ARTICLES

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DOES THE MARKET RECOGNIZE CORPORATE SOCIAL RESPONSIBILITY?

¿Reconoce el mercado la responsabilidad social corporativa?

O mercado reconhece a responsabilidade social corporativa?

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ABSTRACT

This article examines the impact of the Dow Jones Sustainability Index (DJSI) announcements that are prepared annually by RobecoSAM on the market value of Colombian firms. The analysis of 77 events and their impact on 13 firms for the 2009-2018 period found that DJSI-related events lead to insignificantly abnormal returns being generated for shareholders. The study suggests that this happens because Colombian companies do not widely disclose these types of event.

KEYWORDS | Corporate social responsibility, market, study of events, DJSI, Colombian companies.

RESUMEN

Este artículo examina el impacto sobre el valor de mercado de las novedades en el Dow Jones Sustainability Index (DJSI) y su relación con los esfuerzos de difusión de esas novedades por parte de las empresas. A partir del análisis de 77 eventos de 13 empresas colombianas en el período 2009-2018, se muestra que los eventos relacionados con el DJSI generan retornos anormales insignificantes a los accionistas, y propone como explicación el exiguo esfuerzo de divulgación por parte de las empresas colombianas de este tipo de eventos.

PALABRAS CLAVE | *Responsabilidad social corporativa, mercado, estudio de eventos, DJSI, empresas colombianas.*

RESUMO

Este artigo examina o impacto dos anúncios do Índice Dow Jones de Sustentabilidade (DJSI), elaborado anualmente pela RobecoSAM, sobre o valor de mercado das empresas colombianas. Com base na análise de 77 eventos de 13 empresas colombianas no período 2009-2018, mostra-se que eventos relacionados ao DJSI geram retornos anormais insignificantes para os acionistas. O estudo sugere que isso se deve ao escasso esforço de divulgação desses tipos de evento por parte de empresas colombianas.

PALAVRAS-CHAVE | *Responsabilidade social corporativa, mercado, estudo de eventos, DJSI, empresas colombianas.*

INTRODUCTION

Corporate social responsibility (CSR) can be understood as promoting social welfare beyond the company's financial interests and law requirements (McWilliams & Siegel, 2001). For CSR advocates, this behavior creates value by increasing the company's probability of success based on long-term consolidation of social legitimacy (Porter & Kramer, 2006; Waddock & Graves, 1997; Wang & Chen, 2017). For the opponents, CSR distracts companies from their main responsibility: to generate value for shareholders (Baden, Harwood, & Woodward, 2009; Friedman, 1970). The debate between these two aspects is mainly fed by empirical studies in advanced economies with developed capital markets whose efficiency allows, in addition to measuring the impact of CSR efforts with a certain level of confidence, to assume an information flow between the company's management and stakeholders. In emerging economies, low financial depth can limit information flow (González, Guzmán, Téllez, & Trujillo, 2021; Kelly & Ljungqvist, 2012; De Wet, 2004) and decisions regarding CSR, which leads to a reduced effect on operating results. In this context, the effect of CSR depends on the company's ability to send signals (Spence, 1973) that impact stakeholder perception (Barnett, 2007; Chung, Jung, & Young, 2018; Montiel, Husted, & Christmann, 2012; Servaes & Tamayo, 2013). Given the importance of disclosure in emerging markets (Montiel et al., 2012; Su, Peng, Tan, & Cheung, 2016), it is worth exploring whether this specific capital market recognizes the company's CSR efforts and if companies disclose this information to obtain international recognition for their CSR activities and impact stakeholders.

This research addresses these issues offering (i) an analysis of the abnormal returns associated with the events of entry, continuation, and exit of the international Dow Jones Sustainability Index (DJSI) of all the companies participating in the Colombian capital market for the period 2009-2018, and (ii) the companies efforts to disclose and disseminate CSR efforts through general and specialized newspapers. Although the sample of events for the Colombian context is relatively small, Colombian firms are characterized by their early participation in the DJSI (compared to other companies from emerging markets) and the highest average rating in the index's categories in which they participate (RobecoSAM, 2019). Because of these aspects, this group of organizations forms the longest and most diverse and representative series of observations for an emerging economy in Latin America. The analysis suggests that (i) the Colombian capital market ignores CSR announcements or does not acknowledge CSR efforts, and (ii) companies rarely disclose these efforts to inform stakeholders. The findings have strong theoretical and practical implications and corroborate the results of previous research. In addition, they stress the importance of strategies to disseminate information on CSR efforts.

From a theoretical perspective, our conclusion regarding the low impact of CSR announcements due to the underuse of communication channels validates the hypothesis by Barnett (2007) on the importance of influencing stakeholders. Our conclusion complements other studies that attempt to identify the mechanisms adopted to transform CSR in added value. For Servaes and Tamayo (2013), the mechanism is the intensity of advertising, whereas for Bardos, Ertugrul, and Gao (2020), it is the perception of the product, and for Li, Xin, Chen, and Ren (2017), it is media attention. This study suggests that part of the mechanism is the opportunity to disseminate the events, and our event study methodology shows that companies do not inform stakeholders, which reduces CSR returns. The findings are consistent with research showing that weak or poorly focused disclosure strategies can reduce the effect on market value (Bardos et al., 2020; Chang, Shim, & Yi, 2019; Chung et al., 2018; Healy & Palepu, 2001). From a business view, the results show that the dissemination strategies are as important as the events themselves. Stakeholders, and the market in general, create value by incorporating information into prices, and the suboptimal use of a channel increases informational asymmetry to the detriment of the company's value.

The article is organized into five sections, including this introduction. The next section presents a theoretical review of the debate on CSR, followed by the study's methodology in the third section, which describes the procedure for calculating abnormal returns and data sources. Section four presents the results obtained from the statistical analysis of the events and the companies' disclosure regarding CSR efforts, which support the arguments of the discussion and conclusion section. The fifth and final section reflects on the research limitations, suggests topics for future research, and exposes the study's managerial implications.

