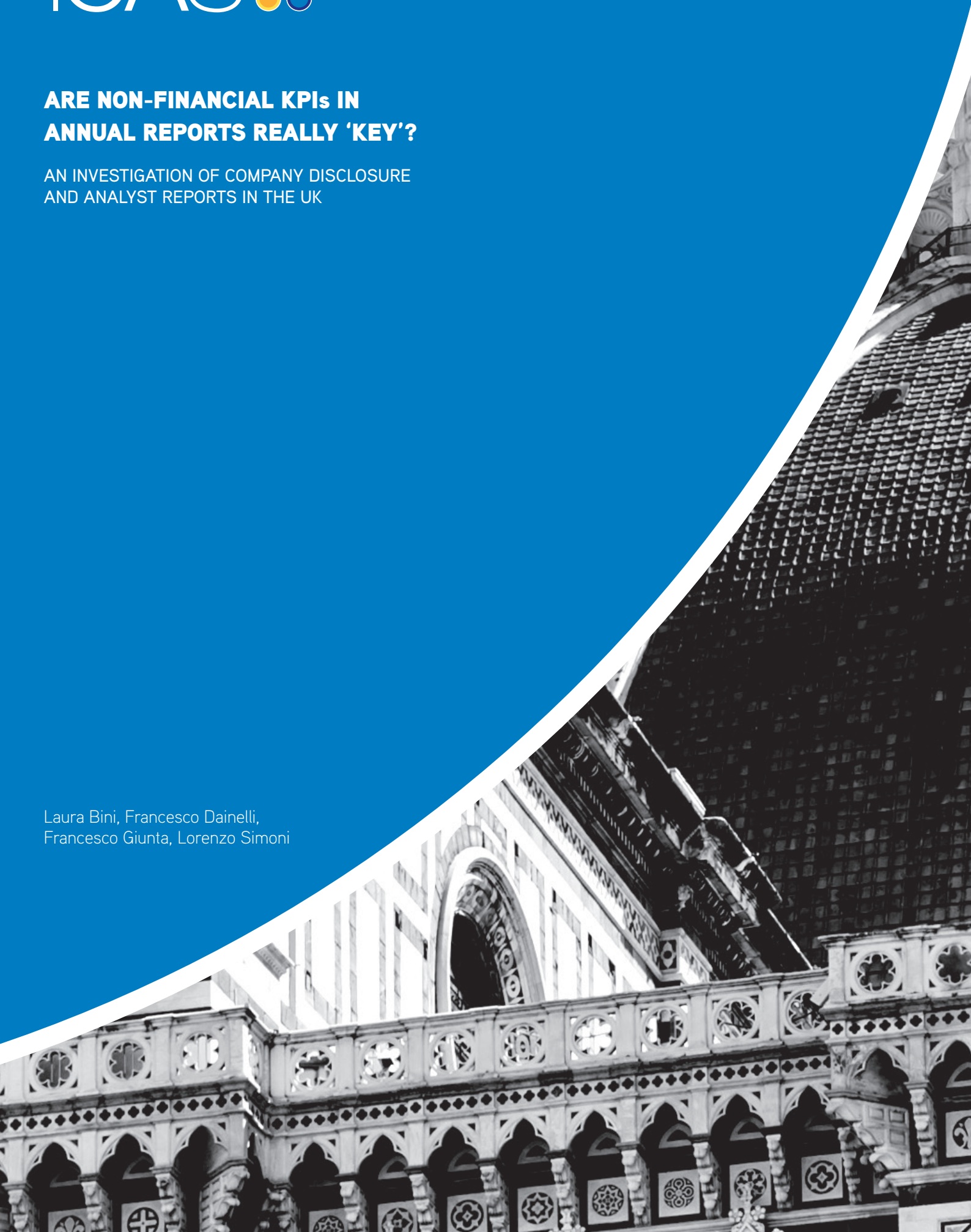




ARE NON-FINANCIAL KPIs IN ANNUAL REPORTS REALLY 'KEY'?

AN INVESTIGATION OF COMPANY DISCLOSURE
AND ANALYST REPORTS IN THE UK

Laura Bini, Francesco Dainelli,
Francesco Giunta, Lorenzo Simoni



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FOREWORD

‘What is performance?’ A complex question indeed, and the title of a 2016 ICAS discussion paper which recognises that the environment in which businesses operate has changed considerably in the last decade, and questions whether a company’s performance can continue to be captured in ‘traditional’ financial statements alone. The aim of the discussion paper was to frame and move the debate on performance forward rather than seek to answer or resolve issues, under the central argument that a more holistic view of performance was required, as well as mooted how financial and non-financial information could be joined more effectively. This paper was also, crucially, a call for research, resulting in ICAS commissioning two international teams of researchers in 2017 to investigate the concept of performance.

Fast forward to 2018 and performance and its disclosure continue to exercise the minds of regulators, standard-setters, preparers and users of financial reports world-wide. One of the key questions is whether the overlaying of non-financial key performance indicators (KPIs) to financial reporting is effective at enabling adequate understanding of a firm’s financial position and sustainability. More recently in June 2018 the International Accounting Standards Board, in relation to its Primary Financial Statements project, highlighted the dichotomous feedback received that alternative performance measures can both provide relevant information but can also be misleading to investors.

In this context, this research team from the Department of Management and Economics from the University of Florence explore whether current non-financial KPIs disclosure practices are useful to users of financial reports, and whether those additional performance indicators are indeed ‘key’. The study focussed on the disclosures of 67 listed UK companies, as reported in their 2016 annual accounts, and compared against their 2014 reports.

ICAS reported in the 2016 discussion paper that *‘requirements and guidance for non-financial reporting currently come from a variety of sources including legislation, regulatory bodies at a national and international level, and non-governmental bodies’*. Nonetheless, the research finds that a significant proportion of firms still fail to report any non-financial KPIs, and that of those indicators disclosed, only half can be described as key – or linked to value creation. By further investigating the relationship between the strategic report, as mandated by the UK Companies Act and the EU Non-Financial Reporting Directive, and non-financial KPIs, the study provides recommendations for companies, regulators and policy-makers to help define and identify effective non-financial KPIs. These include developing guidelines that stress the importance of linking non-financial KPIs to a company’s value drivers, and promoting the description of their business models by companies to enable the identification of those value drivers.

The project supports ICAS’ key policy position for improved corporate reporting which reflects, amongst others, better communication of how companies create and sustain value over time. The ICAS Strategy and Research Advisory Group has been pleased to support this project. The views expressed do not necessarily represent those of ICAS, but we hope that the report will contribute to the important debate in the UK and internationally on performance reporting.

Guy Jubb

Chair of the Strategy & Research Advisory Group

December 2018

1. Executive Summary

Background

The rise of an information-based economy has intensified the importance of non-financial indicators among both management and stakeholders (Beattie and Smith, 2013). Some academic studies claim that the inclusion of non-financial indicators in a company's performance-measuring system contributes to an organisation's strategic alignment (Dossi and Patelli, 2010) and has a profound impact on organisational effectiveness (Upadhaya et al., 2014). At the same time, non-financial indicators are necessary "to understand past performance, future potential and make well-informed investment decisions" (PwC, 2015), because they shed light on critical aspects of a business that cannot be represented by financial measures, such as human capital (Royal and O'Donnell, 2008), relational capital (April et al., 2003), and organisational capital (Lev and Radhakrishnan, 2003).

