
Understanding research findings and evidence on corporate reporting: An independent literature review

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Purpose

The FRC commissioned the independent academic Literature Review, carried out by the University of Exeter and the University of Bristol authors. The review will be published as part of the Future of Corporate Reporting (FOCR) on 08 October 2020.

Not our views

The FRC does not express any opinions on the matters addressed. The views expressed in the report are those of the authors.

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Executive Summary

The FRC commissioned a literature review of academic articles and research papers to determine the extent to which analyses have been undertaken which support the objectives of the Future of Corporate Reporting (FoCR) project.

For the purpose of this review we agreed to define corporate reporting as financial and non-financial information included in annual reports, quarterly reports, restatements, earnings announcements and other ad-hoc and stand-alone reports (such as sustainability, CSR, integrated reports). We use the term financial reporting to indicate disclosure of financial information such as that contained in the financial statements, including the notes, but also the narrative discussion of corporate performance (i.e. narratives or other quantitative indicators that complement financial data, for example narrative information in the strategic report or management discussion and analysis). Non-financial reporting includes corporate social responsibility (CSR), social, environmental or sustainability reports (which are interchangeable terms), as well as other types of narrative information included in specific sections of the annual reports (such as for example, risk disclosure, or disclosures about environmental, social and governance (ESG) issues) or in other corporate documents (integrated reports, intellectual capital statements, etc.).

A list of questions to be addressed was discussed between the academics and the FRC and the preliminary mapping between the structure of the report and the list of questions was agreed as shown in the following table. A detailed mapping out of how this report addresses all these questions is included in the concluding section.

Chapters covering broad questions	Questions from FoCR brief
A. How is the quality of corporate reporting defined (according to the academic literature)?	<ul style="list-style-type: none"> • What are the characteristics of good corporate reporting? • What types of information are included as part of corporate reporting? • What is the role of non-financial/ESG/sustainability reporting? • How is non-financial/ sustainability reporting defined in academic literature? How is it used? • How does the annual report fit into the wider corporate reporting framework?
B. What is the role of regulation in corporate reporting? How does regulation affect (financial or non-financial) information reported?	<ul style="list-style-type: none"> • What is the role of regulation in corporate reporting? • What is the role of corporate reporting in building corporate accountability? • How have different periodic reports evolved (preliminary announcements, interim reports, annual reports, sustainability reports)?
C. What are the information needs of shareholders and how is the corporate reporting information used by investors?	<ul style="list-style-type: none"> • What are the information needs of investors and how is this information used? • Is there a link between corporate reporting and movements in share price?
D. What are the information needs of stakeholders (other than shareholders) and how is the corporate reporting information used by them?	<ul style="list-style-type: none"> • What are the information needs of users that are not capital providers and how is this information used?
C + D together	<ul style="list-style-type: none"> • What is the purpose of the annual report? • Who is the audience of the annual report? • How is narrative information in the annual report used – strategic report/ corporate governance statement/ remuneration report? • What is the role of the financial statements?
E. How does corporate reporting affect managers' (or firms') behaviour?	<ul style="list-style-type: none"> • How does corporate reporting affect behaviour?
Conclusion	<ul style="list-style-type: none"> • What is the purpose of corporate reporting? • How is this defined in academic literature?

An initial scoping exercise of academic journals, published in English, after 1992, revealed over 18,000 relevant articles within the disciplines of accounting, finance and management, as of May 2019. (See the Appendix for the agreed list of key search terms and details of how this large number of articles was reduced to the final selection of 538 papers.)

A. How is the quality of corporate reporting defined?

Section A considers how the academic literature defines the quality of corporate reporting – a challenge which first requires consideration of what the purpose of corporate reporting is, for standard setters, regulators and academics. The academic literature identifies three main functions of reporting:

- valuation (decision usefulness criteria for capital providers);
- stewardship (full and transparent information allows monitoring of that capital);
- accountability (an account of the actions for which an organization is held responsible in the eyes of all of its stakeholders).

While the valuation and stewardship perspectives are rooted in positive accounting theory (e.g. an approach used by academics to explain and predict what happens in the real world looking for regularities and causal relationships between elements, which assumes the observation of one objective reality), the accountability perspective is often associated with interpretivist research (which assumes the world can be understood by gaining a deep understanding of a phenomenon and its complexity within a unique context) and/or a normative approach (which seeks to express what ought to be, rather what is, therefore adopting a value-based view of the world, rather than a value-free view like positive theory).

Valuation and stewardship have long been the main roles attributed to financial information although recently they have also been considered in relation to non-financial information. The accountability view, in contrast, has traditionally taken a broader view of corporate reporting, addressing the needs of a variety of stakeholders with the inherent complexities and trade-offs that different information needs have in terms of what and how to report.

Figure 1 below captures the prevailing views in the academic literature about the role of corporate reporting with respect to users and scope of information.


Scope \ Users	Financial information	Non-financial information
Shareholders/Creditors	Valuation & stewardship 	
Stakeholders	Accountability	

Figure 1

The quality of corporate reporting information can be defined in terms of how useful information is for investors and lenders when making investment decisions. However, considerations of quality also entail a transparency connotation in the sense that corporate reporting should faithfully represent the firm’s underlying performance. This is in order to allow

the monitoring of management decisions as well as to provide an account of the actions for which an organization is held responsible.

In practice, if the quality of information depends on how well the reporting process is able to measure and capture the underlying performance, management discretion can influence the quality of information both positively and negatively. In other words, quality is related to the set of reporting incentives of the firm's management. It is also possible that market pressure to deliver short-term reported performance impairs the overall quality of financial reporting by undermining the long-term viability of the firm's performance (i.e. "real earnings management") as documented in earlier reviews.

In terms of financial statement information, broadly speaking, there are different attributes that define quality. Earnings attributes are desirable to the extent that they reduce information risk and the expected rate of return for shareholders. The literature identifies a number of attributes that define earnings quality: accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism. The first four of these attributes are classified as accounting-based because they are typically measured using accounting information only, whereas the last three attributes are market-based because proxies for these constructs are typically based on relations between market data and accounting data. The literature seems to suggest that accounting-based attributes are associated with stronger capital market effects than market-based attributes.

With respect to accounting conservatism, while it may decrease the value relevance of earnings, it does benefit lenders and borrowers in the debt-contracting process and protects shareholders against overcompensating management (see also Section D).

Narrative reporting complements and explains a firm's performance. The literature has made an effort to identify qualitative characteristics that indicate whether the narrative provides meaningful information to the users of corporate reporting, because management may be prone to adopt impression management techniques seeking to hide poor results or emphasize good ones. What is "meaningful" to users is very much related to the specific issue that is being reported on. In order to evaluate the quality of narrative reporting one should therefore consider both the topic (e.g. greenhouse gas emissions, business strategy, risks), as well as the user (e.g. shareholders, creditors or other stakeholders).

Studies that employ manual content analysis of narrative reporting typically have the limitation of small samples and/or the issue of the inherent subjectivity in the coding process itself. Content analysis has nevertheless identified detailed frameworks to define which characteristics make for higher quality disclosure. The advent of computational linguistic and natural language processing will help overcome the limitation of small sample studies and increase the external validity of the research findings, under the assumption that they are able to correctly identify key characteristics of the narratives.

Whereas audit and assurance are deemed to increase the quality of financial reporting, for sustainability/CSR reporting the evidence is not so clear. This is mainly due to the lack of comparable reporting practices, ambiguous assurance guidelines and relatively young and underdeveloped reporting systems.

Within the accountability perspective, a stream of research suggests that conceptually there is an emancipatory, transformative power for corporate reporting, especially with respect to ESG/CSR issues. Narrative forms of reporting have also been analysed in the light of dynamics of power, story-telling, sense-making and sense-giving. Following this view, the quality of reporting can be assessed by considering the judgements of the various groups involved, whether preparers or other stakeholders. This requires that the process of reporting

is embedded in, and developed from, close interactions with stakeholders and participatory governance.

B. What is the role of regulation in corporate reporting? How does regulation affect the (financial or non-financial) information reported?

In addressing these questions, Section B reveals that the academic literature justifies the introduction of disclosure regulation as:

- enabling economic effects on the functioning of the financial markets, and/or
- a tool to steer corporate practices towards desired outcomes.

While the review of these capital market and “real” effects is discussed in later sections, Section B provides an overview of the effects on reporting itself.

The tension that clearly emerges is that corporate responses to disclosure regulations and mandates depend on the firms reporting incentives and management discretion. Furthermore, regulations often come into force when other institutional arrangements are already in place, as well as mechanisms that can affect reporting practices (for example, the level of enforcement, oversight, and penalty imposition). Academic research has not always been able to distinguish the effect of the disclosure mandate from that of these other arrangements and mechanisms. Consequently, it is difficult to make causal claims.

The literature has focused more on the capital markets effect of disclosure regulations; less is known about how reporting practices change. The literature has documented widespread boilerplate disclosure, for example in relation to the adoption of the guidance provided by the Turnbull report (1999) on disclosures on internal controls in the annual report. However, this does not necessarily imply that disclosure as a regulatory tool is ineffective. It is still possible that the requirement to disclose influences behaviour directly, but we need more evidence.

A final note on regulation is that most regulatory actions continue to have a strong focus more on investors’ needs, and less so on other stakeholders’. It is possible that regulation ends up creating “blind spots” if there is no overlap between what investors and other stakeholders deem as relevant and material. There are calls for wider stakeholder interests to be embedded in conceptual frameworks for corporate reporting. However, in practice, the guidance provided to firms is still mixed. For example, the EU Non-Financial Reporting Directive mandates the reporting of social and environmental information, but firms have discretion in terms of which reporting standards/guidance to follow (if any). Different guidelines focus on different main users of the information (financial materiality vs. social/environmental materiality). More research is needed to better understand these tensions.

C. What are the information needs of shareholders and how is the corporate reporting information used by them?

Section C addresses a number of key issues covered by the FRC’s Future of Corporate Reporting project, focusing on:

- (a) direct evidence of information needs of shareholders and analysts and their use of corporate reporting information;
- (b) the empirical evidence regarding the links between corporate reporting and the stock market;
- (c) and the literature on the information environment, specifically examining effects of corporate reporting on the forecasts and recommendations by sell-side analysts as well as the link between corporate reporting and analyst coverage.

Section C.1 finds that:

- Financial statements remain an important source of information about firms used by investors and analysts primarily for valuation purposes.
- Narrative reporting complements and contextualises information from financial statements but is sometimes used as an impression management tool misleading the audience of corporate reporting (see also Section A).
- The importance of other communication channels (e.g. other disclosures or private communication with managers) has increased over time and rivals that of periodic corporate reporting for some information users (e.g. analysts).
- There is some emerging evidence that some users incorporate non-financial reporting information in their investment decisions, but its usefulness so far is limited by a lack of established reporting standards for such disclosures and low level of familiarity with this type of reporting.

Section C.2 summarises the studies examining capital market effects of financial and non-financial information reported by companies, providing indirect evidence on investors' use of such information. Academic literature shows that corporate reporting matters for and is used by investors. Its relevance manifests itself in a number of ways detailed below.

