THE INVERTED U-SHAPED RELATIONSHIP BETWEEN COMPANY SIZE AND REPORTING QUALITY: THE ITALIAN CASE

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Abstract

The aim of this paper is to explore sustainability reporting in the Italian environment, with a special attention to the determinants of disclosure quality. More specifically, this paper's objective is to test the impact on the quality of sustainability reporting made by elements through which legitimacy can be connected, with particular reference to firm size. The choice of analysing the Italian companies lies in the fact that in this country, in a particular way, and more in general, in the non-Anglophone countries, there is no consolidated literature on the subject. The statistical analysis we carried out on this paper, in order to test the research hypotheses, is based on a linear regression model. Particularly relevant is the finding, liked to size, of the inverted U-shaped relationship. Previous contributions had highlighted a positive relationship between size and quality of sustainability reporting, connected to higher pressures by the external context on the bigger firms. Instead, our study has highlighted an inversion of such relationship (from positive to negative), starting from a certain value of market capitalization. The finding of the statistical insignificance of the relationship between industry and sustainability reporting is also very interesting.

Keywords: Sustainability Reporting, Legitimacy Theory, Italian Companies, Inverted U-shaped Relationship

1. INTRODUCTION

The evolution of the economic context involved the need to reconsider traditional business models directed to the stakeholders' profits, and to re-determine tools and procedures for both operational and strategic management. For many companies, Social Responsibility and Sustainability have become crucial and relevant elements, which contribute to maintaining a long-lasting successful position, by means of improving relationships with stakeholders and by generating synergies with the financial aspects (Bowerman & Sharma, 2016; Hummel & Schlick, 2016). In this perspective, companies mid- and long-term success is increasingly linked not just to the achievement of economic and competitive goals, but also of social and environmental ones (Searcy & Buslovich, 2014). Company's capability to reach financial goals and to gain, expand and

strengthen competing edges is, consequently, related to the quality of their relationships with the manifold categories of stakeholders supplying the necessary assets and contributions to management activities implementation. In this context lies the growing relevance of sustainability disclosure, also in non-western countries (Yaftian et al., 2012; Joshi et al., 2013; Molate et al., 2014; Suttipun, 2014). The greater importance of sustainability reporting (Christofi et al., 2012), compared to the past, is therefore tied to the growing crucial importance of the relationships with stakeholders concerning management activities, both in terms of extent, abundance and type of the involved subjects, and in terms of strategic relevance of non-financial contributions provided by stakeholders other than shareholders (Cronjé & Buys, 2015). As a result, in the scope of sustainability aspects, communication tools must be used to improve transparency in

relationships (Kühn et al., 2014) and to increase reliability, trust and legitimacy in their reference framework, in order to attain consent and approval by stakeholders. The analysis by KPMG (2017) has pointed out that 75% of N100 companies and 93% of G250 companies compile the Corporate Responsibility Reporting. In 1999, only 24% of N100 companies and 35% of the 250 companies published their Corporate Responsibility Reporting. The impressive growth of the number of companies compiling the document reveals the unconditional importance companies ascribe to social and sustainability reporting (Carini & Chiaf, 2015). The aim of this paper is to explore sustainability reporting in the Italian environment, with a special attention to the determinants of disclosure quality (Vitolla & Rubino, 2012). Legitimacy has been used as a perspective analysis to explain the phenomenon. As a matter of fact, social and sustainability disclosures (Milne & Gray, 2013; Buhr et al., 2014) are used by companies in order to adjust to the features of the environment they work in and to comply with the expectations of the different categories of stakeholders. In this view, sustainability reporting stands for a legitimacy tool aimed at facilitating adherence to the social and environmental context and to gain stakeholders' approval. This outlook is coherent with the fundamentals of social and political theory, particularly in relation to Legitimacy Theory (Deegan, 2002; Patten & Crampton, 2004; Zimmerman & Zeitz, 2002). Using this theoretical background, sustainability reporting has to be intended in the light of the improvement of corporate image. Indeed, reputation is strictly linked to both legitimacy level and stakeholders' approval (Branco & Rodrigues, 2008; Lu & Abeysekera, 2014; Cho et al., 2015).