Most regulatory frameworks consider non-financial indicators—which are usually identified as non-financial Key Performance Indicators (KPIs)—to be firm-specific information that needs to be identified and conveyed according to the "through the eyes of management" principle. For instance, the Financial Reporting Council (FRC) maintains in its *Guidance on the Strategic Report* (hereafter referred to as the FRC's Guidance) that a company should disclose indicators "that the directors judge to be most effective", while also considering the specific characteristics of the company (FRC, 2014, § 7.44).

However, it is likely that external users are unable to fully understand the "effectiveness" of company-specific, non-financial KPIs, especially if the users are not provided with information that explains why a certain indicator is important for managers—how it is related to the company's strategy and how it contributes to value creation processes (ICAS, 2010). A recent survey conducted on a panel of global investors by PwC reveals that only 26% of UK investors agree that managers are sufficiently transparent about the metrics they use to plan and manage their businesses (PwC, 2017).

Research objectives and approach

This study investigates disclosure practices of UK companies, with special emphasis on non-financial information in annual reports. Our analysis focuses on the information reported in the 2016 annual reports of 67 listed UK companies, which operate in five different industries. Annual reports for the 2014 financial year are also examined to account for any experience effect.

We determine whether and to what extent the indicators communicated by companies in their annual reports are really "key". In the context of our research, "key" is defined as whether the information features a disclosure approach that illustrates, in quantitative terms, the value drivers that characterise the business model (BM) of a company. According to several scholars, a company's BM represents a valuable tool for interpreting information related to value creation (Holland, 2004; Mouritsen and Larsen, 2005). It has been stated that the BM constitutes a useful reference model for disclosure, because it enables the creation of a comprehensive and accurate set of non-financial value drivers (Bukh, 2003).

The objectives of the research are to:

- Propose a new means of assessing non-financial KPI disclosure, which is anchored to the value drivers that underlie a company's BM;
- Develop a detailed procedure, based on a content analysis, to assess whether a certain indicator published by a company can be considered as "key", according to the definition adopted in this project;
- Measure to what extent the non-financial KPIs published in annual reports can be genuinely regarded as "key";
- Verify whether the information communicated by companies is also used by financial analysts in their reports.

As regards financial analysts, they play an essential role in financial markets, and their reports are consistently used by scholars to investigate the usefulness of a piece of information. Thus, a comparative approach allows us to perform an assessment of the effectiveness of non-financial KPI disclosure. Indeed, the presence of overlapping information —information that shows up in both company and analyst reports— supports the hypothesis that companies' disclosure practices about non-financial KPIs are focused on key aspects that can be useful for external users. For this purpose, the analyst reports available on the Bloomberg database concerning the examined companies are content-analysed.

Key findings

The results of the empirical analysis based on our evaluation method challenge the quality of non-financial KPI disclosure in annual reports. In particular, we find that:

- Approximately 40% of the companies did not report any non-financial indicators in their 2016 Strategic Reports (49% in 2014).
- In both 2014 and 2016, only approximately half of the disclosed non-financial indicators can be defined as "key", as they are linked to the value drivers cited by the companies in their BM description.
- Among the non-financial indicators that cannot be identified as "key" according to our approach, environmental and social measures are the most frequent. This result is likely to be influenced by the specific legal requirement which obliges businesses to disclose quantitative measures relating to relevant environmental and employee issues.
- Disclosure practices vary considerably among industries. We observed that many non-financial indicators disclosed by chemical and pharmaceutical companies are more often related to companies' value drivers. The importance of intangible resources in these sectors could explain, at least in part, this result.
- Overall, our findings suggest that non-financial KPI disclosure provided by the companies examined is not entirely driven by the "through the eyes of management" principle. Companies seem to use much different criteria to identify their "key" indicators. A non-financial indicator can be marked as KPI if it is anchored to the company's value drivers, but also if it is required by law, or if it is the result of an established disclosure practice.

- The results confirm previous surveys showing that, despite a gradual improvement over time, non-financial KPIs are still scarcely communicated by UK companies (Deloitte, 2017) and are rarely linked to other sections of the reports (PwC, 2016).

The empirical analysis focused on the investigation of analyst reports shows that:

- Non-financial indicators are rarely reported in analyst reports, and neither are the value drivers that differentiate a company from its competitors. It may be the case that analysts prefer to focus only on the overall performance of a company owing to the concise nature of their reports (Simpson, 2010).
- An overlap between the information mentioned by analysts and that reported in annual reports is shown only for the Food and Beverage industry. These findings seem to suggest that a disparity exists between what companies actually disclose and what financial analysts include in their reports.

Policy implications

This analysis contributes to the debate concerning companies' performance reporting with regard to the application of the "through the eyes of management" principle to non-financial KPI disclosure. Our proposal provides a first attempt to translate the disclosure principle into an operative tool, which identifies the characteristics that a non-financial indicator should have to be identified as "key". In this respect, we emphasise the role that a company's BM description can assume as a powerful platform for integrated non-financial disclosure (FRC, 2014). This perspective is primarily related to the ongoing process of regulation, which requires companies to describe their BM in the Strategic Report.

Moreover, our proposal of linking non-financial KPI and BM disclosure contributes to the integration of different information included in the Strategic Report.

The results show that more is needed to ensure that a company's non-financial KPI disclosure mirrors management's view. More specifically, detailed guidelines on non-financial indicator disclosure could support companies in improving their disclosure practices. In particular, these guidelines should:

- Clearly explain what makes a non-financial indicator a "key" indicator;
- Emphasise the importance of linking non-financial KPIs to a company's value drivers;
- Encourage companies to provide a description of the components of their BM that enable the identification of value drivers.

Finally, from a preparer perspective, our findings provide a benchmark for companies to comply with the requirements of the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 (thereafter referred to as the CA Regulations). To this end, we offer companies a specific tool to refine their communication strategies.

Recommendations for future research

- The identification of a company's value drivers in our proposal is based only on information reported in the BM description. Future research should improve our tool, considering different sources of information, both primary sources — i.e. interviews with company insiders — and secondary sources — i.e. conference call transcriptions.
- Our findings show that many UK companies do not disclose any non-financial indicators in their Strategic Reports. Many conjectures can be formulated to explain these results. Thus, specific studies could be useful to shed light on the determinants of this disclosure.
- Qualitative analyses based on interviews and/or questionnaires can be conducted in order to investigate the managers' viewpoint about non-financial measures and their disclosure in annual reports. This could contribute significantly to interpreting disclosure practices and orienting ongoing regulation.
- Our empirical analysis is focused on UK companies operating in five industries. Future research should enrich our results, examining companies from other countries and/or different industries.
- We found that financial analysts rarely make explicit mention of specific value drivers and non-financial measures in their reports. This does not mean that they do not consider this information in their evaluation processes. More research focused on the users could improve our understanding of the importance of non-financial information from an investment decision perspective.

