



Do sustainability disclosure mechanisms reduce market myopia? Evidence from European sustainability companies

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ARTICLE INFO

JEL code:

G10
G14
G41
M14

Keywords:

Sustainability disclosure
Market myopia
Corporate sustainability

ABSTRACT

Market myopia is a behavioural bias that causes investors to overvalue short-term earnings and undervalue long-term profits. This anomaly should not be compatible with sustainability disclosure mechanisms, the set of tools which firms use for reporting on their sustainable practices, and which contribute towards long-term performance improvements. Our aim is to study whether market myopia, as a symptom of market inefficiency, decreases with the implementation of sustainability disclosure mechanisms. We test for the presence of market myopia in a sample of firms listed on the S&P Europe 350 Index. For this purpose, we propose to use an adaptation of the valuation model for residual income under linear information dynamics developed by Feltham and Ohlson. Using the rating provided by RobecoSAM Sustainability Yearbook, we find market myopia to be less prevalent in companies classified as high sustainability reporters. An association is also found between persistent enforcement of sustainability disclosure mechanisms and a reduction of the market myopia effect.

1. Introduction

Derqui (2020, p. 2713), based on Dyllick and Hockerts (2002), defines corporate sustainability as “meeting the needs of the company and its stakeholders while protecting the natural and human resources that will be needed in the future and without compromising the ability to meet the needs of future stakeholders either”. It is an integrated approach to business development, which takes into account the effect of stakeholder interdependencies on the firm’s management, economic and socio-environmental responsibilities (Salvioni & Gennari, 2016). Lozano (2011), Hörisch, Freeman, and Schaltegger (2014) and Bonilla-Priego and Benítez-Hernández (2017), among others, consider corporate sustainability as the natural follow-up to corporate social responsibility. This new paradigm calls for long-term economic, social and environmental commitments with aims relating to value creation (Amini & Bienstock, 2014; Lozano, 2015). This integrated approach requires the development of a business case for sustainability, including both the implementation of sustainable practices, and the prioritisation of long-term profits over short-term earnings. In this sense, corporate sustainability is associated with having a positive impact on long-term financial performance (Whelan & Fink, 2016).

Investors deciding to purchase shares in sustainable practice organisations should have their sights set on long-term value and the

integration of social, environmental, or ethical criteria into financial investment decisions (Juniarti, 2021; Long, 2019; López-Arceiz, Bellostas, & Moneva, 2018). These investments should not be compatible with short-termism or myopia. It describes a behavioural bias in which economic agents tend to overvalue short-term earnings at the expense of long-term performance (Tunyi, Ntim, & Danbolt, 2019). Market myopia should be lower in those organisations that implement sustainability disclosure mechanisms requiring businesses to report their degree of commitment to sustainability (Schaltegger, Hörisch, & Freeman, 2019). Ferrer et al. (2020, p.2939) define sustainability disclosure mechanisms as a set of tools that “companies use for reporting their business practices to their stakeholders”. In particular, this set of tools is made up of four possible mechanisms: a) Aspirational principles and codes of practice; b) Guidelines for management systems and certification schemes; c) Rating indices; and, d) Accountability and reporting frameworks (European Commission, 2003; Financial Conduct Authority, 2021). Rating indices are highlighted as one of the most useful sustainability disclosure mechanisms, as they offer a benchmark, immediate access to a valuation and high quality information about sustainability practices (Ortas, Burritt, & Moneva, 2013; Pintér, Hardi, Martinuzzi, & Hall, 2018).

These mechanisms should reduce financial markets’ exposure to information asymmetries, such as market myopia, since they are “a vehicle to build and maintain firm reputation thereby enhancing the information

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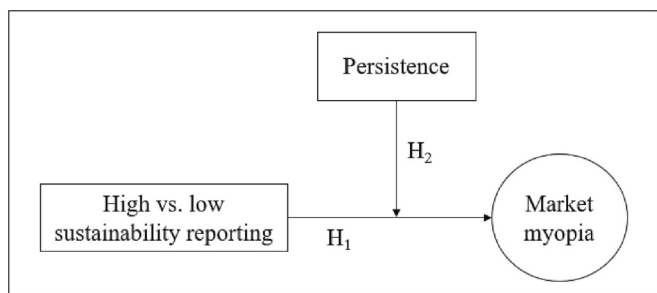


Fig. 1. Working hypotheses.

Table 1
Sample composition.

Variable	Total	High sustainability reporters (HSR) (203)	Low sustainability reporters (LSR) (268)
<i>Years</i>			
2008–2009	100.00%	27.18%	72.82%
2009–2010	100.00%	26.54%	73.46%
2010–2011	100.00%	29.09%	70.91%
2011–2012	100.00%	28.24%	71.76%
2012–2013	100.00%	28.66%	71.34%
2013–2014	100.00%	29.51%	70.49%
2014–2015	100.00%	31.00%	69.00%
2015–2016	100.00%	28.66%	71.34%
2016–2017	100.00%	27.60%	72.40%
2017–2018	100.00%	26.75%	73.25%
2018–2019	100.00%	28.45%	71.55%
2019–2020	100.00%	19.11%	80.89%
<i>Country</i>			
Germany	6.16%	4.25%	1.91%
Austria	5.10%	0.64%	4.46%
Belgium	4.88%	1.06%	3.82%
Denmark	4.25%	1.27%	2.97%
Finland	5.94%	2.76%	3.18%
France	8.70%	7.01%	1.70%
Italy	5.31%	2.55%	2.76%
Luxembourg	1.06%	0.21%	0.85%
Netherlands	5.31%	2.97%	2.34%
Norway	8.07%	1.27%	6.79%
Portugal	5.31%	1.06%	4.25%
United Kingdom	24.84%	12.31%	12.53%
Spain	7.22%	4.25%	2.97%
Sweden	4.46%	2.34%	2.12%
Switzerland	3.40%	2.34%	1.06%
<i>Activity sector</i>			
Energy	10.62%	4.25%	6.37%
Basic Materials	14.01%	6.16%	7.86%
Industrials	20.81%	9.55%	11.25%
Consumer Cyclicals	16.99%	8.70%	8.28%
Consumer Non-Cyclical	10.62%	4.46%	6.16%
Financials	0.64%	0.01%	0.63%
Healthcare	7.22%	2.55%	4.67%
Technology	4.46%	2.97%	1.49%
Telecommunication			
Services	5.73%	2.97%	2.76%
Utilities	8.92%	4.67%	4.25%

This table shows the sample composition, with all percentages computed on the total number of companies.

environment” (Cui, Jo, & Na, 2018, p.549). Previous studies have analysed the interactions between information asymmetry and corporate sustainability, evidencing an inverse relationship between them (e.g. Romito & Vurro, 2021; Xing, Zhang, & Tripe, 2021). Recently, Bofinger, Heyden, and Rock (2022) conclude that the implementation of sustainability practices increases a firm’s market valuation. However,

empirical research has so far failed to explain the reduction in information asymmetries that might be related to the interaction between corporate sustainability disclosure and the presence of market myopia. Thus, it remains to be seen whether the potential long-term effects of sustainability practices on financial markets via disclosure mechanisms could have a mitigating impact on investor short-termism.

Our main aim therefore is to study whether market myopia, as a symptom of market inefficiency, decreases with the implementation of sustainability disclosure mechanisms. With this objective in mind, we analyse a sample of 471 European companies listed on the S&P Europe 350 Index during the period 2008–2020. Using data taken from a sustainability rating, the RobecoSAM Sustainability Yearbook (currently, S&P Global Sustainability Yearbook), we classify these businesses as high (HSR) and low (LSR) sustainability reporters. Among the main findings of our study, we highlight the lower level of market myopia observed in HSR. Moreover, persistent enforcement of sustainability disclosure mechanisms is associated with a lower market myopia effect. These results have key implications for academics and practitioners. The results demonstrate that sustainability disclosure mechanisms can reduce market myopia, enhance financial market efficiency and improve price formation processes. Participation in sustainability ratings, as part of a sustainability disclosure mechanism, reduces the possibility of information asymmetries in financial markets and improves market efficiency. This effect intensifies with continued sustainability disclosure. As one of the main implications of this study, we provide evidence to show that a firm’s sustainability rating is a signal to investors regarding its long-run earnings perspective, while also providing managers with a tool for the integration of stakeholder demands. These results prove, both to practitioners and policy-makers, that sustainability disclosure mechanisms provide a means to reduce market myopia. Indeed, in the last few years, the European Union has promoted various regulatory mechanisms to improve the quality of non-financial information (e.g. the Proposal for a Directive on corporate sustainability reporting- COM (2021)189 final- European Commission, 2021). Our study shows that an increase in the level of non-financial information through the development of sustainability practices can reduce market inefficiencies. These findings are robust to different measurements, statistical analyses and time horizons.

