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REPORT

Trends in environmental CSR at the Oslo Seafood Index: A market value approach

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ABSTRACT

This study address whether different sustainability initiatives by the companies listed at the Oslo Seafood Index impact company value. With signaling theory as framework, it is argued that sustainability reports and other initiatives may contribute to reduce the information asymmetry between managers and equity holders. Using financial data from the company's annual reports in combination with variables for different sustainability initiatives and quality, it is argued that these initiatives address information asymmetries concerning quality (GRI standard versus no standard) and intent (visualized and committed to through ASC and GSI) and contribute positive to company value.

Introduction

Corporate social responsibility (CSR) has gradually evolved into an important strategic asset for a company to succeed in many sectors, and this appears to be true also for the world's largest salmon farming companies based on their annual reports. Environmental behavior and its role within CSR have also increased rapidly, and many of the larger companies provide separate sustainability reports. Salmon Farming in Norway, the largest salmon producing country, have experienced tremendous growth over the last 30 years (Asche et al., 2013; Asche, Sikveland, & Zhang, 2018; Misund & Nygård, 2018). However, because of open sea pens, the industry is facing a number of environmental challenges such as emissions, escapees and disease (Torrissen et al., 2013).

Commentators, activists, etc., often claim that the industry has a significant environmental impact and largely fails to improve their practices in material ways. There are recent media reports on farms closing down due to regulatory response to public outcries on environmental issues (Cockburn, 2019), while in other reports, the same companies (e.g., Mowi) are graded among

the most sustainable companies in Norway (The Governance Group, & Burson Cohn & Wolfe, 2018). Emissions from the farms can create local environmental changes, and numbers of authors have claimed that aquaculture growth will be limited by environmental factors (Luthman, Jonell, & Troell, 2019; Naylor et al., 2000), the regulatory system limits growth largely due to environmental concerns (Asche, 2008; Osmundsen et al., 2017; Hersoug, Mikkelsen, & Karlsen, 2019). In addition, the industry has experienced significant disease challenges (Abolofia, Asche, & Wilen, 2017; Fischer, Guttormsen, & Smith, 2017; Quezada & Dresdner, 2017), which also impact prices (Asche, Oglend, & Kleppe, 2017; Asche, Misund, & Oglend, 2019) and productivity growth (Asche, Roll, & Tveteras, 2009; Asche & Roll, 2013; Roll, 2013, 2019; Rocha Aponte & Tveterås, 2019). It is also evidence that these issues impact demand in some countries (Sha, Santos, Roheim, & Asche, 2015) but not in others (Froehlich, Runge, Gentry, Gaines, & Halpern, 2018; Liu, Lien, & Asche, 2016).

The salmon farming companies listed on the Oslo stock exchange are all part of the Oslo Seafood Index. They have engaged in numerous environmental CSR activities in recent years, such as becoming certified by global ecolabels such as the Aquaculture Stewardship Council (ASC) (2012) and the Global Salmon Initiative (GSI) (2018) (Alfnes, Chen, & Rickertsen, 2018; Amundsen and Osmundsen, 2019; Roheim, Bush, Asche, Sanchirico, & Uchida, 2018; Tlusty et al., 2019). General studies provide evidence that the market reacts positively to the announcement of eco-friendly initiatives, and negatively to the announcement of eco-harmful behavior (Flammer, 2013). Traditionally, the companies disclose these efforts in their annual reports, other reports, or company websites, sometimes following certain reporting standards, for example the Global Reporting Standard (GRI).

This paper will investigate how the quality of CSR and sustainability reporting affect the market value of the salmon farming companies listed at the Oslo Seafood Index. It will also investigate whether ASC and GSI announcements impact company value. For the empirical analysis, Tobin's q will be used as a proxy for company performance.

The remainder of the paper is organized as follows: The next section describes the background and theory for CSR and sustainability reporting, its relevance to firm value and signaling theory. Then, the empirical specification is presented and discussed, followed by data selection, results and a conclusion.

