Intellectual Capital Efficiency & Financial Brand Value Linkage: The Role of Relational Capital

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This research aims to prove the nexus between Intellectual Capital Efficiency (ICE) and the financial brand value of Indian companies. The relation was studied at both aggregate and component levels of ICE. ICE was tested with the original Value Added Intellectual Coefficient model and its extended version by including the function of Relational Capital (RC) to understand the latter's effect on brand value. The paper also suggested an appropriate financial brand valuation model in the Indian context by extensively reviewing the literature on various brand valuation models. The sample consists of 208 companies listed in BSE 500 Index. The required data were collected from the Bloomberg database, Thomson Reuters Eikon, and CMIE Prowess database for ten years from 2010 to 2019.

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Introduction

A general lack of concepts, framework, and valuation methods that can explain how the value of intellectual resources can be measured and utilized and its direct impact on enterprise value is evident in the previous literature (Gupta & Bhasin, 2014). Accenture (2003) was surveyed to examine the importance of intangible assets in determining the firm's success. One hundred twenty top executives were consulted from around the world, and 96% of them agreed that intangible assets are central for profitability and success, but only 5% said that they implemented effective measurement tools to assess the same. The study was able to conclude that this negligence can lead to grave consequences for these companies. The probable reasons for companies not disclosing their intangibles and brand value were studied by Deutsche Bank Research which is: limitations imposed by accounting regulations, reluctance to disclose technical intricacies and other intellectual capital to competitors, the unavailability and lack of knowledge about apt models, and vocabulary to conduct such research. A survey conducted by

Forbes magazine, which studied 3500 top US Companies, was able to conclude that intangibles can contribute up to 72 percent of market value (Yeung & Ramasamy, 2008). Thus, we can conclude that finance executives and accounting managers should acknowledge and act upon the necessity of evaluating and reporting brand value and intangibles in the financial statement of companies. And also that academic researchers, accounting practitioners, strategic managers, and fiscal authorities have already started studying and assessing intellectual capital and the importance of brand valuation (Janoskova & Krizanova, 2017).

Intellectual Capital (IC) refers to the economic value of an organization's intangible assets, such as relational capital, organizational capital and human capital (Liu & Jiang, 2020). Measurement of IC is essential for its management and reporting. Brand equity can be defined as the benefits, profits, and values associated with a brand, as perceived by its customers, which is the result of the overall performance of the corporate brand (Gupta & Bhasin, 2014). The terms 'brand value' and 'brand equity' are occasionally used interchangeable). However, the value of brand equity comes from the set of attributes related to the perception and opinion of customers and not the economic or financial value of the brand (Aaker, 1991; Aaker & Keller, 1990). Brand equity is thus a perceived value and suffers subjectivity issues. Therefore, our research attempts to evaluate the financial brand value of Indian companies expressed in absolute monetary value using an appropriate methodology indicated by the literature.

The value of a brand is a reflection of the company's ability to convert intellectual capital into economic value and hence, profit.

A strong brand ensures recurring demand. This shows the role of brands in the value creation process of companies. Brand value is of great interest to researchers because of the apparent connection between intellectual performance and the brand strength of a company (Sadalia & Marlina, 2018). It is commonly acknowledged that the value of a brand is a reflection of the company's ability to convert intellectual capital into economic value and hence, profit. This is evident from factors like the benefits reaped from price premium and strategic navigation through ranks and positions through innovative leadership, brand recognition, customer loyalty, etc. Hence this calls for a need to test the nexus between IC and firm performance measured in terms of financial brand value.

