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**WRITTEN ACCOUNTING NARRATIVES IN CORPORATE
REPORTING: THEORETICAL AND EMPIRICAL
FOUNDATIONS FOR INVESTIGATING THEIR MEANINGS,
DYNAMICS AND CONTEXTS**

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*“Now is no time to think of what you do not have.
Think of what you can do with that there is”*

–Ernest Hemingway

*“Per chi viaggia in direzione ostinata e contraria
Col suo marchio speciale di speciale disperazione
E tra il vomito dei respinti muove gli ultimi passi
Per consegnare alla morte una goccia di splendore
Di umanità di verità [...]*

*Ricorda Signore questi servi disobbedienti
Alle leggi del branco
Non dimenticare il loro volto
Che dopo tanto sbandare
È appena giusto che la fortuna li aiuti*

*Come una svista
Come un'anomalia
Come una distrazione
Come un dovere”*

–Fabrizio De André

To my family

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CHAPTER I

INTRODUCTION

Summary: 1. Research background; 2. Motivations of the research;
3. Research questions and objectives; 4. Structure of the thesis.

1. Research background

1.1 A “narrative” on written accounting narratives

*Written
narratives*

The object of this thesis is written narratives in accounting reporting practices. As it will be better explained in the following sections, the term “written narratives” can have different nuances according to the different theoretical perspectives used to interpret their meaning. According to Beattie (2014), written narratives can relate to qualitative text that characterises the information ‘disclosed’ in reporting practices (in this case, ‘narrative’ can be considered synonymous of ‘disclosure’). Moreover, narratives can have also a broader acceptance referring to “words (e.g. chronicles, emplotted stories and interview transcripts) and can include pictures and other visuals” (Beattie, 2014, p. 112). In this thesis, we rely upon this definition specifically focusing on the textual component of reporting practices. Thus, we use the term narrative to include all textual elements as well as the use of (written) language to support and extend the meaning of accounting numbers within corporate reports¹. In other words, with the term ‘written narratives’, we refer to ‘what’ is disclosed in corporate reports in form of qualitative text (words and groups of them) and excluding other forms of narration such as pictures and visuals.

*Overcoming
information
asymmetry*

These narratives can be found in several means of the accounting communication process such as CEO letters, press releases, operating and financial reviews, MD&A, initial public offering prospectuses, conference calls, sustainability reports, integrated reports and, obviously, in annual reports. In this thesis, we refer to corporate reporting as a general concept which includes all these forms of written communication addressed to different organization’s stakeholders.

Originally, written narratives were strongly encouraged to obtain more information on the organization’s value creation process (Beattie, 2014) and provide a more qualitative

¹ The use of visual elements for narratives in accounting reporting is receiving growing attention in the accounting literature within the well-known label of ‘the visual turn’ (e.g. Bell and Davison, 2013). Although we recognise the important role of visual elements for narratives, these issues would deserve a specific in-depth investigation which is beyond the objectives of this thesis.

description of management strategies, plans, expectations, and risks that the organization faces. The prompting of changes in reporting practices' narratives over time has been both mandatory and voluntary. On the one hand, the annual reports' mandatory component strongly increased due to the changing demands from several regulatory bodies between 1970 and 1990 (Bartlett and Jones, 1997). On the other hand, the broadening of information included in reporting practices increased as their role moved towards being public relations documents (Stanton and Stanton, 2002). These transformations have attracted the interest of researchers. Scholars have first deepened written narratives because of their ability to reduce information asymmetry (Verrecchia 1983, 2001). In this respect, researchers focused on "discretionary" disclosure that supports regulated accounting disclosure and, specifically, the preparation of financial statement². A particular stream of the accounting literature has mainly focused on written narratives highlighting their growing importance as sources of incremental information for "investment decisions of private and institutional investors" (Clatworthy and Jones, 2003, p.171). According to Tennyson et al. (1990) and Smith and Taffler (2000), accounting narratives have achieved an important role in annual reports as information sources by providing further and more relevant information than solely financial statements. Furthermore, Rogers and Grant (1997) state that narrative sections of the annual reports provide twice the amount of information cited in analysts' reports as the sole financial statements. In another study, Bartlett and Chandler (1997) find a strong decline in the readership of balance sheet and profit and loss account compensated by the fact that narrative report sections seemed to attract wider readership by both sophisticated and not sophisticated readers.

Moreover, it is worth noting how today's reporting is varied and how non-financial reporting has taken on an increasingly important role through reporting practices such as social reports, sustainability reports, integrated reports and others. Reporting on non-financial aspects has become increasingly widespread and relevant worldwide and the fact that this kind of reporting is mainly narrative in nature (Beattie, 2014) gives even greater importance to the role of written narratives in accounting communication. In fact, researchers have acknowledged that the dominant theme of organisations' voluntary disclosure was corporate social reporting (CSR), as a description of the organisations' relationships with employees, communities, customers and natural environment (Stanton and Stanton, 2002). Nowadays, more and more organisations are called to report on a multitude of aspects that transcend the mere sphere of financial reporting to move to aspects related to human capital, intangibles and environment. As a whole, the value

² In line with the FASB, this type of disclosure concerns largely unregulated *disclosures* (Wallace and Naser, 1995), *primarily outside the financial statements, that are not explicitly required by GAAP or an SEC rule and with the aim to disclose strategic, financial and non-financial information in excess with respect to normative requirements* (Meek et al., 1995; Eng and Mak, 2003).

creation process must be sustainable in many respects today and this sustainability must be reported and, above all, “narrated”. Therefore, the narrative components can make the core aspects and certain nuances of the business more intelligible to external subjects. However, at the meantime, the ‘qualitative’ nature of these components makes their information content not easily and clearly measurable or comparable. Also, the interpretation and role of these narratives in our social system is debated. It is worth noting that these narratives rely on the interpretation given by the management and, thus, are often considered not strongly reliable or verifiable (Beattie et al., 2004; Mercer, 2004).

*The
constitutive
role*

In this respect, other streams of research have highlighted that the overcoming information asymmetry function is just a small part of the phenomenon. The processes of “interpretation” and “narration” deserve investigation as they have deeper and sophisticated implications on the organisation, *per se*, and on the social reality with which it interacts. As an example, the growth of these narratives is described by Jones (1996, p. 42) as “unlikely to be impartial and [...] likely to be used by managements to give a more favourable impression of corporate performance than is warranted” to restore the confidence of the markets and stakeholders in the organization. Furthermore, narrating is not just a way of persuading but of thinking, creating and sharing meaning as well (Llewellyn, 1999). Accounting written texts help managers make sense of their work and legitimate it and the dominant discourses underlying it (Craig and Amernic, 2004). In this context, through a broader look, accounting narratives allow us to shed light on several aspects of the interaction between the organization and the social system in which they are immersed. A hermeneutic of these narratives permits to understand the role of organizations in society, the interpretation that management has of its role, the institutionalist pressures that move its action, its advocating societal discourses related to society *status quo* and much more. Many accounting scholars have begun to investigate written narratives in reporting practices not as simple sources of signals on corporate performance but as a real window on the organisation that allows management to narrate organisations’ life and perspectives through words, natural language and stories. This makes it possible to interpret organizations’ view of the surrounding world and how the world influences (and is influenced by) this view.

As early as the ’90s, Hopwood (1996) pointed out the radical evolution of accounting reporting practices focusing on annual reports. Annual reports had been transforming from minimalist legal documents to complex means of communication exhibiting a creative use of texts (Beattie, 2014). Thus, the concept of annual report evolved from a formal public document produced by organisations as a response to the legally mandatory requirements to an artifact overcoming the solely legal imperative. According to Hopwood (1996, p. 55), annual reports have become

highly sophisticated products that are used to proactively construct “visibilities” and “meanings” rather than just revealing a pre-existing reality. This position of Hopwood is strongly in line with the argument of the critical accounting pioneer Hines (1988, p. 257) that, in communicating reality, we construct reality: “We create a picture of an organization [...] and on the basis of that picture [...] people think and act. By responding to that picture of reality, people make it so”. On this ground, researchers recognised that modern annual reports – and other kinds of reporting practices – are means that organisations use to communicate with their various stakeholders in order to construct a picture of the organization (Stanton and Stanton, 2002). According to researchers, the role and purpose of the modern reporting practices are those to allow management to communicate with customers, shareholders, employees, suppliers, media and government (Judd and Tims, 1991) aspects such as the “personality and philosophy of the firm” (Anderson and Imperia, 1992, p. 113) and also to be used as marketing tools (Bekey, 1990) capable of conveying a particular organisational image to a relevant audience (Neu et al., 1998). Tinker and Neimark (1987) specify that annual reports are ideological instruments capable of legitimising a particular world-view and shaping our reality by promoting certain beliefs, policies, and practices grounded on specific ideologies. Therefore, scholars observed that reports’ contents are used not just for “representational purposes” but for “constitutional purposes” (Preston et al., 1996, p. 115), serving as means to transmit broader messages. Thus, narratives in reporting practices are not just a matter of financial information. Several scholars consider their role as more complex and sophisticated. Indeed, these written narratives are used to establish and legitimate organisational identity by persuading organisational audiences (Merkl-Davies et al., 2007) and perpetrating wider societal discourses (Chwastiak et al. 2003, Milne et al., 2009).

Finally, according to some scholars (Busco et al., 2018), the reporting process itself can shape the action of those who report through the language and jargon used in it. This is, for example, the reason underlying the Integrated Reporting (IR) practice. Through an integrated and multidimensional reporting process, it is also possible to make the management’s action integrated and multidimensional. Narrating the action through a certain language will, in turn, lead to new ways of acting that are shaped and embedded in the fabric of the narrative itself. Therefore, the role of accounting narratives, whether financial or non-financial, is considered increasingly prominent and relevant. For all these reasons, the study of accounting narratives – grounded on different theoretical paradigms and related methods – has attracted increasing interest both from professionals and researchers over time.

1.2. Written accounting narratives in corporate reporting: portraying the divide between the positivist tradition and the interpretive/critical approach

Readability Studies

Because of its importance, several aspects of the textual component of accounting reporting practices have been studied. Early studies dealt with the readability and understandability of written narratives considering that they influence the effectiveness of the annual report in communicating with readers (Courtis, 1995, Linsley and Lawrence 2007). One of the main concerns was whether private-investors were able to understand financial information in organisations' reports. In particular, Lee and Tweedie (1975) and Cumpstone et al. (1980) found that between 70 and 90 percent of private investors who claimed to understand written financial information instead comprehend less than they thought. Some problems identified in this branch of studies are those of *information overload* and *sophisticated/complex/technical content* (Parker, 1981). Considering these two features of annual report it has been found how it is difficult for organisations to communicate their messages to private investors and, thus, to share information with them. These aspects have led private investors not to see annual reports as an accessible source of information and to bypass it by relying on experts or other sources; this phenomenon has been called *private investor apathy* (Jack et al, 2013)³.

The very first studies in this branch date back to the '60 in the North American context and focused on the readability of the texts as a proxy of understandability by report users (Soper and Dolphin, 1964; Smith and Smith, 1971; Morton, 1974; Barnett and Loeffler 1979). These studies aimed to assess the communication effectiveness of accounting narratives. Most of these studies rely on the pioneer work of two psychologists (Pashalian and Crissy, 1950) and had particular relevance in those years. However, the interest in this topic shrank in the following decades and such studies were almost entirely neglected by the North American research (Beattie, 2014)⁴. Despite this decline in the North American context, studies on readability and understandability have had a great influence on subsequent research and still, as we will see shortly, readability is a feature of accounting narratives particularly studied also as a possible proxy for voluntary obfuscation of reporting by management (Courtis, 2004).

Shortly after the above-mentioned first North American studies, the subject was treated by Adelberg in the European context. Adelberg (1979) was the first to use the term "narrative" and pointed out that written narratives in accounting communication have two roles: the first is a role of the communicative type while the second is a role of the manipulative type. The

³ After the '80s, research on private investor's consumption of annual reports has strongly decreased, this is probably due to modern capital-market complexity and a shift of this kind of study to the field of financial market response research.

⁴ This could be due to the fact that after the '80s, there was a shift in the research on private investor's consumption of annual reports to the field of financial market response research due to modern capital-market complexity

principal aim of the latter, the narratives' manipulative component, is the obfuscation of negative outcomes. The innovation acknowledged to the Adelberg's study with respect to the previous ones is that it was the first study to relate accounting narratives readability to organisational performance (Jones, 1994; Merkl-Davies and Brennan, 2007, Rutherford, 2016). In doing so, Adelberg findings highlighted that written narratives could be used strategically by organisations to hide negative results. Manipulating language, making it more complex to interpret, could prove to be a weapon used by organizations in order to avert negative judgments from the public. This finding has increased the interest in the content, readability and understandability of accounting narratives.

*Content
analysis
studies*

Scholars publishing in European journals had continued writing on the subject focusing on readability and also on written narratives content⁵ (e.g., Kelly-Newton, 1980; Ingram and Frazier, 1980, 1983; Frazier et al., 1984) investigating the latter by means of content analysis (Neuendorf, 2002; Krippendorff, 2004). From the '90s content analysis studies have started broadening and this approach became one of the main used in accounting research. The content analysis studies have been either form and meaning-oriented. The former kind consists mainly in words count of previously decided keywords representative of a particular theme or tone (such as positive or negative tone), while the latter investigates the content of text, interpreting it at sentence level (Smith and Taffler, 2000). These studies were mainly used in two different ways: to construct "disclosure indexes" to rate written narratives with respect to the presence or absence of specific topics or features (such as forward-looking content and quantitative information) and to perform thematic content analysis, that is a more comprehensive and interpretive form of content analysis where the unit of analysis are not just words or sentences but the latent theme in texts (see Beattie et al., 2004).

A stream of research started linking this research on written narratives' readability and content with disciplines such as psychology, sociology and linguistic by explaining analysis results with several ideas from these fields such as theories of cognitive perception (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981) information inductance (Prakash and Rappaport, 1977), impression management (Goffman, 1949), and attribution theory (Heider, 1958; Kelley, 1967). In 1994, Jones and Shoemaker provided an overview of accounting narratives studies. They pointed out that all the reviewed readability studies found reporting practices' reading level difficult. This insight makes researchers figure out that organisations are still failing to communicate with readers. This finding has also been confirmed by readability

⁵ "The research into accounting narratives can be categorised broadly into two streams: readability and content analysis (Jones and Shoemaker, 1994). The readability studies have sought to assess how difficult textual passages are to understand, while the content analytical studies seek to draw inferences from the data by 'systematically identifying specified characteristics of messages' (Holsti, 1969: 25)" (Beynon et al., 2004, p. 228).

studies published after the Jones and Shoemaker's review (Courtis, 1995, 1998, 2004; Smith and Taffler, 1995). Moreover, other studies found reading difficulty and firm financial performance inversely related according to Adelberg's findings (Subramanian et al., 1993; Courtis, 1998, 2004; Li, 2006). Through content analysis, Bettman and Weitz (1983), Salancik and Meindl (1984), Clapham and Schwenk (1991) and Abrahamson and Park (1994) provide evidence of self-serving managerial behaviour in annual reports. On this ground, Aerts (1994) focused on the bias in the attribution of performance in written narratives. He found the presence of self-serving bias in written narratives. This bias is the tendency of managers to attribute organisations' positive outcomes to internal factors, such as their own actions, and negative ones to external factors. Moreover, he showed that this bias is combined with a jargon bias consisting in the tendency to explain positive outcomes in cause-effect terminology to make clear managers' contribution to positive results while using technical and complex accounting terms to explain negative outcomes.

As regards linguistic theory, a special mention goes to Syderff and Weetman and Thomas; the latter is a researcher outside of the European environment. Syderff and Weetman (1999) introduced the texture index, an alternative to readability formulas capable of capturing the linguistic features of analysed texts, while Thomas (1997), investigating CEO's letters through linguistic analysis, showed that these letters suggest and imply but never lie. According to Thomas, text in reporting practices is used to blur, protect managers from criticism and guide readers' interpretation. The meaning of reporting practices' message is derived from the preparer selection, shaping and presentation of the information.

Relying on the evidence of these and other studies, Merkl-Davies and Brennan (2007) pointed out that low readability and certain accounting narratives features could be a proxy of managerial manipulation strategy and so that the reason to produce such narratives relies on impression management. Impression management in the accounting context is defined as the strategic manipulation of corporate narratives to influence users' perceptions and consequential decisions in accordance with a view intended by management (Hooghiemstra, 2000; Merkl-Davies and Brennan 2007; Hellmann et al., 2017).

In this context, several studies have questioned why to indulge in written narratives and why narratives are produced, justifying this in various ways and with several theories. In particular, Merkl-Davies and Brennan (2011) have proposed four explanations. The first explanation is the "Incremental information explanation", according to which the communication of discretionary disclosure (including not just written narratives but also graphs and other devices) is a conscious, non-opportunistic and non-biased phenomenon aimed at

*Narratives'
explanations*

providing useful information to investors. This explanation is mainly sustained by North American scholars (Merkl-Davies and Brennan, 2007) who adopt a positivist approach.

The second explanation is the “Retrospective sense-making explanation.” In this vein, discretionary disclosure can be seen as a conscious and non-opportunistic way for managers to provide ex-post explanations of organisation outcomes “in order to sustain and restore the image of rationality of the actor” (Aerts, 2005, p. 497). Merkl-Davies et al. (2011, p. 24) suggest that “the accountability function of corporate reporting does not prompt managers to provide a public account of organisational outcomes which is inconsistent with how management may perceive them (self-presentational dissimulation), but to provide explanations of their decisions and actions as a way of making sense of them”.

The third explanation Merkl-Davies and Brennan (2011) put forward is the “Hubris explanation.” This explanation is similar to impression management but in this case reporting bias is due to unconscious non-opportunistic behaviour of managers who do not act as rational actors but are affected by an ego-centric personality that leads them to self-deception and organisations to possible crises.

The last explanation is the “Impression management explanation.” This explanation is antithetical with respect to the first one (the incremental information explanation). According to the classical impression management view, discretionary disclosure communication is a conscious and opportunistic means to manipulate readers’ perception of organisations’ behaviour and results. A process of managing impressions is a process through which managers try to influence the opinion or the image that others have of them (Rosenfeld et al., 1995). From a theoretical point of view, Merkl-Davies et al. (2011) suggest that impression management is based on the economic agency theory but also that organisations’ communication choices are influenced by several social constraints arising from the presence of the recipients of corporate reports. Therefore, this explanation needs to be investigated beyond the predominant economic theories perspective through the so called “alternative perspectives” (Merkl-Davies and Brennan, 2011). These are the social and cognitive psychology perspective, the sociology perspective and the critical perspective.

The social and cognitive psychology perspective is based on the attribution theory, according to which reporting preparers have instrumental rationality. According to this perspective, disclosing information is a mechanism to face external parties’ concerns and judgments by anticipating their evaluations using “self-serving bias” with the aim of forestalling negative impact by taking credit for positive outcomes and attributing negative ones to external factors.

Instead, the sociology perspective is based on three different theories: legitimacy theory, stakeholder theory and institutional theory. According to this perspective, managers engage in

impression management with the aim to establish or re-establish organisational legitimacy by “symbolic management” to conceal the inconsistency between organisational portray and social values. From the point of view of the receivers, they are unable to detect symbolic management and this leads to the legitimation and support of organisations engaging in impression management that declare the achievements of social and environmental goals.

As regards the critical perspective, this is based on critical theories where rationality is assumed as a social construct. In this vein the motivation to engage in impression management is ideological. Impression management is a mean to impose and maintain a particular discourse to social actors and forestall ideological interferences. In this way, on the one hand, organisations can fill the gap between their decision-making process and society norms on decision making process. On the other hand, the receivers are not able to see through the organisation rhetoric and this may lead to the imposition and strengthening of *status quo* and the achievement of organisations’ social and political goals.

Narratives’ quality

Other studies have particularly focused on the quality and credibility of written narratives (Beattie et al., 2004; Mercer, 2004), considering that these may lead to a reduction of information asymmetry but that, in the meantime, could present an almost irrelevant (if not even distorted) information thrust. These studies have been focused on proposing frameworks related to disclosure features such as “precision”, “amount of supporting information” and “time horizon” (Mercer, 2004) but also on quality and quantity measurement by considering the presence or absence of topics and by constructing indexes (Beattie et al., 2004). An important study in this field is that of Beattie et al. (2004) who reviewed the debate on “measuring narrative quality” (also giving some quality definitions and writing about the methodologies of analysis used in the literature) and introduced a comprehensive four-dimensional framework of analysis. A relevant document for this kind of analysis has been the AICPA report published in 1994 (AICPA, 1994). This report gives some directives to improve narrative reporting, such as adopting an investors and creditors information needs perspective (Beattie et al., 2004). There are also new tendencies in the analysis of narratives quality. For example, Yekini et al. (2021) give some new insights into evaluating the quality of CSR communication with a brand-new technique based on the Greimas narrative semiotic. The authors have argued that the prior methodologies (including and citing the Beattie et al.’s framework) are not efficient in terms of “making sense from the information” (Yekini et al., 2021, p. 877). This method is based on a narrative “reliability score.” In another study, Muslu et al. (2019) developed a disclosure score based on the tone, readability, length, and the numerical and horizon content of CSR report narratives. They demonstrated that organisations’ reports with a higher score based on these components allow for more accurate forecasts.

*Quantitative
methods
in narratives
research*

During this period of evolution of narrative research in the European context, the USA interest in these narratives has gradually returned. However, this “resurgence” (Beattie, 2014) has been more related to the development of computer science, the exploitation of big data and sophisticated computational methods of text mining and natural language processing to extract useful information to predict the performance of organisations. According to Li (2010), two main approaches have been used in this line of research: the ruled-based or dictionary approach (Henry and Leone, 2010, Loughran and McDonald, 2011) and the statistical approach (Li, 2010). The former relies on the use of lists of words capturing specific sentiments (i.e., negative, positive and uncertainty) to classify accounting narratives’ textual content in terms of these sentiments, while the latter consists in the use of statistical techniques that allow for the discovering of significant words, calculate correlation between words, check for similarities between texts and classify textual content taking into account several text features. These studies rely on the positivist paradigm and the incremental information explanation of written narratives. The main assumption of these studies is that researchers should rely on and take advantage of computer technologies and big data to investigate written narratives content to extrapolate incremental information with respect to the solely financial statement. The investigation of written narratives through these methods can be useful to improve the accuracy prediction of bankruptcy, fraud and organisations’ performance.

Overall, the studies reviewed above have investigated accounting narratives considering their features (tone, readability, understandability and others), the motivations underlying their disclosure, the addressed topics and their capacity to provide incremental information. The main methods for the analysis of written narratives have been qualitative and quantitative content analyses, with also an automation using specific software such as Diction (Hart, 2017) and LIWC (Pennebaker et al., 2017), and a shift oriented to text mining and natural language processing in the North American context.

*Interpretive
and critical
approaches*

Scholars distinguish this North American and positivistic branch of study, which is based on the incremental information explanation, by using the term “disclosure.” Conversely, the term “narrative” is more often used to indicate the critical/interpretive (mainly European) branch of studies. Relying upon different theoretical assumptions, the European context has seen the emergence of more interpretative approaches strongly grounded in the narrative turn concerning the search for the meaning of narrative through hermeneutic methods. The “narrative turn” encompasses a major focus on narratives and, specifically in the accounting field, on written words inside reporting practices to study how humans create meaning (Alvesson and Kärreman, 2000). Indeed, researchers acknowledged some limits in content analysis methods and, in particular, content analysis studies have been criticised for just focusing on “what” is

disclosed (Haji and Hossain, 2016) and considering the text just as a representation or reflection of social reality (Merkl-Davies et. al 2014, Hossain, 2017). Therefore, several scholars encouraged a more in-depth analysis related to “why” and “how” the message is disclosed. In this respect, several researchers have used discourse analysis and storytelling to interpret the meaning of written narratives.

Regarding “discourse”, it is strongly related to the narrative turn and represents a high-level societal concept concerning the linkages between language, society, and power (Alvesson and Kärreman, 2000; Beattie, 2014). When researchers analyse discourse, rather than relying on a “representational view” of the text, the analysis relies on the “constitutional view” of the text by mean of the “constructivist approach” (Hossain, 2017). In this respect, language is acknowledged as a tool used in a specific context with the aim of constructing or perpetrating a particular reality. Discourse analysis focuses on how the reality has been constructed by language embedded in narratives according to the view that language does more than simply representing the social world but constitutes it in a performative way (Berger and Luckmann, 1966; Fairclough, 1992; Foucault, 1972). According to Phillips and Hardy (2002, p. 2), “without discourse, there is no social reality, and without understanding discourse, we cannot understand our reality.” In other words, texts produce and maintain power relations. The term “discourse” is used to indicate text in its context (Dijk, 1990, p. 164), and in particular discourse represents how language works in everyday life communication (Howitt and Cramer, 2011, p. 360). Performing discourse analysis consists in going beyond the pure text to gain insights into communicators’ ideology to deconstruct the constructed reality (Merkl-Davies and Koller, 2012; Hossain, 2017). Accounting researchers adopting discourse analysis to investigate corporate narratives do this under two different perspectives: the interpretive and the critical perspectives. As regards the critical perspective, a particular branch of discourse analysis, called critical discourse analysis (CDA), has become particularly used in accounting research. The purpose of CDA is to investigate texts and the related contexts according to the critical research paradigm. Under this lens, there exist ‘dominating’ and ‘dominated’ classes in our society; the dominant class has the power to control the reality constructing it by means of the language. Therefore, language is a tool to gain and maintain power and control (Fairclough, 1989), and can be used to manipulate people (Ghannam, 2011). Considering organisations as the dominant class, they can impose their own ideologies in readers’ minds by using written narratives strategically (Hossain, 2017). The aim of a critical discourse analyst is to highlight the probable hidden agenda behind the dominant class’ language by questioning those that could be considered as ‘taken for granted’ ideas (Leppänen, 2012, p. 23). Methodologically speaking, there is not a fixed set of rules to conduct a discourse analysis (Tonkiss, 2012) and a variety of approaches

exist (Alvesson and Kärreman, 2000; Jørgensen and Phillips, 2002; Phillips and Hardy, 2002). However, one of the widely spread framework in accounting research is that proposed by Fairclough (1989; 1995). Fairclough's framework relies on three different steps: the macro-level step where the focus of the analysis is on the wider social context in which the text is produced; the second one is the meso-level step in which the focus is on the production and consumption of texts; and the micro-level step in which the focus of the analysis is on the text. Much of the work exploring language, rhetoric and themes in reporting does so through discourse analysis (Tregidga et al., 2018) and is mostly focused on sustainability reports (Hossain, 2017). In particular, a branch of literature analysing discourse and rhetoric in sustainability practices suggests that these reports help shape the meaning of sustainable development at the organisational and political levels (O'Dochartaigh, 2019). To conclude this brief sum up on discourse, it seems useful to distinguish the concept of "rhetoric." Although rhetoric could be seen as a synonym of discourse, it is more oriented to how persuasion is enacted and imposed. As highlighted by Higgins (2012), rhetoric is not necessarily a subset of discourse analysis and it can be investigated through "rhetoric analysis." In particular, according to Higgins, while discourse analysis allows analysts to gain insights into the underlying ideologies and societal power relations, it overlooks "how" the discourses are imposed by the communicators (organisations) and why the recipients of the message (organisations' stakeholders) accept them and let them alter their thinking. As in discourse analysis, there is no fixed set of rules to perform rhetoric analysis, however rhetorical analysts typically rely on Aristotele's conception of rhetoric investigating narratives considering three categories of persuasion: *ethos*, *pathos*, and *logos*.

Rather than 'discourses', other studies linked the use of words more to the narration of events through the emplotment in a 'story'. Storytelling and stories are distinct from discourse, their power derives from their capacity to produce emotional responses in the reader (Van Laer et al., 2014). Stories involve discourse and integrate it into a plot to provoke an emotional and emphatic answer from the reader (Gabriel, 2004). Thus, while discourse can be seen as the narratives' "surface structure", stories are the emotional "deep structure" of narratives (Hawkins and Saleem, 2012, p. 207). Moreover, stories are not just narratives. Narratives are accounts of events and actions. A story does not involve just this account but also a plot underlying the account. A story is an emplotted narrative (Gabriel, 2004). A plot represents "the passage from one equilibrium to another" (Todorov, 1971, p. 111), due to forces or events. According to Czarniawska (2004), leading writer in the organisation context, there are four classic emplotments, that are: romance, tragedy, comedy and satire. In the stories told via their reporting practices, organisations are the knights, the heroes and protectors of our reality with the aim to

foster the well-being of humanity (Milne et al., 2006, Dow, 2016). Also, when operating in environmentally sensible sectors or after they caused a tragedy, they are always not just a “necessary evil.” Every alternative story is just rejected when is “not consistent with the business case narrative” (O’Dochartaigh, 2019, pp 1385).

For researchers these narratives are very useful to deepen because stories shape human visions and allow humans to make sense of the world (Rhodes and Brown, 2005; Czarniawska, 2004; Boje, 1995). Through their reporting practices, organisations tell stories to frame societal issues allowing them to serve their interests and defining the parameters, and moreover the participants, of public debate (Christensen et al., 2018). In investigating stories within written accounting narratives, researchers can rely on “narrative analysis” (see, O’Dochartaigh, 2019). Narrative analysis refers to methods for interpreting texts in the form of stories. The basic assumption of narrative analysis is that people tell stories to make sense of their lives and their storied accounts (Figgou and Pavlopoulos, 2015).

In conclusion, during the past decades, written narratives in corporate reports have gradually acquired greater importance within the academic world. Focusing on the written content and starting from the study of the understandability and readability of this reporting component, the international debate has increasingly concentrated on prescriptions regarding how organizations should provide adequate information (quantitative and qualitative), why information is provided and on the role of the content of this mean of information. Despite this prolific literature, researchers have recognised that there is still a prevalent alignment of the accounting research with the positivist paradigm and a related prevalent focus on positivist analysis approaches (Merkl-Davies et al., 2011b). In this respect, Craig et al. (2010) called for the application of approaches more focused on the “*nature*” and “*meaning*” of [corporate narrative] reporting and communication” (Merkl-Davies et al., 2011b, p. 34) and Beattie (2014) highlighted that research into accounting narratives would benefit from the use of mixed methods and theoretical pluralism.

2. Motivations of the research

The analysis of written narratives in the field of accounting research is pivotal because, as it was stated by Jönsson (1998, p. 411), admonishing the accounting researchers’ community, “managers work with words”. Relying on this statement, Craig and Amernic (2004) highlighted how the analysis of words in organizational written and verbal texts is important in understanding how organizations interact with and contribute to wider societal discourses. Llewellyn (1999) has called for greater use of narratives in accounting research focusing on the

fact that narratives are a mode of thinking that is legitimate as calculating. Moreover, she argued that the analysis of these narratives can be more explanatory than calculative research by revealing human projects and the construction and identification of emerging organizational strategies within organizations. People reason, learn and persuade through narration; we understand our lives through narratives, narrating experiences first to ourselves and then to persuade others (Llewellyn, 1999). Therefore, narrating is a way of thinking, creating and sharing meaning and also persuading. Accounting written texts help managers (who work with words) to understand their work and to legitimate it and, in a broader perspective, to legitimate dominant discourses underlying their choices such as the market discourse (Carrier, 1997) and so privilege some philosophical perspectives while marginalising others (Amernic and Craig, 2001; Den Hartog and Verburg, 1997; Tinker, 1985, p. 82).

In particular, with the narrative turn in accounting research, the focus on written narratives has been taken beyond the traditional study of the representation of organizational structures and processes. As humans, managers try to give sense and create the world as they would like it to be attempting to sell their view to others. In order to do this, they have to narrate their “directional” discourse by presenting rhetorical arguments.

Narrative research investigates how humans create their reality by conversing about it (Czarniawska, 1997, p. 71). In this vein, the investigation of written accounting narratives can allow researchers to unveil the views, intentions and philosophies through which humans construct organizations’ realities and strategies. By relying upon the insights highlighted in the previous section, we assume that written accounting narratives in reporting practices can have a “constitutive role” of reality. Accounting cannot communicate a neutral reality but, as a social process, accounting communication relies on, is subject to and also shapes and influences human understanding, perspectives, behaviours, beliefs led by (and leading to) social and political pressures. Modern accounting practices have been developed in marginalist economics context with several implications on human behaviour such as individualism (Lukka, 1990). Neo-classical economic theories on profit maximization have strongly shaped accounting practices nowadays, thus the main accounting concepts themselves do not rely on a neutral reality. Considering for instance the concept of profit, it is a concept that does not refer to an objective entity but it is created by human society and perpetrated by human narratives to reflect an idealistic ontology. It is based on a concept of “value” that is itself a social construct (Lukka, 1990). As regards social and political influences, for example, it is possible to think that accounting standards are defined by private accounting rules makers, largely banks, who give their contribution and suggestion to the international accounting standard-setting that is a private regime. Again, as stated in the work of Hines, communicating a social, political and

economically determined reality has the power to construct it (Hines, 1988). This powerful function of accounting narratives allows organisations to strengthen and maintain the social status quo by consciously or unconsciously persuading and imposing a dominant discourse. In this regard, an illuminating work is that of Chwastiak and Young (2003). The authors showed how organisations have used silence and silencing mechanisms in annual reports' written narratives to reinforce capitalistic discourses by promoting ignorance, and legitimate injustices and actions as objectification of nature and humans. Hence, reporting practices itself and what is disclosed are crucial for the functioning and understanding of our economic, social and environmental system. For instance, according to Milne (Jack et al., 2013), communication practices in voluntary disclosure do not respect their original aim to increase accounting transparency in order to increase environmental care and social justice. Instead, what they really do is to maintain and legitimise destructive practices. In the last decades, organisations have produced reports disclosing strategies with the declared aim to reduce environmental impacts and improve social relations. However, these disclosure practices present selection bias (Gray 2006; Tregidga and Milne, 2006) and a not holistic view of environmental and social systems (Worldwatch, 2003; Meadows et al., 2004), ignoring the consequences of increasing scale developments of organisations (Gray, 2006). Furthermore, many organisations have been using these reports to claim the achievement of strong results and successful sustainable practices (Gray, 2010), creating an image of themselves as environmental and society values protectors (Tregidga et al., 2008; Milne et al., 2009).

As concerns the economic system and the market, the extent to which the quality of reporting practices is crucial has been showed by recent financial crises and corporate scandals (Clarke and Dean, 2007). Narratives in reporting practices can be used to provide useful information to investors and stakeholders but they can also be biased (Schleicher, 2012) and used with the aim to create an image of organisations' results tricking society expectations. Adelberg (1979, p 179) opened his pioneer work on accounting narratives stating as follow: *“For the efficient allocation of society's scarce resources to occur, publicly-held corporations must compete for capital (money) in a fair and equitable manner, based on the communication of information to investors and creditors adequate to enable informed appraisal of alternative investment and credit extension opportunities”* (emphasis added). According to Adelberg, for the efficient allocation of society's scarce resources, organisations should provide investors with 'user-oriented reporting'; this means that they should give information useful to allow rational investment and credit decisions. Nonetheless, empirical evidence has shown the existence of the so-called 'management-oriented reporting,' that is management reporting practice manipulation with the aim to influence investors and creditors behaviour to support their strategies.

Accounting narratives are complex tools that can be manipulated or misinterpreted and may be subject to impression management (Clatworthy and Jones, 2003). Furthermore, the increased volume and complexity of these narratives over time and the fact that they are poorly regulated has boosted the chance for opportunistic communication practices. Thus, narratives disclosure can surely add and vehicle further information with respect to classic accounting statements, and its role should be that of clarifying and adding credibility to organisations' reporting in order to overcome information asymmetries. However, if written narratives are used to report biased messages with the aim to promote an unreal organisation's image, they risk to lead accounting information users to miscalculations and errors in economic choices.

A biased accounting communication can lead to capital misallocation (Merkl-Davies and Brennan, 2007) and wrong judgments in evaluating environmental performance and organisation's respect for workers and human rights.

It is now clear the extent to which accounting narratives are fundamental for our socio-economical system and its sustainable development. Moreover, it is also evident how accounting narratives are strongly embedded, dependent on and constitutive of it. According to the narrative turn in accounting research, we should focus on these narratives to achieve a strong understanding of accounting, accounting practices and organizations' role in our society.

Nevertheless, the complexity of studying written narratives in corporate reporting is also evident. These are multifaceted devices presenting interrelated roles: representational, constitutive and persuasive-manipulative. Written narratives are capable of shaping the meaning of concepts underlying accounting discourses from the realm of the ideas to concrete written representations (representational and constitutive roles) and, moreover, to persuade users inside and outside the organization (persuasive-manipulative role) about the story that managers want to depict.

To conclude, all these issues shed light on the importance to investigate written narratives for both researchers and practitioners. Narratives can be investigated as sources of incremental information shedding light on the value creation process of an organisation in terms of financial and non-financial processes. Moreover, these narratives can be investigated to detect misrepresentation, misstatements and fraud. Furthermore, it is possible to study narratives to understand how organisations are adapting to institutional changes, how they gain legitimacy, perpetrate wider societal discourses, depict themselves and make theoretical concepts such as "sustainability", "sustainable organisation" and others concrete.

In light of these motivations, this thesis provides theoretical and practical insights on how to analyse and interpret different dimensions of written narratives in corporate reporting.

As further explained below, we will particularly address the dynamicity and fluidity of what is represented by changing systems of words within a variety of corporate reports.

3. Research gaps, objectives and questions

Despite the prolific literature dealing with the analysis and interpretation of accounting narratives, researchers have pointed out that several challenges and key issues are still present in accounting narrative research. In particular, as highlighted above, there is still a prevalent alignment of the accounting research with the positivist paradigm and a related prevalent focus on positivist analysis approaches in investigating written narratives (Merkl-Davies et al., 2011b). In this respect, Craig et al. (2010) calls for the application of approaches more focused on the nature and meaning of corporate narrative reporting and communication (Merkl-Davies et al., 2011b) and Beattie and Davison (2015) encourage to adopt an interpretive lens of analysis and to combine interpretive studies with quantitative analysis. In this vein, Beattie (2014) has highlighted that research into accounting narratives would benefit from the use of mixed methods and theoretical pluralism.

In particular, coping with the analysis and interpretation of texts is not trivial. Indeed, as we will show in this work, such a task requires to deal with the complexity of natural language. In this respect, linguistic philosophers (e.g., Lakoff, 1975) and organisational researchers (e.g., Loewenstein et al, 2012) have shown that natural language words and sentences and the related categories⁶ arising from them are fuzzy and dynamic. The meaning of the same word could be different and be part of different categories on the basis of who is communicating, in different collectives and at two periods in time.

However, although researchers have deepened cross-sectional variation in reporting choices, a major focus on changes over time is still under-researched in the accounting literature. It has been highlighted the importance to further investigate the changes in narrative choices over time – the so called “narrative dynamics” (Beattie, 2014) – as they have the potential to improve our understanding of the influences on these choices and also on the creation of meaning through a systemic perspective, but also to define norms for the assessment of these language choices. Thus, it has been acknowledged (Beattie, 2014) that more research on narratives dynamics and language changes in reporting practices is needed and that an interpretive investigation to

⁶ In this thesis we use the term category in a semantic sense thus similarly to the term “concept.” This term is related to the cognitive representation of knowledge and distinct from the common use in management as sets of people, products and activities.

understand ‘narrative dynamics’ (considering narratives as entities embedded within a broader temporal set of narratives) would be relevant to our understanding of corporate reporting.

This thesis aims to contribute theoretically to accounting studies on written narratives introducing insights from studies of other scientific areas (i.e. organisational and language studies) that have already addressed the problem of the fuzziness of words in natural language. In particular, in this work we specifically move the focus of corporate narratives’ analysis and interpretation on words’ contexts and meanings over time.

The approaches and methods herein proposed for accounting studies differ from others for a deeper investigation of systems of words composing written accounting narratives to discover words’ situational usage. The understanding of these broader systems of words adopted by an organization allows researchers to deal with the development of categories of meaning that are projected by these narratives.

In light of this dynamicity in the meanings of what is reported, in this thesis we adopt a longitudinal perspective to investigate *“how the systems of words within written accounting narratives dynamically shape the meaning of concepts underlying them.”*

According to this aim, we have formulated the following research questions:

- RQ1.** How have accounting researchers investigated the meaning of written narratives in organisations’ corporate reporting?
- RQ2.** How do written narratives in corporate reporting materialise wider concepts and project new meanings over time?
- RQ3.** Is it possible to identify significant differences in the meaning of words used by organizations that have to face critical situations (such as bankruptcy) impacting on the particular type of language to communicate with stakeholders?
- RQ4.** How are written narratives combined with accounting numbers in corporate reporting influenced and shaped by (external) legislative and institutional pressures?

The papers composing the chapters of this thesis attempt to answer these research questions by relying upon the underlying assumption (at the basis of this work) that dealing with written narratives means dealing also with the fluidity in the acquisition, interpretation and representation of knowledge. As organisations and society understanding and interpretation of abstract concepts is dynamically shaped through concrete evolving practices, in the same way the interpretation of written accounting narratives needs to be dynamic and never definitive. The approaches presented embrace the underlying fluidity of the relationships among words accounting for their situational meanings. In this respect, words are fuzzy and their meaning varies with the context, narration and stories in which they are embedded. With these papers we aim to show the extent to which the meaning of categories imbuing reports is not well-defined

and cannot be circumscribed. In the section below, we explain briefly the aim, content, and contribution of each paper presented as distinct chapters.

4. Structure of the thesis

The aim of this first chapter is to introduce the main branches of research coping with written accounting narratives and the related gaps and challenges. We have highlighted the main concepts and methodologies that have been used by accounting researchers in investigating written accounting narratives. Furthermore, we have discussed the importance of written accounting narratives, the motivations to deepen this topic, and the research aims and questions that have generally guided the draft of the papers presented in the following chapters.