2. Research background

2.1. What makes a non-financial indicator a KPI?

A non-financial KPI is a measure of a process that is thought to be critical to the success of an organisation (Ittner and Larcker, 2003). In modern economies, intangibles — information-based assets (Itami, 1987) — are considered the primary drivers of a company's performance and value creation (Nahapiet and Ghoshal, 1998; Teece, 2000; Delios and Beamish, 2001). Financial measures are unable to fully capture the value that stems from these assets because they are backward looking accounting-based metrics that reflect the use of physical capital (Anderson and McAdam, 2004). Being *lagging measures*, these measures report “how well the organisation's strategy worked in the past period” but provide “little guidance on how to navigate to the future” (Ittner and Larcker, 2003, p. 2) and are not sufficient to assess a company's value (Smith and Van Der Heijden, 2017). Other *leading* measures, which shed light on the determinants of financial results, are necessary (Montemari and Nielsen, 2013). These non-financial measures represent the ultimate determinants of financial results “on the basis of causal models, also called value driver maps, which lay out the plausible cause-and-effect relationships that may exist between the chosen drivers of strategic success and outcomes” (Ittner and Larcker, 2003, p.3).

To guarantee the usefulness of information in the annual report, the boundaries of mandatory disclosure have been gradually broadened over time, to encompass non-financial information, including non-financial KPIs (Lev and Gu, 2016). The Jenkins Report published by the American Institute of Certified Public Accountants (AICPA) in 1994 was the first to propose a comprehensive model for business reporting and formed the basis for the subsequent development of national and supranational regulation of non-financial information (Beattie et al., 2004b). On the basis of a substantial study of user needs and discussions with financial executives to evaluate the costs of providing

each type of information, the report concluded that, to meet users' changing needs, business reporting must:

- a. Provide more information with a forward-looking perspective;
- b. Focus more on the factors that create longer term value, including non-financial measures indicating how key business processes are performing;
- c. Better align information reported externally with the information reported to senior management to manage the business (AICPA, 1994, p.5).

Following these principles, most regulatory frameworks that relate to a company's strategic report include specific requirements concerning financial and non-financial KPIs. The US Securities and Exchange Commission (SEC) has required US public companies to include the "indicators utilised by the management for monitoring the operations of the company" in their Management Discussion and Analysis (MD&A) since the early 1980s. The Canadian Institute of Chartered Accountants (CICA), the Australian Securities Exchange (ASX), and the UK Accounting Standards Board (ASB) moved in a similar direction in the early 2000s. The European Union has dealt with KPI disclosure in Directive 2003/51/EU, which amends previous regulation on the annual and consolidated accounts, and, more recently, in Directive 2014/95/EU, the so called *Non-Financial Disclosure Directive*. The latter explicitly requires all large European companies to include non-financial key performance indicators relevant to the particular business in their annual reports. The International Accounting Standards Board (IASB) has taken similar action via their *Practice Statement on Management Commentary* (IASB; 2010). Finally, the more recent integrated reporting framework recognises the importance of KPI disclosure, maintaining that it "can be very helpful in explaining how an organisation creates value and how it uses and affects various capitals" (IIRC, 2013, § 1.11).

According to the majority of the proposed regulatory frameworks, non-financial KPI disclosure consists of material information that should give market participants a view of a company "through the eyes of management" (SEC, 1989). Basically, this disclosure should allow external users to see the company "in a manner which aligned with senior managers' (presumably) holistic view of the business" (Beattie and Smith, 2013, p. 10). The IASB, for instance, maintains that "management should disclose performance measures and indicators (both financial and non-financial) that are used by management to assess progress against its stated objectives" (IASB, 2010, §37). The FRC's Guidance maintains that the term "key" when used concerning KPIs refers to "facts or circumstances that are (or should be) considered material to a shareholder's understanding of the development, performance, position or future prospects of the business" and adds, quoting the CA Regulations, that "the KPIs used in the analysis should be those that the directors judge to be most effective in assessing progress against objectives or strategy, monitoring principal risks, or are otherwise utilised to measure the development, performance or position of the entity" (FRC, 2014, § 5.7, § 5.7.44).

According to the "through the eyes of management" approach, non-financial KPI disclosure consists of indicators "that the directors judge to be most effective" (FRC, 2014, § 7.44). Because increasingly competition is between competing business concepts in the same industry (Hamel, 2000), non-financial KPI disclosure is mainly firm-specific and it is difficult to standardise. The FRC emphasises the prevalence of the "through the eyes of management" principle over the comparability principle for KPI disclosure when it states that KPI disclosure "should not, for example, result in a comprehensive list of all performance measures used within the business" (FRC, 2014, §5.8). This approach is confirmed by consulting firms, which state that "management should not feel compelled to create KPIs to match those reported by their peers. The overriding need is for the KPIs to be relevant to that particular company" (PwC, 2006).

2.2. Relationship between business models and non-financial indicators

The “through the eyes of management” approach is strongly anchored to evidence that a company’s competitiveness is based on a distinct competitive advantage (Sandberg, 2002). Increasingly, the success of a company is not necessarily related to its specific strategy, but rather to its ability to execute their strategy in a unique way (Zott and Amit, 2008).

The choices companies make while attempting to implement their competitive strategies define their business models (BMs). BMs are tools that allow managers to better understand, capture, analyse, and manage their business (Amit and Zott, 2001). Previous research on this topic has defined the BM as “a conceptual model that explicitly states how the business functions” (Osterwalder et al. 2005, p. 3) —as a template for configuring various components within an organisation (Winter and Szulanski 2001). The BM notion is distinct from that of strategy. The competitive strategy addresses how a company differentiates itself, while the BM defines on which basis this is to be achieved, i.e., how a company combines its know-how and resources to deliver the value proposition (Shafer et al., 2005; Richardson, 2008; Casadesus-Masanell and Ricart, 2010). The same idea is proposed in the CA Regulations and by the FRC, which states that “objectives, strategy and business model are interrelated concepts. An entity will decide on its objectives and select strategies to achieve those objectives. An entity will then apply its business model to its activities in pursuit of its objectives and strategies” (FRC, 2013, §6.30).

Since the BM consists of a simplified, focused representation of the core features of an organisation, it is recognised as a valuable tool to create a shared understanding of the business, both inside and outside the organisation (Perckman and Spicer, 2010).

Among scholars and practitioners in the accounting field, the BM is treated as a communication device that can improve a company’s disclosure, offering insight into the logic that underlies the value-creation process. According to Beattie and Smith (2013), a company’s BM offers a holistic, macro-level view of a company that can be used as a template for configuring various components within an organisation, thus assuming a prominent spot in the business reporting hierarchy.

Several authors maintain that the BM is closely linked to KPI disclosure. Holland (2004) notes that a company’s BM provides “a convincing context to interpret the quantitative or relative indicators” (p. 97). Bukh (2003) similarly maintains that a company’s BM is essential in helping investors fully appreciate information about non-financial indicators. If companies disclose KPIs “without disclosing the business model that explains the interconnectedness of the indicators and why the bundle of indicators is relevant for understanding the firms’ strategy for value creation, then the analysts must do the interpretation” (p. 53). Meanwhile, Mouritsen and Larsen (2005) maintain that indicators are often subject to a process of “entangling”, arguing that individual pieces of information and measurements can be difficult to relate to any conception of value creation.