Nexus between Intellectual Capital Efficiency and Brand Value is hardly studied around the globe. One of the main reasons is that there is a belief that Brand Value is a part of IC. But in reality, Brand Value may be or may not be a part of IC. As pointed out by Salinas (2009), when the meaning of IC is curtailed and confined to knowledge, it may not include the brand. When IC is treated as the product of knowledge, it may include the brand. When IC is treated as the aggre-

gate of unrecognized intangibles in the financial statement, it may include internally generated goodwill, but no acquired brand is included (Salinas, 2009). Since IC in the Indian context is mostly treated as the aggregate of unrecognized intangibles in the financial statement, our study assumes IC does not include brand, and we attempt to analyze the nexus between ICE and financial brand value of Indian companies. The study also attempts to test the effect of the components of ICE on Financial Brand Value. Each component of ICE influences differently to the brand (Salinas, 2009). Therefore, how Structural, Relational and Human capital efficiencies influence the Brand Value is also needed to be tested. Since brand valuation is believed to be an interesting act of firm valuation, studying the effect of IC on brand is important. Whether an increase in ICE reflects an increase in Brand Value is a question of concern because it has already proved its role on profitability and stock price. Higher the financial brand value, higher the profitability (Eng & Keh, 2007; Simon & Sullivan, 1993; Yeung & Ramasamy, 2008). Higher the financial brand value, higher the stock price (Yeung & Ramasamy, 2008; Hsu et al., 2013; Kirk et al., 2013; Razwiedani et al., 2014; Topuz & Aksit, 2016).

The primary objective of this research is to gauge the Intellectual Capital and Financial Brand Value of 208 selected Indian companies. For Measuring ICE, VAIC™ model developed by Ante Pulic (2000) has been used. An extended variant of VAIC™ model is also used by including Relational Capital as an additional component of ICE and to test whether the inclusion of RC has to do anything to the influence of IC on Brand Value. The Hirose brand valuation model has been used to gauge the financial brand value of selected Indian companies. Consequently, an investigation of the effect of ICE and components of ICE (Measured in both models) on Brand Value has been made. This study is an advancement over previous works related to the IC research environment. Although the linkage of ICE with Brand Value is discussed earlier, the number of studies is very limited, and those studies are conducted with small sample size. Besides, in most of the researches the researchers used Brand Values published by brand valuation agencies like Interbrand, Brand Finance Inc. Forbes. etc. the problem with those studies is that the consultancy agencies publish the Brand Values of major companies only. Taking the Brand Value performance of only blue-chip companies may bias the results. By taking a large sample size, our study considers companies with higher as well as lower Brand Values representing every industry listed in BSE 500 index in India. So, we claim that the results of this study will be a benchmark for future studies related to ICE brand value linkage. This study will be useful for academicians and researchers to develop newer models of IC and to conduct further researches related to the IC Brand Value linkage. The managers and external stakeholders can use the proposed models to estimate the IC of their firms and Brand Value as well. The calculation of both IC and Brand Value is easier in the proposed models as it can be done using the variables and data pub-

lished in the financial statements of the companies.

Literature Review & Hypotheses Development

Intellectual Capital comprises all assets and processes that normally do not appear on balance sheets and all intangible assets like trademarks, patents, and brands that modern accounting methods take into consideration. Better intellectual performance indicates an improvement in knowledge and intelligence owned by the company, which leads to increased stability in business. This is obtained through manufacturing innovative and quality products (Sadalia & Marlina, 2018). It can be defined as the sum total of the knowledge of its members, a practical translation of knowledge. A corporate brand, however, is a valuable resource that confers sustainable and competitive advantage upon an entity. Intellectual Capital has a tremendous and lasting impact on brand equity (Gupta & Bhasin, 2014). Sadalia (2018) studied the influence of brand value on intellectual capital and the influence of intellectual capital on firm performance. It also analyzed the influence of brand value on financial performance with control variables. The samples considered include 76 companies whose data for the period 2014-2016 has been observed. The result showed that Human Capital (VAHU) and Structural Capital (STVA) do not fit the criteria; hence only Capital Employed (VACA), which fits the criteria being an indicator of the value of intellectual performance, has been considered. The result indicates that intellectual capital performance has a positive effect on brand value at 10 percent significance level. Brand value does not affect financial performance. Also, intellectual capital showed a positive impact on financial performance. Since there are not many studies related to the IC brand value linkage, the findings from this study alone cannot be taken into account. Under this circumstance of an inconclusive relationship between IC and brand value and the study of the relationship is a novice attempt, further testing is necessitated. Therefore, we formulate the following hypothesis.

