Forward-Looking Intellectual Capital Information in Integrated Reporting: An Empirical Analysis

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Abstract

The aim of the paper is to explore the amount of forward-looking intellectual capital information (FL_ICI) in Integrated Reporting (IR) and the effect of firm characteristics on FL_ICI within this context. This study empirically bridges the research gap on the issues of forward-looking information (FLI) and adds to intellectual capital (IC) disclosure research. In particular, the paper responses to two research questions specifically: what are the extent and the content of FL_ICI and what are the factors that impact on different IC voluntary reporting behaviors in IR. A content analysis is apply to inspect the subjects and the amount of FL_ICI in reports accessible in the web site of the International Integrated Reporting Council. Five Models are verified using a multivariate regression analysis to investigate the influence of three independent variables (firm size, profitability and leverage) on FL_ICI. The research proves that companies are reluctant to disclose FL_ICI in integrated reports. The findings of the research show that the majority of FL_ICI regards relational capital. The regression model also reveals that firm size and profitability have a statistically significant influence on specific topics of FL_ICI. On the contrary, leverage appears insignificant in determining the amount of FL_ICI. The research contributes to prior disclosure literature regarding forward-looking information since prior research results are unclear. There is a limited number of studies that investigated FL_ICI in relation to firm characteristics and no studies have investigated this issue within the setting of IR.

Keywords: Forward-looking information, Intellectual capital, Integrated Reporting, disclosure, firm characteristics

1. Introduction

Forward-looking information (FLI) has received an increasing attention in current disclosure studies. With the rapid change of economic environment, the traditional financial statements are less informative about the current economic position and the future prospects of the companies. The dynamic development of economic conditions highlights the lacks of historical information because it is not able to fulfill stakeholders' varied information needs. Sometimes historical information is unable to provide investors with acceptable insights about critical success factors, risks, opportunities and management strategies from a forward-looking perspective. FLI is a key factor to support stakeholders in better understanding future performance. Moreover, it is remarkable to outline that the information perceived as the most important by investors and analysts can be categorized forward-looking (Bozzolan et al., 2009; Beyer and Die, 2012; Liu, 2015). Many studies emphasized the usefulness of FLI for investors' forecasts (Hussainey et al., 2003; Brockman and Cicon, 2013) but results suggested that most of managers do not disclose FLI, thus creating an "information gap". For instance, some authors (Alkhatib, 2012; Alkhatib and Marji 2012; Uyar and Kilic, 2012a) claimed that FLI is useful for investment decision-making process and particularly the Accounting Standard Setters - i.e. FASB (2001) and IASB (2010) - have gradually approved more voluntary FLI as a means to satisfy stakeholders' information needs.

Standard Setters have promoted amended financial reporting in this respect. For example, the Jenkins report (Jenkins, 1994) proposed a wide variety of information types (including FLI) of voluntary disclosures based on the information needs to make investment decisions. Additionally, the American Institute of Certified Public Accountants (AICPA, 1992), the Canadian Institute of Chartered Accountants (CICA, 2002), the Institute of

Chartered Accountants in England and Wales (ICAEW, 2003) outlined the relevance of forward-looking disclosure for stakeholders' decision making process. Furthermore, the International Integrated Reporting Council (IIRC, 2013) explicitly involves the provision of FLI in Integrated Reporting (IR).

Focusing on intellectual capital (IC), we investigated the forward-looking orientation of its disclosure as, similarly, Kristandl and Bontis (2007) considered future in their assessment of intellectual capital disclosure. IC is central to appreciate how firms create value (Zambon & Marzo, 2007; Abhayawansa & Guthrie, 2010) and the International Integrated Reporting Council (IIRC, 2013) promotes intellectual capital information (ICI) in IR. ICI is extensively discussed in accounting literature and come to be more relevant because of its enclosure, along with other correlated capitals, in the International Integrated Reporting Framework (IIRF) (IIRC, 2013). Prior studies on voluntary IC disclosure in corporate communications (Cohen et al., 2011; Guthrie at al., 2012; Wagiciengo and Belal, 2012) revealed that IC is not been reported adequately and little information is spread in corporate reporting media (Oliveras et al., 2008; Striukova, Unerman & Guthrie, 2008; Ismail, 2011). Although numerous studies supported the advantages of IC disclosure to stakeholders (Marr, 2003), current ICI practices could be defined as insufficient also due to the lack of a future orientation of the disclosure. On the contrary, disclosing forward-looking intellectual capital information (FL_ICI) is a useful model for future-oriented reporting (Dumay & Tull, 2007) to comprehend how firms create value. An emerging stream of literature analyzed the determining factor of IR adoption (Jensen & Berg, 2012; Sierra-Garcia et al., 2013; Frias-Aceituno et al., 2013, 2014; Lai et al., 2014) and the voluntary information reported in it (Guthrie & Petty, 2000a; Brennan, 2001; Bozzolan et al., 2003; Abeysekera, 2013;) but no studies discussed FL_ICI in IR.

This study examines FL_ICI offered in IR to respond to the research call of Dumay and Cai (2014) analyzing the ICI in IR. This study measures the amount of FL_ICI in a sample of integrated reports and examines the characteristics that influence it. The analysis raises the following two research questions regarding FLI_ICI in IR. First, what are the extent of FLI_ICI disclosed in IR and second, what aspects can determine differences in voluntary disclosure. Particularly, the paper inspects the influence of firm characteristics on the extent of FL_ICI disclosed in integrated reports accessible in the Integrated Reporting Emerging Practice Examples Database. Different measures of FL_ICI are analyzed and firm characteristics influencing the amount of FLI are considered by a review of the literature. Hence, we observe whether aspects usually related to corporate voluntary disclosure are associated with FL_ICI and its categories (i.e. human, structural and relational) in integrated reports.

The paper is organized as follows. The next Section defines FL_ICI within the context of IR. Then, Section 3 offers a literature review and presents the research hypotheses. Section 4 describes the research methodology. Section 5 inspects the results of the empirical analysis. Section 6 presents conclusions and implications of the study.

2. The Relationship between FL_ICI and IR

In latest years an international debate on business reporting appeared since there has been a growing disappointment concerning financial reporting and its aptitude to offer satisfactory information on a company's value creation process. Accepting that IR is a brief statement about how an organization's governance, strategy, performance and prospects create value over time, the International Integrated Reporting Council (IIRC) developed an IR Framework to "*establish Guiding Principles and Content Elements that govern the overall content of an Integrated Report, and to explain the fundamental concepts that underpin them*" (IIRC, 2013). IR is appreciated by the IIRC as the basis for a central change in the way an organization is managed and reports to stakeholders on how it creates value over time. IR has gained importance since the inception of the IIRC in 2010 and it is practiced on a mandatory basis in South Africa (De Villiers et al., 2014) and Brazil while in other countries research provides evidence of a IR practiced on a voluntary basis.