CORPORATE SOCIAL RESPONSIBILITY (CSR) AND THE COMPANY'S VALUE

CSR was initially considered a costly activity that reduced profits and distracted management from its only commitment: to generate value for shareholders (Friedman, 1970), above other legal, ethical, or philanthropic responsibilities (Carroll, 1991). With the development of stakeholder theory (Freeman, 1999), CSR gained importance by involving all stakeholders in companies' performance. From this perspective, companies generate value for their shareholders and their employees, clients, creditors, and investors (Vargas, 2016). Therefore, CSR becomes a value-creating activity in a broader sense. The diversity of arguments that justify the strategic value of CSR ranges from organizational to contextual. For example, Cheng, Ioannou, and Serafeim (2014) argue that CSR activities can improve access to financing based on the commitment it incorporates. This commitment reduces the probability of opportunistic behaviors, increases transparency, reduces informational asymmetry between the company and investors, consequently relaxing capital restrictions and reducing the financing costs (El Ghoul, Guedhami, Kwok, & Mishra, 2011).

The impact at the organizational level is another of the arguments that favor the implementation of CSR activities. Behaving responsibly with stakeholders can reduce employee turnover costs, strengthen legitimacy in the community (Branco & Rodrigues, 2006), and generate tax benefits that translate into better financial performance (Barnett & Salomon, 2006). In other words, CSR initiatives involve costs that can be offset by reducing other company costs (McGuire, Sundgren, & Schneeweis, 1988) or by the benefits derived from improvements in corporate image, reputation, or corporate identity (Wang & Chen, 2017). For Kramer and Porter (2006), CSR can become a source of opportunity, innovation, and competitive advantage by managing economic, social, and environmental challenges. In conclusion, CSR can become a source of social progress.

The empirical literature on the relationship between CSR and firms' market value is extensive and supports significant and non-significant effects on the short or long-term share price. For example, Cellier and Chollet (2016), Karim, Suh, and Tang (2016), and Adamska and Dabrowski (2016) show that ranking ads produce strong short-term price reactions, while Robinson, Kleffner, and Bertels (2011) and Vargas (2016) argue that the reaction can become long-term if CSR consolidates the reputation and legitimacy of the company. The benefits of inclusion in a CSR index such as the DJSI are only obtained in the long term (Cho, Chung, & Young, 2019; Hawn, Chatterji, & Mitchell, 2018).

Some scholars argue that methodological differences in the studies or contextual aspects explain the variety of relations found between the DJSI and the firm's value. For example, Orlitzky, Schmidt, and Rynes (2003) used a meta-analysis to show that most studies ignore the possible endogeneity due to inverse causality between CSR and financial performance and the lack of agreement between stakeholders' objectives, leading to distortion of what could be a possible positive CSR effect.

For Pérez, López-Gutiérrez, Salmones, and San-Martín (2019), the positive effect, although low, depends on the coverage that the media dedicates to CSR, especially in the banking sector; while for Arya and Zhang (2009) and Adamska and Dabrowski (2016), the positive reactions of investors to the announcements of CSR initiatives depend on the institutional environment, especially in emerging economies. Durand, Paugam, and Stolowy (2019), who replicated the work of Hawn et al. (2018), found that market reactions to DJSI have a non-significant impact because the main advantage of CSR is to increase companies' visibility and attract investors in the long term. This effect is identifiable only in the long term and makes short-term analysis irrelevant.

This research fuels the debate based on the evidence of entry, continuation, and exit of DJSI for the capital market in Colombia, an emerging market, and analyzes the companies' disclosure of information when seeking to realize the value of its CSR efforts.

METHODOLOGY

This research adopts a conventional event study complemented with an analysis of the efforts of the firms to disseminate the CSR events to evaluate the prize or discount the Colombian market applies to the announcements of the Dow Jones Sustainability Index (DJSI). We analyzed abnormal returns for 77 events –13 entries, 61 continuations, and 3 exits of Colombian firms included at some point in the DJSI during the period from 2009-2018 (Table 1). The firms' efforts to disseminate these events in general and specialized media channels in Colombia were analyzed.

Table 1. **Company and events analyzed**

Analyzed events						
Company	**Industry group (a)**	**Entry date (dd/mm/yy)**	**Exit date (b) (dd/mm/yy)**	**Assets (USD millions, 2019)**	**Sales (USD millions, 2019)**	**Participation in COLCAP (2019)**
NUTRESA	Food, beverage & Tobacco	8/9/2011		15,645,241	9,958,851.00	7.68%
ÉXITO	Food & Staples Retailing	12/9/2013		15,861,015	15,293,083	0.15%
BCB	Bank	13/9/2012		169,798,731	9,813,828	10.87%
CEMARGOS	Materials	12/9/2013		19,194,350	9,375,076	2.52%
ECOPETROL	Oil and Gas	8/9/2011	8/9/2016	135,448,018	70,846,769	13.59%
GRUPOARGOS	Materials	12/9/2013		50,998,434	16,798,588	3.85%
GRUPOSURA	Diversified Financials	8/9/2011		69,037,830	21,914,783	6.50%

Continue

Table 1. **Company and events analyzed**

Concludes

Analyzed events						
Company	**Industry group (a)**	**Entry date (dd/mm/yy)**	**Exit date (b) (dd/mm/yy)**	**Assets (USD millions, 2019)**	**Sales (USD millions, 2019)**	**Participation in COLCAP (2019)**
EEB	Utilities	12/9/2013		27,721,294	4,871,940	9.67%
ISA	Energy	10/9/2015		18,909,931	1,159,768	12.34%
ISAGEN (c)	Energy	12/9/2013	8/9/2016	18,860,181	3,183,401	2.99%
PFDAVVNDA	Bank	11/9/2014		122,222,023	10,725,258	3.22%
CELSIA	Energy	13/9/2018		8,275,536	2,664,293	2.88%
BOGOTÁ	Bank	18/10/2017	13/9/2018	175,019,580	12,375,221	3.29%

Notes: (a) The industry groups are those adopted by RobecoSAM (b) Empty cells in the column "exit date" indicate that the firm remains in the DJSI index. (c) The percentage in "participation in COLCAP" corresponds to the 4^{th} quarter of 2015, before leaving the Colombia securities exchange (BVC).