This study is organised as follows. The next section provides a review of the previous literature and defines the working hypotheses. Section 3 presents the sample, main variables and statistical techniques proposed. The results and conclusions to be drawn from this study are summarised in Sections 4 and 5, respectively.

2. Literature review and working hypotheses

Traditionally, short-termism has been studied largely from the managerial viewpoint (Chintrakarn, Jiraporn, Sakr, & Lee, 2016; Li, Wang, & Wu, 2019) and seen as a characteristic feature of management inefficiency. This concept readily applies to financial markets, where it is referred to as “market myopia”. Abarbanell and Bernard (2000), Matos and Coelho (2016) and Del Río and Santamaria (2016) define market myopia as a behavioural bias that causes investors to overvalue short-term earnings and undervalue long-term profits. Preliminary research identified this bias as a market anomaly characterised by mispricing generated by a disregard for available information (Abarbanell & Bernard, 2000; Bushee, 2001; Miles, 1993, 1995). This anomaly has key implications for financial agents: a) it could lead organisations to reject value-creating investment opportunities (Lavery, 1996), b) asymmetry between expected and actual prices could damage investor confidence in financial markets (Atherton, Lewis, & Plant, 2007), c) financial intermediaries may reduce their activity due to lack of confidence in market information (Alexander, 2017).

Myopic market behaviour is an anomaly based on informational asymmetries leading to short-term overvaluation to the detriment of the long-term earnings (Del Río & Santamaria, 2016). Sustainability

Table 2
Descriptive statistics.

Variable	HSR			LSR			Test	
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	ANOVA	Levene
P_t	401.7611	48.4585	974.6753	347.3455	43.2200	1008.5094	*	***
b_t	76.6952	18.775	828.6322	82.1487	13.5445	254.6345	–	***
$(1 + r_t)^{-1} * (X_{t+1} - r_t * b_t)$	15.2864	2.7273	43.3266	13.9530	1.6851	46.4602	–	***
$((1 + r_t)^{-1} * (P_{t+1} - b_{t+1}))$	323.9692	19.6588	788.6534	299.9049	21.3502	982.9977	*	***
$((1 + r_t)^{-2} * (X_{t+2} - r_t * b_{t+1}) + (1 + r_t)^{-2} * (P_{t+2} - b_{t+2}))$	370.8254	21.7916	884.6596	351.2097	24.2788	1208.3753	**	***
$((1 + r_t)^{-2} * (X_{t+2} - r_t * b_{t+1}) + (1 + r_t)^{-3} * (X_{t+3} - r_t * b_{t+2}) + (1 + r_t)^{-3} * (P_{t+3} - b_{t+3}))$	440.9131	24.6571	1053.7360	428.3517	26.9273	1606.0273	***	***
P_t / b_t	15.4605	2.3223	256.2988	16.9028	2.4685	79.3789	–	***
P_t / V_{t+2}	6.6243	1.7144	15.8554	3.2229	1.6764	3.0833	**	***
P_t / V_{t+3}	5.5256	2.9721	14.2036	1.8674	2.9555	2.4623	***	***
P_t / V_{t+4}	4.6261	2.9233	33.6243	1.2487	2.8939	32.6585	***	***

This table shows the descriptive statistics for the components of the model specified in the [expression \[1\]](#). The variable P_t represents firm value. The symbol b_t denotes the book-to-market ratio. The term $(1 + r_t)^{-1} * (X_{t+1} - r_t * b_t)$ represents the short-term component of the model, while $((1 + r_t)^{-1} * (P_{t+1} - b_{t+1}))$, $((1 + r_t)^{-2} * (X_{t+2} - r_t * b_{t+1}) + (1 + r_t)^{-2} * (P_{t+2} - b_{t+2}))$, and $((1 + r_t)^{-2} * (X_{t+2} - r_t * b_{t+1}) + (1 + r_t)^{-3} * (X_{t+3} - r_t * b_{t+2}) + (1 + r_t)^{-3} * (P_{t+3} - b_{t+3}))$ represent the long-term value components for $T = 2$, $T = 3$ and $T = 4$, respectively. The ratio P_t / b_t measure the firm value (P_t) in relation to the accounting value (b_t) while the ratios P_t / V_{t+T} compare the firm value (P_t) and the estimated market price (V_{t+T}) according to the Ohlson’s model for $T = 2$, $T = 3$ and $T = 4$. All these variables are relativized by P_{t-1} . The last three columns report the ANOVA and Levene test results for the equality of means and variances, respectively.

Table 3
Market myopia effect. HSR vs LSR.

	HSR			LSR		
	T = 2	T = 3	T = 4	T = 2	T = 3	T = 4
α_0	0.4852***	0.6528***	0.7487***	0.4721***	0.5888***	0.8697***
α_1	0.4258***	0.2901***	0.2299***	0.4137***	0.2430***	0.1688***
α_2	0.4529***	0.4273***	0.2211***	1.2995***	1.1259***	1.0736***
$\alpha_{3,T}$	0.5769***	0.3388***	0.4939***	0.6994***	0.2100***	0.1638***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.7369	0.6074	0.4707	0.7762	0.5411	0.2914
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	**	**	***

This table shows the results for the end of three forecast horizons ($T = 2, 3$ and 4) when testing for the market myopia effect in the HSR and LSR subsamples using eq. [\[1\]](#). The dependent variable P_t denotes firm value. α_1 denotes the effect of the accounting book value while α_2 and α_3 measure the effect of the short-and long-term value components, respectively. The symbols α_0 and R^2 are the constant and the R-squared of the proposed model. The inequalities compare the market myopia effect and the difference among the aforementioned parameters. The estimation method used was OLS(Robust). Asterisks indicate statistical significance, *** < 0.010, ** < 0.050; * < 0.100.

disclosure mechanisms, such as sustainability ratings, should limit the impact of this asset pricing bias. Market myopia should be lower in companies that participate in these ratings in order to achieve maximum long-term value creation for their stakeholders. There are several possible explanations for the positive long-term effects of corporate commitment to sustainability practices. Instrumental stakeholder theory holds that there is mutual influence between an organisation and the different agents that it involves ([Freeman, 1984](#); [Freeman, Harrison, Wicks, Parmar, & De Colle, 2010](#); [Freeman & Phillips, 2002](#)). In the context of corporate sustainability, the management of these relationships and cooperation among stakeholders play a key role ([Hörisch et al., 2014](#); [Matinaro & Liu, 2017](#); [Roca-Puig, 2019](#); [Schaltegger, Lüdeke-Freund, & Hansen, 2012](#); [Whelan & Fink, 2016](#)). Not only do they provide insurance-like protection of the company’s ability to sustain financial performance, they also contribute to corporate sustainability and long-term success ([Suto & Takehara, 2020](#)).