The need for legitimacy is higher in all the companies which impact with greater intensity on the socio-economic environment: big firms, firms with a high visibility, firms which operate in a high socio-environmental commitment, firms which carry out activities with a high social content. An analysis of the sustainability reports, focusing on the concept of legitimacy, should take into account of two strictly tight elements: the relevant criticalities which lie in the management of social and environmental activities, for the company to become successful, and the rising importance of voluntary disclosure systems (Zhou, 2017). As far as the first aspect is concerned, the presence of a series of factors that have deeply changed the structural way the socio-economic context in which operators work, should be considered. Considering the second aspect, managing communicative activities notably affects the relationship with the stakeholders, so the total balance of the firm and the chances of long-standing success. The choice of analysing the Italian companies lies in the fact that in this country, in a particular way, and more in general in the non-Anglophone countries, there is no consolidated literature on the subject (Branco & Rodrigues, 2008; Bonsón & Bednárová, 2015). Moreover, having considered the influence on sustainability disclosure of the national macro-context (Roberts, 1991; Adams, 1999) and of the specific market configurations of the capitals and the ownership

structure of the firms (Amran et al., 2014; Younas et al., 2017; Sariannidis et al., 2015; Salvioni & Gennari, 2016), it is interesting to verify whether there is a super-national convergence of the effects deriving from relevant factors linked to the quality of the document (Michelon et al., 2015). The paper is structured this way: the second section is about the literature on Legitimacy Theory and the development of the research hypotheses; the third section is a description of our methodology; the fourth section is an analysis and interpretation of the results; the fifth section is about the conclusions.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES DEVELOPMENT

By Legitimacy Theory one refers to a deal between society and firms, in which the latter put in practice socially directed behaviours to achieve social approval (Guthrie & Parker, 1989). This contract becomes the main vehicle in order to achieve legitimacy (Mathews, 1993). It is thus stipulated, in an abstract way, between the firms and the local communities, on behalf of their individuals. The company is supplied by the local community with both the natural and human resources; the firms offer products, goods and services for the community, but they generate waste. A mutually beneficial exchange is the aim of the contract, the terms of which exhibit the social assumptions on the firm's management. These assumptions are both implicit and explicit: the former is about the community's interest in the activities of the company, the latter is about the compliance of the company to the laws and regulations (Deegan et al., 2000). The company's legitimacy is often threatened by the breach of both explicit and implicit terms of the deal. Losing legitimacy leads to such dangers which could put an end to a company. After a scrutiny of the literature, two basic forms of legitimacy were found. One has the single firm as an object and, in this view, the firm makes its choices and carries them out with the goal of filling the legitimacy gap, up to the level it wishes to fill (Lindblom, 1994). Widely speaking, these actions have as their goal the achievement of increasing, preserving and restoring company legitimacy, being this a necessary step to carry out their activities, in an effective way, inside the socio-economic context they refer to. They are socially oriented actions such as the enactment of reporting systems, which are specific ways to reach the goal of legitimacy. The second form of legitimacy focuses on the whole of the capitalist system. Social reporting processes are thus effective to the systemic legitimacy of countries and companies (Gray et al., 1996). It is clear that the processes leading to legitimacy are different from company to company, due to the unequal temporal, spatial and social contexts in which the firm operates. Legitimacy Theory has been used, over the last twenty years, to interpret and explain disclosure activities carried out by the companies (Guthrie & Parker, 1989; Patten, 1992; Adams et al., 1998; Tsang, 1998; Campbell, 2000; Wilmshurst & Frost, 2000; Deegan et al., 2002; Milne & Patten, 2002; Newson & Deegan, 2002; O'Donovan, 2002; O'Dwyer, 2002). Many essays have dealt with sustainability,