This integrated approach contributed to justifying the study of the sample, compensating for its weaknesses considering the size. First, studying CSR efforts and events in Colombian companies contribute to understanding their impact on companies' market value in emerging economies. To our knowledge, this is the first study that attempts to measure the value added by CSR in Colombia, and one of the few developed on emerging markets (Crisóstomo, Freire, & Vasconcellos, 2011).

Second, as far as we know, this is the first study on abnormal returns examining the dissemination of the DJSI in printed communication media. Other studies used surveys (e.g., Bardos et al., 2020) and indices generated by national or international agencies (e.g., Chang et al., 2019; e.g., Chung et al., 2018) to identify the importance of disseminating CSR events. Our methodology allows us to examine the use of this media to disseminate CSR events and examine their importance in the design of business strategy. Finally, the research data and analysis become a baseline for future research exploring series with a longer time scope or a greater variety of companies and sectors in Colombia and emerging markets.

The Colombian capital market counts 68 companies, and its main stock market index, COLCAP, includes 23 of them. The companies studied in this research represent 76.6% of the market capitalization, but only 13 are included in the index, and none of those included participates in the general Down Jones Global Index (DJI). They have only been included in the DJI for emerging markets (DJEMI). This indicates that while the companies in this research have a great capacity to affect the Colombian capital market, their importance is minimal in international capital markets.

For each of the 13 companies' shares, the closing prices available on the Colombian Stock Exchange's official website were extracted. The period analyzed for the shares prices differs among the companies due to some of the companies' late entry or early exit to the Colombian stock market. Table 2 shows the periods and descriptive statistics of the series of returns examined.

Table 2. **Company, period of analysis, and descriptive statistics on returns**

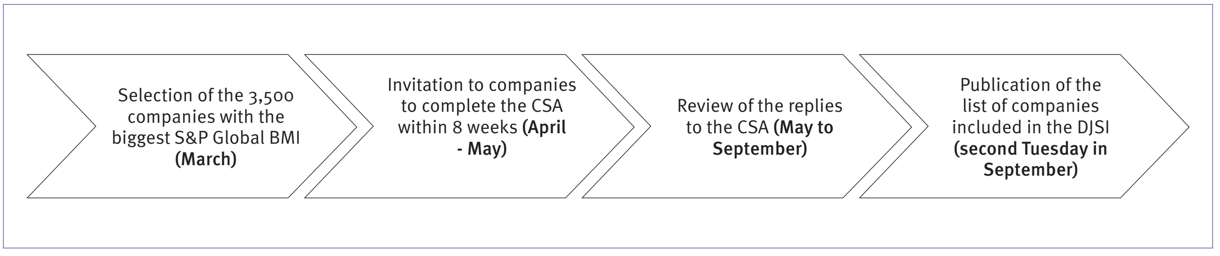
Company	Start_Date (yy/mm/dd)	End_date (yy/mm/dd)	Minimum	Mean	Maximum	Standard deviation
NUTRESA	2011-04-15	2018-12-28	-4.99	0	4.81	1.08
ÉXITO	2009-01-05	2018-12-28	-11.95	0.01	8.03	1.57
BCB	2009-01-06	2018-12-28	-7.79	0.03	8.03	1.48
CEMARGOS	2012-01-04	2018-12-28	-10.45	0.01	6.55	1.59
ECOPETROL	2009-01-06	2018-12-28	-10.11	0.01	10.27	1.76
GRUPOARGOS	2009-01-05	2018-12-28	-9.2	0.02	7.05	1.31
GRUPOSURA	2010-01-05	2018-12-28	-7.52	0.01	5.67	1.34
EEB	2009-09-07	2018-12-28	-9.86	0.04	8.62	1.33
ISA	2009-01-05	2018-12-28	-9.82	0.03	10.48	1.52
ISAGEN	2012-01-04	2016-12-29	-14.9	0.04	19.28	1.96
PFDAVVNDA	2013-01-03	2016-12-28	-9.41	0.02	5.79	1.45
CELSIA	2017-01-03	2016-12-28	-5.45	0	4.54	1.02
BOGOTÁ	2016-01-05	2016-12-28	-8.85	-0.01	6.89	1.18

Note: "Start date" and "end date" are the dates when the events were analyzed. The other columns are descriptive statistics on continuous daily returns observed between the start and end date.

Events and annual cycle of the DJSI

We observed the impact on the closing price related to three types of events: entry, continuation, and exit of the DJSI. Each event is published by RobecoSAM on the second Tuesday of September of each year, after an evaluation cycle that begins in March of each year and ends with the publication of results on the second Tuesday of September of the same year (Figure 1). RobecoSAM carries out the evaluation based on information provided by the companies through the corporate sustainability assessment (CSA) questionnaire. For this work, the publication of that list is the time point for each entry, continuation, or exit event.

Figure 1. **Evaluation and publication cycle of the DJSI result by RobecoSAM**



Outreach media

We examined newspapers to observe the disclosure of the company's CSR events in written communication media directed both to general and specialized audiences in Colombia. The terms "*empresas colombianas en el DJSI*" (Colombian companies in the DJSI), "Dow Jones Sustainability Index Colombia," "DJSI Colombia," and "*Compañías colombianas DJSI*" (Colombian companies DJSI) were searched in each of this communication media. We searched events published between September 2009 and December 2018. These events were tabulated according to the type of media and the frequency of publication. Other media such as radio or television were ignored because of the difficulty or high cost of accessing and verifying the data.