H1: IC measured with VAIC™ model are positively related to the financial brand value of Indian companies

VAIC™ model of Ante Pulic (2004) is the underpinning. However, since VAIC™ model excludes Relational Capital and only evaluates Human Capital, Structural Capital, and Capital Employed Efficiencies. The inclusion of RC to the VAIC™ model is very important in this study, where the crux is to analyze the IC-brand value linkage. The influence of Relational Capital on brand value is well researched and logically understood. Higher relational capital helps an organization maintain solid relationships with its customers, which leads to more suggestions and feedback through corporate-customer interaction. This can also be used for the improvement of products and services in the future. Customer referrals help build brand awareness. Higher relational capital enables companies to provide products and services that sat-

isfy customers, improve quality in general and hence showcase better performance (Gupta & Bhasin, 2014). David and Mentzer (2008) state that having better customer relationships leads to more trust from customers, more customer feedback on products and services through improved interaction, increased customer loyalty, and long-term partnerships, which will eventually improve brand value. Hence a modified version of VAIC™ model has been proposed and empirically tested in this study by incorporating RCE as the fourth component of Intellectual Capital. Specifically, the inclusion of a new component to the original VAIC™ model has always shown improved explanatory powers (Chang & Hsieh, 2011). The extended or modified version of VAIC™ used in this study explores how well the inclusion of RCE in the ICE model influences the performance expressed in financial brand value. Hence, we test how the extended VAIC™ model influences the financial brand values of Indian companies, and thus, the following hypothesis is formulated.

H2: IC measured with Extended- VAIC™ model is positively related to the financial brand value of Indian companies

Each component of Intellectual Capital differently influences the brand value (Salinas, 2009). We intend to test the influence of components of ICE measured using the original VAIC™ model (i.e., HCE, RCE, CEE) on financial brand value. Similarly, we test the influence of the components of ICE measured using the Extended- VAIC™ model (i.e., e-CEE, e-SCE e-HCE, and e-RCE) on the financial brand value of Indian companies.

Structural Capital Efficiency (SCE/ e-SCE)

Organizational/ structural capital is the sum total of an organization's hardware/software, database, organization culture, patents, technical information systems, organizational image, and capabilities. According to Edvinsson and Malone (1997), organizational capital can be defined as organizational knowledge, which includes the organization's technology, data, innovations, published materials, structures and systems, strategies and cultures, rules, and procedures. Riahi Belkaoui (2003) defines organizational capital as the systematic knowledge and recorded experiences of an organization encapsulated in its database, business routines, patents, manuals, and structures. Subramaniam and Youndt (2005) expound the organizational capital of a customer service company as the knowledge on how to train its employees and organize them in order to ensure the delivery of services and products to customers.

H3: Structural Capital Efficiency (SCE) is positively impacting the brand value of Indian companies

H4: Extended Structural Capital Efficiency (e-SCE) is positively impacting the brand value of Indian companies

Human Capital Efficiency (HCE/e-HCE)

Empirical research has shown that better-skilled employees and providing better information affect corporate brand equity positively. According to Bontis (1999), human capital is the sub-total of employee talents, abilities, intellect, techniques, attitudes, creativity, commitment, behavior, and experience, while Gupta and Bhasin (2014) define it as employees' ability and ingenuity for creating and improving products and services. Hitt et al., (2001) confirm from their studies that human capital has always been considered as an important resource in enterprises as employees who are skillful, creative, knowledgeable, and wise can help create new products and improve business processes which make the enterprise more competent. Studies by Mortanges and Streukens (2005) reveal the purchase decisions of customers are dependent not only on product functionality but also on their evaluation of corporate personnel, which includes the latter's techniques, attitudes, behavior, and modes of communication. Gupta and Bhasin (2014) highlight the importance of workplace interaction between peers and teamwork experiences in enabling employees to cultivate enterprise value in certain fields and professions and how, without such interactions, this type of intellect remained latent in them. Hence, the internal stakeholders of a corporate play a big role in the creation of the corporate brand.

