international performance growth. Though the results provide initial support for H1a and H2a, they suggest that domestic and international performance rely differently on CSR and sustainability signals; CSR scores may be more important for domestic performance, while sustainability signals may have more weight for international performance.

Additionally, it appears that brand equity measures correlate to both CSR and sustainability signals. As seen in Table 4, CSR signals had a strong, long-term impact on brand equity valuation. Therefore, a history of strong CSR signals is essential for brand equity valuation in subsequent years, confirming prior research. The green score also had a very strong and long-lasting impact on brand equity, though the green gap scores were not consistent every year. Since negative gap scores provide a measure of overinflated beliefs in a

brand's sustainability, the equity values stem from consumers' inaccurate perceptions, and not just brand signals. Moreover, the actual sustainability signals strongly impact brand equity, as indicated by the significant negative correlations, where superior rankings (i.e., low numbers) relate positively to brand equity. These initial results provide support for the relationship between both CSR (H1b) and sustainability (H2b) and brand equity.

4.2 Analysis of the Variables using OSL Regression

Using the first equation, Table 5 reports the relationships between the variables in domestic performance.

Insert Table 5 about Here

The main signal that directly impacts sales growth in the domestic market is consumer perceptions of sustainability, with negative gap scores increasing domestic performance. Thus, when consumers are more likely to perceive the brand as sustainable, even if the brand is not as sustainable as its reputation, domestic performance increases. Moreover, there are three significant moderator variables, all related to the corporate brand's middle COSR, for both CSR and sustainability, so that corporate brands from middle COSRs have an advantage over brands from other origins. Particularly, CSR signals for brands from countries with a mid-ranked COSR are more effective in building domestic performance and more recent signals matter the most. Concerning the sustainability signal, both years included as moderators for mid-ranked COSR significantly influence domestic performance; thus, both past and present sustainable signals matter more for brands with a mid-ranked COSR. Given that one is negative and the other is positive, these two values can be interpreted as follows. A good ranking is a positive signal in the present, but is necessary to sustain or improve previous year rankings. When a brand becomes less sustainable, this can damage a corporate brand's domestic performance.

These results provide support for H2a, H3a, and H4a; specifically, sustainable signals increase domestic brand performance. However, when including both sustainable and CSR signals with the COSR moderator, H1b is no longer supported, such that CSR no longer has a direct impact on domestic performance. Next, to explore the effects of these same variables on international performance growth, we used OLS regression to evaluate the second equation, with the results in Table 6.

Insert Table 6 about Here

Here, more significant relationships emerged for international performance, such as positive CSR and green signals directly influencing international performance, though COSR led to different results. For instance, for low-ranked COSR, only the current year's sustainability and CSR signals influenced international performance. Thus, one can assume recent reputation signals are more effective for brands with lower COSR, and corporate brands from these countries can leverage these signals more effectively.

Furthermore, middle-ranked brands (since 0 = no and 1 = yes) have a greater disadvantage, as indicated by the mid COSR-CSR moderator variable. The evidence again suggests that corporate brands from mid-ranked COSRs are expected to make CSR progress each year, and that if there is no progress, or a reduction in CSR signals, the corporate brands could perform less well internationally. Moreover, the lack of significant moderation for sustainability signals suggests that for mid-ranked brands alone, country origin influences the effectiveness of CSR signals but not sustainability signals. Rather, brands from both mid and high ranked COSR countries are expected to implement sustainability initiatives, and thus, can grow more slowly in foreign markets if they do not.

These results support all of H1a, H2a, H3a, and H4a, in that both types of reputational signals influence international brand performance, and COSR moderates the effectiveness of these signals. Given prior results, we provide some general support for H1a and more robust

support for H2a, H3a, and H4a. To examine the effect of the signals on brand equity, we used an OLS regression to test equation 3, for years- 2012, 2013, and 2014, as reported in Table 7 below.

Insert Table 7 about Here

The data suggests that the effect of reputation on brand equity has evolved over the years. For 2012, rankings predict brand equity, although CSR and consumer beliefs in brand sustainability influenced equity more appreciably. More interestingly, the low COSR appears to moderate CSR and the green score significantly. For CSR, the negative number indicates that brands with low COSRs benefit more from CSR signals. Though positive, the green score suggests a greater benefit for low-ranked COSRs versus those from other countries. Therefore, in 2012, low-ranked COSRs benefited from both sustainability and CSR signals.