Narrative disclosure, on the one hand, aims to provide the “information context” — a story that illustrates the connections and relationships between various BM components. Quantified measures, on the other hand, provide evidence for the veracity — the credibility — of the company’s story over time (Holland, 2006).

This new integrated BM-based approach has led to the creation of new regulatory requirements in many countries. For instance, the aforementioned *Non-Financial Disclosure Directive* requires European companies to include in their annual reports “a brief description of the undertaking’s business model” and “non-financial key performance indicators relevant to the particular business”. In the UK, the CA Regulations recognise the BM and non-financial KPIs as pivotal elements of a company’s Strategic Report. The FRC’s Guidance similarly emphasises the importance of highlighting the links between company narratives and KPI disclosure: “Where relevant, linkage to and discussion of key performance indicators should be included in any description given in order to allow an assessment of the entity’s progress against its objectives and strategies” (FRC, 2014, §7.10).

Against this backdrop, in the context of our research, the term “key” is defined as whether the information features a disclosure approach that illustrates, in quantitative terms, the value drivers that characterise the BM of a company. Thus, our first research question is formulated as follows: *Do companies disclose “key” non-financial performance indicators — non-financial indicators that are anchored to a company’s BM?*

It has been stated that a better disclosure is helpful in the decision-making process (Core, 2001). To assess whether a piece of information is useful for users, many studies focus on financial analysts because they play an essential role in financial markets (Kelly and Ljungqvist, 2012; Brown et al., 2015). Several studies show that non-financial information is crucial for analysts (Premti et al., 2017) and it affects the quality of decisions, in terms of accuracy and dispersion of analysts’ earnings forecasts (Vanstraelen et al., 2003; Orens and Lybaert, 2007; Abhayawansa et al., 2015).

Financial analysts are qualified subjects that make recommendations on the companies they follow by means of formalised decision processes based on a structured information search (Anderson, 1988). For these reasons, contents included in analyst reports are consistently used to assess the information needs of investors and other corporate stakeholders (Previts et al., 1994; Breton and Taffler, 2001; Premti et al., 2017). In light of this, the investigation of analyst reports by means of a comparative approach provides us with an assessment about the effectiveness of non-financial KPIs communicated by companies. Indeed, the presence of overlapping information — information that shows up in both company and analyst reports — supports the hypothesis that companies’ disclosure practices about non-financial KPIs are focused on key aspects that can be useful for external users. On these premises the second research question is set forth as follows: *Do analysts include key non-financial performance indicators, which are disclosed alongside a company’s BM, in their reports?*

3. Research Approach

3.1. Analytic framework

We conducted two different analyses in order to determine whether the KPIs communicated in annual reports can be genuinely regarded as “key” indicators. First, we investigated disclosure practices concerning BM and non-financial KPIs to verify whether the reported indicators are related to the value drivers presented by companies in the description of their BM. Secondly, we compared the non-financial information included in company reports with the non-financial information mentioned in the reports of analysts who follow these companies. To assess BM disclosure in annual reports and analyst reports, we performed a series of content analyses. Content analysis is a research technique based on the objective, systematic, and quantitative description of

the manifest content of communication (Berelson, 1952). It has long been used in the fields of business, communication, and sociology. During the last few decades its popularity among researchers has grown steadily (Guthrie, 2014). In particular, according to Bryman and Bell (2015), content analysis has been increasingly used in business research to examine corporate disclosure, including BM disclosure (Bini et al., 2016).

This technique requires the definition of a coding framework in order to guarantee a consistent analytic process (Krippendorff, 2004). To develop our framework, we reviewed previous BM literature, placing special emphasis on definitions, ontologies, and conceptualisation models that specifically identify the constitutive elements of a BM.

Although the BM concept has been subjected to several different definitions in the academic literature, there is a wide consensus around some constitutive elements (Zott et al., 2011). After a thorough review of the major BM conceptualisations, Wirtz et al. (2016) suggest that most scholars agree that a BM consists of two specific categories of components: *Market offerings* and *Resources*. The former represents all the external factors that affect the way a company interacts with its selling market, such as the distinctive features of its offer, its delivery services, and its post-selling assistance (Demil and Lecocq, 2010; Johnson, 2010). The latter encompasses all core tangible and intangible resources, including internal and external competencies and capabilities that are activated by the company to create value (Afuah, 2004; Osterwalder and Pigneur, 2010). The two categories identified by Wirtz (2016) embrace all of the building blocks proposed by the Business Model Canvas¹ (Osterwalder and Pigneur, 2010). This model is a management tool that has contributed to the dissemination of the BM concept among organisations and has become extremely popular among companies and practitioners because it provides a detailed description of BM components that facilitate the practical application of the concept (Upward and Jones, 2015).

In keeping with the proposal of Wirtz (2016), we developed the coding framework that serves as an interpretative framework to identify value drivers from the BM descriptions reported by companies. To facilitate identification of value drivers, the two components proposed by Wirtz (2016) were divided into eight subcomponents. The *Market offerings* component was separated into four subcomponents: *Value proposition*, *Customers*, *Distribution methods*, and *Revenue model*. Similarly, the *Resources* component was broken down into: *Resources and capabilities*, *Activities*, *Partnerships*, and *Cost structure*. The framework itself is explained in greater detail in Table 1, featuring a brief description of each component.

The eight subcomponents encompassed in our framework are consistent with the BM definition proposed by the FRC's Guidance (FRC, 2014), which states that a BM should include:

- What the entity does and why it does it; what makes it different from, or the basis on which it competes with, its peers (§ 7.12);
- How the entity is structured, what part of the value chain it operates in, its main products, services, customers and its distribution methods (§ 7.13);
- The nature of the relationships, resources, and other inputs that are necessary for the success of the business (§ 7.14);
- The activities that are most important in generating, preserving, and/or capturing value (§ 7.15).

¹ <https://strategyzer.com/canvas>

Table 1. *Analytic framework to identify the value drivers of a company's BM*

	Constitutive elements	Key concepts used to identify information about value drivers
<i>Market offering (external factors)</i>	<i>Value proposition</i>	How products and services, as well as complementary value-added services, differentiate a company from its competitors. Why a company's value proposition could be valuable to the customer. At which stage of the value life cycle a value proposition actually creates value.
	<i>Customers</i>	The segmentation criteria adopted by a company to identify its customers. Mechanisms to extend the duration of the relationship between a company and its customers (retention programmes).
	<i>Distribution methods</i>	How the mechanisms selected by a company to "go to market" contribute to value creation. Advertising, promotions, public relations partnerships, and other initiatives that are used to maximise the number of customers. Support services concerning the evaluation process, the transaction, and/or after-sales assistance that increase value for the customer.
	<i>Revenue model</i>	The mechanisms through which the value proposition results in revenue streams. Pricing policy.
<i>Resources (external factors)</i>	<i>Resources and Capabilities</i>	Inputs and abilities that underpin a company's value-creation process.
	<i>Activities</i>	Activities or groups of activities that lead to value-creation for a company.
	<i>Partnerships</i>	Arrangements and collaborations with one or more entities that create value for the company and/or the customer.
	<i>Cost structure</i>	How significant costs are managed to reduce their impact on a company's performance.