Better-skilled employees and providing better information affect corporate brand equity positively.

H5: Human Capital Efficiency (HCE) is positively impacting the brand value of Indian companies

H6: Extended Human Capital Efficiency (eHCE) is positively impacting the brand value of Indian companies

Capital Employed Efficiency (CEE/e-CEE)

In view of inadequate research on the effect of Capital Employed Efficiency on brand value, further investigation is necessitated. Thus, the following hypotheses are proposed:

H7: Capital Employed Efficiency (CEE) is positively impacting the brand value of Indian companies

H8: Extended Capital Employed Efficiency (e-CEE) is positively impacting the brand value of Indian companies

Relational Capital Efficiency (e-RCE)

According to Stewart (1997), relational capital can be defined as the interaction between an organization and its customers and the strong relationship that results from it. Brand equity determines the customers' willingness to pay a significant price premium for their favorite brand, recommend the brand to others and extend their preference to other products under the same brand (Hutton, 1997). It is evi-

dent from the studies of Riahi Belkaoui (2003) that relational capital can be used to create and maintain relationships between an organization and its customers in terms of market share, customer retention, loss ratios, and rate of return of each customer. Depending on external sources to obtain relational capitals helps firms acquire information about marketing scenarios and distribution (customer comments, marketing and distribution channels, customer loyalty factors, etc.) and hence, improve their relationship with customers (Bontis, 1999). It is impossible to create a good brand without strong support from partners. To build up brand equity, a firm needs to maintain stable and reliable relationships with customers and provide products and services of consistent quality. The study by David and Mentzer (2008) states that having better customer relationships leads to more trust from customers, more customer feedback on products and services through improved interaction, increased customer loyalty, and long-term partnerships, which will eventually improve brand equity. Relational capital, which represents the value of communication of the firm with customers and stakeholders, is often the most poorly managed category of IC (Laghi et al., 2020). The relational capital of an organization cannot be evaluated without defining the value of customer relations. The significant role relational capital plays in determining the market value of companies is undeniable-RC builds business relationships, which in turn accelerates business growth and brand value.

H9: Extended relational capital efficiency (e-RCE) is positively impacting the brand value of Indian companies

Data

The sample consists of 208 companies listed in BSE 500 index, India. The data required for the calculation of VAIC™, Extended VAIC™, financial brand value, and other dependent, independent, and control variables have been collected from Bloomberg database, Thomson Reuters Eikon, and CMIE Prowess database for the period of ten years from 2010 to 2019. Statistical analysis software like MS-Excel, Eviews, Stata, and Gretl have been used for data analysis.

VAIC™ & e- VAIC™

VAIC™ (Value Added Intellectual Co-efficient): According to Pulic (2004), the computation of intellectual capital is as follows:

$$VAIC^{tm} = HCE + SCE + CEE \quad (1)$$

HCE = value added (V A)/human capital (HC)

SCE = structural capital (SC)/value added (V A)

CEE = value added (V A)/capital employed (CE)

Where, VAIC™ is the value added intellectual co-eûcient; HCE the human capital eûciency; SCE is the structural

capital efficiency; CEE the capital employed eûciency.

e-VAIC™ (Extended Value Added Intellectual Co-efficient): Ante Pulic's VAIC™ model has definite merit over other methods of measuring IC. It is based on audited financial data, has objectivity and verifiability, and can be used for cross-sectional comparisons (Firer & Williams, 2003). Nevertheless, the Pulic model has been criticized, and the requisite extension and modification to the original model has been advocated by many researchers. Hence in this study, we used RCE as the fourth component of IC and proposed an extended VAIC model to evaluate IC.

