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Impact of Business Sustainability Performance on Cost of Capital in Emerging Economies

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Abstract: Sustainability is the subject of 21st century. This study investigates whether and how cost of capital is inclined by different non-financial (SEGE) and financial (ECON) components of sustainability performance (SP) dimension individually and in aggregate. This study further investigates whether and how social, environmental governance and ethical (SEGE) and financial component of economic (ECON) sustainability performance interact and influence the cost of capital. The sample consists of non-financial firms from the BRICS countries listed at respective stock exchanges. Results of the analysis show that (ECON) and (SEGE) sustainability performance are negatively associated with CoE, CoD and CoC. When we decompose (ECON) dimension into operation efficiency, growth and research factor, results display that research factor and growth is negatively related to CoC and its components whereas operation efficiency is positively associated with CoE, however, it is not related with CoD and CoC. Results of (SEGE) on CoC and its components show that only environmental and governance component is negatively related with CoC and its components, however, there exists no relationship of social and ethical component with CoE, CoD and CoC. The relationship between (ECON) and CoE, CoD and CoC is further strengthened when (SEGE) is strong.

Keywords: Cost of capital, Sustainability performance (SP), Social, environmental, governance and Ethical (SEGE) SP, Economic (ECON) SP dimension.

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1 Introduction

Business Sustainability has gathered significant attention after the 2007 - 2009 global crises. Public companies are required to warrant sustainability in long term and are accountable to multiple

stakeholders. Brundtland Report in 1987 first defined sustainability or sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (WCED, 1987). Sustainability Performance information is demanded by global investors, required by regulators and research is started by scholars on assurance and reporting of performance related to sustainability (Rezaee, 2016; Brockett &Rezaee, 2012). It is evident from current research that business sustainability mainly focusing on CSR and moving from opportunistic and isolated efforts towards more holistic, integrated and strategic approach fetching diverse stakeholders and incorporating sustainability performance all dimensions (Kiron et al., 2013).

Companies, investors and regulators are showing interest in information pertaining to financial and non- financial social, environmental, governance and ethical sustainability performance. Financial statements contain economic sustainability performance which allow investors to ascertain the return and the risk related with investments. Jain et al. (2016) and Barth, Landsman, and Lang (2008) argued that financial information is vital for economic sustainability performance in the way of shareholders value creation and its link with stock prices. However, the social goals are translated with practices for social performance. This explains the degree of fulfillments of CSR by company by transforming its social mission into reality and aligning it with interest of the society. This includes the well-being of employees with the provision of health and well-being but are not detrimental part of product supply and high quality products that has the positive impact on sustainability of firms. They contribute towards society beyond complying with applicable standards, laws, common practices and regulations. Long term sustainable financial performance, enhanced reputation and improved corporate image is the result of social performance. Cheng, Loannou, and Serafeim (2014), Watson (2015) and Dhaliwal et al. (2011) advocated that value of the firm is enhanced and cost of capital is reduced through CSR Performance.

The achievement of wealth maximization goal for shareholders is only possible once we consider risks related to ESG (Staub-Bisang, 2012). Secondly, Kiron et al. (2013) pointed out that by concentrating on distinct components of ESG dimension of sustainability performance allows them to address sustainability risks that could influence financial sustainability and ultimately cost of capital. Firms having superior sustainability performance have motivation to signal it through disclosures according to signaling / disclosure theory (Lys, Naughton and Want, 2015). Fourthly, United Nations, (2013) pointed out that non-financial dimension of sustainability performance is as significant as financial dimension because it expose investors with new opportunities and risk in evaluating the portfolio investment valuation. The better interaction and communication with all the stakeholders associates both financial and non-financial sustainable performance (Eccles et al., 2014). The financial and non-financial components of sustainability performance are not only differently related to cost of equity but also with cost of dent and cost of capital. Both financial and non-financial components are helpful for the firms to reduce the cost of equity (Dhaliwal et al., 2011). The social sustainability performance marginally explains the cost of capital of firms. The strong non-financial sustainability performance in terms of social, environmental, governance and ethical contributions are significantly betters the financial indicators of firms which helps them to reduce the cost of capital. The economic sustainability performance takes into account long term along-with short term profitability while considering investment for future growth (Ng &Rezaee, 2015). Both debt and equity financing has the cost where firms bears the weighted average cost of capital (Sharfman& Fernando, 2008; Modigliani & Miller, 1958).

This study is motivated by the following factors: Firstly, due to its dependence on stakeholder theory, this paper consists of external as well as internal stakeholders. There is a reciprocal relationship between

firm and stakeholders in a sense that their wellbeing is influenced by firm's performance and they contribute towards the value creation of the firm. The two theories i.e. Stakeholder Theory (Freeman, 1984) and Enlightened Value Maximization Theory (Jensen, 2002) identify the maximization of firm performance and firm long term value as the condition for matching all stakeholders' interests. Secondly, previous research is scattered on the sustainability relationship with equity's cost (Dhaliwal et al., 2011; Botosan, 1997), cost of debt (Sharfman & Fernando, 2008; Chava, 2014; Goss & Roberts, 2011; Zhang & Ding, 2006; Ye & Zhang, 2011), cost of capital (Leuz &Wysocki, 2008; Gao, 2010; Clark et al., 2015). Inconsistent results of previous related studies along with the fact that these studies only addressed a single dimension of sustainability performance that motivated us to examine the financial and non-financial components of sustainability with cost of capital.

This study contributes in a number of ways. The association between financial and non-financial components of sustainability performance and cost of capital is explored in emerging economies. The financial components are operational efficiency, growth opportunities and research effort while non-financial components are social, environmental, governance and ethical standards. The study contributes through the direct relationship of sustainability performance dimensions with different measures of cost of capita both individually and jointly. The study also contributed through the moderating effect of economic sustainable performance between non-financial sustainable performance and cost of capital. Most of the prior research focused on individual sustainability dimension and its effect on cost of equity. This study focuses on individual and overall sustainability performance dimensions whether (ECON) and (SGEE) by examining the relationship between cost of equity and long term sustainability and to what extent this relationship is influenced by (SEGE) sustainability performance dimension. This study is further explored the multiple dimensions of financial and non-financial sustainable performance while identifying the relationship with multiple measures of cost of capital. This paper complements the past research in a way that we have checked integrated and interactive effects of financial (ECON) and non-financial (SEGE) performance on CoE. Moreover, we have examined that whether ECON is linked with CoE by bifurcating ECON into operational efficiency, growth opportunities and research effort and their differential impact on CoC.

2 Literature Review

The cost of equity is reduced with high quality accounting information and financial performance by impacting assessments of investor's insecurity about cash flows (Hou et al., 2012; Lambert et al., 2011). The quality and quantity of information in required return of company represent the equity's cost (Easley & O'Hara, 2004). These returns are affected by the information risk which can be improved with better financial information (Leuz &Verrecchia, 2005). The focus on non-financial and financial sustainability performance correct the inefficiencies in market and lower the cost of capital (Ng & Rezaee, 2015). The good financial economic sustainable performance display lesser betas as compared with companies having poor sustainability performance. The better financial economic sustainability performance makes the investors confident about future cash flows predictions and then decreases the risk premium required by investors. It expand the investor's base and make them aware towards firm's sustainability that lower the cost of equity (Leuz &Wysocki, 2008). The investor's uncertainty about sustainable performance is reduced by higher financial quality, while ultimately cut the cost of capital (Leuz and Wysocki, 2008). The superior sustainability performance by paying attention towards society and environment craft the firm's reputation with stakeholders (Porter and Kramer, 2006). The superior information disclosure uncover the unfavorable information for valuable decision making and it lower the cost of capital/debt/equity (Sengupta, 1998; Zhang, 2006; Bhattacharya et al., 2003; Francis et al., 2004; Lambert el al., 2007). The financial information's quality reduces capital's cost by reducing

investor's information risk (Leuz&Verrecchia, 2005; Richardson & Welker, 2001). This happens due to the reduction in information asymmetry (Matthiesen& Salzmann, 2015; Ferris, Javakhadze & Rajkovic, 2017). A strong governance mechanism reduce the information asymmetry and perceived risk which ultimately decrease the cost of equity/capital (Pham et al., 2012; Chen et al., 2012; Clark et al., 2015). The cost of equity can be reduced through improved environmental risk management (Sharfman& Fernando, 2008). Social, environmental, governance and Ethical (SEGE) improvements and initiatives can affect positively financial performance and reduces the cost of equity.