The 2013 data suggests that the gap score became more important in determining brand equity, where an overinflated value helps increase equity. For this year, mid-ranked COSR is a significant moderator variable, though only for CSR and the green score. In this case, CSR signals are more effective for mid-COSR brands while sustainability signals are less effective for mid-COSR corporate brands. In this case, sustainability signals are more effective for low and high-COSRs, compared to mid-ranked COSRs. So, corporate brands from mid-ranked COSR countries may benefit more from CSR signals than from sustainability signals. Further, it may be more important for consumers to believe the corporate brand is sustainable.

For 2014 equity, both CSR and the green gap show moderate to strong relationships with brand equity. Consistent with 2013, over-inflated beliefs are more favorable for influencing brand equity. Moreover, positive CSR signals increase equity. Additionally, the mid COSR moderator variables are significant with CSR, the green score, and the green rank. Thus, CSR signals from mid-COSR corporate brands are more effective in building brand

equity. However, these results suggest, again, that brands have to build CSR over time and produce these signals consistently, given that these signals arise in prior years. In prior years (2012 and 2013), low-ranked, and even high-ranked COSRs had an advantage for the green score, though new evidence suggests that sustainability signals are beginning to change how mid COSR corporate brands leverage sustainable reputations. Although the green score is negative, indicating an advantage for low and high-ranked COSRs, the negative score for the green rank suggests the opposite, where mid-ranked COSRs benefit in greater contributions toward brand equity. This trend will probably continue in the future, when both signals will be valuable. Therefore, these results support H1b (CSR), H2b (sustainability), H3b (CSR*COSR moderator), and H4b (sustainability*COSR moderator).

4.3 Discussion of Results Relative to the Literature

Within the past several years, extensive research has established the positive effects of CSR on brand equity and performance (e.g., Guzmán & Davis, 2017; Wang & Sengputa, 2016). Our exploratory research enhances this literature by doing so from a more global perspective. Using secondary data across multiple industries and multiple corporate brand origins, our findings provide evidence that CSR efforts contribute to corporate financial performance. Past research has found that CSR is indirectly related to brand equity (Heinberg et al., 2018; Sierra et al. 2017), and even suggested that moderators may influence how CSR relates to brand equity (Kemper, Schilke, Reimann, Wang, & Bretter, 2013; Wang, 2010). Our research finds that while CSR signals predict brand equity, they do not do so consistently, and that this lack of consistency may be due to the moderating effect of COSR. For instance, in 2012, CSR signals were more effective for corporate brands from low ranked countries. However, this may change as corporate reputation becomes better established over time

(Heinberg et al., 2018), consumers become more knowledgeable about actual brand efforts, and their expectations evolve.

Given that no research has distinguished between international and domestic financial performance, the findings of this research addresses each separately. According to Beddewela and Fairbrass (2016), little research indicates how firms operating in multiple markets use CSR to gain advantages in foreign markets. Here, we find that, specifically, CSR signals directly influence the corporate brand's international performance (e.g., Apple sales in Asia and Europe). However, COSR moderates this relationship, so brands from low and mid ranked COSR countries benefit more from positive CSR signals. Additionally, our data reveals that CSR efforts have a less direct effect on domestic markets (e.g., Apple sales in the U.S. market), and operate more through the moderation of COSR. Corporate brands from mid-ranked COSR countries (e.g., U.S. and France) gain more advantage in their domestic market from using CSR signals than those from other countries.

Furthermore, very little of the abundance of research exploring the relationship between CSR signals and brand performance examines the relationship between sustainability signals and corporate brand performance or brand equity, and the research that does has obtained mixed results. These varying results are explained by moderators such as firm size and innovation strategy, amongst others (Flammer, 2015; Tang et al*.,* 2012). However, our research suggests, in line with some prior work, that sustainability signals are positive (e.g., Jo et al., 2015), and more important than CSR signals for international performance, especially for brands with mid and low-ranked COSRs. For domestic performance, though, our findings reveal that consumer perceptions of sustainability matter more than actual efforts. Moreover, the influence of sustainability signals appears to change as these signals become more commonplace. Brands from mid-ranked countries are expected to send out improved sustainability signals over time.