Abnormal returns

Abnormal returns are usually measured as the difference between the observed return and the expected return, based on an empirical model expected to reproduce the behavior of the financial asset (Brooks, 2014). The financial asset is often calculated through a linear regression model on one or more market indices. Following this methodological trend, we evaluate the following indices as regressors: the COLCAP index of the Colombian Stock Exchange, the Dow Jones Industrial Emerging Market Index (DJEMI), the Dow Jones Emerging Markets Total Return Index (DJEMTRI) (in USD), the international price of oil, and the domestic currency price of the USD – which is the main currency in the Colombia international trade. From the R^2 statistic, it was found that the COLCAP and DJEMI indices helped to capture the highest proportion of the variance in the returns. Thus, both indices were included in a two-factor model according to the following equation:

$$R_{it} = \alpha_i + \beta_{1i} * DJEMI_t + \beta_{2i} * COLCAP_t + e_{it} \quad (1)$$

Where R_{it} corresponds to the logarithmic return of share i for day t and calculated based on the daily closing prices. The cofficients β_{1i} and β_{2i} are loads of the DJEMI and COLCAP factors, respectively, and e_{it} is the error for each share i at time t. This model was estimated by ordinary least squares for each event at time t^* and in the interval $[t^*\text{-}to\text{-}tp\text{-}5,\ t^*\text{-}tp\text{-}5]$, using $to=25$ observations for the estimation, $tp=5$ days for the forecast window and a space of five days prior to the event that allowed reducing the possibility of inverse causality of the event on the coefficients of the model.

Once the factor model for each event had been estimated, the abnormal returns AR_{it} were calculated in a window of $[t^*\text{-}5,\ t^*\text{+}5]$ as:

$$AR_{it} = R_{it} - \hat{R}_{it} \quad (2)$$

where $\hat{R}_{it}$ corresponds to the expected return of share i obtained from the model in (1). According to Corrado (2011), the standard error of AR_{it} can be estimated as:

$$VAR(AR_{it}) = \sigma_e^{2}\left(1+\frac{1}{n}+\frac{(AR_{it}-AR_{it})^2}{\sum_{t=(n-10)}^{-10}(AR_{it}-AR_{it})^2}\right) \qquad (3)$$

where σ_e^2 is the variance of the error of the regression e_{it} (Greene, 2003). For sufficiently large degrees of freedom $df = n\text{-}2$, the ratio between an abnormal return and its standard error follows the Student's t-distribution:

$$t=\frac{AR_{it}}{\sqrt{VAR(AR_{it})}} \rightarrow t_{n-2} \qquad (4)$$

For t values greater than a critical value t^* given a type I error level of 5%, the null hypothesis of null abnormal returns (Ho: $AR_{it}=0$) can be rejected with a 95% confidence level.

Because the t-Student statistic is sensitive to the assumption of normality of the returns, the analysis was complemented with a non-parametric alternative proposed by Corrado (2011), who suggests comparing the abnormal return of an event with the sequence order of abnormal returns presented during the estimation period. In this comparison, the probability of having k values above the abnormal return on the date of the event is $k/(n+1)$, where n is the number of observations used in the estimation period. If $k/(n+1)$ is less than the critical significance value – i.e., 5% for this investigation – then the null hypothesis should be rejected (Corrado, 2011). The validity of this test does not depend on the probability distribution of the returns (Corrado, 2011). Thus, it adds robustness to the analysis in cases where the returns deviate significantly from a normal distribution.

Given that the analysis period includes crisis episodes such as the Subprime crisis in 2007 and the debt crisis in Europe, it is important to recognize that the greater volatility of the international capital markets could amplify the standard errors and challenge the task of identifying abnormal returns. To evaluate the impact on the errors' distortion, we estimate the results by changing the width of the model's estimation periods. This variation made it possible to examine the sensitivity of the results to the persistence of external shocks derived from episodes of international crisis while the introduction of the two indices made it possible to include the agents' generalized perceptions in relation to emerging markets (DJEMI) and the local market (COLCAP).

RESULTS

Table 3 summarizes the results of the parametric and non-parametric analyses for the events. The table shows that significant abnormal returns are unevenly distributed both before and after the event date. At moment 0 i.e., the day the event was disclosed, only four stocks/continuation events presented significant abnormal returns: Grupo Argos ($t = 1.45$, $p < 0.05$) in 2014, Éxito ($t = -2.86$, $p < 0.05$) in 2015, ISA ($t = 2.44$, $p < 0.05$) in 2018, and Isagen ($t = 4.39$, $p < 0.05$) in 2015. The first company's share is significant through the non-parametric procedure, while the other three are significant in both the parametric and non-parametric tests. In general terms, Table 3 shows a remarkable number of non-significant events that question the immediate effect of DJSI-related events on the market.

Table 3. **Analysis of events of Colombian companies' entry, continuation, and exit from DJSI**

	Company	Event	Event date (yy/mm/dd)	-5	-4	-3	-2	-1	0	1	2	3	4	5
1	NUTRESA	Continuation	2012-09-13				2.45							
2		Continuation	2013-09-12							-1.81				
3		Continuation	2015-09-10							2.84		1.60		
4		Continuation	2017-10-18			1.93								
5		Continuation	2018-09-13					-3.21			-2.69		-2.26	
6	ÉXITO	Entry	2013-09-12		-1.83									
7		Continuation	2014-09-11			2.23								**2.14**
8		Continuation	2015-09-10				-1.64		-2.86					
9		Continuation	2018-09-13	-2.88						-1.52				
10	BCB	Continuation	2014-09-11				**-2.54**	1.57						
11		Continuation	2015-09-10		-1.79									
12		Continuation	2017-09-07	**5.88**			-1.87							
13		Continuation	2018-09-13	1.76		-1.88				2.96	-2.58*			**2.70**
14	CEMARGOS	Entry	2013-09-12									2.11		
15		Continuation	2014-09-11				-2.13							
16		Continuation	2015-09-10											1.87
17		Continuation	2017-09-07			-1.67								
18		Continuation	2017-10-18				-2.18							
19		Continuation	2018-09-13	**-3.61**	**-2.05**		3.42	-2.94						
20	ECOPETROL	Continuation	2013-09-12											-1.40
21		Continuation	2014-09-11				1.72							
22		Continuation	2015-09-10	-1.58										
23	GRUPOARGOS	Continuation	2014-09-11		-2.18				1.45					
24		Continuation	2015-09-10	**2.68**	**3.63**								-2.47	2.12
25		Continuation	2017-09-07	**-4.24**	**-5.02**									
26		Continuation	2018-09-13	**-4.71**										
27	GRUPOSURA	Entry	2011-09-08		-1.53									
28		Continuation	2015-09-10								1.77			