- High-quality financial reporting reduces information asymmetries faced by market participants, which in turn reduces information advantages of the most informed investors. Consequently, stock market liquidity improves. These liquidity effects are greater if the disclosure regulatory regime is stronger. So far, there is not enough empirical evidence illustrating similar effects for non-financial reporting.
- There appears to be some degree of consensus in both theoretical and empirical literature that more extensive and higher-quality corporate disclosures reduce perceived riskiness of firms and, therefore, are associated with a lower cost of capital in general and lower cost of equity capital in particular. Again, these effects have been mostly documented for financial reporting, although literature examining the effects of non-financial reporting and integrated reporting has started to emerge recently.
- There is ample evidence that financial accounting information has been value-relevant, although its relevance has decreased over time both in the US and internationally. This decrease has been attributed to increasing reliance on information sources and intermediaries other than annual reports (e.g. financial analysts, media, or blogs), emergence of new technologies to disseminate information quickly and cheaply outside of the accounting system, rising volatility of market values due to changes in the market structure (e.g. trading by institutional investors and hedge funds, electronic trading), and macroeconomic factors (such as ongoing integration of global product and capital markets, or shift from manufacturing to a service-oriented economy).
- Value relevance of financial reporting also varies across firms and countries.
- A number of studies document how information provided by ESG reporting is also value-relevant and this finding holds for both mandatory and voluntary disclosures.
- The release of corporate reporting (both financial and non-financial) is an important factor explaining stock returns.

- Yet, only a small proportion of total information incorporated in share prices is associated with earnings announcements suggesting that the primary economic role of reported earnings is not to provide timely new information to the share market.
- Empirical evidence suggests that market reaction to the releases of corporate reporting information is not instantaneous with share prices only slowly reflecting the information over time.
- The return effects of narrative corporate reporting vary with its linguistic characteristics (e.g. tone) and readability.
- Finally, corporate reporting is useful in explaining and predicting volatility of stock and option returns, illustrating another aspect of usefulness of such information for investors.

Section C.3 reviews the literature focussing on the information environment, specifically examining the effects of corporate reporting on forecasts and recommendations by sell-side analysts, finding that:

- Analysts' earnings forecasts are more accurate and less dispersed for firms with higher quality of financial and non-financial corporate reporting.
- Analysts' forecast accuracy and dispersion also vary with the institutional corporate reporting environment.
- Characteristics of corporate reporting (such as e.g. frequency, quality, readability, or tone) and of corporate reporting environment (e.g. mandatory adoption of a particular reporting standard) influence the likelihood that a particular firm is covered by an analyst in the first place.

D. What are the information needs of stakeholders (other than shareholders) and how is the corporate reporting information used by them?

Creditors who are the other type of capital providers, besides shareholders, play a particularly important role as users of corporate reporting information. Section D.1 discusses their information needs and usage of corporate reporting information and finds that:

- Corporate reporting matters for, and is used by, creditors and their agents (such as credit rating agencies). Its relevance manifests itself in a number of ways detailed below.
- Financial corporate reporting information provides creditors with relevant information, which they take into account in their decisions to extend credit to companies and to price it appropriately (i.e. it serves the valuation role). Higher quality and credibility of financial information lowers the cost of debt capital: it affects the pricing of bank loans and spreads on corporate bonds.
- The quality of financial reporting also determines access to particular credit markets: firms with poorer accounting quality are more likely to use private debt (e.g. bank loans) as opposed to public debt such as corporate bonds.
- The financial reporting regulatory environment (e.g. country-level measures of accounting conservatism, adoption of IFRS, etc.) affects access to credit markets and credit pricing.

- The quality of financial reporting also affects non-price terms of credit (such as maturity and collateral), which are more stringent for borrowers with poorer accounting quality.
- Financial reporting information could be useful in the stewardship role in the context of debt markets. While accounting-based debt covenants are a mechanism to monitor creditors' performance, financial reporting information is a key input to commonly used bankruptcy-prediction models.
- The prevalence of debt covenants (including, accounting-based ones) is considerably larger in private debt than in public debt. There has been a considerable decrease in prevalence of most types of accounting-based debt covenants, in particular balance sheet-based ones over time. This trend has been (at least partly) attributed to the implementation of IFRS and increased emphasis of accounting standard setters on fair-value accounting, which has reduced the usefulness of balance sheet items for debt contracting.
- Financial reporting information serves a valuation role for various credit-related financial markets: it influences corporate debt pricing on the secondary market, pricing of credit default swaps, etc.
- Finally, there is only very limited evidence of relevance and usage of non-financial reporting (e.g. CSR reporting) in the context of credit markets.

Section D.2 focuses on the information needs of stakeholders who are not credit providers and their usage of corporate reporting. It finds the following:

- Corporate reporting information (in particular, non-financial reporting) has a very broad audience covering many categories of stakeholders who are not capital providers (e.g. consumers, employees, suppliers, managers, industry bodies, professional associations, accounting firms, consultants, NGOs, academics). In this context, corporate reporting information is primarily relevant in the accountability role.
- Corporate reporting does not only matter for the company that releases information, but it also has effects on firms along its supply chain. It also affects behaviour of retail customers, implicitly indicating that they are among the audience of corporate reporting as well.
- There is some evidence that managers consider the labour force to be among the audience of the corporate reporting (including financial reporting).
- The corporate reporting environment has consequences for whistleblowing and could therefore hinder or facilitate the accountability role of corporate reporting.
- Non-financial reporting has huge potential to address the information needs of various stakeholders. Yet, this potential remains largely unfulfilled so far, due to discrepancies between the information that the stakeholders expect, and the contents of the disclosure standards and actual disclosures made by the companies. This mismatch is magnified by the lack of stakeholder engagement in the process of design and implementation of reporting standards and in the reporting activities of the companies.

- To date, academic literature has largely failed to solve conceptually the problem of prioritising potentially conflicting information needs of various groups of stakeholders, in particular vis-à-vis shareholders.

E. How does corporate reporting affect managers' (or firms') behaviour?

In the final section we consider what the academic literature says about 'real effects' and how corporate reporting impacts managers' and firms' behaviour. Sections C and D have addressed evidence of how capital providers (shareholders and creditors) use financial information, making inferences, for example on the basis of liquidity, cost of capital, firm value, terms of debt contracts, and so forth. The analysis of real effects in this section allows similar indirect inferences about how other stakeholders use corporate reporting information (importantly, both financial and non-financial). This provides a clear rationale as to why real effects are so important. In addition to corporate reporting driving behavioural change, it also gives insights about the usage of reporting by various parties.

- The effects on capital providers and other stakeholders are not necessarily mutually exclusive, and this begs the question of whose behaviour are we interested in (shareholders, managers, directors, or external stakeholders)?
- When searching for evidence of real effects, we find many studies considering the changes of an organization's behaviour relating to disclosure or compliance strategies, as well as the use of reporting as an impression management or public relations tool. With a much smaller body of evidence relating to integrated and non-financial reporting, there is discussion as to whether non-financial reporting, and its 'misuse' as a public relations tool, can be counter-productive to social change. But should the purpose of the reporting also include social change? (see also Section A)
- A section of this literature considers the chicken-and-egg situation of whether integrated thinking leads to integrated reporting or vice versa. Quantitative research may reveal associations, but not necessarily causation. This is where qualitative research and case studies may be useful, although less generalizable. The chicken and egg challenge may apply to reporting practices other than integrated reporting, but the literature on integrated reporting provides a useful illustration. Whether integrated thinking or reporting comes first may be a function of compulsion (through regulation or legitimacy concerns) or desire (strategic behavioural change).
- Does improved reporting help steer corporate practices and improve them? The literature finds some evidence in this respect. However, there are also studies that suggest that better disclosures do not necessarily lead to better outcomes. Further, as it is challenging to provide sound evidence of causality, results should be taken with caution and more research is needed.
- Where regulatory initiatives continue to be based on investor-primacy there exists the potential unintended consequence of companies reporting on how ESG risks and opportunities affect corporate financial performance. While this is not a problem in itself, it does raise the question as to whether reporting on ESG issues should primarily address the interests of other stakeholders.
- How organisations respond to this will be affected by numerous contextual factors, including:
 - organisation context and culture that supports (or not) changed behaviour;
 - industry norms and institutional pressures that support (or resist) the change;
 - the regulatory context (including compliance and empowerment);

- the national and societal context regarding acceptability and expectation of behaviour change, especially on social and environmental issues.
- Research on real effects is still in its infancy and faces many challenges. But, as more governments are using disclosure requirements as a public policy instrument to encourage or discourage certain behaviours and business practices, the need for more research into real effects is imperative. The Non-Financial Reporting Directive, whose effects are too recent to be fully understood yet, presents some good research opportunities.

Key challenges

We identify the following key challenges for the future of corporate reporting in relation to the state of the art in the literature.

- Assessing the quality of reporting is a difficult endeavour for the reasons described in Section A. All evidence should therefore be interpreted accordingly and considerations about *what* should be reported, *why* and *how* are, inherently, part of a political process.
- Causality in large-scale empirical studies is challenging to prove, so estimates in this literature should be interpreted cautiously. Hence, academic research struggles to provide a real impact assessment of new disclosure regulations and mandates.
- As non-financial reporting becomes more predominant, and as the role of narrative reporting (even within financial reporting) assumes more weight, two considerations are key: (1) there will be difficulties in designing comparable standards for non-financial reporting and ensuring reliability and credibility of this type of information and (2) reporting standards, guidelines and regulation will still face the challenges entailed by allowing discretion in narrative reporting choices (minimum requirements).
- Effective reporting standards and regulations need to be conceived together with other institutional arrangements, such as for example, enforcement.
- Until very recently, the focus of the literature has been mostly on investors and mostly on large-scale indirect evidence (e.g. earnings announcements, analyst forecasts, etc.) rather than direct examination of stakeholder needs and their usage of corporate reporting information. It might be the case that as far as the big questions are concerned, we are in the situation of “we don’t know what we don’t know”. Hence, future research on the topic should embrace mixed-methods and/or experimental approaches to better ascertain directly what stakeholder needs are and how the corporate reporting is used. Further, case-based research may be able to provide insights on how the desired change is implemented within the organisation and what challenges and tensions may impede it.
- Literature does highlight aspirational goals and potential for reporting, but there are methodological challenges for large-scale studies. Regulators and academics need to work together, and more studies are needed on how behaviour changes and assess the economic and social impact of new regulatory mandates.
- Periodic and structured corporate reporting is only one of the many channels through which companies disclose information. With the advent of social media, as well as other interactive features of the internet that allow for real-time information to reach

a broad audience, it is debatable (and unpredictable) whether structured reporting will remain the most important channel.

Policy discussion and recommendations

We identify five key areas for policy discussion and recommendations for the Future of Corporate Reporting Project.

1. Is the traditional investor-focus adopted by most of the reporting regulation and guidance still the most appropriate for the future of corporate reporting?

This focus ultimately implies that what should be reported is only related to risks and opportunities that may have financial implications for companies in the short-term. This is at the expense of transparency over externalities and impacts that may have long-term consequences, on the firm's financial performance but also on society overall.

2. How can regulators help in collecting further evidence on the real effects of reporting, an area on which research is still limited and providing mixed evidence?

In order to ensure a proper impact assessment of reporting regulations, standards and guidelines, policies should be conceived and implemented with the aim of testing their impact, for example by working collaboratively with academics to design randomized pilot studies or collect specific data around regulatory changes, even if for a subset of firms affected.

3. Can more participatory models of reporting improve (or transform) the way in which we conceive the quality of reporting?

Participatory models of reporting, where users could be more deeply engaged in the process of reporting itself, rather than being considered as only the addressees of corporate information, may tackle issues of conflicting information needs. This would clearly entail several challenges because of the different nature of various stakeholder interests, but dialogic accounting is reputed to allow for a more pluralistic expression of public interest.

4. Can new forms of reporting disrupt and innovate our conceptualisation of corporate reporting in face of the challenges that society is facing today?