5. Theoretical and Practical Implications

5.1 Theoretical Implications

First, this research speaks to the link between CSR signals and corporate performance and brand equity by investigating corporate brands in multiple industries from multiple countries of origin, using secondary data. Past research has substantiated the positive effect of CSR on firm performance (Lai, Chiu, Yang, & Pai, 2010; Price & Sun, 2017), and even equity (Heinberg et al*.,* 2018; Wang & Sengupta, 2016). Nonetheless, Eteokleous, Leonidou, and Katsikeas (2016) observe that researchers have paid scant attention to the performance outcomes of CSR in international (vs. domestic) markets. For example, much research focuses on single countries (Bartikowski et al., 2011; Jin et al., 2008) or industries (Jo et al., 2015; Sierra et al., 2017). In fact, less than 20% of studies explore three or more countries, and less than 11% use secondary data (Eteokleous et al., 2016). Moreover, no research to date has differentiated between the impact of CSR signals on domestic versus international performance. This paper though explores the effect on domestic and foreign markets, reveals that CSR signals have a more direct effect in international markets, and highlights the moderating role of corporate brand origin.

Second, this study elaborates on how the corporate brand's country of origin reputation moderates the effectiveness of reputation signals on performance and equity, as advocated by other researchers (e.g. Kemper et al., 2013). Eteokleous et al. (2016), for instance, contend that studies need to incorporate moderators to evaluate how CSR influences performance and equity over time. Despite the fact that CSR signals increase national competitiveness (Boulouta & Pitelis, 2014) and the significant effects of county origin as a control (Wang, 2010; Wang & Sengputa, 2016), little research has investigated how country origin influences reputation signal effectiveness. The research examining country of origin

treats these differences as cultural (Bartikowski et al., 2011; Jin et al., 2008), institutional (Heinberg et al., 2018; Sun et al., 2016), or development-based (Jo et al., 2015). Our exploratory study takes a different perspective by focusing globally on multiple country origins and treating country of origin as a signal in and of itself, where consumers have preconceived expectations. Thus, this study reveals that the country of origin's sustainability reputation influences the effectiveness of reputation signals.

Third, our results provide strong evidence that CSR and sustainability signals are not substitutable and do not have the same relationships with brand equity, or brand revenue generation. Our research reconciles the mixed results of prior research (Flammer, 2015) and offers practical implications for corporate brands making sustainability signals. However, much more remains to understand about sustainability signals; we thus encourage further research in this area.

Finally, this study addresses the connection between consumer-based and financial brand equity. We consider brand equity overall, integrating both perspectives using data on firm sales, equity values, reputation scores calculated from consumer perceptions, and country of origin reputation. Many brand equity models define brand equity from either a financial or a consumer-based perspective (Baalbaki *and* Guzmán, 2016; Chatzipanagiotou, Veloutsou, & Christodoulides, 2016), yet the two should be combined (Nguyen et al., 2015). One cannot say that a brand holds financial value without acknowledging that financial value depends on consumers' knowledge. Following the CBBE model, knowledge arises is based on awareness and image and is affected by sustainability (Baalbaki & Guzmán, 2016). Certainly, a corporate brand can use signals to improve its image, reputation, and thus its financial value. While prior researchers have made strides in this direction within a single country (e.g., de Oliveira et al*.,* 2015; Datta et al., 2017), our research takes a multinational, multi-sector approach to support these assertions, and identifies a moderator in this relationship: COSR.

Current theoretical models of overall brand equity should account for moderators and signal effectiveness.

5.2 Practical Implications

This study provides practical implications for corporate brands looking to position their brands strategically on CSR and/or sustainable dimensions, as well as advice for brand equity growth. "Doing good" can improve firm performance. Nevertheless, a positive reputation does not guarantee success. First, companies may not be sending effective signals, as indicated by the green gap. While Mercedes-Benz has a positive green gap score (around 10.0), meaning that the brand's green signals are ineffective, Toyota's signals are effective, since it has a green gap score around 0.0. Signals of these gaps influence domestic performance and brand equity, as indicated by our results. Toyota managed to move up the Interbrand ranking list dramatically between 2010 and 2015, despite negative domestic results until 2012, and negative growth overall in 2012.

Second, our data indicates that it is important for a corporate brand to have an established, consistent history of positive reputational signals. Our results suggest that reputational signals from Google and Apple have been more consistently positive and led to stronger domestic performance. However, Coca-Cola was unable to produce positive signals each year, despite the public's tendency to overestimate its green reputation. Maybe this will change, given Coca-Cola's new attempts to aid local communities through bottling partnerships, as showcased by its brand communication. However, our data suggests that prior CSR and green signals continue to influence brand equity and growth in subsequent years.