To test the effectiveness of our framework in interpreting BM disclosure practices, we revised the findings of recent surveys on BM disclosure in UK annual reports (FRC, 2016; PWC, 2016). We found substantial overlap between the topics described by companies in their reports and the subcomponents included in our framework.

3.2. Dataset

According to the CA Regulations, all listed UK companies are required to include a description of both their BM and relevant non-financial KPIs in their annual reports. In this analysis, we focused on companies listed in the Main Market of the London Stock Exchange that operate in the following industries:

- Chemicals and Pharmaceuticals
- Food and Beverage
- Software
- Industrial Machinery
- Electronics.

These industries represent five of the most important industry sub-sectors in the FTSE Global Classification System in terms of numerosness. Moreover, they show different levels of technology intensity, which is found to be positively related with the quality of non-financial disclosure (Gu and Li, 2003; Bozzolan et al., 2003; Oliveira et al., 2006). Specifically, Chemicals and Pharmaceuticals and Software are heavily dependent on technology while Food and Beverage is less so.

The analysis focuses on 2016 annual reports – the most recent annual reports available at the time of collection. Annual reports for 2014 financial year were also examined to account for any experience effect among companies. Since the CA Regulations were first applied to annual reports ending at the date of 30 September 2013, we focused on 2014 to be sure that all the analysed companies were obliged to disclose BM information. Seventy-five companies operating in the five selected industries were listed on the Main Market of the London Stock Exchange in the period under investigation. We were unable to identify any descriptions of the BM in the annual reports of eight companies. Since the CA Regulations do not require companies to include BM disclosure in a separate section, it is possible that these companies decided to present their BM components throughout the Strategic Report. Moreover, the description provided by three companies only consisted of a visual or a short generic paragraph. After the removal of these companies, 67 companies and 134 annual reports were examined. Table 2 presents a breakdown of these companies by industry.

3.3. Analysing business model disclosures in annual reports

Using the coding framework proposed in Table 1, we analysed BM disclosures in each report. Companies usually report BM disclosure in a specific section of the Strategic Report, entitled “Our Business Model” or “How we create value”. However, BM disclosure may be presented alongside other information (e.g., a company’s strategy). In these cases, we only analysed sub-paragraphs that featured clear references to BM. When BM information was not clearly identified (through, say, subtitles or graphic elements), we analysed the entire section in order to isolate information that deals specifically with BM elements. Moreover, since the FRC’s Guidance recommends connecting disparate pieces of information in different parts of the report (FRC, 2014, §1.1), we examined all disclosures directly or indirectly linked to the sections devoted to BM. Direct links were provided by explicit references (i.e., page numbers), while indirect links consisted of references to specific keywords, colours, or flags that identify a company’s BM component.

Table 2. *Breakdown of analysed companies by industry*

Industry	No. of companies
Chemicals and Pharmaceuticals	18
Food and Beverage	15
Software	10
Industrial Machinery	14
Electronics	10
Total	67

The selected sections were then carefully read and any information dealing with a BM's constitutive elements was coded in the corresponding category. Text-units were chosen as the primary recording unit (Husin et al., 2012). A text-unit is defined as "each group of words containing a 'single piece of information' that is meaningful in its own right" (Beattie et al., 2004a, p. 216). Text-units are used instead of sentences, as they reduce subjectivity in coding complex sentences. When different information pertaining to different categories is included in the same sentence, the use of text-units allows us to code different information in several different categories. Otherwise, the entire sentence should be classified in relation to the dominant category (Beattie and Thomson, 2007).

Since the coding procedure did not aim to assess BM disclosure quality, but rather to identify a company's value drivers, our analysis was centred on information that:

- a) referred to one or more of the eight BM constitutive elements included in Table 1, and;
- b) focused on value creation.

The following rules were developed to ensure a consistent coding process:

1. BM disclosure is expected to illustrate the underlying logic of a business, rather than the operations that occurred during the reporting year. Thus, any description of the results achieved during the reported year was excluded (e.g. "These contracted recurring revenues represented 82% of total revenues during the year, up from 79% last year", Electronic Data Processing 2016 Annual Report, p. 3);
2. Any sentence that refers to a BM element in general terms, without highlighting how this element contributes to value creation, was excluded. For instance, a description that only highlights a BM element's importance to the business was not coded (e.g. "We can only succeed if everybody works as a team", Carr's 2014 Annual Report p. 9);
3. BM disclosure should refer to the company's current business logic, rather than to the one managers would like to achieve. As a result, we did not pay attention to verbs indicating the company's hopes, aspirations, ambitions, intentions, and commitments; words and expressions like "values", "scale of values", "company mission", "code of conduct", and "ethic"; and general policies, programmes, or projects that are discussed without referencing the resources or activities that have been implemented to bring them to fruition.

Some excerpts are reported below to exemplify our coding procedures. The first excerpt notes the central role of a global network of sales offices in Aveva's selling channels:

"The Group sells its proprietary software products by licensing rights to use the software directly to customers through our network of global sales offices".
(Aveva 2016 Annual Report, p. 11)

"Global network of sales offices" is coded as a value driver for Aveva that is related to the constitutive element *"Distribution methods"*.

The second example focuses on the importance of collaborations for Devro's product performance:

"Additional value is created for the customer by collaborating with specialist food machinery manufacturers and suppliers of food ingredients to optimize product performance". (Devro 2016 Annual Report, p. 3)

"Collaboration with machinery manufacturers and suppliers" is coded as a value driver for Devro that is related to the element *"Partnerships"*.

Two researchers with previous experience in content analysis examined each Strategic Report. The reliability of the coding procedure was assessed by calculating the agreement ratio. The overall rate of agreement was greater than 95%, which is considered satisfactory (Beattie et al., 2004a).

3.4 Matching value drivers with non-financial indicators

The FRC's Guidance offers a brief and general definition of non-financial KPIs. They are referred to as "indicators of future financial prospects and progress in managing risks and opportunities. They may include, for example, measures related to product quality, customer complaints, or the matters identified in paragraph 7.29 [environmental and social matters]" (FRC, 2014, §7.45).

Usually, companies devote a specific section of their Strategic Reports to discussing their indicators, which are often referred to as "Our Key Indicators" or "Key Measures". Non-financial KPIs were selected in these sections, focusing on all measures that are not based on accounting figures. However, since companies are not required to report on their indicators separately, all non-financial indicators included in the section devoted to BM disclosure were also collected.

The researchers who analysed BM disclosure examined KPI disclosure, as well. The list of KPIs collected for each company was compared and any discrepancy was resolved through discussion.

In order to determine whether or not non-financial KPIs were really "key", KPI disclosure was compared with the value drivers that were collected in the previous phase of the project. For each value driver, we verified the presence of any KPI that:

- a) focused on the same issue, and
- b) could be used to measure the performance of a company.

We present two examples below to illustrate our procedure for identifying whether non-financial KPIs are really "key".