Background and theory

Corporate social responsibility and sustainability reporting

There are numerous definitions of CSR (Dahlsrud, 2008). Evolving from the triple-bottom line approach (economic, social and environmental),[1]

two other dimensions also has to be evident: Voluntariness and stake-holder interaction. Van Marrewijk (2003) defines CSR as "corporate sustainability and CSR refer to company activities – voluntary by definition – demonstrating the inclusion of social and environmental concerns in business operations and in interactions with stakeholders." One of the ways the companies communicate and disclose these initiatives to their stakeholders is through their official reports, like annual reports and stand-alone sustainability reports. These reports where considered to be costly and negatively associated with financial performance (Hassel, Nilsson, & Nyquist, 2005). But firms continued to produce them, probably to meet demand from ethical investment funds (D'Antonio, Johnsen, & Hutton, 2000) and the widespread popularity of sustainability rating indices such as the Dow Jones Sustainability Index and the FTSE4Good Index (Lo & Sheu, 2007).

The argument for investigating the value relevance of sustainability reports is well covered in literature; first, it is argued that these reports requires substantial amount of resources to produce and commit to (Kuzey & Uyar, 2017), second, they play a complementary role to the financial statements in terms of revealing potential long-term value creation through intangible assets; and third; they also contribute to the overall risk picture of a company (Lo & Sheu, 2007). External advisors, such as The Governance Group, use sustainability reporting as the first input in determining a company's sustainability performance (The Governance Group, & Burson Cohn & Wolfe, 2018). On the contrary, as outlined by Stubbs and Cocklin (2008), sustainability reports do not necessarily mean that companies are sustainable. Companies may simply report their progress on social and environmental aspects, but do little to develop their whole business model that may cause environmental and social degradation. Some claim that companies merely use sustainability reporting to protect or enhance their reputation among key stakeholders, primarily financial stakeholders such as banks and shareholders (Andrew & Wickham, 2010), and that initiatives are only company-interest motivated. It is claimed that large companies with vast resources can easily communicate (talk) impressive CSR and sustainability initiatives and results, while smaller companies may actually perform (walk) better, but do not have resources or time to document and communicate this (Wickert, Scherer, & Spence, 2016). Studies on the importance of non-financial disclosures in annual reports indicate a trend from research and development (R&D) toward CSR (Arvidsson, 2011), while non-financial information have increased, and that this information adjusts to user demands and trends (Campbell, 2004). Research in CSR have been argued to lack economic relevance (Orlitzky, Siegel, & Waldman, 2011).

Firm value

Early advocates of CSR argued that financial results and environmental and social awareness may not be mutually exclusive goals (Porter & van der Linde, 1995). Their argument was that since pollution ultimately is a waste of resources, the most sustainable companies will be most competitive in the long run. At first, studies on sustainability reports showed no significant (Berman, Wicks, Kotha, & Jones, 1999), or negative (Hassel, Nilsson, & Nyquist, 2005) effects on financial performance from CSR commitment. This is also evident on some more recent studies (Walls, Phan, & Berrone, 2011). However, there were also publications arguing that the market seemed to value environmental performance (Konar & Cohen, 2001). Studies on ethical investing (Mackenzie & Lewis, 1999) and socially responsible investing (Barnett & Salomon, 2003; Domini, 2001; Kinder, Lyderberg, & Domini, 1993) suggest a positive relationship between market value and investors increased focus on ethics and environmental performance. This has become even more evident lately, with for example Lo and Sheu (2007), Guidry and Patten (2010), Ameer and Othman (2012), Lourenço and Branco (2013), Bachoo, Tan, and Wilson (2013), Su, Peng, Tan, and Cheung (2016), and Kuzey and Uyar (2017) all finding that different types of sustainability reporting have a positive effect on company value.

However, there are some typical patterns found in relation to sustainability reporting. Reverte (2009) find that large firms with high media exposure in environmentally sensitive industries tend to score high on CSR rankings and disclosure (see also Cordeiro & Tewari, 2015). This may be evident in salmon farming, as media coverage have been intensive. Mowi was in 2018 actually ranked the second most sustainable company in Norway by The Governance Group, a sustainability agency. Indeed, according to legitimacy theory, companies also use environmental disclosures as a tool to disguise their environmental performance (Cho & Patten, 2007). In general, high-risk companies tend to have better quality in their reporting (Campbell, 2004; Jenkins, & Yakovleva, 2006), but can be lacking in the reporting of negative aspects. Guidry and Patten (2010) find that high quality reports are valued by investors, while low quality reports are not. Lourenço and Branco (2013) found that corporate sustainability performance firms are significantly larger and have a larger return on equity than non-leading corporate sustainability performance firms. Bachoo et al. (2013) document a significant negative association between quality sustainability reporting and the cost of equity capital in Australia, and a significant positive association between expected future performance and the quality of sustainability reporting. They also test for industry-specific associations and find that their main results are driven heavily by the reporting behavior of, and market response to, firms in environmentally sensitive industries. Given that

salmon farming are environmentally controversial, it is likely that strong sustainability reporting will contribute positively to company value.