Third, to increase domestic performance, it is important for consumers to perceive corporate brands as sustainable. Ultimately, perceptions are more important for growth than actual sustainable signals or CSR signals. Mid-ranked COSR brands can also make better use

of their sustainability and CSR signals to increase domestic performance. However, internationally, actual sustainability signals and CSR signals benefit revenue growth most. While corporate brands from low-COSR countries can obtain more immediate benefit from their signals (both CSR and sustainability), brands from mid-ranked COSR countries have to maintain and develop their past CSR efforts to experience growth in foreign markets.

Finally, not only do sustainability and CSR signals influence brand equity, consumer sustainability perceptions (especially when exaggerated) also do. Thus, if consumers are unaware of a brand's sustainability efforts, this damages its reputation considerably. Although sustainability signals from corporate brands with mid-range COSRs (e.g., United States, France, etc.) are less effective than those from brands with low (Spain, Singapore, etc.) or high COSR (Sweden, South Korea), they can nonetheless leverage CSR signals to increase brand equity. In addition, since measures for sustainability only appeared in 2011, their effectiveness in building brand equity increased in 2013 and 2014, and the moderating effect of COSR increased in 2014. Thus, origin should be even more significant today.

6. Limitations and Future Research

We selected correlation scores and OLS regression equations to analyze the data due to our small sample size, the limited number of years when signals were available, and to explore how these signals unfold overtime, per Eteokleous et al. (2016). Although this approach is appropriate for our research questions and data (Hair et al., 2010; Paniagua et al., 2018), future research should use varied approaches to add robustness to the findings. These methods could include a mixed effect regression to explore the signal effectiveness, and the use of time as a variable if the sample is more evenly distributed across moderator levels and data is available for every year.

Despite its limitations, this research has considerable value. In response to Melewar et al. (2012), we collected longitudinal data using actual historical figures. These findings should also be of interest to policymakers, who may consider promoting the reputations of their country's brands. Governments might also consider monitoring the reputations of their leading firms and provide incentives to enhance reputation management efforts. Additional research should examine other prominent signals, such as corporate brand leadership, given the role of leadership in sustainability commitments (Stuart, 2013).

While being green influences consumer perceptions (Baalbaki & Guzmán, 2016; Chen, 2010), this research only sheds light on a small portion of brand equity, and could not possibly consider other factors given the research scope and methodology. Many other factors that determine brand equity, including corporate brand strategy, are left for future research. Furthermore, the data collected reflects only those brands that appeared on Interbrand or Fortune's World's Most Admired Company lists, so it does not include other well-known brands, underperforming brands, or brands only serving domestic markets, which may be of interest for future research. For instance, what are the most effective sources of CSR or sustainability signals for corporate brands? How do smaller (versus larger) brands use their origin (or other signals) to increase the effectiveness of these signals in new markets and improve their performance?

Further, our contributions highlight the need for more research on sustainability signals, given the lack of research in this area compared with the abundance of research on CSR. Additionally, while CSR research has considered several mediators, more research is needed to explore moderators other than country of origin reputation. As with other research, our study treats all industry variables as dummy variables to control for these effects when exploring the hypothesized relationship. However, future research should investigate how

industry reputation influences the effectiveness of reputation signals in building brand equity and corporate performance.

Finally, the aim of this study was to research the previously unexamined effect of reputation signals on domestic and international performance and brand equity. Given the exploratory nature of the research design, the differences observed between the effects of CSR and sustainability in domestic and foreign markets were not hypothesized. Provided this limitation, we advocate future research to further validate these differences in general or specific contexts in order to further contribute to the signaling literature and the strength of signaling in varying cultural and international markets.

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Table 1. Variable Descriptions