Specifically, the thesis is composed of other five chapters. The next four chapters will be structured as research papers (Table I-1), while the last one will conclude the thesis by providing an overview of the contributions, further research avenues, and limitations.

The second chapter presents the research paper entitled “A systematic review on written accounting narratives in corporate reporting”. This paper provides the state of the art of the current written accounting narratives literature and outlines areas deserving further investigation. Three main research concepts and seven themes have been identified through thematic analysis and on the ground of these results a comprehensive theoretical framework suggesting new possible research avenues in the field is proposed⁷. The paper is in the status of working paper co-authored with Sonia Quarchioni and Sergio Paternostro.

The third chapter presents the paper entitled “Flows of information and meaning: a vocabulary approach to integrated thinking and reporting”. In this paper, we analyse narrative dynamics in the specific case of integrated reporting. By relying upon a vocabulary approach (Loewenstein et al., 2012) and combining textual analysis and network text analysis, we investigate the latent concept of “Integrated Thinking” (IT) underlying the vocabulary structure of integrated reports. The findings show that the meaning of the concept of IT is dynamic over time and that this dynamic nature affects the semantic orientation of the reports in a mutual relationship between IT (which conveys flows of information within the reports) and IR (through which flows of meaning are made visible)⁸. The paper, co-authored with Sonia Quarchioni and Pasquale Ruggiero, is published in “Meditari Accountancy Research”.

⁷ Chapter II co-authors individual contributions – Rodolfo Damiano: Conceptualization, Methodology, Software, Formal analysis, Investigation, Data curation, Writing-Original draft. Sonia Quarchioni: Writing-Review and editing, Validation, Supervision. Sergio Paternostro: Methodology, Writing-Review and editing, Validation, Project administration.

⁸ Chapter III co-authors individual contributions – Sonia Quarchioni: Conceptualization, Methodology, Writing-Original draft, Supervision. Pasquale Ruggiero: Conceptualization, Methodology, Writing-Review and Editing,

The fourth chapter presents the paper entitled “Investigating written narratives’ words, contexts and meanings: an application on bankruptcy prediction;” this paper is an empirical study aiming to investigate differences in the language used by going concern and bankruptcy organisations. In this work, we partially rely on a vocabulary approach – by studying significant differences in terms of word frequency and word-to-word relationships patterns – and combine it with machine learning techniques to investigate the systems of words underlying these narratives. Our aim is to classify bankrupt and going concern organisations on the ground of the language they use. In doing so, relying on previous literature investigating bankruptcy through text analysis, this study offers insights on the existence of a “bankruptcy language” grounded on a specific “bankrupt category”. Words can be or not be part of this category on the basis of their situational use⁹. The paper is in the status of working paper co-authored with Michele Tumminello and Andrea Simonetti.

The fifth chapter of the thesis presents the paper entitled “The shaping of Italian social disclosure: a bound path between standardization, regulation and legitimacy.” In this paper, we analyse social disclosure dynamics in Italian companies’ social reporting practices in relation to the influences of legitimacy, regulation and standardization mechanisms. We do so in order to shed light on how these mechanisms shape the content of Italian companies’ social disclosure in terms of amount and quality of what is reported in the form of accounting numbers combined with written narratives. The findings show that legitimacy partially compensates to the absence of regulation in the pre-regulation period and anticipate what will be the mandatory content of social disclosure in the period after-regulation. As regards the post-regulation period, it is worth noting that regulation and standardisation act together to prompt the diffusion of richer and more comparable social disclosure. The paper is in the status of working paper co-authored with Sonia Quarchioni and Sergio Paternostro¹⁰.

Project administration, Resources. Rodolfo Damiano: Methodology, Software, Formal analysis, Investigation, Data curation, Visualization.

⁹ Chapter IV co-authors individual contributions – Rodolfo Damiano: Conceptualization, Methodology, Software, Formal analysis, Investigation, Writing-Original draft preparation. Michele Tumminello: Conceptualization, Formal analysis, Resources, Writing-Review and editing, Supervision, Project administration, Funding acquisition. Andrea Simonetti: Methodology, Software, Formal analysis, Investigation, Data curation.

¹⁰ Chapter V co-authors individual contributions – Rodolfo Damiano: Conceptualization, Methodology, Software, Formal analysis, Investigation, Data curation, Writing-Original draft. Sonia Quarchioni: Writing-Review and editing, Validation, Supervision. Sergio Paternostro: Conceptualization, Methodology, Writing-Review and editing, Validation, Project administration.

Table I-1. Thesis chapters structured as research papers

	<i>Title</i>	<i>Research question</i>	<i>Purpose</i>	<i>Methods</i>	<i>Findings</i>	<i>Main contribution/Originality</i>
<i>Paper I</i>	<i>A Systematic Review on Written Accounting Narratives in Corporate Reporting</i>	RQ1. How have accounting researchers investigated the meaning of written narratives in organisations' corporate reporting?	Exploring the state of the art of accounting narratives literature focusing on written accounting narratives. Investigate i) which theories and methods have been used; ii) which previous literature have legitimised written narratives literature; iii) which themes have been investigated.	Systematic review, Bibliometric analysis	Written narratives studies are mainly polarised on the external role (communicative role) of these narratives. More studies are needed on the internalisation of what is reported by organisation's members. Moreover, the strategic use of these narratives as symbolic legitimation tools is highlighted. More studies are needed on substantive effects. Lastly, new methods combining the advantages of manual and automated textual analysis are needed	First systematic review investigating the role and meaning of written narratives. New research avenues are suggested in terms of investigating the internalisation of what is reported
<i>Paper II</i>	<i>Flows of Information and Meaning: a Vocabulary Approach to Integrated Thinking and Reporting</i>	RQ2. How do written narratives in corporate reporting materialise wider concepts and project new meanings over time?	Exploring which of the objects that are represented in integrated reports provide materiality and common understanding to the concept of IT for its effective implementation within organizations.	Automated textual analysis: Lexical correspondence analysis, K-means clustering, Network text analysis	The concept of IT is dynamic in its meaning since in integrated reports it is represented by referring to different objects, in the case different types of capital (i.e. financial, human, social-relational, process, organizational and commercial), which are related to each other while following different paths over time. The dynamic nature of the meaning of IT affects the semantic orientation of the reports in a mutual relationship between IT (which conveys flows of information within the reports) and integrated reports (through which flows of meaning are made visible).	Opens the way to a linguistic approach for analyzing the different concepts related to IT to make them meaningful in creating (at least temporarily) a common understanding, as well as facilitating coordination within organizations and between organizations and their environment.
<i>Paper III</i>	<i>Investigating Written Narratives' Words' Contexts and Meanings: an Application on Bankruptcy Prediction</i>	RQ3. Is it possible to identify significant differences in the meaning of words used by organizations that have to face critical situations (such as bankruptcy) impacting on the particular type of language to communicate with stakeholders?	Distinguish between bankrupt and healthy company from the qualitative content of their reports. Exploring, if a bankrupt language and vocabulary exists relying on how words are used	Automated textual analysis: Machine learning	Results show that a bankrupt language exists and that, nonetheless bankrupt companies use the same words of healthy companies, these words have significantly different patterns in text than those of healthy companies. These results pave the way for the existence of a bankrupt vocabulary	The paper introduces the concept of fuzziness in written accounting narratives. It shows that words are fuzzy and their meanings depend on underlying contexts capable of creating a common language for a specific category (such as bankrupt). Moreover, we propose an approach with high potentiality in written narratives investigation. Our method meets the further developments expectations of improving automated textual analysis in the field of accounting and finance by enhancing machine coding

Title	Research question	Purpose	Methods	Findings	Main contribution/Originality of textual analysis without human involvement (Hassan and Marston, 2019).
<p><i>Paper IV</i> <i>The Shaping of Italian Social Disclosure: a Bound Path Between Standardization, Regulation and Legitimacy</i></p>	<p>RQ4. How are written narratives combined with accounting numbers in corporate reporting influenced and shaped by (external) legislative and institutional pressures?</p>	<p>Investigating the evolution of Italian companies social disclosure. Understanding how legitimacy, standardisation and regulation have changed the content of what is reported in terms of: amount and quality.</p>	<p>Manual textual analysis: Thematic content analysis</p>	<p>Regulation and standardisation move Italian companies away from the tendential reluctance to provide social disclosure .. However, companies seem to provide very similar disclosure reducing the influence of factors such as sector, environmental sensitivity and consumer proximity.</p>	<p>This study contributes to normativity literature addressing how regulation and standardisation affect SD content in terms of both amount and quality of disclosed information. The method of analysis and the results of this paper are useful for regulators, standard setters and practitioners</p>

CHAPTER II

A SYSTEMATIC REVIEW ON WRITTEN ACCOUNTING NARRATIVES IN CORPORATE REPORTING

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Status: working paper

Abstract

In the last decades, accounting researchers have investigated written narratives in corporate reports as instruments capable of overcoming information asymmetry but also of constituting reality by constructing its meanings or conveying intended meanings. Moreover, in the last years, researchers have highlighted the role these external communication tools can have in shaping the thinking and actions of the organisation's internal actors. Given the complexity of the object and as researchers have highlighted these relevant roles, this paper aims to provide the state of the art of the literature on narrative reporting as vehicles to create and transmit meaning, searching for gap in the proposed theoretical conceptualizations and eventually identifying new ones and future challenges. In so doing, the paper investigates: (1) What are the main features of these studies; (2) What earlier literature has inspired and legitimated these studies and (3) How research into written narratives can be systematised to highlight research areas deserving further studies. We perform the first systematic review on written accounting narratives interpretation and meaning to reach our aim. According to our results, the literature on written accounting narratives is polarised on studying them as strategic tools to convey an intended meaning. We show other possible research avenues to deepen how these narratives influence and are influenced by the behaviour of organisations.

Keywords: Narratives; Disclosure; Textual; Corporate reporting; Systematic review.

1. Introduction

Written accounting narratives are a prominent and rich part of nowadays corporate reporting practices and one of the main sources of information of the entire accounting communication process. We use the term “narratives” in the broad sense used by Beattie (2014) to include both the so-called narratives and disclosure studies. In particular, with the term ‘written accounting narratives,’ we refer to ‘what’ is disclosed exclusively in the form of qualitative text (therefore excluding pictures and visuals and including just words and groups of them). Moreover, in this work, we specifically address this kind of narratives in annual reports, non-financial reports (such as sustainability reports and social reports) and integrated reports.

Written accounting narratives have been strongly encouraged by regulatory bodies (Bartlett and Jones, 1997) to obtain further financial and non-financial¹¹ information on companies’ value creation process through qualitative descriptions (Beattie, 2014). Furthermore, according to Stanton and Stanton (2002), the broadening and pivotal role of these narratives within corporate reports increased also voluntarily as they moved towards being public relations tools. Therefore, written accounting narratives have gradually acquired greater importance within the academic world in the past decades. Researchers have highlighted their incremental relevance with respect to accounting statements for report users (e.g., Bartlett and Chandler, 1997) and their overcoming information asymmetry role in terms of sources of extra information (e.g., Tennyson et al., 1990; Clatworthy and Jones, 2003; Smith and Taffler, 2000; Li, 2010; Henry and Leone, 2010; Loughran and McDonald, 2011; Purda and Skillicorn, 2015; LoPatta et al., 2017). However, other streams of research have pointed out that this incremental information function is just a part of the narratives’ role in reporting practices. In this respect, following the ‘narrative turn’ in social sciences, these studies have begun to investigate written accounting narratives not as simple sources of signals on corporate performance but as management narration capable of conveying an intended meaning or creating meaning. According to these studies, narration in reporting plays a pivotal role in giving a more favourable impression of corporate performance (Jones, 1996) and constructing organizational identity and reality (Tregidga et al., 2014). Llewellyn (1999) highlighted that the process of narrating itself is not only a way of representing an underlying reality or of persuading audiences but also a way of thinking, creating and sharing meaning. In this

¹¹ According to Beattie (2014), the fact that non-financial reporting is mostly narrative in nature has led written accounting narratives to gain an even more relevant role.

respect, Hopwood (1996) pointed out the annual reports' radical transformation from minimalist mandatory documents drawn up for legal purposes to complex communication tools used to proactively construct “visibilities” and “meanings” rather than just revealing a pre-existing reality. Relying on the critical accounting perspective that in communicating reality we construct reality (Hines 1988), researchers acknowledged that modern reports are means that organisations use to narrate a picture of themselves to their various stakeholders and, in so doing, to construct reality (Stanton and Stanton, 2002), sustain ideologies (Tinker and Neimark, 1987), persuade organisational audiences (Merkl-Davies et al., 2011) and perpetrate wider societal discourses (Chwastiak et al. 2003, Milne et al., 2009). Thus, scholars observed that corporate reports are used not just for “representational purposes” but for “constitutional purposes” (Preston et al., 1996, p. 115).

Despite this prolific literature, researchers (Craig et al., 2010; Beattie and Davison; 2015) pointed out the reduced amount of works focused on investigating the production, nature and meaning of narratives in corporate reporting and called for more of these. The need for this investigation is even more pressing now, given the recent insights on how narratives in corporate reports may also impact internal actors' decision-making processes (Leuz and Wysocki, 2016; Michelon et al., 2021). For example, recent studies have highlighted that integrated reporting is useful not only for accountability but also for its potential role of shaping the managerial thinking of organisations' internal actors (see, Busco et al., 2018; Lai et al., 2018; Quarchioni et al., 2021). These insights require delving more into the nature of written accounting narratives. These communications tools might have a more complex role beyond the well-acknowledged informative and impression managing functions (Merkl-Davies and Brennan, 2007).

In this context, the main aim of this chapter is to describe the state of the art of the literature on written accounting narratives in corporate reporting. Specifically, we investigate those studies that focused on the conceptualization and meaning of these narratives to suggest new or neglected research avenues. To achieve this aim, we conduct a systematic literature review (Tranfield et al., 2003) including studies primarily focused on the investigation of the meaning of written accounting narratives in corporate reports. In doing so, we deeply explore the existing literature by focusing on the following questions: (1) What are the main features (e.g., number of publications, documents investigated, methods used, theoretical framework and background) of this literature? (2) Which earlier literature has inspired and legitimated these studies and (3) How can research into written accounting narratives be systematised to highlight research areas deserving further investigation?

A final sample of 156 academic articles has been selected in the systematic review process. The analysis of these articles has led to: 1) a description of the literature at its current stage; 2) the identification of previous works that prompted the current literature and that we identified in three main branches (i.e., interpretive and critical, positivist, and mixed); 3) the identification of three main research concepts and seven key themes underlying this literature. Relying on these concepts and themes, a comprehensive research framework to prompt future research has been designed.

This chapter contributes to prior research on written accounting narratives by providing, to the best of our knowledge, the first systematic review focused on how the meanings of written accounting narratives have been investigated. Thereby this chapter responds to calls for exploring more specifically narratives meaning and production (Craig et al., 2010; Beattie, 2014; Beattie and Davison 2015). Although there are previous reviews on narratives in corporate reporting, these are too dated (e.g., Jones and Shoemaker, 1994; Merkl-Davies and Brennan, 2007) and, thus, do not consider articles that could have been published after new calls for further research in the last years (e.g., Craig et al., 2010; Beattie, 2014; Beattie and Davison, 2015). Furthermore, other previous reviews were more focused on methods and measures to analyse written accounting narratives rather than on the meaning and implications of the narratives themselves (e.g., Jones and Shoemaker, 1994; Li, 2010; Merkl-Davies and Brennan, 2011; Loughran and McDonald, 2016; Guo et al., 2016; Hassan and Marston, 2019). Others were focused on neighboring topics but not specifically on written narratives *tout-court* (e.g., Merkl-Davies and Brennan (2017) focus on the external communication of these narratives). Finally, other reviews have offered “a selective overview, rather than a systematic and comprehensive review” (Beattie, 2014, p. 112, and Rutherford, 2018). Through this systematic review, this chapter also contributes to prior research by providing an input, throughput and output theoretical framework of the accounting narratives production process that allows us to propose new research avenues.

The rest of this chapter is organised into five sections. In section 2, we describe the different steps carried out in the systematic review process. Then, in sections 3 and 4, the descriptive and thematic analyses’ results respectively are reported. In these sections, we describe the evolution of the literature and the research themes we identified. On the ground of these findings, an overarching research framework linking the identified themes and suggesting further research avenues is presented in section 5. Finally, we present conclusions drawn from the major findings in the last section.

2. Methodology

We have conducted a systematic review following the framework suggested by Tranfield et al. (2003) to achieve our research purposes. The stages of the systematic review process are: planning, conducting and reporting the findings.

The review scope and procedure have been defined through a research protocol in the planning stage. The definition of a research protocol guarantees the findings' reproducibility and reduces subjectivity bias as much as possible. The research protocol reports the review process' main aspects, such as the research questions, research criteria and search round queries. We carried out multiple search rounds and retrieved all the relevant articles through the SCOPUS database. The search queries consisted of researching several combinations of key terms (see Table II-1) within the titles, keywords, and abstracts of all the articles contained in the SCOPUS database that respect specific criteria.

Table II-1. Search rounds

Search terms related to the investigation of corporate narratives		
st1) "content analysis", st2) textual, st3) lexical, st4) language, st5) nlp, st6) vocabulary, st7) narrative, st8) discourse, st9) tone, st10) rhetoric, st11) semiotic, st12) hermeneutic, st13) communication, st14) dialogic, st15) dialogue, st16) semantic		
Search terms related reporting practices in the accounting field		
A) reporting, B) disclosure, C) accounting		
Search rounds	Search queries	No. of papers
S1	'st1' OR 'st2' ... 'st16' AND 'A'	2357
S2	'st1' OR 'st2' ... 'st16' AND 'B'	1946
S3	'st1' OR 'st2' ... 'st16' AND 'C'	2760
Overall		7063
Duplicated		-1628
Tot		5435
From not included journals		-3732
Final dataset		1703

The only limitation criteria of this initial search were the field of research that was "business, management and accounting," the language as "English" and the document type as "articles in journals" (both published or in press). As in previous reviews and systematic reviews, we chose to include only peer-reviewed articles because they represent more rigorous and higher-quality sources (Rashman, et al, 2009, Massaro et al., 2015; Quarchioni et al., 2020; Hassan and Martson, 2019; Hiebl, 2021). Then, as in previous reviews (e.g., Hassan and Martson, 2019), we limited the sources of the articles by rankings. In particular,

we included only journals having a citescore over 3.0 or an A or A* ranking in the abdc quality list or being in the first Scimago quartile¹².

The search led to a result of 1703 articles. We have previously defined the following inclusion / exclusion criteria to select which of these articles to include in the review:

1. “What.” The focus of the included articles had to be on written accounting narratives intended as qualitative texts represented by words and groups of them.
2. “How.” Written accounting narratives had to be the aim of the study and not just instrumental to the article’s purpose.
3. “Where.” Written accounting narratives had to be contained in corporate reporting, including annual, non-financial and integrated reports¹³.

Two team researchers have read and analysed all the abstracts to verify if the related article met the criteria for inclusion. The two researchers have read the entire article in those cases where the solely abstract was considered ambiguous or not informative enough. The two researchers have conducted their analysis separately and the results have been compared at the end of the process. The degree of accordance between the two researchers was substantial (Cohen $k = 0.803$). In the cases of disagreement between the two coders, the third researcher analysed the article, and the majority took the final choice.

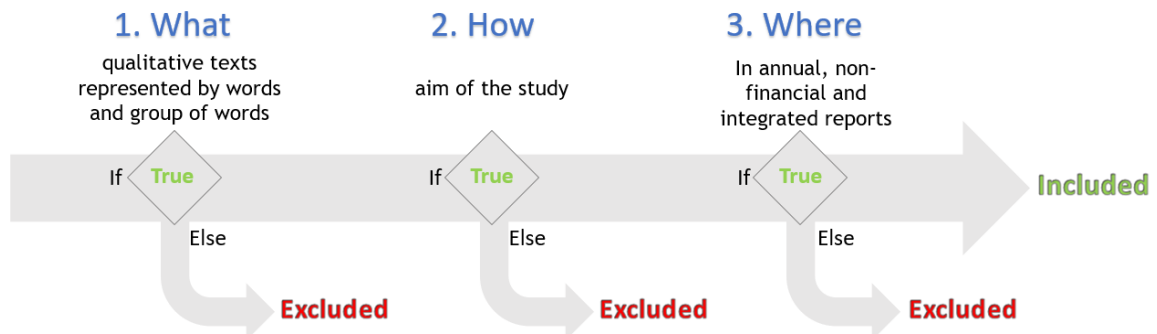


Figure II-1. Inclusion coding procedure

The adoption of this standardised process reduced the selection process’ subjectivity, which, however, remains relatively present (Tranfield et al., 2003). We strongly reduced

¹² In this respect, Tranfield et al. (2003) acknowledged that in management research, articles’ quality tends to be assessed by the quality rating of the journal in which the articles are published and although they provided a list of criteria to assess articles’ quality, they also concluded that quality assessments in systematic reviews remain debatable and challenging. Indeed, a generally accepted view of what constitutes quality research is controversial and not yet foreseeable (Hiebl, 2021; Denyer and Tranfield, 2009; Sousa and Hendriks, 2008).

¹³ We included these reports because their content is mainly narrative in nature (Beattie, 2014) and constitutes the dominant theme of this kind of disclosure (Stanton and Stanton, 2002). Thus, excluding these reports would lead to achieve only a partial view of the role of written narratives in accounting. Moreover, traditionally this information was provided through annual reports (Ling and Sultana, 2015), thus sustainability reports can be seen as extensions and evolution of the classic annual report.

the final dataset to only 156 articles at the end of this stage. We also checked the references of the selected articles searching for highly cited articles out of the sample in line with the scope of the review. Moreover, a co-citational analysis was also carried out to this aim (the results are shown in the next section). However, no additional papers have been found.

A SCOPUS list was created with all the 156 articles and the full texts of all of them. A file bibtex containing all the relevant information to perform bibliometric analysis and the same file as csv were downloaded. Extra information useful for the descriptive analysis has been included in the SCOPUS csv spreadsheet (which already included the main details of all the articles such as the title, authors, year of publication, keywords, journal and citations). These additional pieces of information, as new “dimensions of analysis,” are the regional focus of the research, the research method, information related to the theoretical framework, the size of the sample and the type of report investigated. All these dimensions have been considered useful to describe the current state of the literature. In particular, some of these dimensions were chosen on the ground of previous reviews that highlighted these features as important factors to distinguish the literature (Merkl-Davies and Brennan, 2007; Beattie, 2014). Furthermore, while these dimensions have been used mainly for the descriptive analysis, other dimensions have been highlighted to perform a thematic analysis. These other dimensions are the aim of the paper, the results and findings and the future lines of research suggested by the authors.

We conducted a thematic analysis to respond to our third research question (3) “How can research into written accounting narratives be systematised to highlight research areas deserving further investigation?” We integrated the identified themes in a comprehensive framework highlighting the factors capable of shaping the meaning of written narratives. In so doing, we highlighted the possible input, throughput and output of the generation of written narratives meanings.

Thematic analysis is a qualitative narrative synthesis of the reviewed studies used when they concern both qualitative and quantitative data or data from mixed methods (Popay et al., 2006). This kind of analysis is carried out to systemise the findings from various branches of research to systematically identify thematic patterns underlying the reviewed articles (Tranfield et al., 2003). To overcome possible subjectivity bias in carrying out this process, an inductive analysis of the articles (Popay et al., 2006) has been conducted by coding the texts of the articles after several readings and following the dimensions of analysis that were previously depicted. Each text has been read by at least two authors and discussed with the third one in case of disagreement. We used a concept matrix (Webster and Watson, 2002) to code the articles into main concepts and themes.

The results of these analyses are reported in the next sections.

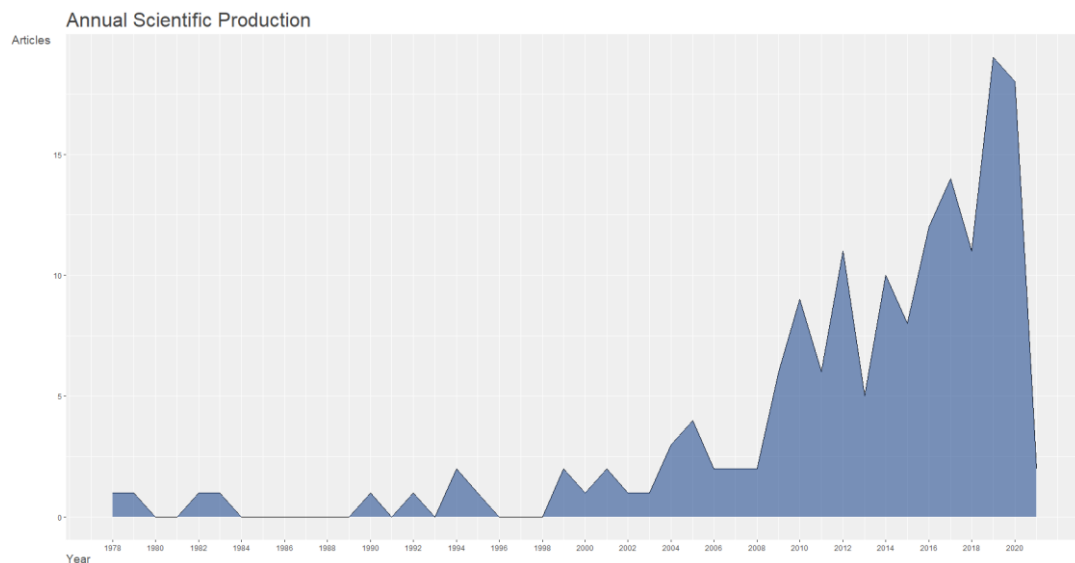
3. Descriptive findings

Following Tranfield et al. (2003), we carried out descriptive analyses to provide a descriptive account of the investigated literature. In order to perform these analyses, the SCOPUS csv file enlarged by the authors' dimensions of analysis and the related SCOPUS bibtex file have been used. We analysed The SCOPUS bibtex file using the R package bibliometrix (Aria and Cuccurullo, 2017) and one of the three authors managed the content of the file in the R environment to add new columns for further analysis with respect to those originally permitted by bibliometrix and to clean the content of the data using regex in some cases.

We carried out descriptive analyses in order to respond to the research question: (1) What are the main features of the studies in the investigated literature?

Our first analysis regards the extent of the literature in terms of publications.

The analysis of the publication trend shows that the research interest in written accounting narratives in corporate reporting has started growing consistently after the '90s (Figure II.2). Indeed, more than 95% of the selected articles have been published since 1990 and, since then, the growth rate of the publication trend rose. More than 50% of the articles have been published just in the last years (between 2015 and the beginning of 2021). In the same way, it is possible to notice a strong increase in average article citation number starting from the end of the '90s (about three and four times the number of citations of the pre '90s period).



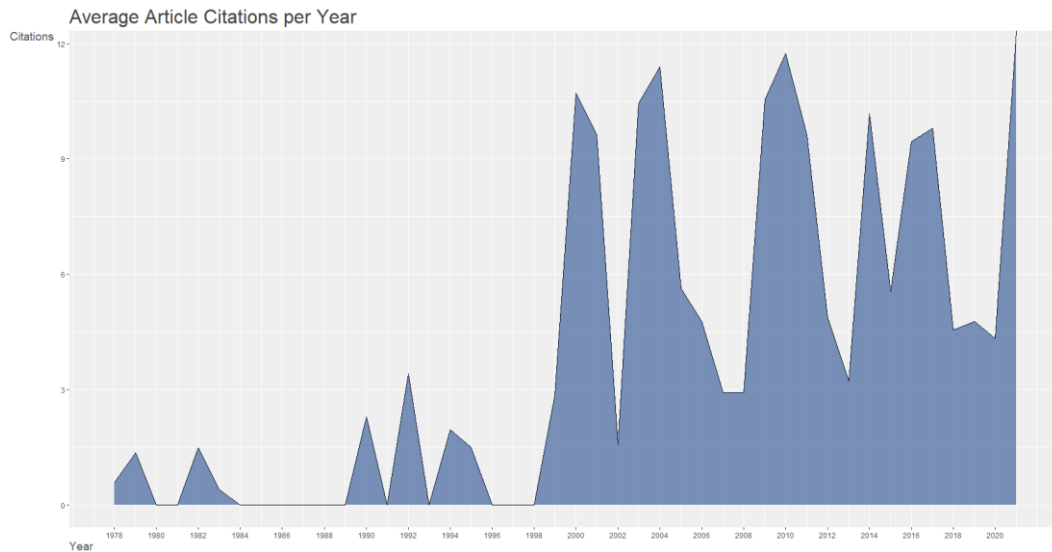

















Figure II-2. Publication and average article citation trends

Regarding the sources of publication, more than 65% of the articles in the collection have been published by British journals. The same pattern is present in terms of authors' country (Table II.3 and Figure II.3). Thus, the meaning of written narratives in reporting practices has been deepened mainly by British journals and academia.

Table II-2. Top fifteen journals per publications

Journal	Articles	Country
1 ACCOUNTING AUDITING AND ACCOUNTABILITY JOURNAL	42	
2 ACCOUNTING FORUM	13	
3 CRITICAL PERSPECTIVES ON ACCOUNTING	12	
4 ACCOUNTING AND BUSINESS RESEARCH	11	
5 EUROPEAN ACCOUNTING REVIEW	9	
6 ACCOUNTING ORGANIZATIONS AND SOCIETY	8	
7 QUALITATIVE RESEARCH IN ACCOUNTING AND MANAGEMENT	8	
8 BRITISH ACCOUNTING REVIEW	6	
9 ACCOUNTING HISTORY	5	
10 ACCOUNTING REVIEW	5	
11 JOURNAL OF ACCOUNTING AND ECONOMICS	5	
12 MEDITARI ACCOUNTANCY RESEARCH	4	
13 CONTEMPORARY ACCOUNTING RESEARCH	3	
14 JOURNAL OF ACCOUNTING AND PUBLIC POLICY	3	
15 JOURNAL OF ACCOUNTING RESEARCH	3	

Country Scientific Production

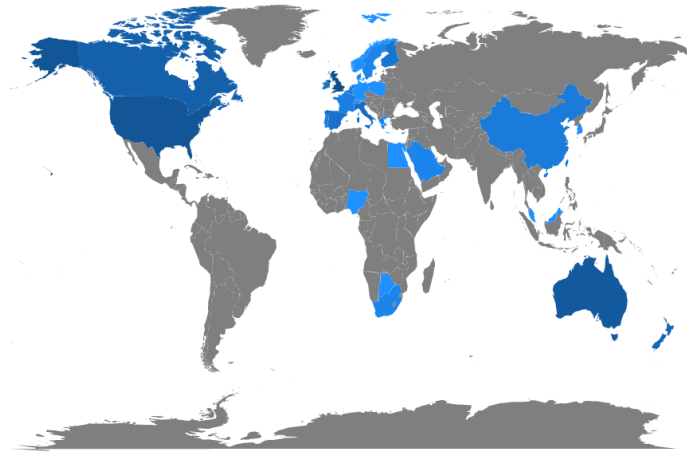


Figure II-3. Scientific production per country

Note: darkest blue areas represent higher scientific productivity

Table II-3. Scientific production per country

Region	Freq	Region	Freq
UK	87	NETHERLANDS	5
USA	51	BELGIUM	4
AUSTRALIA	40	CHINA	4
CANADA	24	FRANCE	3
NEW ZEALAND	16	PORTUGAL	3
ITALY	10	DENMARK	2
IRELAND	7	GREECE	2
SPAIN	7	SAUDI ARABIA	2
FINLAND	6	SOUTH AFRICA	2
TAIWAN	6	SWEDEN	2

As regards the kind of report investigated (Figure II.4), the majority of the studies in our sample have focused on the annual report or specific parts of it (such as “letter to shareholders” and “CEO’s statement”) (42%). The other highly investigated reports are the Form 10-K (10%) and its specific MD&A subsection (7%), and the CSR and sustainability reports (19%) and other forms of it (7%) (e.g., diversity disclosure and intellectual capital statement). Just a marginal number of studies have focused on integrated reports. This is quite understandable given the recent development of these reports. However, looking at the trend of publications (Figure II.5), their investigation has increased in the last years.

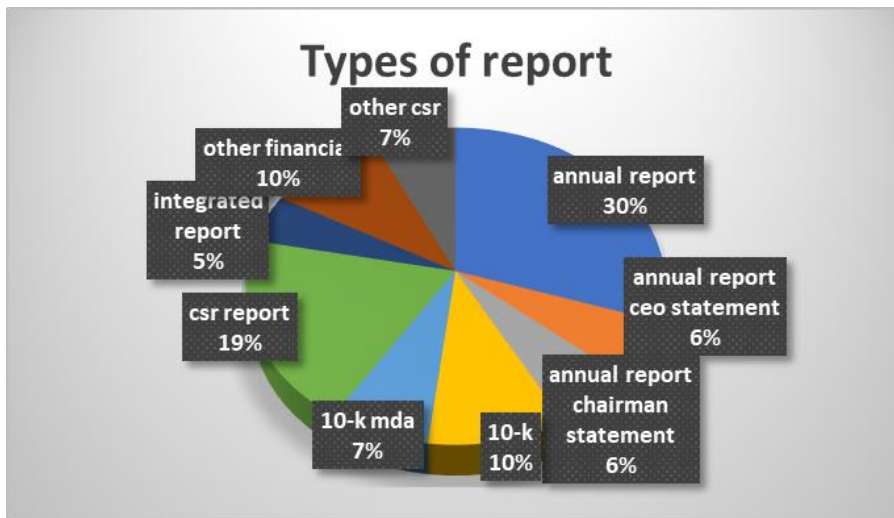


Figure II-4. Percentage of reports investigated by the articles

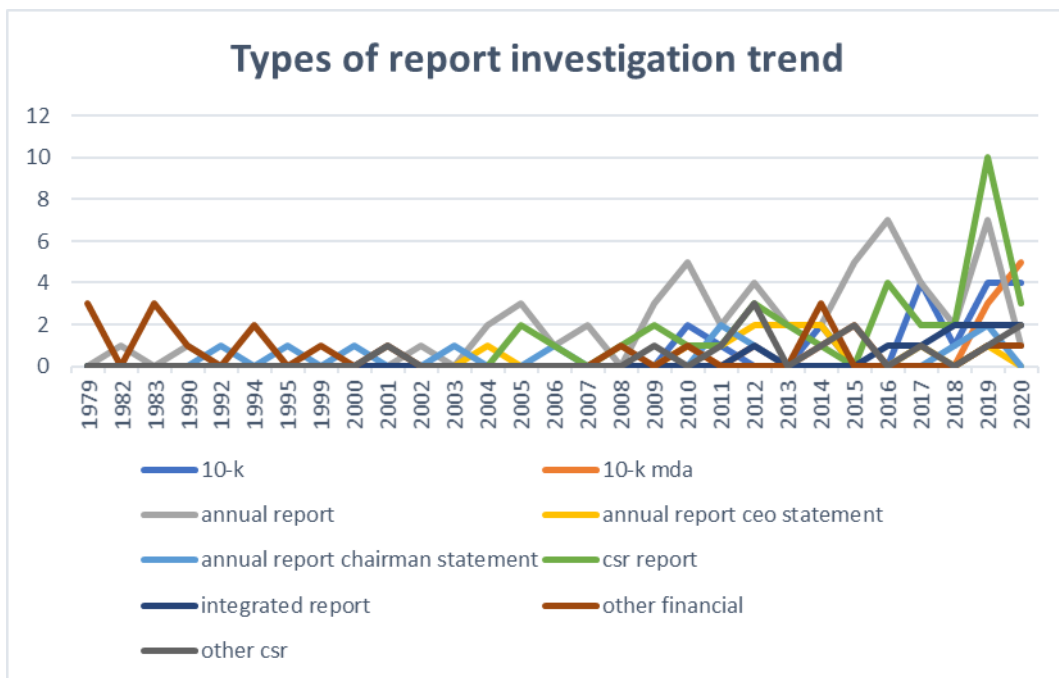


Figure II-5. The trend of investigation of the different types of reports by the articles

Analysing the most investigated geographical areas, it is worth noting that almost 70% of the studies investigate the North American, European and British context (Table II-4). However, in the last years, the interest has increased for other areas such as South Africa. This is consistent with development and the increasing interest of researchers in the integrated reporting practice. Indeed, South Africa was the first country to introduce integrated reporting as a mandatory document for listed companies (Melloni et al., 2017). Conversely, more studies are needed for developing and socialist market countries. In this respect, two examples are the studies by Alawattage and Fernando (2017) and Gong and

Cortese (2017). In these studies, the authors highlight the role of written narratives in embracing and perpetuating dominant ideologies.

Table II-4. Top investigated geographical areas per frequency

	Zone	Frequency	Zone	Frequency	
1	Northern America	52	5	Asia	12
2	Europe	38	6	South Africa	11
3	Uk	36	7	Africa	8
4	Oceania	22	8	Central and Southern America	4

To gain more insights on what has been investigated in these studies, we analysed keywords (see Figure II-6). The total amount of keywords is 451 and their overall frequency is 676. The distribution of the keywords is highly positively skewed and the median is 1. Therefore 50% of the observed keywords are cited just one time. 40% of the total frequency is concentrated in the first 25 keywords. The main concepts underlying these keywords can be summed up as: narratives and disclosures, impression management, readability and obfuscation, corporate social responsibility and sustainability, legitimacy, rhetoric and textual analysis.

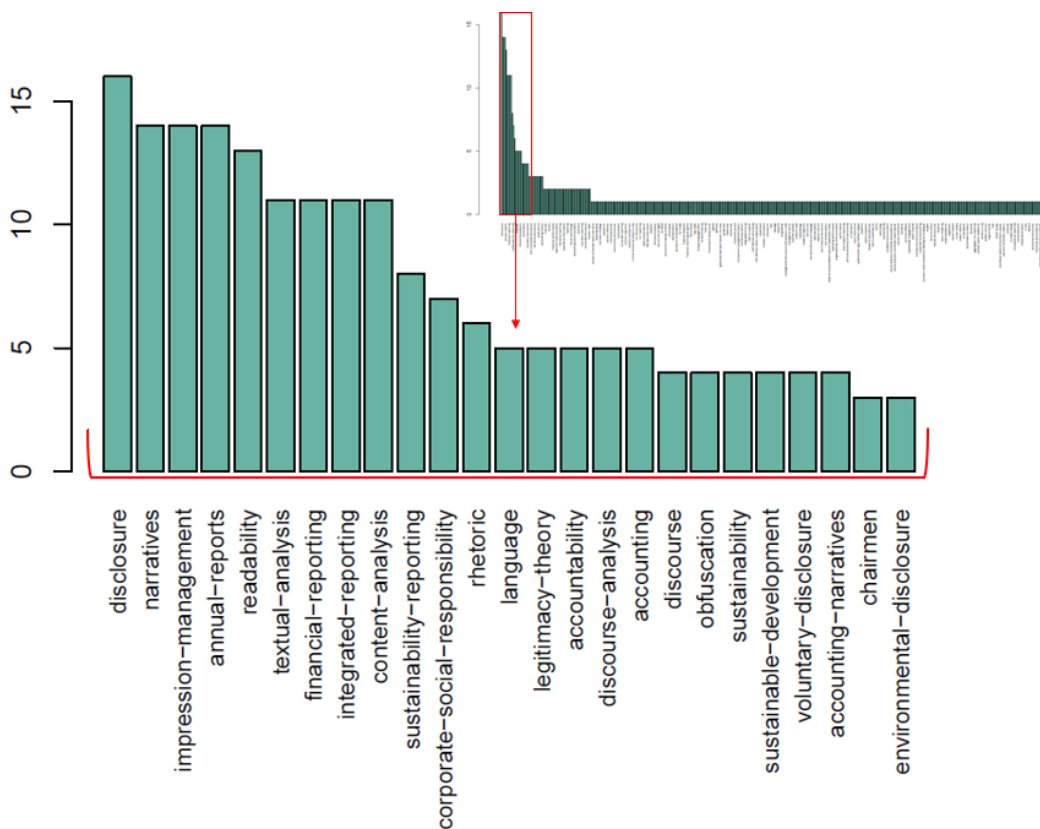


Figure II-6. Keywords frequency and top 25 keywords

It is worth noting that one of the mainly used terms in the literature is “impression management.” This indicates that a consistent part of these studies has investigated narratives in accounting reporting as means to influence the perceptions of reporting users in accordance with an intended view – consciously or not – by management (Hooghiemstra, 2000; Merkl-Davies and Brennan 2007; Hellmann et al., 2017).

This insight is confirmed by the analysis of the theories used in the literature (Table II-5). The most spread theory is the impression management theory. As in the case of the keywords, the distribution of theories used in the articles is highly positively skewed and the median is one. The first fifteen theories represent more than 65% of the frequency. It is worth noticing that around 30% of the studies in our sample (49 studies) do not clearly specify the work's underlying theory.

Table II-5. First fifteen theories per frequency

	Theory	Frequency		Theory	Frequency
1	impression-management-theory	30	9	upper-echelons-theory	3
2	legitimacy-theory	17	10	stakeholder-theory	3
3	critical-theories	13	11	communication-theory	3
4	agency-theory	10	12	framing-theory	3
5	signalling-theory	6	13	life-cycle-theory	2
6	attribution-theory	6	14	accountability-theory	2
7	institutional-theory	5	15	neo-institutionalist-theory	2

Furthermore, according to our results, 37.5% of the studies rely on quantitative analyses techniques, 32.5% on qualitative analyses, 19.4% combine them, and 10.6% regard conceptual papers. The majority of the studies (53%) rely on form-oriented and meaning-oriented content analyses with relatively higher use of the former than the latter. However, more qualitative methods such as case studies and discourse analysis have been used in the last decade. The increase in the use of these methods can be read as a signal of the acknowledgement from the academic community to go more in depth in the investigation of written narratives.