social and environmental reports (Deegan, 2014). One of the most outstanding studies is that by Guthrie and Parker (1989) which analysed the relationship between voluntary disclosure by an Australian company (BHP Ltd) and socio-environmental affairs, in a time span of a very long period (one-hundred years, 1885-1985). No relationship between these appeared to be existent through the results of this research, so they did not support the Legitimacy Theory (Hahn & Lülfs, 2014; Kuo & Yi-Ju Chen, 2013). Deegan et al. (2002) pinpointed that the failure to confirm the hypothesis was due to some flaws in Guthrie and Parker's study. These included the measuring of the variables used for socio-economic phenomena and also some missing basic events. As a matter of fact, a research made by the above-mentioned firm (BHP Ltd), taking into account a period going from 1983 to 1997, indeed supported the Legitimacy Theory, thus demonstrating that there was a connection binding media attention to the action of the socio-environmental disclosure. Important studies which follow such trend are Patten (1992), Tsang (1998), Wilmshurst and Frost (2000), Milne and Patten (2002), O'Donovan (2002). Outstanding, on such a subject, is O'Dwyer's study (2002) since he aimed to investigate on the manager's feelings concerning socio-environmental reporting systems. As it was highlighted in the study, there was an influence of the external context over voluntary disclosure (Fernandez-Feijoo et al., 2014). This was somehow different from the early hypotheses. For instance, in Ireland, the community pushed the managers not to apply social environmental reporting systems, since there was a clear lack of disposition in the Irish people to communicate positive outcomes. It was considered absolutely self- destructive for the company to voluntarily disclose positive information about the firm's venture, in terms of legitimacy, since the socio-economic context surely read this as just a way for the company to reach its objectives. Indeed, the Legitimacy Theory has the positive aspect of creating a link between the enactment of the reporting systems of sustainability and the mobility of the external context. There has been a long-standing debate, in the literature, about sustainability reporting in the perspective of social legitimacy; however, as we said before, in non-Anglophone countries the results of research are not yet consolidated. In this view, there is a need to verify the super-national convergence of the contributions present in the literature. Finally, from the scrutiny of the literature, there seems to be a gap concerning the different elements through which legitimacy can be explained in order to identify the determining qualities of social reporting. The evaluation of a quality report is usually based upon the analysis of multifarious informative areas. Methodologies have been developed over time which are not only aimed at analysing the completeness of the document, but also at comparing the contents related to the same informative area. Wiseman (1982), for instance, used an indexing procedure identifying quantitative and qualitative types of information. Guthrie and Mathews (1985) as well as Deegan and Gordon (1996) proposed to evaluate the consistency between report content and actual company situation. Research on this subject

(Hammond & Miles, 2004) has shown how the shortcomings in processing activities was due to data unreliability, to omissions in the computing of the data as well as to the personal bias that is built in the process of assessment. The latter has to be considered as the most critical aspect. Content analysis is the most used technique when evaluating document quality (Guthrie & Parker, 1989; Deegan & Gordon, 1996; Milne & Adler, 1999; Guthrie et al., 2004; Guthrie & Farneti, 2008; Déjean & Martinez, 2009). This technique is based on document analysis and on pre-defining a structure for numerical encoding of information (Abbott & Monsen, 1979; Neuendorf, 2002). Krippendorff (1980) underscores the importance of attributing a shared meaning to the different analysed elements. In some cases, the encoding is based on a mere check on the presence of informational areas or specific topics in the report (Alotaibi & Hussainey, 2016); that allows to minimize errors and to attenuate subjectivity in the evaluation process. In other cases, in order to distinguish the reports on the grounds of the information content, a values scale is used (Wiseman, 1982). In further cases, the frequency of explaining keywords, on relevant topics for the purpose of evaluation, are used as a measure of document quality (Krippendorff, 1980; Guthrie et al., 2004). Based on the analysis of the literature and on the gaps there identified, it is possible to define the research hypotheses concerning the determinants of sustainability reporting quality (Khumalo & Pitt, 2015; Hahn & Kiihnen, 2013) which are relevant in perspective of legitimacy. The research hypotheses, in particular, aim to assess the impact on the disclosure quality by the different variables through which legitimacy can be connected.