Dependent Variables	
Equity (BE)	Interbrand's valuation estimates are relevant and a reliable source to base financial based equity (Barth et al. 1998). To quality for Interbrand's list, a brand must have over $1 billion in value and a third of its sales must originate from international (vs. domestic) markets. Equity data was extracted from Interbrand's annual "Most Valuable Brand" list between 2010 and 2014. If no brand equity value for the year is provided, the previous value (if lower than the lowest ranked brand value) is inserted to fill in missing data.
Domestic Performance (DP)	This information is calculated by taking the domestic sales (as reported on the corporate brand's shareholder reporting) in 2012 and subtracting the 2010 domestic sales. The result indicates the amount of sales growth (or loss) experienced domestically in a 2-year period. The domestic sales was taken as a monetary amount, if included, or calculated from total sales, based on a percentage, as indicated in the financial documents.
International Performance (IP)	First, the annual international sales is determined by taking the total global revenue for the brand and subtracting the domestic sales for the same yar. Then, the growth is calculated by taking the international sales in 2012 and subtracting the 2010 international sales. The result indicates the amount of sales growth (or loss) experienced internationally in a 2-year period
Main Explanatory Variables	
CSR	CSR reputation data were collected from Fortune's World's Most Admired Company List data between 2009 and 2014, cited by other researchers as a signal of reputation (e.g. Chabowski et al., 2011). Fortune calculates their scores using the Hay Group, starting with a database of more than 1,400 large U.S. companies and the top 500 global companies. As a true measure of CSR, the score includes such aspects as innovation, people management, social responsibility, product/service quality, and others, and is then compiled with the top performers in each industry. Thus, higher scores indicate higher levels of CSR. Missing data were given scores of 0.
GrScore	The Interbrand green score (started in 2011) is made publicly available by Interbrand. Each year, Deloitte calculates a green score beginning its analysis with Interbrand's top 100 brands, using both consumer research to ascertain public perceptions of a corporate brand and actual sustainable behavior from their own investigation of each corporate brand The higher the score, the more "green" each corporate brand is. If no score was included for the year, the previous score (if lower than the lowest ranked brand) is inserted to fill in missing data. This score was used only as a moderator to the COSR variables so to avoid multicollinearity issues.
GrRank	Interbrand ranks each brand based on the green score, where the highest green scores earn the top rankings, and the lowest green scores earn low rankings. The data from Interbrand provides rankings from 2011 to 2014. The higher the number (ranking), the less "green" the corporate brand is.
GrGap	Based on Interbrand's comparison of consumer perceptions of green reputation and its own investigation of the brand's actual green performance, Interbrand also creates a gap score each year. and a gap score, indicating whether the reputation is inflated (negative gap) or undervalued (positive gap). The database includes gap scores from 2011 to 2014. Higher negative scores indicate consumer perceptions of brand "green" reputation are higher than actual behavior.
COSR	This is the dummy variable created for the different countries, representing the corporate brand country of origin sustainability reputation (COSR). Two dummy variables were created for the sake of the analysis, representing three different groups of countries- low reputation, middle reputation, and top reputation. The country groups were selected based on a cluster analysis from the Sustainable Society Index by the Sustainable Society Foundation (ssfindex.com). Established in 2006 as a private initiative by Geurt van de Kerk and Arthur Manuel, all countries are ranked every two years on three criteria:

	human wellbeing, environmental wellbeing, and economic wellbeing, weighted by population size. To calculate scores for each country and then rank them, the calculations are created from publicly available data pertaining to the following: food availability, water availability, sanitation safety, education, healthy life years, gender equality, income distribution, population growth, World Bank governance scores, protected territories, forestry, renewable resources, per capita consumption, energy usage and savings, greenhouse gas emissions, renewable energy percentage, organic farming, savings rates, GDP, unemployment, and public debt. Ranks (human, environmental, and economic wellbeing) of each brand's country of origin were added to the dataset for years 2010, 2012, and 2014 (corresponding to the other data), and then each ranking was averaged for the 3 years. The three resulting wellbeing variables were used in two step cluster analysis to create different COSR groups, saving the group membership in the dataset. The resulting variables $COSR_{low}$ and $COSR_{mid}$ represent the low and mid-ranking countries. For $COSR_{low}$, 0 = low COSR and 1 = others. For $COSR_{mid}$, 0 = others and 1 = middle COSR.
Control Variables	
Advertising	Average of the advertising expenses made available, according to the corporate brand's shareholder documentation, from 2010 to 2012. Since, advertising expense data was not made available for all years, the average was used to overcome issues in missing data.
B2	Dummy variable created to represent B2B (= 0) or B2C (= 1), since this may influence the equity and sales growth gains.
Industry Dummy Variables	Dummy variables were created based on the main industry identified by the corporate brand, following the categories provided by Interbrand. While the retail category was represented by 0 in all dummy variables, the other variables included: luxury, automobile, technology, logistics, finance and risk, beverage, hospitality, apparel, energy, FMCG, business services, and media (0 = others, 1 = industry).