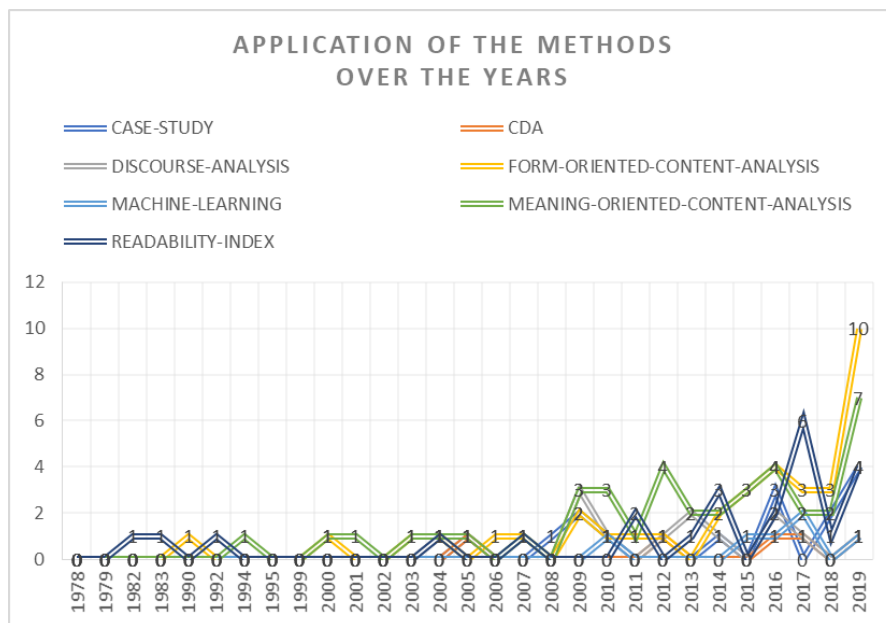


Figure II-7. Methods usage trend

Indeed, nowadays, quantitative methods are less tailored and precise in the interpretation of the meaning of the texts than qualitative methods. This limitation is due to the fact that quantitative methods analysing texts mainly focus on words isolated from their context in the whole sentence (Hassan et al., 2019). This limitation can conduct to misleading results (Milne and Adler, 1999; Beattie and Thomson, 2007; Hassan et al., 2019). However, also qualitative analyses present strong disadvantages. First of all, these analyses are very time-consuming. This leads to limited sample sizes affecting the generalizability of the empirical results (Beattie and Thomson, 2007; Li, 2010; Hassan et al., 2019). Moreover, manual qualitative approaches are affected by subjectivity in the text interpretation (Li, 2010).

To respond to the research question (2) “Which earlier literature has inspired and legitimated these studies,” we conducted a co-citation analysis (Figure II-8) running a co-citation network (Small, 1973). A co-citation refers to two articles both cited in a third article. Therefore, a co-citation network is a graph where the nodes (or vertexes) represent articles cited in the selected literature. Two of these nodes are linked together through a link (or edge) if they are cited together by at least one article in our sample. The value-added of this kind of analysis is that it is not limited to the articles contained in the sample. It unveils the most influential articles (inside and outside the sample) for the investigated literature. This kind of graph allows us to identify the most cited together articles and therefore to trace patterns of theoretical background that have been fruitful for the development of the literature (Small, 1973) or, in other words, the “core” of earlier

literature that serves as a “profile” for that specialty (Small, 1973, pp. 267, 268). Moreover, to facilitate identifying the most influential papers and highlight the aforementioned theoretical background patterns (or communities of highly cited together articles), network centrality measures (betweenness centrality in particular) and a walktrap clustering algorithm respectively have been used. Betweenness centrality identifies the most influential nodes in connecting a network’s community of nodes. Specifically, the betweenness centrality shows how often a node appears on the shortest path between two other random nodes in the network. It measures the gatekeeping power of that node. In the case of co-citational network, it measures how influential that article is in connecting the literature. Walktrap (Pons and Latapy, 2005) is an algorithm based on similarities between nodes based on random walks which capture the community structure. The basic idea of this algorithm is that short random walks stay in the same community.

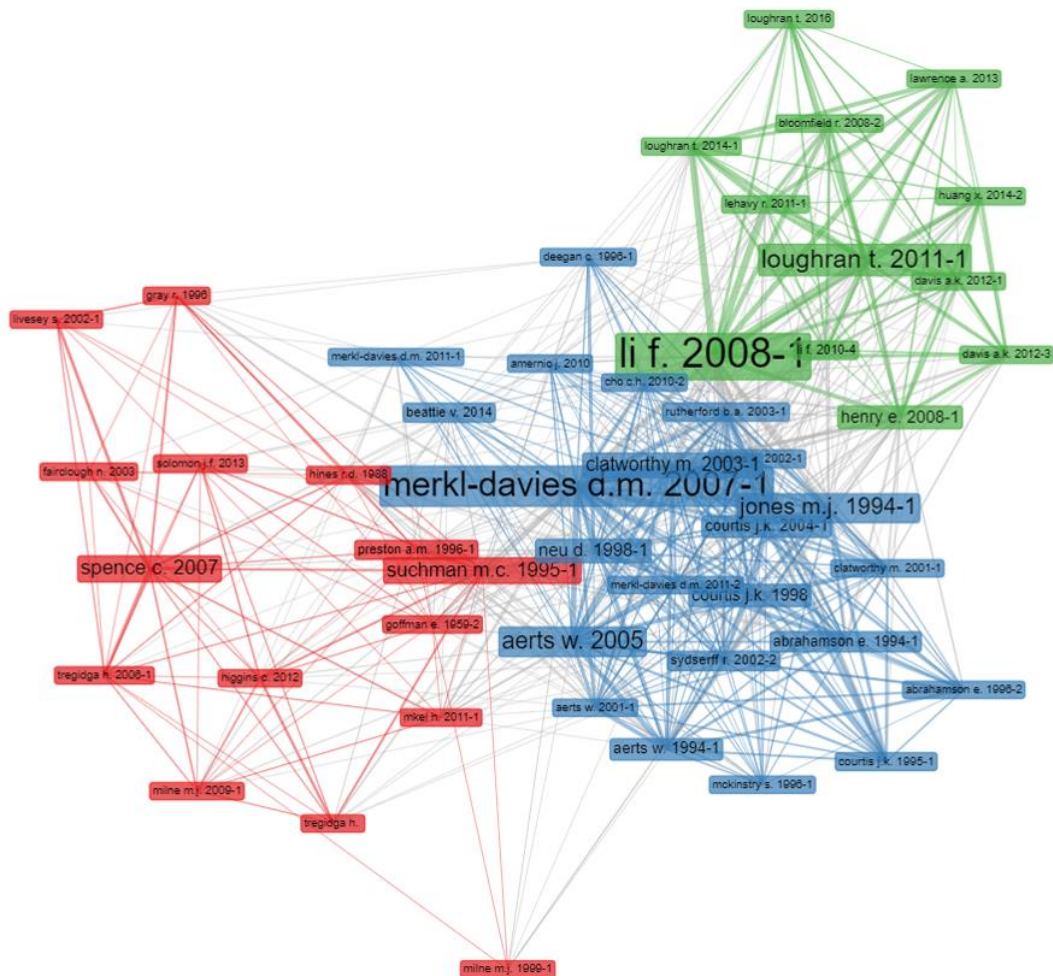


Figure II-8. Co-citation network of the literature

Table II-6. Co-citation network communities and statistics

vertex	cluster	betweenness centrality	vertex	cluster	betweenness centrality	vertex	cluster	betweenness centrality
1 merkl-davies d.m. 2007	2	46.63	19 deegan c. 1996	2	6.69	37 bloomfield r. 2008	3	2.30
2 li f. 2008	3	39.75	20 preston a.m. 1996	1	6.60	38 loughran t. 2014	3	2.12
3 aerts w. 2005	2	16.77	21 hines r.d. 1988	1	6.52	39 tregidga h. 2014	1	2.10
4 jones m.j. 1994	2	15.86	22 mkel h. 2011	1	6.16	40 huang x. 2014	3	2.02
5 neu d. 1998	2	15.83	23 merkl-davies d.m. 2011-2	2	6.08	41 solomon j.f. 2013	1	1.69
6 suchman m.c. 1995	1	14.82	24 henry e. 2008	3	4.81	42 mckinstry s. 1996	2	1.68
7 amernic j. 2010	2	13.26	25 aerts w. 2001	2	4.74	43 abrahamson e. 1996	2	1.39
8 clatworthy m. 2003	2	11.34	26 aerts w. 1994	2	4.41	44 davis a.k. 2012-3	3	1.26
9 loughran t. 2011	3	10.56	27 rutherford b.a. 2003	2	4.09	45 davis a.k. 2012-1	3	1.16
10 li f. 2010	3	10.23	28 merkl-davies d.m. 2011-1	2	4.08	46 milne m.j. 1999	1	1.04
11 leheavy r. 2011	3	9.91	29 courtis j.k. 1998	2	3.50	47 loughran t. 2016	3	0.89
12 yuthas k. 2002	2	9.76	30 fairclough n. 2003	1	3.30	48 courtis j.k. 1995	2	0.86
13 cho c.h. 2010	2	9.48	31 goffman e. 1959	1	3.24	49 lawrence a. 2013	3	0.85
14 courtis j.k. 2004	2	9.47	32 gray r. 1996	1	3.19	50 livesey s. 2002	1	0.43
15 spence c. 2007	1	8.70	33 milne m.j. 2009	1	3.03			
16 abrahamson e. 1994	2	8.13	34 clatworthy m. 2001	2	2.45			
17 sydserrff r. 2002	2	7.33	35 higgins c. 2012	1	2.42			
18 beattie v. 2014	2	6.70	36 tregidga h. 2006	1	2.36			

As a result of the network analysis, three main communities have been identified that are visually highlighted through three different colours: red, green and blue community. The red and green communities represent two different polarizations of the roots of the investigated literature.

The “red community” deals with theoretical issues related to using narratives to construct an image of the organisation to gain, maintain and repair legitimacy and to the constitutive role of language to perpetrate wider societal discourses. Most of these articles rely on the ‘narrative turn’ and a critical accounting perspective. Some members of this community are Hines (1988), Suchman (1995), Livesey (2002) and Spence (2007). Hines (1988) is a pioneer of critical accounting studies and deals with the constructivist role of accounting in social reality. Livesey (2002) uses Foucauldian theory to read and interpret the Royal Dutch Shell Group corporate social report as an attempt to re-establish hegemonic control in the wake of environmental and human rights discourse. Spence (2007) explores the construction and perpetuation of capitalist discourse by means of these reporting practices. The article with the highest centrality in this community is Suchman (1995), a pivotal article on organizational legitimacy.

Antithetically to this community, we can find the “green community” concerning articles that are more focused on using computer technologies and quantitative methods to extract information from written narratives. Some members of this community are Loughran and McDonald (2011) and Lehavy et al., (2011). Loughran and McDonald (2011) create a sentiment dictionary for the automated content analysis of financial texts, while Lehavy et al. (2011) compute a readability index for a large sample of 10-ks to test the extent of this measure associated with analysts’ earnings forecasts. The article with the highest centrality in this community is Li (2008). This paper uses computational linguistics to examine the relation between annual reports’ readability and organisations’ performance and earnings persistence. These studies mainly deal with the exploitation of text to gain information.

In the middle, as a strong connector, we find the “blue community” that is central in the network mainly because it is theoretically influenced by the “red community” and often uses the methods of the green community to investigate narratives. The article having the highest centrality in this community is Merkl-Davies and Brennan (2007). In this article, the authors show managers' strategies in organizations' narratives to manage impressions. This article is the one with the highest centrality in the whole network. This insight shows how penetrating is the concept of strategic disclosure and managing impression in the literature.

In this section, we provided some descriptive findings in order to depict the current state of the literature and how previous studies shaped it. In the next section, the thematic analysis provides insights into the key themes investigated by this literature.

4. Thematic analysis

Through thematic analysis, we identified three main concepts and seven themes. The three main research concepts can be summarised with the acronym ‘ABC’: a) ‘Adaptation,’ b) ‘Boundaries and body’ and c) ‘Communication’ (Figure II-9).

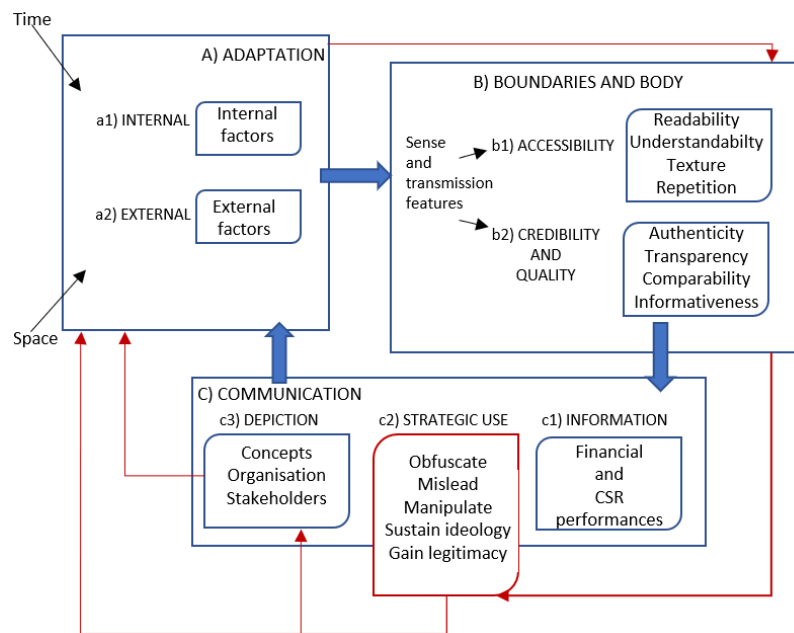


Figure II-9. The 'ABC' framework of written narratives in accounting

Adaptation and communication studies focus on how organisations modulate their written narratives to cope with several kinds of pressures. In particular, we use the label “adaptation” for studies investigating how organisations internalise and react through its narratives to internal and external pressures. We use the label “communication” for studies investigating the proactive ways in which organisations modulate these narratives to communicate with an audience. On the other hand, “boundaries and body” studies are more focused on the features of the text rather than on the interactions with internal and external pressures.

As regards the related themes, we broke down “Adaptation” into a1) ‘internal adaptation’ and a2) ‘external adaptation’, b) ‘Boundaries and body’ into b1) ‘accessibility’ and b2) ‘credibility and quality’ and c) ‘Communication’ into c1) ‘exploiting text to gain information’ (or just ‘information’), c2) ‘strategic use’ and c3) ‘depiction.’

Briefly, internal (a1) and external (a2) adaptation deal with internal and external pressures moulding written narratives messages and meanings. Accessibility (b1) deals with text features allowing a more immediate and clear understanding of the message while credibility and quality (b2) deals with its truthfulness, informativeness and usability. As regards communication, information studies (c1) have to do with how to extrapolate useful pieces of information from text, while strategic use (c2) deals with written narratives as tools to achieve a desirable response from the audience (such as achieve their approval). Lastly, depiction (c3) copes with how organisations represent and materialise abstract concepts (such as “sustainability”) through their narratives.

Three of the seven identified themes (b1, c1, c2), as further explained below, have been already highlighted by previous reviews and studies (e.g., Jones and Shoemaker, 1994; Merkl Davies and Brennan, 2007; Beattie, 2014). This result highlights the coherence of our thematic analysis with previous works. However, we partially revisit and expand these themes. As an example, previous reviews have focused on readability and understandability as specific thematic areas. We integrate them with other text features such as “repetition” in the “accessibility” theme (see subsection 4.2.1). Therefore, as regards these themes, our thematic analysis confirms previous articles’ claims about the composition of accounting narratives literature and systematically deepens them. As regards the other four themes (a1, a2, b2 and c3), to the best of our knowledge, these have not been strongly highlighted before and represent interesting avenues for future research.

The identified research concepts and related themes are strongly linked because they are bound together by an input/throughput/output relationship. Some studies in our sample address more themes. Indeed, the concept matrix has highlighted that the themes we identified are strongly linked to each other sharing overlapping articles (see, Nowell et al., 2017). Moreover, a1, a2, b2 and c3 themes have been investigated by a lower number of articles or instrumentally to the previous three (in particular to c2). In this respect, we can consider them as partially neglected. In the next subsections, these concepts and related themes within each of them are discussed.

4.1. Adaptation

The first concept we identified is “adaptation.” It is the least investigated concept and concerns 42 studies. These studies focus on the input of written accounting narratives, thus on what kind of forces shape accounting narratives and their meanings. In particular, this concept includes articles that focus on how organizations adapt their narratives through a process of internalisation of external or internal pressures. Importantly, this mechanism of internalisation is more passive than active. The organization must adapt and subordinate to external, or internal, undergoing pressures, and thus, the way of writing changes because of these pressures. These changes are studied over time (e.g., Samkin, 2012; Irvine and Fortune, 2016; Maroun, 2018; Maroun et al. 2019; Quarchioni et al., 2021) considering both long-range periods (Evans and Pierpoint, 2015; Langton and West, 2016) or short periods (e.g., Quarchioni et al., 2021). Furthermore, these changes in narratives can be investigated over space as well, in relation to different geo-political contexts and cultures (Soobaroyen and Mahadeo, 2016; Gong and Cortese, 2017).

The focus on adaptation is on upstream drivers and not so much on downstream change in terms of users' perception of the written output. This aspect differentiates these 42 studies from the ones we labelled as “communication studies”. Moreover, while several articles in our sample focus on inputs that influence the production of organisations' written narratives, we include in this concept only those articles that addressed how organisations process and internalise pressures¹⁴.

We use the term “adapting” to indicate this branch of studies showing a deeper focus on the internalisation mechanism of the organisations in producing their narratives. In these studies, a factor “A” (for example, an international standard) affects the organisation that struggles to internalise its influences. This internalisation affects the narrative output.

In particular, we can distinguish two main themes:

- Adaptation to internal pressures (a1). As regards pressures from the inside we have 10 studies, these are more related to characteristics that are internal to the organisation such as: the level of empathy the organisation shares with its audience and the importance given to them (Costa et al., 2019; Soobaroyen and Ntim, 2013) and organisations' operativity and performance (Li and Haque, 2019; Maroun, 2018; Merkl-Davies et al., 2011; Archel et al., 2009; Ogden and Clarke, 2005; Mouritsen et al., 2001).
- Adaptation to external pressures (a2). As regards pressures from the outside, these are 32 studies dealing with institutional pressures stemming from the social context (Laine, 2009; Moreno and Cámara, 2014; Moreno and Quinn, 2019). These external pressures can be very varied. An example is stigmatization that is the attribution of a deeply discredit to an organisation by its audience. For example, this discredit can be attributed to the organisation because it operates in an environmentally sensible industry (Chelli et al., 2019; Lauwo et al., 2020). Another example of external pressure is related to the adoption of international reporting standards such as GRI and IR guidelines (Caron and Turcotte, 2009; Islam and McPhail, 2011; Adams et al., 2016; Haji and Hossain 2016, Quarchioni et al.,

¹⁴ Other studies just imply a direct relationship between a factor “A” (such as the performance of the company) that “affects” the narrative output (as an example, less readability). In this respect, we have studies focusing on affecting factors such as organisations' age (Hossain et al., 2019, Bakarich et al., 2019), nationality (Aerts and Tarca, 2010; Lundholm et al., 2014), listed status (Aerts, 2005), performance (Adelberg, 1979; Wright, 1994; Clatworthy and Jones, 2003; Clatworthy and Jones, 2006; Cho et al., 2010; Schleicher, 2012; Cooper and Slack, 2015; Melloni et al., 2017; Nazari et al., 2017), industry (Merkl-Davies and Koller, 2012; McPhail and Adams, 2016), size (Craig and Brennan, 2012), governance structure (Hadro et al., 2017), board members' personal features (Craig and Amernic, 2004; Brennan and Conroy, 2017; Campbell et al., 2020; Ben-Amar et al., 2021; Hasan, 2020; Harjoto et al., 2020; Li, 2019); government incentives (Elshandidy and Shrivs, 2016). These studies inferentially demonstrate that these features significantly affect the content and style of written narratives.

2021), wider changes in the social and natural context in which organizations operate such as economic, health and natural crises (Cho, 2009; Keusch et al., 2012; Abdelrehim et al., 2015; Conway et al., 2015; Ferguson et al., 2016; Alawattage and Fernando, 2017).

Overall, the studies within this concept provide evidence on three different effects that these pressures may have on written narratives. The first possible effect is a “substantive” adaptation of narratives (e.g., Chelli et al., 2019), the second is a merely formal, or “symbolic”, adaptation (e.g., Haji and Hossain, 2016), and the third is a “non-adaptation” effect highlighted by the relatively stable content of written narratives over time (e.g., Samkin, 2012; Moreno and Quinn, 2020) and their intrinsic resistance to new concepts as highly inertial constructs (Roslender and Nielsen, 2017; Aerts, 2001; Flamholtz and Cook, 1978). The difference between “substantive” and “symbolic” adaptation is related to the actual internalisation of the conveyed meaning of the written narratives’ message in the organization's concrete thinking, planning and acting. With substantive adaptation we mean that the meaning shaped by the organisation’s narratives is followed by factual changes in terms of accountability or concrete initiatives. An example can be that of environmental reporting narratives followed by real activities aimed at limiting the impact of corporate activities on the environment. Instead, as regards formal or symbolic adaptation, the content of the narratives can instead be generic, vague, and lacking of contextual meaning. An example is that of the non-internalisation of the integrated reporting philosophy (Haji and Hossain, 2016).

Our analysis has led us to understand the fundamental role of adaptation in the study of written narratives. Indeed, the adaptation phenomenon is the starting point to understand narratives dynamics and choices thoroughly. However, we noticed that this concept is often investigated instrumentally to the “strategic use” theme (explained in the following subsections). 24 of the 42 articles involving adaptation investigate the area of communication focusing on the “strategic use” theme. Therefore, most of the articles presenting an analysis of adaptation link this phenomenon to the communication of manipulated messages to give a good impression of the organisation to an audience. Subsequently, the literature mainly depicts narratives adaptation as inauthentic, lacking substance and manipulative of audience perception (e.g., Lauwo et al. 2020; Ferguson et al., 2016; Higgins and Walker, 2012) rather than substantive (e.g., Chelli et al., 2019). In this respect, more research focusing on the substantive nature of the message conveyed by written narratives is needed.

4.2. Body and boundaries

The second concept we identified concerns 51 articles focused on analysing the features and properties of the text, thereby we referred to it as “body and boundaries.” Previous reviews have already focused on methods, measures, and features of written narratives in corporate reports (e.g., Li, 2010; Hassan and Marston, 2019). From our literature review, two main kinds of features emerge. We named them “sense features” and “transmission (or communicative effectiveness) features” (Figure II-10).

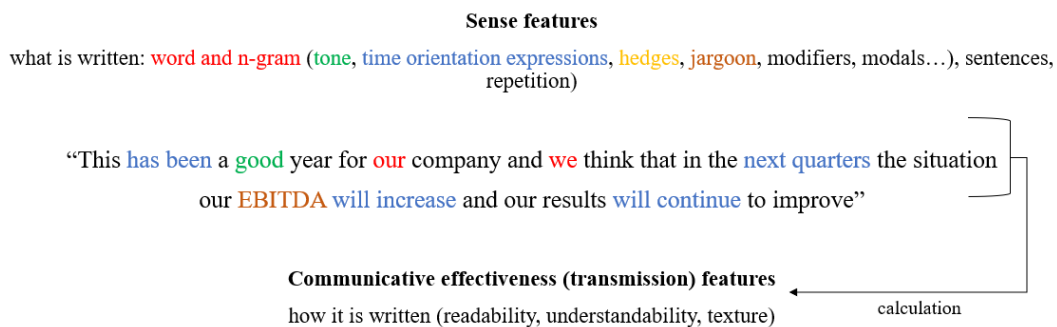


Figure II-10. Sense features and transmission features

The sense features answer to the question “what is written?” (e.g., keywords, tone, sentences, jargon, time orientation, hedges, etc.), while the transmission (or communicative effectiveness) features answer to the questions “how is it written\is it clear or coherent?” (i.e., readability, understandability and texture).

Sense features give the sense of the text to the readers. We divided them into three main features on which the studies in our review have focused: words and n-grams, sentences and repetition.

- “Words and n-grams” can be considered as the basic units of the text. These are single words or patterns of single words (combination of two, three... n-words). These words can be of various types (tone words¹⁵, pronouns, time orientation expressions, hedges, jargon or technical words, modifiers, modals, causal reasoning expressions, etc.). The peculiarity of this feature class is that it can be investigated using automated tools such as dictionaries of word lists allowing researchers to conduct analyses in a non-time consuming way on a huge amount of documents. As an example, researchers can be interested in counting the number of positive and negative words in a document to understand its sentiment.

¹⁵ The expression “tone words” refers to sentiment words such as lists of “positive words” (for example: good, best, perfect) and “negative words” (such as: bad, not good, worst)

However, the problem in coping with this unit of analysis is that researchers cannot take into account the context around these words and, thus, they can lose some meanings.

- We refer to “sentences” as a more complex unit of analysis than words and n-grams as they represent words in context. Conducting analyses at sentences level allows the researchers to account for more context and grasp more sense than just focusing on single words or n-grams. However, this kind of analysis needs more qualitative (and sometimes subjective) and time-consuming approaches.
- The last sense feature we identified is “repetition.” Repetition is the duplication or the paraphrasing of sentences that have been already written in the text. Repetition can give a sense of major prominence and importance to certain topics with respect to others but can also function as “boilerplate” and lead to content overloading.

Regarding the transmission features, these are indirectly related to the sense of the message. They are related to the degree of communication of the sense. We have:

- Readability, that depends on the content of the text and it is the ease with which a reader should comprehend the sense of a text.
- Understandability, that is a shared property between the content of the text and the background of the reader allowing him/her to understand the sense of the text.
- Texture, that is a measure related to the meaningfulness and coherence of the text.

All these features are strongly interrelated with the other themes of research identified in our framework. However, given their importance in the investigation of written narratives, they deserve to be deepened both separately and in combination with the other identified areas. Indeed, these features have been investigated in the literature by linking them with other themes (such as combining readability to the “strategic use” theme) or separately (e.g., investigating readability as the main aim of the study).

We identified two main themes according to which the body and boundaries of the text have been investigated in the literature: accessibility (b1) and credibility and quality (b2).

4.2.1. Accessibility, credibility and quality of the text

33 articles in our sample have investigated the accessibility of the text (b1). This theme mainly copes with the investigation of transmission features and, therefore, with problems related to the usability of accounting narratives to obtain information. Studies in this branch analyse whether these narratives are clearly written and whether narratives’ users can

understand them. We can further distinguish these studies in: ‘readability formula studies,’ ‘understandability studies’ and ‘others.’

Regarding readability formula studies, these represent the majority of the studies in this branch (19 out of 33). Readability formulas have initially been suggested as possible instruments to monitor organizations’ reports’ understandability and eventually improve it (Parker, 1982). Over time, it has been recognised that readability is not a perfect proxy of understandability (Smith and Taffler, 1992) and other measures have been proposed to investigate this aspect. However, researchers have continued to use and foster readability formulas and test the association of this measure with financial and other kinds of performance. In 2013, Stone and Parker revised the Flesch reading ease formula for contemporary accounting communications by reducing Flesch’s misplaced emphasis on word length by respecting its sentence length variable, a probable cause of low readability. Bonsall et al. (2017) introduce the Bog Index to the accounting literature, a new measure of readability capable of capturing the plain English attributes of disclosure.

Readability formulas have been employed in two different ways, as a proxy of obfuscation¹⁶ and to investigate readability determinant factors outside the strategic use hypothesis. When the theme of ‘accessibility’ is linked to the theme of ‘strategic use,’ we have obfuscation studies. In these studies, readability and its variability in the different sections of company reports have started to be studied as obfuscation proxy (Courtis, 2004). However, in this respect, the results of several studies have been contradictory. For instance, using readability formulas, Melloni et al. (2017) show that longer and less readable integrated reports are associated with organisation’s weak financial performance. On the same line, Nazari et al. (2017) find that shorter and less readable CSR reports are associated with worse CSR performance and, according to their evidence, this low readability indicates obfuscation. Conversely, other studies such as Linsley and Lawrence (2007) found accounting narratives difficult or very difficult to read, but it was not possible to tell if this difficulty was associated with voluntary obfuscation or not. In the same way, Bayerlein and Davidson (2011) investigated obfuscation as well, but they try to extend obfuscation analysis by taking into account connotation, that is whether text reports good or bad news. They could not find that reading difficulty differences were due to underlying positive or negative news. Moreover, Asay et al. (2018) conducted an experiment where experienced managers draft a report for a hypothetical company on the basis of a given performance. They find that participants provide reports that are significantly less readable

¹⁶ According to Courtis (2004), “obfuscation is a type of writing that obscures the intended message”. This type of writing is characterised by low reading ease and high readability variability.

when performance is bad than when performance is good, particularly when participants have a stronger self-enhancement motive in the form of a reporting goal to portray the organisation as favourably as possible. However, they point out that their results do not appear to be driven by intentional obfuscation of poor performance. Indeed, when asked about the reports to the preparers, there were no insights of intentional obfuscation in their perceptions. Participants in the experiment thought that the better readability of good than bad news was linked to the willing of highlighting positive performance rather than obfuscate the negative one. Other than obfuscation, when readability formulas are not linked with “strategic use” studies, readability is studied to understand other nuances of the narrative choices of organisations. For instance, Lundholm et al. (2014) find that the readability of text in annual filings of foreign companies listed on U.S. stock exchanges are written more clearly than those of U.S. companies and that this higher readability increases in relation to the geographical distance from the U.S. Overall, their study suggests that foreign companies improve their clarity as a response to the possible reluctance of U.S. investors due to their information disadvantage. Lim et al. (2018) investigate how business strategy influences annual report readability and find that companies pursuing with an innovation-oriented prospector strategy have less readable 10-Ks and display more negative and uncertainty tones. Their results suggest that business strategy is a fundamental determinant of readability. Fisher et al. (2019) find that tone is a significant determinant of readability. Stone and Lodhia (2019) analysed integrated reports and found that they are affected by low readability and that this condition is not improving. Harjoto (2020) finds that companies with a female executive as the signer or co-signer of CSR reports, present more readable CSR reports and that this readability is associated with future positive social performance. Chen (2020) finds that companies reducing their notes readability in 10-Ks are perceived as riskier for bondholders and that this perception is reflected in their bond yield spread.

As regards understandability studies, there are three studies in our sample that concern this topic. Smith and Taffler (1992, p. 84) pointed out that while readability is just the “complexity of the display,” understandability is more related to the “capability of users in discerning the appropriate meaning.” Therefore, while readability is a property of the texts, understandability is more a function that depends on the report's user. Adelberg (1979) used the CLOZE index to show that a group of bank trainees did not well understand narratives disclosures. In 2014, Jones and Smith explored alternative measures to assess the “understandability” of accounting texts. In particular, they endorse to accounting literature the meaning identification test (MIT) and the sentence verification technique (SVT) and

variants of the traditional Cloze tests. Their findings highlight that these tests are not significantly associated with those of Cloze tests and conclude that the Cloze test is a good measure just of the predictability of accounting narratives, but not necessarily of text understandability.

As regards ‘others,’ we identified a minoritarian and varied branch of studies outside of the dominance of readability formulas and understandability tests in the accessibility theme. This is a minoritarian and residual vein that contains just four studies. The first study copes with the sense feature technical jargon (Aerts, 1994). As regards technical jargon, it has been highlighted by Aerts (1994) that a proxy of low accessibility can be the “accounting bias.” This bias implies using technical accounting terms – as specialistic jargon - to explain bad performance outcomes while explaining good performance outcomes using a more straightforward language. This interesting suggestion of Aerts has not been followed and deepened by other researchers (Rutherford, 2018). Another alternative indicator of accessibility has been suggested by Sydserrff and Weetman (1999), who proposed the “texture index” based on linguistic theory. The authors specifically address this index as a substitute for readability formulas. In particular, the texture is something different with respect to readability. The texture is a texts’ property that make them appear meaningful to texts’ users. Sydserrff and Weetman suggestion to analyse texture in the accounting field is a strong innovation to the readability studies. Indeed, their texture index is holistic with respect to readability formulas that focus on single words and sentences. However, this alternative to readability formulas has been recognised to be time consuming and neither this innovation has been strongly deepened by further research (Rutherford, 2018). Other two studies in this branch focus on “repetition.” Pesci et al. (2015) investigate the rhetorical device of repetition in Cooperative Banks social and environmental reporting practices and propose to reconsider its role of mere mechanism of ‘symbolic management’ to that of a tool capable of helping the reader in the process of knowledge acquisition. Li (2019) investigates the same topic by relying on succession hypothesis and advertising research. His study demonstrates that while the Securities and Exchange Commission (SEC) states that repetitive disclosures are uninformative, this disclosure provides additional channels to process information and improve the investors’ learning process. The last study in ‘others,’ is Zhang et al. (2020). This study investigates accounting judgments related to the directional influence of uncertainty expressions and the foreign-language effect (FLE). Their results highlight the presence of directionality biases in accounting judgement both in subjects’ native and foreign languages. However, they show that directionality biases decrease when language is switched from the subjects’ native tongue to a foreign language

In summary, the theme accessibility is dominated by readability formula studies. However, researchers have shown that readability is neither a proxy of understandability nor the only measure of accessibility that we should consider when investigating accounting narratives. More studies concerning the use of technical jargon as a proxy of low accessibility and repetition as a tool capable of improving the process of knowledge acquisition and information retrieval are needed.

Regarding the credibility and quality of text (b2), their investigation concerns 20 articles in our sample. There is no shared and unique definition of accounting narratives quality in the literature (Beattie et al., 2004). However, the articles in this branch mention quality and credibility, often using different proxies to define these concepts, and they are committed to specifically investigating these aspects. Considering that the concept of narratives quality is not well-defined, we pick up a definition from the articles we analysed. In particular, according to these articles accounting narratives quality assumes the respect of validity claims (Wright, 1994), authenticity (Khalid et al., 2019), not misleading explanations (Keusch et al., 2012), more transparent disclosure, more disclosure but less boilerplate, greater comparability (Lang et al., 2015), high informative power (Costa et al., 2019), the capability not to fail in discharging accountability (Miles and Ringham, 2019) and the use of causal reasoning (Zhang et al., 2019).

In summary, most of these studies have pointed out that narratives fail to be credible and present low quality due to psychological bias, inauthenticity, low empathy with stakeholders about what should be disclosed and other factors that can conduct to uninformative disclosure, misleading disclosure and misstatements.

4.3. Communication

The third concept concerns the output of written narratives and thus the communicated message and related perception. There are 110 articles included in this concept. Communication is related to the purpose of the message and signals within the text. On the basis of the articles we have analysed, the primary purpose of written narratives can be to give useful information to users, convince them and gain their approval, and represent and empirically model abstract concepts. In this respect, we have identified three main themes that have been investigated in relation to this concept: information (c1), strategic use (c2), and depiction (c3).

4.3.1. Information

The first theme is “information” (c1) and 29 studies in our sample represent it. According to this research’s branch, narratives represent conscious, non-opportunistic and non-biased messages that can be exploited to obtain useful information. Studies in this branch posit that textual disclosure has informative power to support the informative content of quantitative data such as financial ratios. One of the first studies in this branch is Tennyson et al. (1990), who show the usefulness of the narrative disclosures information for explaining financial distress and bankruptcy. In the same way, Smith and Taffler (1995) demonstrate through an experiment on decision-making capabilities that narrative statement alone (without accounting statement) is a significant indicator of financial performance despite being inferior to quantitative financial statements. In another study, Smith and Taffler (2000) show that narrative disclosures in chairman’s statements are closely associated with financial performance and contain important information on the risk of bankruptcy. In the same line, Mayew et al. (2015) explore the informativeness of textual disclosures in the Management, Discussion, and Analysis (MD&A) in predicting whether a company will be able to continue as a going concern or not. They find that both management’s opinion and linguistic tone have significant and incremental explanatory power to solely financial ratios. Similarly, Purda and Skillicorn (2015) developed a statistical method to predict fraud by analysing the language used in MD&A of companies’ annual and quarterly reports. Their findings suggest that the deviations from language exhibited in previous reports may provide incremental power in identifying fraudulent reports. Outside of these studies strictly focused on financial performance investigation, other studies such as Boskou et al. (2019) find that text analysis classification models can assess Internal Audit Quality.

Moreover, information studies have investigated corporate social responsibility as well. For instance, Nazari et al. (2017) find that increased and more readable CSR reports are informative of better CSR performance. Cannon et al., (2020) show that corporate social responsibility (CSR) disclosure in the 10-K provides information about companies’ competitive advantages. Clarkson et al. (2020) show that qualitative disclosure used in CSR reports can be used to predict CSR performance accurately.

Overall, according to these studies, it is possible to retrieve important information from written narratives both in terms of organisations’ financial and non-financial performance. The meaning that written narratives convey is suppletive useful information capable of enhancing organisations’ accountability. However, researchers should find methods and patterns to catch the message.

4.3.2 Strategic use

The second theme related to the communication area is the strategic use theme (c2) and it is the most investigated theme represented by 70 studies. This theme is antithetical to the previous one. In this branch, researchers investigate narratives as means that organizations use to represent themselves to an audience strategically.

This branch of literature has already been identified and strongly deepened by previous papers and reviews (e.g., Merkl-Davies and Brennan, 2007; 2011). According to previous research (Merkl-Davies and Brennan, 2007), we notice that studies in this branch vary in a continuum between more positivist and more constructivist studies (Merkl-Davies and Brennan, 2011; Beattie, 2014).

As regards positivist studies, these focus on the communication of organisations' performance. The research design of these studies concerns large sample size, quantitative methods and hypothesis testing. This kind of studies focus on word and sentence-level text features. These features are investigated objectively, most of the time using software to perform tasks such as word count (keywords, tone, markers of deception) and calculation of readability.

The studies in this branch are of two different kinds: obfuscation and content analysis (form and meaning oriented). As regards obfuscation studies, these studies link together the accessibility and strategic use theme. Low accessibility is investigated as a proxy of obfuscation by the management in conveying bad news such as weak financial or CSR performance (e.g., Adelberg, 1979; Barkemeyer et al. 2014; Melloni et al., 2017; Ben-Amar et al., 2021). The studies using content analysis have particularly focused on tone management and wordlist and biases. As regards tone management and wordlists, these studies investigate the use of particular words (that can be part of specific wordlists) used within written narratives to convey a particular sentiment to the text. For instance, several studies in our sample (e.g., Cho, 2009; Cho, 2010; Barkermeyer et al., 2014; Melloni et al., 2017; Li and Haque, 2019; Choi, 2020) have investigated the use of optimistic and pessimistic and certain and uncertain tone within sustainability report narratives. Overall, their findings converge in positing that organisations use communication strategies to legitimate their actions. Their studies point out that environmental disclosure is more a legitimacy tool than an effort of accountability. Moreover, part of these studies highlights significant differences between the tone of good and bad performers. In particular, the latter exhibit more optimism and less certainty tone.

Not all the studies focusing on wordlists investigate text sentiment. For instance, Ben-Amar et al. (2021) show that corporations use references to 'merit' and 'diversity' strategically.

In particular, they find that corporations referring to merit in their disclosure have fewer women directors than corporations that do not mention merit.

Another branch of these studies has focused on communication bias. According to this literature, one of the results of accounting narratives communication is the production of disclosure affected by self-serving bias (Aerts, 1994, Clatworthy and Jones, 2003, Aerts 2005, Keush et al., 2012, Moreno et al., 2019). The self-serving bias is a past-oriented bias that implies that organisations use their disclosure with a twofold aim: to emphasise and take credit of good performance and to blame external factors for bad news. Overall, all the studies in this branch (e.g., Aerts, 1994; Clatworthy and Jones, 2003; Aerts, 2005; Clatworthy and Jones, 2006; Cho et al., 2010; Keusch et al. 2012; Moreno, 2019) have confirmed that performance explanations in annual and sustainability report narratives are implicitly defensive in nature and affected by self-serving bias. This finding applies to both good and bad performance companies, however, there is evidence that it is more present in crisis periods.

Another communication result highlighted by this branch of literature is the bias of forward-looking narratives. This bias consists of a major focus on forward-looking disclosure to compensate for a minor focus on past-performance explanations. For instance, Clatworthy and Jones (2006) evidence that unprofitable companies focus more on future performance rather than past. In this respect, Schleicher and Walker (2010) specifically focus on forward-looking narratives and find that loss and risky companies provide a more positive tone in this kind of narratives. In another study, Schleicher (2012) deepens this previous finding by re-investigating positive forward-looking statements examined in Schleicher and Walker (2010) to make a comparison between companies with improving and deteriorating financial performance. He finds significant differences between these companies and in particular that bad-news companies' positive statements have more non-specific time horizons, segmental forecasts, and references to aims and objectives but fewer numbers. In line with impression management, these positive forward-looking statements' selectivity and vagueness features significantly increase the ability to distinguish between improving and deteriorating companies' financial performance. With respect to the previous one, this kind of bias is therefore future-oriented.

Other than the self-serving and forward-looking bias, another bias has been highlighted in this literature: the "accounting bias" (Aerts, 1994). As we already mention in the accessibility theme, Aerts introduced the notion of accounting bias as the tendency to explain negative performances using technical accounting terms and positive ones in strict cause-effect terms. This behaviour can be due to a voluntary obfuscation of bad

performance. However, in the same article Aerts mentioned the self-serving bias and most of the accounting literature has investigated this one instead of the accounting bias. This bias can be seen as a mix between obfuscation and tone/wordlist investigation.

Another vein of studies in this positivistic branch has focused on what is disclosed and not on how it is disclosed (Dhanani and Connolly, 2012; Cong et al., 2014; Hadro et al., 2017). In these studies, the authors investigate withheld and disclosed pieces of information (mainly using disclosure indexes) and obtained insights strongly in line with impression management. What is disclosed and withheld appears to be mainly defensive but also a proactive mechanism to give the impression of better performance as it actually is.