The evidence on whether corporate reporting actually changes any behaviour internally is debatable and there is not enough evidence to say whether it satisfies investors' needs. This is an area of current academic focus that is producing more evidence and one that policy makers and regulation could further investigate, in collaboration with academia.

5. What channels should be used to communicate financial, non-financial or integrated content?

Another recommendation in light of the evidence presented in this literature review is that standard setters and regulators may need to start considering not only what firms should report (content), but also on the how (format) as well as in which channels, which may not only be restricted to structured and period reporting.

Introduction

This report surveys academic literature examining stakeholder information needs and their usage of corporate reporting information. As discussed in more detail below, we define corporate reporting in a relatively narrow sense, i.e. we limit it to periodic and relatively structured corporate reporting (in particular, financial statements; earnings announcements; quarterly, semi-annual, and annual reports, including narrative and non-financial information; stand-alone sustainability or environmental, social, or governance reports; and integrated reports). While we recognise the importance of other corporate disclosure channels (e.g. conference calls, companies' websites and social media, etc.), they remain outside of the scope of this report due to the mandate obtained from the FRC commissioning this report. The exclusion of these unstructured disclosure channels is one limitation which we discuss in our conclusions in more detail.

An initial scoping exercise of academic journals, published in English, post 1992, revealed over 18,000 relevant articles within the disciplines of accounting, finance and management, as of May 2019. Following the methodological approach described in the Appendix, the review is currently based on 538 papers. The five substantive sections that follow address a series of inter-related issues pertaining to purposes, properties, and usage of corporate reporting information. Specifically:

- Section A addresses the question of the definition of quality of corporate reporting, by discussing how the literature has investigated the quality of financial reporting and the quality of narrative reporting;
- Section B examines the role of regulation in corporate reporting, in particular whether and how regulation affects the financial or non-financial information reported, as well as how it has affected the evolution of reporting;
- Section C examines information needs and usage of corporate reporting by shareholders and equity analysts;
- Section D examines information needs and usage of corporate reporting by corporate creditors and by other categories of stakeholders;
- Section E investigates whether and how corporate reporting affects managers' or firms' behaviour, examines real effects of reporting and of the reporting environment, and discusses relevance of corporate reporting for accountability and stewardship purposes.

Finally, the concluding section summarises key findings of the report, identifying the main challenges. It also discusses policy relevance of the literature analysed and the implications of the findings for future regulatory measures. In doing so, it helps address big questions about the purposes and desirable features of corporate reporting.

Section A

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A. How is the quality of corporate reporting defined?

Defining the quality of corporate reporting is a challenging endeavour. It requires us first to consider the notion of the purpose of corporate reporting itself. In other words, the characteristics of good corporate reporting are assessed against the purpose that one believes corporate reporting has. The academic literature has identified three perspectives in this regard: **valuation**, **stewardship** and **accountability** (Beyer et al., 2010; Jonas & Blanchet, 2000). The valuation and stewardship perspectives are rooted in positive accounting theory, an approach used by academics to explain and predict what happens in the real world, looking for regularities and causal relationships between elements, which assumes the observation of one objective reality. In contrast, the accountability perspective is often associated with interpretivist research which assumes the world can be understood by gaining a deep understanding of a phenomenon and its complexity within a specific context, and/or a normative approach which seeks to express what ought to be (rather what is) and therefore adopts a value-based view of the world (rather than a value-free view like positive theory). As the definition of the purpose of reporting is central to how research has defined quality, we proceed with explaining each perspective.

First, corporate reporting plays a **valuation role**, in that it allows investors¹ to assess the future value of the investment. Such role has been traditionally assigned to financial reporting and information. The majority of accounting literature focuses on capital providers (shareholders, but also creditors), so that the primary purpose of financial reporting is to allow them to evaluate the potential future return on investment opportunities. In other words, the quality is determined in relation to the usefulness of the (financial) information to the users of that information (i.e. 'decision usefulness' criteria).

Second, with respect to the **stewardship** role, corporate reporting, especially financial reporting, allows the same capital providers to *monitor* the use of the capital, once it has been committed. Therefore, the quality of financial information is defined primarily in terms of providing capital providers with full and transparent information that allows them to monitor corporate performance in a truthful and reliable way.

Both the valuation and stewardship role assume that the primary addressees of corporate reports are financial stakeholders, i.e. investors (as defined in footnote 1). However, Zeff (2013) notes that the stewardship role can also be related to a wider set of stakeholders than just investors as, for example, set out in "The Corporate Report", a discussion paper submitted to the ICAEW by the Accounting Standards Steering Committee back in 1975 (Accounting Standards Steering Committee, 1975). It was a foundational document for a wider discussion on corporate reporting in the UK, and highlights that some of recent attention on stakeholders other than investors, is not necessarily new.

In line with Zeff's arguments, another stream of accounting research identifies a broader range of users, i.e. the stakeholders, as the primary addressees of corporate reporting and to whom the firm should be held accountable (Freeman et al., 2004; Harrison & van der Laan Smith, 2015). A stakeholder is any party that has an interest in a company and can either affect or be affected by the business. Key to the concept of stakeholders is the idea that different stakeholders have different, even conflicting needs (Freeman, 1984); that inevitably affects the scope of reporting (i.e. what type of information is considered material or relevant may vary across stakeholder groups). By definition, shareholders and creditors are stakeholders of a company. However, for the purpose of this review, we consider shareholders and creditors

¹ Investors include all capital providers, i.e. equity capital (shareholders) and debt capital (creditors), whether actual or potential. We use the generic term shareholder to identify all type of owners, i.e. institutional investors, individual investors, pension funds, asset management companies, etc. (unless differently specified).

separately from other stakeholder groups, such as employees, customers and suppliers, local and national governments, pressure and advocacy groups, society overall, and the natural environment. According to this perspective, information plays an **accountability** role, where accountability is defined as the duty to provide an account for the actions for which an organization is held responsible in the eyes of all stakeholders (Gray et al., 1997). In this context, therefore, the quality of reporting is related to the ability of reporting to fulfil this accountability role towards shareholders, creditors and other stakeholders.² Similarly, Sunder (2016) asserts that (financial) reporting could serve “broadly defined societal goals” (p. 214), although he acknowledges that there is less agreement about which accounting regime would attain this goal better.

An important implication of adopting an accountability perspective to corporate reporting is that the scope of reporting by definition would also entail non-financial information, such as for example, disclosures on social and environmental impacts, as stakeholder interests are not necessarily only financial. This is not to say that the valuation and stewardship perspectives do not involve non-financial reporting, but that traditionally the focus of research undertaking these perspectives has been on financial reporting and investors as users. Figure 2 below captures the prevailing views in the academic literature about the role of corporate reporting with respect to users and scope of information.

Figure A.1 -

Scope Users	Financial information	Non-financial information
Shareholders/Creditors	Valuation & stewardship	
Stakeholders	Accountability	

Figure 2: The role of reporting, users and scope

For the purpose of this review we define corporate reporting as financial and non-financial information included in annual reports, quarterly reports, restatements, earnings announcements and other ad-hoc stand-alone reports (such as sustainability, CSR, integrated reports). We use the term financial reporting to indicate disclosure of financial information such as that contained in the financial statements, including the notes, but also the narrative discussion of corporate performance (i.e. narratives or other quantitative indicators that complement financial data, for example narrative information in the strategic report or management discussion or analysis). Non-financial reporting includes corporate social responsibility (CSR), social, environmental or sustainability reports (which are interchangeable terms), as well as other types of narrative information included in specific sections of the

² The debate about to whom the firm is held accountable is not independent from the legal frame that defines the fiduciary duties of directors. While this debate is beyond the scope of this review, recent research argues that shareholder primacy is not a legal requirement of fiduciary duties in most countries, the US being an exception (Eccles & Youmans, 2015).

annual reports (such as for example, risk disclosure, or disclosures about environmental, social and governance (ESG) issues) or in other corporate documents (integrated reports, intellectual capital statements, etc.).

This section is organised in two sub-sections, which mirror how various streams of research on corporate reporting have developed:

- Section A.1 presents academic research on the quality of financial reporting, with a focus on information conveyed by financial statements, as defined in studies focusing on:
 - earnings management and reporting incentives,
 - accounting conservatism,
 - restatements,
 - and surveys of users.
- Section A.2. provides an overview of the literature on reporting quality that has focused on narrative reporting, which includes both financial and non-financial information i.e. studies on:
 - conceptual frameworks used to describe the quality of disclosure,
 - impression management,
 - computerised textual analysis,
 - issues of assurance for non-financial information,
 - and alternative approaches.

Whenever relevant, we have highlighted specific literature reviews that will give better insights on specific issues.

A.1. Quality of financial reporting

The quality of financial reporting can be assessed against the role attributed to corporate reporting (Jonas & Blanchet, 2000). While the valuation role is concerned with the *relevance* of information to users when making capital allocation decisions, the stewardship role is concerned with ensuring that users are provided with as much information as possible (information *sufficiency*) and in a transparent way (information *competency*). These two attributes are not mutually exclusive, instead they reinforce each other (Jonas & Blanchet, 2000). The accountability role will be discussed in A.2. as it has been traditionally related to broader corporate reporting, rather than just financial reporting.

The demand for financial information for valuation and stewardship purposes arises due to two problems:

- information asymmetry³ between managers and investors

³ Information asymmetry occurs when one party in an economic transaction possesses greater material knowledge than the other party, in other words parties in a transaction can access to different levels of information. Information asymmetry can lead to market failure. Information asymmetry can be ex-ante: one party lacks the information when negotiating the terms of a contract to the transaction (adverse selection); or ex-post: one party lacks information about the performance of the agreed-upon transaction (moral hazard).

- agency costs of equity⁴, i.e. costs that arise because of the separation between ownership and management and the need to monitor managerial performance (Beyer et al., 2010; Healy & Palepu, 2001).

With regards to first point, a reasonable assumption is that managers have more information than outsiders (Christensen, 2010). This information asymmetry makes it difficult for outsiders to assess, for example, the profitability of investment opportunities. Furthermore, insiders might have incentives to portray a more (or less) favourable image of the firm's future profitability. If capital providers cannot assess this future profitability correctly, they will tend to under-price firms with high profitability and over-price those with low profitability, potentially leading to market failure. In the literature this is known as the "lemons problem" (Akerlof, 1970), and it has led the literature to analyse managers' incentives to disclose additional information to avoid mispricing.

With respect to the second point, demand for accounting information arises also because shareholders lack information about the actual performance of the company, which is controlled by managers. Contracts with managers often make use of accounting information (e.g. generated return on investment) to solve agency problems. Further, governance structures are in place to ensure monitoring of management actions, and within these the quality of financial reporting is an important monitoring mechanism. Outsiders value such information when monitoring managers and require a lower expected rate of return when they can rely on such information (Beyer et al., 2010; Christensen, 2010).