Similarly, legitimacy theory offers a theoretical explanation for the positive effects of sustainability practices ([Deegan, 2019](#); [Dumay, De Villiers, Guthrie, & Hsiao, 2018](#); [Silva, 2021](#)). Legitimacy can be defined as a “generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” ([Suchman, 1995, p.574](#)). [Crossley, Elmaghrhi, and Ntim \(2021\)](#) propose that engagement in corporate sustainability has to do with the adoption of sustainable practices to project a positive corporate image and reputation towards

its stakeholders. Nevertheless, the adoption of these practices can either be perceived as symbolic or substantive ([Ashforth & Gibbs, 1990](#)), with the latter calling for the company’s long-term commitment ([Patten, 2019](#)). Stakeholder relationships and reputation are another intangible asset, which, in line with resource-based theory ([Barney, 1991](#)), facilitates the development of corporate capabilities leading to long-run competitive advantage ([Litz, 1996](#)). Therefore, sustainable practices create intangible resources by enhancing the company’s reputation, improving relationships with external stakeholders, and strengthening employee retention, motivation, performance, commitment and loyalty and the ability to attract prospective recruits ([Ashrafi, Magnan, Adams, & Walker, 2020](#); [Branco & Rodrigues, 2006](#)). These factors, which contribute to improve a firm’s legitimacy, should mitigate information asymmetry ([Cui et al., 2018](#); [Diamond, 1991](#); [Sufi, 2007](#)), especially when more difficulties arise in the price formation because of the existence of transaction costs and financial risks ([Dhaliwal, Oliver, Tsang, & Yang, 2011](#); [Halov & Heider, 2011](#)). Consequently, market myopia should be less evident in sustainable practice companies, given their focus on long-term success and the long-run horizons of their investors ([Ortiz-de-Mandojana & Bansal, 2016](#)). Therefore, investors who decide to participate in these organisations will show a high level of commitment towards long-run sustainability. However, identifying a sustainable company is no simple matter.

To enable firms to report their business practices and identify themselves as sustainable companies, diverse disclosure mechanisms,

Table 4
Persistence as HSR and LSR using the number of years.

	HSR			LSR		
	T = 2	T = 3	T = 4	T = 2	T = 3	T = 4
Panel A: 1 year						
α_0	0.3657***	0.4965***	0.5756***	0.4232***	0.5343***	0.1618***
α_1	0.6324***	0.5088***	0.4426***	0.3846***	0.2176***	0.1516***
α_2	0.1323***	0.1411***	0.2884***	1.0555***	0.8726***	0.8097***
$\alpha_{3,T}$	0.6558***	0.6685***	0.9098***	0.5971***	0.3581***	0.1699***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.8536	0.7936	0.7433	0.7569	0.5322	0.4001
$\alpha_2 > 1$	–	–	–	*	–	–
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	**	**	***
Panel B: 6 years						
α_0	0.4824***	0.6426***	0.7328***	0.4165***	0.6248***	0.8617***
α_1	0.4608***	0.3307***	0.2767***	0.3826***	0.2208***	0.1623***
α_2	0.6249***	0.3208***	0.1991***	1.1254***	1.0819***	1.0493***
$\alpha_{3,T}$	0.5962***	0.6292***	0.7282***	0.6069***	0.5539***	0.4106***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.7209	0.6597	0.5020	0.7624	0.5386	0.4043
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	***	***	***
Panel C: 12 years						
α_0	0.3602***	0.5328***	0.6114***	0.4277***	0.6358***	0.8594***
α_1	0.5998***	0.4768***	0.4330***	0.3848***	0.2173***	0.1528***
α_2	0.4522***	0.1283***	0.1046***	1.1537***	1.3549***	1.2446***
$\alpha_{3,T}$	0.8731***	0.9053***	1.1228***	0.6985***	0.8343***	0.5998***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.7397	0.6878	0.5198	0.7576	0.5337	0.4021
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	–	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	***	***	***

This table shows the results for the end of three forecast horizons (T = 2, 3 and 4) when testing for the market myopia effect in the HSR and LSR subsamples for one, six and twelve years' persistence in either category. The dependent variable P_t denotes firm value. α_1 denotes the effect of the accounting book value while α_2 and α_3 measure the effect of the short-term value and long-term value components, respectively. The symbols α_0 and R² are the constant and the R-squared of the proposed model. The inequalities compare the market myopia effect and the difference among the parameters. The estimation method used was OLS(Robust). Asterisks indicate statistical significance: *** < 0.010, ** < 0.050; * < 0.100.

such as sustainability rating indices, rankings and reporting frameworks,¹ have been developed (Ferrer et al., 2020). According to Aras and Crowther (2009), these mechanisms are oriented towards continuous improvement and accountability. Siew, Balatbat, and Carmichael (2016) highlighted that sustainability disclosure mechanisms could be an instrument to reduce the asymmetry of information present in financial markets. These mechanisms would reduce both the adverse selection and moral hazard behind environmental, social and economic impacts (Kulkarni, 2000). Among the various available sustainability disclosure mechanisms (e.g. European Commission, 2003, p.12)² rating indices are highlighted for their theoretical potential to provide an assessment of corporate sustainability achievements and a classification of the assessed companies based on their inclusion (exclusion) criteria (Amini & Bienstock, 2014). KLD Research and Analytics, Ethical Investment Research Services (EIRIS), S&P Global (RobecoSAM) and

Vigeo, among others, are examples of agencies oriented towards the development of sustainability ratings (Avetisyan & Hockerts, 2017). Consequently, these ratings provide corporate assessments which differentiate between high and low sustainability reporters (Eccles, Ioannou, & Serafeim, 2014; Ferrer et al., 2020; Leleux & Van der Kaaij, 2019; Nicolăescu, Alpopi, & Zaharia, 2015). Moreover, sustainability ratings are publicly available, easily readable and accessible, which may explain their use as a reference by investors and other financial agents.

Despite certain limitations in their usefulness (Boiral & Henri, 2017; Schaltegger, Etzeberria, & Ortas, 2017; Wang, Dou, & Jia, 2016), sustainability ratings could contribute to market efficiency by mitigating the myopia effect. Various studies have stated in this respect that market myopia is fueled by the information asymmetry that exists in financial markets (Abarbanell & Bernard, 2000; Bushee, 2001; Del Río & Santamaría, 2016). Lin, Liu, and Cheng (2021) conclude that the implementation of sustainable disclosure mechanisms could moderate information asymmetries. García-Sánchez, Hussain, Martínez-Ferrero, and Ruiz-Barbadillo (2019) and Du and Yu (2021) suggest that these mechanisms strengthen the relationship between the organisation and its stakeholders, thereby improving its ability to access economic resources. Moreover, these mechanisms would also be a way for a company to prove its commitment towards sustainability and enhance its image and status (Reber, Gold, & Gold, 2022). These positive effects would reflect the theoretical approaches described earlier, in the sense that, when fully reported, sustainability disclosure mechanisms constitute a means to attract investors, and, in the long-term, enable companies to obtain higher profits (Ferrer et al., 2020). However, these

¹ For instance, in the European context, the DJSI and FTSE4Good are highlighted as sustainability indices together with some reporting frameworks (GRI and AA) and rankings (EIRIS and Vigeo) (European Commission, 2003).

² Later, the European Parliament Resolution (2016/C/024/06) stated that sustainability disclosure requires specific measures to facilitate the recognition and promotion of efforts by businesses in connection with sustainability. The European Commission (COM 2017/C 215/01) defined an integrated sustainability reporting methodology, with sustainability disclosure mechanisms and frameworks incorporating key sustainability performance indicators (KPIs) (e.g. Eco-Management and Audit Scheme (EMAS), Global Reporting Initiative (GRI) and independent external assurance (e.g. indexation and auditing).