As regards constructivist studies, these studies usually adopt system-oriented theories (Legitimacy, Stakeholder, Institutional) and interpretive and qualitative methodologies to investigate narratives' strategic use. These studies concern a more in-depth and hermeneutic investigation of organisational texts by focusing on small sample or case studies. The studies in this branch use interpretive analyses of texts and in particular interpretive content analysis (e.g., Langton and West, 2016), discourse and critical discourse analysis (e.g., Merkl-Davies and Koller, 2012), narrative analysis (e.g., O'Dochartaigh 2019) and rhetoric analysis (e.g., Higgins and Walker, 2012).

This branch of studies is characterised by the view of language as a social practice and texts as parts of social events (Fairclough, 2003) that can reveal the creation, maintaining and challenging of social and political domination.

These studies mainly investigate the usage of assertive and defensive strategies (Tedeschi and Melburg, 1984) within written narratives (e.g., Ogdern and Clarke, 2005; Samkin and Schneider, 2010; Abdelrehim et al. 2015; Conway et al. 2015; Cooper and Slack, 2015; Martins et al., 2019) in order to gain (e.g., Irvine and Fortune, 2016), maintain or repair legitimacy (Suchman, 1995) after a particular event (e.g., Maroun, 2018) such as a natural cataclysm (e.g., Conway et al., 2015), crisis (e.g., Abdelrehim et al. 2015; Soobaroyen and Ntim, 2013) or an organizational change (e.g., Ogden and Clarke, 2005; Martins et al., 2019) or stigmatization in general (e.g., Moerman and Van Der Laan, 2005; Samkin and Schneider, 2010; Evans and Pierpoint, 2015; Lauwo et al., 2020; Soobaroyen and Mahadeo, 2016). The results of all these studies converge in positing that written narratives are a powerful legitimacy tool.

Moreover, these studies focus on organisational life context. In particular, some of these studies concerns specifically the investigation of rhetoric (e.g., Craig and Armernic, 2004; Higgins and Walker, 2012) to sustain a specific ideology and gain or maintain a hegemonic

role. In this respect, relying on Thompson concept of ideology (Thompson 1984, 1990), several studies (Milne et al. 2009; Mäkelä and Laine, 2011; Ferguson et al, 2016; Chelli et al., 2019) critically examine the language used in reports and find that it is used to maintain the status-quo and legitimise existing and non-revolutionary practices with respect to sustainability. In doing so, organisations ignore potential challenges from other interlocutors and try to preserve or obtain a hegemonic role in the debate. The same conclusions have been proposed by Laine (2010) that through discourse analysis found that companies have transformed sustainability from a revolutionary concept into an evolutionary and pro-status-quo one over time, and Higgins and Walker (2012) who, by means of a rhetorical analysis, argue that the reports of three New Zealand companies present persuasive strategies to make sensible the business centred understandings of sustainability. In the same way, Tregidga et al. (2014) analyse organizations' representation of themselves with respect to sustainable development through their corporate reports relying on Laclau and Mouffe's discourse theory. They find that three different organizational identities are constructed over time: environmentally responsible and compliant organizations; leaders in sustainability; and strategically 'good' organizations. They show how organisations have maintained their hegemonic role and therefore their 'right to speak' in the sustainable development debate through these identities. In the same way, Semeen and Islam (2021), relying on Bourdieu symbolic power, show how fair-trade organizations social impact disclosures are used as mechanisms of symbolic power. These organisations depict themselves as dominant actors in responding to stakeholders' social concerns using silence and rhetorical strategies. Archel et al. (2009) and Maltby and Tsamenyi (2010) rely on political economy theory (PET) to show that disclosure is used strategically to manipulate social perception to legitimise a production process supported by an ideological alignment with the State. Josiah et al. (2014) explore how the migration from defined benefit to defined contribution pension schemes is accounted in corporate reporting narrative relying on a critical perspective. Their findings suggest limited engagement with employees and a lack of appetite in this respect from employees as well. They show how the change is framed to give workers an impression that they are taking responsibility for them and their future. An alternative view can be that the organisation is devolving risks to employees to gain profitability. Craig and Amernic (2019) analyse autobiographical vignettes in the letters to shareholders of a chief executive officers (CEOs) in a company's annual report in the railway industry sector. The authors show that these vignettes can be used strategically to help CEOs to sustain self-legitimacy as a leader establishing a common ground with his followers by appealing them emotionally.

Furthermore, these studies (i.e., Laine, 2005; Haji and Hossain, 2016; Maroun et al., 2018; Khalid 2019; Nwagbara and Belal, 2019) in critically assessing the content of written narratives focus on the related symbolic and lack of substantial performance and therefore on the hypocrisy and inauthenticity of written narratives. As Laine (2005) stated about sustainability “behind this rhetoric, little evidence of anyone “walk the talk” is present” (p. 395). In particular, Khalid et al. (2019) suggest that information provided in sustainability disclosure can be problematic due to bad faith and inauthenticity. Relying on Sartre, bad faith is a form of self-deception or internal denial, while inauthenticity is self-awareness that leads to the pursuit of external expectations.

In addition to being the most investigated theme, it is the most pervasive of the literature. The strategic use theme influences the adaptation themes leading to the investigation of symbolic and inertial adaptation. Regarding accessibility and strategic use, when these themes are linked together in an article, low readability is read as a proxy of intentional obfuscation of the organisation’s poor performance. Lastly, when strategic use links with the depiction theme (see next section), researchers adopt a critical perspective to investigate reports as vehicles to sustain ideologies. This polarisation strongly reduces the number of studies that address these themes under other perspectives (i.e., substantive adaptation, improving accessibility and creation and enacting new meanings in reporting documents).

4.3.3. Depiction

This theme (c3) concerns how organisations depict the meaning of abstract concepts through their narratives and 21 articles in our sample represent this theme. The concepts that have been mostly investigated are those related to non-financial aspects such as the concept of sustainability, and therefore how organisations interpret and shape these abstract concepts through their reporting practices. Also other concepts, such as the concept of “market” and “capitalism,” have been investigated. Specifically, the organisation can depict abstract concepts (13 studies), itself with respect to those concepts (6 studies) and its stakeholder (2 study).

As regards concept depiction, the first study in our sample related to this theme is that of Laine (2005), who investigates the meanings of the term “sustainable development” in Finnish corporate disclosure. According to the findings, this concept is constructed through corporate reports as a win-win concept with no need for a trade-off or radical restructuring in society and business. Laine highlights the rhetorical nature of this

construct and the little evidence of anyone actually follows the sustainable development road. In the same line, Caron and Turcotte (2009) analyse how companies approach the concepts of sustainability, corporate social responsibility, or citizenship reports. They show that companies only partially adopt the sustainability reporting guideline and ideals due to the struggle between path dependence and path creation in reporting practices. These results suggest that these innovative practices are still under construction. In another study, Laine (2010) focuses on how the language of sustainability is used in organizations' disclosure. The author highlights the evolution of how sustainability-related concepts are depicted in organisations' disclosure over two decades. According to the author, sustainability has been transformed from a revolutionary to a just evolutionary concept or to a sustaining-status-quo concept. Mäkelä and Laine (2011) investigate the use of language in CEO letters in annual and sustainability reports to reinforce their worldview in the sustainability debate. They posit that CEO letters in the annual reports rely more on economic discourse of profitability while in sustainability reports they rely more on well-being discourse to depict sustainability in accordance to their ideology. Merkl-Davies and Koller (2012) use critical discourse analysis to analyse how language in the annual reports of a UK defence company is used strategically to normalise violence and destruction by "depicting it in an abstract and sanitised manner." Bujaki and McConomy (2012) analyse the use and change of metaphor in the letters to shareholders of Nortel Networks Corporation over time and in relation to the turnover in corporate leadership. They identified key metaphors including science, journey, vision, construction and theatre and highlighted their changes in their usage across various chief executive officers, and changes in their meanings between periods of growth and decline. Higgins and Walker (2012) analyse the social and environmental reports produced by three New Zealand companies and argue that persuasive strategies depict business-centred understandings of social responsibility and sustainability as reasonable and business organisations as trustworthy in their pursuit of sustainable development.

Samkin (2012) investigates the extent to which sustainability reporting in an important South African company has changed on the ground of King work. In particular, the findings highlight that the emphasis of sustainability reports changes over time but, conducting a year-on-year comparison of twenty concepts related to sustainability reporting, he found no substantial differences between them and a certain consistency in their usage by the preparers of sustainability reports. McPhail and Adams (2016) explore how respect for human rights is operationalised by companies in the mining, pharmaceutical and chemical industries. They find that corporate depiction of human rights is broad and concerns labour,

social, political and health rights. O'Dochartaigh (2019) explores how storytelling in sustainability reporting is used to depict the fairytale of “sustainable business.” The author argues that sustainability reports represent stories targeted to involve sentimentally specific stakeholders rather than accounts about ecological and societal issues. Quarchioni et al. (2021) focus on the integrated reporting practice as a signifying practice to investigate the concept of integrated thinking. They find that this concept is depicted dynamically in its meaning over time due to the different objects and interactions among them that it involves. In particular, they show how the enacting of this concept and its dynamic nature are able to affect the written narratives within the reports in a mutual relationship between conveying information and making information visible.

As regards depicting themselves with respect to a specific concept, Tregidga et al. (2014) investigate how organizations represent themselves in relation to sustainable development uncovering a changing organizational identity representation over time. In particular, organisations depict themselves as environmentally responsible and compliant organizations at the beginning, then as leaders in sustainability and as strategically ‘good’ organizations at the end of this path. According to the authors, the depiction of these three different identities is enacted in order to maintain the ‘right to speak’ within the sustainable development debate (Tregidga et al., 2014, p. 477). Nwagbara and Belal (2019) investigate how leading oil companies in Nigeria used the language in their CSR report to depict themselves as “responsible organisations.” They find that these companies persuasively construct and portray the image of “responsible organisation” despite serious criticism about their irresponsibility. Semeen and Islam (2021) show how fair-trade organizations use their social disclosure to depict themselves as dominant actors in responding to social inequality to maintain dominance over their stakeholders.

As regards depicting stakeholders, Ferguson et al. (2016) explore corporate communications related to climate change adopting a critical perspective. They examine how companies position themselves within the debate, also highlighting how companies displace responsibility by depicting government and suppliers as barriers to the progress they are contributing to. In another study, Mäkelä (2013) investigates corporate reporting narratives related to employees and shows that corporate disclosure still depicts a partial picture of employees as people by presenting them more in a mechanistic and efficiently aiming way. The findings show that the concept of employee is depicted as instrumental value to companies and not as human beings with several qualities and needs.

In summary, most of these studies have pointed out that there is resistance to new concepts and a strong reliance on old concepts. In this respect, organisations depict new

and revolutionary concepts (and depict themselves with respect to these concepts) in order to gain legitimacy and shape the meaning of these concepts in a manageable and non-revolutionary way to conform these concepts to their already existing operational activities. It is evident that this thematic area is strongly linked with that of strategic use, indeed more than half of these studies (13) in the former area are shared with the latter.

5. Discussion and insights for future research

The results of our systematic review give an overview of the state of the art of literature on written accounting narratives in terms of the main features of these studies, earlier literature that has inspired and legitimated these studies and systematization in research areas.

As regards the main features, our descriptive findings show the main settings of these studies in this field in terms of academic commitment, kinds of investigated reports and methods and theories that have been used. The literature is mainly led by British journals and academics. Initially, the focus was mainly on the classic annual report and its parts, but more attention has been dedicated to 10-K forms and CSR reports over the years. Moreover, in the last few years, integrated reports have also been investigated, although the literature is still blooming in this respect. It seems necessary to further develop integrated report studies considering the potential role that narratives (Leuz and Wysocki, 2016; Michelon et al., 2021) and narrative in integrated reports, in particular, can have on decision making (Lai et al., 2018) and as a signifying practice (see Busco et al., 2018, 2019). As regards the geographical area of investigation, we highlighted that written accounting narratives studies have prevalently addressed the British, American and European contexts. Focusing on more neglected geographical areas could be an interesting and fruitful avenue for further research. In particular, the need to investigate more in-depth integrated reports can be followed by a major attention on the South African context.

Other suggestions regard the techniques and theories used to investigate written narratives. Indeed, a limitation we found in the literature regards the methods used to investigate written accounting narratives. In particular, the most used methods are form-oriented and meaning-oriented content analysis. However, it has been highlighted that content analysis presents some constraints. In particular, content analysis studies just focus on “what” is disclosed (Haji and Hossain, 2016) and the text is just seen as a reflection of social reality (Merkl-Davies et. al 2014, Hossain, 2017). In this respect, several scholars encouraged more in-depth analyses related to “why” and “how” the meaning of the message is created and disclosed. In this respect, several researchers have relied on

discourse analysis (Dijk, 1990; Fairclough, 1992; Phillips and Hardy, 2002; Tregidga et al., 2018), rhetoric analysis (Higgins and Walker, 2012) and narrative analysis (O'Dochartaigh, 2019) to interpret written narratives' meanings. In particular, there was a strong increase in the usage of these qualitative analyses in the last decade. Indeed, a reason to prefer these analyses is that nowadays automated methods are strongly less tailored and precise in the interpretation of the meaning of the texts than qualitative manual methods because they lead to analyse words isolated from their context in the whole sentence (Hassan et al., 2019). This particular limitation hinders researchers from obtaining a sound unit of analysis and can conduct them to misleading or just partial results (Milne and Adler, 1999; Beattie and Thomson, 2007; Hassan et al., 2019). However, qualitative analyses also have the disadvantage of being characterised by a very labour-intensive and time-consuming procedure. This leads to the impossibility of dealing with large sample sizes, limiting the empirical results' generalizability (Beattie and Thomson, 2007; Li, 2010; Hassan et al., 2019). Moreover, manual qualitative approaches are also characterised by subjectivity in interpreting texts and thus lower replicability (Li, 2010). In this respect, a suggestion is to develop new methods and research designs oriented to find a trade-off between the major precision of qualitative analyses and the capability of dealing with a large sample of quantitative methods. In finance and accounting studies, quantitative textual analyses have been mainly conducted following two different approaches: the dictionary and the statistical approach (Li, 2010). These approaches focus more on word occurrences patterns than on word's context and meaning. In particular, using these approaches mainly leads to analysing words isolated from their context in the whole sentence (Hassan et al., 2019) driving researchers to obtain possible misleading results (Milne and Adler, 1999; Beattie and Thomson, 2007; Hassan et al., 2019). We posit for the usage of methods that can allow for taking into account the context in which words appear but diminishing the subjectivity and maintaining the possibility of analysing large samples. In this respect we propose to employ methods relying on the vocabulary approach (see, Loewenstein et al., 2012) that have the advantage of relying on a replicable quantitative methodology but taking into account the context in which words are used. In a similar way, we propose to move away from methods based on word-lists and bag of words (see Li, 2010; Loughran and McDonald, 2016) using techniques such as network text analysis (see Carley, 2020) and word embedding (see Lai et al., 2016) to shift the analysis focus from words as atomistic units to sentences or n-grams (e.g., Grüning, 2011) to account for words' meaning. In this respect, a new avenue can be to develop new automated method of analysis dealing with entire sentences or n-grams rather than single words (e.g., Grüning, 2011).

As regards the theories, we noticed that the mainly used theory in these studies is the impression management theory. In this respect, we investigated the previous literature that inspired and legitimised literature on written accounting narratives by conducting a co-citation network analysis. Our analysis highlighted the three main research branches from which the literature arises (interpretive and critical, positivist and mixed branch) and the related most influential papers. These studies are mainly grounded on impression management, critical theories and legitimacy theory strategies. Relying on these theoretical grounds, most of the studies in our sample are more oriented toward investigating written narratives as strategic tools and symbolic disclosures than on understanding if they can have a possible substantive role.

On the ground of the thematic analysis, we designed a comprehensive framework of the literature taking into account the connections among the several themes on an underlying structure depicting the input, throughput and output process (highlighted by blue arrows in Figure II.9) related to the production and consumption of written accounting narratives. It is worth noting that the three concepts and related themes that have been identified are strongly connected among them, in fact several articles overlap two or more of the themes. However, the literature seems to be polarized on particular themes and their interactions while neglecting other interesting research areas.

In particular, we noticed that a strong polarization is present with respect to strategic use theme (highlighted by red arrows in Figure II.9), which is the most investigated one (70 articles). This led other themes such as those in the adaptation and depiction concepts and accessibility to be investigated marginally and instrumentally to the strategic use theme.

Regarding concept A (Adaptation), its themes (a1 and a2) have been investigated as supplementary themes with respect to the strategic use theme most of the times (24 of the 42 articles are shared with the strategic use theme). Adaptation mechanisms have been mostly investigated with respect to the communicative output they can generate to the audience and rarely mainly focus on internal mechanisms. In particular, adaptation has often been investigated in relation to the creation of a framing effect to gain legitimacy according to Goffman's impression management (1959) and Suchman legitimacy strategies (1995). However, few insights are given about the metabolization and the difficulties in the attempt to mediate between and follow external and internal pressures by the organizations. Many articles, adopting a critical perspective, highlight that organizations adapt to new concepts in a symbolic and inertial way. Therefore, organisations do not change their way of thinking and acting but try to depict themselves as agents committed in the process of changing things by misleading their audiences. However, adaptation is a very complex

phenomenon that needs to be investigated focusing on the challenges that the organisation has to cope with (e.g., is it complex for the organization to adapt to the pressures and represent new concepts within their documents? How can an organisation start to account for and deal with new concepts within their documents?). As an example, what can appear as a symbolic adaptation not followed by real facts, can actually be the first step of a real adaptation to very complex phenomena and concepts. More studies are needed in the respect of substantive effects burgeoning from written accounting narratives. In this respect, it could be useful to rely on interdisciplinary knowledge. For example, Merkl-Davies and Brennan (2011) have proposed to use insights from psychology and other sciences to improve our knowledge on impression management in accounting communication. Their proposal relies on the fact that organisations' choices are influenced by several social constraints arising from the recipients of corporate reports. Therefore, social and cognitive psychology theories could deepen our knowledge of this phenomenon. In the same way, we propose to use a similar interdisciplinary approach to investigate organisation narratives adaptation mechanism but using a cognitive development perspective. As an example, it could be insightful studying adaptation according to Piaget's theory of cognitive development (Huitt and Hummel 2003). According to this theory, adaptation to new information and stimuli involves two sub-processes called assimilation and accommodation. While assimilation is the fitting in old mental scheme of new concepts, accommodation can be seen as the next step, and it involves the alteration of previous scheme to cope with new concepts. Moreover, these two processes of assimilation and accommodation are part of what is called *the equilibration process*. The equilibration process consists of three steps: to be satisfied with your own way of thinking; become aware that there are shortcomings in the current way of thinking and therefore perceive dissatisfaction; review the mode of thinking adopting new mental schemes to overcome the dissatisfaction.

We posit that Piaget theory can be applied in the organizational context to investigate the inertia of organizations to adapt to new concepts, but this needs an investigation more focused on the internal factors that lead narratives dynamics over time. Piaget's theory can offer a counter theoretical point of view to investigate topics that have often been deepened using the lens of impression management without investigating organisation internal mechanisms of adaptation more thoroughly. In particular, accounting and management researchers have often relied on the duality between "symbolic" and "substantive" strategies following legitimacy theory (Ashforth and Gibbs, 1990; Cahan and Van Staden, 2009; Day and Woodward, 2004; De Villiers and Van Staden, 2006; Suchman, 1995).

However, this duality could be forced or just apparent in some cases. It could be possible that those defined as “symbolic” disclosure are part of the assimilation phase of the adaptation process of the company. For example, Chelli et al., (2018, p. 1031) defined the following written sentences as an example of symbolic disclosure: “SUEZ [French–Belgian public limited utility specialized in sanitation, energy and water-related services] has been a member of the United Nations Global Compact since its creation, giving the company a global perspective on its commitments to sustainable development. The Group has undertaken to observe the 10 fundamental principles regarding human rights, labor rights, the environment, and anti-corruption that were adopted by the Global Compact.” The researchers defined these sentences as “symbolic” because while participation in recognised initiatives, partnerships or committees contributes to symbolically sustain the companies’ images, suggesting they can minimize environmental effects, on the other hand no genuine impacts may be easily assessed in this respect. However, the participation in these initiatives could be part of the assimilation process of sustainability culture. In this respect, the adaptation and depiction theme can be linked to study assimilation and accommodation. In particular, some research questions can be:

- How do new concepts and meanings assimilated by the organisations materialise themselves through written narratives?
- How do written narratives in corporate reporting materialise wider concepts and project new meanings over time?
- Is it possible to distinguish between assimilation and accommodation phases from what is presented in reporting narratives and organisations’ actual actions?

The Adaptation concept should also be more addressed investigating written narratives as mechanisms reflecting negotiations and compromises in the development of accounting innovations. Indeed, while critical studies mainly focus on the corruption of new accounting concepts’ meanings to institutional inertia, research is needed to explain how model of innovation can be constituted by adaptation and adoption processes (Caron and Turcotte, 2009). In this respect, future research should deepen the adaptation process of companies in adopting revolutionary concepts (such as those related to sustainability) highlighting path dependence and path creation tensions processes (see, Caron and Turcotte, 2009). Studying companies as adapters that tend to find a certain degree of discretion in the implementation of accounting innovations can shed some light on normativity and be fruitful for practitioners, standard setters, and regulators.

As regards concept B (Boundaries and body), the accessibility theme (b1) has been investigated to demonstrate how organisations deceive audiences (linking with the strategic

use theme) and also in terms of informativity (linking with the information theme). However, this literature lacks of studies directly addressing best practices and more friendly ways to access the message conveyed by organisations' documents or investigating organisations' internal actors' cognitive processes. Studies on these topics are present in the literature (e.g., Parker, 1982 and Asay et al., 2018 respectively) but these are just marginal. Moreover, this theme is dominated by readability formulas while other accessibility proxies (such as understandability) have been strongly neglected in the last years. More studies on other accessibility proxies are needed. In particular, it could be an interesting research avenue to investigate the trade-off between repetitiveness as an element allowing acquisition of knowledge (Pesci et al., 2015) and its role as just boilerplate and information overloading (Dyer et al., 2017). In this respect, it could be interesting to link repetitiveness and understandability studies together. However, also in such an investigation, it would be useful to rely on interdisciplinary knowledge.

Lastly, regarding concept C (Communication), we want to focus on the depiction theme (c3) because also this theme is strongly affected by the strategic use one (11 on 21 studies). Most of the time researchers have investigated how organisations depict new concepts positing that these concepts are depicted strategically to gain legitimacy or to sustain ideology and hegemony. However, how companies depict abstract concepts could have substantive implications for their actions. In this respect, we suggest coping with other theoretical perspectives to gain more insights that can link together depiction with adaptation. This can be useful to cope with the requested more efforts on the role of written accounting narratives in decision-making processes (Leuz et al., 2016; Michelon et al., 2021). Indeed, Busco et al. (2018) and Quarchioni et al. (2021) state that reporting is increasingly becoming a practice useful for managerial purposes because of its potential role as a signifying practice. Where a signifying practice is a practice capable of materialising the meaning of things in the world. A practice that makes things mean (Hall, 1997). In this respect, investigating written accounting narratives as part of signifying practices can help researchers understand how meanings of abstract concepts are created and materialised in the real world.

Moreover, another limitation is related to the purpose of these articles. Indeed, while contributions having as first aim that to help practitioners on how to gain information from written narratives are present ("Information" theme) few of them directly address problems that have been highlighted by the literature and acknowledged by the practitioners such as that of repetitiveness as boilerplate and redundancy in written narratives (Dyer et al., 2017). To reduce the gap between academia and practitioners, more methodological studies for

developing new approaches to investigate written narratives – as an example of the development of tools to retrieve useful sentences and information – are needed.

6. Conclusions

Written accounting narratives presence and importance in corporate reports have increased over time. In this respect, researchers have increasingly focused on the role and meanings of these information sources in the last decades. Despite this prolific literature, their role and meanings are still debated. Previous studies have highlighted their function as tools to provide incremental information to accounting statements and their role as strategic tools. Moreover, recent studies have suggested a potential role of these sources of information in impacting internal actors' decision-making processes (Leuz and Wysocki, 2016; Lai et al., 2018; Michelon et al., 2021). Considering the complexity of these objects, this work provides the first systematic review specifically addressing studies that have investigated the role and meanings of these narratives in corporate reporting.

In particular, we have deepened the state of the art of the literature providing three kinds of analyses: descriptive analysis, co-citational analysis and thematic analysis. These analyses answer the following questions: what are the main features of these studies? What earlier literature inspired and legitimated these studies? How can research into written accounting narratives be systematised to highlight research areas deserving further studies? This study's main findings reveal a shift of the investigation focus from annual reports to CSR and integrated reports and an increasing usage of qualitative analysis to perform more in-depth investigations.

Another important finding regards the theories that have been used to investigate these narratives. The dominant theory is impression management, according to which written narratives are tools employed to manage impressions. This result is also confirmed by the co-citation analysis and by the thematic analysis in which we provide a theoretical framework for investigating written accounting narratives. The co-citation analysis reveals that the literature is highly influenced by impression management, critical theories and legitimacy theory. Furthermore, the most influential papers in this previous literature particularly address the strategic use of these narratives. Therefore, the studies in our sample are often oriented toward investigating written narratives as symbolic disclosure rather than on understanding if they can have a possible substantive role. In the same line, while the framework we propose highlights three main concepts and seven sub themes

related to investigating these narratives, the literature appears to be mainly polarised on the strategic use theme.

Overall, our analysis reveals that the literature prevalently focuses on the effects that written accounting narratives – as strategic tools – have on external audiences. Therefore, there is a highly shared vision of written narratives as symbolic disclosures to cope with impression management. However, this conceptualization is reductive given the potentiality acknowledged to narration in reporting in recent years.

In this respect, we highlight other possible research avenues relying on the proposed framework.

In particular, we propose to focus more on themes deserving further investigation and possibly overcoming links with strategic use. More research is needed on the substantive role and potential decision-making implications deriving from written narratives. The knowledge of the main settings, origins and proposed framework of the actual literature – with a particular focus on the state of the art of research themes such as “adaptation” and “depiction” and their domination by the “strategic use” theme – are needed to be aware in undertaking these new research paths not following old schemes.

We propose to challenge the strategic use-oriented research scheme, deepening new investigation perspectives such as cognitive development. For example, it could be possible to rely on an alternative view of adaptation (e.g., Caron and Turcotte, 2009) and narratives substantive role (e.g., Chelli et al, 2019) or use Piaget theory to understand whether those considered as strategic symbolic disclosures can be part of a process of assimilation and accommodation of new substantive strategies. Further research in this respect is vital to understand the possible generative role of written accounting narratives in developing knowledge and managerial thinking and foster the debate on the effects of narratives on decision-making (Leuz and Wysocky, 2016; Lai et al., 2018; Michelon et al., 2021). A field in which this kind of research seems to be strongly applicable is that of integrated reporting and thinking. As we noticed through the descriptive analysis, the literature on integrated reports is still blooming. We suggest more research efforts on this particular report because of its potential role in integrated reporting as signifying practice (see Busco et al., 2018, 2019) and affecting decision-making processes (Lai et al., 2018). Indeed, the integrated reporting practice should stimulate and activate holistic managerial thinking (i.e., integrated thinking). In this respect, it would be very insightful to understand whether the language used in integrated reports can lead to the assimilation and accommodation of new schemes in managerial thinking. Moreover, focusing on this report allows researchers to study more neglected geographical areas such as the South African context. In this respect,

while several initiatives have emerged in different regions of the world to promote 'Integrated thinking,' South Africa is a region of particular interest as listed companies are mandated to produce an IR (Melloni et al., 2017).

Another challenge that is still present is that of the methods. While on the one hand, the increasing use of qualitative analysis allows researchers to deeply understand the meaning of written accounting narratives, on the other hand, these analyses also have the disadvantage to be affected by subjectivity and low replicability. A suggestion in this respect is to find a trade-off between qualitative and large samples quantitative methods. We propose to employ methods relying on the vocabulary approach from organisational studies (see, Loewenstein et al., 2012) that has the advantage of relying on a replicable quantitative methodology but taking into account the context in which words are used. Moreover, the vocabulary approach allows to analyse narratives to discover categories as cognitive representations of knowledge. This fact is in line with our suggestion to adopt alternative research perspectives to investigate written accounting narratives.

Overall, our work contributes to written accounting narratives literature showing the main settings of the studies in this field, mapping the origins of the literature and the most researched themes. Regarding the researched themes, we highlight the interactions among different themes showing which theme mostly polarises the literature. In doing so, the work also proposes new research avenues for investigating most neglected themes (e.g., to challenge the scheme of research that investigates written narratives as symbolic and substantial disclosure grounded on legitimacy theory (e.g., Chelli et al., 2019) to try to interpretate their possible role as vehicle to assimilate, accommodate and represent complex concepts).

Lastly, this work is not without limitations. Indeed, following previous review articles (e.g., Hassan and Marston, 2019, Quarchioni et al., 2020) and methodological insights (Hiebl, 2021; Denyer and Tranfield, 2009; Sousa and Hendriks, 2008), we included only articles published in leading journals. Although this criterion allowed us to rely on higher-quality sources, other possible relevant contributions have been excluded from this study. Another limitation that could have affected the number of articles included in the study is the choice to rely on the SCOPUS database to retrieve the articles. In this respect, it could be possible to gain more articles by combining SCOPUS results with those from another scientific research database such as Web of Science.

Relying on our work, further research could enlarge the dataset and/or modify selection criteria. Moreover, we addressed only narratives in corporate reporting and further reviews

can add to this by addressing other forms of communication such as press releases and social media.

Table II-7. Articles included in the systematic review

	Article	Authors	Journal	Year	Theme
1	A Textual Analysis of US Corporate Social Responsibility Reports	Clarkson et al.	Abacus	2020	Information
2	Informational Content and Assurance of Textual Disclosures: Evidence on Integrated Reporting	Caglio et al.	European Accounting Review	2020	Credibility and quality
3	Readability of Notes to Consolidated Financial Statements and Corporate Bond Yield Spread	Chen and Tseng	European Accounting Review	2020	Accessibility, Information
4	What Are You Saying? Using topic to Detect Financial Misreporting	Brown et al.	Journal of Accounting Research	2020	Credibility and quality, Information
5	Express Yourself: Why Managers' Disclosure Tone Varies Across Time and What Investors Learn from It	Campbell et al.	Contemporary Accounting Research	2020	Information
6	Gendering merit: How the discourse of merit in diversity disclosures supports the gendered status quo on Canadian corporate boards	Ben-Amar et al.	Critical Perspectives on Accounting	2021	Strategic use, Accessibility
7	The spillover effects of MD&A disclosures for real investment: The role of industry competition	Durnev and Mangev	Journal of Accounting and Economics	2020	Information
8	Readability of Narrative Disclosures in 10-K Reports: Does Managerial Ability Matter?	Hasan	European Accounting Review	2020	Accessibility
9	Tone concavity around expected earnings	D'Augusta and DeAngelis	Accounting Review	2019	Strategic use
10	10-K Disclosure of Corporate Social Responsibility and Firms' Competitive Advantages	Cannon et al.	European Accounting Review	2020	Information
11	Disclosure tone of the spin-off prospectus and insider trading	Choi	Journal of Accounting and Public Policy	2020	Strategic use
12	Female leadership in corporate social responsibility reporting: Effects on writing, readability and future social performance	Harjoto et al.	Advances in Accounting	2020	Accessibility, Credibility and quality
13	Social impact disclosure and symbolic power: Evidence from UK fair trade organizations	Semeen and Islam	Critical Perspectives on Accounting	2021	Strategic use and Depiction
14	The directionality of uncertainty expressions and the foreign language effect: Context and accounting judgement	Zhang et al.	Meditari Accountancy Research	2020	Accessibility
15	Flows of information and meaning: a vocabulary approach to integrated thinking and reporting	Quarchioni et al.	Meditari Accountancy Research	2021	Depiction, External adaptation

	Article	Authors	Journal	Year	Theme
16	Persuasive language of responsible organisation? A critical discourse analysis of corporate social responsibility (CSR) reports of Nigerian oil companies	Nwagbara and Belal	Accounting, Auditing and Accountability Journal	2019	Strategic use, Depiction
17	A longitudinal study of the textual characteristics in the chairman's statements of Guinness: An impression management perspective	Moreno et al.	Accounting, Auditing and Accountability Journal	2019	Strategic use
18	Telling a success story through the president's letter	Martins et al.	Qualitative Research in Accounting and Management	2019	Strategic use, Depiction
19	Matter of opinion: Exploring the socio-political nature of materiality disclosures in sustainability reporting	Puroila and Mäkelä	Accounting, Auditing and Accountability Journal	2019	Credibility and Quality, Depiction
20	Substantive and symbolic strategies sustaining the environmentally friendly ideology: A media-sensitive analysis of the discourse of a leading French utility	Chelli et al.	Accounting, Auditing and Accountability Journal	2019	Strategic use, External adaptation
21	No more fairytales: a quest for alternative narratives of sustainable business	O'Dochartaigh	Accounting, Auditing and Accountability Journal	2019	Strategic use, Credibility and quality
22	Readability of integrated reports: an exploratory global study	Stone and Lodhia	Accounting, Auditing and Accountability Journal	2019	Accessibility
23	Sartrean bad-faith? Site-specific social, ethical and environmental disclosures by multinational mining companies	Khalid et al.	Accounting, Auditing and Accountability Journal	2019	Credibility and quality
24	The influence of institutional factors on corporate narratives: A thematic content analysis of Guinness	Moreno and Quinn	Accounting History	2019	External adaptation
25	When sorry is not an option: CSR reporting and 'face work' in a stigmatised industry – A case study of Barrick (Acacia) gold mine in Tanzania	Lauwo et al.	Critical Perspectives on Accounting	2020	Strategic use, External Adaptation, Depiction
26	Narrative disclosures, firm life cycle, and audit fees	Hossain et al.	International Journal of Auditing	2019	Internal adaptation
27	Repetitive disclosures in the MD&A	Li	Journal of Business Finance and Accounting	2019	Accessibility, Credibility and quality
28	Watch that tone: An investigation of the use and stylistic consequences of tone in corporate accountability disclosures	Fisher et al.	Accounting, Auditing and Accountability Journal	2019	Credibility and quality
29	Corporate social responsibility employment narratives: a linguistic analysis	Li and Haque	Accounting, Auditing and Accountability Journal	2019	Strategic use, Internal adaptation
30	Optimistic tone and audit fees: Some Australian evidence	Bicudo de Castro et al.	International Journal of Auditing	2019	Information
31	Different time, different tone: Company life cycle	Bakarich et al.	Journal of Contemporary Accounting and Economics	2019	Internal adaptation

	Article	Authors	Journal	Year	Theme
32	Manager sentiment and stock returns	Jiang et al.	Journal of Financial Economics	2019	Information
33	The Impact of Audit Committee Financial Expertise on Management Discussion and Analysis (MD&A) Tone	Lee and Park	European Accounting Review	2019	Credibility and quality
34	Causal language intensity in performance commentary and financial analyst behaviour	Zhang et al.	Journal of Business Finance and Accounting	2019	Information
35	Autobiographical vignettes in annual report CEO letters as a lens to understand how leadership is conceived and enacted	Craig and Amernic	Accounting, Auditing and Accountability Journal	2019	Strategic use
36	The boundary of sustainability reporting: evidence from the FTSE100	Miles and Ringham	Accounting, Auditing and Accountability Journal	2019	Credibility and quality
37	Empathy, closeness, and distance in non-profit accountability	Costa et al.	Accounting, Auditing and Accountability Journal	2019	Credibility and quality, Internal adaptation, Strategic use
38	Social and environmental reports at universities: a Habermasian view on their evolution	Moggi	Accounting Forum	2019	External adaptation
39	Classifying internal audit quality using textual analysis: the case of auditor selection	Boskou et al.	Managerial Auditing Journal	2019	Credibility and quality, Information
40	Biodiversity reporting and organised hypocrisy: The case of the South African food and retail industry	Maroun et al.	Qualitative Research in Accounting and Management	2018	Strategic use, External adaptation
41	Do firms effectively communicate with financial stakeholders? A conceptual model of corporate communication in a capital market context	Brennan and Merkl-Davies	Accounting and Business Research	2018	Credibility and Quality
42	Firm performance, reporting goals, and language choices in narrative disclosures	Asay et al.	Journal of Accounting and Economics	2018	Strategic use
43	The use of optimistic tone by narcissistic CEOs	Buchholz et al.	Accounting, Auditing and Accountability Journal	2018	Information
44	Optimistic Disclosure Tone and Conservative Debt Policy	Ataullah et al.	Abacus	2018	Information
45	Do features that associate managers with a message magnify investors' reactions to narrative disclosures?	Asay et al.	Accounting, Organizations and Society	2018b	Credibility and quality
46	The influence of business strategy on annual report readability	Lim et al.	Journal of Accounting and Public Policy	2018	Accessibility
47	Narrating the narrative turn in narrative accounting research: Scholarly knowledge development or flat science?	Rutherford	Meditari Accountancy Research	2018	----

	Article	Authors	Journal	Year	Theme
48	Integrated reporting and narrative accountability: the role of preparers	Lai et al.	Accounting, Auditing and Accountability Journal	2018	External adaptation
49	Evaluating the temporal dimension of legitimisation strategies: Evidence from non-financial reporting in response to a social crisis	Maroun	Qualitative Research in Accounting and Management	2018	Strategic use, Internal adaptation
50	The evolution of 10-K textual disclosure: Evidence from Latent Dirichlet Allocation	Dyer et al.	Journal of Accounting and Economics	2017	External adaptation
51	Impression Management in Letters to Shareholders: Evidence from Poland	Hadro et al.	Accounting in Europe	2017	Strategic use
52	Lessons for progressing narrative reporting: Learning from the experience of disseminating the Danish Intellectual Capital Statement approach	Roslender and Nielsen	Accounting Forum	2017	External adaptation
53	Saying more with less? Disclosure conciseness, completeness and balance in Integrated Reports	Melloni et al.	Journal of Accounting and Public Policy	2017	Strategic use, Accessibility
54	A plain English measure of financial reporting readability	Bonsall et al.	Journal of Accounting and Economics	2017	Accessibility
55	A theoretical framework of external accounting communication: Research perspectives, traditions, and theories	Merkel-Davies and Brennan	Accounting, Auditing and Accountability Journal	2017	Strategic use, Information
56	Writing write-downs: The rhetoric of goodwill impairment	Sandell and Svensson	Qualitative Research in Accounting and Management	2017	Strategic use
57	Assessing social and environmental performance through narrative complexity in CSR reports	Nazari et al.	Journal of Contemporary Accounting and Economics	2017	Information, Accessibility
58	The impact of narrative disclosure readability on bond ratings and the cost of debt	Bonsall and Miller	Review of Accounting Studies	2017	Accessibility
59	Annual Report Readability, Tone Ambiguity, and the Cost of Borrowing	Ertugrul et al.	Journal of Financial and Quantitative Analysis	2017	Accessibility, Information
60	Enhancement of fraud detection for narratives in annual reports	Chen et al.	International Journal of Accounting Information Systems	2017	Information
61	Postcoloniality in corporate social and environmental accountability	Alawattage and Fernando	Accounting, Organizations and Society	2017	Strategic use, External adaptation
62	The language of environmental and social accounting research: The expression of beauty and truth	Lehman	Critical Perspectives on Accounting	2017	Depiction
63	A socialist market economy with Chinese characteristics: The accounting annual report of China Mobile	Gong and Cortese	Accounting Forum	2017	Depiction, External adaptation

	Article	Authors	Journal	Year	Theme
64	Environmental Incentives for and Usefulness of Textual Risk Reporting: Evidence from Germany	Elshandidy and Shrives	International Journal of Accounting	2016	External adaptation
65	Exploring the implications of integrated reporting on organisational reporting practice: Evidence from highly regarded integrated reporters	Haji and Hossain	Qualitative Research in Accounting and Management	2016	External adaptation, Strategic use
66	Market reaction to the positiveness of annual report narratives	Yekini et al.	British Accounting Review	2016	Information
67	Corporate respect for human rights: Meaning, scope, and the shifting order of discourse	McPhail and Adams	Accounting, Auditing and Accountability Journal	2016	Depiction
68	Corporate response to climate change: language, power and symbolic construction	Ferguson et al.	Accounting, Auditing and Accountability Journal	2016	External adaptation, Strategic use, Depiction
69	Textual Analysis in Accounting and Finance: A Survey	Loughran and McDonald	Journal of Accounting Research	2016	Information
70	A comment on "the struggle to fabricate accounting narrative obfuscation: An actor-network-theoretic analysis of a failing project"	Stone and Parker	Qualitative Research in Accounting and Management	2016	Accessibility, Strategic use
71	The struggle to fabricate accounting narrative obfuscation An actor-network-theoretic analysis of a failing project	Rutherford	Qualitative Research in Accounting and Management	2016	Accessibility, Strategic use
72	Exploring the implications of integrated reporting for social investment (disclosures)	Adams et al.	British Accounting Review	2016	Accessibility
73	Community disclosures in a developing country: insights from a neo-pluralist perspective	Soobaroyen and Mahadeo	Accounting, Auditing and Accountability Journal	2016	Strategic use, External adaptation
74	The first 25 years of the Queensland Rugby Football League: Claims to legitimacy in annual reports	Irvine and Fortune	Accounting History	2016	Strategic use, External adaptation
75	One hundred years of annual reporting by the Australian Red Cross: Building public trust and approbation through emotive disclosures	Langton and West	Accounting History	2016	External adaptation, strategic use
76	Textual analysis and international financial reporting: Large sample evidence	Lang and Stice-Lawrence	Journal of Accounting and Economics	2015	Credibility and quality
77	Narrative reporting and crises: British Petroleum and Shell, 1950–1958	Abdelrehim et al.	Accounting History	2015	Strategic use, External adaptation
78	The forms of repetition in social and environmental reports: Insights from Hume's notion of 'impressions'	Pesci et al.	Accounting and Business Research	2015	Accessibility, Strategic use
79	Reporting practice, impression management and company performance: A longitudinal and comparative analysis of water leakage disclosure	Cooper and Slack	Accounting and Business Research	2015	Strategic use
80	Framing the Magdalen: Sentimental narratives and impression management in charity annual reporting	Evans and Pierpoint	Accounting and Business Research	2015	Strategic use, External adaptation