The IIRC was shaped with the aim of developing the internationally accepted IIRF that produces from information about their strategy, governance, performance and prospects in a clear, concise and comparable format. In the IIRC, FLI is an essential content element (i.e. "Outlook") and it represents the Guiding Principle "Strategic focus and future orientation" of an integrated report (IIRC, 2013). Applying this Principle is not limited to the content elements "Strategy and resource allocation" and "Outlook" but it regards other contents since FLI is the most valuable subject for describing the firm's strategy and future prospects. Integrated reports should contain a a forward-looking perspective on the business, strategies and objectives. In the context of IR, FLI includes assessments of risks and opportunities, management's plans, business predictions and forecasted data about the company's operations and "*the organization's expectations about the external environment the organization is likely to face in the short, medium and long term*" (IIRC, 2013). FLI also relates to expected targets regarding risks, uncertainties, objectives and strategies that could significantly impact on current results

and forecasts.

Moreover, IR essentially links intellectual capital (IC) and FLI as it "*focuses on the ability of an organization to create value in the short, medium and long term, and in so doing it has a combined emphasis on conciseness, strategic focus and future orientation, the connectivity of information and the capitals and their interdependencie*s" (IIRC, 2013). IR clearly implicates the delivery of a comprehensive picture of firms' value creation process, by joining information about various types of capitals (manufactured, financial, natural, intellectual, human, social and relationship,) in one integrated report (IIRC, 2013). Investors are involved in any information that can support them in making investment choices (Swartz *et al.*, 2006) and in this regard the communication of how firms cope both their IC (human, structural and relational) and non-IC (manufactured, financial, natural) capitals represents a key starting point for investors' analyses (Gamerschlag, 2013). IIRC supplements traditional financial statements with additional IC information to support firms in holistically portraying value creation with an emphasis on IC. This feature distinguishes IR from annual reports, which are not envisioned to encompass IC information, as Dumay and Cai (2014) emphasized. The limitations of traditional accounting in reporting intangibles run to a developing interest among stakeholders to look for non-financial information, especially on IC, as the long-term value-generating capacity of a company might be founded on it (Robb et al., 2001). It becomes obvious that conventional financial reporting is inadequate to fulfill information needs (Beattie & Thomson, 2007), particularly within an information economy characterized by an emerging importance of IC (Stewart, 2001). The actual economy is dominated by large amounts of intangible assets which are increasingly substituting the traditional physical ones as the crucial drivers of corporate future performance (Whiting & Miller, 2008; Ousama et al., 2011; Singh & Kansal, 2011; Ferreira et al., 2012; Guthrie et al., 2012).

In this regard, it has been demonstrated that voluntarily IC disclose is beneficial for companies and some scholars argued that IR could improve ICI by depicting a complete view of the firm value creation process that comprises all intangible resources and financial and physical capitals (Beattie & Smith, 2013; Abhayawansa, 2013). In general, information on IC is crucial to appreciate how firms create value (Zambon & Marzo, 2007; Abhayawansa and Guthrie, 2010), but not always IR adopters provide informative disclosures about both intellectual capital and forward-looking intellectual capital. Therefore, whether firms really use IR to disclose FL_ICI is still an actual question. Within this context we would assume organizations to increase their interest in FL_ICI, and consequently, to have placed a greater emphasis on it. Therefore, this study assesses how firms provide FL_ICI in IR (first research question) and it investigates whether the extent of FL_ICI is influenced by firm characteristics (second research question).

3. Literature Review and Hypotheses Development

The IC disclosure has gained relevant attention in accounting literature (Guthrie *et al.*, 2012; Dumay and Cai, 2014). Specifically, there has been great interest in disclosing IC in corporate reporting (i.e. IR) which encourages the "*creation of value over the short, medium and long-term*" (IIRC, 2013). Previous studies revealed that investors consider ICI useful for investments and portfolio selection decisions (e.g., Abhayawansa and Guthrie, 2010) but firms usually disclose little about their IC (e.g. Guthrie and Petty, 2000a; Brennan, 2001). This information asymmetry can originate errors in assessing corporate risks and future developments (Alwert et al., 2009) since intangible assets available in the organization are still not reported in annual reports. In this regard, empirical findings by Guthrie and Petty (2000a) suggested that the reporting practices on ICI are far from systematic, even if there seems to be an awareness of the relevance of disclosure on IC. Moreover, there have been few studies into the reporting practices on ICI in IR (Melloni, 2015). Moreover, no research exists on the extent of FL_ICI in IR, although this topic is investigated within the context of other reporting packages (Abhayawansa & Guthrie, 2016; Garanina & Dumay, 2017).

The second research question aims to recognize the variables that can influence voluntary FL_ICI patterns, since no research has been run on this matter. Many studies inspected the determinants of ICI and these researches identified numerous corporate characteristics related to the amount of ICI reported in annual reports, corporate social responsibility reports, initial public offering prospectuses, analysts' reports and corporate websites (e.g., Yau et al., 2009). Nevertheless there has been a few investigations of factors that can explicate different voluntary IC reporting behaviors (Williams, 2001; Dumay and Cai, 2014, Melloni, 2015) and there is no evidence about the impact of firm characteristics on FL_ICI disclosed. On the contrary, several studies investigated the relationship between firm characteristics and FLI (Meek et al., 1995; Hackston & Milne, 1996; Patton & Zelenka, 1997; Bozzolan et al., 2003; Celik et al., 2006; Aljifri & Hussainey, 2007; Abed et al., 2011) but sometimes empirical evidence fails to provide certain results (Donnelly & Mulcahy, 2008).

Our research adds to the studies on disclosure by investigating the impact of firm characteristics on FL_ICI divulged in integrated reports accessible in the Integrated Reporting Emerging Practice Examples Database. Since there is no literature in this research topic with regard to FL_ICI (within the setting of Integrated Reporting too), our research hypotheses are based on prior research concerning the relationship between firm characteristics and FLI.