It is pertinent to mention that sustainability performance and sustainability disclosure are two facet of sustainability (Jain et al., 2013). Fatemi et al., (2017) pointed out that qualitative information on ESG (non-financial sustainability performance) and ESG disclosure jointly affect the value of the firm. The use of ESG reduce and mitigate the risk through the reduction of cost of equity (Cooper, 2014; Raimo et al., (2020). Risk is indirectly related with ESG sustainability (Albuquerque et al., 2018; Cai et al., 2016). Both community and firm gain advantages from business and this ultimately generates sustainable wealth (Devalle, Fiandrino & Cantino, 2017). The three independent socially responsible dimensions are namely societal stakeholders (society and environment), business stakeholders (customers, employees and suppliers) and financial stakeholders (debt holders and stockholders) (Girerd-Potin et al., 2014). The socially responsible actions of firms decrease the cost of equity (Suto&Takehara, 2017; Hajawiyah et al., 2019; Hmaittane et al., 2019; Jiménez &Grima, 2021; Crifo& Forget 2015; Borghesi et al., 2014; Yi et al., 2020). Companies having better scores related to CSR display or disclosure lower the cost of equity (Ok & Kim, 2019; El Ghoul et al., 2011; Dhaliwal et al., 2011; Matthiesen& Salzmann, 2017). CSR score decreases stock return volatility, information asymmetry, implicit equity's cost which in turn enhances firm value (Harjoto& Jo, 2015). However, some studies found a positive relationship between CSR disclosure and cost of equity (Dahiya& Singh, 2020). The association between CSR performance and cost of equity is positive in stakeholder oriented system and negative in shareholder oriented system (Desender et al., 2020). The financial transparency and good governance also reduces the cost of equity (Cheng et al., 2006). The economic sustainability reporting reduces the cost of equity and debt (Shad et al., 2020). Li et al., (2014) found no significant relationship between emission intensity and cost of equity in Australia. Moreover, CSR does not show any significant association in a sample of US firms (Goss and Roberts, 2011).

The corporate bond's cost (Menz, 2010; Ge&Lui, 2015; Chen, Kacperczyk, & Ortiz- Molina, 2012) and loans extended by banks and private debt (Cooper &Uzun, 2015; Hoepner et al., 2016; Goss & Roberts, 2011; Anis&Utama, 2016) are another stream of cost of capital. The CSR disclosure is inversely related with corporate bond's cost (Gong et al., 2018). A lower yield spreads are related with greater CSR score in better credit ratings and new bond issue (Ge&Lui, 2015). However, greater CSR commitments require greater risk premium (Menz, 2010). The sustainable credit scoring system helps the company to show their sustainability commitment (Zeidan et al., 2015). The environmental and social awareness in evaluation of credit scoring not only allocate resources efficiently but also lead to superior ranking by the financial institutions (Devalle, Fiandrino&Cantino, 2017). The implementation of risk adjusted measures where scores related to ESG are added and credit score system could nurture sustainable development for all stakeholders (Bonini& Emerson, 2005). Credit ratings are considered one of the channels through which cost of debt of company is lowered by firms (La Rosa et al., 2018; Ge& Liu, 2015). The socially responsible firms pay less cost of bank loans (Goss & Roberts, 2011). The debt financing cost and equity cost reduces with improved CSR activities/disclosures (Bacha et al., 2020; Yeh et al., 2020; Xu et al., 2019; Ye & Zhang, 2011; Bhuiyan& Nguyen, 2019). Du et al., (2017) found a negative association between interest rate on debt and corporate environmental performance. Both social and environmental activities have an impact on

loan financing but environmental activities have more cost reduction than the social activities (Hoepner et al., 2016). Prihastiwi and Fatimah (2020) found the negative relationship of sustainability reporting with cost of equity but no association with cost of debt. Magnanelli and Izzo (2017) found the positive relationship between CSR and cost of debt. Firms having environmental concerns have to pay higher spreads on their loans (Chava, 2014).

The individual components like social, environmental, governance and ethical dimensions of non-financial sustainability addresses the sustainability risk and influences the cost of capital (Kiron et al., 2013). These components differently impacts the financial performance of firms and cost of equity (Clarkson et al., 2011; Jain et al., 2013; Ng &Rezaee, 2015). Companies with superior social, environmental, governance and Ethical (SEGE) sustainability performance can increase the productivity with low cost of capital. The financial dimensions of sustainable performance reflects the quality of information in terms of complete and accurate financial information. These dimensions should affect both cost of debt and equity in an unambiguous way. The disclosure of information with respect to economic sustainability is helpful for investors to make better decisions based on relevant information that lower the cost of capital i.e cost of debt (Ng &Rezaee, 2012). The financial disclosure lower the cost of debt (Zhang & Ding, 2006). Investors' uncertainty about company's sustainable profitability is reduced through higher disclosure quality, which ultimately decreases the cost of capital (Healy &Palepu, 2001; Leuz&Wysocki, 2008). The disclosure quality improve the investor welfare and resultantly cost of capital is reduced (Gao, 2010).

3 Methodology

The study aims to identify the influence of financial and non-financial sustainable performance on cost of capital of companies listed on BRICS stock exchange. The sample consists the non-financial firms from the BRICS countries namely Brazil, Russia, India, China and South Africa listed at stock exchanges of respective countries. The sample covered the firms engaged in social, environmental, governance and ethical activities that plays a comprehensive role in determining the cost of capital. Moreover, the financial disclosure in terms of accounting quality disclosure. The sample covers firms from each country i.e. Brazil (52), Russia (47), India (54), China (42) and South Africa (55) for the period 2009-2018. Data is collected from Orbis company focus, Fitch connect database.

3.1 Economic sustainability performance (ECON)

The economic sustainability performance takes into account long term along-with short term profitability while considering investment for future growth (Ng &Rezaee, 2015). It is the financial sustainability of firms. We have taken seven variables i.e. TOBINSQ, ROE, SALES, SALESGR (Sales Growth), MVBV (Market Value to Book Value), RD (Research & Development), DIVIDOMS (Dividends Omission). By employing these variables, we capture measures of profitability (ROE and SALES), Growth measurement (TOBINSQ, SALESGR and MVBV) and long term profitability's investment (RD and Dividend Oms). The study grouped each factor as MVBV and TOBINSQ as growth factor, GR, and ROE, SALES and SALESGR is grouped as Operation efficiency, OPt and RD and DIVIDENDOMS is grouped as research effort factor (RES).

3.2 Social, environmental, governance and ethical sustainability performance (SEGE)

We have followed Kim et al. (2012), Ng and Rezaee (2015), and Dhaliwal et al. (2011), and developed index like KLD index. KLD STATS database used for measuring social, environmental, governance and ethical (SEGE) measures of sustainability performance. They have pointed out that this database collects data on the strengths and concerns normally referred to as positive and negative signs, use approx. eighty signs in seven areas and is free from selection bias. The main areas are corporate governance, community, employee relations, diversity, human rights, environment and products quality. Firstly, by using all the strengths and concerns which represent SEGE sustainability performance, we have

developed an Index. Secondly, we have mapped attributes to SEGE dimensions in order to check the impact of various measures of sustainability performance on cost of capital. Moreover, we also checked the overall impact as well by following prior research (Kim et al., 2012; Dhaliwal et al., 2011). There is question arise of subjectivity by classifying different strengths and concerns into SEGE dimensions. To overcome this issue, we have conducted sensitivity tests by using alternate definitions and our results are robust to different definitions.

Our proxy of environmental sustainability performance uses the environmental concerns and strengths, social sustainability performance uses the strengths and concerns related to diversity and community, governance sustainability performance uses the CG and product quality's concerns and strengths, ethical sustainability performance uses the strengths and concerns of employee relations and human rights and overall number of strengths and concerns are used to capture the overall impact of SEGE sustainability performance on cost of capital.

3.3 Cost of Capital

Cost of equity is the cost of capital and is calculated by using Gordon model which is based on the finite horizon expected return model. The implied cost of equity is measured as the internal rate of return which equals the current price to the present value of future expected cash flows. Finite horizon expected return model explains that price is the present value of future dividend. Therefore, we have calculated GORDON by using the following equation:-

$$Pt = \frac{Et\,(EPSt+1)}{GORDONt} \qquad \textbf{(I)}$$

Pt is the current price at time t, GORDONt is measured as the implied cost of equity, Et is the market expectations in year t, EPSt+1 is the earnings per share of year t+1.

The cost of debt (Kd)is second measure for cost of capital and is measured as company's ratio of interest expense in year t+1 to average interest bearing debt outstanding in year t and t+1 in this paper (Magnanelli&Izzo, 2017).

Weighted average cost of capital is the combine cost of debt and equity and can be calculated as the after tax weighted average cost (Sharfman& Fernando, 2008; Modigliani & Miller, 1958) and is denoted by COC.

The following control variables namely liquidity ratioLIQ. LEV is measured as the ratio of total debt to total assets. SIZE is measured as the log of market value of equity. Zmijewsik (1984) developed a measure to capture financial distress, so we have employed ZMIJt. For controlling systematic risk, we have used BETAt. It is calculated by single market returns and annual stock returns during the year. For controlling overall profitability, a dummy variable is employed (DLOSSt). Accrual related variables is ACCL(Francis et al., 2005).