Signaling theory

As outlined by Su et al. (2016), signaling theory mainly addresses information asymmetries between two parties concerning information about quality or information about intent (Stiglitz, 2000). The literature in signaling theory argue that a company can use different reports or statements (such as sustainability reporting) to demonstrate (signal) unobservable characteristics about the company (such as a sustainability focus). Scholars and practitioners seem to agree that corporate value is not adequately accounted for in the traditional financial statements (Misund & Nygård, 2018). This results in information asymmetry between managers and equity holders, causing a lack of efficient allocation of resources in the stock market (Arvidsson, 2011). The signal a company shows in sustainability efforts through their sustainability reports will, therefore, contribute to reduce this information asymmetry.

The literature shows that sustainability reporting affect company value in different ways, and in particular, Guidry and Patten (2010) found that low quality reports are not valued by investors. There are different approaches a company can use to distinguish their reports. One of these is to publish a stand-alone sustainability report. Berthelot, Coulmont, and Serret (2012) find that the market values these stand-alone sustainability reports. These are reports produced and communicated in addition to the normal annual reports. Another way to raise the quality of a sustainability report is to follow certain standards. There are several studies underlining the necessity for standards in sustainability reporting. Without standards, the quality and content for reporting vary greatly (Bouten, Everaert, Van Liedekerke, De Moor, & Christiaens, 2011; Gao, 2011). Michelon, Pilonato, and Ricceri (2015) argue that disclosures following the GRI standard are more likely to be balanced, comparable and precise. Kuzey and Uyar (2017) find a growing awareness of GRI -based sustainability reporting and that these standards are value relevant and so appreciated by the market. Another way to add quality to the report is to get it externally assured or verified by a third party. There are evidence of positive association to market value of using the GRI standard (Uyar & Kılıç, 2012). On the other hand, some researchers have found it to not be significant, because it adds to the complexity of determining the quality of a sustainability report. Consequently the market struggle to put a value it (Cho, Michelon, Patten, & Roberts, 2014).

Although not a reporting standard, certification by an ecolabel such as the ASC is arguably a sustainability initiative. There are indications that

certifications contribute positively to company value (Nicolau & Sellers, 2002). Initial investments may result in negative market performance, but have long-term positive effects (Teng, Wu, & Chou, 2014). These types of commitments from a company can also attract 'greener' investors (Ferreira & Matos, 2008; Renneborg, Ter Horst, & Chang, 2008) and eco-sensitive consumers willing to pay a premium for eco-labeled fish (Bronnman & Asche, 2017). Along with ASC, some companies have also committed themselves toward GSI. Companies committed toward GSI, are also committed to work toward 100% ASC certified farms, but also include improving biosecurity (disease management), securing sustainable sources of feed ingredients and improving industry transparency.

Empirical specification

To investigate how sustainability efforts affect company value, Tobin's q is used as proxy for performance. Compared to accounting-based measures (such as return on assets) it does not reflect a company's efficiency of operation, which can come from utilization of prior firm resources. Tobin's q is simply an expression of potential total value of a firm, calculated as market capitalization plus total debt divided by total assets (Su et al., 2016). The model is based on Kuzey & Uyar's (2017) model determining the value relevance of GRI based sustainability reports. Variables are listed in Table 1.

The following models will be estimated:

$$TOBINQ = \beta_0 + \beta_1 FCASH + \beta_2 FIRM + \beta_3 SIZE + \beta_4 ROA + \beta_5 LEVERAGE$$
$$+ \beta_6 CRATIO + \beta_7 FFLOAT + \beta_8 SREP + \beta_9 SREPEX$$
$$+ \beta_{10} SREPGRI + \beta_{11} ASSU$$

$$(1)$$

$$TOBINQ = \beta_0 + \beta_1 FCASH + \beta_2 FIRM + \beta_3 SIZE + \beta_4 ROA + \beta_5 LEVERAGE$$
$$+ \beta_6 CRATIO + \beta_7 FFLOAT + \beta_8 ASC + \beta_9 GSI$$

$$(2)$$

The first model captures different levels of quality in sustainability reporting, while the second model capture initiatives other than reporting. These are expressions for either different levels of sustainability reporting or other sustainability initiatives.