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Table 3. **Analysis of events of Colombian companies' entry, continuation, and exit from DJSI** Concludes

	Company	Event	Event date (yy/mm/dd)	-5	-4	-3	-2	-1	0	1	2	3	4	5
29		Continuation	2017-10-18					1.86						-1.71
30		Continuation	2018-09-13				1.98				2.28*			**-2.79**
31	EEB	Continuation	2014-09-11									-2.27		
32		Continuation	2015-09-10									2.31		
33		Continuation	2017-09-07	-1.93										
34		Continuation	2017-10-18								1.60			**-2.44**
35		Continuation	2018-09-13	**-3.59**		1.45								
36	ISA	Entry	2015-09-10	1.71				3.72						
37		Continuation	2016-09-08							-1.88				
38		Continuation	2017-09-07	-1.84								-1.88		
39		Continuation	2017-10-18		-1.59									
40		Continuation	2018-09-13	**2.11**	1.61	**2.25**		-2.42	2.44		**-2.86***	1.84		
41	ISAGEN	Entry	2013-09-12	**-3.62**							-1.69		-2.34	
42		Continuation	2015-09-10						**4.39**	1.71				
43	PFDAVVNDA	Continuation	2015-09-10		3.16							-2.00		
44		Continuation	2017-09-07				2.10							
45		Continuation	2018-09-13	1.79	-1.63	**-4.50**		-1.97			1.71			2.17

The numbers are values of t-statistics for the significant abnormal returns with the non-parametric test suggested in Corrado (2011). Values higher than 2 were highlighted to indicate where the parametric t-test coincides with the non-parametric test. Other values were excluded to facilitate reading. Complete results can be found on the authors' websites. Values indicated with (*) correspond to abnormal returns that coincide with dates on which news or reports about the respective event were found in national media.

In addition, Table 3 shows that, in the five days after the date of the events, the abnormal returns identified by both procedures are irregularly distributed across the dates, without a prevalence of positive or negative results, i.e., there is approximately the same ratio between positive and negative results. This pattern also occurs in the five days preceding the event. In general terms, the results in Table 3 suggest that it is not possible to identify a specific pattern of positive or negative effects related to the DJSI index entry, continuation, or exit events in the Colombian stock market.

One possible explanation for the observed low short-term impact of DJSI-related events is the mode and timing of the events. Low-scope dissemination channels, without a focus on a specific audience or with non-timely disclosure, can reduce the impact of an event. This explanation can be explored by observing Table 4, which presents a summary of the newspaper publications of the events according to the type of media: general or specialized media such as newspapers, magazines, and web pages aimed at an audience specialized in economics, finance, and business.

Table 4. **Dissemination of events of the DJSI in media channels**

Publication per type of media			
Use of communication media	**General**	**Specialized**	**Number of companies**
Entry			
0	-	-	7
1	-	1	1
2	3	3	3
3	2	4	2
Total	**5**	**8**	**13**
Continuation			
0	-	-	2
1	-	-	0
2	-	-	0
3	2	4	2
4	5	11	4
5	-	-	0
6	-	6	1
7	3	11	2
Total	**10**	**32**	**11**
Exit			
0	-	-	2
1	1	-	1
Total	**1**	**0**	**3**

Notes: The number of events was obtained from filtered searches on the web pages of the various media between September 1, 2009, and December 31, 2018. The keywords used in the search were: Dow Jones Sustainability Index Colombia, DJSI Colombia, *Compañías colombianas DJSI* (Colombian companies DJSI). "Number of companies" refers to the number of companies that report a certain number of times using the media (for example, seven companies – first value in the column – were not mentioned in any of the consulted media.

According to Table 4, DJSI-related events are disclosed primarily through specialized media: the rate of use of specialized media is more than double that of general media. The media does not usually produce a generalized or automatic disclosure of events regarding the DJSI. The first line of results in Table 4 shows that 7 of the 13 companies that entered the index did not receive coverage through the media analyzed. The cause of this low repercussion could be the low interest or scope of the media publishing this information or poor initiatives by companies to take advantage of this opportunity to disseminate their CSR efforts.

Continuation events in the index seem to have received greater attention in the media analyzed, although the impact was not significant in the statistical tests. It is important to note that this type of event is disclosed as news regarding the DJSI and several companies in the same space or press release.

Regarding the exit event, the only company that received attention or dissemination through specialized media was Ecopetrol. Interest in this event seems to be associated with this company's political and economic importance for the Government of Colombia. Ecopetrol generated, on average, 10% of the federal government's revenues in the period 2011-2018, and in some periods, it reached 25% (Salcedo, 2020). Thus, this event can be considered of interest not only to investors but also to the general public.

The analysis of dates of the events in Table 3 and the dates the publications were released in newspapers show few coinciding dates. Specifically, only three events with significant abnormal returns coincide with the date of publication of the events in any of the national broadcast media. These events are marked with (*) in Table 3. The three abnormal returns occurred two days after the RobecoSAM report and only for events of recognition. However, two of them correspond to negative abnormal returns, while the other corresponds to a positive one. This finding suggests that the market does not seem to react positively or consistently to news about developments in the sustainability index. Also, it is consistent with a non-significant short-term impact of the inclusion of Colombian companies in the DJSI caused by poor dissemination of CSR efforts.

DISCUSSION AND CONCLUSIONS

This research analyzes the influence of Colombian companies' entry, continuation, and exit of the DJSI in their stock prices, observing the period from 2009 to 2018. In addition, the study examines the efforts of these organizations to disseminate information regarding the DJSI-related events in the Colombian written communication media. The two fundamental results are: (i) the developments in the DJSI do not significantly affect the returns of the companies' stocks, and (ii) the companies do not seem to make an effort to disseminate their information on CSR in the media.