Importantly though, the demand for accounting information, whether for valuation or stewardship, may not always result in the information being voluntarily supplied by firms, hence the need for regulation (see Section B). However, even in the presence of accepted accounting standards and reporting regulation, because of the inherent discretion allowed in the reporting process *the quality of the accounting information is also determined by the set of managerial, firm, market and institutional incentives, e.g. "reporting incentives"* (Christensen, 2010; Dechow & Skinner, 2000; Dechow et al., 2010; DeFond, 2010). In other words, a firm's reporting strategy, which refers to the quality of the information disclosed, is not only affected by the regulatory setting, or the accounting standards adopted, but also by a set of other factors, such as for example, managerial compensation, managerial reputation, firm's visibility and business model, governance, market expectations, enforcement rules, other institutional arrangements, cultural values etc. Therefore, different firms may respond to the introduction of new reporting regulation and/or to the adoption of new standards in different ways (Christensen et al., 2015; Daske et al., 2013; see also Healy & Wahlen, 1999, and Dechow et al., 2010, for extensive literature reviews). Healy & Palepu (2001) offer a comprehensive framework to explain the variation in financial reporting quality which goes beyond firm-specific incentives, and also includes regulation (i.e. the regulatory environment and its enforcement) and the quality of auditors and information intermediaries (i.e. analysts). Healy & Palepu (2001) further note that the credibility of voluntary disclosure may also be related to the quality of financial reporting. Overall, one key message for the purpose of this section is that *the quality of financial statement ultimately depends on how managers use their discretion, given other institutional and regulatory mechanisms*. According to positive

⁴ Agency theory identifies the agency relationship where one party, the principal, delegates work to another party, the agent. In the context of a corporation, the shareholders are the principal and the directors/managers are the agents. Agency theory is based on the assumptions that agents do not necessarily make decisions in the interests of the principal (opportunism or self-interest of the agent) and that there is information asymmetry between the principal and the agent. As such, agency costs of equity are incurred to protect principal's interests and to reduce the possibility that agents will misbehave.

accounting theory managers may use their discretion in the financial reporting process in two ways:

1. Managers may use discretion to improve the signal value of earnings, i.e. to increase informativeness about the underlying economics (Nelson and Skinner, 2013). In this case, management discretion can improve earnings quality (efficiency perspective).
2. Managers may use their discretion to distort the representation of the firm performance. In other words, managers can engage in opportunistic earnings management to portray a more favourable view of the underlying economics of the firm, or else, for example, take a one-time charge against income in order to reduce the value of assets, but also lower expenses in the future. In this case, the quality of financial reporting is reduced (opportunistic perspective).

Another consideration made in the literature about the quality of financial reporting is that financial reporting is a process, rather than just an outcome, made up of different elements (Jonas & Blanchet, 2000):

1. company's transactions and events,
2. selection of accounting policies,
3. application of accounting policies,
4. estimates and judgements involved,
5. disclosure of transactions and events, policies, estimates and judgements.

Hence, the quality of a company's financial reporting ultimately depends on the quality of each part of the financial reporting process.

The concept of quality of financial reporting has also been related to a general idea of *transparency* (Barth & Schipper, 2008), i.e. the extent to which financial reports reveal an entity's underlying economics in a way that is readily understandable by the users of financial reports. For these authors, the underlying economics of a firm include also the risks it faces and how it manages them, therefore transparency also entails reporting on these risks and how they are managed. We will discuss the role of narrative reporting in Section A.2.

Quality has also been discussed with reference to the qualitative characteristics described in the accounting conceptual frameworks (Sunder, 2016). The IASB defines the qualitative characteristics of financial reporting as the "the types of information that are likely to be most useful to existing and potential investors, lenders and other creditors for making decisions about the reporting entity on the basis of information in its financial report (financial information)". Hence, the assessment of quality is based on the qualitative attributes of financial reports that are considered desirable, for example: truth and fairness⁵, relevance, reliability, timeliness, accuracy, conservatism etc. However, Sunders (2016) notes that there are inevitably trade-offs between these attributes (for example between conservatism and faithfulness, between timeliness and accuracy, and between comparability and relevance).

⁵ There is a debate in the literature on whether "truth and fairness" can be subsumed under the decision-usefulness purpose of financial reporting. For a debate, see Evans (2003) and Alexander and Jermakowicz (2006).

These trade-offs imply that policy makers and regulators will have to decide which one is reputed as most important.⁶

In his final remarks on the conceptual frameworks for accounting from an information perspective, Christensen (2010) draws the conclusion that there is no consensus among stakeholders on the purpose of corporate reporting, as the process of defining it is inherently political and therefore it is “impossible” to define in an objective way what is meant by quality of corporate reporting. However, as of now, we can summarise the approaches to quality definition as follows:

- The quality of financial information can be assessed against the decision usefulness of that information for investors and lenders;
- The quality of financial information also relates to the faithful representation of the firm’s underlying economics (transparency);
- There are trade-offs among different attributes of financial information as conceived in accounting standards conceptual frameworks;
- Management discretion can influence both positively and negative the quality of financial information;
- The quality of financial information is related to the set of reporting incentives of the firm, as well as to the underlying financial reporting process.

We now proceed with presenting how the academic literature has approached the measurement of financial reporting quality.

A.1.1. Earnings quality and earnings management

In this section we provide an overview of the literature that has focused on how to identify good proxies for earnings quality, or else capture instances of earnings management (an inverse measure of earnings quality). It is outside of the scope of this review to provide a detailed summary of earnings management research (please see Healy and Wahlen (1999) and Dechow et al. (2010) for more details). The aim of this section is to summarise the attributes of earnings that scholars have considered and highlight the challenges that research faces in its endeavour to define and measure earnings quality. The research in this area mainly takes a decision usefulness approach, i.e. attributes are defined on the basis of how they inform investment decisions.

For clarity purposes, Box 1 below summarizes the earnings attributes that have been used in the literature to assess earnings quality and that will be discussed throughout the remainder of this section.

⁶ For a historical perspective on the objectives of financial reporting and a cross-country comparison, please refer to the review by Zeff (2013).

Box 1. Attributes of earnings

Persistence: a highly persistent earnings number is viewed by investors as sustainable, that is, more permanent and less transitory. Persistence is normally calculated as the slope coefficient in a regression of stock returns on the change and/or level of earnings. Related to persistence is the notion of predictability, i.e. the capacity of the entire financial reporting package, including earnings and its components of earnings for improving users' abilities to forecast items of interest.

Smoothness: it is the relatively absence of variability in earnings in relation to changes in cash flows. Companies use accounting discretion to smooth earnings as investors generally prefer shares with steady and predictable earnings streams – whereas shares whose earnings are subject to more volatile patterns may be regarded as riskier.

Informativeness: usually measured with the earnings response coefficient (ERC, i.e. how investors respond to information that has value implications). A higher ERC implies that earnings better reflect fundamental performance. It is used as a measure of decision usefulness in the context of equity valuation decision. A notion related to informativeness is that of value relevance, i.e. the ability of earnings to explain variation in returns.

Accruals quality: generally speaking, extreme accruals are low quality because they represent less persistent component of earnings. However, it is important to note that the fundamental performance is likely to be different for firms with extreme accruals versus firms with less extreme accruals (i.e. the lower persistence of accruals relates not only to measurement rules, but also to the fundamental performance).

Abnormal accruals: accruals that are not “expected” and are usually determined using regression models that estimate “normal” level of accruals, given a set of firm-specific variables (see Dechow et al. 2010, Exhibit 2 for a summary of various models). The idea behind abnormal accruals is to capture the degree to which managers have used discretion, therefore higher levels of abnormal accruals usually indicate lower earnings quality because they reduce decision usefulness. Regardless of the model adopted to measure abnormal accruals, it is important to note that they are not necessarily a violation of GAAP.

Timeliness and conservatism: these two attributes assume stock returns as reference measures for the quality of earnings. The timeliness of earnings recognitions refers to the extent that current earnings reflect value relevant information. Earnings conservatism (conditional conservatism) is defined as the asymmetric timeliness of good and bad news in earnings (see also Section A.1.2)

In the late 1990s, the SEC raised concerns of widespread earnings management (Dechow et al., 2010; DeFond, 2010; Hodge, 2003). This triggered a boom of accounting research aiming at understanding whether earnings management misleads investors and therefore leads to sub-optimal asset allocation decisions. Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting numbers. While discretion in accounting choices is expected and should exist because of the fundamental need for judgment and estimates to implement accrual accounting, the intended effect of this

discretion should be to produce an earnings number that provides a better measure of the underlying economic performance than cash flows (Dechow & Skinner, 2000).

The review by Dechow et al. (2010) proposes three broad categories to classify how the literature has proxied earnings quality:

1. properties of earnings, (see also Francis et al. (2004) discussed below);
2. investor responsiveness to earnings, in other words the estimated change in a company's share price due to any unexpected earnings (see also Section C.2.4);
3. external indicators of earnings misstatements, such as restatements, internal control deficiencies and accounting enforcement activities.

Francis et al. (2004) propose attributes that define earnings quality: accrual quality, persistence, predictability, smoothness, value relevance, timeliness, and conservatism (See Box 1). The first four attributes are characterized as accounting-based because they are typically measured using accounting information only, whereas the last three attributes are characterized as market-based because proxies for these constructs are typically based on relations between market data and accounting data. According to these authors, the earnings attributes are desirable to the extent that:

- they reduce information risk, and
- they imply a capital market advantage, in terms of reduced cost of equity, i.e. the expected rate of return for shareholders.

Francis et al. (2004) find that accounting-based attributes have stronger cost of equity effects than market-based attributes, with accrual quality having the largest effects.

Tucker & Zarowin (2006) pose the question as to whether income smoothing distorts accounting earnings information or improves the informativeness of firms reported current and past earnings about their future earnings and cash flows. Income smoothing is the managers' attempt to use their reporting discretion to intentionally reduce the fluctuations of their firms' earnings. Theoretically smoothing may improve earnings informativeness if managers use their discretion to communicate their assessment of future earnings, or alternatively, it makes earnings noisier if managers intentionally distort the earnings numbers. By measuring income smoothing as the negative correlation of a firm's change in discretionary accruals with its change in pre-managed income, they find that firms with greater smoothing present higher future earnings response coefficient (FERC, i.e. the association between current-year stock returns⁷ and future earnings), in line with the hypothesis that smoothing improves the informativeness of past and current earnings about future earnings and cash flows. These findings need to be interpreted with two caveats in mind: one is the assumption that market is efficient, the other is that the income-smoothing measure may suffer from potential measurement error problems since managers' discretionary decisions are unobservable.

More recently, Perotti & Wagenhofer (2014) explore the variety of earnings quality proxies to identify which measure best helps investors in making resource allocation decisions. In other words, their assumption is that the main purpose of financial reporting is the usefulness of financial reporting to investors. Using the simple idea that the shares of firms with higher (true) earnings quality will be less mispriced than those of other firms, they propose a market-based

⁷ Stock returns are generally calculated as (increase in share price + dividends), if they are measured in absolute terms; or as (increase in share price + dividends)/share price.

measure for the ranking of earnings quality proxies. “Mispricing due to poor earnings quality increases errors in pricing firms but does not lead to systematic under or overpricing. Therefore, we measure mispricing by the firm-specific absolute value of excess returns. An earnings quality measure is of higher quality than another if it better explains variations in absolute excess returns” (Perotti & Wagenhofer, 2014, p. 546). Their findings suggest that accruals quality is the best measure, with abnormal accruals as second-best measure. Next are smoothness measures and the earnings response coefficient, while predictability and persistence do significantly less well, and value relevance measures appear to perform the worst.

The rationale behind the attributes of earnings described above is related to the decision usefulness of earnings, which implies that earnings of higher quality are those that lead to better economic decisions (Schipper and Vincent, 2003; Perotti & Wagenhofer, 2014). Earnings quality however has also been related to the economics-based definition of income developed by Hicks (1939). Hicksian income corresponds to the amount that can be consumed (that is, paid out as dividends) during a period, while leaving the firm equally well off at the beginning and the end of the period (e.g. if there is to be an expectation of maintaining intact the capital value of prospective receipts - see Hicks (1939), p. 176). For Schipper and Vincent (2003), earnings quality is determined by the extent to which earnings “faithfully” represent Hicksian income, i.e. how well the measure captures the concept. Specifically, Schipper and Vincent (2003) define earnings quality as dependent on:

1. the time-series properties of earnings (persistence, predictability, variability),
2. selected qualitative characteristics (decision usefulness in terms of relevance, reliability, and comparability⁸/consistency);
3. the relations among income, cash, and accruals⁹; and
4. implementation decisions, i.e. unintentional estimation errors in accruals and intentional accruals manipulations.