The proxy for RC is marketing, selling, and advertising expenses. It is assumed that such expenses are incurred to establish and maintain the relationship with external stakeholders (Nazari, 2010; Nimtrakoon, 2015; Ulum et al.,2014; Vishnu & Gupta, 2014)

e " *VAICt* = e-*HCE* + e-*SCE* + *e-CEE* + e-*RCE*…… (2)

where e-VAIC™ is the extended value added intellectual co-eûcient; e-HCE, extended human capital eûciency; e-SCE, the extended structural capital efficiency; e-CEE, the extended capital employed eûciency; and e-RCE, extended relational capital efficiency.

Hirose's Brand Valuation Model

The Hirose model was developed by a committee (Hirose, 2002) formed by the Japanese government in 2002 chaired by professor Hirose, School of Commerce- Waseda University, supported by 28 specialist researchers, academicians, industry experts from banking and business, lawyers, and professional accountants. Hirose believed that brand value is formed when there is an increase in the present and future cash flows out of competitive advantage. He assessed present, and future cash flows with three factors, i.e., price advantage, high degree of customer loyalty, and brand expansion strengths. These three factors were designed as the three key drivers in Hirose's model; Prestige driver (PD), loyalty driver (LD), and expansion driver (ED). According to Hirose, brand value is the function of these drivers adjusted with risk-free interest rate. The breakdown of the entire formula is presented below.

Brand Value

BV=f(PD,LD,ED,r)=PD/r+LD+ED ……..(3)

BV: brand value

PD: prestige driver

LD:loyalty driver

ED:expansion driver

r : risk-free interest rate.

Results & discussions

Since the panel specification tests with unit root test, Breuch Pagan LM Test and Hausman test suggested, all

models to be run in fixed effect estimation model panel regression equations for all models have been developed by firm fixed effect model. The findings of the regression equation developed into five models are summarized and presented in Tables I and 2. Model 1 explains the effect of intellectual capital efficiency (measured in original VAIC™ model) on the financial brand values of Indian companies. Model 2 explains the effect of components of ICE (measured in original VAIC™ model) on financial brand values. Model 3 explains the effect of intellectual capital measured in extended VAIC™ (e-VAIC™) on financial brand values. Finally, model 4 explains the effect of intellectual capital components measured in the extended VAIC™ (e-VAIC™) model on financial brand values (Table 2). All the models were included control variables to derive the finest results. For all the four models reported in Tables I and 2, LM statistics were insignificant (p >0.05) and which implies that the panel data estimations are preferable with ordinary least squares (OLS) technique over fixed effect (FE) and random effect (RE) and thus it did not suggest to go for Hausman tests.

Table I Summary of Panel Regression Results of Model 1 & Model 2

MODEL			1	2
Dependent Variable			Brand Value(LnBrV)	Brand Value(LnBrV)
Constant	Co-efficient	(Prob)	-0.34	-1.67***
e-VAIC (M-IC)	Co-efficient	(Prob)	0.04***	
HCE	Co-efficient	(Prob)	——	0.04***
SCE	Co-efficient	(Prob)	——	0.19***
CEE	Co-efficient	(Prob)	——	1.79***
LnAD	Co-efficient	(Prob)	0.18***	0.18***
ESG	Co-efficient	(Prob)	“0.003	“0.009***
LnSize	Co-efficient	(Prob)	0.60***	0.67***
LnAGE	Co-efficient	(Prob)	“0.042	“0.03
F-Stat (Prob)			193.44***	164.9***
Adj-R2			0.34	0.38
Durbin Watson			1.76	1.74
LM			0.93	0.86
Hausman			——	——
OLS/FE/RE			OLS	OLS
N			2080	2080