Table 1: Definition of Variables

Variables	Measurements	Sign	Evidence
TOBINSQ	Tobin's Q		Larcker et al. (2007)
ROE	Return on equity		
SALES	Sales scaled by total assets		
SALESGR	Sales growth scaled by total assets		
MVBVt	Market to book value of equity		
RD	Research and development expenses scaled by total assets		
DIVIDOMS	Dummy variable that represents omission of dividend: 1 if		

	dividend payment is zero; 0 otherwise;		
Cost of Equity GORDON	Implied cost of equity for year t calculated following the methodology illustrated in Gordon and Gordon (1997) — by solving the following equation: Pt = Et(EPSt + 1)/GORDONt where GORDONt is the implied cost of equity, Pt is price per share at time t, Et denotes market expectations based on information available in year t and EPSt + 1 is earnings per share in year t + 1;		Ng and Rezaee (2015)
Cost of Debt Kd	Realized Cost of Debt – ratio of firm's interest expense in year t+1 to average interest-bearing debt outstanding in year t and t+1		Magnanelli and Izzo (2017)
Cost of Capital WACC	Weighted Average Cost of Capital		Suto and Takehara (2017)
Sustainability Performance Variables			
GR	Economic dimension of sustainability performance — Growth factor	−	Ng and Rezaee (2015)
OP	Economic dimension of sustainability performance — Operation factor	+	
RES	Economic dimension of sustainability performance — Research factor	−	
ECON	Summary of economic dimension of sustainability performance — Average of GR_t, OP_t, and RES_t.	−	
ENV	Environmental dimension of sustainability performance: Number of environmental strengths minus number of environmental concerns;	−	
SOC	Social dimension of sustainability performance: Number of social strengths minus number of social concerns;	+	
GOV	Governance dimension of sustainability performance: Number of governance strengths minus number of governance concerns;	−	
ETH	Ethical dimension of sustainability performance: Number of governance strengths minus number of governance concerns;	+	
KLD	Summary of ESG dimension of sustainability performance: Number of strengths minus number of concerns in the KLD database;	−	
ECON * ENV	Interaction Term between environmental and economic sustainability performance.	−	
ECON* SOC	Interaction Term between social and economic sustainability performance.	−	
ECON* GOV	Interaction Term between governance and economic sustainability performance.	−	
ECON* ETH	Interaction Term between ethical and economic sustainability performance.	−	
ECON * KLD	Interaction Term between overall (total) sustainability performance and economic sustainability performance.	−	

Control Variables			
LIQ	Liquidity measure, equals to common shares traded during fiscal year divided by number of total shares outstanding;	+	Ng and Rezaee (2015)
LEV	Ratio of total debt to total assets in year t;	+	
SIZE	Natural logarithm of market value of equity in year t;	−	
ZMIJ	Probability of bankruptcy proxied by Zmijewski's Z-score = −4.3 to 4.5 × net income/total assets + 5.7 × total debt/total assets− 0.004 × current assets/current liabilities	+	
BETA	Beta calculated using the market model in year t;	−	
DLOSS	Dummy variable; equals 1 when net income is less than 0 and 0 otherwise;	−	

4 Tests and results

When we apply statistical models to panel data, there are two issues which arise. First is related to incorrectly specified test statistics (overstated t statistics) due to firm fixed effects that drive time series correlation and year specific fixed effects that drive cross sectional correlation (Gow et al., 2010). There are two methodologies used in previous research to overcome this problem. First is related to the use of regressions with fixed effects at industry/firm and year levels. We have also controlled fixed effects of years and firms in the study.

4.1 Economic sustainable performance and cost of equity

We have examined the impact of economic sustainable performance on cost of equity. Our model is based on the equation II which tests the impact of economic sustainable performanceon cost of equity, after controlling firm and year fixed effects. In equation II, we have not only explored the overall impact of economic sustainability performanceon cost of equity through different elements (GRt-1, OPSt-1, RES (t-1) of ECON on cost of equity. We also captured the overall impact of economic sustainable performanceon cost of equity by using ECON index and GRt-1, OPSt-1, RESt-1 simultaneously in our model.

$$GORDON_t = \beta 0 + \beta 1GR_{j,i,t-1} + \beta 2OP_{j,i,t-1} + \beta 3RES_{j,i,t-1} + \beta 4ECON_{j,i,t-1} + \beta 5LIQ_{j,i,t-1} + \beta 6LEV_{j,i,t-1} + \beta 7SIZE_{j,i,t-1} + \beta 8ZMIJ_{j,i,t-1} + \beta 9BETA_{j,i,t-1} + \beta 10DLOSS_{j,i,t-1} + \beta 11ACCL_{j,i,t-1} + \varepsilon_{j,i,t} \quad \textbf{(II)}$$

Table 3 shows the results. GORDONt is used as a dependent variable and for the measurement of cost of equity. Model (1) is used as a base model and it is evident from the results that control variables are linked to cost of equity significantly (Hou et al., 2012). Both DLOSSt-1 and BETAt-1 are significantly negatively associated to cost of equity. Model (2), (3), and (4) shows that GRt-1 and RESt-1 are negatively whileOPSt-1 is significantly positively associated to CoE. Model 5 which includes GRt-1, OPSt-1 and RESt-1 simultaneously, the results are the same as are shown in Model (2), (3) and (4). Moreover, while combining GRt-1, OPSt-1 and RESt-1 into economic sustainability performance (ECONt-1), the results shows the same significant negative association (Model 6).

Table 2 (A)

Panel A: Descriptive statistics (N=300)

	Mean	P1	Q1	Median	Q3	P99	Standard Deviation

GORDONt	4.3142	0.2596	2.4569	5.6874	7.4985	19.8716	3.7496
GRt-1	0.2146	-0.6429	-0.4164	-0.0356	0.4967	5.0168	0.9149
OPt-1	0.2986	-0.8596	-0.2551	0.1749	0.6982	3.1498	0.8741
RESt-1	-0.0759	-0.8746	-0.8742	-0.8469	0.9876	1.5479	0.7129
ECONt-1	0.1750	-0.7549	-0.2985	0.0749	0.4791	1.9783	0.9451
KLDt-1	-0.1459	-8	-3	0	0	11	3.2196
ENVt-1	0.0129	-4	-1	0	1	4	0.7449
SOCt-1	0.1495	-3	-1	0	0	6	2.8964
GOVt-1	-0.2874	-3	-1	0	1	3	1.0069
ETHt-1	0.1479	-2	0	0	1	2	0.4967
LIQt-1	2.4986	0.2189	0.9147	1.8964	3.1496	9.7496	1.8964
LEVt-1	0.4189	0.0749	0.2856	0.4159	0.5196	0.9967	0.2142
LNMVEt-1	8.9654	3.5496	7.5986	8.5496	9.7496	12.4967	1.5967
ALTMANt-1	4.2986	-2.7496	0.6984	1.9645	4.1697	28.7469	6.1293
BETAt-1	1.5496	0.1959	0.7496	1.5479	1.7854	3.4596	0.5132
DLOSSt-1	0.0749	0	0	0	0	1	0.3149
ACCLt-1	-0.0359	-0.2496	-0.0459	-0.0896	-0.0419	0.1967	0.0893

Table 2 (B)

Calculation of economic SP.

Panel B: Spearman (Pearson) correlations between variables to estimate economic SP (ECON) and factor scores above (below) diagonal

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) GORDONt	N/A																
(2) GRt-1	-0.08***	N/A															
(3) OPt-1	0.16***	0.12***	N/A														
(4) RESt-1	-0.04***	0.06***	-0.06***	N/A													
(5) ECONt-1	-0.05***	0.45***	0.42***	0.69***	N/A												
(6) KLDt-1	-0.03***	0.12***	-0.02***	-0.09***	0.04***	N/A											
(7) ENVt-1	-0.06***	0.07***	-0.04***	0.07***	0.06***	0.75***	N/A										
(8) SOCt-1	-0.01***	0.16***	-0.05***	-0.19***	0.01***	0.64***	0.38***	N/A									
(9) GOVt-1	-0.04***	-0.02***	0.02***	0.08***	0.02***	0.34***	0.19***	-0.01***	N/A								
(10) ETHt-1	-0.02***	-0.03***	0.04***	0.04***	0.01***	0.25***	0.14***	-0.02***	-0.04***	N/A							
(11) LIQt-1	0.08***	0.08***	0.03***	0.29***	0.21***	-0.08***	0.09***	-0.06***	-0.07***	0.24***	N/A						
(12) LEVt-1	0.11***	0.07***	0.08***	-0.09***	-0.09***	0.01***	-0.04***	0.15***	-0.15***	-0.14***	-0.06***	N/A					
(13) LNMVEt-1	-0.02***	0.21***	-0.02***	-0.25***	0.03***	0.19***	0.06***	0.49***	-0.39***	0.09***	0.04***	0.29***	N/A				
(14) ALTMANt-1	-0.13***	0.46***	-0.07***	0.09***	0.45***	0.07***	0.05***	0.03***	0.07***	0.19***	0.16***	-0.71***	0.09***	NA			
(15) BETAt-1	0***	-0.03***	-0.03***	0.31***	0.15***	-0.15***	-0.06***	-0.19***	0.08***	0.04***	0.39***	-0.16***	-0.19***	0.12***	NA		
(16) DLOSSt-1	-0.02***	-0.06***	-0.21***	0.19***	-0.08***	-0.06***	-0.04***	-0.09***	0.01***	0.06***	0.05***	0.09***	-0.21***	-0.08***	0.19***	NA	
(17) ACCLt-1	0.06***	-0.08***	0.07***	-0.09***	0.01***	-0.03***	0.01***	-0.07***	0.02***	-0.07***	-0.15***	-0.08***	0.01***	0.03***	0.02***	0.02***	NA

Please refer to Table 1 for definition of variables used in this paper. T-statistics are shown right below. ***, ** and, * indicate significance at a p-value of less than the 1% level (2-tailed), 5% level (2-tailed), and 10% level (2-tailed) respectively

4.2 Economic sustainable performance and cost of debt

We have examined the impact of economic sustainable performance on cost of debt. Our model is based on the equation III which tests the impact sustainable economic performance cost of debtafter controlling firm and year fixed effects. In equation III, we have not only explored the overall impact of economic sustainability performance (ECONt-1) on cost of debt but also explored the differential effect of different elements (GRt-1, OPSt-1, RESt-1) of ECON on cost of debt. We have also captured the overall impact of (ECONt-1) on CoD by using ECON index and GRt-1, OPSt-1, RESt-1 simultaneously in our model.