2.1. Company size

According to the existing literature, company size is the main determinant of the volume and of the quality of sustainability reporting. A wide range of studies and research (Cowen et al., 1987; Patten, 1991; Wallace et al., 1994; Gray et al., 1996; Patton & Zelenka, 1997; Botosan, 1997; Mathews, 1997; Bozzolan et al., 2003; Haniffa & Cooke, 2005; Naser et al., 2006; Hossain & Hammami, 2009) claim that big companies tend to commit themselves more to reporting activities, sharing more information, often meeting higher quality standards. That accounts for big companies at large to deal with a larger number of stakeholders concerned about sustainability and socio-environmental issues while being more exposed to a pressing reference framework (Reverte, 2009). Nonetheless, it is important to highlight the likelihood, never taken into account by the existing literature, of a negative correlation between company size and sustainability reporting quality when the former exceeds certain thresholds. The inversion of this relationship may be due to a condition of full legitimacy deriving from the outstanding importance they have gained in the socio-economic framework, regardless of any disclosure devices.

H_1: *There is an inverted U-shaped correlation between SIZE and sustainability reporting quality. Up to a certain size level, the correlation is positive; beyond that level, it becomes negative.*

2.2. Industry

In the literature, the industry is believed to be relevant in order to explain existing differences in shared information quantity and quality among companies (Behram, 2015). Social and environmental issues and, consequently, stakeholders' attitude may vary depending on the company's activity and the structural configuration of the reference competitive framework. Among the papers supporting this thesis are those by Cowen et al. (1987), Adams et al. (1998), Britton and Gray (2001), Quagli and Teodori (2005). More in detail, it is possible to identify industries which are extremely sensitive to environmental themes (Archel, 2003), and industries more exposed to final customers attention (Campbell et al., 2006). A more sensitive reference framework to environmental issues may encourage companies to improve their disclosure processes and reporting quality. Nevertheless, some research shows how the industry-disclosure correlation may not be always relevant. The research by Kolk et al. (2001) on the world 250 biggest companies points out how environmental disclosure in the *Energy & Utilities* industry is consistent with those in other industries, in spite of the results presented by most research on this subject. Similar considerations have been reported by Branco and Rodrigues (2008), who state that, contrary to what has been previously hypothesized, companies working in more environmentally sensitive frameworks don't always feature higher socio-environmental disclosure quality. The pursuit of legitimacy through sustainability reporting seems to be disjointed from the industry type.

H₂: There is no relationship between industry and the quality of sustainability reporting.

2.3. Media exposure

A greater exposure entails more attention from stakeholders, as well as more pressure on companies in order to make them share not only financial but also social and environmental information (Bansal, 2005). Moreover, the media, by reporting on companies' improper behaviours, force the latter to increase their amount of shared information; an enhancing of the level of disclosure takes place mostly among those companies which consider their image and reputation as crucial assets to achieve a competitive advantage (Hooghiemstra, 2000). In this view, mass media have an important role in the society, rallying ecologist movements and raising public opinion's awareness on social and environmental issues. More exposed companies then need to acquire more legitimacy in the socio-economic framework through sustainability reporting (Gray et al., 1996; Bansal & Roth, 2000; Bowen, 2000; Kolk, 2003).

H₃: There is a positive correlation between media exposure and sustainability reporting quality.

3. METHODS

The statistical analysis we carried out on this paper, in order to test the research hypotheses, is based on a linear regression model. We have chosen the multiple linear regression analysis in order to evaluate the effect the series of influencing factors have on the dependent variable. This econometric model aims to analyse the relationship between sustainability reporting and the elements in which legitimacy can be connected:

$$QSR_i = \alpha_0 + \alpha_1 CONS + \alpha_2 ENER + \alpha_3 FIN + \beta_1 ROA_i + \beta_2 MARKCAP_i + \beta_3 MARKCAP_i^2 + \beta_4 LEV_i + \beta_5 PMS_i + \beta_6 ME_i + \beta_7 OWN_i + \varepsilon_i \tag{1}$$

where $i = 1, ..., N$, where N is the number of firms, while ε_i is an error *i.i.d* with an average that equals to zero and a constant variance.

3.1. Dependent variable

The quality of sustainability reporting (QSR) is formulated through an indicator which allows for the synthesis in a single measure of the evaluation of the single aspects (Roca & Searcy, 2012) related to the three dimensions of sustainability (economic, social and environmental). In particular, the aspects we have taken into account are those concerning sustainability performance, which are included in the guidelines GRI.

As for the evaluation of every single item, we applied an ordinal value scale which can take 5 different statistical modes according to the type of supplied information (absent information, qualitative information, monetary quantitative information, non-monetary quantitative information, monetary and non-monetary quantitative information). The synthetic measurement unit of the quality of sustainability reporting corresponds to the sum of the values given to each item (Wallace & Naser, 1995).