Note: ***, ** and * indicate significance level at 1 percentage, 5 percentage and 10 percentage respectively

Model 1 showed a statistically significant positive relationship between intellectual capital efficiency (measured in original Ante Pulic model) and financial brand value with a coefficient of determination of 0.04 percent. An additional unit of IC (VAIC™) increases the brand value by 0.04 units for the current year. Among control variables, the advertisement and size of the firms showed statistically significant positive relationship with the financial brand values of Indian

Table 2 Summary of Panel Regression Results of Model 3 & Model 4

MODEL			3	4
Dependent Variable			Brand Value(LnBrV)	Brand Value(LnBrV)
Constant	Co-efficient	(Prob)	"0.08	"1.11***
e-VAIC (M-IC)	Co-efficient	(Prob)	0.089***	——
HCE	Co-efficient	(Prob)	——	0.04***
SCE	Co-efficient	(Prob)	——	0.20***
CEE	Co-efficient	(Prob)	——	1.46***
RCE	Co-efficient	(Prob)	——	0.04*
LnAD	Co-efficient	(Prob)	0.230***	0.19***
LnSize	Co-efficient	(Prob)	0.48***	0.60***
LnAGE	Co-efficient	(Prob)	"0.01	"0.04
F-Stat (Prob)			212.2***	158.4***
Adj-R2			0.31	0.38
Durbin Watson			1.76	1.8
LM			1.0	0.85
Hausman			—-	
OLS/FE/RE			OLS	OLS
N			2080	2080

Note: ***, ** and * indicate significance level at 1 percentage, 5 percentage and 10 percentage respectively

The advertisement and size of the firms showed statistically significant positive relationship with the financial brand values of Indian companies.

companies. An additional unit spends on advertisement increases the brand values of Indian companies by 0.18 units for the current year. The age of the companies and CSR initiatives did not show any effect on financial brand values. This model has an F-value of 193.44, which is significant at a 99 percent confidence interval. The Durbin Watson value of 1.74 proves that the model is free from autocorrelation issues. Model 2 showed the effect of ICE components (VAIC™) on financial brand values. Among the components (HCE, SCE, and CEE), human capital efficiency (HCE) showed a statistically significant positive effect on financial brand values. An additional unit of human capital efficiency increases the brand value by 0.04 percent. Structural capital efficiency and capital employed efficiency showed a statistically significant positive effect on financial brand value. An additional unit of SCE and CEE increases the brand value by 0.19 and 1.7 units, respectively. This model has an F-value of 164.9, which is significant at a 99 percent confidence interval. The Durbin Watson value of 1.76 proves that the model is free from autocorrelation issues. Model 3 showed a statistically significant positive relationship between intellectual capital measured in extended VAIC™ (e-VAIC™) model and financial brand value with a coefficient of determination of 0.08 percent. An additional unit of ICE (e-VAIC™) increases the

brand value by 0.08 units for the current year. Among control variables, the advertisement and size of the firms showed statistically significant positive relationship with the financial brand values of Indian companies. This model has an F-value of 212.2, which is significant at a 99 percent confidence interval. The Durbin Watson value of 1.76 proves that the model is free from autocorrelation issues. Model 4 showed the effect of ICE components (e-VAIC™) on financial brand values. Among the components (e-HCE, e-SCE, e-CEE, and e-RCE), human capital efficiency (e-HCE) showed a statistically significant positive effect on financial brand values. An additional unit of human capital efficiency increases the brand value by 0.05 percent. Structural capital efficiency and capital employed efficiency showed a statistically significant positive effect on financial brand value. An additional unit of e-SCE and e-CEE increases the brand value by 0.2 and 1.4 units, respectively. The newly introduced component, i.e., e-RCE, showed a statistically significant positive relationship with the brand value of Indian companies. An additional unit of relational capital increases the brand value by 0.04 units. This model has an F-value of 158.4, which is significant at a 99 percent confidence interval. The Durbin Watson value of 1.8 proves that the model is free from autocorrelation issues.