The control variables in Table 1 are from Kuzey and Uyar's (2017) model determining how GRI reporting and external assurance affect market value of companies. For this study, FIRM is a dummy variable determining whether a company is a farmer or supplier. This is included to control for

Table 1. List of variables.

Type	Variables	Description
Dependent variable	TOBINQ	Market capitalization plus total debt divided by total assets
Control variables	FCASH	Free cash flow per share
	FIRM	Dummy; 1 if firm operates farmer, and 0 if firm is supplier
	SIZE	Total assets
	ROA	Return on assets
	LEVERAGE	The ratio of total liabilities to total assets
	CRATIO	Current ratio, current assets divided by current liabilities
	FFLOAT	Percentage of free float number of shares (excluding 20 largest shareholders)
Independent variables	SREP	Dummy; 1 if a firm publishes a sustainability report, otherwise 0
	SREPEX	Dummy; 1 if a firm publishes a stand-alone (external) sustainability report, otherwise 0
	SREPGRI	Dummy; 1 if a firm publishes a GRI-based sustainability report, otherwise 0
	ASSU	Dummy; 1 if sustainability report is assured by an independent verifier, otherwise 0
	ASC	Dummy; 1 if a firm commits to ASC in the annual report, otherwise 0
	GSI	Dummy; 1 if a firm commits to GSI in the annual report, otherwise 0

the different nature of the companies. FCASH is free cash flow per share. Free cash flow represents cash available to investors after a company pays all its costs. It has been found to contribute positive to company performance (Brush, Bromiley, & Hendrickx, 2000). Company size has been argued to be negatively related to value. Therefore, SIZE denotes total assets. Further, more profitable companies are found to trade with a premium compared to lower performing companies (Lo & Sheu, 2007). Return on assets (ROA), therefore, denotes return on assets. The capital structure of a company, both long and short term, is also argued to affect the value of a company (Allayannis & Weston, 2001). LEVERAGE denotes total liabilities to total assets, while CRATIO is current ratio, current assets divided by current liabilities. FFLOAT is the percentage of free float number of shares and represents ownership structure. A more dispersed ownership structure has been found to contribute positively to market value (Gompers, Ishii, & Metrick, 2003).

Kuzey and Uyar (2017) found the coefficients associated with, free cash flow, firm, size and free float number of shares to be negative, and the coefficient associated return on assets, leverage, and current ratio to be positive. Contrary to this, and based on the discussion of the variables, the expectation for this study is for free cash flow, firm, current ratio and free float number of shares to be positive, and the coefficient associated with size and leverage to be negative. All sustainability coefficients are expected to contribute positive to Tobin's q, expect SREP, which is a report without any standard or assurance (Guidry & Patten, 2010).

Table 2. Sample overview.

Company	# years	From	To	Market CAP 2017[a]
AKVA Group[b]	12	2006	2017	1 795.48
Austevoll Seafood	12	2006	2017	10 946.74
BakkaFrost	8	2010	2017	17 818.66
Cermaq[c]	6	2008	2013	Not listed
Grieg Seafood	11	2007	2017	7,977.27
Lerøy Seafood Group	13	2005	2017	26,202.13
Mowi	13	2005	2017	68,100.00
Norway Royal Salmon ASA	7	2011	2017	5,847.24
Salmar	11	2007	2017	27,962.44
Royal Scottish Salmon	8	2010	2017	1,547.86
	101			

[a]Size in million NOK.
[b]AKVA Group categorized as supplier.
[c]Cermaq purchased by Mitsubishi 2014.

To control for firm-specific heterogeneity, firm-fixed effects are applied in the model. Firm-fixed effects control for firm-specific attributes that have positive impact on firm value such as organizational culture or superior management (Cho & Patten, 2007). The Hausmann test favors fixed over random effects for both models. Year dummies are applied to control for year specific effects.

Data

The data set is based on the companies comprising the Oslo Seafood index. Table 2 outlines the companies and the period of observations.[2] The study uses an unbalanced panel, so the number of periods for each firm is not the same.

Descriptive statistics are found in Table 3. Since the scale of the data varies between the variables the regressions are in log form with normalized data. Data are manually plotted from the company's financial statements in their annual reports.