3.2. Independent variables

Size (*MARKCAP*, *MARKCAPSQ*): such variable is operationalized through market capitalization (Reverte, 2009). The use of market capitalization allows homogenizing the data from the different industries, in relation to which, their balance sheet values have a different significance. Squared market capitalization has the purpose of testing the inverted U-shaped relationship between size and sustainability reporting quality.

Industry (*CONS*, *ENER*, *FIN*): such variable represents a set of dummy variables, which take value 1 if the firm belongs to a specific industry and value 0 in the opposite case. In particular, the model includes the Consumer, Energy & Utilities and Financial industries. The firms belonging to the Industrial sector represent the group of reference; the relative dummy variable has not been taken into account because its inclusion would have involved problems of perfect collinearity.

Media exposure (*ME*): is operationalized through the number of citations by the media (Gamerschlag et al., 2011).

3.3. Control variable

Financial performance (*ROA*): is operationalized through the profitability index of the total assets (Brammer & Pavelin, 2008), worked out as the ratio between the year's operational income and the average between the total assets at the beginning of the year and the end of the year (Huang & Kung, 2010).

Leverage (*LEV*): is operationalized through the debt ratio (Branco & Rodrigues, 2008), worked out as the ratio between total assets and net assets.

Major Shareholder (*MS*): this variable measures the aspects concerning the ownership concentration (Chen et al., 2008), with a special reference to the percentage of ownership by the first shareholder (Wang et al., 2012).

Ownership (*OWN*): it is a dummy variable which takes value 1 if the ownership of the firm is a public one and 0 when it is private (Wang et al., 2012).

3.4. Sample and data

The analysis has been carried out on the sustainability reports by 49 companies listed on the Italian Stock Exchange, included in the ALL SHARE index. The analysis included social reports, CSR reports and integrated reports, due to the fact that they essentially encompass the same contents of sustainability reporting (Cheng et al., 2014). The documents were fully read and analysed through a *content analysis* technique (Krippendorff, 1980; Neuendorf, 2002). In order to detect the *items* we should evaluate, we chose standard GRI (Clarkson et al., 2008; Reverte, 2009; Legendre & Coderre, 2012) for two general reasons and one specific reason. In general, GRI guidelines provide more balanced reports with respect to the different informative dimensions (economic, social and environmental); through standardization, they make a comparison of the documents much easier (Clarkson et al., 2008). As for the definition of the quality of the documents, we opted for the Index Score technique (Wallace & Naser, 1995), which allows synthesizing in a single measure the evaluations of the single items, by simply adding their respective values. We decided to use a scale of values, instead of a dummy variable, referred to the presence or absence, in the document, of a specific subject to evaluate, with the aim of assessing in a more appropriate way the shared information (Al-Tuwaijri et al., 2004; Criado-Jiménez et al., 2008; Reverte, 2009; Wang et al., 2012). The quantitative information items are considered more effective than the qualitative ones (Wiseman, 1982; Al-Tuwaijri et al., 2004) because they limit window-dressing issues, peculiar in narrative and descriptive forms of disclosure. Moreover, non-monetary measures oftentimes are capable of representing in more adequate ways the socio-environmental dimension of the firm, being those strictly connected to the processes of sustainability management (Ittner & Larcker, 1998). Finally, the disclosure value is higher if it contains balanced information, of both a monetary and a non-monetary nature (Kaplan & Norton, 1992). Based on these considerations, for the evaluation of every single item, we applied the following scale of values: 1 (absent information); 2 (qualitative information); 3 (monetary quantitative information); 4 (non-monetary quantitative information); 5 (non-monetary and monetary quantitative information).

4. ANALYSIS OF RESULTS

The analysis has been carried out on a sample of 49 firms listed in the Italian Stock Exchange, which belong to four different industries, among which 38 in private ownership and 11 in public ownership. The distribution according to the industry is reported in Table 1, while in Table 2 are reported some descriptive statistics of the variables.