3.1 Profitability

The relationship between profitability and disclosure has been studied in literature (Marston, 2003; Oyelere et al., 2003; Marston & Polei, 2004; Wang et al., 2008) and much empirical evidence demonstrated the role of profitability as a determining factor of the amount of corporate disclosure (Cerf, 1961; Skinner, 1994; Frankel et al., 1995; Lang and Lundholm, 1996; Tasker, 1998). According to signalling theory, profitable companies disclose detailed information to increase investor confidence while managers of less profitable firms tend to disclose less information in order to secrete the poor performance. More specifically, some studies agreed on a positive relationship between performance and disclosure (Hussainey et al., 2003; Wang and Hussainey, 2013). In this regard, Hussainey et al. (2003) argued that profitability lead managers to disclosure more financial information. For instance, Kent and Ung (2003) verified that large firms divulge more FLI than small ones. On the contrary, a number of prior studies (Raffournier, 1995; Ettredge et al., 2002; Aljifri, 2006; Alsaeed, 2006) confirmed an insignificant association between profitability and information reporting. Furthermore, other studies explored the influence of firm characteristics on forecast information (Meek et al., 1995; Patton, 1997; Celik et al., 2006; Aljifri & Hussainey, 2007; Abed et al., 2011). The majority of studies stated that firms with high profitability are more likely to report additional FLI than those with low return on equity (Firth, 1979; Cooke, 1989; Hossain et al., 1995; Cahan and Hossain, 1996; Prencipe, 2004; Hassanein & Hussainey, 2015). In contrast, Walker and Tsalta (2001), Kent and Ung (2003) and Hossain et al. (2005) didn't find any influence of performance on the amount of FLI while other previous researches recognized a negative relationship between profitability and forward-looking disclosure (Celik et al., 2006; Aljifri & Hussainey, 2007, Abed et al., 2011). For example, profitable companies sometimes not provide further information because their investors are satisfy (Wallace & Naser, 1995).

According to earlier studies (Vanstraelen et al., 2003; Hossain et al., 2005; Beretta & Bozzolan, 2008; Bravo et al., 2009), we measure return on Equity (ROE) by dividing net income by total Equity.

3.2 Firm Size

Literature offers solid evidence on the impact of size (SIZE) on the extent of voluntary disclosure (Healy and Palepu, 1994; Gray *et al*., 1995; Hackstone and Milne, 1996; Robb et al., 2001). Mainly, prior literature found that large companies provide more voluntary disclosure (Wallace et al., 1994; Bozzolan et al., 2003; Beattie et al., 2004; Hassan et al., 2006; Alsaeed, 2006; Broberg et al., 2010; Cordazzo, 2007) and implement improved disclosure practices (Ahmed & Courtis, 1999).

SIZE is usually related to the amount of corporate voluntary disclosures since it is considered a driver to amplify information demanded by stakeholders and supplied by management. Some arguments support the disclosure of ICI by larger firms. For example, larger companies have effective management accounting systems that ease the reporting of IC and they are well organized to run new disclosure initiatives, e.g. IC reporting. Furthermore the marginal cost of disclosure is lower for larger companies compared to smaller ones. In favor of these considerations, earlier research stated a positive relation between SIZE and the amount of IC disclosed in different corporate reporting media (Abdolmohammadi, 2005; Petty & Cuganesan, 2005; Bozzolan et al., 2006).

Additionally, prior studies documented a relationship between firm size and FLI (Cerf, 1961; Cooke, 1992; Alkhatib, 2012; Alkhatib & Marji, 2012; Uyar & Kilic, 2012b). In particular, empirical findings confirmed that the size inpacts positively on FLI (Walker & Tsalta, 2001; Kent & Ung, 2003; Vanstraelen et al., 2003; Leventis & Weetman, 2004; Gao et al., 2005; Hossain et al., 2005; Celik et al., 2006; Lim et al., 2007; Hossain & Hammami, 2009; Abed et al., 2011). For instance, Hassan et al. (2006) claimed that large firms can better sustain additional information costs in providing significant disclosure to stakeholders. Other studies, instead, proved no significant association between SIZE and FLI (Aljifri, 2006; Aljifri & Hussainey, 2007) as companies had similar forward-looking disclosure, regardless of size. Concerning the extent of FLI_ICI, Abhayawansa and Guthrie (2016) argued that market capitalization - assumed as measure of SIZE - is significantly and positively related with the disclosure of FLI_ICI.

Prior studies suggested a wide range of criteria for assessing the size of a firm, e.g. market capitalization (Debrency et al.*,* 2002); total assets and turnover (Cooke, 1991), sales turnover and capital employed (Firth, 1979). We measure SIZE by Natural logarithm of total assets' book value.

3.3 Leverage

Earlier studies provided varied findings on the relation between leverage (LEV) and corporate disclosure. Several studies verified a statistical significant association between LEV and disclosure (Malone et al., 1993; Wallace et al., 1994; Hossain et al., 1994), while others failed to support empirically any link between the two variables (Chow & Wong-Boren, 1987; Ahmed & Nicholls, 1994; Hossain et al., 1995; Raffournier, 1995; Wallace & Naser, 1995; Celik et al., 2006).

Other findings from earlier studies (Belkaoui and Kahl, 1978; Malone *et al*., 1993; Wallace *et al.*, 1994; Zarzeski, 1996; Ahmed and Courtis, 1999) demonstrated that high leveraged companies divulge more information than less leveraged companies to fulfill stakeholders' disclosure needs (Alkhatib, 2012b; Uyar & Kilic, 2012a). Within the setting of "agency theory", some studies argued that LEV (high level of the debt to equity) positively influence voluntary disclosure (Watts, 1977; O'Sullivan et al., 2008). For example, Smith and Warner (1979) and Jensen and Meckling (1976) noticed that firms with high debt ratio sustaine higher agency costs, confirming a positive relation between LEV and financial disclosure. It is also claimed that such firms tend to share information with their lenders to decrease financial costs. Previous studies also confirmed that high leveraged firms provide greater voluntary non financial and IC disclosure (Prencipe, 2004; White et al., 2010; Abeysekera, 2011). Moreover, some disclosure literature established a positive association between debt ratio and the extent of FLI (Ahmed & Courtis, 1999; Bravo et al., 2006; Aljifri & Hussainey, 2007). Contrariwise, Celik et al. (2006) failed to find any confirmation for the relationship between LEV and FLI.

LEV is measured by the debt to equity ratio that is defined as Total debt divided by book value of Equity.

In line with prior empirical literature, the following hypotheses are stated:

H_1: *ROE positively influences FL_ICI*

H_2: *SIZE positively influences FL_IC.*

H_3: LEV *positively influences FL_ICI.*

4. Methodology

This research examines available reports in the Integrated Reporting Emerging Practice Examples Database at 31 december 2018. We selected this database because it comprises examples of various reports (i.e., integrated reports, specific sections of annual reports and sustainability/CSR reports) and it is accessible from the IIRC official web site. Reports belong to firms from different sectors (i.e. Telecommunication, Consumer Goods, Oil and Gas, Basic Materials, Utilities, Financial, Technologies, Industrial, Health Care) and the database provides us with a population of 385 reports for the period 2011-2018. We selected the reports including disclosure on the fundamental concept of capitals. The selection procedure results in a sample of 62 reports.