$$KDt = \beta 0 + \beta 1GRj,i,t-1 + \beta 2OPj,i,t-1 + \beta 3RESj,i,t-1 + \beta 4ECONj,i,t-1 + \beta 5LIQj,i,t-1 + \beta 6LEVj,i,t-1 + \beta 7SIZEj,i,t-1 + \beta 8ZMIJj,i,t-1 + \beta 9BETAj,i,t-1 + \beta 10DLOSSj,i,t-1 + \beta 11ACCLj,i,t-1 + \varepsilon j,i,t \textbf{(III)}$$

All the other variables are defined in earlier subsection. Table 3 shows the results. KDt is used as a dependent variable and for the measurement of cost of debt. Model (1) is used as a base model and it is evident from the results that control variables are associated to cost of debt significantly. LEVt-1 is positively related, SIZEt-1, ZMIJt-1 andDLOSSt-1 are significantly negatively related and ACCLt-1 is not related to cost of debt. Model (2), (3), and (4) shows that GRt-1 and RESt-1 are negatively whileOPSt-1 is significantly positively related to cost of debt. Model 5 which includes GRt-1, OPSt-1 and RESt-1 simultaneously, the results are the same as are shown in Model (2), (3) and (4). Moreover, while combining GRt-1, OPSt-1 and RESt-1 into economic sustainability performance (ECONt-1), the results shows the same significant negative association (Model 6).

4.3 Economic sustainable performance and cost of capital (CoC)

We have examined the impact of sustainable economic performance on cost of capital. Our model is based on the equation IV which tests the impact of sustainable economic performance on cost of capital, after controlling firm and year fixed effects. In equation IV, we have not only explored the overall impact of (ECONt-1) on cost of capital but also explored the differential effect of different

elements (GRt-1, OPSt-1, RESt-1) of ECON on CoC. We have also captured the overall impact of economic sustainability performance (ECONt-1) on CoC by using ECON index and GRt-1, OPSt-1, RESt-1 simultaneously in our model.

$$COC_t = \beta 0 + \beta 1GR_{j,i,t-1} + \beta 2OP_{j,i,t-1} + \beta 3RES_{j,i,t-1} + \beta 4ECON_{j,i,t-1} + \beta 5LIQ_{j,i,t-1} + \beta 6LEV_{j,i,t-1} + \beta 7SIZE_{j,i,t-1} + \beta 8ZMIJ_{j,i,t-1} + \beta 9BETA_{j,i,t-1} + \beta 10DLOSS_{j,i,t-1} + \beta 11ACCL_{j,i,t-1} + \varepsilon_{j,i,t} \textbf{(IV)}$$

All the other variables are defined in earlier subsection. Table 3 shows the results. Cost of capital is used as a dependent variable. Model (1) is used as a base model and it is evident from the results that control variables are related to cost of capital. LEVt-1 is positively related, SIZEt-1, ZMIJt-1 andDLOSSt-1 are significantly negatively related and ACCLt-1 is not related to cost of capital. Model (2), (3), and (4) shows that GRt-1 and RESt-1 are negatively whileOPSt-1 is significantly positively associated to cost of capital. Model 5 which includes GRt-1, OPSt-1 and RESt-1 simultaneously, the results are the same as are shown in Model (2), (3) and (4). Moreover, while combining GRt-1, OPSt-1 and RESt-1 into economic sustainability performance (ECONt-1), the results shows the same significant negative association (Model 6).

4.4 Social, environmental, governance and ethical sustainable performance (SEGE) and cost of equity

We have examined the impact of Social, environmental, governance and ethical sustainable performance and cost of equity. Our model is based on the equation V which tests the impact of (SEGEt-1) on cost of equity, after controlling firm and year fixed effects. In equation V, we have not only explored the overall impact of (SEGEt-1) on cost of equity but also explored the differential effect of different elements (ENVt-1, SOCt-1, GOVt-1, ETHt-1) of SEGE on CoE. We have also captured the overall impact of social, environmental, governance, ethical sustainability performance (SEGEt-1) on CoE by using KLD t-1 index and SOCt-1, ENVt-1, GOVt-1, ETHt-1 simultaneously in our model.

$$GORDON_t = \beta 0 + \beta 1ENV_{j,i,t-1} + \beta 2SOC_{j,i,t-1} + \beta 3GOV_{j,i,t-1} + \beta 4ETH_{j,i,t-1} + \beta 5KLD_{j,i,t-1} + \beta 6LIQ_{j,i,t-1} + \beta 7LEV_{j,i,t-1} + \beta 8SIZE_{j,i,t-1} + \beta 9ZMIJ_{j,i,t-1} + \beta 10BETA_{j,i,t-1} + \beta 11DLOSS_{j,i,t-1} + \beta 12ACCL_{j,i,t-1} + \varepsilon_{j,i,t} \textbf{(V)}$$

Results of equation V are reported in Table 4. GORDONt is used as a dependent variable and for the measurement of cost of equity. Model 1 to 3 examine the impact of SEGEt-1 on cost of equity individually after controlling for ECONt-1. It is evident from the results that governance (GOVt-1)and environmental (ENVt-1) sustainable performance are significantly negatively associated with cost of equity (Bebchuk et al., 2013). However, social (SOCt-1) and ethical (ETHt-1) sustainable performance are not related with cost of equity which means that firms with strong social and ethical sustainable performance do not gain lower cost of equity. Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 SP simultaneously, the results indicate significant negative relationship among governance (GOVt-1)and environmental (ENVt-1) sustainable performance and cost of equity. However, there exists positive relationship between social (SOCt-1) sustainable performance and cost of equity which is stable with previous research that firms with strong institutional ownership structure are less likely to invest in CSR (Borghesi et al., 2014). Model 6 checks the association of overall SEGEt-1 sustainable performance measured as KLDt-1 with cost of equity and there exists significant negative relationship between KLDt-1 and cost of equity (Dhaliwal et al., 2011). We have also checked the impact of (SEGEt-1) and cost of

equity without controlling for (ECONt-1) in order to validate our results and our results (not reported) are quite identical to the reported results.

4.5 Social, environmental, governance and ethical sustainable performance (SEGE) and cost of debt

We have examined the impact of (SEGEt-1) on cost of debt. Our model is based on the equation VI which tests the impact of (SEGEt-1) on cost of debt, after controlling the firm and year fixed effects. In equation VI, we have not only explored the overall impact of (SEGEt-1) on cost of debt but also explored the differential effect of different elements (ENVt-1, SOCt-1, GOVt-1, ETHt-1) of SEGE on cost of debt. We have also captured the overall impact of (SEGEt-1) on cost of debt by using KLD t-1 index and SOCt-1, ENVt-1, GOVt-1, ETHt-1 simultaneously in our model.

$$KDt = \beta 0 + \beta 1ENVj,i,t-1 + \beta 2SOCj,i,t-1 + \beta 3GOVj,i,t-1 + \beta 4ETHj,i,t-1 + \beta 5KLDj,i,t-1 + \beta 6LIQj,i,t-1 + \beta 7LEVj,i,t-1 + \beta 8SIZEj,i,t-1 + \beta 9ZMIJj,i,t-1 + \beta 10BETAj,i,t-1 + \beta 11DLOSSj,i,t-1 + \beta 12ACCLj,i,t-1 + \varepsilon j,i,t \textbf{(VI)}$$

Results of equation V are reported in Table 5. KDt is used as a dependent variable and for the measurement of cost of debt. Model 1 to 3 examine the impact of SEGEt-1 sustainable performance on cost of debt. It is evident from the results that governance (GOVt-1)and environmental (ENVt-1) sustainability performance are significantly negatively related with cost of debt. However, social (SOCt-1) and ethical (ETHt-1) sustainability performance are not related with cost of debt which means that firms with strong social and ethical sustainable performance do not gain lower cost of debt. Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance simultaneously, the results indicate significant negative relationship among governance (GOVt-1)and environmental (ENVt-1) sustainability performance and cost of debt. However, there exists positive relationship between social (SOCt-1) sustainability performance and debt cost. Model 6 checks the association of overall SEGEt-1 sustainability performance measured as KLDt-1 with cost of debt and there exists significant negative relationship between KLDt-1 and cost of debt. We have also checked the impact of social, environmental, governance, ethical sustainability performance (SEGEt-1) and cost of debt without controlling for economic sustainability performance (ECONt-1) in order to validate our results and our results (not reported) are quite identical to the reported results.