The sustainability dummy variables are summarized in Table 4. Annual reports and company webpages where searched to identify evidence of sustainability disclosure (section of report). This was checked against the GRI database, ASC and GSI. How to code and capture environmental reporting, its relevance and importance, has been widely discussed (Beck, Campbell, & Shrives, 2010). A dummy variable is created if a certain report type is evident or not.

For the dummy variable SREP and SREPEX, it is simply stated if there is a report or not, and there is no qualitative evaluation of the content in the reports. SREPGRI is based on the annual report and checked against GRI database. The ASSU variable is collected from the GRI database, which clearly states whether a sustainability report is externally assured or not. ASC and GSI variables are collected from annual reports and checked

Table 3. Descriptive data, financials.

Variable	Obs	Mean	Std. dev.	Min	Max
CRATIO	101	2.661	1.131	0.817	7.478
LEVERAGE	101	0.515	0.083	0.238	0.704
FFLOAT	101	0.205	0.103	0.030	0.481
FCASH	101	18.653	8.711	0.690	73.098
ROA	101	0.204	0.074	0.005	0.412
SIZE[a]	101	10394	10661	524	43709
TOBINQ	101	1.435	0.644	0.700	3.753

[a]Size in million NOK.

Table 4. Descriptive data, sustainability reporting.

Year	SREP	SREPEX	SREPGRI	ASSU	ASC	GSI
2005	1	0	0	0	0	0
2006	1	0	0	0	0	0
2007	4	0	0	0	0	0
2008	6	1	2	1	0	0
2009	5	1	2	1	0	0
2010	8	2	2	1	0	0
2011	9	1	2	1	0	0
2012	10	1	2	1	1	1
2013	10	4	4	2	5	2
2014	9	3	4	1	5	2
2015	9	3	4	0	6	2
2016	9	3	4	0	6	3
2017	9	2	4	0	6	4
Sum	90	21	30	8	29	14

against ASC and GSI webpages. As one can see, most companies had some kind of sustainability reporting from 2010 onwards. 3-4 of the companies issue a stand-alone report (SREPEX), while only 4 follow the GRI standard. External assurance (ASSU) is not widely used. From 2012, there is a gradual increase in commitments toward both ASC and GSI.

Empirical results

The regression results based on the two models are reported in Table 5. Tests indicate that the null hypothesis of no heteroscadiscity and no autocorrelation cannot be rejected in either model. The regressions were also conducted without foreign companies and suppliers without any variations in the results.[3] Free cash flow per share and its association to TOBINQ is positive for both models, but only significant for model 1, indicating that free cash flow contribute to company value. FIRM is significant for both models and indicates that farmers contribute significantly more than suppliers to TOBINQ. SIZE is also negatively associated with TOBINQ with high significance in both models. This is in line with findings from Kuzey and Uyar (2017), Bachoo, et al. (2013) and Cho and Patten (2007). ROA contributes to market value in both models, also in line with Kuzey and Uyar (2017) and Lourenço and Branco (2013). Leverage is not significant in any of the models, but CRATIO, which is a liquidity parameter

Table 5. Estimated parameters.

TOBINQ	Model 1 Reporting quality	Model 2 ASC & GSI
FCASH	0.0839** (1.96)	0.0565 (1.61)
FIRM	0.8302*** (3.72)	0.8554*** (4.73)
SIZE	−0.2600*** (−2.69)	−0.2975 *** (−3.59)
ROA	0.1449*** (3.18)	0.1058*** (2.69)
LEVERAGE	0.1382 (0.88)	0.1011 (0.75)
CRATIO	−0.2104** (−2.44)	−0.2012*** (−2.70)
FFLOAT	0.0907 (1.52)	0.1288*** (2.62)
SREP	−0.0636 (−0.82)	
SREPEX	−0.0592 (−0.96)	
SREPGRI	0.1586** (2.02)	
ASSU	0.0789 (0.67)	
ASC		0.2686*** (4.66)
GSI		0.0291 (0.43)
N	101	101
F-stat	19.66	28.12
R²	0.8983	0.9199

Note: t statistics in parentheses; ***$p < 0.01$; **$p < 0.05$; *$p < 0.10$.

addressing a company's ability to meet its short term obligations, is negatively associated to firm value in both models. Based on other studies, this was expected to be positive. The reason for the negative association can be that these companies in general have high current ratios (see Table 3). A too high current ratio can be a result of poor financial management, affecting firm value negatively. FFLOAT is positive and significant model 2. This may indicate that a higher rate of free floating shares is positive for market value in salmon farming. Salmon farming is traditionally a family business, with few shares available to the public.