	Article	Authors	Journal	Year	Theme
81	Legitimacy, accountability and impression management in NGOs: the Indian Ocean tsunami	Conway et al.	Accounting, Auditing and Accountability Journal	2015	Strategic use, External adaptation
82	MD&A disclosure and the firm's ability to continue as a going concern	Mayew et al.	Accounting Review	2015	Information
83	Accounting Variables, Deception, and a Bag of Words: Assessing the Tools of Fraud Detection	Purda and Skillicorn	Contemporary Accounting Research	2015	Information
84	Accounting narratives and the narrative turn in accounting research: Issues, theory, methodology, methods and a research framework	Beattie	British Accounting Review	2014	----
85	CEO statements in sustainability reports: Substantive information or background noise?	Barkemeyer et al.	Accounting Forum	2014	Strategic use, Accessibility
86	(Re)presenting 'sustainable organizations'	Tregidga et al.	Accounting, Organizations and Society	2014	Depiction
87	Narrative disclosure and earnings performance: Evidence from R&D disclosures	Merkley	Accounting Review	2014	Internal adaptation, Information
88	Measuring readability in financial disclosures	Loughran and McDonald	Journal of Finance	2014	Accessibility
89	Tone at the top: CEO environmental rhetoric and environmental performance	Cong et al.	Advances in Accounting	2014	Strategic use
90	Restoring the tower of babel: How foreign firms communicate with U.S. Investors	Lundholm et al.	Accounting Review	2014	Accessibility
91	Traditional and alternative methods of measuring the understandability of accounting narratives	Jones and Smith	Accounting, Auditing and Accountability Journal	2014	Accessibility
92	Evolution of information content from an institutional perspective: El Alcázar brewery (1928–1993)	Moreno and Cámara	Accounting History	2014	External adaptation
93	Corporate reporting implication in migrating from defined benefit to defined contribution pension schemes: A focus on the UK	Josiah et al.	Accounting Forum	2014	Strategic use, External adaptation
94	A genre-theoretic approach to financial reporting research	Rutherford	British Accounting Review	2013	Information
95	On the ideological role of employee reporting	Mäkelä	Critical Perspectives on Accounting	2013	Depiction
96	Executive hubris: The case of a bank CEO	Brennan and Conroy	Accounting, Auditing & Accountability Journal	2013	Strategic use
97	Developing the Flesch reading ease formula for the contemporary accounting communications landscape	Stone and Parker	Qualitative Research in Accounting and Management	2013	Accessibility
98	Social and environmental accounting as symbolic and substantive means of legitimation: The case of HIV/AIDS reporting in South Africa	Soobaroyen and Ntım	Accounting Forum	2013	Strategic use, External adaptation

	Article	Authors	Journal	Year	Theme
99	Changes in sustainability reporting by an African defence contractor: A longitudinal analysis	Samkin	Meditari Accountancy Research	2012	Depiction, External adaptation
100	Ethos, logos, pathos: Strategies of persuasion in social/environmental reports	Higgins and Walker	Accounting Forum	2012	Strategic use, Depiction, External adaptation
101	Metaphor in Nortel's letters to shareholders 1997-2006	Bujaki and McConomy	Accounting, Auditing and Accountability Journal	2012	Strategic use, External adaptation
102	Analyzing the quality, meaning and accountability of organizational reporting and communication: Directions for future research	Tregidga et al.	Accounting Forum	2012	----
103	Discharging not-for-profit accountability: UK charities and public discourse	Dhanani and Connolly	Accounting, Auditing and Accountability Journal	2012	Strategic use
104	An exploration of the relationship between language choice in CEO letters to shareholders and corporate reputation	Craig and Brennan	Accounting Forum	2012	Credibility and quality
105	When is good news really good news?	Schleicher	Accounting and Business Research	2012	Strategic use
106	'Metaphoring' people out of this world: A Critical Discourse Analysis of a chairman's statement of a UK defence firm	Merkl-Davies and Koller	Accounting Forum	2012	Depiction, Strategic use
107	Self-serving Bias in Annual Report Narratives: An Empirical Analysis of the Impact of Economic Crises	Keusch et al.	European Accounting Review	2012	Strategic use, Credibility and quality
108	Carbon footprints and legitimation strategies: Symbolism or action?	Hrasky	Accounting, Auditing and Accountability Journal	2012	Strategic use, Credibility and quality
109	Disclosure Outlets and Corporate Financial Communication: A Discussion of "Managers' Use of Language Across Alternative Disclosure Outlets: Earnings Press Releases versus MD&A"	Mayew	Contemporary Accounting Research	2012	Strategic use
110	A CEO with many messages: Comparing the ideological representations provided by different corporate reports	Mäkelä and Laine	Accounting Forum	2011	Strategic use
111	The influence of connotation on readability and obfuscation in Australian chairman addresses	Bayerlein and Davidson	Managerial Auditing Journal	2011	Accessibility
112	Impression management and retrospective sense-making in corporate narratives: A social psychology perspective	Merkl-Davies et al.	Accounting, Auditing and Accountability Journal	2011	Internal adaptation
113	The effect of annual report readability on analyst following and the properties of their earnings forecasts	Lehavy et al.	Accounting Review	2011	Accessibility

	Article	Authors	Journal	Year	Theme
114	Paratextual framing of the annual report: Liminal literary conventions and visual devices	Davison	Critical Perspectives on Accounting	2011	Accessibility
115	Regulating for corporate human rights abuses: The emergence of corporate reporting on the ILO's human rights standards within the global garment manufacturing and retail industry	Islam and McPhail	Critical Perspectives on Accounting	2011	External adaptation, Depiction
116	Content analysis in environmental reporting research: Enrichment and rehearsal of the method in a British-German context	Beck et al.	British Accounting Review	2010	Information
117	Accountability, narrative reporting and legitimation: The case of a New Zealand public benefit entity	Samkin and Schneider	Accounting, Auditing and Accountability Journal	2010	Strategic use
118	Bias in the tone of forward-looking narratives	Schleicher and Walker	Accounting and Business Research	2010	Strategic use
119	The information content of forward- looking statements in corporate filings-A naïve bayesian machine learning approach	Li	Journal of Accounting Research	2010b	Information
120	Narrative accounting disclosure: Its role in the gold mining industry on the Gold Coast 1900-1949	Maltby and Tsamenyi	Critical Perspectives on Accounting	2010	Strategic use
121	Towards sustaining the status quo: Business talk of sustainability in finnish corporate disclosures 1987-2005	Laine	European Accounting Review	2010	Depiction, Strategic use
122	The language of US corporate environmental disclosure	Cho et al.	Accounting, Organizations and Society	2010	Strategic use
123	Financial performance explanations and institutional setting	Aerts and Tarca	Accounting and Business Research	2010	Information
124	Letters to the shareholders: A content analysis comparison of letters written by CEOs in the United States and Japan	Hooghiemstra	International Journal of Accounting	2010	Strategic use
125	Words not actions! The ideological role of sustainable development reporting	Milne et al.	Accounting, Auditing and Accountability Journal	2009	Strategic use
126	Social disclosure, legitimacy theory and the role of the state	Archel et al	Accounting, Auditing and Accountability Journal	2009	Strategic use, External adaptation
127	Ensuring legitimacy through rhetorical changes?: A longitudinal interpretation of the environmental disclosures of a leading Finnish chemical company	Laine et al.	Accounting, Auditing and Accountability Journal	2009	External adaptation, Strategic use
128	Methodological Insights: Impression management: Developing and illustrating a scheme of analysis for narrative disclosures - A methodological note	Brennan et al.	Accounting, Auditing and Accountability Journal	2009	Strategic use
129	Path dependence and path creation: Framing the extra-financial information market for a sustainable trajectory	Caron and Turcotte	Accounting, Auditing and Accountability Journal	2009	Depiction, External adaptation

	Article	Authors	Journal	Year	Theme
130	Legitimation strategies used in response to environmental disaster: A french case study of total SA's Erika and AZF incidents	Cho	European Accounting Review	2009	Strategic use, External adaptation
131	Rhetoric, repetition, reporting and the "dot.com" era: Words, pictures, intangibles	Davison	Accounting, Auditing and Accountability Journal	2008	External adaptation, strategic use
132	Risk reporting by the largest UK companies: Readability and lack of obfuscation	Linsley and Lawrence	Accounting, Auditing and Accountability Journal	2007	Strategic use
133	What is shown, what is hidden: Compulsory disclosure as a spectacle	Gumb	Critical Perspectives on Accounting	2007	Strategic use
134	Differential patterns of textual characteristics and company performance in the chairman's statement	Clatworthy and Jones	Accounting, Auditing and Accountability Journal	2006	Strategic use
135	The poetics of corporate reporting: Evidence from the UK water industry	Crowther et al.	Critical Perspectives on Accounting	2006	Information, Accessibility
136	Social reporting in the tobacco industry: All smoke and mirrors?	Moerman and Van Der Laan	Accounting, Auditing and Accountability Journal	2005	Strategic use
137	Meanings of the term 'sustainable development' in Finnish corporate disclosures	Laine	Accounting Forum	2005	Depiction, Strategic use
138	Picking up the pieces: Impression management in the retrospective attributional framing of accounting outcomes	Aerts	Accounting, Organizations and Society	2005	Strategic use
139	Customer disclosures, impression management and the construction of legitimacy: Corporate reports in the UK privatised water industry	Ogden and Clarke	Accounting, Auditing & Accountability Journal	2005	Strategic use, Internal adaptation
140	A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes	Beattie et al.	Accounting Forum	2004	Credibility and quality
141	Corporate report obfuscation: Artefact or phenomenon?	Courtis	British Accounting Review	2004	Accessibility, Strategic use
142	Enron discourse: The rhetoric of a resilient capitalism	Craig and Amernic	Critical Perspectives on Accounting	2004	Depiction, Strategic use
143	Financial reporting of good news and bad news: Evidence from accounting narratives	Clatworthy and Jones	Accounting and Business Research	2003	Strategic use
144	Communication and antithesis in corporate annual reports: A research note	Davison	Accounting, Auditing & Accountability Journal	2002	Strategic use
145	Inertia in the attributional content of annual accounting narratives	Aerts	European Accounting Review	2001	Internal adaptation
146	Intellectual capital and the 'capable firm': Narrating, visualising and numbering for managing knowledge	Mouritsen et al.	Accounting, Organizations and Society	2001	Depiction, Internal adaptation

	Article	Authors	Journal	Year	Theme
147	The chairman's statement - A content analysis of discretionary narrative disclosures	Smith and Taffles	Accounting, Auditing & Accountability Journal	2000	Information
148	A texture index for evaluating accounting narratives: An alternative to readability formulas	Sydserff and Weetman	Accounting, Auditing & Accountability Journal	1999	Accessibility
149	The incremental effect of narrative accounting information in corporate annual reports	Smith and Taffler	Journal of Business Finance & Accounting	1995	Information
150	On the use of accounting logic as an explanatory category in narrative accounting disclosures	Aerts	Accounting, Organizations and Society	1994	Accessibility, Strategic use
151	Accounting, Truth and Communication: The Case of a Bank Failure	Wright	Critical Perspectives on Accounting	1994	Credibility and quality
152	Readability and Understandability: Different Measures of the Textual Complexity of Accounting Narrative	Smith and Taffler	Accounting, Auditing & Accountability Journal	1992	Accessibility
153	Assessing the information content of narrative disclosures in explaining bankruptcy	Tennyson et al.	Journal of Business Finance & Accounting	1990	Information
154	The Accounting Syntactic Complexity Formula: A New Instrument for Predicting the Readability of Selected Accounting Communications	Adelberg	Accounting and Business Research	1983	Accessibility
155	Corporate Annual Reporting: A Mass Communication Perspective	Parker	Accounting and Business Research	1982	Accessibility
156	Narrative Disclosures Contained in Financial Reports: Means of Communication or Manipulation?	Adelberg	Accounting and Business Research	1979	Strategic use, Accessibility

Note: We have not classified three articles (47, 84 and 102). These articles deal with the topic of written accounting narratives in a broad and conceptual way. These articles have a more holistic focus on literature and do not specifically address the identified themes.

CHAPTER III

FLOWS OF INFORMATION AND MEANING: A VOCABULARY APPROACH TO INTEGRATED THINKING AND REPORTING

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O M I S S I S

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CHAPTER IV

INVESTIGATING WRITTEN NARRATIVES' WORDS' CONTEXTS AND MEANINGS: AN APPLICATION ON BANKRUPTCY PREDICTION

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Status: working paper

Abstract

In the last decades, accounting and finance researchers have used textual analysis on corporate narratives to gain incremental information to accounting measures. A fruitful branch of these studies has focused on investigating bankruptcy because of the impact of this phenomenon on economic systems. In this respect, to make inferences on textual data, researchers have carried out automated textual analyses, mainly relying on the dictionary and statistical approach. However, these approaches present some limitations related to the pitfalls of investigating natural language. This work proposes a new approach to investigate corporate narratives by combining these approaches from accounting and finance literature with insights from the vocabulary approach from organizational studies to cope with these limitations. We test our approach on a sample of bankrupt cases to demonstrate its usefulness as a monitoring credit risk tool. Our approach accounts for the meaning in context of each word and shows that the same word used in different reports has a different polarization towards failure following fuzzy logic. The proposed approach moves away from fixed word-lists by producing variable dictionaries signalling red flag words tailored to each bankrupt case. In this respect, this work contributes theoretically to corporate narratives studies by linking them with language studies on the fuzziness of words. Further, we contribute methodologically to textual analysis in accounting and finance, shifting the focus from words to words' contexts and meaning. Few attempts have been made in this respect and these rely on manually developed coding schemes. Instead, our approach meets the expectation of further development in improving automated textual analysis

in accounting and finance by implementing machine coding without human involvement. Lastly, our proposal has practical implications for practitioners and regulators to monitor credit risk.

Keywords: Textual analysis, Narrative, Disclosure, Language, Bankruptcy, Credit risk, Default

1. Introduction

Given the massive costs of bankruptcy (Branch, 2002; Bris et al., 2006), academics and practitioners have searched for reliable indicators of companies' failure to give investors the opportunity to reduce their risk of investing in such companies. First accounting and finance studies addressing this issue have focused on bankruptcy prediction considering only quantitative data taking into account financial ratios and market variables (Beaver, 1966; Altman, 1968; Meyer and Pifer, 1970; Blum, 1974; Libby, 1975; Altman et al. 1977; Shumway, 2001). However, more recent literature has demonstrated that this approach can be subject to serious limitations.

Considering these limitations and the availability and capability to process textual data, researchers have started to include language variables to improve bankruptcy investigation (Lopatta et al., 2017). Indeed, according to accounting literature, narratives in corporate reports contain incremental information to accounting statements and financial ratios (see Merkl-Davies and Brennan, 2007). The information in these textual sources complements the traditional financial reporting model overcoming its limitations by providing more forward-looking and non-financial insights on companies' value creation process (Beattie et al., 2004). Therefore, several studies carried out textual analyses on these qualitative sources of information to investigate phenomena such as financial distress and bankruptcy in the last decades (e.g., Tennyson et al., 1990; Cecchini et al., 2010; Shirata et al., 2011; Mayew et al., 2015; Lopatta et al., 2017; Yang et al., 2018). Overall, focusing on textual features such as topics (Tennyson et al., 1990), dictionaries and word occurrences (Mayew et al., 2015; Lopatta et al., 2017; Yang et al., 2018) and words' co-occurrences (Shirata et al., 2011), these studies confirmed the explanatory power and usefulness in predictive tasks – such as discriminating between bankruptcy and non-bankruptcy companies – of textual data. In other words, these studies seem to confirm that a “bankrupt language” exists.

However, researchers have carried out textual analyses mainly relying on the dictionary and the statistical approach (Li, 2010). These approaches present some limitations related to the pitfalls of investigating the complexity and fuzziness of natural language. In this work, we propose a new approach to investigate corporate narratives that combines the dictionary approach and the statistical approach from accounting and finance studies with insights from the

vocabulary approach from organizational studies. In particular, we want to move our focus from words to words' contexts and meaning.

Analysing a sample of MD&A extracted from companies' 10-K, we consider the meaning that every word can assume in different situations and reports. In this respect, we develop an approach that shows how the same word used in different reports has a different polarization towards failure and non-failure following fuzzy logic (Lakoff, 1975). That is, the word *X* used in report *Y* may indicate bankruptcy, while the same word used in report *Z* may not. Indeed, we posit that a panacea dictionary to predict bankruptcy does not exist. Words are fuzzy and their meaning varies with the context, narration and stories in which they are embedded. These contexts give words a certain degree of association with failure or non-failure. By creating vectors representing the words in the contexts for each MD&A and using measures of similarity between these vectors and bootstrap tests, we can create specific dictionaries (one for each report) containing terms that indicate "bankrupt words" – or "red flag words" – for each bankrupt case considered. The results show that there is neither a single dictionary indicative of bankruptcy nor a unique polarization for a specific word. Each bankruptcy has its own story and narration, and so does every word used in a bankrupt document.

Our work contributes to corporate narratives literature in several ways. First of all, we contribute theoretically to corporate narratives studies by linking them with studies on language and demonstrating the fuzziness of words in corporate narratives. To discover the categories of meaning underlying the narration, we should investigate the system of words within the reports. In particular, in this work we demonstrate that a bankruptcy category underlying the narration of the analysed reports exists. Second, from a methodological point of view, researchers can use our proposal to move corporate narratives' investigations focus from words to words' contexts and meaning. Indeed, it is acknowledged that analysing phrases or n-grams rather than words would provide a better unit of analysis for investigating corporate narratives through textual analysis (Grüning, 2011). However, few attempts have been made in this respect in the accounting and finance literature (Hassan and Marston., 2019). Moreover, those attempts rely on manually developed coding schemes – that could be affected by subjectivity (Li, 2010) – while our approach meets the expectation of further development in improving automated textual analysis in accounting and finance by implementing machine coding without human involvement (Hassan and Marston., 2019). In this respect, our approach allows researchers to move away from fixed word-lists (e.g., Henry and Leone, 2010; Loughran and McDonald, 2011) by producing variable dictionaries for each bankrupt case. These dictionaries can signal words that could be red flags for a specific bankrupt case. Further, we contribute to previous literature investigating bankruptcy using textual variables by confirming previous findings on the incremental information of textual data and demonstrating that a bankruptcy language exists.

Lastly, our approach has practical implications for practitioners and regulators interested in credit risk monitoring.

2. Theoretical background

2.1 Textual analysis in accounting and finance literature

Textual analysis is a broad family of techniques to extract and analyse data from texts to gather information. The many forms that textual analysis can take derive from the various disciplinary fields in which it resides (Loughran and McDonald, 2016). The general process of textual analysis concerns three main steps: harvest text, clean and parse text and analyse text (Guo et al., 2016). It has a long history; indeed, the process of parsing text searching for patterns can be traced as far back as 1300's (Loughran and McDonald, 2016). These analyses have been increasingly adopted during the last century to investigate political speech, news articles, social media, and financial texts. In particular, in accounting and finance, the digitisation and the online availability of corporate reports' narratives and other company's textual sources of information have increased the usage of this kind of analysis in many of its several forms (Loughran and McDonald, 2016). The forms of textual analysis that have been employed in accounting and finance vary in a continuum between qualitative to quantitative methods (Merkl-Davies et al., 2011b). Qualitative methods are usually conducted manually, while quantitative methods, nowadays, are conducted automatically. Both these methods have pros and cons.

As regards qualitative methods, scholars often use the term “narrative” to indicate the mainly European critical/interpretive branch of studies that rely on these methods (Beattie, 2014). These studies are grounded on the narrative turn¹⁷ concerning searching for narratives' meaning through hermeneutic methods such as interpretive content analysis. Moreover, acknowledging some limits in content analysis – in particular, content analysis studies just focus on “what” is disclosed (Haji and Hossain, 2016) and the text is just seen as a representation or reflection of social reality (Merkl-Davies et. al 2014, Hossain, 2017) – several scholars suggested more in-depth analyses related to “why” and “how” the message is disclosed. In this regard, several researchers have used discourse analysis (Dijk, 1990; Fairclough, 1992; Phillips and Hardy, 2002; Tregidga et al., 2018), rhetoric analysis (Higgins and Walker, 2012) and narrative analysis (O'Dochartaigh, 2019) to interpret the meaning of written narratives. These methods have the advantage of being more precise and tailored to the specific research setting. However, manual textual analysis has the disadvantage of being a very labour-intensive and

¹⁷ The “narrative turn” in social sciences encompasses a major focus on narratives and, specifically in the accounting field, on written narratives inside reporting practices to study how humans create meaning (Alvesson and Kärreman, 2000).

time-consuming procedure. This leads to the impossibility of dealing with large sample sizes limiting the generalizability of the empirical results (Beattie and Thomson, 2007; Li, 2010; Hassan and Marston., 2019). Moreover, manual qualitative methods are also characterised by subjectivity in the text interpretation and coding process (Li, 2010). These limitations and the exponential increase in computing power over the last decades have led to increasing use of automated textual analysis (e.g., Frazier et al., 1984; Abrahamson and Amir, 1996; Smith and Taffler, 2000; Breton and Taffler, 2001; Schleicher et al., 2007; You & Zhang, 2009; Brown and Tucker, 2011).

As regards quantitative methods, scholars distinguish a mainly North American and positivistic branch of studies characterised by widespread usage of these computer-assisted textual analyses from the European interpretive one by using the term “disclosure” studies (Beattie, 2014). These more quantitative and automated methods are grounded on a positivist paradigm. They have been related to the development of computer science, the exploitation of big data and sophisticated computational methods of text mining and natural language processing (NLP). One of their main objectives is to extract incremental information to the solely financial statements to predict the performance of companies (Merkl-Davies and Brennan, 2011; Beattie, 2014). The investigation of written narratives through quantitative automated methods has the advantage of being economical in terms of time and efforts. This advantage allows researchers to investigate large samples and draw inferences from texts. Indeed, these computer-based approaches improve the generalizability of the empirical results and lead to more follow-up research. Moreover, large-sample textual analysis can also unveil statistical patterns and useful information that are not easily available otherwise (Li, 2010). Therefore, researchers have relied on these quantitative methods to analyse texts also to predict events such as bankruptcy and fraud. Several methods from literary studies, such as NLP, corpus-linguistic and data-mining from Big-data have been used. According to Li (2010), the two main approaches that have been used are the ruled-based or dictionary approach (Henry and Leone, 2010, Loughran and McDonald, 2011) and the statistical approach (Li, 2010). The former relies on the use of lists of words capturing specific sentiments (i.e., negative, positive and uncertainty) to classify accounting narratives' textual content in terms of these sentiments, while the latter consists in the use of statistical techniques to discover significant words, calculate correlation between words, check for similarities between texts and classify textual content taking into account several text features. However, also these automated textual analysis methods are not problem-free. In particular, their weakness concerns a less tailored and precise interpretation of texts' meaning than qualitative methods. As we will explain in the following sections, this problem is due to what we name “context-related problems.”

2.2 Textual analysis for bankruptcy prediction: advantages and limitations

First accounting and finance studies have dealt with monitoring credit risk and bankruptcy prediction focusing on financial ratios and market variables (Beaver, 1966; Altman, 1968; Meyer and Pifer, 1970; Blum, 1974; Libby, 1975; Altman et al. 1977; Shumway, 2001).

However, according to Altman (2018), credit scoring systems to determine the likelihood of debts' repayment date back to about the XII century and have been adopted much later by the U.S. lending institutions. Originally, these institutions used to rely on information that was mainly qualitative in nature concerning ownership and management status. It was just at the beginning of the 1900s that rating agencies and financially oriented corporates introduced more quantitative measures. In particular, the focus shifted on univariate accounting measures and industry peer-group comparisons with rating designations. The main advantage of these cutting-edge techniques was the higher and immediate comparability of these measures for a particular company to test with a reference database containing other similar observations. Therefore, as of today, data, databases and concise indicators were the basis for credit risk monitoring.

After these credit-scoring univariate systems, the interest of researchers and practitioners moved to multivariate analyses to predict bankruptcy. In this respect, the most famous model is the Altman Z-Score (1968) which is still used as a benchmark for new models. Altman (1968) used discriminant analysis to combine financial statement measures and the equity market value to construct its multivariate bankruptcy prediction model. Although the model was constructed on a small sample of companies, its results allowed for locating three rating zones: safe, distressed, and grey. Companies classified in the distressed zone did go bankrupt within one year and companies in the safe zone did not go bankrupt, while errors were registered in the grey zone. On the ground of the Altman Z-Score, many other statistical and mathematical models based on accounting measures and market variables have been developed to predict bankruptcy. In this respect, the availability of massive data from big databases has led to the usage of sophisticated machine-learning methods. Genetic algorithms, support vector machines, neural networks and recursive partitioning techniques have been applied using these accounting and financial variables as inputs.

However, it has been highlighted that these models based only on financial ratios and market variables can be subject to serious limitations. These limitations are related to factors such as the decline in the explanatory power of financial ratios (see Beaver et al., 2012) and the paradox of relying on accounting-based measures prepared with a going-concern assumption to predict the failure (see Li, 2012). On this basis, Lopatta et al. (2017) posit that no versions of accounting measures-based bankruptcy prediction models constitute a comprehensive bankruptcy prediction model because of their backward-looking nature.

Considering these issues and the availability and capability to process textual data, researchers have started to include language variables to improve the accuracy of bankruptcy prediction models. These variables allow researchers not to lose useful information on the business context by not disregarding soft information (Henselmann and Scherr, 2012; Lopatta et al., 2017). One of the first studies that used the information content of accounting narratives to explain bankruptcy using textual analysis was Tennyson et al. (1990). The researchers investigated whether there are differences in the narratives of companies approaching bankruptcy and companies that are not and if these differences permit to classify companies in bankruptcy and non-bankruptcy. Their results indicate a relationship between accounting narratives and bankruptcy and that it is possible to find specific themes useful in explaining bankruptcy. Another study that investigated differences between the languages of bankrupt and non-bankrupt companies is that of Shirata et al. (2011). The researchers analysed words' co-occurrences and found that some words appearing together in the same annual report section could help to recognise the company as bankrupt or not. These studies provide evidence regarding significant differences in the language of bankrupt and non-bankrupt companies. According to these findings, it seems possible to assume that companies' language could contain a predictive power regarding their financial distress. In this vein, Cecchini et al. (2010) created dictionaries from 10-k filings' MD&A section to discriminate between bankrupt and non-bankrupt and fraudulent and non-fraudulent companies using a complex vector space model, a modified TF-IDF and ontologies. Their dictionaries alone performed better in predicting bankruptcy and fraud than models based on quantitative measures (i.e., Altman 1968; Beneish, 1999), and even better when combined with them. Their findings suggest that textual data contains very relevant information complementary to those of quantitative measures. Similar conclusions have been given by Henselmann and Scherr (2012) who using automated content analysis, highlighted companies' language as a possible bankruptcy red flag. Mayew et al. (2015) investigated textual disclosure in the MD&A section in 10-k filings comparing companies that filed for bankruptcy and those that did not. They found that MD&A content is informative in predicting bankruptcy. Linguistic tone and management's opinion narratives provide incremental explanatory power to financial ratios in predicting whether companies will cease as a going concern.

Lopatta et al. (2017) investigated companies' language used in 10-K filings focusing on litigious, positive, and negative terms by relying on a dictionary approach. Their findings highlight a significant relationship between the use of negative and litigious terms and the risk of bankruptcy. Yang et al. (2018) analysed textual differences in terms of high frequency word occurrences between bankrupt and non-bankrupt companies and found that some high-

frequency words suggest differences between bankrupt and non-bankrupt companies' ongoing status.

To sum up, several studies have demonstrated the relevance of textual data in accounting and financial analysis. This kind of data has shown to have incremental explanatory power to quantitative data and its high usefulness in predictive tasks such as discriminating between bankruptcy and non-bankruptcy companies.

Although, automated textual analysis can solve the problem of disregarding soft information by relying just on accounting statements, financial ratios, and market variables to study the company's results and behaviour, this approach is not free from drawbacks. Indeed, although it is economical in terms of time and allows researchers to analyse large samples and draw inference on them, implementing automated textual analysis entails analysing words isolated from their context in the whole sentence (Hassan and Marston, 2019). This particular limitation hinders researchers from obtaining a sound unit of analysis and can conduct them to misleading or just partial results (Milne and Adler, 1999; Beattie and Thomson, 2007; Hassan et al., 2019). Indeed, it is acknowledged that analysing phrases or n-grams rather than words would provide a better unit of analysis (Grüning, 2011). Moreover, coding procedures based on predefined word-lists without recourse to actual disclosure content may not capture the construct under investigation, limiting the validity of the results (Beattie and Thomson, 2007; Grüning, 2011; Loughran and McDonald, 2016; Hassan and Marston, 2019).

All these problems are inherent to the fact that natural language (NL) sentences and related words and categories are fuzzy. Indeed, linguistic philosophers and psychologists agree that NL concepts have vague boundaries and fuzzy edges (Lakoff, 1975). NL sentences are often neither true nor false, but rather true and false to a certain extent and so are fuzzy the categories arising from them. An example of this fuzziness has been given by Lakoff (1975) with the simple sentence 'John is tall' (or 'TALL(j)'). This sentence is defined as true just in case 'John' ('j') is in the "set of tall men." However, Lakoff pointed out that a well-defined set of tall men does not exist. Concepts and categories arising from NL sentences are therefore fuzzy.

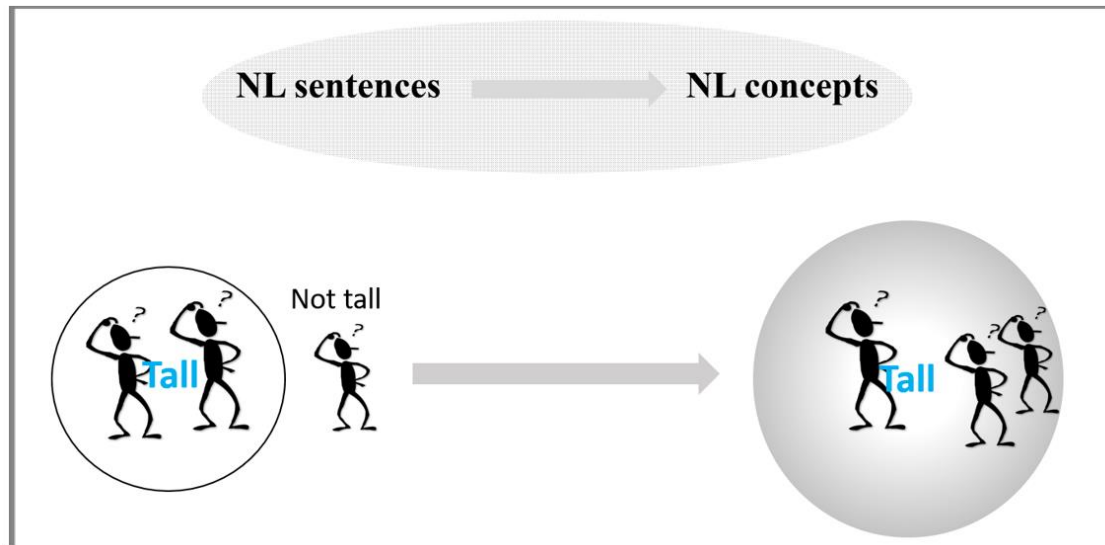


Figure IV-1. The fuzziness of natural language sentences influences related concepts and categories

On the same ground, Rosch (1973) showed that semantic category membership is not a yes-or-no matter but a matter of degrees. In her work, she demonstrated that categories arising from NL have an “internal structure.” That is, categories are composed of a “core meaning” consisting of the best representative cases of that category (central members) surrounded by other category members (peripheral members) characterised by a decreasing similarity with central members and thus with the core meaning. As an example, words such as “rape” and “robbery” can be perceived as central members of the “crime” category, while “treason” and “fraud” are perceived as more peripheral members of the same category. Transposing these insights into the aim of our work, we are interested in searching for BANKRUPT(j) where “BANKRUPT” is the “bankruptcy” category we want to identify and “j” can be every word in an MD&A that could be part of it to a certain degree.

Table IV-1. Possible bankruptcy semantic category membership

Category	Central Members	Peripheral Members
Bankruptcy	Bankrupt Bankruptcy Chapter 11 Default Crisis Indebtness	All the possible words in MD&A

Bearing this in mind, the two approaches to textual analysis that have been used in the field of accounting and finance, the dictionary and statistical approach, present some limitations.

The dictionary approach maps and classifies the words in the text into predefined categories if they are in a specific set (standardised word-lists). However, categories are fuzzy and they cannot be perfectly circumscribed and fully demarcated by specific and predefined sets. To be part of a category is not a clearcut matter but more a matter of degree. Several accounting and finance researchers have already highlighted the limitations of this approach (Li, 2010; Loughran and McDonald, 2011, 2015; Hassan and Marston, 2019). We collected them and found that these limitations can be identified as “context-related limitations.” In particular, this approach is affected by the problem of being focused on single words as the unit of analysis (Hassan and Marston, 2019) that leads to:

- a. Sentence’s meaning limitation, that is, ignoring the context of a sentence and the fuzziness given to categories by NL (Li, 2010; Hassan and Marston., 2019);
- b. Field limitation, that is related to use dictionaries not created to address financial texts specifically (e.g., the Harvard Psychological Dictionary and Diction), indeed few dictionaries have been built for corporate financial statements (e.g., Henry and Leone, 2010 and Loughran and McDonald, 2011);
- c. Document knowledge limitation, that is ignoring prior knowledge that researchers may have of that document (Li, 2010);
- d. Ambiguity limitation, which is related to the presence of synonyms and polysemes that makes it impossible to map words into categories perfectly (Li, 2010; Loewenstein et al., 2012).

Critiques and possible solutions to these limitations have been proposed by researchers from the organizational branch of studies that investigated texts using the “vocabulary approach.” These researchers highlighted that the same word could encode different meanings at two periods in time (Ocasio and Joseph, 2005), in different collectives (Fiss and Hirsch, 2005; Keller and Loewenstein, 2011), or even within the same collective by those occupying distinct roles or in different situations (Bechky, 2003; Jones and Livne-Tarandach, 2008) and also that different words can refer to similar meanings (e.g., Landauer and Dumais, 1997). In this respect, Loewenstein et al. (2012) suggest investigating written narratives not just focusing on word occurrences but on what they named “vocabulary structure” (see, Lowenstein et al., 2012). The vocabulary structure is composed of different elements transcending the word frequency focus to examine word-to-word relationships. Word-to-word relationship is how a specific word relates to other words in the text; that is, the context in which that word is used.

As regards the “Statistical approach”, it relies on statistical techniques to calculate the statistical correlations between some keywords and the document type to classify the documents.

However, this approach cannot be synthesised by a single method, but it encompasses a wide family of methods and the researcher should identify which one to use. However, some of the main spread statistic measures used by studies relying on this approach are occurrences-oriented instead of context-oriented¹⁸.

Few attempts to extend these approaches to the analysis of entire sentences or n-grams rather than single words have been recognised in the accounting and finance literature (Hassan and Marston, 2019). In particular, an example is Grüning (2011), who uses a supervised machine learning tool to automatically analyse phrases rather than words. The author first manually developed a coding scheme on a sample of representative annual reports and then, the coding scheme was automatically applied to a larger number of annual reports using an information-retrieval vector space model (VSM). However, Grüning (2011) uses a machine learning tool based on a previous human coding procedure that the algorithm replicates. According to Hassan and Marston (2019), further developments are expected to induce improvement in automated textual analysis in accounting and finance by enhancing machine coding of textual analysis without human involvement (e.g., Araque et al., 2017; Chen et al., 2017).

An example of the aforementioned problems deriving from ignoring word's context can be that of the classification of the word "solvent" as a bankruptcy-related word or not. According to the Cambridge dictionary, the meaning of the word "solvent" is that of "having enough money to pay all the money that is owed to other people."¹⁹ In this respect, the word solvent should be negatively or not associated with bankruptcy. However, taking into account the context in which this word can appear, and so the words co-occurring with it, this meaning can change. This word can co-occurs with negation words ("not solvent"), modifiers ("enough solvent," "not so solvent") or be subject to polysemes as in the following example:

¹⁸ As it can be noticed by the formulas of two of these widely used statistics (the tf-idf and the chi-square statistics respectively on the left and on the right):

$$w_{j,i} = tf_{j,i} \times \log\left(\frac{N}{df_j}\right)$$

$tf_{j,i}$ = number of occurrences of j in i
 df_j = number of documents containing j
 N = number of total documents

$$\chi^2 = \sum \frac{(O-E)^2}{E} = \sum \frac{\left(O - \frac{N_i \times N_j}{N_i \times N_j}\right)^2}{\frac{N_i \times N_j}{N_i \times N_j}}$$

O = observed occurrences of j in i
 E = expected occurrences of j in i
 N_i = total occurrences in i
 N_j = total occurrences of j in i

¹⁹ <https://dictionary.cambridge.org/it/dizionario/inglese/solvent>

document	position	pre	keyword	post
1385544-2014.txt	607	former Monaca Pennsylvania facility The first month of operation of our new facility validate that the process as design be capable or produce SHG quality electrolyte from WOX use the	solvent	extraction process The new facility s design rely upon sustainable manufacturing practice to produce zinc solely from recycle material and use significantly less fossil fuel than our former Monaca Pennsylvania
1385544-2015.txt	941	be undersized cause a bottleneck to production electrolyte quality deteriorate cause significant corrosion to electrodes in the cell house due in part to poor control of solid carryover into the	solvent	extraction unit combine with equipment issue relate to faulty organic filter and the HCl regeneration unit and several pump and line be improperly design for the intended application The Mooresboro
1509589-2015.txt	4654	effect on our result of operation and financial position In addition in the course of our operation we generate some amount of ordinary industrial waste such as paint waste waste	solvent	laboratory waste and waste compressor oil that be regulate as hazardous waste Although the cost of manage hazardous waste may be significant we do not believe that our cost in
2034-2013.txt	861	promoter Aceto be a supplier of chemical to ecofriendly technology For example we supply ultraviolet photo initiator which allow ink and coating to be cure by ultraviolet light instead of	solvent	as well as cure agent and optical brighteners for powder nonsolvent coating These grow technology be critical in protect and enhance the world s ecology We provide specialty chemical for

Showing 1 to 13 of 13 entries (filtered from 1,202 total entries) Previous 1 Next

Figure IV-2. Example of polysemes for the word “solvent”

From figure IV-2, we can see that the word “solvent” can be related to “having assets in excess of liabilities, be able to pay one’s debts, creditworthiness...” but also to “bottleneck, deteriorate, significant corrosion, poor control, faulty organic filter, improperly designed.” In the second case, there should be a higher probability that the word “solvent” is associated with bankruptcy.

Hence, every word has its contexts embedded in specific narration, as every bankruptcy has its narration related to its story. In this respect, the word solvent can be (to a certain degree) in the set of bankruptcy related words for a company X, therefore $BANKRUPT(solvent) = TRUE$ for company X while the same word can be not (to a certain degree) in that set of words for another company Y, therefore $BANKRUPT(solvent) \neq TRUE$ for company Y.

According to Li (2010), researchers interested in investigating corporate narratives should rely on a statistical approach or use “tailored dictionaries;” where with this last expression, the author meant dictionaries created for the financial and accounting field of study. On the other hand, what we do in our work is to rely on a statistical approach to generate tailored dictionaries, where with the expression “tailored dictionaries” we intend specific dictionaries for every company’s story and related narration. In doing so, we propose an approach to analyse the context in which words are embedded capable of detecting predefined categories of meaning underlying the narration (i.e., the “bankruptcy” category”).

3. Methodology

To operationalise the contexts in which a specific word is used in a specific reporting document, we create a vector for each word in that report. We defined these vectors for each word in the report as “word’s profiles.” Each vector, or word’s profile, contains the sum of the weighted distances of that specific word from all other words in the text of the analysed report. In particular, to create a word profile, we locate every occurrence of the word in the report. Then, we account for the contexts surrounding that word considering the windows of words around the target word for every specific occurrence. Therefore, we will obtain several vectors of contexts. To every word in a specific window related to a specific context, we assign a value given by the weighted distance of that word from the target word. Therefore, the closer a word is to the word we are targeting, the higher its value will be in these context vectors. Then, to bind all these vectors in a unique vector representing the meaning of that word in the document – the “word profile” – we use the sum of these weighted distances²⁰.