Table 1. Distribution of the sample firms according to industry

Industry	Number of Firms
Consumer	12
Energy & Utilities	11
Finance	18
Industrial	8
Total	*49*

Table 2. Descriptive statistics

Variable	Average	Median	Minimum	Maximum	Stand. Dev.
QSR	58.4949	59	10	101	17.9045
ROA [1]	2.6661	0.6320	-8.3203	23.4341	5.9130
MARKCAP [2]	5.0933	1.3146	0.0098	63.5619	10.4609
LEV	7.8162	4.5800	1.5537	26.6438	6.5685
MS [1]	36.1986	35.9600	1	80.6400	20.8579
ME [3]	18.2024	8.3050	0.0770	131.6140	29.2935
OWN [4]	0.2245	0	0	1	0.4216

Note: [1] *Percentage* - [2] *Billion euros* - [3] *Thousand* - [4] *Dummy variable*

With reference to the independent variables, the sample firms show a high level of market capitalization, keeping in mind that they are listed firms (average market capitalization of about five billion euros), the ROA level is critically small, due to the structural issues that affect the Italian Economy (average ROA 2.6%). Indebtedness is quite high (average leverage is 7.8). Property appears to be pretty concentrated, with an average of about 36% of the shares held by the major shareholder. Moreover, the sample firms have major media coverage (an average of about 18000 citations).

As far as the dependent variable is concerned, the results highlight that the average quality of the reports is acceptable. In particular, the average value of *QSR* in about 59, over a maximum of 140. The average value of *QRS* is more or less similar to that of the median, which indicates that the number of firms, whose quality report is above average, tends to coincide with one of the firms with a quality report below average. As far as the dispersion and the evaluation of the difference among the different observing units are concerned, the standard deviation of *QRS* is of about 18 points, while the range of variation is of 91 points.

Table 3 shows the correlation coefficients among the independent variables. There are statistically significant correlations at 1% level between *ROA* and *MARKCAP* (ρ=0.59), *ROA* and *MARKCAPSQ* (ρ=0.5554), *ROA* and *LEV* (ρ=-0.4275), *MARKCAP* and *MARKCAPSQ* (ρ=0.9180) and *MARKCAP* and *ME* (ρ=0.4003); moreover, there is statistically significant correlation at 5% level between *MARKCAPSQ* and *ME* (ρ=0.2877) and *MS* and *LEV* (ρ=-0.3170). It seems clear that the correlation coefficients are quite low, except the one

between *MARKCAP* and *MARKCAPSQ* which slightly exceeds the threshold limit of 0.90 (Roberts, 1992; Hair et al., 2010). Nevertheless, this represents an intrinsic characteristic of polynomial regression and possible problems of multicollinearity which should

be excluded since the *VIF* (Table 4) are, in any case, within the range of 10, usually considered as threshold value in order to exclude the presence of such a problem in the model (Roberts, 1992; Hair et al., 2010).

Table 3. Correlation matrix of the independent variables

	ROA	*MARKCAP*	*MARKCAPSQ*	*LEV*	*MS*	*ME*
ROA	1					
MARKCAP	0.5900***	1				
MARKCAPSQ	0.5554***	0.9180***	1			
LEV	-0.4275***	-0.0161	-0.0893	1		
MS	0.1523	-0.1912	-0.1177	-0.3170**	1	
ME	0.1953	0.4003***	0.2877**	-0.0766	-0.0338	1

*Note: *** = significant at 1% level ;*
*** = significant at 5% level;*
** = significant at 1% level.*

Table 4. Variance inflation factors (VIF)

Variable	*Inflation factor*
ROA	2.77
MARKCAP	10.00
MARKCAPSQ	7.48
LEV	3.33
MS	1.32
ME	1.39
OWN	2.97