We applied two steps of investigation (Garanina & Dumay, 2017). First, we used a manual content analysis (Cunnigham & Gadenne, 2003; Beattie *et al.*, 2004; Abed and Roberts, 2011) to measure the extent of FL_ICI in IR as several researchers used it to examine information disclosure practices in companies' annual reports (Guthrie & Petty, 2000a; Brennan, 2001; Bontis, 2003; Bozzolan et al., 2003). Then, we performed a regression analysis to evaluate the influence of three firm characteristics on FL_ICI. The study follows the Krippendorff's (1980) methodology to codify disclosure by running content analysis. The application of the method is based on different steps: the selection of the coding framework to categorize information; the definition of the recording unit; the assessment of the reliability achieved (Krippendorff, 1980; Weber, 1985). "Word" is considered the recording unit of the analysis (Beattie *et al*., 2004; Beattie and Thomson, 2007; Campbell and Abdul Rahman, 2010) because it is supposed a consistent item than the number of sentences/phrases or paragraphs (Hackston & Milne, 1996). A sentence/phrase is not a reliable recording unit as it can embrace past and future topics of information. Each word of sentences/phrases mentioning FL_ICI was coded by developing a Disclosure Index based on IIRC Framework (IIRC, 2013).

We constructed a scoring system to measure the extent of FL_ICI disclosed in each IR and we implemented an unweighted approach (Cooke, 1998) which assigns an equivalent importance to all items of FL_ICI avoiding subjective judgment and inconsistencies. First, we investigated whether firms disclose FL_ICI to response our first research question. Therefore, we don't measure the quality of FL_ICI using different weighting scales (e.g. 0 for "no", 1 for "yes, qualitative" or 2 for "yes, quantitative") according to the sustained debate about disclosure quality. Specifically, Dumay and Cai (2015) shown that indexes of IC quality disclosure attribute to different quality categorizations and "what merits a score of 0,1,2,3,4 or 5 is subjective and inconsistent", suggesting "that using different weighting scales will also give different results". According to prior literature, we apply the disclosure index approach which scores IC disclosure as 1 if an item of FL_ICI is disclosed and 0 if it is not

(Johnson et al., 2001; O'Sullivan et al., 2008; Cheung *et al.*, 2010). Graphs, diagrams and pictures are excluded from the analysis as their consideration would involve a high level of subjectivity (Ahmed & Sulaiman, 2004). Therefore, content analysis covers narrative text only (quantitative and qualitative).

As there is no commonly accepted IC index, we based the approach for constructing the FL_ICI Disclosure Index on previous research papers (Guthrie & Petty, 2000a; Bozzolan et al., 2003; Abeysekera, 2006; Beattie & Thomson, 2007; Singh & Van der Zahn, 2009; La Rosa & Liberatore, 2014; Melloni, 2015). To categorize the information, we applied the framework verified by Guthrie and Petty (2000b), which we marginally revised in view of the IR Framework issued by IIRC (IIRC, 2013) and IC attributes come up from the literature review. Every type of capital used in the coding and the information items are defined in Table 1. Hence, IIRF lets us to construct a comprehensive Disclosure Index based on the IC attributes. Compared to financial and physical capital (i.e. tangible resources) (Beattie and Smith, 2013), IC refers to intangible resources (Ashton, 2005). According to a common taxonomy used in IC studies, we recognize three main categories of capital: structural/internal, human and relational/external (Stewart, 1997; Sveiby, 1997, Guthrie & Petty, 2000b; Meritum, 2002; Petty & Cuganesan, 2005; Whiting & Woodcock, 2011; Beattie & Smith, 2013).

Hence, IC is categorized in three main categories described as follows for the purpose of this study:

(a) *Structural capital* (termed "IC" in the IIRF): consists of organizational and knowledge-based intangibles. It comprises elements of intellectual property (e.g. copyrights, patents, software, rights, licenses and trademarks patents) and infrastructure assets (e.g. organizational routines, tacit knowledge, systems, procedures and protocols, cultures and databases) (Petty et al., 2009; Whiting & Woodcock, 2011).

(b) *Human capital*: consists of human resources, competence and training possessed by the employees and it comprises knowledge, skills, abilities, competencies, capabilities, experience and motivation to innovate of people. Human capital also includes other characteristics (e.g. age, average, turnover) that are gathered under the "employee" element (Bozzolan et al., 2003).

(c) *Relational capital* (termed "social and relationship capital" in the IIRC): consists of the relationship with customers, suppliers, groups of stakeholders, communities and other networks, including elements e.g. customers, business collaborations, distribution channels, franchising agreements, etc. (Busco et al., 2013; Melloni, 2015).

As exposed in Table 1, the IC categorization scheme consists of 27 IC subgroups that were divided between structural capital (9), human capital (8) and relational capital (10).

Table 1. IC Disclosure Index

Categories	Description (IIRC, 2013)	Topics of information
I. Structural capital (named "intellectual capital" in IIRF)	Organizational, knowledge-based intangibles, including: - intellectual property, such as patents, copyrights, software, rights and licenses; - "organizational capital" such as tacit knowledge, systems, procedures and protocols.	*Intellectual property* 1. patents 2. copyrights 3. trade-marks 4. software 5. rights and licences *Organizational capital* 4. corporate culture 5. tacit knowledge 5. management processes 6. information systems 7. networking systems 8. research projects 9. procedures and protocols
II. Human capital	People's competencies, capabilities and experience, and their motivations to innovate, including their: - alignment with and support for an organization's governance framework, risk management approach and ethical values; - ability to understand, develop and implement an organization's strategy; - loyalties and motivations for improving processes, goods and services, including their ability to lead, manage and collaborate.	10. educational qualifications 11. employees 12. employee attitudes, commitment and satisfaction 13. know-how 14. work-related knowledge, skills and capabilities

		15. work-related competence and experience
III. Relational capital (named "social and relationship capital" in IIRF)	The institutions and the relationships within and between communities, groups of stakeholders and other networks, and the ability to share information to enhance individual and collective well-being. Social and relationship capital includes: - shared norms, and common values and behaviours; - key stakeholder relationships and the trust and willingness to engage that an organization has developed and strives to build and protect with external stakeholders; - intangibles associated with the brand and reputation that an organization has developed; - an organization's social license to operate.	16. remuneration and incentive schemes 17. training and development 18. brands 19. Corporate image and reputation 20. customers 21. customer relationships, satisfaction and loyalty 22. distribution channels 23. business collaborations 24. research collaborations and other relationships 25. financial contacts 26. licensing agreements 27. franchising agreements

To answer the research questions, the study applies a two-stage methodology (i.e. content analysis and regression analysis separately) (Dumay & Cai, 2015; Garanina & Dumay, 2017). Once we established the reliability of data within the content analysis, we utilize them to examine the influence of firm characteristics on FL_ICI. Integrated reports are scrutinized to confirm the number of words encompassing FL_ICI disclosed by every company. The coding procedure identifies words covering the topic of FL_ICI and it classifies them in each disclosure category of capital. That is, each IR is inspected looking for words that could be classified in the ICI categories. Then words concerning FLI are counted. For effective and replicable regressions, it is essential that the classification procedure is consistent (Krippendorff, 1980; Weber, 1985; Dumay & Cai, 2015). Reliability is ensured by using coding instrument congruent with detailed guidelines. Furthermore, reliability is guaranteed when the application of the coding rules on a pilot sample is satisfactory.