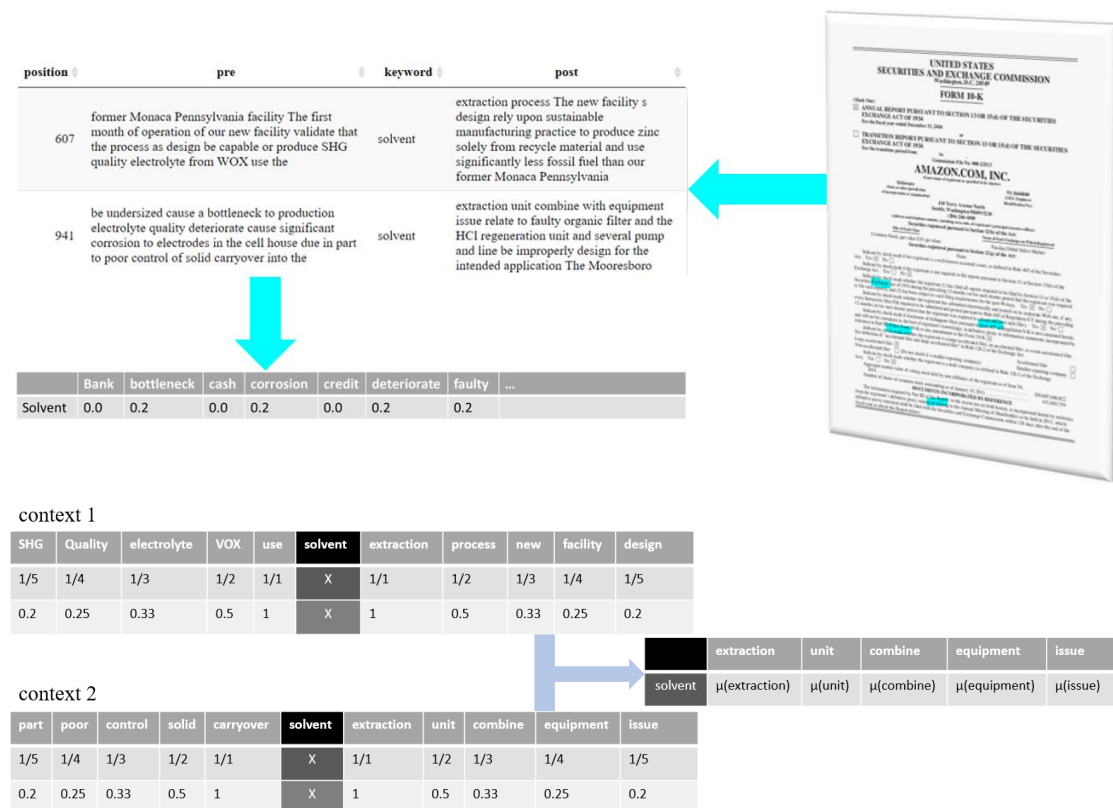


Figure IV-3. Operationalization of words' contexts

²⁰ We performed this task using the R package quanteda (Benoit et al., 2018) and using twenty words as window dimension (i.e., for every occurrences of the word in the text we consider the ten words before and ten words after it)

Once we obtained the words' profiles for every word in a specific report, we measure the same words' profiles in a population of bankrupt documents and a population of healthy documents. Then, we calculate the cosine similarity of each word's profile in the report to test with the same word's profiles in each report of the bankrupt and healthy population.

Cosine similarity is a measure used in textual analysis to compare vectors representing words, sentences and documents. The measure represents how similar two texts are and is calculated as follows:

$$SD_{j, B_{i,j}} = \frac{D_j \cdot B_{i,j}}{\|D_j\| \cdot \|B_{i,j}\|}$$

$$SD_{j, H_{i,j}} = \frac{D_j \cdot H_{i,j}}{\|D_j\| \cdot \|H_{i,j}\|}$$

Where

D = document to test

B_i = bankruptcy document i

H_i = healthy document i

D_j = profile of word j in document to test

$B_{i,j}$ = profile of word j in bankruptcy document i

$H_{i,j}$ = profile of word j in healthy document i

$SD_{j, B_{i,j}}$ = cosine similarity between D_j and $B_{i,j}$

$SD_{j, H_{i,j}}$ = cosine similarity between D_j and $H_{i,j}$

$i = i$ - th matching in $1, \dots, m$ where m = total number of matchings

$j = j$ - th word in $1, \dots, n$ where n = number of words in D

In our case, cosine similarity measures the extent to which the same word used in two different documents (i.e., the word in the document we are testing compared with that word in a bankrupt/healthy document) are similar.

Document to test									Cosine Similarity
	Bank	bottleneck	cash	corrosion	credit	deteriorate	faulty	...	
Solvent	0.0	0.2	0.0	0.2	0.0	0.2	0.2		

Healthy document								
	Bank	bottleneck	cash	corrosion	credit	deteriorate	faulty	...
Solvent	0.4	0	0.1	0	0.3	0	0.1	

Bankruptcy document								
	Bank	bottleneck	cash	corrosion	credit	deteriorate	faulty	...
Solvent	0	0.3	0	0.8	0	0.3	0.2	

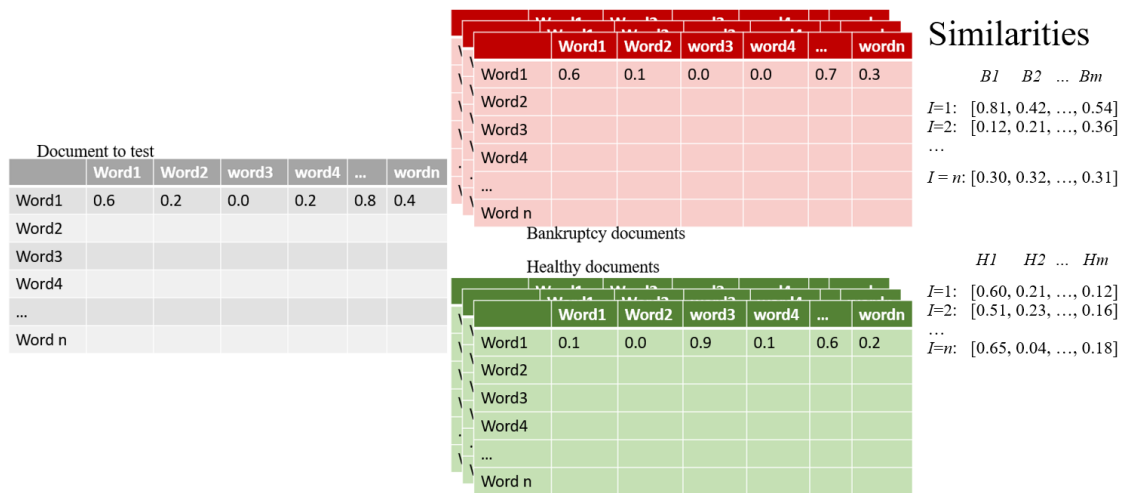


Figure IV-4. Word's profiles comparison

Once we obtained cosine similarities, we can search for the bankruptcy language category. Indeed, assuming that semantic categories are fuzzy and therefore that a specific word can be in the category of “bankruptcy-related words” to a certain degree, we can also assume that these words should be used in a significantly more similar way to how the bankrupt companies’ population use them. In this respect, we can assign a specific word to the bankruptcy category by performing a statistical test.

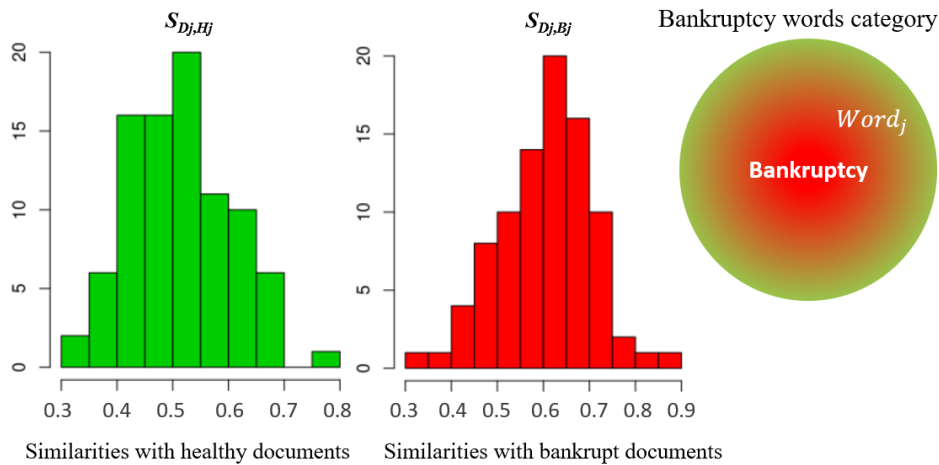


Figure IV-5. Population of similarities for a specific word and the fuzziness of category membership

We perform a bootstrap test on these two similarity populations to distinguish words in the report to test that have profiles significantly more similar to those of bankrupt companies and therefore used in contexts more similar to those of bankrupt companies. Therefore, the null hypothesis is that the similarities in the usage of word j between the document we are testing and the healthy population are equal to those between the document we are testing and the bankrupt population.

$$\forall j \in D$$

$$H_0 : SD_{j,B_j} = SD_{j,H_j}$$

The result of the bootstrap test is computed as follows:

$$S_{D_j, B_{i,j}} = z_{i,j} \quad S_{D_j, H_{i,j}} = y_{i,j}$$

$$\bar{z}_{i,j} = z_{i,j} - \bar{z}_j + \bar{x}_j$$

$$\bar{y}_{i,j} = y_{i,j} - \bar{y}_j + \bar{x}_j$$

$$t(\mathbf{x}_j^{*b}) = \frac{\bar{z}_j^* - \bar{y}_j^*}{\sqrt{\sigma_1^{2*}/m + \sigma_2^{2*}/m}}, b = 1, 2, \dots, K$$

$$\widehat{ASL}_{boot_j} = \#\{t(\mathbf{x}_j^{*b}) \geq t_{obs_j}\}/K$$

$$W^B = \{j \in D \mid \widehat{ASL}_{boot_j} \leq 0.05 \wedge \bar{z}_j > \bar{y}_j\}$$

$$W^H = \{j \in D \mid \widehat{ASL}_{boot_j} \leq 0.05 \wedge \bar{z}_j < \bar{y}_j\}$$

where

$$SD_{j,B_j} = \{SD_{j,B_{1,j}}, SD_{j,B_{2,j}}, \dots, SD_{j,B_{m,j}}\}$$

$$SD_{j,H_j} = \{SD_{j,H_{1,j}}, SD_{j,H_{2,j}}, \dots, SD_{j,H_{m,j}}\}$$

K = number of bootstrap

$$t_{obs_j} = t(x_j)$$

W^B = bankruptcy related word

W^H = non bankruptcy related word

Each time the result of the test suggests that a specific word j profile is significantly more similar to those of bankrupt companies, we append that word in a bankruptcy wordlist for the company we are testing. In doing so, we can create specific dictionaries (one for each report we are interested in testing) containing terms that indicate “bankrupt words” for each bankrupt case considered. A brief overview of this approach can be found in the appendix (Figure IV-7).

Once the lists of bankruptcy-related words are defined for each company in our sample, we test for significant differences in their expressions between the bankruptcy and healthy population. In particular, we check for significant differences in the distribution of the number of bankruptcy-related words between the healthy and the bankruptcy population to test whether the language related to these words (and their context) is more common for bankrupt companies. Then we use logistic regression models to check whether the number of bankrupt related words can improve quantitative measures' accuracy in predicting bankruptcy.

4. Application and results

4.1 Sample data and text pre-processing

Several studies have investigated US companies' 10-K filings; these reports are required by the Securities and Exchange Commission (SEC), are publicly available and their content is highly structured and digitalised. These characteristics make them particularly suitable for automated textual analyses, allowing researchers to analyse their content with minimal pre-processing (Beattie, 2014). To create our 10-Ks' sample, we relied on three different sources of data: the UCLA-LoPucki Bankruptcy Research Database (UBRD), the Calcbench financial and accounting data repository and the Loughran and McDonald texts repository. Bankrupt companies CIK codes and information are obtained from the UBRD. We matched every bankrupt in the UBRD with a non-bankrupt company on the ground of Calcbench financial and accounting data. In particular, we matched companies by SIC codes and total assets as in previous works (e.g., Cecchini et al., 2010). However, the data in the Calcbench repository are limited to the time span 2007-2021 and considering that we are interested in a longitudinal investigation, we cope with this limitation focusing on the period 2010-2018.

On the ground of the aforementioned criteria, we obtained a sample of 89 bankruptcies and 89 non-bankruptcies. For each one of these companies, we collected the five 10-Ks before failure for each bankrupt company and the same period 10-Ks have been collected for the matched healthy ones. We collected the 10-Ks in txt format from the Loughran and McDonald repository. Overall, we collected 890 10-Ks for the analysis. We extracted the MD&A section using a Python script from each of the txt 10-Ks from the Loughran and McDonald repository (Anand et al., 2020). Indeed, we decided to test our approach focusing on this particular section of the 10-k. Our choice was motivated by the fact that, among the 15 items composing the 10-K, the relevance of MD&A in terms of incremental information content is widely acknowledged. Indeed, it concerns the discussion of the company's financial condition – covering liquidity and capital resources – and the discussion of the results of operations and forward-looking information (Beattie et al., 2014). In other words, this section allows us to deal with the soft information we are interested in, avoiding coping with too much noise and highly consuming computational efforts. In this respect, most of the studies using automated textual analyses have specifically addressed the MD&A. Moreover, these studies have already demonstrated the incremental informativity of the MD&A textual content to financial ratios, market-based variables and even auditors' opinions (see, Cecchini et al., 2010; Mayew et al., 2015; LoPatta et al., 2017).

After we extracted the MD&A, we lemmatised their words using a Python routine that performs the POS tagging of the text and then the lemmatization on the basis of the POS tagging

results. Overall, we obtained a balanced sample of 890 MD&A extracted from companies' 10-K (five MD&A for each of the 89 bankrupts and 89 healthy companies matched).

4.2 Testing method

We test our methodology following a leave-one-out testing method. Leave-one-out is a method of testing particularly well-suited for small samples (Goutte, 1997; Cecchini, 2010). In particular, we perform a leave-one matching out. For every document we want to test, we leave it and its counterpart match out. We use these two documents as a test-set set while the other 88 matchings (i.e., 176 companies) as training-set. We do so to simulate an auditing analysis where a document to test (or to audit) is given and analysed using a big dataset of perfectly matched companies. Indeed, the training set is an important part of our methodology. Considering that we are interested in accounting for differences in the usage of words related to the bankruptcy or going concern situation, perfectly matched observations in the training set allow us to reduce the noise in language similarities that could be due to industrial sectors and company size.

4.3. Results of the analysis

4.3.1 Word-lists' keywords in context examination

The first results of our analysis regard the words contained in the bankrupt-related word-lists of each company. Indeed, in line with the fuzziness of categories arising from NL sentences, we noticed that every word could be a bankruptcy-related word and not just words that are sensibly related to bankruptcy. Indeed, bankrupt lists contain words of several types, ranging from "refinance" (a word that could be sensibly associated with bankruptcy) to more neutral words such as "amount." The association of this last word with bankruptcy appears evident when we look at the context in which this word is used.

"Substantial doubts exist that we will be able to continue as a going concern . We be work to amend , replace ,

refinance

or restructure our debt agreement to alleviate the financial constraint we be experience . We may also work to secure additional capital through possible asset"
[match17_bk]

"We may incur additional impairment to our oil and natural gas property in 2016 if oil and natural gas price do not increase . The possibility and

amount

of any future impairment be difficult to predict , and will depend , in part , upon future oil and natural gas price" [match45_bk]

Another result of our analysis concerns the fact that the same word can be bankruptcy-related in a document and be classified as non-bankruptcy-related in another one. We show here the example of the word “liquidity” in the third matching of our sample. Indeed, the word liquidity was classified as a bankruptcy-related word for the bankrupt company and a non-bankruptcy-related for its healthy counterpart.

“we have take step to reduce the fixed cost in our business and will continue to do so . These action have be take in an effort to preserve our

liquidity

pending an increase in activity level . 28 Table of Contents Index to financial statement Exit Operations Outside North America After evaluate market opportunity present by the secular trend of age horizontal wellbores and option for the allocation of the” [match3_bk]

“148.6 million after income tax) . Excluding the gain , the net loss from discontinue operation for the year end December 31 , 2013 be \$ 0.8 million .

Liquidity

and Capital Resources Funding for our activity have historically been provided by our operating cash flow , debt or equity financing and asset disposition . For 2015 , our primary source of fund will be operating cash flow , borrowing and” [match3_bk]

4.3.2 Number of bankrupt words and statistical tests

Another result of our analysis shows that each document has its specific list of bankruptcy-related words. In particular, bankrupt companies' word-lists contain significantly more bankrupt words than their healthy counterparts. This pattern is present in the year of bankruptcy, where 86% of bankrupt companies present a number of bankrupt words higher than that of their related counterparts ($W_{Bi}^B > W_{Hi}^B = 0.86$). Moreover, the differences between these two populations are statistically significant (paired t-test p-value < 0.05).

Table IV-2. Number of bankrupt-related words in the year of bankruptcy

	H	B		H	B		H	B
1	37	56	31	31	30	61	30	48
2	42	60	32	21	31	62	48	47
3	37	73	33	39	56	63	17	29
4	34	36	34	39	94	64	21	71
5	40	56	35	41	51	65	32	43
6	26	62	36	55	47	66	44	71
7	16	31	37	18	79	67	30	48
8	22	56	38	37	88	68	53	56
9	36	51	39	48	81	69	10	90
10	102	108	40	42	51	70	37	87
11	15	40	41	41	47	71	49	80
12	48	101	42	19	65	72	22	74
13	47	83	43	32	55	73	14	47
14	54	97	44	34	62	74	53	73
15	67	59	45	49	96	75	46	55
16	25	33	46	19	38	76	62	49
17	25	58	47	50	67	77	34	71
18	26	34	48	0	31	78	28	62
19	45	61	49	26	72	79	33	65
20	53	46	50	21	44	80	68	44
21	38	30	51	32	68	81	45	45
22	36	55	52	48	84	82	28	50
23	15	39	53	32	25	83	56	69
24	40	69	54	64	76	84	30	36
25	49	70	55	24	37	85	15	62
26	42	71	56	20	31	86	12	50
27	25	55	57	23	75	87	42	31
28	17	44	58	39	90	88	52	67
29	21	51	59	15	55	89	41	81
30	77	69	60	3	69			

Furthermore, we perform a human check of the cases in which the healthy company presents higher counts of bankrupt's words than those of the related counterparts. We found that in 5 out of 11 cases, these companies were healthy for the time span we considered (2010-2018), but they filed for bankruptcy (or were wondering of filing bankruptcy and have instead been acquired by other companies) after this time span.

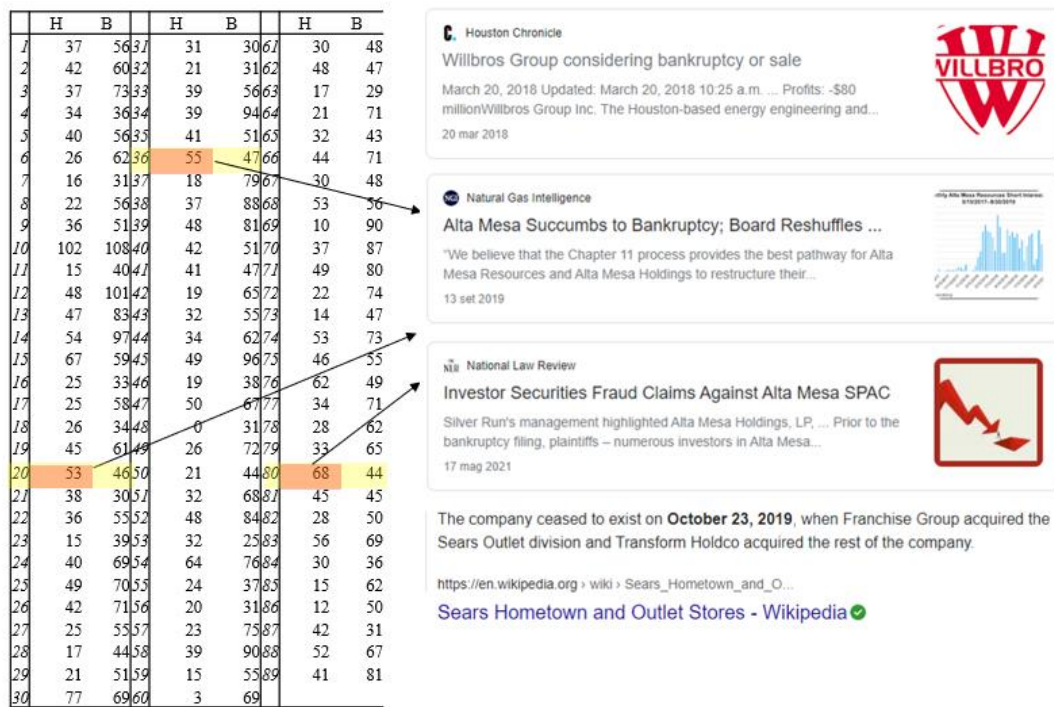


Figure IV-6. Healthy companies presenting high counts face financial problems

Then we tested if the same pattern in terms of a higher number of bankrupt-related words in bankrupt companies is present also in the years before the bankruptcy. We tested the two years prior to bankruptcy and our results show that the pattern is still present. In particular, 75% and 74% of times the bankrupt company has more bankrupt words than its healthy counterpart one and two years prior to bankruptcy respectively ($W_{Bi-1}^B > W_{Hi-1}^B = 0.75$; $W_{Bi-2}^B > W_{Hi-2}^B = 0.74$). As for the bankruptcy year, these differences between the two populations are statistically significant (Sign tests p-values < 0.05).

Table IV-3. Number of bankrupt-related words one and two years before bankruptcy

	H-1	B-1		H-1	B-1		H-1	B-1		H-2	B-2		H-2	B-2		H-2	B-2
1	37	47	31	30	30	61	26	52	1	35	34	31	36	30	61	29	39
2	29	34	32	33	35	62	37	46	2	35	35	32	19	23	62	34	53
3	33	59	33	35	55	63	15	27	3	26	60	33	32	48	63	20	30
4	29	56	34	46	81	64	24	76	4	27	46	34	32	61	64	19	57
5	41	56	35	30	50	65	19	15	5	38	50	35	42	34	65	22	18
6	25	72	36	50	37	66	35	36	6	22	54	36	37	40	66	48	32
7	17	36	37	21	56	67	30	48	7	17	36	37	21	30	67	31	47
8	13	59	38	32	57	68	56	27	8	8	51	38	26	55	68	14	52
9	35	54	39	32	33	69	19	47	9	26	36	39	37	45	69	19	39
10	96	92	40	28	58	70	36	59	10	74	77	40	32	49	70	24	63
11	20	43	41	35	43	71	54	53	11	21	29	41	36	35	71	46	40

12	18	77	42	25	69	72	32	62	12	13	59	42	28	59	72	27	57
13	33	63	43	27	38	73	20	43	13	35	33	43	26	31	73	25	39
14	51	69	44	32	26	74	38	70	14	54	73	44	18	44	74	52	68
15	62	56	45	58	65	75	41	53	15	63	52	45	50	69	75	39	46
16	32	30	46	19	22	76	62	28	16	18	24	46	14	15	76	55	23
17	23	47	47	36	78	77	37	36	17	18	33	47	37	54	77	25	55
18	33	28	48	0	34	78	35	42	18	33	31	48	0	37	78	19	25
19	51	48	49	30	73	79	42	62	19	45	42	49	38	69	79	44	68
20	65	56	50	26	36	80	63	41	20	64	37	50	28	42	80	57	38
21	49	30	51	36	60	81	39	40	21	49	30	51	28	58	81	45	42
22	31	45	52	46	85	82	16	32	22	32	32	52	48	69	82	13	26
23	27	32	53	25	24	83	29	87	23	20	30	53	22	27	83	30	73
24	45	62	54	51	48	84	25	53	24	39	45	54	43	41	84	43	55
25	45	31	55	22	17	85	20	56	25	38	32	55	18	18	85	22	60
26	40	66	56	15	22	86	14	45	26	32	51	56	16	21	86	19	43
27	24	57	57	30	62	87	36	21	27	14	58	57	27	53	87	26	31
28	14	43	58	33	76	88	45	52	28	18	43	58	31	67	88	42	55
29	15	37	59	16	51	89	44	60	29	15	38	59	13	58	89	64	48
30	110	43	60	4	41				30	96	53	60	2	41			

Finally, we test whether these bankrupt word-lists have incremental predictive power on accounting-measures based models. In doing so, we follow previous literature (Cecchini et al., 2010) that added language variables to the Altman Z Score searching for an improvement in the accuracy of the prediction. We carried out the following logistic regression models.

$$(1) \quad \text{logit}(\pi) = \log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 \text{AltmanZscore}$$

$$(2) \quad \text{logit}(\pi) = \log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 \text{AltmanZscore} + \beta_2(W^B + W_{-1}^B)$$

$\pi = P(Y = 1|\mathbf{x})$ where Y denotes bankruptcy and \mathbf{x} are the covariates

We used just the Altman Z Score²¹ to predict the bankruptcy event in the first model. In the second model, we added the number of bankrupt words that each company presents in the year of bankruptcy and the year prior as a covariate. We decided to use this cumulated measure as a covariate in the second model to test whether the persistence of these words over time improves model accuracy.

²¹ We calculated the classic Altman Z Score as follows:

$$\text{AltmanZscore} = 1.2 \times \left(\frac{\text{working capital}}{\text{Total Assets}}\right) + 1.4 \times \left(\frac{\text{Retained earnings}}{\text{Total Assets}}\right) + 3.3 \times \left(\frac{\text{EBIT}}{\text{Total Assets}}\right) + 0.6 \times \left(\frac{\text{Market Cap end of period}}{\text{Total Liabilities}}\right) + 0.99 \times \left(\frac{\text{Sales}}{\text{Total Assets}}\right)$$

Table IV-4. Logistic models results

Model 1					Confusion matrix model 1		
	Estimate	Std. Error	z value	p-value		H	B
Intercept	-0.00821	0.153862	-0.053	0.9574			
Altman	-0.06255	0.035907	-1.742	0.0815	H	62	32
$W^B + W_{-1}^B$					B	25	55
AIC					239.65		
Accuracy					0.67		
Model 2					Confusion matrix model 2		
	Estimate	Std. Error	z value	p-value		H	B
Intercept	-3.26928	0.582787	-5.61	2.03E-08 ***			
Altman	-0.02393	0.027977	-0.855	0.392	H	69	22
$W^B + W_{-1}^B$	0.037178	0.006436	5.777	7.61E-09 ***	B	18	65
AIC					191		
Accuracy					0.77		

The logistic regressions' results show that bankrupt word-lists have incremental power in predicting bankruptcy. Our textual measures improve the accuracy of the accounting measures-based model (model 1). In particular, the accuracy of the model increases from 0.67 – that it is in line with models using only the Altman Z Score in previous literature (see Cecchini et al., 2010) – to 0.77 using the cumulated of these words for the year of bankruptcy with those of the year prior ($W^B + W_{-1}^B$) (model 2).

Lastly, using model 1 and model 2 we have tried to predict the event of bankruptcy in relation to data from the last MD&A and balance sheet. These documentations are published in a variable range of months prior to bankruptcy (up to a maximum of 12). The prediction on these pieces of data has an explorative role, it allows us to highlight that a bankruptcy language exists and can be identified. However, if we want to test the predictive power of our method we have to work on data prior to the year of bankruptcy. In this respect, we run the following logistic regression model to understand whether we can predict the bankruptcy event on the basis of data from balance sheet and MD&A of the years before the event:

$$(3) \quad \text{logit}(\pi) = \log\left(\frac{\pi}{1-\pi}\right) = \beta_0 + \beta_1 \text{AltmanZscore}_{-1} + \beta_2 (W_{-1}^B + W_{-2}^B)$$

$\pi = P(Y = 1|\mathbf{x})$ where Y denotes bankruptcy and \mathbf{x} are the covariates

The results of this last model show that bankrupt word-lists have incremental power in predicting bankruptcy more than twelve months before the bankruptcy.

Table IV-5. Logistic model's results for the year prior bankruptcy

Model 3						Confusion matrix model 3		
	Estimate	Std. Error	z value	p-value		H	B	
Intercept	-2.45105	0.501589	-4.887	1.03E-06 ***				
Altman ₋₁	0.004846	0.0127	0.382	0.703	H	63	22	
$W_{-1}^B + W_{-2}^B$	0.03102	0.006123	5.066	4.05E-07 ***	B	24	65	
AIC	211.32							
Accuracy	0.74							

Also in this case, our textual measures improve the accuracy of the Altman Z Score. These results confirm that the language of bankruptcy exists and can be detected in the last periods prior to the failure than before.

5. Preliminary discussion and conclusions

The development of the method hereby proposed and the related theoretical and practical implications are still under investigation. Overall, the work presents a new approach to investigating written narratives in corporate reports. This approach allows researchers to move their investigations focus from words to words' contexts and meaning. In particular, we combined the classic dictionary approach with the statistical approach (see Li, 2010) and insights from the vocabulary approach from organisational studies (Loewenstein et al., 2012) to account for the meaning that every word can assume in different situations and reports. This approach overcomes what we named as "context-related limitations" inherent to the classic dictionary approach. To demonstrate its functioning, we apply it to a sample of bankrupt and healthy companies to distinguish between bankrupt and healthy companies' language. Overall, we demonstrate that the same word used in different reports has a different polarization towards failure and non-failure following fuzzy logic. Words are fuzzy and their meaning varies with the context, narration and stories in which they are embedded. On this basis, we demonstrate that a *panacea* dictionary to predict bankruptcy cannot exist. Instead, we should focus more on contexts giving words a certain degree of association with failure or non-failure than on words as atomistic entities.

Specifically, the results show that words are fuzzy and that we can categorise them in predefined categories (in our case, the “bankruptcy” category) according to a certain degree. On this basis, we demonstrated that every word could be a proxy of bankruptcy; it all depends on the contexts, narration and story in which the word is embedded. Following this logic, we also demonstrated that the same word could be proxy of bankruptcy in a document and not in another one. Further, we demonstrated that there is neither a single dictionary indicative of bankruptcy nor a unique polarization for a specific word. Every bankrupt case has its own tailored dictionary based on its own story and narration. Finally, we demonstrated that a bankrupt language category exists and is characterised by the contexts in which words are used. Indeed, bankrupt companies show systematically and significantly more “bankrupt words” than their healthy counterparts. These bankrupt words allow us to improve the accuracy of traditional accounting measures-based bankruptcy prediction models.

Despite the encouraging preliminary results, this work is not without limitations. In particular, one of the main limitations is that of the sample size. We used a smaller sample than those of other studies that have coped with textual analysis in finance and accounting research (e.g., Lopatta et al., 2017). Nonetheless, other studies have used a similar sample size and we relied upon the same testing method used in these studies (e.g., Cecchini et al., 2010). However, an improvement could be expanding our sample and testing our approach using an unbalanced one following sampling procedures suggested in previous methodological accounting and finance studies (Cram et al., 2009; Gruszczyński, 2019).

Our work intends to contribute theoretically and methodologically to literature in corporate narratives. From a theoretical perspective, we highlight the fuzziness of words contained in written narratives arising from companies' different stories and related narration. Moreover, we demonstrate the existence of the bankrupt category underlying the narration of what is reported. From a methodological point of view, we propose an approach with high potentiality in written narratives investigation. Indeed, it is acknowledged that analysing phrases or n-grams rather than words would provide a better unit of analysis for investigating corporate narratives through textual analysis. In this respect, few attempts have been made and moreover they are based on manually developed coding schemes. Instead, our method deals with n-grams and improves automatic coding on a statistical basis and without human involvement.

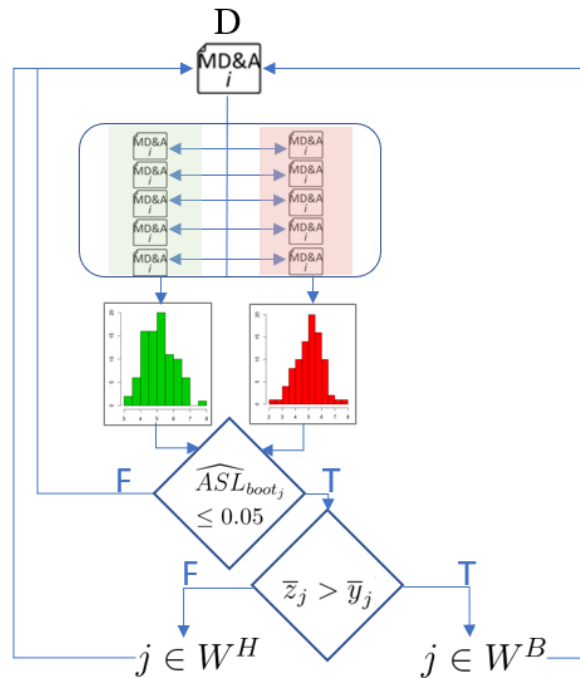
Furthermore, our study contributes to previous literature investigating bankruptcy using textual variables. In this respect, we confirm previous findings on the incremental information of textual data and add the insight of accounting for the specificity of each bankrupt case by producing tailored dictionaries. These dictionaries can signal words that could be red flags for a specific bankrupt case and not for another one. In this respect, a further development could be related to the investigation of topics. Indeed, according to managerial literature, there are three

stages of crisis that lead to bankruptcy: strategy, performance and liquidity crisis (e.g., Bickhoff et al., 2004; Thießen, 2013). The risk of bankruptcy should increase from one stage to the next and specularly the probability of a successful turnaround should decrease (Thießen, 2013). It could be possible to search for these topics in the contexts signalled as bankrupt ones through our approach and test if their presence increases models' accuracy in predicting bankruptcy. Other further developments could concern implementing this approach to investigate other parts of the report (like the accounting policy section) or different kinds of reports (such as sustainability and integrated reports) and phenomena (such as fraud and integrated thinking).

Finally, our proposal has practical implications for practitioners and regulators to monitor credit risk. The number of bankrupt words detected by our approach shows significant power in predicting bankruptcy. Furthermore, our approach detects words in their related contexts, and these contexts can be human checked by auditors to gain further information on the company situation. Moreover, nowadays, audit companies – such as Ernst & Young, PWC and KPMG – and government regulatory agencies – such as the security and exchange commission (SEC) – are deepening the potentiality of text analysis and natural language processing (PwC, 2012; KPMG, 2014; Purda and Skillicorn, 2015; Lopatta et al., 2017). Our context-based analysis can be further developed to cope with their textual analysis needs.

Appendix Chapter IV

1. Check the similarity of the profile of word j in a new document to test (D) with the profiles of j in every healthy and bankrupt document.
2. Obtain similarities distribution of j with healthy documents and similarities distribution of j with bankrupt documents
3. Perform bootstrap test on similarities' distributions
4. If the difference is significant put the word in the related wordlists

Figure IV-7. Overview of the approach $\forall j$ in D

CHAPTER V

THE SHAPING OF ITALIAN SOCIAL DISCLOSURE: A BOUND PATH BETWEEN STANDARDIZATION, REGULATION AND LEGITIMACY

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Status: working paper

Abstract

This article aims to analyse the isomorphic shaping of social disclosure (SD) in the Italian context over time and deepen the mechanisms and related dynamics underlying it. Relying on previous literature, we posit that Italian organizations' SDs are moulded by standardization, regulation and mimetic legitimacy. Specifically, this article investigates the effects of these three forces on disclosure content in terms of level of disclosure quantity and comparability among disclosures (similarity). The results show that regulation and standardisation are leading forces that move and rehabilitate a predominantly inert environment in terms of SD quantity. On the other hand, the results cast some doubts about SD content. Indeed, as auspicated by International Standards, SDs' comparability seems to be enhanced since disclosures all become more similar to each other over time. However, SDs become more similar to each other, partially overcoming distinctive factors such as sector, environmental sensitivity and proximity to the consumer. Hence, we provide evidence that regulation and standardisation overcome mimetic legitimacy guiding Italian companies through a "bound" SD path. While this leads to the positive effect of increased comparability, it also raises questions about the level of specificity of the observed disclosures.

Keywords: Social disclosure, Normativity, Regulation, Standardisation Comparability, Italian Companies

1. Introduction

Until a few years ago, SD was considered only within the so-called voluntary disclosure included in the field of non-financial information considered relevant to the users of the company's reporting to complete the mandatory information required by law (Meek et al., 1995). In this sense, the companies could decide to provide voluntary SD for different reasons, including accountability duties (Gray et al. 1996; O'Dwyer et al. 2005), gain a competitive advantage by building good relationships with their stakeholders (Branco and Rodrigues, 2008) and closing information asymmetry (Healy, 2001). One of the most shared explanations of the voluntary SD is legitimacy theory (Deegan, 2002; Islam and Deegan, 2008). In this stream, companies disclose SD to demonstrate consistency with the context's social norms to legitimise their actions (O'Donovan 2002; Deegan and Blomquist 2006). Following a legitimacy perspective, companies should only communicate when they have a problem or need for legitimation and only disclose information useful for such a purpose. The SD can be provided both in the Annual report but above all in corporate sustainability reports that over the time has become a common practice (Boiral and Henri, 2017). SD content has been subject to criticism. On the one hand, dissatisfaction with the information provided in annual reports has grown (Boesso and Kumar, 2007), on the other hand, the information included in the sustainability reports have often been considered incomplete, unreliable and irrelevant (Owen et al., 2000; Adams and Evans, 2004; Hopwood 2009; Milne and Gray, 2013). As a response to these criticalities, two paths have been taken: standardization and regulation.

To avoid total subjectivity in the production of SD and to have a benchmark, guidelines (such as GRI) have been developed and widely used to realise sustainability reports. These guidelines aim to make these documents more reliable, complete and comparable helping to increase their production and usability (Stolowy and Paugam, 2018). As an example, GRI Standards "create a common language for organizations and stakeholders, with which the economic, environmental, and social impacts of organizations can be communicated and understood" (GRI, 2016, pp. 3). The declared aim of these standards is to "enhance the global comparability and quality of information on these impacts, thereby enabling greater transparency and accountability of organizations" (GRI, 2016, pp. 3). When the guidelines are universally recognised, their application guarantees a company that its sustainability report is considered consistent with what are considered the best standards and allows it to follow a scheme that guarantees against the risk of self-reference and the accuses of providing only information that would benefit the company. In this way, a standardization process of the SD should be encouraged for companies that voluntarily decide to communicate social information in their reports.

However, standardization acts on “how” but not on “whether” to report, leaving voluntary decisions to companies. One manner of intervening on both the “how” and “why” is the regulation, which is the imposition by the law of SD reporting and how to do it. Regulation by the State can be seen as a manner to limit the voluntary approach adopted by organizations (Archel et al., 2009). On the other hand, some scholars (Bebbington et al., 2012; Steurer, 2013) interpret SD regulation as a form of hybrid regulation because it can achieve the intended objectives only in combination with market pressures and business self-regulation. After some examples of national legislation that had imposed forms of non-financial disclosure (e.g., France and South Africa), the EU decided to adopt the 2014/95/ EU directive, which requires large companies to publish social and environmental information through a non-financial statement. Starting from these assumptions, the purpose of this paper is to investigate how the SD of Italian listed companies has changed and has been shaped by standardization, regulation and legitimacy mechanisms over time. Specifically, analysing a sample of Italian listed companies over ten years, the purpose is to investigate whether and how internationally recognised guidelines (standardization) and the imposition of mandatory non-financial information (regulation) have significantly shaped SD in terms of amount (number of items disclosed) and similarity. In particular, similarity can promote comparability, a relevant qualitative characteristic of disclosure associated with providing information comparable with that disclosed by other companies (Cardoni et al., 2019). In conducting our investigation, we consider that these practices were the consequence of legitimacy dynamics implemented by the companies as well. Therefore, the paper intends to investigate: a) whether the companies not obliged to provide non-financial statement have modified their disclosure by imitating the behaviour of the obliged companies; b) whether and how the introduction of the mandatory non-financial information statement has really changed the type of information disclosed by companies that already carried out advanced social disclosure practices (i.e., stand-alone sustainability reports); c) whether the companies that made the non-financial statement for the first time after the introduction of the obligation have adopted a compliance-oriented approach or one more linked to the logic of isomorphism; d) whether the SDs of Italian companies become more similar to each other over time and whether this similarity is influenced by the industry they belong to and its characteristics.

This research contributes to the emerging literature about normativity in SD (Bebbington et al. 2012; Deegan and Shelly, 2014; Chauvey et al., 2015; Chelli et al., 2018) in several ways. First of all, to the best of our knowledge, this is the first study to address SD similarities among different industries. Indeed, accounting for similarities in SD is useful for regulators and practitioners (who are committed to searching for greater comparability among reports) and researchers investigating isomorphism in the diffusion of SD practices. Indeed, while previous

studies have mainly focused on the factors that influence the amount (quantity) of disclosure (e.g., Branco and Rodrigues, 2008, Reverte, 2009; Muttakin et al. 2018) this paper uses the lens of legitimacy and introduces the dynamics of standardization and regulation of SD to analyse changes not just in the amount of what is reported but also in how similar SDs are becoming to each other.

Moreover, while other papers have studied the Italian context focusing on specific sectors (e.g., Martin-Sardesai and Guthrie, 2019), specific years (e.g., Venturelli et al. 2019), specific topics (e.g., Costa and Agostini, 2016), in this work we give a *tout-court* overview of the effects of legitimacy, regulation and standardisation on the Italian SD in the long run.

The paper will be organised as follows: in section 2 the theoretical background will be described; in section 3 the hypotheses will be developed; in section 4 statistical tests results will be shown; while in the final section discussion and conclusions will be provided.