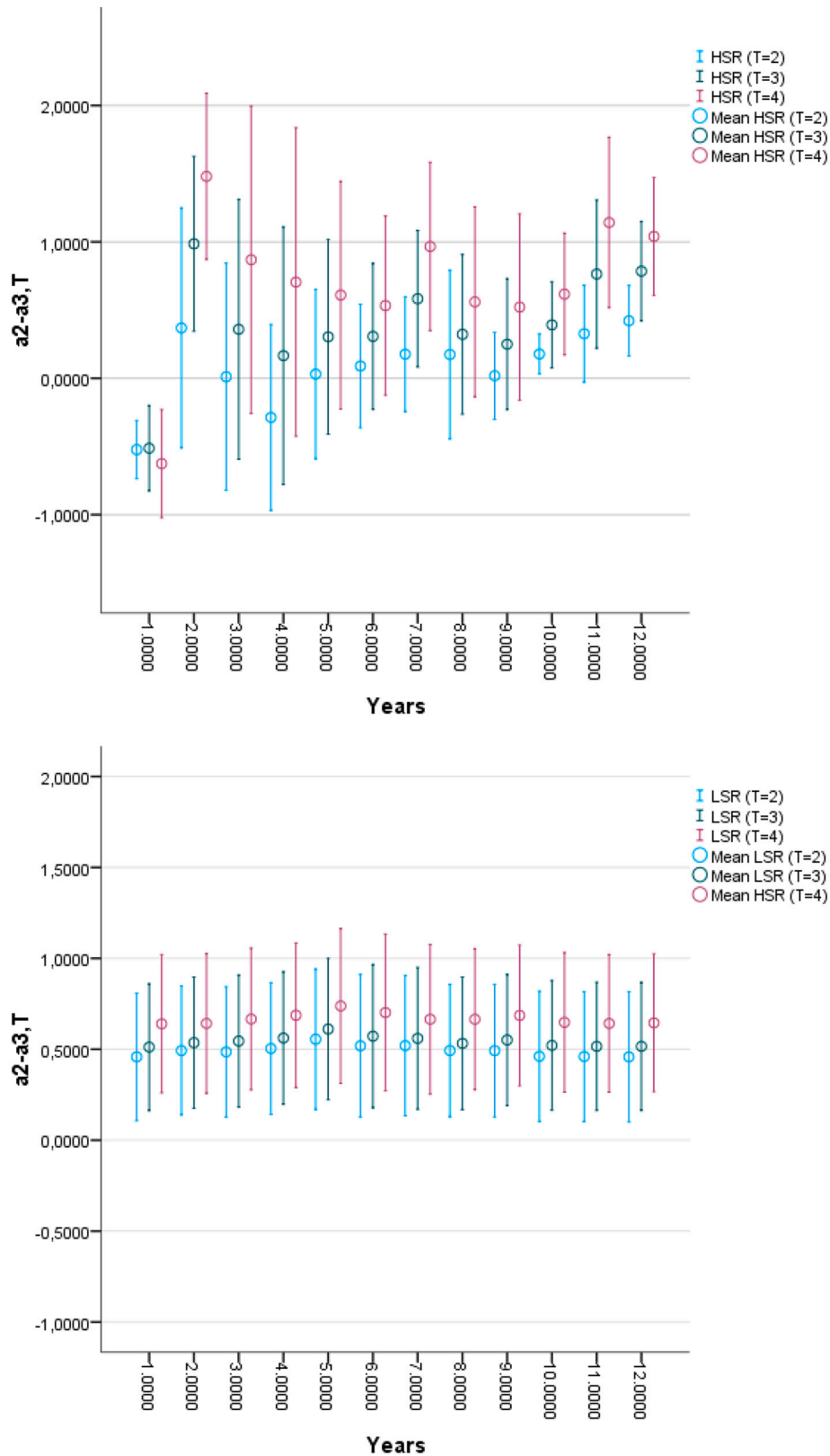


Fig. 2. Market myopia effect: differences $\alpha_2 - \alpha_{3,T}$ in High vs. Low-sustainability-reporters.

authors do not consider sustainability disclosure effects in terms of asset pricing or financial market value, but focus instead on other economic agents, such as financial analysts. Disclosure mechanisms, such as sustainability ratings, shine a light on companies, by signalling their degree

of commitment to sustainability; such that the higher their rating, the less they are affected by market myopia. However, this claim has not been tested in previous research. Thus, we propose the following working hypothesis,

Table 5

Robustness: dummy: HSR vs. LSR.

	T = 2	T = 3	T = 4
α_0	0.4544***	0.6388***	0.8394***
α_1	0.4029***	0.2396***	0.1708***
α_1^H	0.0438	0.0566	0.0684
α_2	1.3832***	1.0614***	0.9722***
α_2^H	-0.5831*	-0.4617*	-0.3799*
$\alpha_{3,T}$	0.6738***	0.3594***	0.1683***
$\alpha_{3,T}^H$	-0.0258	-0.0021	0.0182
F test	0.0000	0.0000	0.0000
R ²	0.7649	0.6441	0.7094
$\alpha_2 > \alpha_{3,T}$	**	***	***
$\alpha_2 + \alpha_2^H > \alpha_{3,T} + \alpha_{3,T}^H$	-	-	-

This table shows the results for the end of three forecast horizons (T = 2, 3 and 4) when testing for the influence of corporate sustainability in the market myopia effect using eq. [2]. The dependent variable P_t denotes firm value. α_1 denotes the effect of the accounting book value while α_2 and α_3 measure the effect of the short-term value and long-term value components, respectively. The terms α_1^H , α_2^H and α_3^H refer to the effect of HSR status. The symbols α_0 and R² are the constant and the R-squared of the proposed model. The inequalities compare among the aforementioned parameters. Asterisks indicate statistical significance: *** < 0.010, ** < 0.050; * < 0.100.

H₁: The market myopia effect is lower in high sustainability reporters (HSR) than in low sustainability reporters (LSR).

According to this hypothesis, sustainability disclosure mechanisms, such as sustainability ratings, have the power to mitigate the market myopia by helping investors to perceive the long-run benefits associated with high sustainability reporters. This suggests that these sustainability disclosure mechanisms would play a role in reducing information asymmetries. However, participation in sustainability rating systems by some companies may be sporadic; a phenomenon attributable to disguised opportunism, in line with the symbolic approach outlined in legitimacy theory (Ashforth & Gibbs, 1990). However, a company's persistent participation in a sustainability rating over time should contribute towards reducing the market myopia anomaly, since it would indicate a shift towards the substantive approach described by legitimacy theory, integrating stakeholders' need and enhancing the resource managed according to the stakeholder and resource-based theories.

Persistence is defined as the ability to maintain a performance rating, relative to other entities, over a period of time (Lean, Ang, & Smyth, 2015, p.255). Thus, repeated presence on one of these ratings would be indicative of long-run commitment towards sustainable practices. According to the signal theory (Bergh & Gibbons, 2011; Connelly, Certo, Ireland, & Reutzel, 2011), persistent presence on a sustainability rating should be a signal to investors regarding a company's sustainability record (Danvila, Diez-Esteban, & López, 2019), and thus a mechanism for the reduction of market information asymmetries (Miller & Triana, 2009). Consequently, market myopia should be less pronounced in companies that have adopted sustainability disclosure practices and maintained a presence on a sustainability rating, without withdrawing when their performance drops. Therefore, persistent presence on a rating would indicate that a business is running sustainably (Zimmermann, 2019). While acknowledging the contribution of previous research on corporate disclosure mechanisms, we find that the role of persistence in the implementation of sustainability mechanisms has not been tested. For this reason, we propose the following working hypothesis,

H₂: The market myopia effect is lower in high sustainability reporters (HSR) with a persistent presence on a sustainability rating.

According to this hypothesis, companies would take a substantive approach, motivated by persistence sustainability ratings and the consequent reduction in information asymmetries and market myopia. Non-persistence, on the other hand, would be indicative of a merely symbolic adoption of this disclosure mechanism and a reluctance to forgo long-term earnings for the sake of possible short-term benefits. In

this case, therefore, companies would show a low level of commitment towards the management of stakeholder relationships and corporate reputation as intangible assets. Fig. 1 summarizes the proposed model.

3. Methodology

3.1. Sample

To test our hypotheses we analyse a sample of 471 European companies listed on the S&P Europe 350 Index during the period 2008–2020. We use the RobecoSAM Sustainability Yearbook (currently S&P Global Sustainability Yearbook), according to which, 43.09% of the firms have been classified as high sustainability reporters (HSR) at some point in the period under study. The sample period starts from 2008, when the rating based on the RobecoSAM Sustainability Yearbook was first published. RobecoSAM's Sustainability Yearbook has four rating categories (gold-, silver-, and bronze-medal and mention). This classification is based on the public information reported by the company and submitted for Corporate Sustainability Assessment (CSA). Historical price data for the sample companies were drawn from the Refinitiv Eikon database. The final sample contains 5652 observations. Table 1 shows the sample composition.

We observe that the proportion of companies classified as high sustainability reporters (HSR) is about 25% across the sample years. The low sustainability reporter (LSR) category is composed of companies that have tried to participate in the rating system, but with a too low score to pass the CSA process. These companies are unevenly distributed across European countries, among which the UK, France, Norway, Spain and Germany take the lead. Industrials, consumer-cyclicals and basic materials dominate the sectoral composition of the sample.