As for the first result, our analysis shows that the investors' reaction when the DJSI-related events are disclosed is not significantly different from what was expected or predicted through a two-factor model when the information on the DJEMI and COLCAP indices are disclosed. Therefore, such announcements do not generate abnormal returns. This finding corroborates theoretical arguments (Friedman, 1970) and empirical analyses based on larger samples (e.g., Durand et al., 2019; Hawn et al., 2018). However, when this result is observed together with an analysis of the CSR dissemination efforts, it is possible to envision an alternative explanation for the phenomenon.

The conventional justification for the absence of abnormal returns is based on considerations regarding the CSR's cost-benefits: social responsibility programs are activities that are too expensive in relation to the benefits (Sprinkle & Maines, 2010) they manage to incorporate into the price of the stock as a null net present value (NPV) – i.e., the events do not generate positive or negative abnormal returns. The results of Duarte and Pérez-Iñigo (2014) and Dávila and Muñoz (2020) that do not reject the weak efficiency of the Colombian market are compatible with this NPV incorporation in the price.

The contribution of this research lies in complementing the analysis by looking at the companies' efforts to disseminate CSR information to stakeholders. Previous studies have shown that the absence of strategies to disseminate these announcements reduces the potential impact on stakeholders (Barnett, 2007; Chung et al., 2018) or delays their influence in share prices (Searcy & Elkhawas, 2012). Our analysis of the Colombian firms' efforts to disseminate the DJSI-related information demonstrates that they are not committed to this task. The events they have published in the general and specialized newspapers are short, in the middle of the newspapers, and include notes from many companies on the same page. In other words, the notes seem to correspond more to the routine dissemination work of the media vehicles than to particular initiatives of the companies aimed to impact the market. Based on this evidence, the non-significant impact of the events does not arise from the null value of the NPV caused by expensive CSR programs. It emerges from a communication problem that leads the market to ignore the news regarding DJSI events, thus underestimating the potential positive cash flows in the NPV.

The importance of the flow of information to stakeholders had already been noted by Servaes and Tamayo (2013), who measured it through the firms' expenditures in advertising. This research confirms the literature and suggests a specific channel through which the information impacts the returns of the shares: the positive cash flows in the NPV, which is incorporated in the price. It is crucial to remember that empirical studies do not reject weak efficiency in the Colombian market, so the NPV is part of the price. The chain of argument, therefore, is: the ex-ante value of an announcement of the index is the expected value of the cash flow derived from the recognition (VE (DJSI) = p * CF, p ‹1). Once the event becomes a fact (p = 1), the value of the event in the NPV increases because of CF› VE (DJSI). However, if recognition is not properly disclosed to stakeholders, the market continues to value the effect of the index as a probability event less than one. The impact can be more far-reaching if more stakeholders are affected (Barnett, 2007).

Limitations and research opportunities

The results obtained in this study present limitations and are based on methodological decisions that force us to put the conclusions into perspective. For example, we mentioned in the methodology that the analysis was restricted to 13 of the 68 companies listed in the Colombian stock exchange. Although this subset represents 76.6% of the COLCAP index, the results cannot be extended to the entire market. Companies excluded from COLCAP – usually smaller – could be more sensitive to CSR events due to greater market concerns regarding their sustainability, generating higher share prices, such as that documented by Banz (1981) in developed economies. The absence of small companies in the sample creates a selection bias not addressed here since it is beyond the scope. The creation of CSR indicators based on local information and multivariate methods such as factor analysis could offer the opportunity to elaborate more inclusive indices to study this size effect in an emerging market with low financial depth.

Regarding identifying events, the analysis assumes that most of the impact is manifested at the time of the event's announcement. The negative or positive effects of CSR activities can be partially discounted at the time of their execution but weighted according to the probability of the company's exclusion of the company from the index. Given that the company can respond with remedial or compensatory measures – for example, increasing investments in other aspects of the corporate sustainability assessment (CSA) – the investor tends to assign a small value to the probability of exclusion from the index, reducing the expected value of the company's share and postponing until the moment of the announcement of the event, most of the impact. With this reasoning, most of the effect of CSR events should be concentrated in the announcements of the events increasing the validity of our arguments.

Another important limitation is the scope of the impact in terms of stakeholders. From stakeholder theory (Freeman, 1999), decisions about responsible behavior and sustainability responding to stakeholder expectations (Flammer, 2012). Given that this research studies the reaction in only one of these stakeholders - shareholders -

the variation in share prices may not capture the full impact of CSR efforts (Barnett, 2007; Chung et al., 2018), or be delayed by its incorporation in the price (Searcy & Elkhawas, 2012).

Managerial implications

Given that the companies' CSR efforts required a positive NPV to be implemented, and the study of events shows the absence of positive abnormal returns, it seems natural to conclude that the information on the DJSI announcements is not effectively communicated to the market. In short, companies appear to miss out on the implicit and explicit benefits that arise from such announcements. From this chain of arguments emerges our main recommendation: The announcements related to the DJSI constitute a valuable opportunity for companies to use all media tools to transmit information to the market about their CSR efforts and make the positive return that these efforts improve their organizations. This recommendation is not without caveats: there must be a correspondence between CSR actions and dissemination strategies. Dishonest or superficial CSR actions are known as green-or social-washing (Chen & Chang, 2013; De Jong, Harkink, & Barth, 2018; Netto, Sobral, Ribeiro, & Soares, 2020); concealment of personal interests of managers in CSR activities (agency problems); Marketing practices designed to manipulate customer perception or appease critics; and the slowdown of the company's operations derived from the organizational subsystem in charge of CSR activities can induce adverse perceptions in stakeholders and negative effects on the firms' value, seeking correspondence should be part of the managerial task in the company.