Table 2. COSR Groups Based on Two Step Cluster Analysis

Cluster Name (Number)	Human Wellbeing	Environmental Wellbeing	Economic Wellbeing	
	Mean Rank (SD)	Mean Rank (SD)	Mean Rank (SD)	n
Middle COSR (1)	18.04 (.87)	102.43 (2.79)	56.79 (2.21)	88
Low COSR (2)	33.91 (20.79)	123.26 (16.33)	95.62 (15.17)	20
High COSR (3)	8.74 (6.42)	120.44 (23.6)	18.28 (15.36)	27

Table 3. Correlation Analysis of Signals on Corporate Performance

Effects from Signal	M	SD	1	2	3	4	5	6	7	8	9	10
1. Domestic Performance	1902.50	5636.79	1									
2. International Performance	4412.03	12182.10	.34**	1								
3. CSR_{t-3}	5.70	2.47	.12	.02	1							
4. CSR_{t-2}	5.87	2.16	.18**	.04	.71**	1						
5. CSR_{t-1}	6.08	1.88	.16*	.05	.50**	.62**	1					
6. CSR_{t}	6.20	1.89	.24**	.15*	.44**	.56**	.84**	1				
7. $GrScore_{t}$	28.87	18.83	-.08	.16*	.02	-.00	.02	-.03	1			
8. $GrRank_{t-1}$	n/a	n/a	-.13	-.16*	-.28	-.18	-.07	.00	-.97**	1		
9. $GrGap_{t-1}$	.44	6.89	-.17*	.07	-.02	.04	.09	.03	.12	-.13	1	
10. $GrRank_{t}$	n/a	n/a	-.19	-.17**	-.25	-.20	.02	-.01	-.83**	.86**	-.21	1
11. $GrGap_{t}$	1.27	5.30	-.11	.04	.09	-.01	.06	.03	.37**	.39**	.67**	-.33**

**= significance, $p < .05$; *= significance, $p < .10$

Table 4. Correlation Analysis of Reputation Signal and Corporate Brand Equity

	Interbrand Brand Equity Valuation by Year		
Reputation Signal	**2012**	**2013**	**2014**
CSR_{t-4}	n/a	.16*	.17**
CSR_{t-3}	.21**	.19**	.14*
CSR_{t-2}	.24**	.16*	.17**
CSR_{t-1}	.20**	.18**	.21**
CSR_{t}	.23**	.20**	.41**
$GrScore_{t}$	.42**	.37**	.35**
$GrGap_{t-3}$	n/a	n/a	-.14*
$GrRank_{t-3}$	n/a	n/a	-.35**
$GrGap_{t-2}$	n/a	-.14*	-.05
$GrRank_{t-2}$	n/a	-.37**	-.35**
$GrGap_{t-1}$	-.11	-.03	-.09
$GrRank_{t-1}$	-.42**	.37**	-.28**
$GrGap_{t}$	.02	-.08	-.07
$GrRank_{t}$	-.41**	-.30**	-.34**

**= significance, $p < .05$; *= significance, $p < .10$

Table 5. Regression Analysis of Domestic Performance

	Dependent Variable: Domestic Performance			
Independent Variables:	**β**	**T- value**	**F- value**	**R^2**
CSR_t	.12	.74	2.10**	.43
$GrRank_t$	-.03	-.15		
$GrGap_t$	-.23	-2.15**		
$COSR_{lo}$*CSR_t	-.16	-.97		
$COSR_{mid}$*CSR_t	.65	2.44**		
$COSR_{lo}$*$GrRank_{t-1}$	-.12	-.49		
$COSR_{lo}$*$GrRank_t$	.13	.68		
$COSR_{mid}$*$GrRank_{t-1}$	3.29	2.01**		
$COSR_{mid}$*$GrRank_t$	-3.65	-2.13**		
Advertising	-.01	-.12		
B2C	.12	1.17		
Luxury Sector	-.11	-1.34		
Automobile Sector	.05	.43		
Technology Sector	-.01	-.01		
Logistics Sector	-.10	-1.10		
Financial Sector	-.33	-3.00**		
Beverage Sector	-.14	-1.20		
Hospitality Sector	-.30	-2.98**		
Apparel Sector	-.12	-1.23		
Energy Sector	.13	1.47		
FMCG Sector	-.36	-3.06**		
Business Services Sector	.01	.10		
Media Sector	-.16	-1.68*		
**= significance, $p < .05$; *= $p < .1$				