3.2. Main variables and statistical model

3.2.1. High vs. low sustainability reporters

Following Eccles et al. (2014), Nicolăescu et al. (2015) and Ferrer et al. (2020), we split our sample into high (HSR) and low (LSR) sustainability reporters. To make a distinction between the two categories, we consulted RobecoSAM's Sustainability Yearbook, which lists companies that have earned HSR status. This Sustainability Yearbook provides a publicly-available qualitative index based on quantitative information gathered from the Corporate Sustainability Assessment (CSA) survey. Moreover, some recent studies use the RobecoSAM Sustainability Yearbook as a sustainability disclosure indicator (Durand, Paugam, & Stolowy, 2019; Ferrer et al., 2020; Van der Waal & Thijssens, 2020). Thus, we created a dummy variable (H) that takes the value 1 for HSR and 0 otherwise. Then, the HSR category contains companies featured on of the medal display table of the RobecoSAM's Sustainability Yearbook³ during the year of observation, while the LSR category comprises those that have submitted to the CSA process, but are absent from this rating list during a specific year.

3.2.2. Persistence

Market myopia could be influenced by the company's persistence in a sustainability rating. In this study, we use a categorical variable for the number of years that a company maintains HSR status by being included in the RobecoSAM Sustainability Yearbook. To strengthen the robustness of our results, we employ a second categorical variable for the consecutive number of years that a company has qualified as a HSR according to this rating system –constancy–. The difference between

³ The medal display table includes gold medal companies (minimum score 60, which make up the top 1% sustainability performers according to the CSA), silver medallists (minimum score 57, which make up the top 1% to 5%), bronze medallists (minimum score 54, which make up the top 5% to 10%) and mentioned (included in the top 15%).

Table 6
Robustness. Market myopia effect for shorter period subsamples.

	HSR			LSR		
	T = 2	T = 3	T = 4	T = 2	T = 3	T = 4
Panel A. 2008–2010						
α_0	0.4433***	0.5651***	0.6147***	0.4966***	0.5804***	0.5943***
α_1	0.4702***	0.3906***	0.4391***	0.2521***	0.2191***	0.2098***
α_2	0.4945***	0.6622***	0.9283***	1.4829***	1.3716***	1.7930***
$\alpha_{3,T}$	0.5986***	0.3061***	0.1160***	0.5367***	0.3087***	0.1725***
F test	0.000	0.000	0.000	0.000	0.000	0.000
R ²	0.8202	0.6109	0.3064	0.8118	0.7307	0.5938
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	***	***	***
Panel B. 2011–2013						
α_0	0.2502***	0.3631***	0.4337***	0.3591***	0.5097***	0.6328***
α_1	0.6962***	0.5777***	0.5155***	0.5622***	0.4114***	0.3208***
α_2	0.6930***	0.6292***	0.6564***	1.0208***	1.0428***	1.0891***
$\alpha_{3,T}$	0.6479***	0.4274***	0.2822***	0.5681***	0.3437***	0.1936***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.8402	0.6575	0.4930	0.7740	0.5864	0.3856
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	***	***	***
Panel C. 2014–2016						
α_0	0.2883***	0.5597***	0.5925***	0.1048***	0.1440***	0.1459***
α_1	0.2399***	0.1350***	0.1325***	0.7954***	0.7945***	0.8243***
α_2	0.8965***	0.4909***	0.3807***	1.6837***	1.6568***	2.0745***
$\alpha_{3,T}$	0.4492***	0.8243***	0.7974***	0.9392***	0.8914***	0.8292***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.6868	0.6345	0.6243	0.8801	0.8568	0.7893
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	**	**	***
Panel D. 2016–2018						
α_0	0.4643***	0.7313***	0.8425***	0.2961***	0.5222***	0.6266***
α_1	0.3502***	0.2891***	0.2739***	0.5092***	0.4768***	0.4518***
α_2	0.9098***	0.9083***	0.9546***	3.4438***	2.7038***	2.4689***
$\alpha_{3,T}$	0.5594***	0.1885***	0.0642***	0.2961***	0.2095***	0.1006***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.5681	0.1722	0.0855	0.5139	0.2100	0.1023
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	**	**	***
Panel E. 2018–2020						
α_0	0.6098***	0.7176***	0.6833***	0.2008***	0.2395***	0.2532***
α_1	0.3002***	0.2915***	0.2852***	0.3440***	0.2396***	0.2099***
α_2	0.9492***	0.9072***	0.9185***	6.6875***	5.2061***	2.6167***
$\alpha_{3,T}$	0.4309***	0.2942***	0.2007***	0.4729***	0.2855***	0.2048***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.6717	0.4055	0.3683	0.5237	0.3471	0.2831
$\alpha_2 > 1$	–	–	–	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	–	–	–	***	***	***

This table shows the results for the end of three forecast horizons (T = 2, 3 and 4) when testing for the market myopia effect in the HSR and LSR subsamples using eq. [1]. The dependent variable P_t denotes firm value. α_1 denotes the effect of the accounting book value while α_2 and α_3 measure the effect of the short-term value and long-term value components, respectively. α_0 and R^2 are the constant and the R-squared of the proposed model. The inequalities compare the market myopia effect and the difference among the aforementioned parameters. The estimation method used was OLS(Robust). Asterisks indicate statistical significance: *** < 0.010, ** < 0.050; * < 0.100.

Table 7
Robustness. Persistence as HSR and LSR measured as the number of consecutive years.

	HSR			LSR		
	T = 2	T = 3	T = 4	T = 2	T = 3	T = 4
Panel A: 2 year						
α_0	0.3884***	0.5421***	0.6189***	0.3678***	0.5944***	0.7536***
α_1	0.3711***	0.1281***	0.4581***	0.5657***	0.3187***	0.1663***
α_2	0.5254***	0.3036***	0.1826***	0.3393***	0.1381***	0.0911**
$\alpha_{3,T}$	1.5098***	3.2757***	3.7732***	0.6594***	0.4115***	0.2507***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.8391	0.7094	0.6199	0.8623	0.7221	0.3137
$\alpha_2 > 1$	-	-	-	-	-	-
$\alpha_{3,T} < 1$	-	-	-	***	***	***
$\alpha_2 > \alpha_{3,T}$	-	-	-	-	-	-
Panel B: 5 years						
α_0	0.4201***	0.6185***	0.7649***	0.5776***	0.6841***	0.7458***
α_1	0.5226***	0.3184***	0.1832***	0.2185***	0.1353***	0.0978***
α_2	0.4246***	0.2453***	0.1764***	1.3346***	1.2377***	1.3711***
$\alpha_{3,T}$	0.5817***	0.3513***	0.1954***	0.5085***	0.3203***	0.1897***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.8044	0.6364	0.4602	0.8810	0.7165	0.6334
$\alpha_2 > 1$	-	-	-	***	***	***
$\alpha_{3,T} < 1$	***	***	***	***	***	***
$\alpha_2 > \alpha_{3,T}$	-	-	-	***	***	***
Panel C: 11 years						
α_0	0.2821***	0.6228***	0.7422***	0.0621***	0.3718***	0.8788***
α_1	0.7640***	0.3268***	0.2164***	0.7555***	0.5014***	0.2544***
α_2	0.7740***	0.3748***	0.2801***	1.0216***	1.2067***	1.6043***
$\alpha_{3,T}$	0.7117***	1.3589***	1.9277***	0.2229***	0.6737***	0.1657***
F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
R ²	0.8702	0.6125	0.4851	0.8010	0.4635	0.3156
$\alpha_2 > 1$	-	-	-	***	***	***
$\alpha_{3,T} < 1$	***	-	-	***	***	***
$\alpha_2 > \alpha_{3,T}$	-	-	-	***	***	***

This table shows the results for the end of three forecast horizons (T = 2, 3 and 4) when testing for the market myopia effect in the HSR and LSR subsamples and two, five and eleven years of persistence in either category. The dependent variable P_t denotes firm value. α_1 denotes the effect of the accounting book value while α_2 and α_3 measure the effect of the short-term value and long-term value components, respectively. The symbols α_0 and R² are the constant and the R-squared of the proposed model. The inequalities compare the market myopia effect and the difference among the parameters. The estimation method used was OLS(Robust). Asterisks indicate statistical significance: *** < 0.010, ** < 0.050; * < 0.100.

these two variables is the consideration of the consecutivity in the belonging to the HSR category.