REFERENCES

Adamska, A., & Dabrowski, T. (2016). Do investors appreciate information about corporate social responsibility? Evidence from the polish equity market. *Engineering Economics*, *27(4)* 364-372. doi: 10.5755/j01.ee.27.4.13377

Arya, B., & Zhang, G. (2009). Institutional reforms and investor reactions to CSR announcements: evidence from an emerging economy. *Journal of Management Studies*, *46*(7), 1089-1112. doi: 10.1111/j.1467-6486.2009.00836.x

Baden, D. A., Harwood, I. A., & Woodward, D. G. (2009). The effect of buyer pressure on suppliers in SMEs to demonstrate CSR practices: An added incentive or counter productive? *European Management Journal*, *27*(6), 429-441. doi: 10.1016/j.emj.2008.10.004

Banz, R. W. (1981). The relationship between return and market value of common stocks. *Journal of Financial Economics*, *9*(1), 3-18. doi: 10.1016/0304-405X(81)90018-0

Bardos, K. S., Ertugrul, M., & Gao, L. S. (2020). Corporate social responsibility, product market perception, and firm value. *Journal of Corporate Finance*, *62*, 101588. doi: 10.1016/j.jcorpfin.2020.101588

Barnett, M. L. (2007). Stakeholder influence capacity and the variability of financial returns to corporate social responsibility. *Academy of Management Review*, *32*(3), 794-816. doi: 10.5465/amr.2007.25275520

Barnett, M. L., & Salomon, R. M. (2006). Beyond dichotomy: The curvilinear relationship between social responsibility and financial performance. *Strategic Management Journal, 27*(11), 1101-1122. JSTOR. https://doi.org/10/eq8pve

Branco, M. C., & Rodrigues, L. L. (2006). Corporate social responsibility and resource-based perspectives. *Journal of Business Ethics*, *69*(2), 111-132. doi: 10.1007/s10551-006-9071-z

Brooks, C. (2014). *Introductory econometrics for finance* (3rd ed.). Cambridge: Cambridge University Press.

Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, *34*(4), 39-48. doi: 10.1016/0007-6813(91)90005-G

Cellier, A., & Chollet, P. (2016). The effects of social ratings on firm value. *Research in International Business and Finance*, *36*, 656-683. doi: 10.1016/j.ribaf.2015.05.001

Chang, K., Shim, H., & Yi, T. D. (2019). Corporate social responsibility, media freedom, and firm value. *Finance Research Letters*, *30*, 1-7. doi: 10.1016/j.frl.2019.03.019

Chen, Y.-S., & Chang, C.-H. (2013). Greenwash and green trust: The mediation effects of green consumer confusion and green perceived risk. *Journal of Business Ethics, 114*(3), 489-500. doi: 10.1007/s10551-012-1360-0

Cheng, B., Ioannou, I., & Serafeim, G. (2014). Corporate social responsibility and access to finance. *Strategic Management Journal, 35*(1), 1–23. doi: 10.1002/smj.2131

Friedman, M. (1970). *The Social Responsibility of Business Is to Increase Its Profits.* In W. C. Zimmerli, M. Holzinger, & K. Richter (Eds.), Corporate Ethics and Corporate Governance (pp. 173–178). Springer Berlin Heidelberg.

Cho, S. J., Chung, C. Y., & Young, J. (2019). Study on the relationship between CSR and financial performance. *Sustainability*, *11*(2), 343. doi: 10.3390/su11020343

Chung, C. Y., Jung, S., & Young, J. (2018). Do CSR activities increase firm value? Evidence from the Korean market. *Sustainability*, *10*(9), 3164. doi: 10.3390/su10093164

Corrado, C. J. (2011). Event studies: A methodology review. *Accounting & Finance*, *51*(1), 207-234. doi: 10.1111/j.1467-629X.2010.00375.x

Crisóstomo, V. L., Freire, F. de S., & Vasconcellos, F. C. de. (2011). Corporate social responsibility, firm value and financial performance in Brazil. *Social Responsibility Journal*, *7*(2), 295-309. doi: 10.1108/17471111111141549

De Jong, M. D. T. De, Harkink, K. M., & Barth, S. (2018). Making green stuff? Effects of corporate greenwashing on consumers. *Journal of Business and Technical Communication*, *32*(1), 77-112. doi: 10.1177/1050651917729863

De Wet, W. A. de. (2004). The role of asymmetric information on investments in emerging markets. *Economic Modelling*, *21*(4), 621-630. doi: 10.1016/j.econmod.2003.09.002

Duarte, J. B. D., & Pérez-Iñigo, J. M. M. (2014). Comprobación de la eficiencia débil en los principales mercados financieros latinoamericanos. *Estudios Gerenciales*, *30*(133), 365-375. doi: 10.1016/j.estger.2014.05.005

Durand, R., Paugam, L., & Stolowy, H. (2019). Do investors actually value sustainability indices? Replication, development, and new evidence on CSR visibility. *Strategic Management Journal*, *40*(9), 1471-1490. doi: 10.1002/smj.3035

El Ghoul, S., Guedhami, O., Kwok, C. C. Y., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance*, *35*(9), 2388-2406. doi: 10.1016/j.jbankfin.2011.02.007

Flammer, C. (2012). Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management Journal*, *56*(3), 758-781. doi: 10.5465/amj.2011.0744

Freeman, R. E. (1999). Response: Divergent stakeholder theory. *The Academy of Management Review*, *24*(2), 233-236. doi: 10.2307/259078

Friedman, M. (1970). *The social responsibility of business is to increase its profits.* In W. C. Zimmerli, M. Holzinger, & K. Richter (Eds.), *Corporate ethics and corporate governance* (pp. 173-178). Berlin. Springer Berlin Heidelberg.