Table 6. Regression Analysis of International Performance

	Dependent Variable: International Performance			
Independent Variables:	**β**	**T- value**	**F- value**	**R^2**
CSR_t	.43	2.22**	2.37**	.38
$GrRank_t$	-.65	-3.32**		
$GrGap_t$	-.12	-1.28		
$COSR_{lo}$*CSR_{t-1}	.82	1.18		
$COSR_{lo}$*CSR_t	-1.24	-1.77*		
$COSR_{mid}$*CSR_{t-1}	.88	2.50**		
$COSR_{mid}$*CSR_t	-.98	-2.14**		
$COSR_{lo}$*GrScore	-.11	-.57		
$COSR_{mid}$*GrScore	-.29	-.97		
$COSR_{lo}$*$GrRank_{t-1}$	-.26	-1.02		
$COSR_{lo}$*$GrRank_t$	.66	2.33**		
$COSR_{mid}$*$GrRank_{t-1}$	.91	.55		
$COSR_{mid}$*$GrRank_t$	-.71	-.44		
Advertising	.05	.52		
B2C	-.14	-1.31		
Luxury Sector	.34	3.50**		
Automobile Sector	.13	1.04		
Technology Sector	-.05	-.37		
Logistics Sector	-.00	-.05		
Financial Sector	-.19	-1.70*		
Beverage Sector	-.10	-.86		
Hospitality Sector	-.07	-.76		
Apparel Sector	-.07	-.77		
Energy Sector	-.15	-1.76*		
FMCG Sector	-.06	-.49		
Business Services Sector	-.22	-1.76*		
Media Sector	-.03	-.32		
**= significance, $p < .05$; *= $p < .1$				

Table 7. Regression Analysis of Brand Equity

	Dependent Variable: Brand Equity 2012			
Independent Variables:	**β**	**T- value**	**F- value**	**R^2**
CSR_t	.47	3.78**	4.18**	.49
$GrRank_t$	-.37	-2.46**		
$GrGap_t$	-.33	-3.82**		
$COSR_{lo}$*CSR_{t-2}	-.08	-.50		
$COSR_{lo}$*CSR_{t-1}	-.35	-1.78*		
$COSR_{mid}$*CSR_{t-2}	.12	.57		
$COSR_{mid}$*CSR_{t-1}	.04	.12		
$COSR_{lo}$*$GrScore_t$	.27	1.67*		
$COSR_{mid}$*$GrScore_t$	.07	.34		
$COSR_{lo}$*$GrRank_{t-1}$	.23	1.59		
$COSR_{mid}$*$GrRank_{t-1}$	-.11	-.49		
Advertising	-.04	-.53		
B2C	.17	1.82*		
Luxury Sector	-.01	-.16		
Automobile Sector	.05	.39		
Technology Sector	.41	3.22**		
Logistics Sector	.00	.03		
Financial Sector	-.01	-.13		
Beverage Sector	.03	.31		
Hospitality Sector	-.08	-.97		
Apparel Sector	-.00	.03		
Energy Sector	-.10	-1.28		
FMCG Sector	-.06	-.60		
Business Services Sector	.38	3.35**		
Media Sector	.03	.30		
	Dependent Variable: Brand Equity 2013			
Independent Variables:	**B**	**T- value**	**F- value**	**R^2**
CSR_t	.11	1.07	3.09**	.44
$GrRank_t$	.01	.09		
$GrGap_t$	-.31	-3.42**		
$COSR_{lo}$*CSR_{t-2}	.39	.60		
$COSR_{lo}$*CSR_{t-1}	-.45	-.68		
$COSR_{mid}$*CSR_{t-2}	.05	3.27**		
$COSR_{mid}$*CSR_{t-1}	.01	.03		
$COSR_{lo}$*$GrScore_t$	.07	.45		
$COSR_{mid}$*$GrScore_t$	-.36	-1.65*		
$COSR_{lo}$*$GrRank_{t-2}$	-.16	-.67		
$COSR_{lo}$*$GrRank_{t-1}$	.01	.06		
$COSR_{mid}$*$GrRank_{t-2}$	-.14	-.09		
$COSR_{mid}$*$GrRank_{t-1}$	-.83	-.53		
Advertising	-.09	-1.09		
B2C	.19	1.87*		
Luxury Sector	-.04	-.43		
Automobile Sector	.05	.38		
Technology Sector	.37	2.79**		
Logistics Sector	-.04	-.49		
Financial Sector	-.06	-.57		
Beverage Sector	-.06	-.57		
Hospitality Sector	-.15	-1.66*		
Apparel Sector	.01	.07		
Energy Sector	-.08	-.96		
FMCG Sector	-.11	-1.08		
Business Services Sector	.37	3.05**		
Media Sector	-.01	-.16		