In Hikma Pharmaceuticals' 2016 annual report, we identified *Innovative products* as a value driver. *Product submissions* (i.e., the number of new products that required a patent request) was one of the indicators disclosed by Hikma Pharmaceuticals in the same report. Since this indicator can be considered a measure for the value driver *Innovative products*, it was deemed to be "key".

In Synthomer's 2016 annual report *Employee competencies* was identified as a major value driver. Among the list of non-financial KPIs, however, we found only one measure referring to employees: *Recordable injury rate for accidents*. Although this indicator addresses an issue that is identified as a value driver, it cannot be considered a measure of employee competencies. Thus, this indicator was not deemed to be "key".

3.5. Analysing financial analyst reports

Non-financial information in analyst reports was examined as a means of indirectly assessing the effectiveness of non-financial KPIs in annual reports. We downloaded analyst reports published in 2014, 2015, and 2016 from the Bloomberg database. Since value creation choices are linked to the strategic framework adopted by a company in its long-term planning, the information about a company's value drivers remains substantially unchanged from year to year. Thus, we decided to include also the reports issued in 2015 in our analysis, in order to enlarge our database.

We downloaded 340 analyst reports from Bloomberg. Since analyst coverage is strongly related to company size (Palmon et al., 2008), it is not surprising that the number of reports varied consistently among companies (Table 3). Moreover, although Bloomberg is one of the most complete providers of financial information, it does not include all reports that are issued on a company. This might explain why no report was available for some companies, particularly in the Software and Industrial Machinery industries.

We found that several reports on the same company were issued by the same analyst. Many of these reports offered a brief update of the company's activities, and often focused solely on financial information rather than strategic information. Thus, we excluded these reports from our analysis. This reduced the number of available reports from 340 to 102. The final number of reports examined for each industry is reported in Table 3.

Table 3. *Analyst reports collected for each industry*

Industry	Available reports	Examined reports
Chemicals and Pharmaceuticals	81	40
Food and Beverage	114	34
Software	37	11
Industrial Machinery	60	8
Electronics	48	9
Total	340	102

We content analysed each report to identify narrative and quantitative information that focused on the BM' components discussed in Table 1. Some examples of our coding procedures are provided below.

In a report issued by Edison on 6 January 2016, on Treatt, we found the following information:

"Treatt's highly skilled experts are key to its competitive edge".
(Edison, Research Report on Treatt, January 6, 2016, p. 6)

Thus, we determined that the analyst considered *Skilled experts* as driver of the company's success.

The following is an excerpt from a report issued by J.P. Morgan on Carr's:

"Carr's AminoMax, which is manufactured under an exclusive licence from the US patent holder, is a bypass protein that contains soya meal or canola and is treated so that a higher proportion of the protein is assimilated by the animal, thus improving the growth rates of beef cattle and milk yields of dairy cows. Carr's is the only company in the world that has been able to use canola as well as soybean as a bypass protein ingredient."
(J.P. Morgan, Research Report on Carr's, December 19, 2016, p. 5)

On the basis of this information, we considered that *Exclusive licence* is a company's value driver for the analyst.

4. Research Findings

4.1. Do companies disclose non-financial KPIs that are really "key"?

According to our analytic framework, genuine non-financial KPI disclosure is dependent on the presence of BM information that explains how various indicators are entangled with the company's value drivers. This is why our analysis starts by investigating BM disclosure practices.

The vast majority of companies explain their value drivers via their BM. Among the 67 companies we analysed, only two companies did not disclose any value driver, even if they devoted a specific section of their annual report to describe their BM. Their descriptions rely on generic statements, intentions, or programmes, ignoring specific items or information that can allow users to identify key drivers. These companies did not seem to fully comply with FRC guidelines which specifically requires companies to avoid "generic or 'boilerplate' information" (FRC, 2014, §6.14).

Table 4 reports the average number of value drivers reported by companies.

Table 4. *Mean number of value drivers disclosed per year per company*

Industry	2014	2016
Chemicals and Pharmaceuticals	5	5
Food and Beverage	5	3
Software	4	6
Industrial Machinery	3	4
Electronics	3	3
Overall	4	5

Overall, we found an average of four different value drivers per company in 2014, and five different drivers in 2016, with no substantial difference among industries. A statistic test² confirmed the uniformity of disclosure practices among industries.

Table 5 (panel a) shows that many of the companies under investigation did not report any non-financial KPIs. For instance, only 51% of examined companies disclosed at least one non-financial KPI in 2014. The situation improved slightly in 2016 (62%). The percentage of disclosing companies varies from sector to sector; however, an ANOVA test revealed that these differences are not statistically significant.

Table 5. *Non-financial KPI disclosure practices*

Industry	Panel a) % of disclosing companies		Panel b) Average number of non-financial KPIs disclosed	
	2014	2016	2014	2016
Chemicals and Pharmaceuticals	44%	50%	3.3	3.7
Industrial Machinery	50%	64%	2	2.4
Food and Beverage	40%	53%	4.2	2.5
Software	40%	60%	3.8	1.8
Electronics	90%	90%	2.7	2.5
Overall	51%	62%	3.1	2.7

On average, the number of non-financial KPIs included in each report was 3.1 in 2014 and 2.7 in 2016 (Table 5, panel b). No statistical difference was found among industries in terms of the total number of indicators provided.

Focusing on non-financial KPIs that are related to value drivers allows us to evaluate the disclosure practices of really “key” non-financial indicators. Table 6 (panel a) shows that 61% of companies that disclosed at least one non-financial KPI in 2014 also provided at least one indicator related to a value driver. This percentage increased to 65% in 2016.

² One-way ANOVA test.

Chemical and Pharmaceutical companies seem to have the best disclosure practices, as all disclosing companies in this sector communicated at least one “key” indicator in both years. Indeed, the average number of disclosed “key” indicators increased from 3.1 in 2014 to 3.6 in 2016 (Table 6, panel b). This number is considerably higher than the disclosure levels found in other industries. Statistical tests confirm the significance of this difference.

We found a negative trend among companies in the Food and Beverage sector. The percentage of companies that disclosed at least one “key” non-financial indicator decreased from 67% in 2014 to 63% in 2016. Moreover, the average number of indicators fell by half, as an average of 2 “key” indicators were reported in 2014, compared to just 1 in 2016. Nonetheless, some sectors witnessed a slight increase in the average number of “key” indicators. For instance, companies in the Industrial Machinery sector reported an average of 0.3 “key” indicators in 2014, and 0.6 indicators in 2016. In that same period, the average number of “key” indicators rose from 0.8 to 0.9 in the Electronics sector.

Table 6. *Disclosure practices concerning really “key” non-financial KPIs*

Industry	Panel a) % of companies disclosing really “key” non-financial KPIs		Panel b) Average number of really “key” non-financial KPIs disclosed	
	2014	2016	2014	2016
Chemicals and Pharmaceuticals	100%	100%	3.1	3.6
Industrial Machinery	29%	44%	0.3	0.6
Food and Beverage	67%	63%	2.0	1.0
Software	50%	67%	2.0	0.7
Electronics	63%	63%	0.8	0.9
Overall	61%	65%	1.6	1.4

To better understand non-financial KPI disclosure practices, we decided to focus on reported non-financial KPIs that are not linked to or reporting on companies’ value creation processes. The indicators that are not really “key” are indicators that are communicated by companies in the Strategic Report, but that are not directly linked to a value driver. In order to assess the weight of this kind of indicators, we calculated the ratio between non-financial indicators that are not really “key” and the total amount of non-financial indicators disclosed by a company.