3.2.3. Market myopia: basic model

Our starting point for testing for the presence of market myopia is the model proposed by Abarbanell and Bernard (2000), Bushee (2001) and Del Río and Santamaria (2016), which is an adaptation of Feltham and Ohlson (1995) and is specified as follows,

$$P_{i,t} = \alpha_0 + \alpha_1 b_{i,t} + \alpha_2 [(1 + r_i)^{-1} E_t(x_{i,t+1} - r_i \cdot b_{i,t})] + \alpha_3 \left[\sum_{s=2}^T (1 + r_i)^{-s} E_t(x_{i,t+s} - r_i \cdot b_{i,t+s-1}) + (1 + r_i)^{-T} E_t(P_{i,t+T} - b_{i,t+T}) \right] + u_{i,t} \tag{1}$$

where $P_{i,t}$ denotes firm value, the term $b_{i,t}$ denotes accounting book value, $[(1 + r)^{-1} E_t(x_{t+1} - r \cdot b_t)]$ is the one-year “near-term” forecasting horizon (T = 1) and $[\sum_{s=2}^T (1 + r)^{-s} E_t(x_{t+s} - r \cdot b_{t+s-1}) + (1 + r)^{-T} E_t(P_{t+T} - b_{t+T})]$ is the long-term value component, with the term T denoting the end of the forecasting horizon. In this study, we have analysed the following horizons T = 2; 3; 4 (Abarbanell & Bernard, 2000; Bushee, 2001). Abnormal earnings are defined as forecast earnings($E(x_{t+s})$) minus the expected book value times a rate of return ($r_i \cdot b_{i,t+s-1}$), with r_i being equal to the cost of capital. The expected accounting book value and forecast earnings are drawn from the I/B/E/S database, and the

applied rate of return is equal to the estimated cost of equity capital based on the Capital Asset Pricing Model (CAPM).⁴ The term P_{t+T} was obtained using Liu and Thomas (2000) and $u_{i,t}$ contains the random error. Note that all the model variables are scaled by P_{t-1} . A fixed effect robust estimator, including three alternative combinations of specific country-year (δ_{kt}), industry-year (φ_{jt}) and country-industry-year (γ_{kjt}) effects, was used to capture the correlations between different firms in the same country across time. Following Dong, Hirshleifer, Richardson,

and Teoh (2006); Dong, Hirshleifer, and Teoh (2021), and based on this model, we estimate the price-to-book (P_t/b_t) ratio and the price to residual income value (P_t/V_{t+T}) ratios for the three considered horizons T = 2; 3; 4. The first ratio proxies growth opportunities and information asymmetry in financial markets, while the second ratio reports the

⁴ According to the Capital Asset Pricing Model, the monthly rate of return (r) is estimated as $r = R_f + \beta_{\text{assets}} \cdot (R_m - R_f)$ where $(R_m - R_f)$ for developed European markets was retrieved from https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

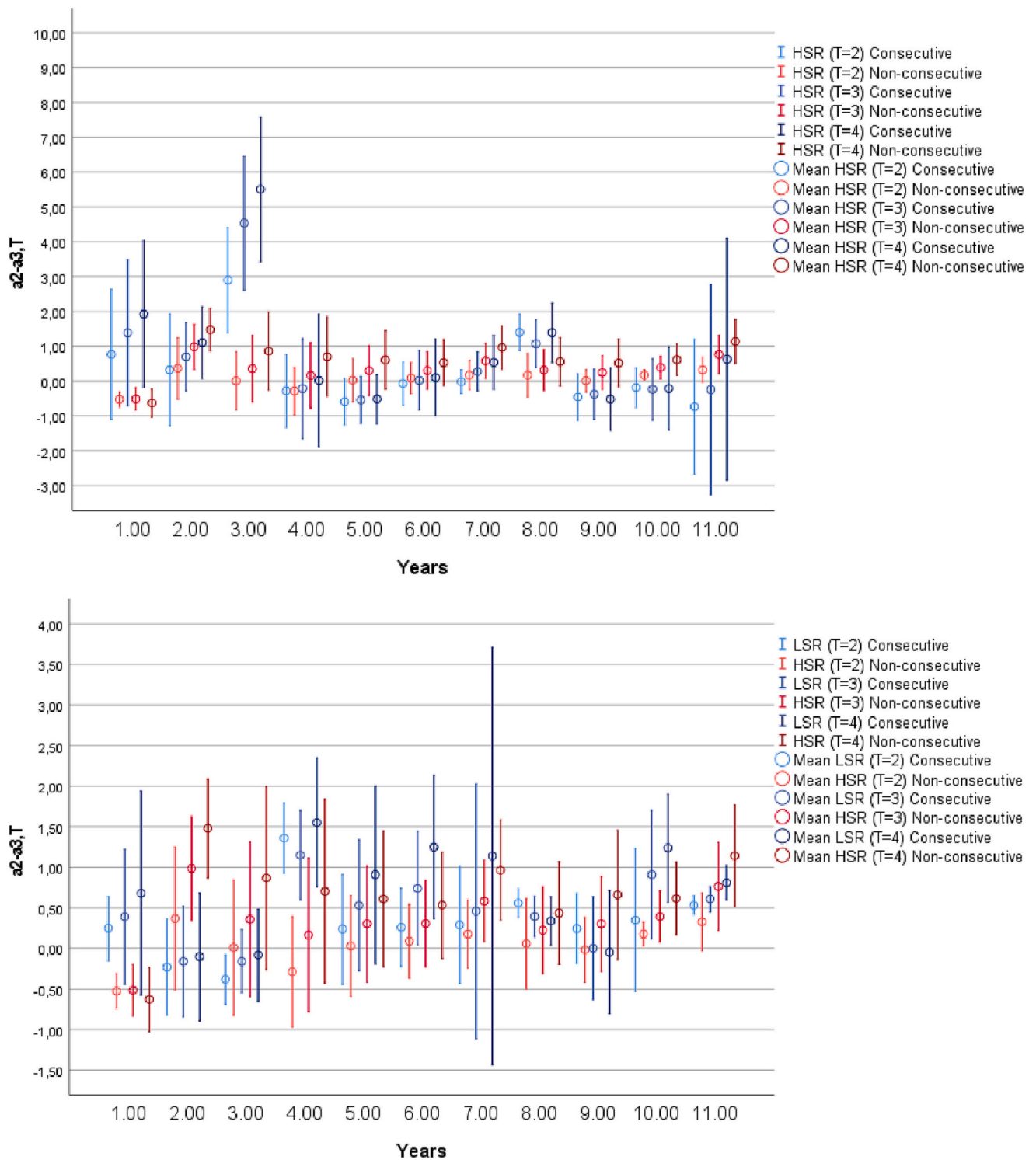


Fig. 3. Market myopia effect: differences $a_2 - a_{3,T}$ in High vs. Low-sustainability-reporters.

Table 8

Robustness: persistence: consecutive vs. non-consecutive years.

	Mean difference	Std. deviation	t-test	Wilcoxon
Panel A. High sustainability reporters (HSR)				
T = 2				
$\alpha_2 - \alpha_{3,T}$	1.7632	1.5036	3.889***	-2.934***
T = 3				
$\alpha_2 - \alpha_{3,T}$	2.0749	2.0018	3.438***	-2.934***
T = 4				
$\alpha_2 - \alpha_{3,T}$	2.4109	2.2892	3.9488***	-2.934***
Panel B. Low sustainability reporters (LSR)				
T = 2				
$\alpha_2 - \alpha_{3,T}$	1.2547	0.5599	7.433***	-2.934***
T = 3				
$\alpha_2 - \alpha_{3,T}$	1.3561	0.7152	6.288***	-2.934***
T = 4				
$\alpha_2 - \alpha_{3,T}$	1.6398	1.1604	4.687***	-2.934***

This table shows a comparison between the results for consecutive and non-consecutive years as HSR and LSR at the end of three forecast horizons ($T = 2, 3$ and 4). We compare the difference $\alpha_2 - \alpha_{3,T}$ in companies classed as HSR (LSR) in consecutive years vs. companies classed as HSR in non-consecutive years. Asterisks indicate statistical significance: *** < 0.010, ** < 0.050; * < 0.100.

relationship between market price (P_t) and expected market price (V_{t+T}). These ratios measure the level of overvaluation of the expectations associated with an asset in relation to its true value. Estimating both indicators is a previous step to detect the presence of anomalies in price formation processes and the analysis of market myopia.