Similar to Schipper and Vincent (2003), Dechow et al. (2011) also follow a decision usefulness approach in their literature review on earnings quality. They stress the idea that earnings quality is conditional on the decision relevance of the information and that the term “earnings quality” in itself is meaningless, since it is defined only in the context of a decision, and not necessarily restricted to the context of equity valuation decisions. Further, they note that the quality of a reported earnings number depends on whether it is informative about the firm’s financial performance, many aspects of which are unobservable (a theme that recurs in the earnings management literature, see Schipper & Vincent (2003), among others). Finally, it is also important to reiterate that earnings quality is jointly determined by:

1. the relevance of underlying economic performance for an investment decision, and
2. the ability of the accounting system to measure performance.

⁸ For a review of output-based measurement of accounting comparability, refer to Gross & Perotti (2017).

⁹ Hales & Orpurt (2013) indicate that the information contained in a direct-method statement of cash flows is incrementally useful beyond the indirect-method statement of cash flows and other financial statement information, because this information can be used to enhance predictions of future operating performance as measured by cash from operations (CFO) and earnings. Further, the reporting of the direct-method components improves the usefulness of that information.

These two factors affecting earnings quality reflect the idea by Jonas and Blanchet (2000) that financial reporting is a process and therefore earnings quality is dependent on the quality of the different phases of the reporting process, which also affects, generally speaking, not only earnings quality, but overall the quality of corporate disclosures.

In this regard, Francis et al. (2008) specifically investigate the relation between voluntary disclosure and earnings quality. If voluntary disclosure and earnings quality were substitutes, in the presence of high information asymmetry between managers and shareholders, the demand for disclosure would be high. This is because the value of additional information is greater in such a setting, and firms with poor earnings quality would issue more disclosure. On the other hand, if voluntary disclosure and earnings quality were complements, firms with good earnings quality would issue more disclosures because investors would treat such disclosures as more credible. The findings of Francis et al. (2008) suggest a complementary association between earnings quality and voluntary financial disclosure, implying that firms with good earnings quality provide higher levels of disclosure than do firms with poor earnings quality.

Another important aspect to consider for the definition of earnings quality is in relation to the frequency of reporting. In other words, the key question is whether the frequency of reporting matters for reducing information asymmetry and enhancing the quality of the information provided (Fu et al., 2012). On one hand, more frequent financial information could lead to lower information asymmetry if it increases the amount of information available to the public. However, this would be true only if investors' private information is exogenously endowed, i.e. if investors cannot affect the level of information they can access. On the other hand, sophisticated investors themselves have incentives to search and acquire private information to anticipate future disclosures. These incentives may eventually lead to increase information asymmetry if more frequent financial reporting leads sophisticated investors to have more private information. Using a US sample for the time period 1951-1973, during which the SEC raised the required reporting frequency from annual to semi-annual in 1955, and to quarterly reporting in 1970, Fu et al. (2012) document that a mandatory increase in financial reporting frequency leads to lower information asymmetry and the cost of equity. However, the effects could be more complicated. For benefits, see Cuijpers & Peek (2010) from Section C.2.1, as well as Rahman et al. (2007) and Tsao et al. (2016), Section C.3.2, Rahman et al. (2012) mentioned in Section C.2.5. Moreover, Kim et al. (2017), discussed in C.3, documents many more issues with increased frequency of earnings guidance, largely pertaining to short-termism.

Two more observations are in order. First, Dechow et al. (2010) note that proxies used in the literature to measure earnings quality are quite different, and unlikely to be measuring the same underlying theoretical construct, given the mixed evidence of the consequences of earnings management on capital markets. In his commentary, Defond (2010) notes that abnormal accruals (see Box 1), firstly identified by Jones (1991) is by far the most popular proxy used, and the one on which academics have focused their efforts to improve and enhance. Regardless of the model adopted to measure abnormal accruals, it is important to note that they are not necessarily a violation of GAAP. A certain degree of earnings management is allowed within GAAP, with the intent to leave discretion in how managers decide to account for the underlying economics of the firm. Studying the degree of earnings management that is allowed within GAAP is important, as it captures how managers use the discretion allowed by the standards, and therefore provides insights about how management reporting decisions affect the quality of earnings (Defond, 2010).

Second, earnings quality depends on both a firm's financial performance and the accounting system that measures it, and yet the literature has largely focused just on the impact of the latter. There is relatively little evidence about how the firm's actual performance affects earnings quality. Of course, it is almost impossible to observe the "true" underlying

performance; we have to rely on what is reported, and this is influenced by the system that measures it (DeFond, 2010). Therefore, one important caveat of the earnings management stream of literature is that proxies for corporate disclosure and reporting may not perfectly separate a firm's economic fundamentals from the representation of these fundamentals (Leuz & Wysocki, 2016). Hence, it is not yet clear in the literature how these two factors jointly affect earnings quality. Disentangling these two factors is still a challenge for research.

A.1.2. Accounting Conservatism

Broadly speaking, accounting conservatism can be defined as “accounting policies or tendencies that result in the downward bias of accounting net asset value relative to economic net asset value” (Ruch & Taylor, 2015, p.17), i.e. anticipate no profits, provide for all possible losses.

A key question in the academic literature is whether accounting conservatism is costly or beneficial to the users of financial statements, i.e. whether it improves the quality of the signal conveyed by financial statements (Beatty, 2007; LaFond & Watts, 2008; Mora & Walker, 2015; Roychowdhury & Watts, 2007; Ruch & Taylor, 2015). The answer is ambiguous as different users may have different views over the role of financial statements.

The assessment of the costs and benefits of accounting conservatism relates to the different perspectives on the informational role of accounting. For example, the FASB – which adopts a valuation perspective – does not consider conservatism as a qualitative characteristic of financial reporting because conservatism would bias accounting information, compromising neutrality, and potentially lead to inefficient decision making. However, according to the stewardship perspective, accounting provides information that allows contracting parties to evaluate the efficiency and effectiveness with which obligations are performed in contracting settings – such as debt and managerial compensation. In this contest, conservatism is an efficient contracting mechanism mainly because contracts have asymmetric payoffs to contracting parties (Ruch & Taylor, 2015; see also Section D.1). This implies that a lender demands that the borrower report information that reflects bad news (e.g. weak financial performance), in a timelier manner than for good news. Furthermore, some policy makers have argued in favour of greater emphasis on conservatism in light of the 2008 financial crisis (Mora & Walker, 2015). Conservatism is often associated with the concept of prudence, i.e. the inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty (Mora & Walker, 2015).

The literature on accounting conservatism generally refers to two different forms of conservatism (Mora & Walker, 2015; Ruch & Taylor, 2015): conditional and unconditional conservatism, where the former depends on economic news events, and the latter does not.

- **Conditional conservatism** occurs when negative news is recognised in earnings in a timelier manner than positive news (asymmetric recognition of positive and negative economic news), for example the application of the lower of cost or market value rule in inventory valuation¹⁰.

¹⁰ The lower of cost or market value is a conservative way to value and report inventory. Typically, inventory at year-end is stated at historical cost. However, if the original cost of the inventory at year end is greater than the net realisable value, the inventory should be reported at this lower market value.

- **Unconditional conservatism** instead occurs through the consistent under-recognition of accounting net assets, for example, expensing R&D expenditure.

While conditional conservatism is unlikely to be associated with earnings management, unconditional conservatism may facilitate the accumulation of (hidden) reserves on the balance sheet, that can be released into earnings when targets need to be met (Ruch & Taylor, 2015). Conditional conservatism results in a greater association between earnings and returns when news is bad, which implies that timely loss recognition provides information that is more value relevant. However, value relevance is only one desirable attribute of accounting from the valuation perspective and not necessarily from the contracting perspective, so it may not be the best attribute to consider, given that the demand for conservatism originates from non-equity market users, such as creditors and suppliers.

Ruch & Taylor (2015) suggest that timely loss recognition is commonly theorized to alleviate information asymmetry, whereas deferred gain recognition may exacerbate information asymmetry by withholding information about future gains. Unconditional conservatism is deemed to increase information asymmetry because that information related to firm value is being withheld from investors (assuming there is no other source of such information). LaFond & Watts (2008) find a positive association between conditional conservatism and information asymmetry, but they argue that information asymmetry induces conditional conservatism (rather than the other way around): equity market participants demand conservative accounting to mitigate the effects of information asymmetry, and therefore, conservatism arises in the presence of information asymmetry.

Overall, evidence suggests that conditional conservatism:

- mitigates information asymmetry and the negative market response to bad news economic events;
- is not efficiently incorporated into analyst forecasts, indicating that it provides poor quality information to analysts;
- decreases the value relevance of earnings.

However, research is inconclusive on the effect of conservatism on the cost of equity capital (Ruch & Taylor, 2015, p. 28). Research also supports the idea that conservatism benefits both lenders and borrowers in debt contracting situations, it furthers protect shareholders against overcompensating management, and it incentivizes management to let go of negative net present value projects in a timely manner. See Section D.1 below for further discussion of relevance of accounting conservatism for debt contracts.

A.1.3. Restatements

Restatements are central in the public policy debate on the quality of financial reporting (Palmrose & Scholz, 2004). Restatements are revisions of prior financial statements and reflect an acknowledgement that the financial statements originally issued to the public were somehow not in accordance with GAAP (Palmrose & Scholz, 2004).

A key question explored in the literature is how earnings quality relates to financial restatements. Doyle et al. (2007) find that material weakness in internal control are associated with low accruals quality, in support of the hypothesis that a weak control environment has the potential to allow intentionally biased accruals through earnings management as well as unintentional errors in accruals estimation. Ettredge, Scholz, Smith, & Sun (2010) document

that restatements are indeed due to purposeful earnings manipulation. Their analysis compares non-fraud restating companies' balance sheet bloat to that of a fraud and control sample and shows that at least one year prior to the first restated period, companies with non-fraudulent restatements have significantly more bloat than the control companies, but less than fraudulent companies. Further, Dechow et al. (2011) find that in the year prior to the misstatement, accruals measures are unusually high (relatively to the broad population of firms) and interpret this evidence as managers using the flexibility allowed by GAAP to report higher accruals (and earnings), before resorting to aggressive manipulations. These authors further note that the positive accruals in year prior to the restatement may also be driven by an overinvestment problem, since a manager who is optimistic about future prospects may also be optimistic in terms of assumptions and forecasts that relates to asset values and earnings.

The literature documents that the market reacts negatively to restatements (Palmrose et al., 2004) and that they increase the likelihood and severity of lawsuits (Palmrose & Scholz, 2004), in particular when they involve restating revenues. Negative market reactions to restatement announcements imply that investors perceive restatements as a sign of poor financial reporting quality, caused either by declines in future prospects and/or increases in risk and uncertainty (Palmrose et al., 2004). Prior research in financial reporting restatements posits that distinguishing between the types of restatement is important because investors and regulators view irregularities in reporting as being much more severe than errors (Hennes, Leone, and Miller 2008)¹¹.

Along similar lines, Desai et al. (2006) investigate the behaviour of short sellers around restatements to assess whether the motive for short selling is at least in part related to questionable financial reporting and provide evidence supporting this hypothesis. Restatements have been documented to have spill over effects (Gleason et al., 2008). Specifically, restatements in one firm cause investors to reassess the content and credibility of financial statements issued by other firms in the same industry, documented by a share price decline among non-restating firms. Since this share price decline is not found to be related to changes in analysts' EPS forecasts, it does not simply reflect investors' expectations of decreased economic prospects for the peers. Instead it reflects an "accounting contagion" as the share price decline is larger for firms with low accruals quality.