Thus, two researchers coded a sample of 20 integrated reports independently to make a check of the coding procedure. Then, the coding guidelines for cataloging of disclosure are re-confirmed by two research supervisors to evaluate intercoder reliability. Possible differences were analyzed to confirm coding rules. Then, the analysis was applied on a larger sample (40 reports) to validate the coding of the data over time and in the same way (i.e. "consistency" or "stability"). We checked the intercoder reliability calculating the Krippendorff's α coefficient which results above the 0.80 (required acceptable level) (Gujarati, 2006). The coefficient confirms that the coding procedure is consistent and justifies the application of data in the subsequent regression analysis (Dumay & Cai, 2015). Hence, the basic steps to build and test the Disclosure Index are: definition of the recording unit (i.e. word); definition of the information categories; testing the coding of a sample of text; assessing reliability; possible revision of the coding rules; replication of the test coding and revision of it in order to satisfy reliability; assessing achieved reliability.

Forward-looking disclosures are examined by different information attributes: information quantity, information coverage and the distinction of information among the three categories of IC. As a result, different measures of FL_ICI are involved as dependent variables in the analysis to inspect the relationship between firm characteristics and IC disclosure. The measure of quantity (FL_ICIqnt) is analyzed taking into account the total amount of words covering FL_ICI. The measure of coverage (FL_ICIcov) is calculated as the number of words relating to FL_ICI divided by the total number of words containing FLI. Furthermore, we measure the proportion of FL_ICI concerning the categories explained in Table 1. Therefore, we search for diverse characteristics of FL_ICI: quantity (FL_ICIqnt); coverage (FL_ICIcov); information about structural capital (FL_ICIstr), human capital (FL_ICIhum) and relational capital (FL_ICIrel). These measures are comprised in the regression analysis alternatively.

We applied both a descriptive analysis and a multivariate analysis in order to examine the level of FL_ICI firstly and to recognize its determinants secondly. Multivariate analysis is based on a OLS-regression model to verify the combined effect of the firm characteristics on the amount of FL_ICI in the integrated reports. Five Models are tested and each one comprises a particular assessment of FL_ICI (dependent variable). Precisely, the

regression analysis embraces separately five measures of FL_ICI (FL_ICIqnt, FL_ICIcov, FL_ICIstr, FL_ICIhum, FL_ICIrel) as dependent variables and three independent variables as follows: ROE (Profitability), measured by Return on Equity; SIZE (Firm size), measured by natural logarithm of total assets; LEV (Leverage), measured by total debt to equity.

The definition of dependent, independent and control variables are presented in Table 2.

Table 2. Explanation of variables and measurement

Variable	Description	Measure
Dependent variables		
FL_ICIqnt	Quantity of FL_ICI	Number of words on FL_ICI
FL_ICIcov	Coverage of FL_ICI	Number of words on FL_ICI/Total number of words on CI
FL_ICIstr	FLI on Structural capital	Number of words on FL_ICIstr/Total number of words on FL_ICI
FL_ICIhum	FLI on Human capital	Number of words on FL_ICIhum/Total number of words on FL_ICI
FL_ICIrel	FLI on Relational capital	Number of words on FL_ICIrel/Total number of words on FL_ICI
Independent variables		
ROE	Return on Equity	Net income/Average total Equity (%)
SIZE	Firm size	Natural logarithm of total assets (in US dollars)
LEV	Leverage	Total debt/Equity
Control variables		
FL_ICItone	FLI tone score	Number of positive words on FL_ICI/Total number of words on FL_ICI
FL_ICIevid	FLI evidence score	Number of words on qualitative FL_ICI/Total number of words on FL_ICI
EUR	European	Dummy variable equals to 1 if firm is included in an European country and equals to 0 otherwise
IND	country Industry	Dummy variable equals to 1 if firm belongs to Industries, Basic Materials, Oil and Gas, Utilities; and it equals to 0 if it belongs to Telecommunication, Financials, Consumer Goods, Consumer Service, Technology, Health Care.

An OLS-regression model is assessed to test the research hypotheses:

$$FL\_ICI = \alpha_0 + \alpha_1 ROE + \alpha_2 SIZE + \alpha_3 LEV + \alpha_4 FL\_ICItone + \alpha_5 FL\_ICIevid + \varepsilon$$

FL_ICI refers to forward-looking intellectual capital information disclosed by each firm. Different measures of FL_ICI are alternatively included in the analysis (FL_ICIqnt, FL_ICIcov, FL_ICIstr, FL_ICIhum, FL_ICIrel). ROE refers to profitability and it is calculated as the ratio of net income to total equity. SIZE measures firm size by the natural logarithm of total assets. Leverage (LEV) is calculated as the total debt divided by equity.

The model also verifies the possible influence of FL_ICI on a positive tone of disclosure. The tone disclosure score on FL_ICI (FL_ICItone) is measured as the quantity of words denoting a positive announcement divided by the total number of words concerning FLI. FLI is positive since it includes good news and negative if it is neutral or non-positive. The kind of evidence (quantitative or qualitative) is the second control variable. FL_ICI is coded as quantitative when words contain numbers (monetary or non-monetary), and as qualitative in all other positions. The FLI evidence disclosure score (FL_ICIevid) is assessed as the quantity of words on qualitative FL_ICI divided by the total number of words regarding FL_ICI. The robustness of the findings is judged by involving two additional variables that may explicate the extent of FL_ICI. The sensitivity test comprises the effect of a continent-specific institutional factor in IR (Jensen and Berg, 2012) by considering a dummy variable (EUR) that is equal to 1 if companies are located in European countries and 0 otherwise. We also test the industry influence by considering a dummy variable (IND) that is equal to 1 if companies belong to environmental sensitive industry (Basic Materials, Oil and Gas, Utilities, Industrials) and 0 if they don't (Consumer Service, Consumer Goods, Technology, Health Care, Telecommunication, Financials industry) according to the industry classification benchmark (ICB). As the industry in which a company operates could influence the development of intellectual resources for continued competitiveness, the sector is included in the analysis as a control variable. Lastly, the variance inflator factor (VIF) analysis is applied to verify the potential collinearity between explanatory variables. The results of the VIF analysis in the regression Models indicate the

absence of multicollinearity (Neter et al., 1996) since the collinearity among the independent variables is not relevant in all the Models (below the ten threshold).

