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Research article

The relationship between good environmental practices and financial performance: Evidence from Italian waste management companies

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ABSTRACT

This article analyzes waste management companies. Considering the scenario outlined by the EU's Circular Economy Strategy, also focused on the more efficient use of waste, the article aims to analyze the relationship between companies' financial performance and good environmental practices related to separate waste collection, which is important for environmental protection and constitutes a fundamental precondition for the reuse, recycling and recovery of waste. To attain the article's objective, an empirical analysis of 45 Italian companies over the four-year period 2012–2015 was performed using return on assets to evaluate financial performance, and utilizing separate waste collection rates and collection per capita as proxies for good environmental practices. The results show the existence of a very high general connection and a slight positive linear correlation, which means that if one variable grows, the other one also increases, even if the proportion may vary. In other words, for the analyzed companies, the research findings seem to exclude the possibility that the financial results may deteriorate as a consequence of improved environmental practice in the form of separate waste collection.

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1. Introduction

The subject of the collection, treatment and disposal of municipal solid waste (MSW) is extremely topical and strategic worldwide due to its important social, economic and environmental implications, as well as the enormous growth of the quantity of waste produced in recent decades, primary due to increased consumption.

Numerous stakeholders include citizens and businesses, waste producers, public authorities in charge of defining management policies for the integrated waste cycle, and companies responsible for waste collection and disposal. Both financial and environmental sustainability – which are often in conflict – should be attained through the socially responsible actions of all stakeholders.

As is well known, the European Directives 2006/12 and 2008/98 encourage the EU member states to introduce laws to control the entire waste cycle from production to disposal by applying the so-called “hierarchical principle”. These Directives recommend waste prevention, reuse, recycling and energy recovery in this order of priority to reduce and eliminate waste going to landfills throughout product life cycles (Sadhukhan, 2017; Ghafalkar et al., 2015). This is further confirmed by the Circular Economy Action

Plan adopted by the European Commission (2015) and the recent “Four legislative proposals on waste” (European Parliament, 2017). These documents contain measures related to the entire product lifecycle from design, sourcing, production and consumption to waste management (WM). Nevertheless, this study focuses on the specific portion of the overall cycle related to WM that has a strong influence on the environment and social wellbeing.

According to the EU approach, given the scarcity of natural resources, member states should focus on more efficient use of waste by investing in its transformation into resources that may be re-used as “secondary raw materials” (Cossu and Williams, 2015; Velenturf and Purnell, 2017). Within this context, separate waste collection (SWC) is a necessary precondition for waste reuse, recycling and recovery; furthermore, it is one of crucial parameters used by the EU to set WM targets (European Commission-DG Environment, 2015). For these reasons, the article focuses on WM companies. The aim is to determine whether the implementation of good SWC practices is compatible with companies' financial sustainability. In particular, a possible relationship between the actual realization of SWC levels and WM companies' financial performance is explored. This aim seems to be particularly relevant to the future achievement of EU environmental targets, as WM companies are among the most relevant parties. To this effect, an empirical study has been performed on a group of Italian companies involved in MSW collection, treatment and disposal by conducting a longitudinal analysis over the four-year period 2012–2015. The present analysis follows a business economic approach.

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This article is structured as follows: the next section contains a literature review; Section 3 describes the research materials and methods; Section 4 analyzes results of the empirical study; and conclusions are presented in Section 5.

2. Literature review

The relationship between companies' good environmental practices and financial performance is a crucial topic in the literature and has received increased attention recently, given growing environmental concerns.

From the companies' perspective, this relationship is neither straightforward nor easily predictable (Sharma, 2000). The topic of the environment and the implementation of relevant corporate strategies require significant investments and appropriate changes to managerial processes to attain the relevant objectives. Among these, the WM-related goals lead to increased rates of recycling and reuse (Li et al., 2017). Such strategic decisions can also increase production costs, which cannot always be reflected in product or service prices (Klassen and Whybark, 1999). Moreover, good environmental practices take time to produce tangible results, while the relevant investments contribute to uncertainty in future financial results (Aragon-Correa and Sharma, 2003).

While the above considerations do not affect the company's compliance with regulations or its voluntary choice of actions relevant to environmental protection, considering them an opportunity to strengthen the company's competitive position. In fact, certain studies report limited or null effects of relevant regulations on the relationship between environmental practices and financial performance (Brouwers et al., 2014; Rexhauser and Rammer, 2014).

Despite the growing attention on this issue, the findings are contradictory: while most studies show that good environmental practices improve financial performance (Kiernan, 2001; Derwall et al., 2005), others suggest the relationship to be neutral or even inverse given the high costs companies have to incur (Filbeck and Gorman, 2004; Jaggi and Freedman, 1992).