The presence of market myopia indicates the under-estimation of long-term earnings and the overestimation of near-term earnings. Consequently, we consider market myopia to be present if $\alpha_2 > 1$ and $\alpha_3 < 1$. HSRs should not be affected by this anomaly, having implemented sustainability disclosure mechanisms such as participation in a sustainability rating assessment. This will mean that $\alpha_2 < \alpha_3$ as long-term earnings are not underestimated relative to near-term earnings. This analysis enables us to test hypothesis 1.

This same model is then used to test the role of the market myopia effect in relation to the level of persistence. Using the first categorical variable defined in section 3.2.2, we estimate the above model in the subsamples defined by the number of years' participation in the rating (hypothesis 2), proceeding as follows. We first check that $\alpha_2 > 1$ and $\alpha_3 < 1$ and then test that $\alpha_2 < \alpha_3$ in the same subsamples to determine the presence of the market myopia effect. We conclude that persistence in HSR status reduces the market myopia effect when $\alpha_2 < \alpha_3$ across all subsamples and time horizons.

4. Empirical results

4.1. Descriptive statistics, market myopia and persistence

Table 2 summarizes the descriptive statistics, mean, median and standard deviation, of the main variables of the proposed model differentiating by HSR vs LSR. The short- and long-term components ($T = 2, 3$ and 4) of forecast earnings and expected book value are included to facilitate interpretation. Moreover, we have computed P_t/b_t and P_t/V_{t+T} ratios for above-mentioned long-term components.

The above table shows the mean firm values (P_t) for HSRs and LSRs (HSR: 401.7611; LSR: 347.3455) and median (HSR: 48.4585; LSR: 43.2200). However, the decomposition of this value reveals differences (p -value < 0.100). Thus, HSRs score higher on the long-term components (e.g. $T = 2$: 370.8254) than their LSRs counterparts (e.g. $T = 2$: 351.2097). The pattern changes for the short-term components, however, where the scores are similar for both types of company (HSR: 15.2864; LSR: 13.9530). A similar conclusion is evidenced when P_t/b_t and P_t/V_{t+T} ratios are assessed. The ratio P_t/b_t , which compares the firm

and the book values, shows that high sustainability reporters tend to have more positive earnings forecasts than their low sustainability counterparts (p -value < 0.010). Given the observed standard deviations, however, these conclusions require cautious interpretation. This result constitutes preliminary evidence favouring hypothesis 1, in the form of higher earnings forecasts for HSRs, particularly over longer horizons. Nevertheless, we also note that the strong observed differences could point to the opposite effect, high sustainability reporters developing a kind of far-sightedness. This latter result would be in line with Bofinger et al. (2022), who conclude in the US context that sustainability practices significantly affect valuation leading to a higher P_t/V_{t+T} ratio. Although this analysis is a necessary step, our results would reveal that the overvaluation of high sustainability reporters is caused by the relevance of long-term earnings forecasts, which is in accordance with the expectations in the long-run associated with sustainability practices. This conclusion, however, needs to be effectively tested.

The regression results for the basic model [1] considering HSR/LSR status (hypothesis 1) are reported in Table 3, which gives the results for HSRs and LSRs together with the parameters used to test the first hypothesis.

Our results point to an overall presence of the market myopia effect in LSRs, as revealed by the 5% significance of the market myopia conditions ($\alpha_2 > 1$ and $\alpha_{3,T} < 1$). However, there is no sign of this effect in HSRs for any of the three proposed horizons ($T = 2, T = 3$ and $T = 4$). Furthermore, comparison of parameters α_2 and $\alpha_{3,T}$ reveals that the tendency for investors overvalue short-term, while undervaluing long-term, earnings is found only in the case of LSRs, for which the inequality $\alpha_2 > \alpha_{3,T}$ is significant for the proposed horizons. Consequently, the results confirm hypothesis 1, in that the market myopia effect is lower in high sustainability reporters (HSR) than in low sustainability reporters (LSR). The results confirm previous evidence on the existence of market myopia (Del Río & Santamaria, 2016; Matos & Coelho, 2016) as well as being in line with Lin et al. (2021), who proposed that information asymmetries could be reduced by sustainability disclosure mechanisms.

However, persistent HSR status could have an impact on market myopia. Measuring persistence as the number of years' participation in a sustainability rating and using the model specified in expression [1], we obtain persistence effect estimates for the one-, five- and ten-year subsamples⁵ (shown in Table 4).

We observe that HSRs remain unaffected by market myopia across the three proposed horizons ($T = 2, T = 3$ and $T = 4$), in contrast with the LSRs, where $\alpha_2 > 1$ $\alpha_{3,T} < 1$ at 5% indicates a significant presence of the myopia effect across all subsamples except the one-year group, where parameter α_2 is not higher than 1, although $\alpha_{3,T}$ is lower than α_2 . This is in line with expectations in the corporate sustainability context, where the creation of value requires longer periods of time. We also observe an increase in the long-term component as persistence grows. Thus, the long term component estimate ($T = 2$: 0.8731; $T = 3$: 0.9053; $T = 4$: 1.1228) is higher for a 12-year presence on a sustainability rating list than for a 6-year presence ($T = 2$: 0.5962; $T = 3$: 0.6292; $T = 4$: 0.7282). This confirms hypothesis 2, which states that the market myopia effect is lower in high sustainability reporters (HSR) with a persistent presence in a sustainability rating. Reducing the focus to HSRs, moreover, it can be seen that, the longer the period of persistence, the greater the long-term component. In this sense, Danvila et al. (2019) and Zimmermann (2019) also concluded that persistent presence in a sustainability rating would be a signal to investors, which would enhance the positive effects associated with sustainability disclosure mechanisms.

Finally, we present Fig. 2, which discriminates between HSRs and LSRs, showing the difference $|\alpha_2 - \alpha_{3,T}|$ between the two categories on the Y-axis and the number of years' presence/non-presence of a company in

⁵ The results for the remaining years, which show a similar tendency, are available upon request.

a sustainability rating list on the X-axis.

We observe that the difference $|\alpha_2 - \alpha_{3,T}|$ is always larger than zero for LSRs, which implies that investors in these companies do not undervalue long-term earnings while overvaluing short-term ones. This result is consistent with the substantive approach proposed by the legitimacy theory, which enables stakeholders to monitor the organisation and improves corporate reputation (Reber et al., 2022). A contrasting pattern is observed for HSRs, which avoid market myopia. Thus, a long-term presence in this sustainability rating contributes towards the avoidance of this anomaly.

4.2. Robustness checks

We propose three additional analyses to strengthen the robustness of our results. Firstly, in relation to hypothesis 1, we specify a variation of the firm valuation model [1] including the dummy variable (H) to identify HSR status and its influence in the myopia effect for the three time horizons (T = 2, 3 and 4). The resulting general regression model is given in Expression [2] below:

$$P_{i,t} = \alpha_0 + \alpha_1 b_{i,t} + \alpha_1^H b_{i,t} H_{i,t} + (\alpha_2 + \alpha_2^H H_{i,t}) [(1 + r_i)^{-1} E_t(x_{i,t+1} - r_i b_{i,t})] + (\alpha_3 + \alpha_3^H H_{i,t}) \left[\sum_{s=2}^T (1 + r_i)^{-s} E_t(x_{i,t+s} - r_i b_{i,t+s-1}) + (1 + r_i)^{-T} E_t(x_{i,t+T} - r_i b_{i,t+T}) \right] + u_{i,t} \tag{2}$$

where $P_{i,t}$ denotes firm value, and $(1 + r_i)^{-s} E_t(x_{i,t+s} - r_i b_{i,t+s-1})$ measures expectations of abnormal earnings. $H_{i,t}$ is a dummy for HSR status. The α parameters measure the intensity of the myopia effect. Our particular interest is in α_2^H and α_3^H , which signal myopic behaviour in HSRs. Thus, the long-term focus associated with sustainability should lead to $\alpha_3 + \alpha_3^H H_{i,t} > \alpha_2 + \alpha_2^H H_{i,t}$. Table 5 shows the results for this model.