5. Results and Discussion

5.1 Descriptive Analysis

Table 3 details the results of descriptive analysis on the level of FL_ICI disclosed by the selected sample from 2011 to 2018. The descriptive analysis is focused on the amount and the types of the information disclosed.

Table 3. Descriptive analysis

Variables	Obs.	Minimum	Maximum	Mean	Std. Deviation
Dependent variables					
FL_ICIqnt	62	62.000	1853.000	905.750	924.630
FL_ICIcov	62	0.004	0.162	0.031	0.027
FL_ICIstr	62	0.000	0.856	0.230	0.247
FL_ICIhum	62	0.000	0.613	0.178	0.174
FL_ICIrel	62	0.025	1.000	0.315	0.250
Independent variables					
ROE	62	-2.432	26.730	11.405	10.577
SIZE	62	7.577	18.127	9.498	2.779
LEV	62	0.080	5.560	1.074	1.286
Control variables					
FL_ICItone	62	0.000	1.000	0.470	0.227
FL_ICIevid	62	0.000	1.000	0.880	0.342

Table 3 shows the minimum, maximum, mean and standard deviation of the variables included in the multivariate statistical analysis. The findings underline that firms disclose little FL_ICI. Nevertheless, all integrated reports contain some FL_ICI whereas FL_ICIrel is the most disclosed IC category accounting for 49% of the overall FL_ICI disclosed in line with prior literature (Flostrand, 2006). An extensive range of variation of FL_ICI is likewise found. The quantity of FL_ICI has significant dispersion in the scores, as demonstrated by the minimum, maximum and standard deviation values. The amount of FL_ICI (FL_ICIqnt) ranges from 62.000 to 1853.000. On average firms use 905.750 words mentioning FL_ICI, which signify low extent of disclosure relating to strategy, expectations and future prospects. Empirical results suggested that the reporting practices of IR adopters are far from systematic. Minimum and maximum values of FL_ICIcov display a low amount of FL_ICI in integrated reports. Companies disclose on average, about 3,1% of the total disclosure on FLI required by the IC disclosure index. Although there are enough arguments to persuade managers about the necessity of disclosure on intangible assets, managers fear that FL_ICI could negatively affect the company itself and attract unwelcome attention (Williams, 2001), specifically if the firm has a robust IC base. There are some companies that disclose non-positive FL_ICI (FL_ICItone equals to 0) and others that disclose positive information on FL_ICI (FL_ICItone equals to 1) only. Likewise, some companies focus all FL_ICI on relational capital (FL_ICIrel equals to 1) and, on the contrary, other firms fail to offer any FLI on structural capital and human capital (FL_ICIrel, FL_ICIhum equal to 0).

FLI related to the five information categories shows differences across the companies that constitute the sample. The proportion of FL_ICI for each category has extensive dispersion in the scores, as demonstrated by the minimum, maximum and standard deviation values. In particular, FL_ICIstr ranges from 0 to 0.856 with a mean of 0.230. That is, firms provide FLI on structural capital (approximately 23.0% over the total FL_ICI disclosed by firms), although some companies do not reveal this category of information.

5.2 Regression Analysis

The presence of an econometric concern in data set applied within the multivariate statistical analysis is verified in the correlation matrix which shows pairwise correlations among the variables included in the regression analysis. By investigating specific correlations between dependent and independent variables, the coefficients prove that a multivariate regression analysis can be performed.

Table 4. Correlation matrix

Variables	FL_ICIqnt	FL_ICIcov	FL_ICIstr	FL_ICIhum	FL_ICIrel	ROE	SIZE	LEV	FL_ICItone	FL_ICIevid
FL_ICIqnt	1.0000									
FL_ICIcov	0.6362	1.0000								
FL_ICIstr	-0.2784	-0.2422	1.0000							
FL_ICIhum	-0.7745	-0.3524	-0.1468	1.0000						
FL_ICIrel	04789	0.2585	-0.3074	-0.4423	1.0000					
ROE	-0.1987	-0.0232	0.3682**	0.2438	-0.4423*	1.0000				
SIZE	0.0676	-0.0443	-0.0699	-0.1689	0.4292*	-0.0439	1.0000			
LEV	0.0100	0.0427	-0.1242	0.0147	0.0214	-0.1064	0.3448*	1.0000		
FL_ICItone	0.0354	0.4473	0.5217	0.7089	0.2582	0.7088	0.3547	0.1713	1.0000	
FL_ICIevid	0.1814	0.1379	-0.1623	0.3243	0.5263	0.1382	0.3328	0.3772	-0.0287	1.0000

*, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels (two-tailed), respectively.

The findings show that no collinearity problem exists between the independent variables since multicollinearity is a statistical problem when the correlation is above 0.80 (Kennedy, 2008). The correlation between the variables is low and the maximum value of correlation (between LEV and SIZE) is decisively acceptable. The coefficients reveal that the multivariate statistical analysis is reliable and valid. Moreover, the data shows statistically significant correlations between ROE and FL_ICIrel (at 0.01 level) and between ROE and FL_ICIstr (at 0.05 level). Finally, a positive relation between SIZE and FL_ICIrel is found (at 0,05 level). Table 5 displays the findings of the OLS regression analysis.