González, M., Guzmán, A., Téllez, D. F., & Trujillo, M. A. (2021). What you say and how you say it: Information disclosure in Latin American firms. *Journal of Business Research*, *127*, 427-443. doi: 10.1016/j.jbusres.2019.05.014

Hawn, O., Chatterji, A. K., & Mitchell, W. (2018). Do investors actually value sustainability? New evidence from investor reactions to the Dow Jones Sustainability Index (DJSI). *Strategic Management Journal*, *39*(4), 949-976. doi: 10.1002/smj.2752

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics*, *31*(1), 405-440. doi: 10.1016/S0165-4101(01)00018-0

Karim, K., Suh, S., & Tang, J. (2016). Do ethical firms create value? *Social Responsibility Journal*, *12*(1), 54-68. doi: 10.1108/SRJ-09-2014-0127

Kelly, B., & Ljungqvist, A. (2012). Testing asymmetric-information asset pricing models. *The Review of Financial Studies*, *25*(5), 1366-1413. doi: 10.1093/rfs/hhr134

Kramer, M. R., & Porter, M. E. (2006). Estrategia y sociedad: El vínculo entre ventaja competitiva y responsabilidad social corporativa. *Harvard Business Review*, *84*(12), 42-56. Recuperado de https://www.iarse.org/uploads/Porter_y_Kramer_Estrategia_y_Sociedad_HBR_dic_2006.pdf

Li, D., Xin, L., Chen, X., & Ren, S. (2017). Corporate social responsibility, media attention and firm value: Empirical research on Chinese manufacturing firms. *Quality & Quantity*, *51*(4), 1563-1577. doi: 10.1007/s11135-016-0352-z

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate social responsibility and firm financial performance. *Academy of Management Journal*, *31*(4), 854-872. doi: 10.5465/256342

McWilliams, A., & Siegel, D. (2001). Corporate social responsibility: A theory of the firm perspective. *The Academy of Management Review*, *26*(1), 117. doi: 10.2307/259398

Montiel, I., Husted, B. W., & Christmann, P. (2012). Using private management standard certification to reduce information asymmetries in corrupt environments. *Strategic Management Journal*, *33*(9), 1103-1113. doi: 10.1002/smj.1957

Netto, S. V. de F., Sobral, M. F. F., Ribeiro, A. R. B., & Soares, G. R. da L. (2020). Concepts and forms of greenwashing: A systematic review. *Environmental Sciences Europe*, *32*(1), 19. doi: 10.1186/s12302-020-0300-3

Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. O*rganization Studies, 24*(3), 403-441. doi: 10.1177/0170840603024003910

Pérez, A., López-Gutiérrez, C., García-De Los Salmones, M. D. M., & San-Martín, P. (2020). Stakeholder salience, positive CSR news and the market value of banks. *Spanish Journal of Finance and Accounting / Revista Española de Financiación y Contabilidad, 49*(4), 483–502. doi: 10.1080/02102412.2019.1681718

Porter, M. E., & Kramer, M. R. (December, 2006). Strategy & society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review, 84*(12), 78-92. Recuperado de https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility

RobecoSAM. (2019). *SAM Corporate Sustainability Assessment Informe de progreso de América Latina 2019.* Recuperado de https://www.spglobal.com/esg/csa/static/docs/Informe_de_progreso_de_America_Latina_2019.pdf

Robinson, M., Kleffner, A., & Bertels, S. (2011). Signaling sustainability leadership: Empirical evidence of the value of DJSI membership. *Journal of Business Ethics*, *101*(3), 493-505. doi: 10.1007/s10551-011-0735-y

Rodríguez-Salcedo, C. G. (2020, marzo 9). *El Presupuesto General de la Nación 2020 se calculó con un precio del Brent en US$67*. Recuperado de https://www.larepublica.co/finanzas/esta-es-la-influencia-que-tienen-los-precios-del-petroleo-en-la-economia-colombiana-2974654

Ruiz-Dávila, B. D. R., & Muñoz, G. G. (2020). Hipótesis de mercados eficientes y estrategias de inversión en el MILA: 2014-2019. *Análisis Económico*, *35*(90), 67-90. Recuperado de http://www.scielo.org.mx/scielo.php?script=sci_abstract&pid=S2448-66552020000300067&lng=es

Searcy, C., & Elkhawas, D. (2012). Corporate sustainability ratings: An investigation into how corporations use the Dow Jones Sustainability Index. *Journal of Cleaner Production*, *35*, 79-92. doi: 10.1016/j.jclepro.2012.05.022

Servaes, H., & Tamayo, A. (2013). The impact of corporate social responsibility on firm value: The role of customer awareness. *Management Science*, *59*(5), 1045-1061. doi: 10.1287/mnsc.1120.1630

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, *87*(3), 355-374. doi: 10.2307/1882010

Sprinkle, G. B., & Maines, L. A. (2010). The benefits and costs of corporate social responsibility. *Business Horizons*, *53*(5), 445-453. doi: 10.1016/j.bushor.2010.05.006

Su, W., Peng, M. W., Tan, W., & Cheung, Y.-L. (2016). The signaling effect of corporate social responsibility in emerging economies. *Journal of Business Ethics*, *134*(3), 479-491. doi: 10.1007/s10551-014-2404-4

Vargas, L. (2016). *Corporate Social Responsibility and Financial Performance: GIC's Share Prices Value Impact – Event Study*. In Crowther, David & Seifi, Shahla (Eds.), Corporate Responsibility and Stakeholding (Vol. 10, pp. 165–177). Emerald Group Publishing Limited.

Waddock, S. A., & Graves, S. B. (1997). The Corporate Social Performance–Financial Performance Link. *Strategic Management Journal*, *18*(4), 303–319. Recuperado de http://www.jstor.org/stable/3088143

Wang, Y.-S., & Chen, Y.-J. (2017). Corporate social responsibility and financial performance: Event study cases. *Journal of Economic Interaction and Coordination*, *12*(2), 193-219. doi: 10.1007/s11403-015-0161-9

AUTHORS' CONTRIBUTION

Juan Camilo Sánchez-López and Jesús María Godoy Bejarano worked together on the research conceptualization, the theoretical-methodological approach, and on the literature review. Data collection was coordinated by Jesús María Godoy Bejarano, who was also responsible for data analysis. Both authors worked together on writing the manuscript and the final revision.