The inequality $\alpha_2 > \alpha_{3,T}$ assesses the market myopia effect in the LSR category when the dummy variable takes a value of 0. The observed presence of the market myopia effect in this category reinforces the conclusions drawn from the results given in Table 3. However, this effect disappears in the HSR category, where the inequality $\alpha_2 + \alpha_2^H H_{i,t} > \alpha_3 + \alpha_3^H H_{i,t}$ is rejected for the three proposed horizons, which is consistent with the prioritisation of long-term earnings in these companies.

The second robustness check looks at the periods when the Yearbook was published. Although the RobecoSAM Yearbook's gold, silver, bronze and mentioned categories were first published in 2008, a company could have been employing sustainability practices that would have defined it as HSR or LSR, had the rating existed. This effect is tested by re-estimating the model specified in expression [1] over shorter periods of time (2008–2010, 2011–2013, 2014–2016, 2016–2018, 2018–2020). See Table 6 for the results.

The results confirm the absence of the market myopia anomaly in HSRs when the sample is split to capture the possibility of sustainability practices having been adopted prior to the introduction of the medal display table of the RobecoSAM rating. Moreover, the difference between HSR and LSR in terms of short-term earnings valuation is particularly remarkable in the most recent periods (2014–2016, 2016–2018 and 2018–2020) when market myopia increases in LSRs.

Finally, to strengthen the robustness of hypothesis 2, we apply an alternative measure of persistence based on constancy of presence in the Yearbook rating. For this, we re-estimate the previous model using the second categorical variable proposed in section 3.2.2. We then compare the results obtained from the first variables used to measure persistence with those given by this second categorical variable, using a parametric *t*-test for paired samples and the non-parametric Wilcoxon test. Table 7 shows the results when measuring persistence as a HSR or a LSR as the

number of consecutive years' presence in the sustainability rating.

The above table shows evidence of a remaining market myopia effect in companies classified as LSR ($\alpha_2 > 1 \alpha_{3,T} < 1$) at 5%, while the effect is absent in those classed as HSR. Thus, a constant presence in a sustainability rating is perceived as a means to reduce this market anomaly. Again, the only exception emerges during the shortest time period (two consecutive years) when there is no difference between HSR and LSR. Fig. 3 presents a chart in which the Y-axis represents $|\alpha_2 - \alpha_{3,T}|$ while the X-axis incorporates the number of consecutive years' participation in the sustainability rating system, the RobecoSAM Sustainability Yearbook.

The results confirm that a company's presence in this sustainability rating and adoption of a long-term vision are positively assessed, and thus help to reduce the market anomaly that concerns us. We can therefore conclude that there are significant differences in the market myopia effect between high (HSR) and low (LSR) sustainability reporters with constant participation (non-participation) in a sustainability rating.

Finally, Table 8 presents a comparison between the two measures of persistence (number of years vs. number of consecutive years) showing

the differences in means of the parameters estimated in Tables 4 and 7.

The results in Table 8 show that the reduction in the market myopia effect is greater for companies participating in a sustainability rating for a consecutive number of years (*p*-value < 0.010) as corroborated by the non-parametric tests. Consequently, we are able to confirm the conclusions drawn from the analysis of Tables 4 and 7.

In summary, the implementation of a sustainability disclosure mechanism, such as participation in a sustainability rating, contributes towards reducing the market myopia effect, thus enabling more accurate firm value assessment (hypothesis 1). Long-run earnings expectations will also improve for firms with persistent participation in a sustainability rating, thereby reducing the negative consequences of this anomaly (hypothesis 2). We also note that the myopia effect will increase due to investor mistrust in the case of firms with a long series of failed attempts to join a sustainability rating.

5. Conclusions

The aim of this study is to determine whether market myopia decreases with the adoption of sustainability disclosure mechanisms. The obtained results reveal that high sustainability reporting practices, as measured by participation in a sustainability rating, are able to reduce the market myopia effect. Moreover, avoidance of this market anomaly is increased if the company persistently achieves a positive assessment in sustainability reports. Therefore, companies qualifying as high sustainability reporters attract long-run investors, and thus increase pricing accuracy.

These results align with the theoretical approaches described in the literature review section. According to the instrumental stakeholder theory, sustainability disclosure mechanisms are expected to improve the relationship between the company and its stakeholders, thereby mitigating possible information asymmetries and helping to reduce firm value estimation errors (García-Sánchez et al., 2019; Du & Yu, 2021). These mechanisms also need to be managed as part of a firm's intangible resources. They constitute a business differentiation opportunity that can enable firms to maintain and redefine their competitive advantages, especially in the long term. This should not only translate into higher

firm value, but also improve the transmission of information, and thus help to reduce market myopia, in line with the resource-based theory (Wong & Zhang, 2022). These disclosure mechanisms are also associated with a substantive approach to legitimacy, whereby proof of commitment towards sustainability will ultimately improve corporate image and reputation (Reber et al., 2022). Finally, persistent inclusion in sustainability ratings enhances the positive effect of information transmission (López-Arceiz, del Río, & Bellostas, 2022) by clearly spotlighting the highest-rated companies.

These results have key implications for academics and practitioners. From the academic viewpoint, the results confirm the conclusions obtained by Bofinger et al. (2022) who evidence that companies implementing sustainability disclosure mechanisms show high P_t/V_{t+T} ratios and, consequently, smaller deviations from true value when undervalued. In this sense, our results demonstrate the role of sustainability disclosure mechanisms as an intangible resource within a substantive approach that improves corporate legitimacy, promotes stakeholder interaction and reduces the market myopia effect. In line with Lin et al. (2021), our findings show that participation in a sustainability rating can reduce information asymmetry in financial markets and enhance pricing accuracy. Moreover, our results contribute to previous literature evidencing that the lower mispricing found in a sustainability disclosure context is linked to a long-term focus on future earnings. However, we should call attention to a possible evolution towards an inverse effect, whereby high sustainability reporters may become too far-sighted. To the best of our knowledge, there has been no previous attempt to assess the role of sustainability in relation to market myopia, despite some researchers' claims that the decision to invest in a sustainable company indicates a prioritisation of long-term over short-term earnings (e.g. Juniarti, 2021; Long, 2019; López-Arceiz et al., 2018). Thus, this study provides evidence to show that long-term commitment is higher among the investors in this type of companies.

We can also highlight some implications for practitioners and policy makers. Firstly, sustainability disclosure mechanisms, such as participation in a sustainability rating, provide investors with a signal enabling them to identify a company committed to sustainability and make a more objective firm value assessment based on information about the company's sustainability practices. Second, participation in a sustainability rating, as part of a sustainability disclosure mechanism, provides managers with a tool for integrating stakeholder demands; particularly those of investors seeking to obtain long-term earnings. We should also stress that the results reveal the need for persistence in the implementation of sustainability disclosure mechanisms. Thus, temporary participation is likely to be insufficient for reducing the market myopia bias in investors, who require information covering an extended period of time.

Finally, we need to note some limitations of this study. For example, it measures sustainability disclosure based on the RobecoSAM sustainability rating, and could therefore be readily extended to include other sustainability disclosure mechanisms in order to strengthen the findings. It could also be enhanced with an assessment of investor type and investment style as drivers of corporate sustainability practices, a possibility which we propose as a direction for future research into the role of sustainability disclosure on pricing anomalies in financial markets.

CRedit authorship contribution statement

Cristina del Río: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Francisco J. José López-Arceiz:** Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. **Luis Muga:** Conceptualization, Data curation, Formal analysis, Funding acquisition,

Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing.

Declaration of Competing Interest

None.

Acknowledgements

We gratefully acknowledge financial support from grant PID2019-104304GB-I00 funded by MCIN/AEI/ 10.13039/501100011033 and grant TED2021-131216B-I00 funded by MCIN/AEI/10.13039/501100011033 and European Union "NextGenerationEU"/PRTR. Open access funding provided by Universidad Pública de Navarra.

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