2. Theoretical background

2.1 Standardization and regulation of SD

The hope that a more accountable approach in the reporting practices could lead to substantial changes in the behaviors of companies has prompted to question how to promote greater implementation of SD. Many authors have claimed that the best way to promote the implementation of SD practice is the intervention of the State through a mechanism that makes mandatory the reporting of social information (Gray et al. 1996; Adams, 2004; Mobus 2005; Gray, 2013). In this case, the State acts in the role of “mandating” defining a manner to report SD, trying to promote transparency and reducing asymmetry between companies and stakeholders promoting changes in corporate social responsibility activities of the companies (Fox et al., 2002; Hess, 2007; Jackson et al. 2020). The basic idea is that managers left free to decide would adopt a strategic approach to SD that is not oriented towards accountability in favour of stakeholders and would not provide (overall) the quantity and quality of information necessary (Deegan, 2002). In contrast, others have argued that the mandatory approach is not the best solution, but a voluntary anti-regulation approach based on acknowledged guidelines can achieve more satisfactory results (Larrinaga et al., 2002; Bebbington et al. 2012; Deegan and Shelly, 2014). Until a few years ago, this second option was the most widespread solution. Indeed, the predominant idea was that an internationally acknowledged voluntary reporting standard created through a multi-stakeholder consultation could guarantee a satisfying implementation of SD and a high level of reliability of the information communicated by companies. In particular, in 1997 a group of international associations belonging to the Coalition for Environmentally Responsible Economies (CERES) created the Global Reporting Initiative

(GRI) standard, that is a set of principles and key performance indicators (related to economic, social and environmental issues) to help companies to realise reliable sustainability report (SR). The GRI was created and later revised by a continuous process of consultation with a multi-stakeholder audience. Over the years, GRI has become the most influential standard worldwide for social and environmental reporting, achieving a high level of legitimacy (Bellucci et al., 2019; Brown et al. 2009; Milne and Gray 2013; Waddock 2008). Therefore, the companies using GRI to implement SR signal adherence to a precise institutional logic to promote sustainable development and transparent communication towards stakeholders (Chelli et al., 2018). In this manner, although the application of the standard is voluntary, it has prompted companies to promote greater SD. Indeed, over 23.000 social reports using the GRI guidelines are recorded in the GRI database (see the GRI website: globalreporting.org).

GRI guidelines represent a way of spreading SD through the voluntary nature and the use of internationally recognised and legitimated standards.

Simultaneously with the standardization strategy to increase SD, in the past 20 years several initiatives in different countries aimed at making SD mandatory have been developed. Although some critical accounting authors question whether the State can be a neutral arbiter (Archel, 2009), regulation can be seen as a way to prevent managerial choices from being characterised by full discretion (Deegan, 2002). The regulation can shape the type of information to be reported by acting on the “what” and the “how” trying to increase transparency and accountability, but at the same time, it acts on the “if” by imposing the reporting on those entities subject to legislation. The first example is in France, where in 2001 the New Economic Regulations made mandatory for large companies to disclose in annual report on 30 topics related to social and environmental issues (Delbard, 2008; Chelli et al. 2018). Instead, the European Union (EU) began to intervene in 2001 with the 2001/453 / EC European Commission Recommendation, which states that “Environmental issues should be disclosed to the extent that they are material to the financial performance or the financial position of the reporting entity.” In 2003, in line with the previous recommendation, the DIRECTIVE 2003/51 / EC stated that “The information should not be restricted to the financial aspects of the company’s business. It is expected that, where appropriate, this should lead to an analysis of environmental and social aspects necessary for an understanding of the company’s development, performance or position”. Therefore, in this first phase, there is no obligation to disclose social and environmental information as it is relevant *per se* but only if material with respect to the complete understanding of the company’s financial situation. Almost ten years later, the EU took a different position with Directive 2014/95 / EU which requires large companies (employing more than 500 workers and with or more of EURO 20m of total assets or more of EURO 40m of annual turnover) to produce a non-financial statement like a stand-alone

document or included in the annual report. The Directive imposes to “prepare a non-financial statement containing information relating to at least environmental matters, social and employee-related matters, respect for human rights, anti-corruption and bribery matters” (Art. 6, Directive 2014/95/EU). In addition, the Directive states that in preparing the non-financial statement a company can rely upon international framework such as GRI.

In the last 20 years, therefore, within the EU there has been a transition from a voluntary approach and the presence of widely recognised international guidelines to a mandatory approach with the request to disclose specific social and environmental topics. On the other hand, the two processes (standardization and regulation) are closely linked. Bebbington et al. (2012) showed how the possibility that the mandatory approach can achieve its purposes depends on the normativity, i.e. the degree to which the rules are considered binding. If standardization leads to the recognition of certain rules and forms of reporting as legitimate, then regulation, if based on the same rules, will be more likely to achieve compliance in the shortest possible time. Steurer (2013) emphasises that government-imposed regulation is combined with self-regulation (including standardization) proposed by civil society and business and with market pressures by creating hybridised practices.

2.2 The legitimacy approach to SD

Legitimacy theory concerns the interrelationship between organization and society. This theory posits that an organization’s survival depends on the expectations and consensus of a broad group of social actors that give a sort of license to operate (DiMaggio and Powell, 1983; Oliver, 1991; Suchman, 1995). Legitimacy theory recognises by this license to operate the company’s social role but this condition of legitimacy is attributed only to responding to the community claims (Deegan, 2000). Therefore, legitimacy can be defined as a general perception that the actions of an entity are consistent, desirable, or appropriate with social norms, values and beliefs (Perrow, 1970; Dowling and Pfeffer, 1975; Suchman, 1995). Being a matter of perception, legitimacy is not always associated with the actual behavior of a company but with the social interpretation of that behavior (Deegan, 2014). For this reason, a company constantly has to persuade that its actions are positively contributing to society and that they are within the social contract that links the company and society.

Legitimacy has been one of the most widely used theories to explain and justify the voluntary SD (Patten, 1991; Hooghiemstra, 2000; Deegan, 2002; Patten and Crampton, 2004; Islam and Deegan 2010). Indeed, the voluntary SD can confirm that the company’s behavior is consistent with social norms and needs (Watts and Zimmerman, 1979). According to this framework, disclosing social information is a strategy to establish or maintain or repair legitimacy due to its potential in terms of communication with stakeholders (Deegan, 2002; Branco and Rodrigues,

2008; Islam and Deegan, 2008; Ling and Sultana, 2015). Following a legitimacy perspective, a company's management can choose to disclose information thought to be expected by social actors (Boesso and Kumar, 2007). In this vein, the SD could be implemented when there is a change in the social norms expected by relevant publics or when the company perceives to be considered not consistent with these norms (O'Donovan 2002; Deegan and Blomquist 2006). Several scholars have confirmed the use of SD as a legitimacy tool (Deegan and Rankin, 1996; Campbell, 2000; Woodward et al., 2001; Reverte, 2009; Faisal et al., 2012). However, there is no consensus on the possibility that legitimacy theory could be a comprehensive explanation to justify SD (Guthrie and Parker, 1989; O'Dwyer, 2002; Owen, 2008).

Lindblom (1994) and O'Donovan (2002) provide a scheme to interpret the tactics used by companies to gain, maintain or repair legitimacy: a) avoid public debate; b) altering social values and norms; c) shaping perception about the company's behavior; d) conforming to social values and norms. Except from tactic a), the other alternatives can entail the use of SD as a tool to obtain legitimacy.

Altering social values and shaping perception can be achieved by sensemaking and sensegiving processes (Beattie, 2014). The sensemaking process is when one uses an interpretative pattern trying to "make sense" of a certain circumstance, while sensegiving is characterised by the attempt to influence the perception of a social actor using language and rhetorical strategies. SD can be the appropriate manner, both by narrative and quantitative dimension, to create legitimacy building a symbolic image playing a crucial role in shaping the perception of stakeholders (Neu et al., 1998; Petkova and Rindova, 2013; Deegan, 2014).

The conforming tactic can take the form of isomorphism, which is the mechanism by which different companies adopt similar structures and strategies (DiMaggio and Powell, 1983; Davis, 1991). A fundamental effect of isomorphism is the achievement of consistency with the environment, leading to organizational legitimacy (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Deephouse, 1996). In this vein, for instance, if disclosing a certain amount of SD is considered a desirable behavior within the environment, the companies can conform to this practice by adopting an isomorphic strategy. Isomorphism can derive from coercive (such as regulation), normative (such as moral compliance or rules concerning particular social groups) or mimetic (such as imitation of the behavior of companies considered successful) pressures (DiMaggio and Powell, 1983). In particular, the industry sector can be a relevant factor to consider. Companies in more sensitive industries can use SD to minimise the risk of being perceived as not in line with social norms and values (Patten, 1991; Reverte, 2009). Companies in the sector with high consumer visibility or environmental risk tend to disclose more information because this is expected by the relevant public to demonstrate the organizational legitimacy (Roberts, 1992; Hackston and Milne, 1996; Cho 2009; Reverte, 2009).

3. Hypotheses development

This paper aims to test the effects of standardization, regulation and legitimization in isomorphically shaping Italian SD over time. The effects under investigation could be partly convergent but, in some aspects, also divergent. Indeed, the State can intervene by assuming the role of a neutral arbiter by imposing a mandatory SD believing that it could mitigate the effect of the legitimacy strategies of the companies, which would lead, if not regulated, to disclose only that information considered convenient and not that useful for correct accountability for stakeholders (Deegan, 2002; Archel et al., 2009). On the other hand, the State could also act as a social actor with its own interests and ideologies to allow for the endorsement of certain international standards or to legitimise certain company's behaviors to align them with its own logics and beliefs (Gray et al., 1996; Archel et al., 2009). In carrying out our investigation we focus on the result of these three forces in terms of levels, similarities and differences in the composition of SD among organizations. We focus on the organizations in our sample and their features (such as how long the company has been concerned with producing SD, the organization's industry, and others) to gain insights into how their SD has changed over time.

To systematise the hypotheses, we suggest a framework offering an overview of the logic that should explain some behavior of companies over time. According to our hypotheses, standardization, regulation and legitimacy have led companies to change their social disclosure choices over time regarding the overall amount and the type of information provided. All three explanations influence the overall amount and content: the increasing influence of the guidelines (particularly GRI), the imitative behavior between companies in the same industry, and the introduction of the non-financial statement obligation. As for the structure of social disclosure, i.e., the type of information provided, the choices of companies are influenced by: a) The guidelines that suggest a precise reporting scheme and the type of information to be provided; b) the visibility of companies and their industry push companies to provide certain types of information: c) regulation on non-financial statements that can lead to compliance-oriented behavior.

Finally, the social disclosure of the companies in our framework also depends on the level of "maturity" achieved in terms of social disclosure practices. In this respect, we distinguish "pioneer" companies, which are companies that have produced sustainability reports (stand-alone or internal to their financial annual report) since 2008, "early-adopters" since 2013, "late-adopters" since "2018" and "non-adopters" that have never produced such a report. Furthermore, we also use the "expert" label to group together "pioneers" and "early-adopters."

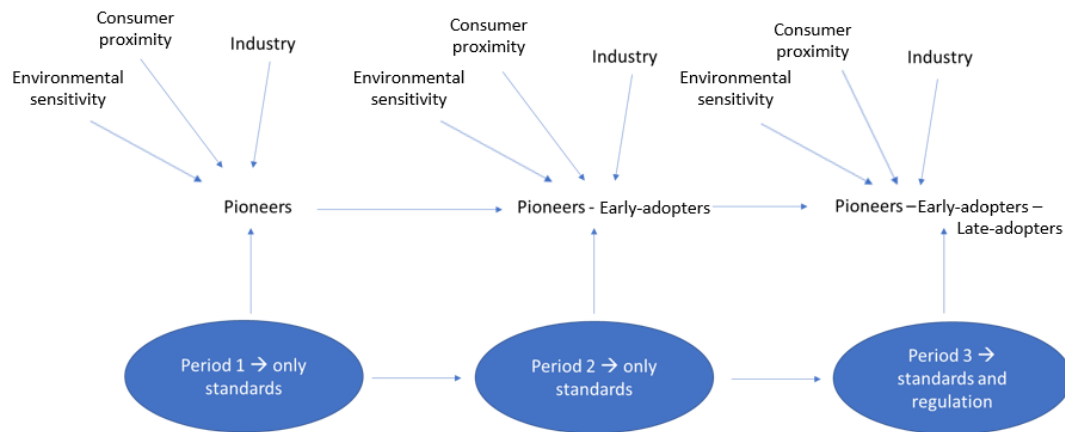


Figure V-1. SD dynamic framework. Standardisation, Regulation and Mimetic Legitimacy

Note: The figure represents the extent to which belonging to same industries or sharing features (such as consumer proximity and/or environmental sensitivity) shape Italian companies SD over time

The first basic effect of the increase in standardization and, above all, of regulation should be the increase in the amount (quantity) of SD provided by companies. Also, from the perspective of legitimacy theory, this effect should be confirmed due to the isomorphic behavior that would lead companies to adopt homogeneous practices to gain legitimacy (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Oliver, 1991; Suchman, 1995). In particular, the companies can imitate practices because they contribute to meeting stakeholder expectations or are considered successful (DiMaggio and Powell, 1983). In our case, the first adopters of SD practices (“pioneer”) can be imitated by followers because the companies consider the SD a legitimising and successful practice positively evaluated by stakeholders. If this is true, the increase in SD over time should therefore occur for two reasons: a) previously non-obligated companies that did not report SD massively (for example, through a stand-alone report) are forced to disclose SD because of the effect of the new regulation; b) companies not obliged by the new regulation imitate the behavior of other companies because they consider SD a legitimising or in any case successful practice. Thus, if, together with the consequence of the regulation, the imitative behavior also occurs, our first hypothesis is:

H1: *The SD increases significantly over time for all companies*

In order to assess the impact of regulation on non-financial information, it is possible to investigate the effects on both the disclosures of companies that had already experimented SD practices and on the companies that, for the first time, engaged in these practices after the introduction of this regulation.

The European Directive and the legislative decrees of the member countries require that the non-financial statement must contain at least information on some areas considered crucial: environment, social and employee-related issues, human rights, anti-corruption and bribery. Such information can be considered strictly mandatory. For evaluating the impact of the new regulation, the first area of analysis can refer to the impact on companies that, before the introduction of the non-financial statement obligation, already produced advanced SD practices such as the publication of stand-alone reports (i.e., sustainability report). Each of these companies had developed its own SD structure, often based on internationally recognised guidelines (for instance, GRI) but also on its specificities and vision and interpretation of SD. If the non-financial regulation has impacted these companies (which we define “pioneers” and “early-adopters” if they published social reports since 2008 or since 2013 respectively), this should have involved changes especially with reference to the amounts of the different types of information provided. If we assume that non-financial regulation has produced a normativity of the rule by state codification and imposition (Brunnée and Toope, 2000) then this regulation is able to change the behavior of companies by increasing the amount of mandatory information. Therefore, if the regulation has an impact on these companies, our hypothesis is:

H2: The “pioneer” and “early-adopters” companies have increased the amount of mandatory information after the introduction of the non-financial statement obligation

In order to assess the impact of the non-financial statement regulation on SD practices, a second step is to compare the behavior of “pioneer” and “early-adopters” companies with those that started the advanced SD practices only after the new regulation (which we define “late-adopters”). Supposing compliance with the mandatory non-financial statement is a power able to shape the disclosure of companies, it is also able to create a minimum disclosure model on which to voluntarily adding or modifying based on the characteristics of the individual company. In other words, with reference to the issues for which the regulation requires disclosure, all obliged companies (“pioneer”, “early-adopters” and “late-adopters”) should show a common structure. For our purpose we define structure as the distribution of information between mandatory and voluntary. In this logic, the normativity of regulation should induce all obliged companies to have a similar probability of disclosing mandatory information. Therefore, our hypothesis is:

H3: For the mandatory information, “pioneer” and “early-adopters” companies have the same disclosure structure as “late-adopters” companies

In our analysis, an aspect that cannot be overlooked is the fact that the regulation was preceded by the attempt of standardization of SD proposed through the elaboration of guidelines, among which the most recognised are the GRI series. Therefore, the “pioneer” and “early-adopters” companies subject to the new regulation will likely already have an approach deriving mainly from the setting of the guidelines. In contrast, the “beginners” companies obliged to non-financial reporting will face for the first time a SD practice. Thus, in this frame it is possible to identify three different kinds of information within the reports: mandatory, solicited and voluntary. A mandatory information is required by law like the topics in Directive 2014/95/EU about the non-financial information. Instead, Van der Laan (2009) defines solicited disclosure as an answer to a direct request from specific stakeholders. The identification of the stakeholder providing the request of information makes more tangible the expectations about what and how should be disclosed by companies (Van der Laan, 2009). In this sense, the provision requested by acknowledged guidelines (like GRI) can be seen as disclosure solicited by specific stakeholder: standard setters or soft-regulators. This kind of solicited disclosure is relevant because can give legitimacy and credibility to SD mitigating the self-referentiality of reports. Finally, the voluntary disclosure is related to information that the companies disclose without any obligation or solicitation. It is possible to suppose that for “pioneers” and “early-adopters”, the practices based on the guidelines are more internalised so that solicited information should prevail over the others even after the introduction of regulation. For “late-adopters” companies the practices deriving from the guidelines have never represented a model, but the regulation provides for the possibility of using guidelines recognised as authoritative therefore, since the GRI standard is the most widespread at international level, it can easily have become the reference point. Hence, our hypothesis is:

H4: After the regulation, for “pioneer” and “early-adopter” companies there is the same likelihood of disclosing solicited information as “beginners” companies

The joint effect of standardization, regulation and legitimacy should lead the companies to conform their own disclosure behavior to the others over time. As auspicated by International Standard, this should also lead to greater comparability across companies’ SD. Indeed, the consequence of adopting the same standards (such as GRI), means that companies have the same benchmarks, the regulation on non-financial information promotes coercive isomorphism, while through the regulation on the imitative behavior towards “close” companies could be appeared as normative or mimetic isomorphism. Over time, this should lead to company’s reporting increasingly similar to each other in terms not only of amount but also of type of information disclosed. Among the various factors that can affect the similarity of SD between companies,

the industry is considered a crucial factor for explaining the disclosure by the lens of legitimacy theory (Roberts, 1992; Hackstone and Milne, 1996). Each industry has peculiarities that could lead to similar disclosure behaviors regarding the kind of information disclosed and “followers” companies could adopt similar strategies compared to leadership ones (Wallace and Naser, 1995; Craven and Marston, 1999). Thus, within the same industry, there would be a tendency to have the same disclosure in terms of items disclosed or greater or lesser focus on certain topics or categories such as the environment, the local community or employee’s information. Moreover, greater similarity can lead to better comparability that can be relevant for companies operating in the same industry and to this extent, International Standards (such as the GRI) addressed specific standards devoted to specific industries (Cardoni et al., 2019). However, the tendency to follow the same reporting schemes and to adopt mimetic or regulatory isomorphism strategies has also been highlighted with reference to companies belonging not to the same industry but to industries that share similar characteristics. In particular, several studies have shown how industries that have “environmental sensitivity” and are characterised by a close “consumer proximity” are more likely to emphasise their social responsibility through disclosure (Jenkins and Yakovleva, 2006; Branco and Rodrigues, 2008; Cho, 2009; Reverte, 2009). For such reasons, we assume that:

H5a: Companies SDs become more similar among them over time

H5b: Companies in the same industry or having a strong consumer proximity and environmental sensitivity tend to have more similar SDs

In an attempt to represent a unitary framework of the hypotheses described, Table V-1 highlights for each hypothesis the type of theoretical mechanism that justifies it and the categories of companies on which the suggested effects occur.

Table V-1. Work hypotheses

<i>Hypothesis</i>	<i>Hypothesised trend of SD</i>	<i>Theoretical explanation</i>	<i>Category of companies involved</i>
H1	Increase of the SD	Standardization Regulation Legitimacy	All the companies
H2	Increase of mandatory information	Regulation	Pioneers and Early
H3	Similarity in disclosure of mandatory information	Regulation	All the companies
H4	Similarity in disclosure of solicited information	Standardization Regulation	All the companies
H5a	Similarity in SD	Standardization Regulation Legitimacy	All the companies
H5b	Similarity in SD in the same industry or in industry with consumer proximity/environmental sensitivity	Legitimacy	All the companies

4. Methodology

4.1 Sample

To study the evolution over time of SD, a sample of Italian stock market companies listed in 2008, 2013, 2018 has been selected. 2008 is the first year of application of Italian D.Lgs. 32/2007 that transposes the European directive 2003/51. In 2008-2013 the GRI standards were considered a *de facto* global standard (KPMG, 2011, p. 20) and a leader in developing sustainability reporting guidelines (Ballou et al. 2006; Brown et al., 2009; Kolk, 2010). 2018 is the second year in which the decree on non-financial information is in force. As well as in previous studies, listed companies have been selected for the quantity and the quality of SD, for their visibility and for data accessibility (Hackston and Milne, 1996; Kolk, 2003; Dias et al., 2016). The empirical analysis is related to a single country to avoid differences between

companies in terms of economic, institutional, cultural and social background (Matten and Moon, 2008). Italy was chosen as the setting since the analyses relating to SD in the countries of the Mediterranean and continental Europe are even less developed than those in the Anglo-Saxon countries. Moreover, in recent years Italy has developed legislative initiatives oriented towards the mandatory nature of social reporting in different entities (for example, social enterprises) and has applied the 2014/95 directive in a peculiar way (Branco and Rodrigues, 2008; Reverte, 2009; Muserra et al., 2019).

Table V-2. Composition of the sample of the study

Industry_BI	Freq	Adoption	Freq
1 automobiles and parts	8	1 Earlyadopter	6
2 basic resources	1	2 Lateadopter	61
3 chemicals	2	3 Nonadopter	25
4 construction and materials	7	4 Pioneer	18
5 food and beverage	3		
6 health care	4		
7 industrial goods and services	23	Regulation	Freq
8 media	10	Non obliged	27
9 oil and gas	6	Obliged	83
10 personal and household goods	13		
11 retail	4	Consumer proximity	
12 technology	11	No	52
13 telecommunications	3	Yes	58
14 travel and leisure	5		
15 utilities	10	Environmental sensitivity	
		No	77
	110	Yes	33

Financial companies have been excluded due to their peculiar characteristics and obligations in terms of disclosure. These characteristics make them, by nature, not comparable with the others. Companies for which reports are not available for one or more years have also been excluded. The total sample includes 110 companies (330 observations) in 15 industries. Of these 110 companies, 18 are pioneers, 6 early-adopters, 61 late-adopters and 25 non-adopters. 27 of the 110 are not obliged by the law to disclose social and environmental matters. Lastly, 58 and 33 companies are close to their consumers and environmentally sensible according to their industry (Jenkins and Yakovleva, 2006; Branco and Rodrigues, 2008; Cho, 2009; Reverte, 2009).

4.2 Method and measurement

To measure the amount of SD, we have analysed the annual report, sustainability/social report and integrated report of the companies to have a complete picture of the companies' disclosure

(Unerman, 2000). As already done in previous studies on social disclosure and business research (Patten, 2002; Larrinaga et al., 2008; Branco and Rodrigues, 2008), to analyse the company's report we used a content analysis technique that allows us to coding qualitative and quantitative information to obtain data (Abbot and Monsen, 1979; Krippendorff, 1980). Specifically, thematic content analysis has been carried out based on a predefined categorization of items (Milne and Adler, 1999). Although this kind of analysis is more time-consuming than automated ones, it has the advantage of being more precise and tailored to the specific research setting allowing researchers to account for the meaning of the text (Li, 2010).

Regarding the items to investigate, we categorised them according to the type of information disclosed. In particular, as mentioned before, it is possible to identify three different categories of information within the reports: mandatory, solicited and voluntary. We used 143 items as a sample of the possible items that companies can disclose. We identified 82 items that have been voluntary for all the periods taken into account, 30 items that have been solicited for all the periods taken into account and 31 items that have become mandatory after the endorsement of the law and were previously voluntary or solicited. Moreover, to test the similarities among SDs, we distinguished and accounted for items representing general explanations, qualitative descriptions, quantitative descriptions (indicators and related metrics) and benchmarks (Cardoni et al., 2019).

To determine the amount of disclosure, we adopted a binary logic in order to elaborate a social disclosure index (SDI), detecting the presence (value 1) or absence (value 0) of the information related to the items selected giving the same weight to each item (Haniffa and Cooke, 2005; Barako and Brown, 2008; Branco and Rodrigues, 2008). To calculate the SDI of a company, the total of items disclosed is divided by the total maximum score.

$$SDI_j = \frac{1}{n} \sum_{i=1}^n item_{i,j}, \quad item_{i,j} \in \{0,1\}$$

where

$j = j^{th} company$

$i = i^{th} item$

$n = number of items$

Following previous studies, we selected five categories of information (Hackston and Milne, 1996; Van der Laan Smith et al. 2005; Boesso and Kumar, 2007; Branco and Rodrigues, 2008; Dias et al, 2016): environmental, consumer-related, employee-related, community involvement-related and supplier-related information. In addition, to complete the kinds of SD relevant for a company we considered generic information about stakeholders (for instance, maps, engagement, etc). For each category, we selected some dimensions of analysis and for each

dimension the relevant items. We decided the rules to carry out the data collection and then two of the authors conducted the content analysis manually. The manual content analysis is more time-consuming but it is considered more accurate and able to generate more in-depth findings (Brennan et al., 2009). The α coefficient of Krippendorff has been used to guarantee the internal reliability (Krippendorff, 1980; Haniffa and Cooke, 2005). The present research achieved an α coefficient of 0,84 which is higher than the cut-off suggested in other studies (Milne and Adler, 1999).

To verify the hypotheses, some definitions and measurements must be clarified. The industries identified are 15 and they follow the classification of Borsa Italiana (the Italian Stock Market exchange): automobiles and parts, basic resources, chemicals, construction and materials, food and beverage, health care, industrial goods and services, media, oil and gas, personal and household goods, retail, technology, telecommunications, travel and leisure, utilities. Based on previous classifications (Branco and Rodrigues, 2008; Dias et al., 2016), among these industries some are classified as consumer proximal (automobiles and parts, food and beverage, media, oil and gas, personal and household goods, telecommunications, travel and leisure and utilities), and/or as environmental sensitive (automobiles and parts, chemicals, construction and materials, oil and gas and utilities).

To test hypotheses H.1, H.2, H.3 and H.4 we rely on classical statistical tests for comparison of means to determine if there are significant differences between the means of different groups. We rely on the classic T-test for pair comparisons when data are normally distributed, Wilcoxon when data are not normally distributed but symmetric, and Sign test to compare medians when data are neither normally distributed nor symmetric (Kassambara, 2019). When we compare more than two groups, we rely on Anova (repeated measure when our data are non-independent) and Friedman test when Anova assumptions are not met (Kassambara, 2019). For H.1, we perform a test to check whether the overall social disclosure score of obliged and not obliged companies significantly changes over time. We run the Friedman test based on ranks, a non-parametric test robust against departure from normality and asymmetry, and the Sign test for pairwise comparisons between periods since we checked our data distribution and they are not normally distributed and asymmetric (Kassambara, 2019). To test H.2, we use repeated measure Anova test and paired T-tests (for periods pair comparisons) on the total number of mandatory items disclosed by pioneer and early adopters. To test H.3, we calculated the ratio of mandatory (voluntary) items disclosed by the companies, given by the number of mandatory (voluntary) items disclosed by the specific company x divided by the total number of items disclosed by the specific company x. Then we performed a Wilcoxon test (T-Test) to compare whether the ratio of mandatory (voluntary) items disclosed by late adopters is significantly higher than that of early adopters and pioneers in the post-regulation period. To test H.4, we calculated the ratio of

solicited items disclosed by the companies, given by the number of solicited items disclosed by the specific company x divided by the total number of items disclosed by the specific company x . Then we perform a T-test to test whether this ratio is significantly different for late adopters than pioneer and early adopters. Moreover, we use Friedman and Anova, and Sign test for pairwise comparisons to test whether pioneers and early adopters' solicited and voluntary ratio significantly changes over time. To perform these statistical tests we used the R package `rstatix` (Kassambara, 2020).

The descriptive statistics for the H.1, H.2, H.3 and H.4 tests are available in the appendix.

To test H.5.a and H.5.b, we do not check whether all the companies have similar SDs results. Indeed, this kind of information tells us just whether companies disclose the same number of items but not if they disclose exactly the same items. Disclosures are comparable when companies disclose exactly the same item and not whether their total disclosure is equal or close just in terms of amount. As an example, two companies can have an overall score of five but the first company could disclose five items that the second company does not disclose. In this case, there is no comparability (or just approximative comparability) in what they disclose. In this respect, considering that the paper aims to investigate the isomorphic attitude of Italian SD, we need to use measures capable of highlighting whether companies disclose exactly the same items. In doing so, we use similarity measures. Using similarity measures, we can see a particular report of a company as a binary vector signaling for presence and absence values. This binary vector has many values/cells as the number of items that could be present in the report (in our case 143 items). If the company discloses a specific item, the value in the corresponding cell will be 1 otherwise it will be 0. In this way, we have a spatial representation of the content inside the report. On this ground, taking two vectors (that represent the content of the reports of two different companies), we can compute the similarity in what they disclose (taking into account the order of the cell) by using the following formula called Jaccard similarity:

$$J(A, B) = \frac{|A \cap B|}{|A \cup B|} = \frac{|A \cap B|}{|A| + |B| - |A \cap B|}$$

Where A and B are two binary vectors that represent the content of the reports of two different companies. Two companies that report on the same items will have 1 in the same cell, then their disclosure is more similar. Once we obtain the Jaccard similarity we calculate the Jaccard distance given by $1 - \text{Jaccard similarity}$. We do this work to compare each company's SD to all the others in the sample and check how dissimilarities in disclosure content change over time. We use heatmaps (and the related histograms) to highlight our results and the evolution of dissimilarities over time.

Then, to deepen this insight and test H.5.b, we test whether companies in the same industry or sharing features such as consumer proximity and environmental sensitivity tend to have more

similar SD. To do so we perform analysis of similarities (ANOSIM), a robust non-parametric hypothesis-testing framework for differences among groups particularly used in ecological studies (Sommerfield et al., 2021). ANOSIM is used for testing the dissimilarities in vegetation among different sites sharing different features that allow researchers to classify them into different groups. In our study, the “sites” are the different companies and the “vegetation” are the items that can “bloom” from a particular SD on the ground of the features of the site/company (e.g., industry and consumer proximity). ANOSIM resembles ANOVA test but it works directly on dissimilarities matrices to test the null hypothesis that the similarities between groups are greater or equal to the similarity within groups. The test statistic of ANOSIM is as follows:

$$R = \frac{\bar{r}_B - \bar{r}_W}{M/2} \quad R_i^* = \frac{\bar{r}_{B,i}^* - \bar{r}_{W,i}^*}{M/2}, \quad i = 1, 2, \dots, 1000$$

where:

\bar{r}_B = average of rank similarities of individuals from different groups (between-group);

\bar{r}_W = average of rank similarities of individuals in the same group (within-group);

M = number of similarities (all the possible comparisons).

R = statistic between -1 to 1 where values close to 1 highlight higher similarities between the same group's observations.

R_i^* = i -th R permutation where observations are randomly assigned to groups (R permutations are used to create an R distribution to calculate the p-value of the observed R).

Other than the p-value, in ANOSIM it is important to look also at the R statistic that represents the magnitude of the strength of the similarity within groups. The summary of the results of ANOSIM can be found in the appendix of the Chapter (Table VIII-13). To perform ANOSIM we used the R package VEGAN (Dixon, 2003).

5. Results

We start our empirical analysis by testing H.1. In doing so, we inspect the SD index (SDI) distribution with respect to each period. These graphical representations allow us to obtain some first insights into our sample's SD over the three periods.

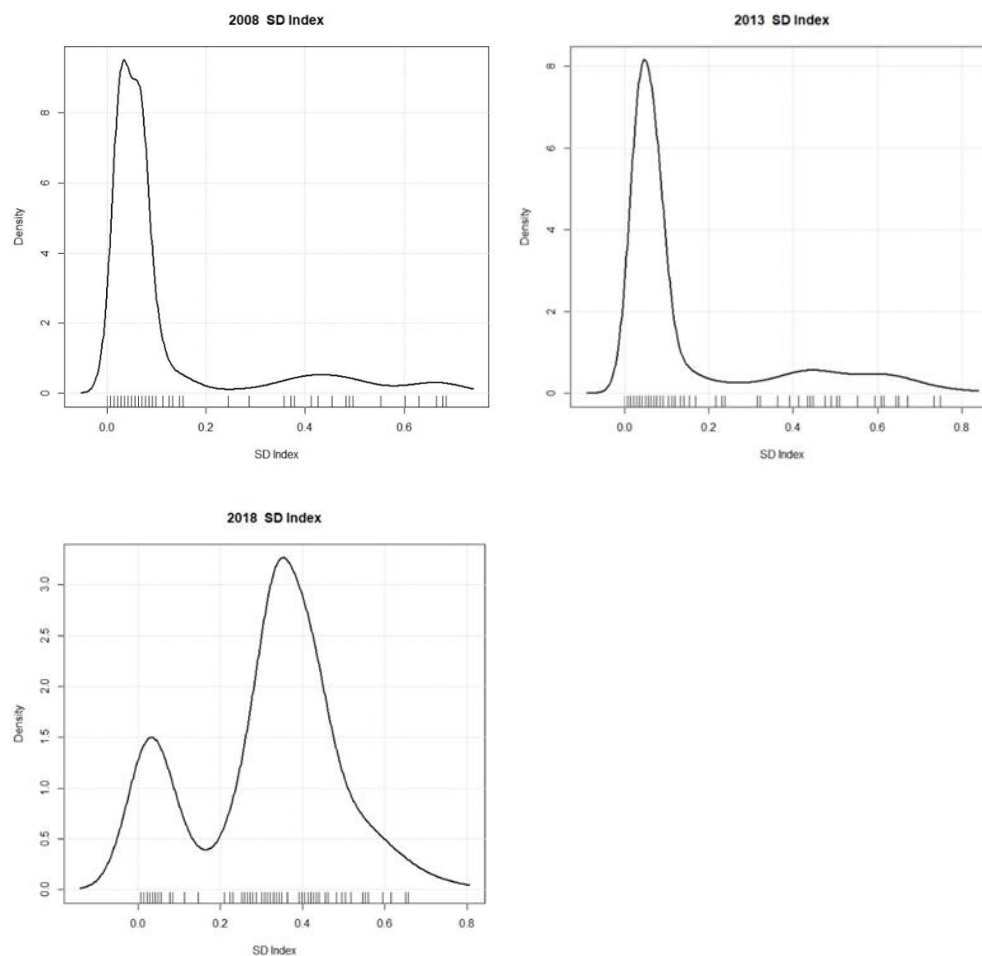


Figure V-2. SD Index distributions

In the first two periods, distributions of the SDI are positively asymmetric. Most of the observations have SDI lower than 0.2 (83.5% in 2008 and 76.4% in 2013). As regards the third and last period, we can notice a marked change in the shape of the distribution. In the last period, SDI distribution becomes bimodal, suggesting two different populations in our sample: a lower and a higher SDI population. We check which companies represent this lower SDI population and find out they are all non-obliged companies (100% non-obliged) and represent almost the whole of this kind of company (92.6%). We perform the Friedman test based on ranks and the Sign test for pairwise comparisons to deepen this insight.

Table V-3. H.1 Test results

Variable	Group size				P method		
1 SDI			83		1.18E-17	Friedman test	
Variable	group1	group2	size1	size2	p.adj	p.adj.signif	method
1 SDI	2008	2013	83	83	8.80E-02	ns	Sign test
2 SDI	2008	2018	83	83	2.54E-16	****	Sign test
3 SDI	2013	2018	83	83	5.67E-09	****	Sign test

Variable	Group size	P	method
1 SDI	27	0.106077	Friedman test

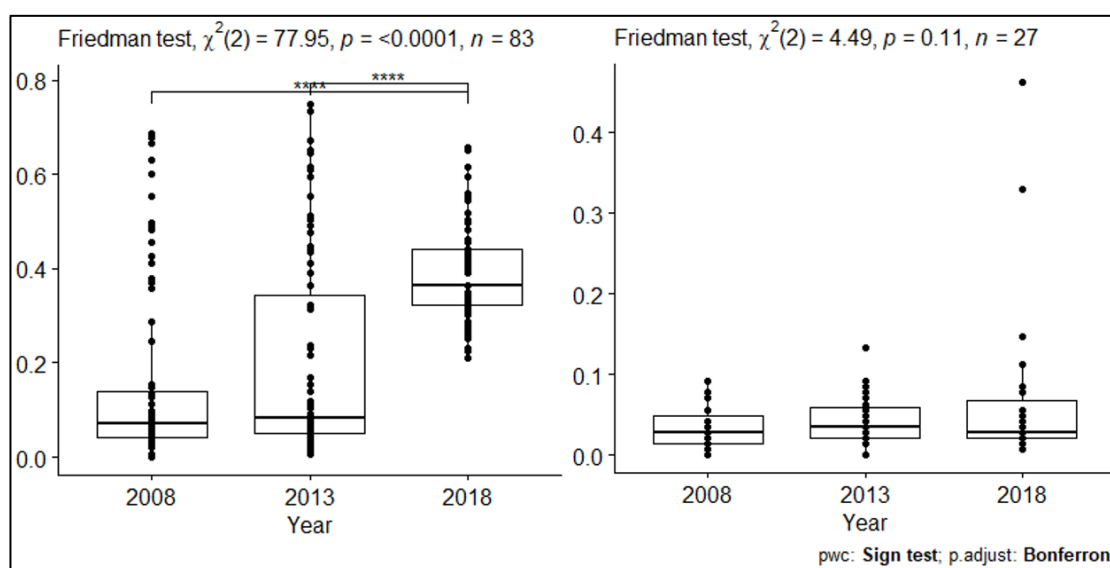


Figure V-3. Growth in SDI for obliged (on the left) and not obliged (on the right) companies

Obliged companies' SDIs significantly increase over time (Friedman test, $p < 0.0001$). In particular, the increase is highly significant between years 2008 and 2018 (Sign test, $p < 0.0001$) and year 2013 and 2018 (Sign test, $p < 0.0001$) but not significant between years 2008 and 2013 (Sign test, $p = 0.08$). Regarding not obliged companies, their SDIs do not show significant changes between either of the considered periods (Friedman test, $p = 0.106$). According to these results, only obliged companies show a significant increase in SDI over time. Specifically, this increase in the amount of SD is linked to the transition from voluntary reporting (2008, 2013) to mandatory. Non-obliged companies experienced no significant increase in all the periods. The hypothesis H.1 is therefore only partially confirmed.

Regarding H.2, to test the impact of non-financial regulation on the SDI of pioneer and early-adopters we verify whether the amount of mandatory information has significantly changed. The number of mandatory items disclosed by pioneers and early adopters significantly increases over time (Anova, $p < 0.05$, Anova, $p < 0.05$). The increase is statistically significant between the years 2008 and 2018 (T-test, $p < 0.05$, T-test, $p < 0.001$), and between the year 2008 and 2013 (T-test, $p < 0.05$, T-test, $p < 0.05$) and not significant between years 2013 and 2018 (T-test, $p = 0.687$, T-test, $p < 0.258$).

Table V-4. H.2 Test results

	Effect	p	p < .05	method
1	Year	0.003	*	Anova

Variable	group1	group2	Size1	Size2	p.adj	p.adj.signif	method
1 SDI mandatory	2008	2013	18	18	0.041	*	t-test
2 SDI mandatory	2008	2018	18	18	0.011	*	t-test
3 SDI mandatory	2013	2018	18	18	0.687	ns	t-test
Effect	p		p<.05		method		
1 Year	4.92E-06		*		Anova		
Variable	group1	group2	size1	size2	p.adj	p.adj.signif	method
1 SDI mandatory	2008	2013	6	6	5.00E-03	**	t-test
2 SDI mandatory	2008	2018	6	6	7.89E-05	****	t-test
3 SDI mandatory	2013	2018	6	6	2.58E-01	ns	t-test

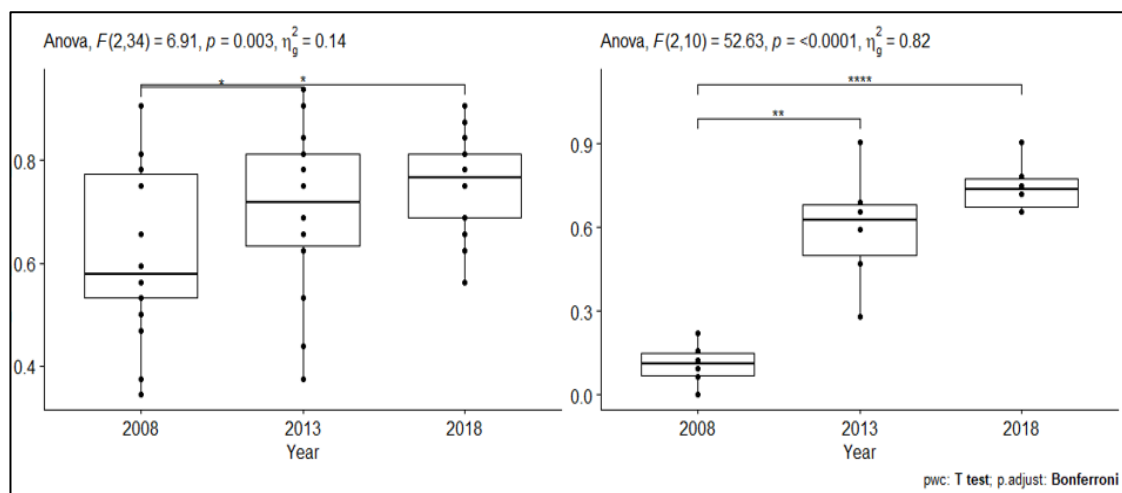


Figure V-4. Growth in mandatory items disclosure for pioneers (on the left) and early-adopters (on the right)

Thus, the number of mandatory information disclosed by pioneers and early adopters has increased but this change is not due to the regulation. These results indicate that pioneers and early-adopters had already achieved a level of disclosure of mandatory items not significantly different from that of the post-regulation period in 2013. On the ground of these results, H2 is only partially confirmed.

As regards H.3 which compares the disclosure structure of pioneer and early-adopter companies with that of late-adopters, the SDI ratio of mandatory items disclosed by late-adopters is significantly higher than that of pioneers and early-adopters (Wilcox test, $p < 0.001$). On the other hand, the ratio of voluntary items disclosed by late-adopters is significantly lower than that of pioneer and early-adopters (T-test, $p < 0.001$). So, beginners companies are more oriented to disclose information required by the law while pioneers have built their own SD path over time, adapting it to the characteristics of their company. These results do not confirm H.3 and suggest that the SD of beginners is significantly more oriented to law compliance than to mimic expert companies' voluntary SD.