Numerous authors highlight the challenges involved in evaluating the financial effects of environmentally conscious actions, while supporting the existence of a positive relationship (King and Lenox, 2001; Hart and Ahuja, 1996). Others observe benefits in the form of new competitive advantages that improve efficiency and positively affect financial performance (Guenster et al., 2011; Rao and Holt, 2005; Russo and Fouts, 1997). Nevertheless, very few studies can prove that good environmental practices have an important positive effect on a firm's financial performance (Schendler, 2001), and if a relationship is observed it is often verified in particular industries and environmental contexts (Enz and Siguaw, 1999). As a result, many firms are reluctant to implement good environmental initiatives due to a perceived lack of evidence that the benefits will exceed the relevant costs (Li et al., 2017).

Other studies investigate the relationship by focusing on the direction of causality, i.e., whether the more environmentally conscious firms are more profitable or, vice versa, whether firms characterized by superior financial performance invest more in environmentally sustainable practices (Ameer and Othman, 2012; Mazzi et al., 2016; Waddock and Graves, 1997).

In contrast with the above, other authors highlight the absence of a positive relationship between environmental practices and financial performance, noting high costs and risks, potentially leading to poorer financial results (Walley and Whitehead, 1994; Watson et al., 2004). Furthermore, scientific challenges arise in the evaluation of the effect of environmental practices on financial performance, as both are often measured differently and with diverse indicators (Iwata and Okada, 2011; Jaffe et al., 1995).

Despite the existence of numerous studies on the subject, MSW companies are almost never analyzed. Hence, many articles study

the subject in general terms, referring to the most disparate and varied industries. Furthermore, research specifically focused on the MSW sector tends to analyze costs and dates back to mid-1960s (Hirsch, 1965; Stevens, 1978). In particular, a number of articles are focused on the cost advantage resulting from efficiency improvements through waste reduction waste and recovery (Hart, 1995; Schreck and Wagner, 2017).

The literature on this particular issue refers to various indicators that may affect costs, with SWC among the most frequently used (Rubio-Romero et al., 2013; Greco et al., 2015; Abrate et al., 2014; Carvalho and Marques, 2014). Conversely, scientific contributions that examine the effect on WM companies' financial performance are rather scarce and seldom examine the relationship with good environmental practices such as SWC, particularly in Italy. Furthermore, in the existing studies, the variable measuring a good environmental practice is almost never related to a profitability indicator, such as the return on the company's assets. This ratio, used by many other studies of various industries, can offer a complete assessment of financial performance, including both revenues and costs. Thus, given the purpose described above, this article's analysis of the relationship between SWC and return on assets can also contribute to fill the gap in the literature; related to that ongoing viability of WM companies and thus their ability to continue and improve the provision of this important public utility.

3. Materials and methods

After examining the existing literature, an empirical analysis of a group of Italian companies that operate in the field of MSW collection and disposal has been conducting using data for the four-year period 2012–2015. More specifically, WM companies operating in Italian municipalities with more than 50,000 residents have been selected. This population threshold, considered significant by other authors (Bel and Fageda, 2010; Stevens, 1978), has been chosen to identify the most important companies for size that operate in the more populous municipalities. To assure homogeneity and information comparability, the analysis is focused on limited, not listed, and mono-utility companies with activities relevant solely to MSW management:

- only limited companies, required to follow Italian accounting regulations, have been included in the analysis to be able to compare financial results reliably, as financial statements (composed of income statements, balance sheets and notes) are the main data source for the analysis;
- companies listed on the Italian stock exchange or belonging to listed groups have been omitted, as their financial statements use International Financial Reporting Standards, and their size and organization differ significantly from other companies;
- only companies operating exclusively in the WM sector have been considered, as their financial statements contain only information relevant to this type of public utility, to avoid cases where costs and revenues related to other services (e.g., energy generation, parking, cemetery services, etc.) are commingled.

The 45 selected WM companies are all owned or controlled by municipalities, representing the clear majority of firms operating in the Italian WM sector (Utilitatis, 2016). They serve approximately 670 municipalities (with a count that varied extremely slightly during the four-year period) spread throughout Italy. Since the analysis uses four years of data, 2673 observations have been collected. The selected companies in the WM sector represent 32% and 36%, respectively, of sales revenue and employees, according to the Green Book survey of medium and medium-large companies performed in 2013 (Utilitatis, 2016). In Table 1, the size and primary financial data of the selected companies are shown.

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