Table 3

Effect of Economic Sustainability Performance (ECON) on Cost of equity, Cost of debt and Cost of Capital

$GORDON_t = \beta0 + \beta1GR_{j,i,t-1} + \beta2OP_{j,i,t-1} + \beta3RES_{j,i,t-1} + \beta4ECON_{j,i,t-1} + \beta5LIQ_{j,i,t-1} + \beta6LEV_{j,i,t-1} + \beta7SIZE_{j,i,t-1}$

$Kd_t = \beta0 + \beta1GR_{j,i,t-1} + \beta2OP_{j,i,t-1} + \beta3RES_{j,i,t-1} + \beta4ECON_{j,i,t-1} + \beta5LIQ_{j,i,t-1} + \beta6LEV_{j,i,t-1} + \beta7SIZE_{j,i,t-1} + \beta8Z$

$COC_t = \beta0 + \beta1GR_{j,i,t-1} + \beta2OP_{j,i,t-1} + \beta3RES_{j,i,t-1} + \beta4ECON_{j,i,t-1} + \beta5LIQ_{j,i,t-1} + \beta6LEV_{j,i,t-1} + \beta7SIZE_{j,i,t-1} + \beta8$

Panel A	**Dependent Variable : Cost of equity (N=500)**							**Dependent Variable : Cost of debt (N=500)**						**Dependent Variable : Cost of capital (N=500)**				
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Growth Factor		-0.5120***			-0.7159***			-0.6242***			-0.6971***			-0.5719***			-0.7271***	
		(-21.56)			(-26.71)			(-23.19)			(-25.19)			(-22.17)			(-27.10)	
Operational			0.2146***		0.3967***				0.2459***		0.3149***				0.2319***		0.3567***	
Efficiency			(6.96)		(13.37)				(8.34)		(12.19)				(7.79)		(12.15)	
Research Effort				-0.1267***	-0.0841***					-0.1319***	-0.0612***					-0.1146***	-0.0691***	
				(-4.89)	(-3.21)					(-4.97)	(-2.01)					(-4.67)	(-2.81)	
ECON						-0.6719***						-0.6116***						-0.6911***
Sustainability						(-12.89)						(-11.71)						(-12.99)
Liquidity	0.1258***	0.1467***	0.1365***	0.1487***	0.1631***	0.1731***	0.1138***	0.1541***	0.1219***	0.1316***	0.1711***	0.1867***	0.1369***	0.1419***	0.1467***	0.1387***	0.1619***	0.1871***
	(7.86)	(9.21)	(8.96)	(9.17)	(9.99)	(11.39)	(6.96)	(9.79)	(7.46)	(8.47)	(10.27)	(12.11)	(8.96)	(9.09)	(9.41)	(8.98)	(9.87)	(12.43)
Leverage	3.5649***	3.1476***	3.4196***	3.2149***	3.1719***	3.1121***	3.2147***	3.0149***	3.1239***	3.1491***	3.2176***	3.3981***	2.9149***	2.9249***	3.2869***	3.9741***	3.0209***	3.0149***
	(21.95)	(21.84)	(19.81)	(20.75)	(20.16)	(19.17)	(19.72)	(20.97)	(19.11)	(19.71)	(21.41)	(20.85)	(17.74)	(19.71)	(19.21)	(22.81)	(19.11)	(18.21)
Size	-0.3891***	-0.2876***	-0.3967***	-0.3784***	-0.3241***	-0.3989***	-0.2749***	-0.2119***	-0.3142***	-0.3249***	-0.3561***	-0.3145***	-0.3419***	-0.2976***	-0.3149***	-0.3154***	-0.3119***	-0.3841***
	(-25.86)	(-17.22)	(-25.69)	(-25.95)	(-23.81)	(-27.13)	(-23.46)	(-16.13)	(-23.19)	(-23.18)	(-25.12)	(-25.21)	(-23.14)	(-17.81)	(-23.97)	(-22.12)	(-22.19)	(-26.11)
ZMIJ	1.5897***	1.8891***	2.7984***	1.4697***	2.9871***	1.2796***	1.2419***	1.7429***	2.1779***	1.4176***	2.8129***	1.2549***	1.1249***	1.5217***	2.2467***	1.5976***	2.7145***	1.2146***
	(4.97)	(4.74)	(6.58)	(4.12)	(6.90)	(3.12)	(3.12)	(4.49)	(5.13)	(3.91)	(6.81)	(2.87)	(2.87)	(4.12)	(5.93)	(5.21)	(6.15)	(2.71)
BETA	-0.5791***	-0.4792***	-0.4972***	-0.5476***	-0.4196***	-0.4567***	-0.4127***	-0.4149***	-0.4112***	-0.5179***	-0.4041***	-0.4219***	-0.5149***	-0.3744***	-0.4279***	-0.4976***	-0.4239***	-0.4697***
	(-10.97)	(-9.91)	(-10.13)	(-10.37)	(-9.11)	(-9.19)	(-9.49)	(-8.97)	(-9.27)	(-9.81)	(-8.71)	(-9.01)	(-9.18)	(-7.16)	(-9.33)	(-9.11)	(-9.29)	(-9.31)
DLOSS	-0.9567***	-0.9872***	-0.8976***	-0.9172***	-0.8864***	-0.9429***	-0.7694***	-0.9116***	-0.7419***	-0.9257***	-0.8189***	-0.9127***	-0.8654***	-0.8746***	-0.8174***	-0.8179***	-0.8179***	-0.9127***
	(-12.42)	(-13.15)	(-12.97)	(-12.25)	(-12.81)	(-12.89)	(-10.19)	(-12.19)	(-11.12)	(-12.89)	(-11.27)	(-12.12)	(-11.49)	(-11.52)	(-11.9)	(-11.19)	(-11.29)	(-11.81)
ACCRUAL	2.5791***	1.9872***	1.8743***	2.7981***	1.8186***	2.7164***	2.1479***	1.7146***	1.8149***	2.5967***	1.7186***	2.1537***	1.9824***	1.8179***	1.7169***	2.1847***	1.6219***	2.9587***
	(9.34)	(7.59)	(7.29)	(8.51)	(6.91)	(7.91)	(7.19)	(6.84)	(7.11)	(8.22)	(6.15)	(6.81)	(6.12)	(7.11)	(6.22)	(8.01)	(5.12)	(8.81)
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	0.2845	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R2	0.2894	0.2721	0.2845	0.2711	0.2881	0.2711	0.2719	0.2789	0.2712	0.2821	0.2899	0.2701	0.2748	0.2746	0.2746	0.2711	0.2811	0.2683
F-Stat	11.17***	10.97***	11.04***	9.91***	11.57***	10.49***	10.09***	11.05***	10.29***	10.57***	11.98***	10.02***	10.29***	11.01***	10.46***	10.11***	11.19***	9.79***

T-statistics are shown right below. ***, ** and, * indicate significance at a p-value of less than the 1% level (2-tailed), 5% level (2-tailed), and 10% level (2-tailed), respectively.

4.6 Social, environmental, governance and ethical sustainable performance (SEGE) and cost of capital

We have examined the impact of (SEGEt-1) on cost of capital. Our model is based on the equation VII which tests the impact of (SEGEt-1) sustainable performance, after controlling firm and year fixed effects. In equation VII, we have not only explored the overall impact of (SEGEt-1) on cost of capital but also explored the differential effect of different elements (SOCt-1, ENVt-1, GOVt-1, ETHt-1) of SEGE on cost of capital. We also captured the overall impact of social, environmental, governance, ethical sustainability performance (SEGEt-1) on cost of capital by using KLD t-1 index and SOCt-1, ENVt-1,, GOVt-1, ETHt-1 simultaneously in our model.

$$COC_t = \beta0 + \beta1ENV_{j,i,t-1} + \beta2SOC_{j,i,t-1} + \beta3GOV_{j,i,t-1} + \beta4ETH_{j,i,t-1} + \beta5KLD_{j,i,t-1} + \beta6LIQ_{j,i,t-1} + \beta7LEV_{j,i,t-1} + \beta8SIZE_{j,i,t-1} + \beta9ZMIJ_{j,i,t-1} + \beta10BETA_{j,i,t-1} + \beta11DLOSS_{j,i,t-1} + \beta12ACCL_{j,i,t-1} + \varepsilon_{j,i,t} \textbf{(VII)}$$

Results of equation VII are reported in Table 4. Cost of capital (CoC) is used as a dependent variable. Model 1 to 3 examine the impact of SEGEt-1 sustainability performance on cost of capital. It is evident from the results that governance (GOVt-1)and environmental (ENVt-1) sustainability performance are significantly negatively related with cost of capital. However, social (SOCt-1) and ethical (ETHt-1)

sustainability performance are not related with cost of capital which means that firms with strong social and ethical sustainability performance do not enjoy lower the cost of capital. Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance simultaneously, the results indicate significant negative relationship among governance (GOVt-1)and environmental (ENVt-1) sustainability performance and cost of capital. However, there exists positive relationship between social (SOCt-1) sustainability performance and cost of capital. Model 6 checks the association of overall SEGEt-1 sustainability performance measured as KLDt-1 with cost of capital and there exists significant negative relationship between KLDt-1 and capital's cost. We have also checked the impact of social, environmental, governance, ethical sustainability performance (SEGEt-1) and cost of capital without controlling for economic sustainability performance (ECONt-1) in order to validate our results and our results (not reported) are quite identical to the reported results.