Table V-5. H.3 Test results

Variable	group1	group2	size1	size2	p	p.signif	method
1 Ratio mandatory	Late	Expert	61	24	8.69E-06	****	Wilcox
Variable	group1	group2	size1	size2	p	p.signif	method
1 Ratio voluntary	Late	Expert	61	24	2.98E-07	****	t-test

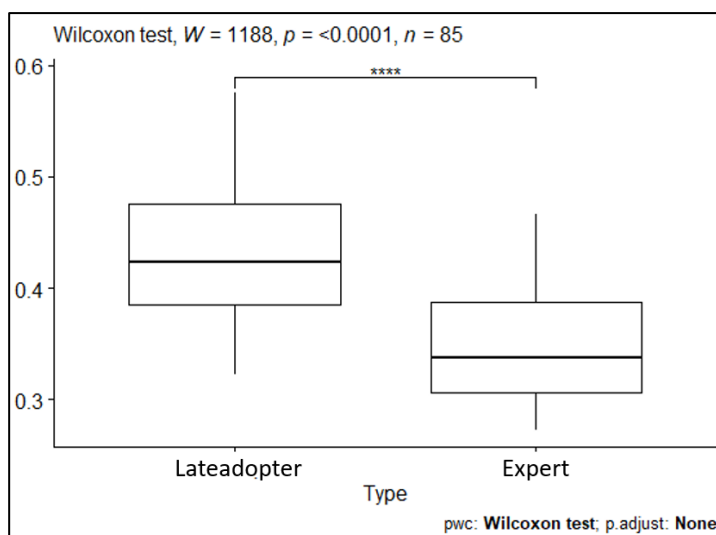


Figure V-5. Difference in mandatory items ratio between late-adopters and experts

According to H.4, the level of solicited disclosure should be similar in each category of company (pioneers, early-adopter and late-adopters). Statistical analysis shows that the SDI ratio of solicited items disclosed by late-adopter companies is significantly higher than that of pioneer and early-adopters (T-test, $p < 0.001$).

Table V-6. H4 Test results

Variable	group1	group2	size1	size2	p	p.signif	method
1 Solicited ratio	Late	Expert	61	24	3.72E-07	****	t-test
Variable	n		p		p.signif	method	
1 Pioneer Voluntary ratio	18		0.001		**	Friedman test	
Variable	group1	group2	size1	size2	p.adj	p.adj.signif	method
1 Pioner Volratio	2008	2013	18	18	0.7	ns	Sign-test
2 Pioner Volratio	2008	2018	18	18	0.09	ns	Sign-test
3 Pioner Volratio	2013	2018	18	18	0.004	**	Sign-test
Variable	n		p		p.signif	method	
2 Pioneer Solicited ratio	18		0.001		**	Friedman test	
Variable	group1	group2	size1	size2	p.adj	p.adj.signif	method

1	Pioneer	2008	2013	18	18	0.7	ns	Sign-test
	Solratio							
2	Pioneer	2008	2018	18	18	0.09	ns	Sign-test
	Solratio							
3	Pioneer	2013	2018	18	18	0.004	**	Sign-test
	Solratio							
Variable		Effect		p		p<.05		method
1	Early Volratio	Year		0.368		ns		Anova
2	Early Solratio	Year		0.115		ns		Anova

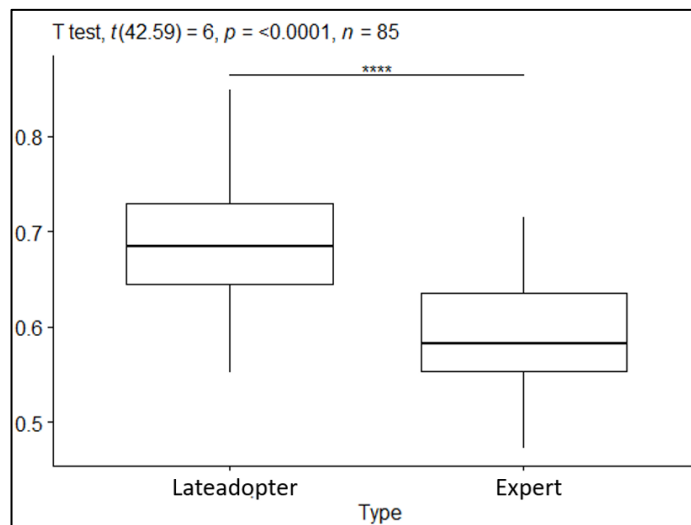


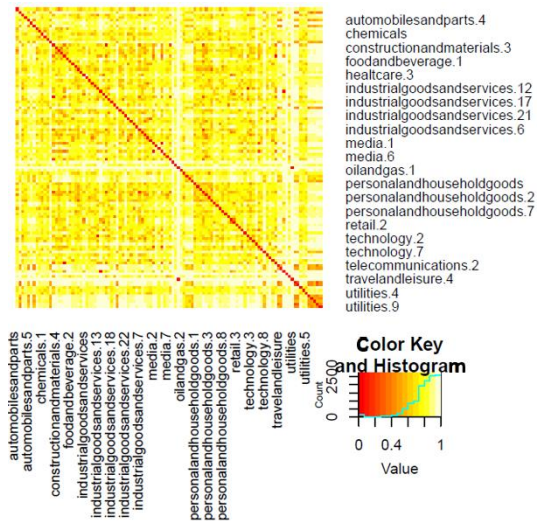
Figure V-6. Difference in solicited items ratio between late-adopters and experts

This result does not confirm H.4 and suggests that late adopters' SD is more oriented to disclose information solicited by international standards. This means that, to comply with regulation, late adopters tend to follow international standards instead of emulating more expert companies' voluntary SD practices. On the other hand, pioneer companies' solicited/total ratio and voluntary/total ratio significantly change over time (Friedman, $p < 0.05$). In particular, their voluntary ratio significantly decreases from 2013 to 2018 (Sign test, $p < 0.05$) and the solicited ratio significantly increases (Sign test, $p < 0.05$) in the same period. This means that pioneers are getting more focused on standard compliance over time. Regarding early adopters, there are no significant changes in their ratios of items disclosed between 2013 and 2018 but this result can be due to the fact that their disclosure evolution is shorter than that of pioneer companies and that they were already oriented to standardization compliance.

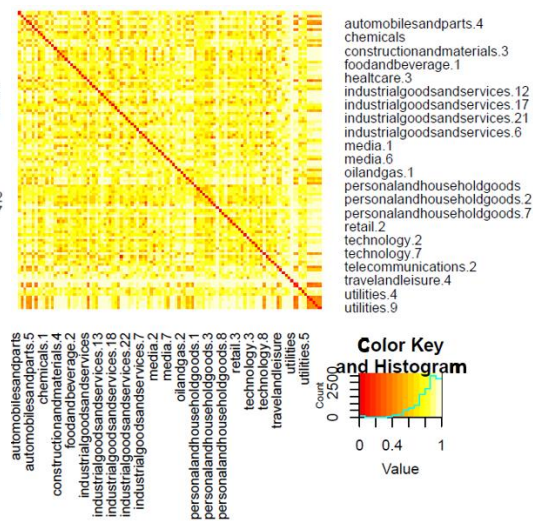
To test whether similarities among reports increase over time (H5a) and whether these similarities are higher for companies in the same industry or having a strong consumer proximity and environmental sensitivity (H5b), we measure Jaccard distances between every company in

our sample over time. We depict a graphical representation of this evolution using heatmaps to highlight our results and the evolution of dissimilarities (Figure V-7).

2008



2013



2018

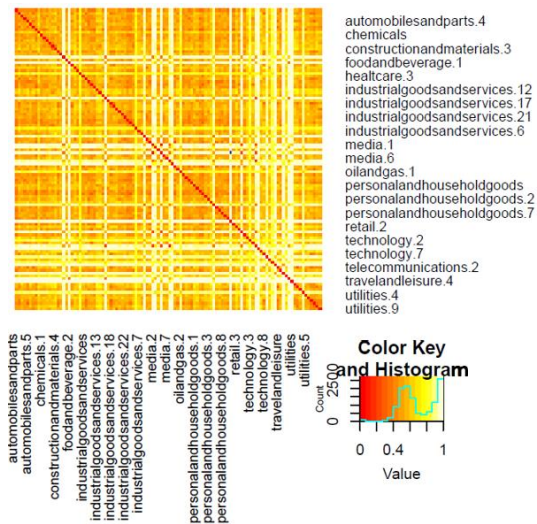


Figure V-7. Heatmaps of the dissimilarities in the three periods

To interpret the heatmaps, we have to understand what they represent. On the x axis of each heatmap we have a company of our sample denoted by its industry. As an example, the label “automobilesandparts 4” represents the fourth company in the industry “Automobiles and parts” in our sample. For the sake of visual clarity only part of the labels is showed on the axes, however the axes contain all the companies in our sample. In the y axis we have the same observations of the x axis. Hence, the heatmap is perfectly symmetric. Each intersection on the map represents the Jaccard distance between the company on the x-axis and the company on the y-axis. Higher distances (i.e. dissimilarity in disclosures) are indicated by a soft yellow colour while shorter distances (i.e. more similar disclosures) are indicated by a darker orange colour. As can be

noticed, since the map is symmetrical, the diagonal of the map contains the comparison between the company and itself (so we will have a dark orange colour indicating full similarity along the diagonal). The histograms supporting the maps indicate the distribution of dissimilarities.

Looking at the heatmaps (and at the related histograms), we can see that disclosure dissimilarities decrease in the third period after regulation, showing the isomorphic evolution's magnitude.

To deepen this insight and test H.5.b, we check whether companies in the same industry or sharing features such as consumer proximity and environmental sensitivity tend to have more similar SD. ANOSIM's results for the three periods (see Table V-13 in the appendix) show that in all the periods considered, companies in the same industry have significantly more similar disclosures ($p < 0.01$ in all the three periods) than with companies in other industries. However, the R statistic that represents the magnitude of the strength of this similarity within groups shows a decreasing path ($R = 0.221$ in 2008, $R = 0.1634$ in 2013 and $R = 0.138$ in 2018). Therefore, the industry characterises the disclosure, but its strength as characterising factor decreases over time and SDs are getting more similar between different industries. As regards consumer proximity and environmental sensitivity, companies sharing these features have significantly more similar disclosures between them than with companies not having consumer proximity or environmental sensitivity just in the first two periods ($p < 0.01$), with very similar R statistics ($R = 0.1938$ and $R = 0.2009$) while in the third and last period the R statistics is very low and these features are not significant at $\alpha = 0.01$ ($R = 0.057$, $p = 0.029$). As SD becomes a widespread and institutionalised practice, the differences between industries (and between industries with consumer proximity and environmental sensitivity and the others) decrease. Therefore, the legitimising power seems to be more compliant with a standard (GRI) or regulation rather than a mimetic isomorphism with respect to other companies.

The following table (Table V-7) summarises the results achieved with the empirical analysis.

Table V-7. Results of hypotheses testing

<u><i>Hypothesis</i></u>	<u><i>Hypothesised trend of SD</i></u>	<u><i>Theoretical explanation</i></u>	<u><i>Category of companies involved</i></u>	<u><i>Findings</i></u>
H1	Increase of the SD	Standardization Regulation Legitimacy	All the companies	Partially Confirmed (only for obliged companies)
H2	Increase of mandatory information	Regulation	Pioneers and Early	Partially confirmed (not from 2013 to 2018)
H3	Similarity in disclosure of mandatory information	Regulation	All the companies	Not confirmed (beginners are more compliance oriented)
H4	Similarity in disclosure of solicited information	Standardization Regulation	All the companies	Not confirmed
H5a	Similarity in SD	Standardization Regulation Legitimacy	All the companies	Confirmed
H5b	Similarity in SD in the same industry or in industry with consumer proximity/environmental sensitivity	Legitimacy	All the companies	Partially confirmed (only for industry and partially for consumer proximity and environmental sensitivity)

6. Discussion and conclusions

In this work, we explored SD dynamics in Italian organizations in relation to the influences of legitimacy, regulation, and standardization. We analysed these dynamics in terms of amount

(quantity) of disclosure and in terms of similarities of what is disclosed among companies. While investigating quantity allows us to gain insights on the amount of SD, investigating similarities leads to understanding the isomorphic dynamics of the disclosure and exploring another important aspect of SD, their comparability.

As regards the amount of disclosure, results from H.1 testing point out that while obliged companies' SD increased over time that of non-obligated companies did not. In this respect, we suggest that SD is not *per se* considered as a "legitimizing" practice. Indeed, non-obligated companies have not imitated the behaviour of other successful companies. From this point of view, it is important to consider that implementing an advanced SD (through specific statements such as sustainability reports and similar) may entail costs, time, resources and need to competences that may be significant. Many companies that are not obliged have therefore not felt the need for greater accountability, have not considered this practice convenient or strategic, or at least so convenient as to sustain the commitment necessary to implement it. On the other hand, obliged companies' SD increased over time and this increase is not significant from 2008 to 2013. This means that also the obliged population is more stimulated by regulation rather than by imitating the behavior of other companies for legitimacy purposes or driven by the spread of standardization through guidelines (GRI). Regulation has contributed to the increase in SD by leading companies other than pioneers and early adopters to adopt SD reports (from 24 to 85 adopters). On the basis of these results, only obliged companies took part in the SD evolution path and regulation played a fundamental role in the SD increase and diffusion only for these companies. In this regard, we focused on different categories of obliged companies, namely pioneers, early-adopters and late-adopters according to definition identified in Section 3. We investigated the effect that regulation had on the SD of each of these categories. Indeed, while the impact of regulation on late adopters is clear (these companies adopted their first SD report immediately after the regulation) possible effects of regulation on pioneers and early adopters SD need to be deepened. In this respect, H2 testing points out that the level of post-regulation mandatory information disclosed by these companies has increased significantly from 2008 to 2013 (pre-regulation) but not from 2013 to 2018 (regulation period). In this respect, considering that in 2008-2013 the GRI standards were considered a *de facto* global standard (KPMG, 2011, P. 20), following a standard has on the one hand led these companies to increase the amount of information provided and on the other hand gave them an advantage in the application of the new regulation, as these companies were already substantially in line with the regulation requirements (first-mover advantage). For these companies that had already started a voluntary process, the regulation does not seem to have substantially changed their behaviour with respect to the information required by the regulations, which did not increase significantly (H.2). Moreover, H.4 points out that early adopters in particular are those who have internalised the

content of the GRI guidelines to a greater extent than pioneer companies. The latter, indeed, started by developing an approach that, being in a phase in which SD practices were not yet particularly widespread (*pioneering phase*), was more “peculiar” and oriented towards a more voluntary disclosure. The diffusion of the GRI standard has contributed to a natural “isomorphism” in SD due to the fact that only by reporting in a manner consistent with the standard the information provided was considered credible.

As regards late adopters and regulation, H.3 testing results show that late adopters are significantly more oriented to disclosing information required by the law than pioneer and early. In this regard, evidence is provided that late adopters are more oriented to follow the law than in mimicking expert companies’ disclosures. This result can be interpreted in two different ways. On the one hand, regulation could run the risk of incentivising merely compliance-oriented practices not stimulating an actual change in terms of strategic vision and substantive behaviour. On the other hand, this mainly compliance-oriented approach could be the first step in the process of acquiring knowledge and capabilities in social strategizing, planning, thinking and disclosing. Advanced SD practices, indeed, need capability and thinking broader than those just oriented to financial results. Therefore, regulation could play the role of a nudge to this new and broader conceptualisation of the company’s role.

As regards the similarity in what is disclosed, H.5.a and H.5.b testing respectively confirm that disclosures have become more similar among companies over time and that the industry is a strong element characterising SD. The specific needs of sectors and the demands of specific stakeholders tend to shape the SD of companies belonging to the same sector resulting in a strong homogeneity. However, the similarity proper of specific industries decreases more and more in each period over time. This evidence suggests that the spread of standards and regulation tends “to flatten” SD across industries. In others words, companies’ SDs are getting more and more similar independently from their industries. Therefore there is a reduction in the strength of industries as characterising factors for what is disclosed. This evidence is even more striking considering the disclosure related to the industries with environmental sensitivity and consumer proximity for which the similarity after the regulation strongly decreases and becomes barely significant. This suggests that the spread of standardization and regulation has dampened the effects of a legitimacy strategy. In this respect, this evidence casts some doubts on the quality of SDs. Indeed, while this increase in SDs similarities proxies for greater comparability, on the other hand the specificity of the content of SDs that should distinguish different business seems to be reduced despite still present.

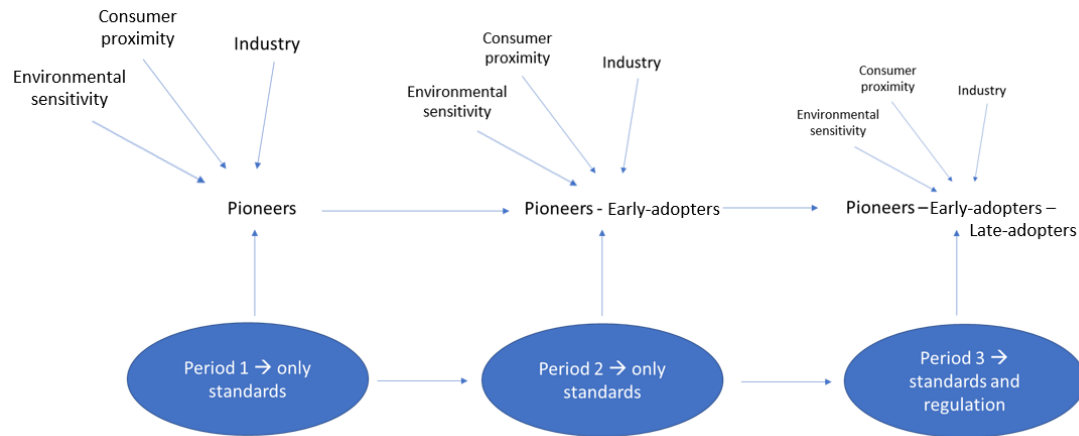


Figure V-8. SD dynamic framework according to our results

Note: Factors such as industry, consumer proximity and environmental sensitivity become less relevant over time

Overall, regulation had a diffusive effect on Italian SD, more than doubling the number of adopters and significantly increasing its overall level. In this diffusive process, regulation has been helped by standardisation. Indeed, late adopters are more oriented in disclosing solicited items (namely those required by GRI) than pioneers. On the other hand, companies already adopting advanced SD practices before regulation had not been affected by it. They were already in the vanguard of what should be reported. For these companies, a strong role was played by legitimacy and standardisation. Regarding the former, companies in the same industry had very similar disclosure structures from the early period. As regards standardisation, it contributed significantly to the increase in the quantity of SD because it provided companies implementing advanced reporting practices with a benchmark against which to measure the credibility and legitimacy of the information provided. Moreover, standardisation contributed to the diffusion of SD before regulation. Indeed, the disclosure of early adopters were oriented to solicited items since the second period.

However, despite the contribution to the diffusion of SD practices by regulation and standardisation, some doubts remain about their effects. The joint effect of standardisation and regulation has led to the creation of SD that are increasingly similar in content, increasing also the comparability of this information but this could have decreased the customisation able to meet the specific needs of companies and their stakeholders.

In this regard, further studies are needed. In particular, future research should verify whether the flattening of “what” is reported can also translate into a flattening of a desirable customisation of what should be reported. Moreover, this flattening could also be due to late-adopters compliance-oriented attitude. Indeed, it is possible that these companies have started disclosing similar contents as minimal legal requirements avoiding a real commitment in social

strategizing, planning and acting. Regarding this aspect, another result highlighted in this work is that late adopters SD structures are significantly more compliance-oriented than pioneers and early. Further studies should verify whether the compliance-oriented focus of late adopters should be revised as a mere symbolic adaptation to SD to comply with the law or as a first step in a knowledge acquiring process to social strategizing and thinking. To deepen these aspects, we suggest to carry out case studies on companies in the late adopters group.

Finally, this study is not without limitation. In particular we operationalised the concept of similarity using interpretive content analysis results. This kind of analysis can be affected by subjectivity (Li, 2010), although we tested for the internal reliability of our coding procedure (Krippendorff, 1980). However, the similarity analysis we proposed can be further developed to investigate more in depth the concept of comparability using the same procedure and more articulated coding (see, Boiral and Henri, 2017). Consequently, future research can reproduce the same analysis using different coding schemes and/or focusing on different geographical contexts. Moreover, comparability is a quality measure of SD that can be investigated among different companies or with respect to what is reported by the same company over time (Strozzilaan, 2015). Further studies can investigate the Italian context with respect to this second type of comparability.

Appendix Chapter V*Table V-8. H1 descriptive statistics*

	Type	Year	variable	size	min	max	median	iqr	mean	sd
1	Obligated	2008	Tot_idx	83	0	98	10	14	21.747	26.62
2	Obligated	2013	Tot_idx	83	1	107	12	42	28.193	30.807
3	Obligated	2018	Tot_idx	83	30	94	52	17	56.181	14.846
4	No Obligated	2008	Tot_idx	27	0	13	4	5	5.074	3.761
5	No Obligated	2013	Tot_idx	27	0	19	5	5.5	6.148	4.312
6	No Obligated	2018	Tot_idx	27	1	66	4	6.5	9.741	14.506

Table V-9. H2 descriptive statistics

	Type	Year	variable	size	min	max	median	iqr	mean	sd
1	Pioneer	2008	SDI mandatory	18	11	29	18.5	7.75	19.833	5.102
2	Pioneer	2013	SDI mandatory	18	12	30	23	5.75	22.611	5.135
3	Pioneer	2018	SDI mandatory	18	18	29	24.5	4	24.111	2.847
4	Early	2008	SDI mandatory	6	0	7	3.5	2.5	3.5	2.429
5	Early	2013	SDI mandatory	6	9	29	20	5.75	19.167	6.765
6	Early	2018	SDI mandatory	6	21	29	23.5	3.25	23.833	2.994

Table V-10. H3 Descriptive statistics a

	Type	variable	size	min	max	median	iqr	mean	sd
1	Lateadopter	Mandatory ratio	61	0.323	0.576	0.424	0.09	0.43	0.057
2	Expert	Mandatory ratio	24	0.273	0.467	0.337	0.081	0.353	0.064

Table V-11. H3 descriptive statistics b

	Type	variable	size	min	max	median	iqr	mean	sd
1	Lateadopter	Voluntary ratio	61	0.121	0.442	0.316	0.077	0.308	0.065
2	Expert	Voluntary raio	24	0.286	0.516	0.408	0.086	0.4	0.063

Table V-12. H4 descriptive statistics a

	Type	variable	size	min	max	median	iqr	mean	sd
1	Lateadopter	Solicited ratio	61	0.552	0.848	0.684	0.085	0.681	0.064
2	Expert	Solicited ratio	24	0.473	0.714	0.582	0.083	0.59	0.063

Table V-13. H4 Descriptive statistics b

	Type	Year	variable	size	min	max	median	iqr	mean	sd
1	Pioneer	2008	Voluntary ratio	18	0.333	0.536	0.491	0.058	0.469	0.054
2	Pioneer	2013	Voluntary ratio	18	0.407	0.558	0.477	0.078	0.484	0.046
3	Pioneer	2018	Voluntary ratio	18	0.286	0.516	0.425	0.09	0.413	0.063
4	Pioneer	2008	Solicited ratio	18	0.464	0.667	0.509	0.058	0.531	0.054
5	Pioneer	2013	Solicited ratio	18	0.442	0.593	0.523	0.078	0.516	0.046
6	Pioneer	2018	Solicited ratio	18	0.473	0.714	0.572	0.086	0.58	0.066
7	Early-adopter	2008	Voluntary ratio	6	0	0.667	0.472	0.139	0.407	0.227
8	Early-adopter	2013	Voluntary ratio	6	0.375	0.544	0.483	0.066	0.466	0.062
9	Early-adopter	2018	Voluntary ratio	6	0.289	0.424	0.356	0.042	0.362	0.047
10	Early-adopter	2008	Solicited ratio	6	0	0.667	0.5	0.167	0.426	0.235
11	Early-adopter	2013	Solicited ratio	6	0.456	0.625	0.517	0.066	0.534	0.062
12	Early-adopter	2018	Solicited ratio	6	0.561	0.689	0.627	0.037	0.621	0.044

Table V-14. H5 Test results

Industry effect 2008	Industry effect 2013	Industry effect 2018
anosim(x, grouping = Industry)	anosim(x, grouping = Industry)	anosim(x, grouping = Industry)
Dissimilarity: jaccard	Dissimilarity: jaccard	Dissimilarity: jaccard
ANOSIM statistic R: 0.2208	ANOSIM statistic R: 0.1634	ANOSIM statistic R: 0.138
Significance: 0.001	Significance: 0.001	Significance: 0.008
Permutation: free	Permutation: free	Permutation: free
Number of permutations: 999	Number of permutations: 999	Number of permutations: 999
Upper quantiles of permutations (null model):	Upper quantiles of permutations (null model):	Upper quantiles of permutations (null model):
90% 95% 97.5% 99%	90% 95% 97.5% 99%	90% 95% 97.5% 99%
0.0565 0.0788 0.0923 0.1183	0.0504 0.0645 0.0786 0.1022	0.0672 0.0996 0.1201 0.1346
Consumer and Environmental effect 2008	Consumer and Environmental effect 2013	Consumer and Environmental effect 2018
anosim(x, grouping = Consumer proximity and Environmental sensitivity)	anosim(x, grouping = Consumer proximity and Environmental sensitivity)	anosim(x, grouping = Consumer proximity and Environmental sensitivity)
Dissimilarity: jaccard	Dissimilarity: jaccard	Dissimilarity: jaccard
ANOSIM statistic R: 0.1938	ANOSIM statistic R: 0.2009	ANOSIM statistic R: 0.05712
Significance: 0.001	Significance: 0.001	Significance: 0.029
Permutation: free	Permutation: free	Permutation: free
Number of permutations: 999	Number of permutations: 999	Number of permutations: 999
Upper quantiles of permutations (null model):	Upper quantiles of permutations (null model):	Upper quantiles of permutations (null model):
90% 95% 97.5% 99%	90% 95% 97.5% 99%	90% 95% 97.5% 99%
0.0322 0.0428 0.0511 0.0621	0.0284 0.0377 0.0510 0.0632	0.0388 0.0474 0.0592 0.0742

CHAPTER VI

CONTRIBUTIONS, LIMITATIONS AND FURTHER DEVELOPMENTS

Summary: 1. Theoretical implications and contributions;
2. Practical implications and contributions; 3. Further developments, limitations and concluding remarks.

The thesis presented four papers addressing written accounting narratives investigation through qualitative and quantitative analysis of texts. Each of the papers draws conclusions related to its specific purpose. This last chapter serves to bind together the overall aims and contributions of this thesis in light of its main aim: investigating how the systems of words within written accounting narratives dynamically shape the meaning of concepts underlying them.

The main reason for conducting this research work is presented at the beginning of this thesis (Chapter I) and then further unfolded in each chapter. In particular, written accounting narratives' presence and importance in corporate reports have strongly increased in the last decades. Much of their information content is 'soft', i.e., cannot be easily and clearly quantified, measured, or compared due to its qualitative nature. Also, its interpretation and role in our social system are debated. Nonetheless, researchers, practitioners and regulators recognise the necessity for organizations to convey messages through these narratives, as well as the strong potential of these sources of information for several users' categories. In this respect, both researchers and practitioners have shown interest in these data sources to gain information on corporate performance and social phenomena such as creating and transmitting socially shared meanings. In this thesis, we argue that to exploit the potential of these sources of information, accounting and finance researchers and practitioners had to move their focus from the classical financial statements analysis to the field of textual analysis. Indeed, researchers had to enter the world of text analysis and interpretation as they have done in previous decades with financial statements analysis. Today, it is scientifically vital for the accounting and financial world to be able to gain, analyse, interpret and understand information from texts. However, coping with textual analysis to gain useful information for accounting and finance is not trivial. As we demonstrated in this work, performing textual analysis also means dealing with the study of natural language and its complexity (Chapter III and Chapter IV). Linguistic philosophers have shown that natural language words and sentences and the related categories arising from them

are fuzzy. The same word could mean different things and belong to different semantic categories at two periods in time, in different collectives and depending on who is communicating. In this respect, the thesis showed that we should focus on the contexts in which words are embedded to investigate written narratives. Furthermore, according to the research aims, it could also be important to locate the investigation of these texts in their social context to understand which external pressures are moulding them (Chapter V).

The present thesis contributes theoretically to accounting studies on written narratives by linking them with organisational and language studies that already addressed the fuzziness of words in organisations' narratives and natural language in general. This work relies upon the insights from these other fields of knowledge to investigate corporate reports (Chapter III and Chapter IV). In particular, we move corporate narratives' investigations focus to words' contexts and meaning. We do so by combining the traditional textual analysis approaches already used in the accounting and finance fields with insights from the vocabulary approach from organisational studies (Loewenstein et al., 2012) to account for the meaning that every word can assume in different situations and reports. While other approaches have been used in this respect, these are more qualitative approaches to language (such as discourse analysis) rarely primarily focused on the relations among words. The approach herein proposed for accounting studies differs from others for a deeper focus on words' situational usage. It facilitates understanding the broader system of words and meanings adopted by an organization allowing researchers to directly address categories development through a cognitive approach identifying them as the basis of meaning. Moreover, this approach relies on quantitative analyses, allowing for overcoming limitations such as time-consuming procedures, limited sample sizes and low reproducibility of the results. Furthermore, accounting for categories' meanings also conceptually overcomes the limitations of more quantitative and automated methods.

Overall, in this work we explored the state of the art of accounting narratives literature focused on written accounting narratives to identify gaps. We provided an overview of the most used theories and methods in written narratives investigation. We identified which previous literature has legitimised the current literature and which themes have been investigated so far (Chapter II). We open the way to new linguistic approaches and methods focused on the investigation of systems of words within reports to address the shaping and creation of categories and common understanding (Chapter III, Chapter IV). Lastly, we investigated how external pressures affect these narratives when they are also combined with accounting numbers. In doing so, we focused on social and sustainability disclosure in the Italian context. In this investigation, we also addressed one of the main problems of qualitative information, i.e., comparability (Chapter V).

1. Theoretical implications and contributions

Chapter II highlights the state of the art of accounting narratives literature. We provides an input, throughput and output theoretical framework of the accounting narratives production process to propose new research avenues in terms of theories and methods. According to this framework, the literature is mainly polarised on the external communication of written narratives as strategic tools. However, researchers should deepen other investigation perspectives in light of the recent debate on the role these narratives could have in affecting the decision-making processes of the organisation's members. More efforts are needed to study how organisations internalise internal and external pressures and adapt their narratives to them. In doing so, the substantive role of these narratives and their potential influences on organisations' knowledge acquisition, decision-making process and actions could be unveiled. The more external and communication-oriented investigation schema grounded on papers dealing with struggles for obtaining legitimacy through symbolic actions and impression management should be challenged. We propose to study written narratives to interpret their possible substantive role as a vehicle to assimilate, accommodate, shape and represent complex concepts.

In this respect, we pave the way for a linguistic approach to analysing corporate reports in Chapter III. Our findings suggest the possibility of investigating meaningful categories – in the work the specific category of integrated thinking – by looking at the systems of words (words in their contexts) that make these categories concrete and meaningful within the reports. Drawing on the vocabulary approach, we have shown how reports can represent categories as concepts that are dynamic in their meanings. The different systems of words constitutive of the main narrative components of the report – in the case of the integrated reports, its various capitals and their connections – allow us to identify and observe the evolution in the meaning of categories underlying the narration. In particular, in the case of the analysed integrated reports, the evidence of a constant change makes more relevant the need to account for the complexity and fuzziness of natural language (and related categories) when we analyse the narration, and so the creation and transmission of meaning, in corporate reports. Emphasising the dynamic perspective through which these categories should be analysed according to their evolutionary paths, we show that, rather than searching for precise and circumscribed meanings in reporting practices, we need a better comprehension of how these unfolding and never definitive meanings are constructed through the interactions of words included in the reports. Dealing with written narratives entails also dealing with the fluidity of the acquisition, interpretation and representation of knowledge. As organisations and society move their understanding and

interpretation of abstract concepts and shape them through signifying practices, as well our investigation of what is reported should be dynamic and never definitive.

In the same way, in Chapter IV, we embrace the fluidity in the relationships among words and, thus, account for their situational meanings in searching for the “bankruptcy” category. In doing so, we combined the two traditional textual analysis approaches used in the accounting and finance field (i.e., “dictionary approach” and “statistical approach”) (see Li, 2010) with insights from the vocabulary approach to distinguish between bankrupt and healthy companies’ language. Combining these approaches allows us to overcome what we identified and listed as “context-related limitations” based on previous literature and linguistic studies. These limitations are intrinsic to the classical approaches because of the fuzziness of natural language sentences and related categories arising from them. With respect to Chapter III, we propose a classificatory and inferential analysis more than a descriptive one in this chapter. In doing so, we rely on theoretical insights from the work of Rosch (1973) on cognitive development and acquisition of language. In particular, we highlight that language category membership (in the work, to be or not to be part of bankruptcy-related words) is not a yes-or-no matter but a matter of degrees. Indeed, categories arising from natural language are composed of a “core meaning” consisting of the best representative cases of that category (central members) surrounded by other category members (peripheral members) characterised by a decreasing similarity with central members and so core meaning. We can investigate if a specific word belongs to a pre-defined category by transposing these insights to written accounting narratives. We demonstrated that the same word used in different reports has a different polarization towards the pre-defined category following fuzzy logic. Words are fuzzy and their meaning varies with the context, narration and stories in which they are embedded. Hence, we can categorise them in pre-defined categories (in our case the bankrupt category) but according to a certain degree. Following this logic, we demonstrated that the same word could be a proxy of bankruptcy in a document and not in another one because every bankrupt case has its own story and narration. Moreover, we demonstrated the existence of a bankrupt language category characterising it by the contexts in which words are used²².

Also in this case, we demonstrated that the meaning of categories imbuing reports is not well-defined and cannot be circumscribed. In particular, we demonstrated that there is neither a single dictionary indicative of a specific category (in the specific case, the bankruptcy category) nor a unique polarization for a specific word (is or is not in that category). On this basis, we proved that a *panacea* dictionary perfectly mapping reports’ semantic categories cannot exist. Instead,

²² We demonstrated that bankrupt companies show systematically and significantly more “bankrupt words” than their healthy counterparts.

we should focus more on contexts giving words a certain degree of association with that category than on words as atomistic entities (i.e., focus on systems of words underlying the narration).

Lastly, in Chapter V, we deal with the investigation of corporate disclosure (including written accounting narratives and accounting numbers) evolution over time with respect to normativity, that is “the ways in which actors come to see rules as binding” (Bebbington et al., 2012, pp. 78). Despite this chapter not directly addressing the system of words underlying written accounting narratives, we focus on the dynamicity of what is reported (narratives and accounting numbers) to answer to external pressures. As we mentioned before, to deal with written accounting narratives, we need to cope with the fluidity of the acquisition, interpretation and representation of knowledge that bound organisations to society. Understanding how organisations shape abstract concepts (such as sustainability or corporate social responsibility) through signifying practices cannot be carried out without focusing on normativity dynamics. In this chapter we deal also with the investigation of written narratives over time. However, rather than focusing on words relationships and categories imbuing narration, we coped with how legitimacy, regulation, and standardization dynamics affect the amount and similarity of what is disclosed among companies through a close reading of the texts. With this chapter, we depict the adaptation process of Italian companies SD’s written narratives to the pressures of the aforementioned mechanisms. In particular, we provide evidence of the importance of considering the institutional and normative pressures in shaping corporate disclosure.

2. Practical implications and contributions

This work has practical implications for researchers and practitioners, analysts, standard setters, and regulators. In particular, we proposed new methods to deal with the analysis and interpretation of what is reported. These methods allow researchers to find a trade-off between qualitative and quantitative methods. Insights on how to shift the focus of automated methods of analysis from words to words’ contexts to account for more meanings are provided.

In particular, the analysis proposed in Chapter III could be useful for organisations to evaluate a possible decoupling between what they think they are communicating and what they represent through their reports. Specifically, the proposed investigation may help preparers in understanding whether they are representing their organization coherently to their different stakeholders’ needs and expectations. Regarding reports’ users, they can use the proposed method to reach an analytical understanding of the content of these documents by reducing their complexity. In addition, the proposed method enables reliable comparisons and dynamic investigation of what is reported among reports published in different periods. Lastly, in the specific case of integrated reporting, IIRC as standard setter, could analyse integrated reports

published by different organizations to evaluate their quality, as well as the effectiveness of the IIRC's guidelines. Indeed, our method allows for the assessment of the existing level of connectivity within the reports. On the basis of this analysis, IIRC could develop new and/or updated guidelines.

Chapter IV presented a new method to investigate written narratives in corporate reports. This method accounts for the meaning that every word can assume in different situations and reports. It allows researchers to move their focus from words to words' contexts and meaning. Indeed, our method improves classical textual analysis methods that focus on word-lists. These methods focus on single words losing the relationships among them and their situational usage and meaning. On the other hand, our method allows us to analyse n-grams (words in co-occurrences with other words). It is acknowledged that analysing phrases or n-grams rather than words provides better analysis units for investigating corporate narratives through textual analysis. However, few attempts have been made in this respect in the accounting and finance literature and those attempts mainly rely on manually developed coding schemes. Instead, our approach meets the expectation of further development in improving automated textual analysis in accounting and finance by implementing machine coding without human involvement (Hassan et al., 2019). As a result, we propose an approach with high potentiality in the investigation of written narratives. Specifically, our method allows researchers to move away from fixed word-lists (e.g., Henry and Leone, 2010; Loughran and McDonald, 2011) by producing variable dictionaries tailored to organisations' stories and related narratives. In the bankruptcy investigation, this method can create tailored dictionaries signalling words that could be considered red flags for a specific bankrupt case. These bankrupt words allow us to improve the accuracy of traditional accounting measures-based bankruptcy prediction models. Moreover, this approach enables analysts to extrapolate the red-flags contexts to proceed with a careful qualitative human check of the bankruptcy narration. In this way, it is possible to carry out a quali-quantitative audit of the reports. In this respect, our proposal has strong practical implications for practitioners and regulators in terms of monitoring credit risk.

However, despite the practical contributions to automated textual analysis for corporate disclosure interpretation provided by the third and fourth chapters of this thesis, our message is not that computer-based analysis can totally substitute human judgment in interpreting what is reported. Researchers and practitioners should prefer to rely on manual textual analysis in particular cases despite its time-consuming nature. In these cases, it is important to choose a consistent coding procedure for the purpose of the research. As in the case of Chapter V, considering that our focus was not only on monitoring the amount of Italian companies' disclosure but also their similarity, we chose items that can reflect this quality feature (e.g.,

disclosure of benchmark measures). The results of this meaning-oriented content analysis can be further analysed to cope with the complex vanguard problem of comparability in the field of written narratives. In this respect, Boiral and Henri (2015), pointed out that one of the barriers in sustainability reporting quality is their qualitative, more than quantitative, content causing a lack of comparability among companies. As an example, they point out that most GRI indicators are totally or partially qualitative in nature. This chapter has practical implications for regulators and standard setters. Indeed, it depicts Italian companies' SD adaptation process to the nudges of legitimacy, standardisation, and regulation. The proposed similarity analysis can be of interest to both standard setters and regulators. In particular, the findings can promote further studies relating to comparability which is considered a relevant qualitative feature of sustainability reports. Using the proposed analysis of similarity, the increase or decrease of comparability among reports could be tested with respect to the introduction of new regulations and standards. This analysis can serve as an indicator of the state of comparability of SD in a given scenario. Indeed, although comparability is a measure of the quality of the disclosure provided by the company, it can only be addressed and interpreted from a systemic perspective by means of indicators and analyses involving the macro scenario.

3. Further developments, limitations and concluding remarks

In each chapter of this thesis, we reported its specific limitations in terms of theoretical insights and application. Instead, in this section we report the main limitation of this work as overall and unique research. Further and deeper insights on how to deal with the interpretation of what is reported can be obtained by supporting the analysis of the texts through other sources of data collection such as interviews and field observations. Although the aim of this thesis is dealing with the analysis and interpretation of written accounting narratives suggesting approaches and methods able to account for their complexity, we should not limit our data sources to these narratives. For instance, a confrontation with the preparers of such documents could certainly lead to a better understanding of the nature and reasons of these documents' content.

Furthermore, investigating systems of words within text can give us insights on the development of meaningful categories within the reports. However, we cannot really know what is the degree of awareness of the existence and operationalization of these categories by the internal members of the organisation. We know that these categories exist and that they are shaping knowledge, however insights are needed about their substantive role in the decision-making process and actions of the organisation.

In this respect, further studies should deal with the level of awareness of the organisation's member regarding the meanings conveyed by these narratives and the related level of adaptation of their concrete actions.

Overall, our work contributes theoretically and methodologically to literature in corporate narratives addressing how researchers and practitioners should analyse and interpret written accounting narratives. From a theoretical perspective, we highlighted the fuzziness of words contained in written accounting narratives and their situational meanings. This fuzziness arises from the natural language complexity and the different stories and related companies' narrations in which words are embedded. We demonstrated the need and usefulness of approaches addressing systems of words to account for words' contexts and meanings showing the characterization of categories arising from them. In this respect we emphasised the necessity of dealing with the fluidity and dynamicity of the messages conveyed by these narratives.

Accounting and financial researchers and practitioners should be aware of the theoretical insights and methods showed in this thesis when coping with the analysis of corporate narratives. Analysis of corporate narratives which seems intended to become a prominent tool of their background in terms of skills and knowledge.

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