	Dependent Variable: Brand Equity 2014			
Independent Variables:	**β**	**T- value**	**F- value**	**R^2**
CSR_t	.29	3.35**	3.84**	.49
$GrRank_t$	-.18	-1.22		
$GrGap_t$	-.30	-3.25**		
$COSR_{lo}$*CSR_{t-2}	.18	1.05		
$COSR_{lo}$*CSR_{t-1}	-.21	-.93		
$COSR_{mid}$*CSR_{t-2}	-.05	.26		
$COSR_{mid}$*CSR_{t-1}	1.01	3.79**		
$COSR_{lo}$*$GrScore_t$	.04	.23		
$COSR_{mid}$*$GrScore_t$	-.40	-2.49**		
$COSR_{lo}$*$GrRank_{t-2}$	.03	.19		
$COSR_{lo}$*$GrRank_{t-1}$	-.11	-.69		
$COSR_{mid}$*$GrRank_{t-2}$	.19	.58		
$COSR_{mid}$*$GrRank_{t-1}$	-.95	-2.52**		
Advertising	-.09	-1.07		
B2C	.14	1.50		
Luxury Sector	-.01	-.07		
Automobile Sector	.08	.68		
Technology Sector	.39	3.16**		
Logistics Sector	-.08	-.92		
Financial Sector	-.02	-.15		
Beverage Sector	.03	.25		
Hospitality Sector	-.11	-1.26		
Apparel Sector	.03	.31		
Energy Sector	-.09	-1.15		
FMCG Sector	-.05	-.51		
Business Services Sector	.32	2.85**		
Media Sector	-.01	-.09		

**= significance, $p < .05$
*=significance, $p < .10$

Appendix: Equations

$$DP = \beta_0 + \beta_1 CSR_t + \beta_2 GrRank_t + \beta_3 GrGap_t + \beta_4 [\![(COSR]\!]_{lo} * CSR_t) + \beta_5 [\![(COSR]\!]_{mid} * CSR_t) + \beta_6 [\![(COSR]\!]_{lo} * GrRank_{t-1}) + \beta_7 [\![(COSR]\!]_{lo} * GrRank_t) + \beta_8 [\![(COSR]\!]_{mid} * GrRank_{t-1}) + \beta_9 [\![(COSR]\!]_{mid} * GrRank_t) + Controls\ (Advertising, B2, Industry\ Codes) \quad 1)$$

$$IP = \beta_0 + \beta_1 CSR_t + \beta_2 GrRank_t + \beta_3 GrGap_t + \beta_4 [\![(COSR]\!]_{lo} * CSR_t) + \beta_5 [\![(COSR]\!]_{lo} * CSR_{t-1}) + \beta_6 [\![(COSR]\!]_{mid} * CSR_t) + \beta_7 [\![(COSR]\!]_{mid} * CSR_{t-1}) + \beta_8 [\![(COSR]\!]_{lo} * GrRank_{t-1}) + + \beta_9 [\![(COSR]\!]_{lo} * GrScore) + \beta_{10} [\![(COSR]\!]_{mid} * GrScore) + \beta_{11} [\![(COSR]\!]_{lo} * GrRank_t) + \beta_{12} [\![(COSR]\!]_{mid} * GrRank_{t-1}) + \beta_{13} [\![(COSR]\!]_{mid} * GrRank_t) + Controls\ (Advertising, B2, Industry\ Codes) \quad 2)$$

$$BE_t = \beta_0 + \beta_1 CSR_t + \beta_2 GrRank_t + \beta_3 GrGap_t + \beta_4 [\![(COSR]\!]_{lo} * CSR_{t-2}) + \beta_5 [\![(COSR]\!]_{lo} * CSR_{t-1}) + \beta_6 [\![(COSR]\!]_{mid} * CSR_{t-2}) + \beta_7 [\![(COSR]\!]_{mid} * CSR_{t-1}) + \beta_8 [\![(COSR]\!]_{lo} * GrScore) + \beta_9 [\![(COSR]\!]_{mid} * GrScore) + \beta_{10} [\![(COSR]\!]_{lo} * GrRank_{t-2}) + \beta_{11} [\![(COSR]\!]_{lo} * GrRank_{t-1}) + \beta_{12} [\![(COSR]\!]_{mid} * GrRank_{t-2}) + \beta_{13} [\![(COSR]\!]_{mid} * GrRank_{t-1}) + Controls\ (Advertising, B2, Industry\ Codes) \quad 3)$$