4.7 Interaction impact of ECON and SEGE on cost of equity

We have examined the interactive impact of (ECONt-1) and (SEGEt-1) on cost of equity. To be more specific, we have explored the effect of (SEGEt-1) on the relationship between (ECONt-1) and cost of equity both individually and in combination. Results of equation VIII are reported in Table 5. GORDONt is used as a dependent variable and for the measurement of cost of equity. All the models shown in Table 5 show that strong economic sustainability performance (ECONt-1) has negative impact on cost of equity.Model 1 shows that environmental (ENVt-1) SP is significantly negatively related with cost of equity while (ECONt-1) does not moderate this relationship. Model 2 shows that social (SOCt-1) SP does not impact the CoE. However, once (ECONt-1) is included, social (SOCt-1) sustainability performance has negative impact on cost of equity. Model 3 shows that value is enhanced through strong corporate governance mechanism and that the relationship is not affected by (ECONt-1). Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance simultaneously, the results are still valid. Model 6 checks the association of overall SEGEt-1 sustainability performance measured as KLDt-1 with cost of equity and there exists significant negative relationship between KLDt-1 and cost of equity and strong (SEGEt-1) sustainability performance further strengthens the association between (ECONt-1) and cost of equity.

$$GORDON_t=\beta0+\beta1ECON_{j,i,t-1}+\beta2ENV_{j,i,t-1}+\beta3SOC_{j,i,t-1}+\beta4GOV_{j,i,t-1}+\beta5ETH_{j,i,t-1}+\beta6KLD_{j,i,t-1}$$
$$+\beta7ECON_{j,i,t-1}\times ENV_{j,i,t-1}+\beta8ECON_{j,i,t-1}\times SOC_{j,i,t-1}+\beta9ECON_{j,i,t-1}\times GOV_{j,i,t-1}+\beta10ECON_{j,i,t-1}\times ETH_{j,i,t-1}+$$
$$\beta11ECON_{j,i,t-1}\times KLD_{j,i,t-1}+\beta12LIQ_{j,i,t-1}+\beta13LEV_{j,i,t-1}+\beta14SIZE_{j,i,t-1}+\beta15ZMIJ_{j,i,t-1}$$
$$+\beta16BETA_{j,i,t-1}+\beta11DLOSS_{j,i,t-1}+\beta12ACCL_{j,i,t-1}+\varepsilon_{j,i,t} \quad \textbf{(VIII)}$$

Table 4

Effect of Environmental, Social, Governance and Ethical (KLD) on Cost of equity, Cost of debt and Cost of Capital

$GORDON_t = \beta0 + \beta1ENV_{j,i,t-1} + \beta2SOC_{j,i,t-1} + \beta3GOV_{j,i,t-1} + \beta4ETH_{j,i,t-1} + \beta5KLD_{j,i,t-1} + \beta6LIQ_{j,i,t-1} + \beta7LE$

$Kd_t = \beta0 + \beta1ENV_{j,i,t-1} + \beta2SOC_{j,i,t-1} + \beta3GOV_{j,i,t-1} + \beta4ETH_{j,i,t-1} + \beta5KLD_{j,i,t-1} + \beta6LIQ_{j,i,t-1} + \beta7LEV$

$COC_t = \beta0 + \beta1ENV_{j,i,t-1} + \beta2SOC_{j,i,t-1} + \beta3GOV_{j,i,t-1} + \beta4ETH_{j,i,t-1} + \beta5KLD_{j,i,t-1} + \beta6LIQ_{j,i,t-1} + \beta7LEV$

Panel A	**Dependent Variable : Cost of equity (N=500)**						**Dependent Variable : Cost of debt (N=500)**						**Dependent Variable : Cost of capital (N=500)**					
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Environmental Sustainability	-0.1129***				-0.0956***		-0.1268***				-0.0865***		-0.1216**				-0.0995***	
	(-3.46)				(-3.01)		(-3.62)				(-2.65)		(-3.57)				(-3.33)	
Social Sustainability		-0.0037			0.0191			-0.0031			0.0153			-0.0033			0.0091	
		(-0.27)			(1.33)			(-0.22)			(1.21)			(-0.24)			(1.16)	
Governance Sustainability			-0.1399***		-0.1316***				-0.1264***		-0.1418***				-0.1331***		-0.1322***	
			(-4.86)		(-4.64)				(-4.61)		(-4.89)				(-4.15)		(-4.69)	
Ethical Sustainability				-0.1147***	-0.1039***					-0.1101***	-0.1184***					-0.1206***	-0.1287***	
				(-4.06)	(-3.57)					(-3.97)	(-3.77)					(-4.18)	(-4.93)	
KLD Sustainability						-0.0498						-0.0379						-0.0444
						(-3.51)						(-3.19)						(-3.41)
ECON Sustainability	-0.7849***	-0.7735***	-0.7912***	-0.7873***	-0.7817***	-0.7991***	-0.7217***	-0.7971***	-0.7874***	-0.7719***	-0.7918***	-0.7811***	-0.7549***	-0.7994***	-0.7519***	-0.7612***	-0.7641***	-0.7776***
	(-14.29)	(-13.79)	(-14.93)	(-14.17)	(-14.01)	(-15.72)	(-12.13)	(-14.11)	(-13.56)	(-13.13)	(-14.01)	(-13.95)	(-13.11)	(-14.57)	(-13.01)	(-13.57)	(-13.74)	(-14.12)
Liquidity	0.1865***	0.1899***	0.1917***	0.1881***	0.1819***	0.1866***	0.1733***	0.1783***	0.1751***	0.1711***	0.1789***	0.1796***	0.1745***	0.1781***	0.1719***	0.1797***	0.1768***	0.1791***
	(11.12)	(11.67)	(11.99)	(11.52)	(10.67)	(11.13)	(10.09)	(10.22)	(10.01)	(9.57)	(10.34)	(10.97)	(10.19)	(10.72)	(9.76)	(10.97)	(10.64)	(10.92)
Leverage	3.6572***	3.7998***	3.6552***	3.5197***	3.8197***	3.8884***	3.5122***	3.5559***	3.4119***	3.6129***	3.6771***	3.5117***	3.9813***	3.8111***	3.8543***	3.8149***	3.8221***	3.8479***
	(19.47)	(20.12)	(19.17)	(19.01)	(20.31)	(20.87)	(18.88)	(19.09)	(18.49)	(19.75)	(19.89)	(18.29)	(21.12)	(20.18)	(20.57)	(20.49)	(20.37)	(20.49)
Size	-0.0737***	-0.0819***	-0.0739***	-0.0756***	-0.0859***	-0.0829***	-0.0645***	-0.0611***	-0.0691***	-0.0667***	-0.0649***	-0.0697***	-0.0696***	-0.0688***	-0.0619***	-0.0648***	-0.0625***	-0.0611***
	(-4.29)	(-4.71)	(-4.31)	(-4.51)	(-4.87)	(-4.81)	(-3.27)	(-3.11)	(-3.97)	(-3.37)	(-3.31)	(-4.28)	(-3.85)	(-3.71)	(-3.01)	(-3.39)	(-3.09)	(-2.97)
ZMIJ	1.5957***	1.5115***	1.5219***	1.5317***	1.5009***	1.5179***	1.4265***	1.4091***	1.4194***	1.4319***	1.4591***	1.4005***	1.5117***	1.5878***	1.5176***	1.5255***	1.5103***	1.5009***
	(3.85)	(3.15)	(3.29)	(3.37)	(3.07)	(3.64)	(3.13)	(3.01)	(3.03)	(3.27)	(3.97)	(2.67)	(3.22)	(3.67)	(3.37)	(3.97)	(3.13)	(3.02)
BETA	-0.2784***	-0.2113***	-0.2109***	-0.2219***	-0.2204***	-0.2101***	-0.2148***	-0.2452***	-0.2413***	-0.2409***	-0.2497***	-0.2411***	-0.2661***	-0.2889***	-0.2719***	-0.2618***	-0.2756***	-0.2779***
	(-4.29)	(-3.11)	(-3.05)	(-3.97)	(-3.91)	(-3.09)	(-3.11)	(-3.89)	(-3.64)	(-3.61)	(-3.98)	(-3.63)	(-4.11)	(-4.99)	(-4.21)	(-4.01)	(-4.57)	(-4.67)
DLOSS	-0.9129***	-0.9124***	-0.9267***	-0.9161***	-0.9154***	-0.9177***	-0.9362***	-0.9229***	-0.9201***	-0.9251***	-0.9249***	-0.9265***	-0.9009***	-0.9017***	-0.9057***	-0.9069***	-0.9056***	-0.9007***
	(-10.59)	(-10.55)	(-10.89)	(-10.67)	(-10.77)	(-10.89)	(-10.99)	(-10.22)	(-10.02)	(-10.41)	(-10.39)	(-11.06)	(-10.44)	(-10.59)	(-10.87)	(-10.98)	(-10.85)	(-10.49)
ACCRUAL	1.9119***	1.9469***	1.9401***	1.9409***	1.9112***	1.9411***	1.9541***	1.9668***	1.9549***	1.9567***	1.9512***	1.9531***	1.9007***	1.9019***	1.9008***	1.9004***	1.9057***	1.9014***
	(5.82)	(7.11)	(7.02)	(7.07)	(5.21)	(7.09)	(7.11)	(7.49)	(7.17)	(7.24)	(7.02)	(7.02)	(6.01)	(6.79)	(6.67)	(6.61)	(7.67)	(6.75)
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R2	0.3665	0.3686	0.3649	0.3631	0.3667	0.3657	0.3511	0.3541	0.3567	0.3557	0.3539	0.3581	0.3543	0.3521	0.3539	0.3511	0.3538	0.3549
F-Stat	9.25***	9.37***	9.21***	9.16***	9.28***	9.24***	9.12***	9.33***	9.57***	9.48***	9.31***	9.67***	9.33***	9.21***	9.31***	9.12***	9.28***	9.37***

T-statistics are shown right below. ***, ** and, * indicate significance at a p-value of less than the 1% level (2-tailed), 5% level (2-tailed), and 10% level (2-tailed), respectively.