However, the loss of credibility is temporary: the earnings response coefficient for earnings announcements surrounding restatement have a U-shaped pattern, in which they are not significantly lower in the post-restatement period over an average of four quarters (Wilson, 2008). Wilson (2008) also shows that the loss duration is greater for firms correcting revenue recognition errors and that there is no loss in the information content of earnings for those firms that make changes to their financial reporting governance structure following the restatement.

He and colleagues (2019) document that firms that announce both a restatement and an associated internal control weakness experience significantly more negative market returns, greater implied volatility and higher likelihood of class action lawsuits than firms with restatements not associated with internal control weakness. However, when they split the restating firms into timely (where the material weakness precedes the restatement) vs. non-timely reporters (where the material weakness is concurrent with or follows the restatement), they find that timely reporters experience more negative market returns, and interpret this evidence as suggestive that investors perceive early material weakness disclosure to signal more pervasive financial reporting problems. However, timely reporters appear to secure more

¹¹ For a detailed review of the underlying causes attributed to financial restatements, see Plumlee and Yohn (2010).

favourable litigation outcomes, as they face higher likelihood of lawsuit dismissals and pay lower settlements, compared to non-timely reporters

The academic literature has identified other factors that affect the quality of financial reporting in the aftermath of a restatement. For example, Hirschey and colleagues (2015) investigates whether the timeliness of restatement detection, measured as the length of time between the end of the misstated period and the subsequent restatement announcement, is associated with greater ERC. While shorter detection periods are significantly associated with high-quality corporate governance characteristics and executive and/or auditor turnover, but not with characteristics of restatements, firms with shorter detection periods exhibit a more moderate decline in the information content of earnings (as captured by the ERC) following restatement announcements relative to firms with longer detection periods. Further, the timeliness of detection has an incremental effect on the information content of earnings relative to executive and/or auditor turnover. Specifically, more timely detection and disclosure of restatements is preferable.

Similarly, the literature has documented how accrual quality improves significantly following the restatement and this improvement is observed for both earnings and non-earnings error restatements (Wiedman & Hendricks, 2013). This finding supports a signalling view according to which firms tend not to simply correct errors in order to comply with regulations, but also improve their financial reports more broadly, allowing them to signal higher reporting quality. This is consistent with results provided in Chakravarthy et al. (2014) who consider reputation-building actions directed towards both capital providers and other stakeholders. Using the earnings response coefficient as a measure of the expected quality of financial statements, they find that difference in the earnings response coefficients between restating and non-restating firms are higher in the post-restatement period than in the pre-period when firms take more reputation repair actions with both capital providers and stakeholders. This is important, as it highlights the need of a multi-stakeholder strategy to repair the credibility of financial reporting. Nevertheless, a recent study by Ye & Yu (2017) document that restatement have a long long-lived effect on analyst behaviour and that analysts differentiate between restatements caused by irregularities and those caused by errors. See Section C for more details.

A.1.4. Earnings quality according to survey-based studies

One last stream of literature deals with the definition of earnings quality by surveying users. As noted by Nelson & Skinner (2013), “how one thinks about earnings quality is to some degree in the eye of the beholder: this term is primarily used in financial statement analysis—the decisions being made, and the decision contexts are likely to vary.” An example of this literature is the paper by Hodge (2003). He documents that one possible reason for the decline in the perceived reliability of audited financial information among investors is the perceived decline in auditor independence. Graham, Harvey, & Rajgopal (2005) conduct a survey among CFOs and find that CFOs believe that earnings, more than cash flows, are the key metrics considered by outsiders. Specifically, CFOs consider two benchmarks for the current quarterly earnings number:

1. the quarterly earnings for the same quarter in the prior year, and
2. the analyst consensus estimate.

The survey by Graham et al. (2005) also documented a key trade-off in financial reporting decisions, that is the *short-term need to deliver the benchmark* and the *long-term goal of investment decisions that maximise value for the shareholders*. Meeting or exceeding the

earnings benchmark(s) is key to building credibility in the market (and thus maintain or improve the share price), whereas not being able to hit the target, even if for a small amount, may be interpreted as evidence of “hidden problems” in the firm. However, this pressure to hit the short-term target may have detrimental effects for the firm’s future performance. The CFOs surveyed essentially acknowledge that market pressures may encourage decisions that at times sacrifice long-term value (for example, cutting down R&D) to meet quarterly earnings targets (i.e. what the literature calls “real” earnings management, as opposed to accrual earnings management). The survey also highlights the importance of disclosing additional information to enhance clarity and understanding of financial statements to investors, as disclosing reliable and precise information can reduce information risk for investors, and hence the required return. This view is aligned with Barth and Schipper (2008) remarks on what transparency entails. However, voluntary disclosure does not come without costs, as it is possible that it reveals sensitive information to competitors¹².

A more recent survey by Dichev and colleagues (2013) shows that CFOs believe that quality entails “*consistent reporting choices over time, backing by actual cash flows and absence of one-time items and long-term estimates*”. They argue that this view is mainly in line with a valuation perspective, where “investors view the firm as a long-life profit-generating entity, and value is based on estimating and discounting the stream of future profits”. This implies that current earnings are considered to be high quality if they serve as “a good guide to the long-run profits of the firm”. Their survey also does provide support for a view of earnings quality that aligned with the stewardship approach (especially with reference to debt contracts and managerial compensation).

Evidence of how earnings quality is interpreted by (sell-side) analysts is provided in Barker and Imam (2008). Earnings quality is described as a “multifaceted concept”, which relies on both accounting-based and non-accounting-based information. Their evidence suggests a greater relative use of non-accounting-based information when a positive or negative (but not neutral) opinion is expressed. They attribute this greater use to the desire by the analyst to sell news story, given that non-accounting information is “inherently more amenable to analysts credibly expressing diversity of opinion”. They also document an important role for accounting-based information. When analysts are positive on accounting aspects of earnings quality, they can use it to either be positive or negative on non-accounting aspects. However, if they are negative on accounting aspects, then they are constrained to be negative overall (therefore analysts are unlikely to issue a buy recommendation when they feel negative about accounting-based aspects of earnings quality, despite an overall bias in favour of buy recommendations).

A.2. How is the quality of narrative reporting defined?

The importance of narrative reporting and its development has been related to the growth in disclosure regulation (Dyer et al., 2017), as well as the changing demand for information from various stakeholders (Beattie et al., 2004). While the European research tradition refers to the term “narrative” reporting, the literature developed in North America mostly refers to “voluntary disclosure”¹³. Beattie (2014) notes that the use of different terminologies is explained by

¹² Meeting or beating analysts forecast is a key determinant of earnings management but not the only one. There is a large amount of literature on the determinants of earnings management and reporting quality, that is not surveyed in depth here as it is out of the agreed scope.

¹³ There are instances where the two terms do not coincide. For example, disclosures of internal control weakness are in nature narrative, but mandatory.

different underlying research approaches and epistemologies¹⁴. We will use them interchangeably.

North American research draws mainly upon agency theory, and economic information asymmetry arguments, is grounded in analytical work and investigates questions adopting an archival approach in which disclosed information is considered an objective economic fact. This implies that most studies consider disclosure as the result of a trade-off between costs and benefits in reducing information asymmetry and agency costs. European research on narrative reporting instead is rooted in humanities and social sciences, in which the role of narrative in creating subjective meaning for human actors is central.

Overall, therefore, research on disclosure and narratives include both large-scale quantitative analyses, based on manual content analysis or assisted by computerised linguistic techniques, as well as qualitative studies using discourse analysis. A schematic overview of the various approaches used is provided in Beattie et al. (2004) and reproduced below for convenience (Figure A.2).

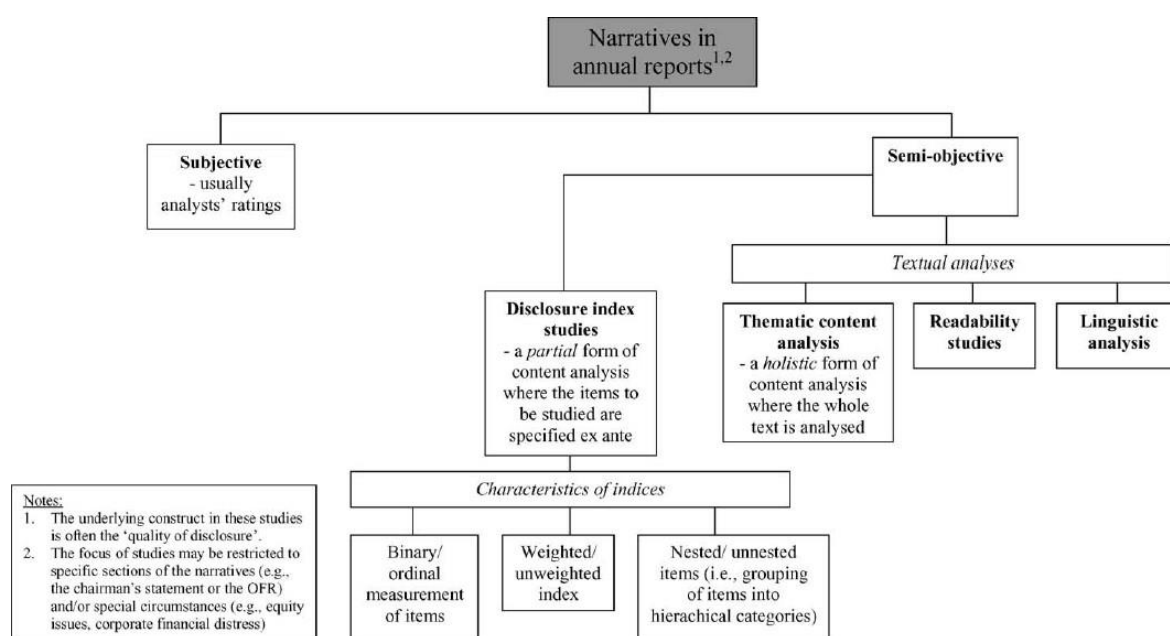


Figure A.2 - Approaches to the analysis of narrative reporting

Source: Beattie, V., McInnes, B., & Fearnley, S. (2004). *A methodology for analysing and evaluating narratives in annual reports: A comprehensive descriptive profile and metrics for disclosure quality attributes*. *Accounting Forum*, 28(3), 205–236. <https://doi.org/10.1016/>. Reproduced with the permission of Taylor & Francis Ltd, <http://www.tandfonline.com> © 2004 University of South Australia.

Importantly the scope of narrative reporting is by itself broader than the scope of information conveyed by the financial statements, even if narratives are used in financial reporting (e.g. in the annual report, in the Management Discussion & Analysis or Strategic Report). Narrative reporting however includes other forms of non-financial disclosures such as, among others, risk (Elshandidy et al. 2018), intellectual capital (Beattie & Smith, 2013; Beattie & Thomson, 2007), biodiversity (Samkin et al., 2014), extinction (Atkins & Maroun, 2018), greenhouse gas

¹⁴ Beattie (2014) also provides a broad overview of how accounting research has investigated narrative reporting.

emissions (Comyns & Figge, 2015), climate change (Ferguson et al. 2016), gender equality (Grosser & Moon, 2008) and employee relations (Mäkelä, 2013). These disclosures may serve the purpose of helping with interpreting, contextualizing and assessing the financial performance of firms and/or the purpose of fulfilling accountability to a variety of stakeholders on impacts of corporate activities that are not strictly financial, i.e. social and environmental (Cohen et al., 2012).