The estimated results of the linear regression econometric model are reported in Table 5. The model shows a good level of data adaption with adjusted R^2 with a value of 0.3202. Test *F* highlights the statistical significance of the model (*p-value* 0.0037). The regression shows any heteroskedasticity issues, as *Breusch-Pagan* (*p-value* 0.8206) test demonstrates. The null hypothesis of the test states that error variance is not a function of the regressors (with the exception of dummy variables). The test was carried out in its $N*R^2$ version, with a *Chi-squared* with 7 degrees of freedom. Being these cross-section data, no serial autocorrelation of residuals test has been carried out. In the model, two statistically significant relationships occur: between *MARKCAP* and *QSR* (at 5% level); and between *MARKCAPSQ* and *QSR* (at 10% level). The first parameter's positive sign highlights that an increase in market capitalization corresponds to an increase in the quality of sustainability reporting. The negative sign in the second parameter also shows the existence of an inverse relationship between market capitalization and the quality of sustainability reporting. Thus, what we are facing is an inverted U-shaped relationship between market capitalization and the quality of sustainability reporting. The value of market capitalization (turning point), beyond which the positive relationship from being positive becomes negative, can be worked out as follows using estimated parameters:

$$Turning\ point = -\frac{\hat{\beta}_2}{2\hat{\beta}_3} \qquad (2)$$

Turning point value is of 39.12 billion euros; for the firms with less than 39.12 billion euros market capitalization, an increase in capitalization results in an increase in sustainability reporting; conversely, for the firms with a market

capitalization of less than 39.12 billion euros, an increase in capitalization determines a drop in the quality of sustainability reporting.

As for the other independent variables, there is no evidence of any statistically significant relationship.

Table 5. Regression results

	QSR	
Constant	28.6599 (*6.1358*)	***
CONS	12.6453 (*6.1072*)	
ENER	9.6783 (*7.2071*)	
FIN	4.1158 (*7.6414*)	
ROA	-0.2840 (*0.4785*)	
MARKCAP	1.2095 (*0.5142*)	**
MARKCAPSQ	-0.0155 (*0.0080*)	*
LEV	0.2762 (*0.4728*)	
MS	0.0677 (*0.0936*)	
ME	0.0464 (*0.0685*)	
OWN	11.3902 (*6.9534*)	
Turning point[1]	39.12	
Test F	3.2926 [*0.0037*]	***
Test di Breusch-Pagan	3.64 [*0.8206*]	
R² adjusted	0.3202	
N	49	

*Note: *** = significant at 1% level;*
*** = significant at 5% level;*
** = significant at 10% level.*
[1] billion Euros; p-values in square brackets; standard errors in brackets

5. DISCUSSION

According to the results of the regression analyses, H_1 and H_2 are confirmed, whereas H_3 is not confirmed.

With reference to company size, the existence of an inverted U-shaped relationship with respect to the quality of sustainability reporting is confirmed: to a certain size level, the relationship is positive; beyond such level, the relationship becomes negative. Size, then, proves to be a relevant variable with relation to the quality of reporting, consistently with previous studies (Neu et al., 1998; Brammer & Pavelin, 2008; Branco & Rodrigues, 2008; Reverte, 2009; Huang & Kung, 2010; Gamerschlag et al., 2011). In the perspective of Legitimacy Theory, the positive relationship between size and quality of sustainability reporting is linked to higher pressures from the external context on the bigger firms, due to the relevant impact they have on society as a whole, both in positive and negative terms (Reverte, 2009). The larger firms are always associated with a higher visibility and also a greater hostility coming from the community, in particular, the local community they operate in (Watts & Zimmerman, 1986). In the same perspective, for the bigger firms, a larger number of bearers of specific interests can be detected, which are able to significantly influence their management (Knox et al., 2006). In this view, reporting is aimed at filling the gap of legitimacy, until the desired level is achieved (Lindblom, 1994), with the goal of enhancing, maintaining and restoring stakeholders' consensus. For the larger firms, the context not only plays the role of exerting higher pressures on themes of social and environmental character, but it also requires tools of indirect and formalized communication. Whereas, in smaller firms, direct observations and the use of informal communicative channels can substitute the more advanced systems of reporting. The result connected to the inversion of the relationship is particularly interesting since it surely represents an innovative element for the literature on the subject of sustainability reporting. In the perspective of Legitimacy Theory, the existence of an inverted relationship can be interpreted as a consequence of the social and economic prominence of the big companies, which are legitimized in their context regardless of the use of reporting tools. Beyond a certain size level, the relevance of the positive impact that companies produce on the environment is itself a source of legitimacy. The big companies have often attained the level of legitimacy similar to that of public institutions. Another reason to justify the inversion of relationship could be linked to the predominance of the bigger companies which may be, in fact, uninterested in filling the legitimacy gap with the environment. The control they exert on the stakeholders allows the big companies to operate with effectiveness, even without any legitimacy or consensus. A final interpretation could be that the lack of attention towards the issue of legitimacy by the big companies may be connected to their condition of leadership, which oftentimes show a superficial managerial behaviour.