Table 5. OLS regression analysis

	Coefficient		Std. Error	t-ratio	p-value
Model 1 - Dependent variable: FL_ICIqnt					
const		1223.35	293.82	1.3748	0.00010
ROE		-19.0032	15.6537	-1.2637	0.22853
SIZE		0.00237545	0.00505843	0.4820	0.63523
LEV		-50.7234	157.143	-0.3265	0.76432
FLI_TONE		0.0339868	0.0894584	0.3658	0.73526
FLI_EVID		0.00687284	0.00478432	1.3842	0.17254
R-squared	0.045548	Adjusted R-squared	-0.034340		
Log-likelihood	-328.5803	P-value(F)	0.638784		
Schwarz criterion	677.8082	Akaike criterion	673.1526		
S.E. of regression	1043.087	Hannan-Quinn	675.5950		
Model 2 - Dependent variable: FL_ICIcov					
const		0.028745	0.00763452	3.3472	0.00078
ROE		-4.74125e-02	0.000426	-0.1082	0.91372
SIZE		-6.61373e-04	1.36341e-02	-0.4625	0.63627
LEV		0.00208412	0.00427112	0.4532	0.64588
FLI_TONE		0.0390403	0.0252452	1.5372	0.14545
FLI_EVID		0.0034012	0.0213263	1.0703	0.27678
R-squared	0.008431	Adjusted R-squared	-0.074154		
Log-likelihood	86.68632	P-value(F)	0.954872		
Schwarz criterion	-157.6293	Akaike criterion	-166.3738		
S.E. of regression	0.029174	Hannan-Quinn	-163.9334		
Model 3 - Dependent variable: FL_ICIstr					
Const		0.20632	0.498836	4.2367	0.00020
ROE		0.00635316	0.00254021	2.3288	0.02622**
SIZE		-2.83442e-07	8.75798e-07	-0.0344	0.97435
LEV		-0.0141514	0.0280459	-0.4683	0.64184
FLI_TONE		0.818897	0.957580	0.7932	0.10546
FLI_EVID		0.1447037	0.349654	0.3876	0.00223

R-squared	0.162830	Adjusted R-squared	0.161349		
Log-likelihood	-271.4274	P-value(F)	0.092034		
Schwarz criterion	557.5094	Akaike criterion	550.6532		
S.E. of regression	225.1807	Hannan-Quinn	553.0964		
Model 4 - Dependent variable: FL_ICIhum					
Const		0.249662	0.0494343	5.0605	0.00001
ROE		-0.00503814	0.00271646	-1.8672	0.07188*
SIZE		-2.83442e-08	8.69097e-07	0.0797	0.93782
LEV		-0.00955778	0.278924	-0.3504	0.73570
FLI_TONE		0.08702738	0.0874562	0.1533	0.31453
FLI_EVID		0.02169907	0.0035784	0.8162	0.90208
R-squared	0.087783	Adjusted R-squared	0.081672		
Log-likelihood	13.52363	P-value(F)	0.336708		
Schwarz criterion	-12.28185	Akaike criterion	-19.03746		
S.E. of regression	0.182742	Hannan-Quinn	-16.63789		
Model 5 - Dependent variable: FL_ICIrel					
Const		0.20646	0.498734	4.1367	0.00020
ROE		-0.00642306	0.00275001	2.3175	0.02632***
SIZE		6.83201e-05	8.75598e-07	-0.0336	0.97448**
LEV		-0.0132514	0.0280455	-0.4602	0.64194
FLI_TONE		0.09802722	0.0867664	0.2544	0.56573
FLI_EVID		0.04368786	0.0081698	0.9363	0.87245
R-squared	0.693636	Adjusted R-squared	0.153400		
Log-likelihood	-100.1446	P-value(F)	0.379827		
Schwarz criterion	251.9667	Akaike criterion	220.3185		
S.E. of regression	0.441764	Hannan-Quinn	233.1563		

*, ** and *** denote significance at the 0.10, 0.05 and 0.01 levels (two-tailed), respectively.

The OLS regression results show that the extent of FL_ICI is influenced by profitability (ROE) and firm size (SIZE). The relationship between ROE and FL_ICI differs (positive or negative) depending on the type of information. The variable SIZE has a positive and statistically significant influence on FL_ICIrel, whereas the third independent variable (LEV) does not affect significantly FL_ICI. Table 5 comprises regression data for each Model. Model 1 and Model 2 present the effect of firm characteristics on FL_ICIqnt and FL_ICIcov respectively. Models from 3, 4 and 5 show the relationship between firm characteristics and different categories of FL_ICI (FL_ICIstr, FL_ICIhum, FL_ICIrel).

Regression data demonstrate that ROE impacts on certain categories of FLI, but it has no impact on FL_ICIqnt and FL_ICIcov. In particular, ROE influences positively FL_ICIstr (Model 3) as expected (*H1*) and negatively FL_ICIhum (Model 4) and FL_ICIrel (Model 5). Thus, *H1* is not supported by research findings for FL_ICIqnt (Model 1), FL_ICIcov (Model 2), FL_ICIhum (Model 4) and FL_ICIrel (Model 5).

Regarding Model 4 and Model 5, regression coefficients reveal that firms with high profitability divulge less FL_ICIhum (0.10 level) and less FL_ICIrel (0.01 level). One possible reason is that managers are indisposed to report information on future objectives and strategies concerning human and relational capitals, although this information can be extremely useful for transparency and analysts' forecasts in capital markets. Hence, these results disprove *H1* but are consistent with some prior studies (e.g., Aljifri and Hussainey 2007; Abed et al., 2011) founding a negative relation between profitability and FLI.

On the other hand, *H1* is confirmed by Model 3. Findings prove a positive and statistically significant association between profitability and the variable FL_ICIstr. The coefficient, significant at the level of 0.05, is 0.00635316 and the adjusted R-squared (0.162830) verifies that the independent variables explain 16.13% of the variation of the dependent variable. Hence, the OLS regression findings confirm that profitable firms are more disposed to share with their stakeholders FLI concerning structural capital.

With regard to SIZE, empirical evidence reveals a positive and statistically significant impact on the variable FL_ICIrel, confirming *H2* and validating earlier FLI evidence (Kent and Ung, 2003; Ferreira *et al*., 2012; Dewi *et al*., 2014). The coefficient, significant at level of 0.05, proves that larger companies are likely to deliver more disclosure about future plans on relational capital. Hence, the findings show that ROE and SIZE are positively

related to some subcategories of FL_ICI. In particular, Hypotheses *H1* and *H2* are validated with regard to disclosure on structural and relational capital respectively. Larger companies are "politically more sensitive" and divulge more extensive voluntary disclosure to decrease information asymmetry, moderate share undervaluation and decrease the cost of capital. Managers of larger companies disclose more FL_ICIrel probably to reduce share undervaluation and increase liquidity of their shares (Petty and Cuganensan, 2005). Findings suggest that the purpose of profitable companies is to meet investors/stakeholders' expectations of information transparency. In this regard, voluntary disclosure can help firms to be compliant with the expected role of good management, e.g. the development of structural capital for future corporate success and long term value-creating process.

With regard to the variable LEV, the Hypothesis *(H3)* is not sustained by empirical results. Regression analysis confirms that LEV has an irrelevant influence on the amount of FL_ICI and these results regard all the measures of FL_ICI (dependent variables). Hence, *H3* is rejected, although results are in line with those of some prior studies suggesting an irrelevant relationship between LEV and disclosure on IC (e.g. Celik *et al.*, 2006; Whiting and Woodcock, 2011; Ferreira *et al.*, 2012). Lastly, no statistically significant influence is found for the control variables FLI_TONE and FLI_EVID.