We used the original VAIC™ model and the Extended VAIC™ model to gauge the ICE of Indian companies. We derived the financial brand values of the same Indian companies to check the nexus between IC and brand value. When ICE is measured at aggregate levels using the original VAIC™ method, ICE showed instances of a positive relationship with financial brand value. The result is in line with the findings of researches previously done on this ground (Gupta & Bhasin, 2014; Sadalia & Marlina, 2018). Analyzing the linkage between ICE and brand value by incorporating relational capital into IC and forming an extended model is a pretty new and original attempt in the research so far. The analysis of our study showed an instance of a positive relationship between ICE measured in the extended VAIC™ model and financial brand values of Indian companies. Interestingly, as expected, the extended variant of ICE showed a better prediction towards the brand value. The prediction expressed in coefficient value is double-fold (0.08) when compared to the original VAIC™ model (0.04). (Table I and Table 2). This concurs and supports the opinion that the inclusion of a new component to the original VAIC™ model has always shown improved explanatory powers (Chang & Hsieh, 2011). This is because of the inclusion of relational capital into the intellectual capital efficiency calculation. This proves the extended model used in this study is a better model to be adopted in the ICE-brand value-related studies to be conducted in the future. Hence this study serves as a benchmark for future studies with these findings.

ICE at the component level is also measured using both original VAIC™ (HCE, SCE, and CEE) and extended VAIC™ (e-HCE, e-SCE, e-CEE, and e-RCE) models. All the components were

The higher human capital values of a firm is an indication that it has employees who are friendlier, more competent, and skilled.

tested with brand value to see the relationship. Human capital efficiency in both the models (HCE & e-HCE) showed a positive relationship with the brand value being e-HCE as the better predicting model with a coefficient value of 0.05. The higher human capital values of a firm is an indication that it has employees who are friendlier, more competent, and skilled. This is paramount in creating and developing corporate brand identity among customers (Gupta & Bhasin, 2014). Structural Capital Efficiency in both original and extended IC models (SCE and e-SCE) showed a positive relationship, with e-SCE being a better predicting model with a coefficient value of 0.20. Structural capital allows a company to improve overall operating efficiency and create and maintain an expansive and rich information system, database, and knowledge base. This will help the company educate its customers about the special features and benefits of a product and to enrich the customers' identification with and recall of the product. (Gupta & Bhasin, 2014). Between CEE and e-CEE, CEE showed a better prediction of the positive relationship with brand value. This is the only instance where the original VAIC™ model component stands better predictor than the extended model. Relational capital efficiency (e-RCE), included only in the extended model, showed a positive relationship with brand value. Better customer relationship ensures a boost in brand value and performance of the companies. Higher relational capital helps an organization maintain solid relationships with its customers, which leads to more suggestions and feedback through corporate-customer interaction. This can also be used for the improvement of products and services in the future. Customer referrals help build brand awareness. Having more relational capital enables companies to provide products and services that satisfy customers, improve quality in general, and hence showcase better brand performance (Gupta & Bhasin, 2014).

Academic Implications

This study provides a detailed analysis of the measurement models for financial brand value developed across the world by various academicians and consultant agencies. An extensive review of the literature led to the identification of the most appropriate brand valuation model used exclusively from a financial perspective and could be calculated using accounting and mathematical equations from the data publicly available in the form of financial statements. Further, the calculations of brand value, VAIC™, and extended VAIC™ can be easily understood by students, researchers, government, and laymen. The study empirically tested the influence of the inclusion of relational capital in the ICE model on brand value. The study also provides a base for further future studies related to ICE-brand value linkage.