4.8 Interaction effect of ECON and SEGE on cost of debt

We have examined the interactive effect of (ECONt-1) and (SEGEt-1) on cost of debt. To be more specific, we have explored the effect of (SEGEt-1) on the relationship between (ECONt-1) and cost of debt both individually and in combination. Results of equation IX are reported in Table 5. KDt is used as a dependent variable and for the measurement of cost of debt. All the models shown in Table 5 show that strong (ECONt-1) has negative effect on cost of debt.Model 1 shows that environmental (ENVt-1) sustainability performance is significantly negatively related with cost of debt while (ECONt-1) does not moderate this relationship. Model 2 shows that social (SOCt-1) sustainability performance does not affect the cost of debt. However, once (ECONt-1) is included, social (SOCt-1) sustainable performance has negative impact on cost of debt. Model 3 shows that value is enhanced through strong corporate governance mechanism and that the relationship is not affected by (ECONt-1). Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance simultaneously, the results are still valid. Model 6 checks the association of overall SEGEt-1 sustainability performance measured as KLDt-1 with cost of debt and there exists significant negative association between KLDt-1 and cost of debt and strong (SEGEt-1) sustainability performance further supports the association between (ECONt-1) and debt cost.

4.9 Interaction impact of ECON and SEGE on CoC

We have examined the interactive impact of (ECONt-1) and (SEGEt-1) on CoC. To be more specific, we have explored the effect of (SEGEt-1) on the relationship between (ECONt-1) and CoC both individually and in combination. Results of equation IX are reported in Table 5. CoCt is used as a dependent variable and for the measurement of cost of capital. All the models shown in Table 5 show that strong economic SP (ECONt-1) has negative impact on CoC.Model 1 shows that environmental (ENVt-1) SP is significantly negatively related with CoC while (ECONt-1) does not moderate this relationship. Model 2 shows that social (SOCt-1) sustainability performance does not impact the CoC. However, once (ECONt-1) is included, social (SOCt-1) sustainability performance has negative impact on CoC. Model 3 shows that value is enhanced through strong corporate governance mechanism and that the relationship is not influenced by (ECONt-1). Model 5 which includes SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance simultaneously, the results are still valid. Model 6 checks the association of overall SEGEt-1 sustainability performance measured as KLDt-1 with CoC and there exists significant negative association between KLDt-1 and CoC and strong (SEGEt-1) sustainability performance further supports the association between (ECONt-1) and CoC.

$$COC_t = \beta_0+\beta_1ECON_{j,i,t-1}+\beta_2ENV_{j,i,t-1}+\beta_3SOC_{j,i,t-1}+\beta_4GOV_{j,i,t-1}+\beta_5ETH_{j,i,t-1}+\beta_6KLD_{j,i,t-1}+\beta_7ECON_{j,i,t-1}\times ENV_{j,i,t-1}+\beta_8ECON_{j,i,t-1}\times SOC_{j,i,t-1}+\beta_9ECON_{j,i,t-1}\times GOV_{j,i,t-1}+\beta_{10}ECON_{j,i,t-1}\times ETH_{j,i,t-1}+\beta_{11}ECON_{j,i,t-1}\times KLD_{j,i,t-1}+\beta_{12}LIQ_{j,i,t-1}+\beta_{13}LEV_{j,i,t-1}+\beta_{14}SIZE_{j,i,t-1}+\beta_{15}ZMIJ_{j,i,t-1}+\beta_{16}BETA_{j,i,t-1}+\beta_{11}DLOSS_{j,i,t-1}+\beta_{12}ACCL_{j,i,t-1}+\varepsilon_{j,i,t} \quad \textbf{(IX)}$$

To sum up, we may say that results reported in sub section 5.1 to 5.9 tells us that both (ECONt-1) and (SEGEt-1) affect CoE, CoD and CoC. The results are consistent with the previous research conducted on this subject. When we decompose economic sustainability performance (ECONt-1) into GRt-1, OPSt-1, RESt-1, the results show that GRt-1 and RESt-1 have negative impact whereas OPSt-1 has positive impact on CoE, CoD and CoC. Moreover, when social, environmental, governance, ethical sustainability performance (SEGEt-1) is decomposed into SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance, SOCt-1, ENVt-1, GOVt-1, ETHt-1 sustainability performance reduces the CoE, CoD and CoC. Results further confirm that SOCt-1 and ETHt-1 sustainability performance has

no effect on CoC. We have also captured the interactive effect of (ECONt-1) and (SEGEt-1) on CoE, CoD and CoC. It is advisable for researchers to take into account both economic sustainability performance (ECONt-1) and social, environmental, governance, ethical sustainability performance (SEGEt-1) simultaneously in order to get a complete picture of the association between sustainability and CoE, CoD and CoC.

Table 5

Interactive effect of ECON and SEGE (KLD) sustainability performance on cost of equity, cost of debt and cost of capital

$$GORDONt=\beta0+\beta1ECONj,i,t-1+\beta2ENVj,i,t-1+\beta3SOCj,i,t-1+\beta4GOVj,i,t-1+\beta5ETHj,i,t-1+\beta6KLDj,i,t-1+\beta7ECONj,i,t-1\times ENVj,i,t-1+\beta8ECONj,i,t-1\times SOCj,i,t-1+\beta9ECONj,i,t-1\times GOVj,i,t-1+\beta10ECONj,i,t-1\times ETH,i,t-1+\beta11ECONj,i,t-1\times KLD,i,t-1+\beta12LIQj,i,t-1+\beta13LEVj,i,t-1+\beta14SIZEj,i,t-1+\beta15ZMIJj,i,t-1+\beta16BETAj,i,t-1+\beta11DLOSSj,i,t-1+\beta12ACCLj,i,t-1+\varepsilon j,i,t$$

$$Kdt =\beta0+\beta1ECONj,i,t-1+\beta2ENVj,i,t-1+\beta3SOCj,i,t-1+\beta4GOVj,i,t-1+\beta5ETHj,i,t-1+\beta6KLDj,i,t-1+\beta7ECONj,i,t-1\times ENVj,i,t-1+\beta8ECONj,i,t-1\times SOCj,i,t-1+\beta9ECONj,i,t-1\times GOVj,i,t-1+\beta10ECONj,i,t-1\times ETH,i,t-1+\beta11ECONj,i,t-1\times KLD,i,t-1+\beta12LIQj,i,t-1+\beta13LEVj,i,t-1+\beta14SIZEj,i,t-1+\beta15ZMIJj,i,t-1+\beta16BETAj,i,t-1+\beta11DLOSSj,i,t-1+\beta12ACCLj,i,t-1+\varepsilon j,i,t$$

$$COCt =\beta0+\beta1ECONj,i,t-1+\beta2ENVj,i,t-1+\beta3SOCj,i,t-1+\beta4GOVj,i,t-1+\beta5ETHj,i,t-1+\beta6KLDj,i,t-1+\beta7ECONj,i,t-1\times ENVj,i,t-1+\beta8ECONj,i,t-1\times SOCj,i,t-1+\beta9ECONj,i,t-1\times GOVj,i,t-1+\beta10ECONj,i,t-1\times ETH,i,t-1+\beta11ECONj,i,t-1\times KLD,i,t-1+\beta12LIQj,i,t-1+\beta13LEVj,i,t-1+\beta14SIZEj,i,t-1+\beta15ZMIJj,i,t-1+\beta16BETAj,i,t-1+\beta11DLOSSj,i,t-1+\beta12ACCLj,i,t-1+\varepsilon j,i,t$$

Panel A	Dependent Variable : Cost of equity (N=500)						Dependent Variable : Cost of debt (N=500)						Dependent Variable : Cost of capital (N=500)					
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Environmental Sustainability	-0.1257***				-0.1126***		-0.1146***				-0.1029***		-0.1046***				-0.1075***	
	(-3.87)				(-3.13)		(-3.78)				(-3.03)		(-3.67)				(-3.09)	
Social Sustainability		0.0099			0.0394*			0.0081			0.0491*			0.0085			0.0419*	
		(0.70)			(-2.95)			(0.61)			(-3.19)			(0.63)			(-3.27)	
Governance Sustainability			-0.1419***		-0.1421***				-0.1329***		-0.1461***				-0.1467***		-0.1521***	
			(-4.75)		(-5.75)				(-4.61)		(-5.89)				(-4.86)		(-5.97)	
Ethical Sustainability				-0.1357***	-0.1156*					-0.1219***	-0.1197*					-0.1421***	-0.1219*	
				(-4.21)	(-3.57)					(-4.01)	(-3.76)					(-4.37)	(-3.87)	
KLD Sustainability						-0.0451**						-0.0532**						-0.0467**
						(-3.37)						(-3.58)						(-3.49)
ECON Sustainability	-0.6819***	-0.6827***	-0.6851***	-0.6809***	-0.6837***	-0.6861***	-0.6919***	-0.6901***	-0.6966***	-0.6907***	-0.6927***	-0.6931***	-0.6719***	-0.6708***	-0.6753***	-0.6741***	-0.6739***	-0.6767**
	(-13.26)	(-13.39)	(-13.49)	(-13.16)	(-13.49)	(-13.59)	(-14.13)	(-14.03)	(-14.59)	(-14.09)	(-14.26)	(-14.34)	(-12.26)	(-12.12)	(-12.67)	(-12.51)	(-12.49)	(-12.74)
ECON*Environmental Sustainability	-0.2487***				-0.0067		-0.2546***				-0.0054		-0.2691***				-0.0071	
	(-3.92)				(-0.08)		(-4.51)				(-0.09)		(-4.92)				(-0.09)	
ECON*Social Sustainability		-0.1241***			-0.1169***			-0.1149***			-0.1167***			-0.1247***			-0.1219***	
		(-5.19)			(-4.85)			(-5.01)			(-4.81)			(-5.27)			(-4.91)	
ECON*Governance Sustainability			-0.0054		-0.0711				-0.0046		-0.0627				-0.0068		-0.0812	
			(-0.69)		(-1.67)				(-0.57)		(-1.49)				(-0.75)		(-1.75)	