H_3 is not confirmed. The empirical data do not support the existence of a positive relationship between media exposure and quality of sustainability reporting. It is interesting to point out that media exposure, unlike size, does not seem significant (Brammer & Pavelin, 2008), although they are both variables concerning the visibility of the firm. The reason for the diverging results may be connected to the different levels of visibility. Size defines visibility in a managerial sense: the bigger firms are more visible since their activity impacts more on society and on the different categories of stakeholders; this fact determines a higher attention by the stakeholders and, consequently, more pressure on the firms. Instead, media exposure identifies the level of presence on the media. Higher levels of exposure may not lead to more pressure by the stakeholders, in cases in which the presence on the media was not linked to events and phenomena of socio-environmental nature.

H_2 is confirmed. Empirical data demonstrate that there is no relationship between industry and the quality of sustainability reporting. This contrasts with the results of the largest part of the previous research (Clarke & Gibson-Sweet, 1999; Hoffman, 1999; Bowen, 2000; Line et al., 2002; Archel, 2003; Brammer & Millington, 2006). In a perspective of legitimacy, the statistical insignificance of the industry with respect to the quality of sustainability reporting, could be explained by a growing relevance of the social and environmental aspects leading the firms to communicate on such themes, regardless of their critical nature or of the specific activity they carry out, in order to lessen the hostility of their context, even when it is not directly connected to issues about industry. Moreover, in the view of *legitimacy*, stakeholders' cross-cutting interests on the social and environmental aspects should be taken into account (Huang & Kung, 2010). The environmental issues, for instance, involve, in a more or less direct way, almost all the stakeholders.

6. CONCLUSIONS

The aim of this work is to analyse, through Legitimacy Theory, the determinants of the quality of sustainability reporting. In this perspective, reporting has the purpose of maintaining, enhancing and restoring the consensus within the social and economic context, as the aim of disclosure is to inform the stakeholders, to change their perception of the firm and its management, in order to draw their attention away from the firm's weak points. In particular, this paper's objective is to test the impact on the quality of sustainability reporting made by elements through which legitimacy can be connected, such as size, industry and media exposure. The results of the research have proved to be particularly significant and innovative with respect to the existing literature. Particularly relevant is the finding, liked to size, of the inverted U-shaped relationship. Previous contributions had highlighted a positive relationship between size and quality of sustainability reporting, connected to higher pressures by the external context on the bigger firms. Instead, our study has highlighted an inversion of such relationship (from positive to negative), starting from a certain value of market capitalization. Such empirical evidence is linked to a

considerable social and economic role and to the leading character of the big companies; the higher the size, the lower the need to gain stakeholders' consensus through sustainability reporting. The finding of the statistical insignificance of the relationship between industry and sustainability reporting is also very interesting. Such result contrasts with the previous literature, may be caused by a growing importance of social and environmental matters, which leads companies to disclose information on such issues, regardless of their criticality and the specific activity they carry out. Similarly, the results do not confirm the existence of a relationship between media exposure and the quality of sustainability reporting; such empirical evidence may be connected to a concept of media visibility (which differs from the one of management that is connected to size) which does not determine any pressure either from the environment or from the stakeholders.

The main managerial implications arising from the empirical analysis can be summarized as follows: 1) the larger companies, in order to legitimize themselves, have to publish qualitatively high standard sustainability reports; 2) when their dimension becomes particularly relevant, sustainability reporting loses its importance as a legitimacy tool; 3) in order to attain social consensus, the content of the reports have to be independent of the specific activity that is being carried out and from the industry they belong to; 4) the tool of sustainability reporting is not so significant, for the companies which have a high media visibility (not related to management), for the purpose of legitimacy.

The main limit of this research concerns the sample, which includes Italian listed firms; with respect to said aspects, possible directions for future research could focus on extending the analysis to foreign companies, SMEs and non-listed companies.

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