Overall, these indicators represent 49% of the total amount of non-financial KPIs communicated by disclosing companies in 2014, and 48% in 2016 (Table 7). For the most part, these indicators are generic measures that centre on environmental or social performance. For instance, many companies report on CO₂ emissions, the number of workplace accidents, employee turnover, and workforce engagement plans. In many cases, this type of disclosure complies with the requirement in the CA Regulations obliging businesses to disclose indicators relating to relevant environmental and employee issues.

Table 7 shows that these non-financial KPIs are mentioned quite often in most of the five industries. Electronics companies, for instance, disclosed this type of information 70% of the time in 2014 and 64% of the time in 2016. An exception is the Chemical and Pharmaceutical sector, as only 4% of the non-financial KPIs disclosed in 2014 and 3% in 2016 were not really “key”. Statistical tests confirmed that these values are significantly different from the values found in other industries.

Table 7. *Incidence of non-financial indicators that are not “key”*

Industry	2014	2016
Chemicals and Pharmaceuticals	4%	3%
Industrial Machinery	86%	77%
Food and Beverage	52%	60%
Software	47%	64%
Electronics	70%	64%
Overall	49%	48%

4.2. Do analysts refer to the same value drivers as the companies they cover?

When examining analyst reports, we observed that analysts often discussed financial and market indicators in their reports but tended to ignore non-financial indicators. This does not necessarily imply that financial analysts do not appreciate non-financial indicators; rather, it may be the case that they prefer to focus only on the overall performance of the company due to the concise nature of their reports (Simpson, 2010). Furthermore, we noticed that BM information in analyst reports centres on topics that appear to be generic across all companies in the same industry (e.g., innovation and customers), rather than on the competitive advantages that differentiate a company from its competitors. It seems that analyst reports only depict the strategic profile of a company without including firm-specific information regarding how strategy is implemented.

Since the number of reports for each company often varies, and analysts do not necessarily report on firm-specific information, we decided to compare disclosure practices between industries. This comparison enables us to determine whether the value drivers identified in discussions of a company’s BM were also examined in analyst reports. To make this comparison, where necessary, some value drivers were renamed to maintain consistency whenever different reports referred to the same value driver. For instance, the value driver “experience” is sometime referred to as “management expertise”, “staff experience”, or “technical expertise”. However, since all these different labels focus on the same driver, they are placed in a single category.

Table 8 (panel a) features the BM information that is most often cited by analysts in their reports. The most disclosed value drivers are reported in Table 8 (panel b). Value drivers are presented in both panels in descending order, ranging from most frequent to least frequent. These results show the extent to which companies’ disclosures focus on the same non-financial aspects found in analyst reports.

The Food and Beverage industry was the only sector to show a partial overlap. For instance, Proprietary resources and Collaborations were found alongside non-financial KPIs in 20 and 10 annual reports, respectively, while the same value drivers were mentioned in 20 and 7 analyst reports, respectively. This shows that Food and Beverage companies and financial analysts tend to focus on similar types of information in their reports.

It is interesting to note that the information provided by Chemical and Pharmaceutical companies, which tend to have the best disclosure practices, does not match the information mentioned in analyst reports. Analysts are most interested in information related to Proprietary resources and Processes, while companies mainly report on Employees, Collaborations, and New products.

We did not find any overlap also for the Software, Industrial Machinery and Electronics sectors. However, this finding might be influenced by the limited number of analyst reports available for the companies in these industries.

Table 8. Comparing disclosure in analyst and company reports
(in **bold** the value drivers most frequently reported by both companies and analysts)

Industry	Panel a)		Panel b)	
	<i>Most cited BM information in analyst reports</i>	<i>Analyst reports where information is reported</i>	<i>Most frequently reported value drivers by companies</i>	<i>Annual reports where the driver is described</i>
Chemicals and Pharmaceuticals	Processes	12	Employees	20
	Experience	8	Collaborations	18
	Proprietary resources	7	New products	12
Industrial Machinery	Proprietary resources	3	Employees	8
	Reputation	3	Technology	7
	-	-	Processess	7
Food and Beverage	Proprietary resources	20	Proprietary resources	20
	Cost saving programmes	11	Employees	12
	Collaborations	7	Collaborations	10
Software	Cost structure	8	Pricing	9
	People	6	Channels	8
	Processes	5	Relationships	6
Electronics	Customer focus	2	Relationships	6
	Market segmentation	2	Employees	4
	Research & Development	2	Collaborations	4

5. Discussion and Conclusions

This study examines the quality of non-financial KPI disclosure practices in annual reports. Our research approach is based on the assumption that an external user needs information concerning a company's BM to fully appreciate non-financial information that relates to a company's value creation process, such as non-financial KPI disclosure (Bukh, 2003; Mouritsen and Larsen, 2005). Our research makes two important contributions to this field of study. First, we have devised a new means of assessing non-financial KPI disclosure, which is anchored to the value drivers that underlie a company's BM. Second, we have developed a detailed procedure to apply this tool to the non-financial KPI disclosure that is included in annual reports.

Our findings show that despite the presence of some positive signals, non-financial KPI disclosure must be improved in order to increase the quality of non-financial disclosures in annual reports. We found that UK companies in five distinct sectors are reluctant to disclose non-financial KPIs. 49% of companies in 2014 and 38% of companies in 2016 did not include any non-financial indicators in their Strategic Reports. These results confirm previous evidence showing that non-financial KPI disclosure in UK annual reports is poor (PwC, 2016; Deloitte, 2017). The low levels of BM and related indicator disclosure can be influenced by the lack of a clear and shared definition of BM (Zott et al., 2011) as well as by the proprietary costs and disclosure disincentives related to the release of information about key factors that contribute to value creation (e.g. Verrechia, 1993; Li et al., 2013).

The average number of disclosures decreased from 3.1 in 2014 to 2.7 in 2016. Since materiality and conciseness are given great emphasis in the FRC's Guidance, this decline should not be seen as a negative result per se. However, only half of these non-financial KPIs were clearly linked to companies' value drivers in both 2014 and 2016. The other half addressed environmental issues (e.g. CO₂ emissions) or workforce performance (e.g. employee turnover). The presence of these indicators is not surprising, if only because the CA Regulations explicitly requires companies to disclose this information if it is considered relevant to their particular activities. However, companies report these types of measures as "key", but they do not explain how they are related to their value creation processes. Indeed, these indicators deal with topics that are not reported at all in the company's BM. Since this information is completely disentangled from the company's value drivers, it results in "disconnected silos" that external users have difficulty appreciating (Beattie and Smith, 2013). Moreover, the disclosure practices of companies that communicate really "key" non-financial KPIs are dubious because they regularly present indicators related to their BM alongside other non-financial indicators that cannot be defined "key". These results are consistent with PwC's examination of the FTSE 350, which found that a minority of companies "are successfully demonstrating how strategic objectives link to other parts of the report" (PwC, 2016).