When it comes to sustainability disclosures, model 1 shows that sustainability reports in general, without any standard or further commitment (SREP), does not contribute toward company value. This is in line with studies from Sweden (Hassel et al., 2005) and on the Dow Jones Sustainability Index (Lopez, Garcia, & Rodriguez, 2007). Stand-alone reports (SREPEX) is not significant, following the findings of Cho et al. (2014). Reports following GRI standards are significant, indicating that the market value these global standards. This is in line with literature discussed earlier in this paper and various researchers, from different fields, have argued for the need of some kind of universal charter ensuring internationally recognized CSR frameworks, that companies are accountable to rather than voluntary codes of conduct (Banerjee, 2008; Braam, Uit de Weerd, Hauck, & Huijbregts, 2016; Lindgreen, & Swaen, 2010). GRI may have taken this position.

For model 2, ASC is significant, while GSI is not, clearly indicating that ASC sends positive signals to the market. ASC has the highest coefficient and is most significant compared with all sustainability initiatives in both models. ASC have also been given external support and legitimacy, with

positive signals from environmental NGOs (e.g., WWF and Bellona) (Fleddum, 2013). Although costly to initiate, ASC is also argued to have advantages over existing regional/national standards in relation to specifically; escape numbers allowed, antibiotic usage and fish resources in feed (Luthman, Jonell, & Troell, 2019). Companies following ASC may therefore sends signals to the market that they apply even better standards than local environmental regulation and invest a lot of resources in doing so.

Conclusion

CSR communication can trigger stakeholders' Skepticism and cynicism (Schlegelmilch & Pollach, 2005). While GRI standards, ASC and GSI were found to have significantly positive impact on market value, reporting without any standard had no impact.

In general, firms should strive to 'understand the circumstances of the different CSR activities and pursue those activities that demonstrate a convergence between the firm's economic objectives and the social objectives of society' (Carroll & Shabana, 2010). Model 1 shows that investors value information that is balanced, comparable and precise and support the notion that standardization enhances reporting credibility and market value (Aggarwal, 2013; Lock & Seele, 2016; Michelon et al., 2015).

According to signaling theory, a company may use sustainability reporting to reduce information asymmetries typically covering quality or intent. The results indicate that a reduction in information asymmetry occurs with GRI addressing *quality* and ASC addressing *intent* concerning sustainability. This results in a better allocation of resources in the financial markets and higher company value to the companies applying these initiatives.

Other aspects will also affect shareholders opinion about a stock. CSR communication strategies are not the scope of this paper. For future research it would be interesting to determine how these companies market values are reflected in how they involve their stakeholders (owners) when communication CSR (Morsing & Schultz, 2006). Some argue that Scandinavian companies' stakeholder engagement gives them competitive advantage also valued by shareholders, reducing information asymmetry (Strand & Freeman, 2015). External stakeholders' concern of a company's environmental performance has been found to be positively associated with environmental disclosure (Deegan & Gordon, 1996). In what ways are these initiatives in salon farming driven by external pressure for stakeholders?

Indeed, in general companies in controversial industries are found to disclose higher quality sustainability reports (Clarkson, Li, Richardson, & Vasvari, 2008). They are also more active in CSR communication than companies in non-controversial industries (Kilian & Hennigs, 2014).

Without considering their motivation, the industry leaders in sustainability reporting are valued by the market. This indicates that they are the ones best positioned to attract future capital for growth and innovation. Quality reporting and visual commitment and intent pays off.

This study aims to address whether different sustainability initiatives in the Oslo Seafood Index have had impact on company value. With signaling theory as framework, it is argued that sustainability reports and initiative may contribute to reduce the information asymmetry between managers and equity holders. Using panel data from the company's annual reports, combined with dummy variables for different sustainability initiatives, it is found that reporting in accordance with GRI standard and committing to ASC is positively associated with the market value of the company. Disclosing reports not according to any standard, stand-alone reports, externally assured reports and GSI do not significantly contribute to company value.

Notes

1. This has been shown to be important in fisheries (Asche, Garlock et al., 2018), but has not received much empirical attention in aquaculture.
2. Salmones Camanchaca was listed after 2017, Hofseth and NTS are not included. Hofseth due to limited data, NTS due to limited data and fragmented business (transportation).
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