Panel A	Dependent Variable : Cost of equity (N=500)						Dependent Variable : Cost of debt (N=500)						Dependent Variable : Cost of capital (N=500)					
Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
ECON*Ethical Sustainability				-0.0067***	-0.0656					-0.0057***	-0.0746					-0.0079***	-0.0741	
				(-0.75)	(-1.54)					(-0.65)	(-1.37)					(-0.81)	(-1.64)	
ECON*KLD Sustainability						-0.0785***						-0.0719***						-0.0791***
						(-3.91)						(-3.81)						(-3.95)
Liquidity	0.1576***	0.1519***	0.1527***	0.1503***	0.1515***	0.1567***	0.1472***	0.1461	0.1451	0.1497	0.1441	0.1421	0.1692***	0.1671***	0.1629***	0.1627***	0.1661***	0.1691***
	(8.19)	(8.03)	(8.09)	(7.87)	(8.01)	(8.15)	(7.21)	(7.18)	(7.12)	(7.37)	(7.09)	(7.03)	(8.97)	(8.85)	(8.31)	(8.29)	(8.75)	(8.95)
Leverage	3.5641***	3.6561***	3.6679***	3.6608***	3.5991***	3.6501***	3.6113***	3.6009***	3.6115***	3.6241***	3.6015***	3.6057***	3.0773***	3.0557***	3.0661***	3.0689***	3.0757***	3.0541***
	(19.65)	(19.72)	(19.81)	(19.72)	(19.91)	(19.61)	(18.81)	(18.71)	(18.83)	(18.91)	(18.53)	(18.56)	(17.51)	(17.42)	(17.43)	(17.67)	(17.80)	(17.41)
Size	-0.0571***	-0.0592***	-0.0511***	-0.0576***	-0.0581***	-0.0519***	-0.0624***	-0.0673***	-0.0674***	-0.0683***	-0.0610***	-0.0675***	-0.0611***	-0.0631***	-0.0602***	-0.0691***	-0.0609***	-0.0679***
	(-2.93)	(-2.99)	(-2.86)	(-2.95)	(-2.96)	(-2.89)	(-3.12)	(-3.25)	(-3.26)	(-3.29)	(-3.07)	(-3.27)	(-3.08)	(-3.13)	(-3.01)	(-3.67)	(-3.06)	(-3.55)
ZMIJ	1.3331***	1.3697***	1.3658***	1.3626***	1.3619***	1.3611***	1.4661***	1.4798***	1.4129***	1.4017***	1.4005***	1.4898***	1.3798***	1.3856***	1.3729***	1.3654***	1.3811***	1.3819***
	(2.86)	(2.99)	(2.91)	(2.81)	(2.75)	(2.71)	(3.56)	(3.67)	(3.24)	(3.11)	(3.02)	(3.75)	(2.84)	(2.95)	(2.81)	(2.65)	(2.91)	(2.92)
BETA	-0.2486***	-0.2449***	-0.2401***	-0.2456***	-0.2467***	-0.2491***	-0.2319***	-0.2367	-0.2356	-0.2312	-0.2329	-0.2338	-0.2330***	-0.2337***	-0.2321***	-0.2312***	-0.2341***	-0.2319***
	(-3.56)	(-3.48)	(-3.26)	(-3.54)	(-3.63)	(-4.18)	(-3.35)	(-3.64)	(-3.54)	(-3.31)	(-3.45)	(-3.54)	(-3.46)	(-3.53)	(-3.37)	(-3.28)	(-3.57)	(-3.35)
DLOSS	-0.8891***	-0.8814***	-0.8835***	-0.8867***	-0.8833***	-0.8811***	-0.8794***	-0.8716***	-0.8711***	-0.8712***	-0.8721***	-0.8716***	-0.8661***	-0.8667***	-0.8663***	-0.8671***	-0.8668***	-0.8673***
	(-10.24)	(-10.02)	(-10.06)	(-10.18)	(-10.04)	(-10.01)	(-9.24)	(8.44)	(8.41)	(8.42)	(8.51)	(8.44)	(-8.12)	(-8.17)	(-8.13)	(-8.22)	(-8.18)	(-8.24)
ACCRUAL	1.9876***	1.8771***	1.8613***	1.8719***	1.8769***	1.8662***	1.8764***	1.8664***	1.8612***	1.8662***	1.8556***	1.8519***	1.8611***	1.8619***	1.8621***	1.8628***	1.8615***	1.8617***
	(5.64)	(5.12)	(4.64)	(4.67)	(5.10)	(4.60)	(-5.12)	(5.01)	(4.52)	(4.99)	(4.89)	(4.32)	(4.51)	(4.59)	(4.61)	(4.68)	(4.55)	(4.57)
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes						
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj R2	0.3664	0.3682	0.3654	0.3657	0.3649	0.3674	0.3512	0.3514	0.3519	0.3521	0.3511	0.3522	Yes	Yes	Yes	Yes	Yes	Yes
F-Stat	9.62***	9.74***	9.52***	9.55***	9.47***	9.72***	8.82***	8.84***	8.89***	8.91***	8.81***	8.92***	0.3511	0.3516	0.3512	0.3519	0.3521	0.3507

T-statistics are shown right below. ***, ** and, * indicate significance at a p-value of less than the 1% level (2-tailed), 5% level (2-tailed), and 10% level (2-tailed), respectively.

5 Conclusion

The study examined the impact of different sustainability performance dimensions on cost of capital. We used ECON for measuring financial and SEGE for measuring non-financial sustainability

performance. Cost equity, cost of debt and cost of capital are used for cost of capital measurements. The target population was the non-financial firms that involved in financial and non-financial sustainable activities over 2009-2018. (ECON) is key measure that ensures sustainability as well as current profitability and future prospects of companies. There are three proxies which are used to represent (ECON). These are calculated through EPCA (exploratory principal component analysis) and are applied to seven proxies of economic sustainability performance. These seven factors are grouped into operation efficiency, growth opportunities and research effort. Results show that companies with strong economic sustainability performance (ECON) display lower cost of capital. However, when we decompose (ECON) into operation efficiency, growth opportunities and research effort, there exists negative association between research effort and growth opportunities with cost of capital.SEGE (social, environmental, governance, ethical) sustainability performance is used to capture non-financial sustainability performance dimension. These sustainable performance dimensions are proxied as number of strengths minus number of concerns. We have captured the individual impact of (SEGE) on cost of capital (CoE, CoD and CoC). Environmental and governance SP reduces the CoE, CoD and CoC whereas social and ethical sustainability performance have no impact on CoE, CoD and CoC. Overall, KLD a measure of non-financial sustainability performance reduces the CoE, CoD and CoC (Dhaliwal et al., 2011). After controlling (ECON), there is no change on the already observed relationship.

We have further explored that how (SEGE) moderates the (ECON) and CoE, CoD and CoC relation. Our results confirm that strong (SEGE) supports the negative relationship between (ECON) and CoE, CoD and CoC. The reason for environmental and governance significant impact is that by reducing environmental liabilities or improving the effectiveness of measures of corporate governance, there comes a direct impact on financial performance. Moreover, social and ethical sustainability performance does not directly create shareholder value, therefore, these measures are not directly related to CoE, CoD and CoC. This paper also has some limitations. Firstly, problem may exist with data sources. We have used and counted the number of sustainability measures for companies but no weightage is assigned. It is possible that one measure is more related as compared to some other measure. Furthermore, our primary focus on economic sustainability performance (ECON) while investigating the association between business sustainability and CoE, CoD and CoC. Since this paper checks the effect of individual sustainability performance components on CoE, CoD and CoC. We have defined social, environmental, governance, ethical (SEGEt-1) sustainability performance score by using different components, therefore, we have tested the robustness of our results. We have repeated the analysis by using alternative definition of social, environmental, governance, ethical (SEGEt-1) sustainability performance and our results are robust to change of definitions.Previous research uses strengths and weaknesses of all measures available in KLD database in order to proxy for CSR and therefore, there is no requirement of any sensitivity tests. This paper checks the impact of individual sustainability performance components on CoE, CoD and CoC. Moreover, we have defined (SEGEt-1) SP score by using different components, therefore, we have to test the robustness of our results. We have repeated the analysis used in prior subsections by using alternative definition of social, environmental, governance, ethical (SEGEt-1) sustainability performance and our results are robust to change of definitions which are not reported here. Researchers should devote resources towards formalizing the different definitions of different dimensions of SP in order to compare the results.

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