Overall, our findings suggest that companies are not paying enough attention to the relationship between non-financial KPI disclosure and the strategic information included in their BM. Indeed, much different criteria are used by companies to determine their "key" indicators. A non-financial indicator can be reported as a KPI when it is anchored to the company's value drivers, if it is required by law, or if it is the result of an established disclosure practice.

Interestingly, the type of industry seems to play a significant role in differentiating non-financial KPI disclosure practices. Among the five industries we analysed, Chemical and Pharmaceutical companies seem to have the highest level of disclosure. Although not all of the companies in this particular industry disclose non-financial KPIs, the ones that do

tend to focus on indicators that are related to the value drivers presented in the BM section. It seems that companies in this industry are more likely to disclose quantitative information that is directly related to the value creation aspects of their activities. This can be explained by noting that the need for non-financial information in Chemical and Pharmaceutical industry is quite high, due to the importance of intangibles in this sector. This might, in turn, compel companies to include non-financial information in their disclosure practices. Regardless, future research would help understand the reasons behind variation in disclosure practices in this industry. This may explain why and how companies have modified their disclosure over time, and determine the most influential factors in bringing about these changes.

Finally, our analysis shows that the most prevalent value drivers in analyst reports only partially coincide with the value drivers that often show up in annual reports. These findings seem to suggest that there is a disparity between what companies actually disclose and what financial analysts include in their reports—an idea that has been confirmed by other scholars in recent years (Avallone and Quagli, 2014). However, it must be noted that we found limited information about non-financial indicators and value drivers in analyst reports. Thus, it may be the case that analysts prefer to focus only on the overall performance of a company in their reports, omitting specific non-financial information. After all, analyst reports are concise documents that include a relatively small cross-section of information (Simpson, 2010).

One limitation of our study involves the fact that we based our assessment of the quality of non-financial KPI disclosure exclusively on information reported in the BM description, while also assuming that companies provide a complete description of their value drivers in their annual reports. As a result, we recommend that further research on BM disclosure practices be undertaken in order to assess the quality of non-financial KPI disclosure. Future research should consider different sources of information such that the value drivers that characterise a company's BM can be properly assessed. This information could then be used to compare non-financial KPI disclosure with the disclosure that is often provided by companies in their annual reports. As the reasons behind poor BM and KPI disclosure need further investigation, interviews with management can be conducted in order to examine their perceptions of the role of non-financial KPIs in assessing performance and their awareness of the BM as a framework for disclosure. Interviews may also shed light on the perceived benefits and costs associated with KPI and BM disclosure.

Another limitation is represented by the inherent subjectivity in the valuation of value drivers and in establishing a link between KPIs and value drivers. Despite a certain degree of subjectivity being implicit in this kind of analysis, recommended actions have been taken to mitigate its effects (Krippendorff, 2004). In particular, we give a detailed description of the coding categories and the coding procedure, and multiple alignment rounds among the researchers were conducted.

Moreover, our analysis focuses on five industries. Although we selected some of the largest industries listed in the UK Main Market, future research should enrich our results, adding other industries with different characteristics. Finally, our evidence concerning analyst reports is based on the reports included in the Bloomberg database. Despite this being one of the most complete databank on financial information, there is no guarantee that it includes all the reports issued on the examined companies. Future research should provide larger evidence to shed light on the relation between non-financial disclosure communicated by companies and financial analysts.

6. Policy Implications

Overall, our analysis contributes to the debate about companies' performance with regard to the application of the "through the eyes of management" approach to non-financial KPI disclosure. The results show that more is needed to ensure that companies' non-financial KPI disclosures mirror management's view.

Academic research and practice in the field of management agree that non-financial measures aim to "provide deeper understanding of the drivers of effectiveness and efficiency along organizational processes and operations" (O'Connell and O'Sullivan, 2016). According to this perspective, not all non-financial measures can be considered to be KPIs. Many of the most popular non-financial measures, such as customer satisfaction and employee attitudes, have some of the same limitations as financial measures, since they have a backward-looking orientation and are not related to specific strategic objectives that will provide sustainable competitive advantage (Kaplan and Norton, 1996, p. 55). The linkage between a non-financial indicator and a company's value driver is essential for a non-financial indicator to be considered a leading indicator, and therefore a non-financial KPI that is really "key". Focusing on intellectual capital disclosure, Nielsen et al., (2009) confirm that "indicators that would be relevant for disclosing intellectual capital are likely to differ among firms and likely to be difficult to interpret by analysts and investors unless they are inserted in the strategic context that determined their relevance" (p.180).

Preparers of financial statements should consider the proposal to link non-financial KPIs to BM disclosure to offer a more concise and integrated disclosure that complies with the recommendations of the FRC. On the basis of these considerations, detailed guidelines on non-financial indicator disclosures could support companies in improving their disclosure practices. In particular, these guidelines should:

- Explain what makes a non-financial indicator a "key" indicator;
- Stress the importance of linking non-financial KPIs to a company's value drivers;
- Encourage companies to provide a description of the components of their BM that enable the identification of value drivers.

The results in this analysis have many implications that can be of interest for different subjects. First, these findings provide a benchmark for companies to comply with the requirement of the CA Regulations. In this respect, our proposal helps companies to refine their communication strategies, by disclosing quantitative measures that are strictly connected to their value drivers. Second, our approach shows the main role that a company's BM description can assume as a powerful platform to integrate financial and non-financial information. This perspective is primarily related to the ongoing process of regulation, which requires a companies' BM description in strategic reports.

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ABOUT THE AUTHORS

Laura Bini (research manager – l.bini@unifi.it) is Assistant Professor in Accounting at the University of Florence, Department of Economics and Management. She obtained a MSc in Accounting in 2004 and a PhD in Business Administration and Management from the University of Florence in 2010. Her main research interests are in the area of non-financial disclosure to financial markets, including non-financial disclosure regulation, impression management, narrative disclosure quality and performance measurements.

Francesco Giunta (francesco.giunta@unifi.it) is Full Professor of Financial Accounting at the University of Florence, Department of Economics and Management. He served as a Head of the Management and Accounting Department at the University of Florence (2004-2009) and as a Dean of the School of Economics and Management (2009-2013) at the same University. Francesco's research interests are in the areas of international accounting and financial statement analysis. He has published several books and numerous articles on these topics in Italian and international journals.

Lorenzo Simoni (lorenzo.simoni@unifi.it) is a PhD candidate in the Department of Economics and Management at the University of Florence. He holds a BSc in Business Administration and a MSc in Accounting from the same University. He also collaborates with the Business Design Center at Aalborg University. His research interests include business model disclosure, non-financial information and performance measurement. Lorenzo's PhD thesis focuses on the value relevance of mandatory business model disclosure.

Francesco Dainelli (francesco.dainelli@unifi.it) is Associate Professor of Financial Accounting at the University of Florence, Department of Economics and Management. He holds a MSc in Accounting and a PhD in Non-profit Management from the University of Naples. His main research areas are in international accounting and financial statement analysis, including the value relevance of non-financial disclosure.



CA House 21 Haymarket Yards Edinburgh EH12 5BH
enquiries@icas.com +44 (0)131 347 0100 icas.com

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