A.2.1. Multidimensional frameworks for defining disclosure quality

Content analysis studies have developed frameworks and metrics for disclosure quality attributes, with a specific concern that the quantity or extent of information does not necessarily proxy for the quality of the narrative (Beretta & Bozzolan, 2004; 2008). Quality is often defined in terms of how much narrative reporting is able to convey “meaning” to investors and stakeholders, in that it helps explain the underlying economic performance or other non-financial impacts of corporate activities.

One seminal paper in this respect is Beattie et al. (2004), who argue that disclosure is a “complex, multi-faceted concept” (p. 213) and as such, it requires going beyond considering the presence or absence of a specific information item. They propose a multi-dimensional framework that considers both the topic (i.e. information items that can be grouped into broad themes or categories) and disclosure attributes, such as historical/forward-looking, financial/non-financial and quantitative/non-quantitative.

Along similar lines, and on the grounds that narrative information contributes to clarifying financial measures and to identifying value-generation drivers that may not be properly represented in financial statements, Beretta and Bozzolan (2008) propose a framework that considers the quantity of information (how much is disclosed) and the “richness” of this content (what and how it is disclosed). Richness is defined in terms of:

- “width” of disclosure, i.e. the various topics that describe the business model and value-creation strategy of the firm (they rely on the Jenkins framework to develop the list of topics and consider that the wider the variety of topics disclosed, the better the disclosure); and
- “depth” of disclosure, in terms of its ability to provide insights on the firm’s future performance and defined in terms of economic direction of the impact (positive, negative, not disclosed), type of measure (financial vs. non-financial, quantitative vs. qualitative, not disclosed) and outlook profile, which reflects the:
 - time orientation of the information disclosed, under the “*assumption that the more financial reports look ahead, the greater their importance for investors and stakeholders and the less likely they are to be pre-empted by other information sources*” (p. 343), and
 - management’s orientation to action, which reflects “*the capability of management to tackle critical issues and take advantage of emerging situations, as well as the strategies and plans to be adopted for managing critical success factors (actual state of business, management’s hypothesis or expectations, decisions and actions already taken, and planned actions and programs)*” (p. 343).

The main goal of Beretta and Bozzolan (2004) study is to develop a framework that captures the “efficacy of disclosure in improving the capabilities of financial analysts to appreciate the

value-creation strategy and expected financial results of a firm” (p. 341). Hence, they apply the disclosure framework to forward-looking information reported by a sample of Italian listed firms and study how their disclosure quality metrics relate to the accuracy and dispersion of analyst forecasts.

Building on the idea that the quality of disclosure depends not only on the quantity of information reported but also on the what and the how, other content analysis frameworks have been developed in relation to specific types of reporting, such as:

- risk disclosure (Beretta & Bozzolan, 2004),
- environmental information (Comyns & Figge, 2015; Hasseldine et al., 2005; Hooks & van Staden, 2011; Liesen et al., 2015; Toms, 2002),
- corporate social responsibility and sustainability reporting (Bouten et al. 2011; Chauvey et al. 2015; Michelon et al., 2015; Moneva et al., 2006),
- integrated reporting (Melloni et al., 2017).

These papers choose a list of information items that is consistent with the specific type of reporting that is being analysed. For example, Beretta and Bozzolan (2004) identify the following categories:

- strategy (goals for performance, mission, broad objectives, and way to achieve objectives);
- company characteristics, such as financial structure, corporate structure (changes in ownership, mergers, and acquisitions), technological structure (core and support technologies), organization (organizational structure and human resources management) and business processes (concerning the way operations are managed); and
- environment around the company (legal and regulatory, political, economic, financial, social, natural, and industry).

The Global Reporting Initiative (GRI) framework has been often adopted to define the content in CSR reporting studies (Bouten et al., 2011; Michelon et al., 2015). This first dimension capturing the content (i.e. topic) of information is then complemented with

- attributes of disclosure similar to those provided in Beattie et al. (2004) and Beretta and Bozzolan (2008), or
- contextualised to the specific type of reporting, in relation to the guiding principles most commonly used.

For example, Bouten et al. (2011) refer back to the GRI guidance to develop a second dimension that captures the degree to which each disclosure item refers to “vision and goals”, “management approach” or “performance indicators”. Michelon et al. (2015) also consider other attributes of disclosure, for example whether it is forward looking or backward looking, financial, quantitative or qualitative. For these authors, these attributes help in assessing how much, what and how, each report conveys, adopting an accountability perspective on the purpose of CSR reporting. Following Beretta and Bozzolan (2008), Michelon et al. (2015) further apply a managerial orientation criterion to the analysis of CSR disclosures. They define managerial orientation as *boilerplate* if the disclosure talks about general expectations, context and hypotheses (forward looking) or policies and strategies (backward looking). Alternatively,

disclosure is defined as *committed* when it focuses on objectives and targets (forward-looking) or results and outcomes (backward looking).

A similar approach also developed in Chauvey et al. (2015), where a list of information items is combined with quality as defined by a combination of principles reported in the GRI, FASB and IASB conceptual frameworks. For example, relevance applied to CSR reporting is operationalised as stakeholder inclusiveness. Comparability involves “a clear definition of presented data and indicators, as well as an explanation about the methods of elaboration, calculation, and/or reporting mechanisms”. Neutrality is measured as a balance between positive and negative pieces of information.

An alternative approach to measure narrative disclosure quality is provided in Toms (2002) who uses a pilot questionnaire sent to investors and analysts to identify which items they deemed more relevant for the credibility of the information, thus creating a hierarchy in which rhetoric, general statements are penalised and quantifiable, and verifiable information (e.g. use of targets, results) is rewarded. While the approach is slightly different, it still aims to capture disclosure that provides meaningful information to the stakeholders of the company, similar to the attempts by Bouten et al. (2011), Michelon et al. (2015) and Chauvey et al. (2015).

A third approach to the measurement of narrative information quality is the one considered by Comyns & Figge (2015). Their disclosure quality measure embeds the principles for good reporting stemming from relevant guidelines (in their case, the GRI, the European Federation of Accountants, and the GHG (greenhouse gas) protocol). Comyns & Figge (2015) then build a disclosure framework that combines these principles, identifying the following dimensions: accuracy, completeness, consistency, credibility, relevance, timeliness and transparency. For each quality dimension, they identify specific criteria. For example, for the principle of relevance, they consider whether the reporting of GHG emissions (the specific type of reporting they investigate) is relevant for the sector, and an additional criterion related to whether the boundary for the GHG inventory is described and information complete given the boundary definition. For completeness, the criterion considers whether companies report Scope 1, Scope 2 and Scope 3 emissions¹⁵, which stands to indicate the level with which emissions are directly linked to corporate activities. Comyns & Figge’s (2015) paper is a good example of how the quality of reporting is often specific to the “topic” being reported, and thus of how different characteristics and criteria apply to the definition of quality.

The above approaches mainly rely on manual classification and coding of narrative reporting. This approach bears the inherent limitation of adopting relatively small samples, and there may be concerns over potential subjectivity in the coding (although the literature has rigorous protocol to ensure the reliability of the coding). An alternative approach consists in employing textual analysis, i.e. an automated, computer-assisted coding that aims at capturing certain feature of the narratives. Such an approach is common for papers that analyse the narratives in financial reporting (see also Section A.2.3), and it has recently been used also in relation to other types of reporting. For example, Muslu et al. (2019) use textual analysis to capture the “tone”, “readability”, “length”, “numerical content”, “horizon content” which become the proxy of their measure of CSR disclosure quality. A similar approach is taken by Melloni et al. (2017) to investigate the quality of narrative reporting in integrated reports, where quality is defined in the concepts of conciseness and completeness/balance. They consider length and readability as proxy for the quality dimension “conciseness”, while the quantity of disclosure

¹⁵ Scope 1 emissions are direct emissions from owned or controlled sources. Scope 2 emissions are indirect emissions from the generation of purchased energy. Scope 3 emissions are all indirect emissions (not included in scope 2) that occur in the value chain of the reporting company, including both upstream and downstream emissions.

(measured using ESG disclosure scores from Bloomberg) and tone are proxies for “completeness/balance”. In conclusion, it is likely that the advent of computational linguistics will further develop the literature on the quality of reporting, as new frameworks and techniques will be developed to measure it.

A.2.2. Impression management

Narrative information has been conceived to complement and integrate the information conveyed by financial statements. A key debate in the literature is whether, as managers might have incentives to manage earnings, they may also have incentives to manipulate the message conveyed through narrative information. In their extensive review of the literature, Merkl-Davies & Brennan (2007) note that if “*narrative disclosures are used for impression management rather than incremental information purposes, then financial reporting quality will be undermined. If managers engage in impression management, and if users are susceptible to it, then adverse capital misallocations may result*”.

In a corporate reporting context, impression management¹⁶ describes the attempt to control and manipulate the impression conveyed to users of accounting information (Clatworthy & Jones, 2001; 2006) by distorting readers’ perceptions of company’s achievements (or failures). Impression management is therefore related to reputation management, for a detailed review, see Craig & Brennan (2012). The literature in this area has developed relatively objective proxies to identify impression management (e.g. Cho et al., 2010), as well as qualitatively explored the use of rhetorical devices (Bujaki & McConomy, 2012; Higgins & Walker, 2012). As the role of narrative information grows in importance (and not only in relation to economic performance, but also sustainability-related issues), the opportunity for impression management may increase. To a certain extent, impression management can therefore be considered an inverse measure of reporting quality (similar to how earnings management is an inverse measure of earnings quality). However, the use of linguistic devices to manage impressions (and how to avoid it), has hardly been considered by regulators. Regulators such as the FRC should be aware that the prominence of this problem may grow over time, and should therefore consider it when designing future disclosure guidelines.

In another conceptual paper, Merkl-Davies & Brennan (2011) develop the concept impression management further and go beyond the dichotomy between opportunistic behaviour of managers and incremental information. Specifically, besides a conceptualization of impression management as self-serving bias (economics-based perspective that views impression management as inconsistencies between reported and actual outcomes), Merkl- Davies and Brennan (2011) draw on the sociological tradition, and propose ideas of:

1. symbolic management (manipulation is intended to influence stakeholders’ perceptions of the congruence of organisational practices with social norms and rules, i.e. a means through which reporting helps firms maintain their organisational legitimacy);
2. accounting rhetoric (to manage inconsistencies between portrayed and actual decision making and persuade stakeholders of the validity and legitimacy of managerial actions and decisions).

¹⁶ Impression management is a topic of study in social psychology and focuses on how individuals present themselves to others in order to be perceived favourably.

Merkel-Davies & Brennan (2007) identify two types of impression management strategies: concealment and attribution. Concealment can be achieved either by obfuscating negative outcomes or emphasizing positive outcomes. Attribution is a defensive framing tactic that shifts the blame for negative outcomes away from the actor in question (“excuses”) and claims more responsibility for successes than for failures (“entitlements”).¹⁷ Impression management predominantly occurs in less regulated narrative disclosures, which focus on interpreting financial outcome (Brennan et al., 2009) or elsewhere, for example in non-routine reporting such as hostile takeover defence documents (Brennan et al., 2010) or in CSR or sustainability reports (Hooghiemstra, 2000), and there is evidence that impression management strategies are specific to the audience the firm is targeting in their disclosures (Bozzolan et al., 2015). Importantly, impression management in corporate reporting is not only documented in narrative disclosure, but also visuals such as graphs and pictures (Beattie, 2014; Godfrey et al., 2003).