The data of the sensitivity test are also analyzed (including the explanatory variable EUROPE). The outcomes verify a positive statistically significant relationship between ROE and FL_ICIstr, supporting *H1*. FL_ICIhum and FL_ICIrel are negatively related with ROE while SIZE is significantly associated to FL_ICIrel, supporting *H2*. The results exclude any significant relationship between LEV and FLI, rejecting *H3*. In short, the sensitivity tests validate the results of all the Models. Finally, the robustness of the research data is reinforced in all the Models by the evidence of the VIF analysis as no concerns of collinearity seems between explanatory variables.

6. Conclusions

The research is set out to understand the factors driving firms to disclose FL_ICI in integrated reports. We studied the hypothesized influence of profitability, firm size and leverage on the amount of total and category-wise FL_ICI. The study adds to literature on IC disclosure by underling if the extent of FL_ICI reported in integrated reports is related (or not) to firm characteristics. Few studies investigated the impact of firm characteristics on IC disclosure in IR (i.e. Melloni, 2015) and none has examined this research topic in a forward-looking perspective.

First, the findings of univariate analysis confirm that companies report little FLI on IC. The empirical findings also demonstrated that integrated reports usually comprise a low amount of quantitative FL_ICI, consistent with prior disclosure literature underlining mainly a qualitative nature of FLI. In addition, this first step of the analysis bridges the research gap about FL_ICI in the IR, giving an answer to earlier calls for examination of the quality of FLI. The regression results show that profitability (ROE) and SIZE impact on FL_ICI. In contrast, the other independent variable (LEV) has no relation with the amount of FL_ICI. Profitability (ROE) is found to have a negative statistical significant influence on FLI concerning human capital (FL_ICIhum) and relational capital (FL_ICIrel) (Merkley, 2014). On the contrary, the research verified a positive relation between ROE and FLI about structural capital (FL_ICIstr), in line with *H1*. Regarding SIZE, the regression analysis outlined that big firms divulge more FL_ICIrel than small ones, supporting *H2*. Additionally, the research data does not confirm any significant relationship between FL_ICI and LEV, rejecting *H3*.

The evidence show that the amount of IC FLI is low and mostly consists in narrative descriptions with no consistent or systematic reporting framework. The study also found that items of relational capital are the most widely disclosed while the human capital attributes are the least disclosed. As Guthrie and Petty (2000a) we accredited the low percentage of quantitative IC information to firms that are still trying to comprehend of value-creating items. Moreover, low awareness about the significance of IC information and the absence of an appropriate framework for its disclosure, might have improved the shortage of IC-related information in integrated reports.

Overall, the results of both the steps of the analysis reveal that FL_ICI is low, thus questioning IR's role in communicating FLI. It can be concluded that managers apply a high grade of discretion (Marquardt and Wiedman, 2005; Li, 2008; Athanasakou and Hussainey, 2014) in reporting FL_ICI since there is no obligation or reason to do so. IIRC (2013) recommends a framework for the preparation of IR but no current disciplines entail firms to divulge FLI regarding specific items (e.g. capitals) within IR. This study contributes to literature about disclosure on IC. There is a very limited number of prior studies that have described both IC disclosure and firm characteristics (Whiting and Woodcock, 2011; Abhayawansa and Guthrie, 2016) and moreover he attained results are vague. Although there are many disclosure studies, no one is focused on disclosure regarding FL_ICI in integrated reports. Hence, following the prior literature, this research develops the insight of the variables that

could influence FL_ICI in IR. This study has important implications. First, providing broad awareness of IC FLI practices of initial adopters in IR, this paper can be valuable for preparers of integrated reports, since no papers have inspected the determinants of FL_ICI in such a context yet. Secondly, this research has practical implications for management in modeling their IC communication plan and for regulators (e.g. IIRC) in inspiring additional efforts to promote FL_ICI and to open the way for stronger guidelines. Finally, our results are significant to academics exploring the potential impact of IR in corporate reporting. Backwards looking information about IC has a minor effect on firm value than FLI because the market have already assessed historical information (Dumay and Tull, 2007; Dumay, 2016). On the contrary, FL_ ICI anticipates unknown or secret information on how the firm is effectively managing its opportunities and risks. The spreading of FL_ICI in integrated reports may reduce the uncertainty and the difficulty of forecasting cash flows and future earnings. Our findings suggest the importance to highlight the potential value of companies by debating their FL_ICI, which would otherwise be devalued by the market because of high information asymmetry. In this regard, IR complements corporate communication media (e.g. annual reports) in the delivery of FL_ICI information to the market. Generally, our evidence underlines the need to consider IR as an important source of IC disclosure in the capital market as firms potentially can increase their value by communicating with stakeholders about FL_ICI value drivers.

7. Implications

This study is explanatory as it is the first research attempting to investigate FL_ICI reporting practices in integrated reports. Based on this study, some others may be fashioned by examining more variables impacting on the amount of FL_ICI or by growing the number of firms analyzed to improve the reliability of the research findings. This study has certain limitations. First, the investigation is limited to firms' reports accessible in the Integrated Reporting Emerging Practice Examples Database for the period 2011-2018. Since the used sample is relatively small, the first step would be to extend its dimension, by including more companies. The analysis should be improved by the inclusion of other independent variables in the regression analysis, aiming to have a more complete view of the FL_ICI practices in IR. Second, the measure of FL_ICI is based on an unweighted approach and the items of the Disclosure Index are subjectively pooled from the existing IIRC's Framework (Kabalski, 2012). Consequently, the use of an equivalent weight for each word discussing FL_ICI does not replicate the importance of information as perceived by stakeholders. For instance, some FLI items could have a greater value relevance than others within a particular industry. Concerning this limitation, future research will be carried out by allocating higher weight to more relevant FL_ICI for stakeholders. Additionally, this research does not apply a quality IC disclosure measure because an amplified subjectivity would be generated by including such a measure. A quality measure "*might reveal new insights that may otherwise have gone unnoticed*" (Dumay & Cai, 2015) but there is no standard quality degree accepted in the disclosure literature. Our findings need also to be interpreted taking into account several limitations which are common to studies applying content analysis. Regarding the application of the research methodology, content analysis approaches employing a pre-defined disclosure index can be criticized as the precise purpose of content analysis is to "find the hidden meanings of texts" (Krippendorff, 1980). Lastly, another limitation of content analysis is the possibility to imply errors and subjectivity in the data creating process because of human involvement in coding.

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