Managerial Implications

Linking financial intellectual capital with brand value remains a headache for marketing managers due to the complexities included in the calculation and development or identification of financial models. This study helps by providing a base for the methodologies that can be used to gauge the values of both. The findings of the study have implications for the departmental managers. Marketing managers can assess the linkage between ICE and brand value easily using the methodologies suggested. The study revealed a positive relationship between IC and brand value. Since the previous studies proved brand value increases profitability (Eng & Keh, 2007; Simon & Sullivan, 1993; Yeung & Ramasamy, 2008), and the stock price (Yeung & Ramasamy, 2008; Hsu et al*.,* 2013; Kirk et al*.,* 2013; Razwiedani et al., 2014; Topuz & Ak sit, 2016), managers should make efforts to increase the intellectual capital of the firms so that brand value can be boosted and thereby enhancing profitability and firm value. Marketing managers can also use the findings of the study related to the effect of CSR and advertisement on brand value. Since advertisement showed a positive relationship with brand value, managers can use the study's findings on decisions on advertisement and CSR spending.

IC measured in both methods (VAIC™ & e-VAIC™) at component levels revealed that all the components of IC, i.e., structural capital efficiency, human capital efficiency, capital employed efficiency, and relational capital efficiency showed a positive effect on brand value. Since structural capital is managed by top-level managers, they can easily take policies to enhance SCE and to increase the financial brand value of the companies. Human resource managers (HRM) can engage in boosting HCE towards increasing brand value and thereby firm value too. Since relational capital efficiency showed a positive effect on brand value, customer relationship managers (CRM) can frame policies and strategies to enhance RCE and boost the financial brand value of the companies. Altogether, this study serves implications to managers at all levels.

Implication to Investors

In a survey by Howrey (2002), conducted among 100 fund managers, investment managers, technical analysts, and venture capital analysts, 89% of them agreed that they considered the intellectual property and brand values of companies while making investment decisions, but only 33% of them formally tied to evaluate and measure the intangible values of these assets. This is due to the lack of a model. Over half of those surveyed were convinced that intellectual property could not be measured easily due to lack of awareness of models and data unavailability, and over two-thirds said that they resort to subjective valuations with primary data collected from customers. This study will help investors to adopt a model for evaluating the brand value and Intellectual capital to conduct analysis with formal objective values of brands to make better investment decisions. They can easily calculate the IC

and brand value and test the linkage of both using the methods discussed in the study.

Conclusion

This study was aimed to analyze the relationship between ICE and brand value using financial brand value calculated with Hirose model and ICE with original VAIC™ model developed by Ante Pulic (2000) and an extended VAIC™ model proposed by this study by incorporating relational capital into ICE calculation. Studying the relationship between IC and brand value was really a novice attempt. The relationship of ICE at the aggregate level on brand value has been studied using both the original VAIC™ model and the extended VAIC™ model. ICE gauged using both models showed a positive effect on the financial brand values of Indian companies. In fact, the prediction was a double fold in the case of the extended VAIC™ model compared to the VAIC™ model. Effect of ICE at the component level on brand value was also tested. Components of ICE in both original and extended models showed a positive effect on brand value. The study also aimed at analyzing the inclusion of RC into ICE calculation model has to do anything to the explanatory power and prediction of financial brand value. As expected, the inclusion of RC into the original model of VAIC™ showed a better prediction of brand value than the conventional VAIC™ model. The picture is almost the same in the case of ICE at the component level. All components of the extended VAIC™ model showed a better prediction of brand value except capital employed efficiency. Conclusively, intellectual capital and its components in both original and extended models showed a positive relationship with the financial brand values of Indian companies.

Intellectual capital and its components in both original and extended models showed a positive relationship with the financial brand values of Indian companies.

Even though the study used a large sample size compared to previous literature in the brand value environment and ICE as well, the study suffers the limitation of not including industry-specific analysis. Researchers can take this study as a base for ICE-brand value linkage-related studies to be conducted in the future.

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