Most of the papers looking at impression management in annual reports adopt an economics-based perspective, which focuses on trade-off between costs and benefits of disclosure. This stream documents managerial opportunism in narrative disclosure, whether this is defined as opacity (Curtis, 2004), selectivity (Leung et al., 2015), redundancy or boilerplate¹⁸ (Dyer et al., 2017; Hope et al., 2016; Kravet & Muslu, 2013). The literature also suggests a positive association between the presence of earnings management and distortion of graphical information (Godfrey et al., 2003). Other studies have documented the use impression management in annual results press releases (Guillamon-Saorin et al., 2017; Guillamon-Saorin et al., 2012), but also that this practice is restricted when the corporate governance system is strong (Osma & Guillamón-Saorín, 2011).

The idea of impression management has diffused widely within the stream of literature that investigates motives for, and practices in, sustainability (or CSR) reporting and disclosure. Developed in non-mainstream journals since the early 1990s, this literature considers legitimacy theory¹⁹ as the conceptual underpinning for this type of voluntary disclosure, as opposed to more recent studies published in mainstream journals that focus on the value of CSR information in explaining firm financial performance and investor-based capture of that value²⁰. The literature based on legitimacy theory is rooted in a (social) accountability conceptualization of the purpose of corporate reporting and provides evidence of the use of impression management strategies in CSR reporting. While CSR and sustainability reporting originated in response to public pressure over the societal and environmental impacts of corporate activities and/or in response to specific legitimacy threats, such as environmental accidents, they still have the potential to provide stakeholders with an account of the social and environmental impact of corporate activities (Gray et al., 1997). “[C]orporate social reporting as a form of impression management can contribute to firms’ reputations. (...)

¹⁷ For more details on impression management strategies and techniques, please refer to Brennan et al. (2009), Cooper and Slack (2015) and Hahn and Lülfes (2014).

¹⁸ This literature focuses on textual analysis of 10-K disclosure, whether broadly (Dyer, Lang, & Stice-Lawrence, 2017; Lang & Stice-Lawrence, 2015) or in relation to specific items, such as risk disclosures (Hope, Hu, & Lu, 2016; Kravet & Muslu, 2013). While these studies do not explicitly refer to the term “impression management” which has not received much attraction in the North American accounting community, they still explore ideas of managerial opportunism in management narrative disclosures, and therefore are included here under the impression management umbrella.

¹⁹ Legitimacy theory adopts a socio-political approach to the investigation of corporate disclosure. It states that firms that perform poorly use disclosure as a tool to obtain, maintain or restore their legitimacy to operate in our society. According to this approach, corporate reporting helps managing the perceptions of stakeholders, possibly even deflecting attention from issues of concerns or emphasizing accomplishments.

²⁰ See Roberts (2018) for a critique about the lack of engagement that this most recent literature has shown with the tradition of the other school of thoughts, and the perils of misinterpretation of recent findings in light of this lack of engagement. Further, refer to Section B.2 for further discussion.

[E]specially firms faced with a predicament, can, by using impression management, effectively handle legitimacy threats that in turn could affect both reputation and stock price” (Hooghiemstra, 2000, p. 60).

Importantly, as social and environmental disclosures have only recently been included in stand-alone reports, early work in this area documents evidence of impression management in environmental (or social) information contained in annual reports. For example, Cooper and Slack (2015) analyse the disclosure of water leakage performance in water and sewerage companies in England and Wales and compare this information with the counter-account provided by the industry regulator, OFWAT. They find that the level, nature and presentation of a leakage disclosures change markedly reflective of their performance against OFWAT’s target (failure to meet the target). Specifically, these changes in reporting practice include the use of tactics and presentational methods consistent with impression management, raising concerns regarding the balance and trustworthiness of such disclosures in the annual report. Based on their evidence, Cooper and Slack (2015) recommend that IASB should consider additional guidance on narrative disclosure, including on issues relating to presentational format, to reduce the scope for impression management in annual reports. While in this study environmental disclosures of water leakages are voluntary information, another study analyses the quality of such disclosures when they are mandatorily required in the financial report (Criado-Jiménez et al., 2008). Besides documenting non-compliance, the study also provides evidence of use of various impression management strategies, ranging from dismissal to concealment.

Hahn and Lülfs (2014) argue that because sustainability reports are voluntary, they are “prone to interpretation and greenwashing”. In a voluntary context, standards for reporting such as the GRI guidelines, may be helpful to improve the quality of reporting. However, Hahn and Lülfs (2014) show that, with specific reference to the issue of balance and impartiality of information, firms tend to avoid disclosing negative impacts, which they interpret as “symbolic legitimation” strategies. While “substantial legitimation” would require a real change in corporate aims, actions and activities, “symbolic legitimation” strategies have the aim of changing stakeholder perceptions of these processes, for example through disclosures choices. Evidence of impression management has also been documented in other specific aspect of sustainability reporting, such as disclosure on biodiversity (Adler et al., 2018; Boiral, 2014).

The critical stream of research on the use of impression management tactics in sustainability reports has recently moved away from legitimacy theory and employed a new theoretical concept labelled ‘organised hypocrisy’ to analyse the use of misleading information. Cho et al. (2015) explain that misleading sustainability disclosure in some company’s narratives is related to contradictory societal and institutional pressures that require organizations to provide different “narratives” to different stakeholders and develop a façade that helps maintain their legitimacy. They note that these insights suggest that it is unlikely that sustainability reporting will ever evolve into a more meaningful, substantive disclosure. Similarly, Cho et al. (2018) provide evidence of the misleading discourse contained in stand-alone reports, by considering and comparing the “*frontstage* sustainability discourse” of a sample of US oil and gas firms to their “*backstage* corporate political activities” in the context of the passage of the American-Made Energy and Good Jobs Act, also known as the Arctic National Wildlife Refuge (ANWR) Bill. In other words, these companies’ sustainability discourse on environmental stewardship and responsibility is inconsistent and misaligned with the firms’ less visible but proactive political strategies. Cho et al. (2018) interpret this misalignment as evidence of ‘organised hypocrisy’.

Whether sustainability reporting is indeed employed to camouflage corporate actions is a debate that is not fully resolved in the literature. There is strong evidence that firms are prone to manage their reputation and legitimacy through sustainability reporting and portray an

image that is possibly more favourable than the underlying performance. Such evidence draws from a wide literature covering a relatively long period that documents instances of impression management when the underlying performance is less favourable. However, one key aspect of this literature is that it is mostly based on voluntary reporting settings. There is more research that needs to be done to understand whether the widespread adoption of regulation and disclosure mandates will have a positive effect on the quality of sustainability reporting. However, sustainability reporting may also have strong transformative potential (McNally & Maroun, 2018) if it helps in changing corporate behaviour (see Section A.2.5 and Section E for more details on this literature).

A.2.3. Use of Computerised Textual Analysis to define measures of reporting quality

The increase in the narratives that accompany financial statements, whether reported in the annual report, or other forms of complementary reports (e.g. sustainability reports), or in other form of communication (earnings announcements, earnings forecasts, etc.) reveal that the importance of narrative, unstructured reporting for valuation purposes is possibly as high as that of structured, quantitative financial statements. Luckily, the advent of natural language processing and computational linguistic have allowed a better understanding of the verbal content of company reporting, as well is allowing the identification of attributes of specific disclosures among the overall report, see for example Hope et al. (2016), Kravet and Muslu (2013) and Muslu, et al. (2014). For a complete overview of the status of the literature and status of art in this specific field please refer to the following three literature reviews: Lewis and Young (2019), Li (2010) and Loughran and McDonald (2016). In this section, we only provide a brief description of the key measures that papers in this area have employed, i.e. tone and readability (see Box 2).

Box 2. Textual attributes of disclosure

Tone (Loughran & McDonald, 2011): using a frequency-of-words approach, papers have focused on identifying the tone (optimistic/positive vs. pessimistic/negative) of the narrative information reported in either annual reports or other forms of reporting such as sustainability reports or press releases. Studies in this area are alternatively positioned in the impression management (or management obfuscation) vs. incremental information hypotheses, i.e. hypothesise that if firms use narrative disclosures to better inform markets, any positive language should be related positively to future performance, vs. the idea that optimism in disclosure is used to portray a more favourable view of the underlying performance (Bozzolan et al., 2015; Cho, Roberts, & Patten, 2010; Muslu et al., 2019; Yekini, Wisniewski, & Millo, 2016). Allee & DeAngelis (2015) have considered tone “dispersion”, under the hypothesis that “a more even distribution of tone (higher tone dispersion) throughout the narrative reflects a portrayal of good or bad news as pervasive, while a less even distribution (lower tone dispersion) isolates the news to fewer components of performance” (p. 242).

Readability: the concept of readability relates to that of transparency (Dyer et al., 2016; Dyer et al., 2017; Guay et al., 2016; Hasan, 2018; Lang & Stice-Lawrence, 2015; Lehavy et al., 2011; Li, 2008; Loughran & McDonald, 2014; Muslu et al., 2019; Rennekemp, 2012). The more readable the narratives, the more transparent. Papers in this area often use the length of the report or a section of a report as a measure of complexity or transparency rather than as a proxy for the amount/quantity of information (differently from content analysis studies), but it is likely to be capturing both. Other papers employ specific readability measures coming from the computational linguistic literature, like the Fog index which “combines the number of words per sentence and the number of syllables per word to create a measure of readability. The Fog index proposes that, assuming everything else to be equal, more syllables per word or more words per sentence make a document harder to read” (Li, 2008, p. 222). Other papers rely on frequency-of-words approaches such as that used by the software DICTION to derive measure of obfuscation (such as the “certainty” score in (Cho et al., 2010). Refer also to (Craig & Brennan, 2012) for other attributes of narrative disclosure derived from DICTION.

A.2.4. Information quality and assurance in sustainability reports

Sustainability-related issues have become more central to capital markets (see for example the recent EU initiative on Sustainable Finance and the Task Force on climate-related financial disclosures). Given the concerns expressed by the literature on the quality of sustainability reporting and evidence provided of impression management/boilerplate disclosures discussed in Section A.2.2, a key debate is whether and how assurance of sustainability information can improve the quality of this type of reporting. It is generally assumed by standard setters and stakeholders that assurance provides credibility to sustainability information (Simnett et al., 2009). Another stream of accounting literature is critical of the idea that the goal of assurance providers in the sustainability reporting arena is to improve the credibility of reporting or that they are able to do so, e.g. O’Dwyer et al. (2011); see also Michelon et al. (2019) for a full discussion and further references. Importantly, in sustainability reporting narratives have a greater role than in financial reporting, given that not all social and environmental issues can be reported in terms of their financial costs or benefits. Hence, providing assurance for this type of reporting is quite a different process than it is in the traditional financial reporting arena.

Two recent papers give further insights on this debate. Ballou et al. (2018) and Michelon et al. (2019) both provide evidence that the presence assurance is positively related to the likelihood

of reporting a sustainability restatement (or more than one), i.e. the voluntary disclosure in a report (usually a footnote) that indicates that either there was an error or omission (in a prior year report), or that there have been methodological changes that required a recalculation of previously reported data). This positive association is opposite to what is found in the financial auditing literature, which provides evidence of a positive association between audit quality and financial reporting quality. Palmrose & Scholz (2004) find that audit quality is negatively related to financial restatements. In other words, assurance should lead to the discovery of errors prior to reporting, whereas findings of Ballou et al. (2018) and Michelon et al. (2019) suggest the opposite. Despite obtaining similar results, the two studies provide two different interpretations for this positive association. Ballou et al. (2018) consider restatements to be a sign of reporting quality, that is enhanced through assurance (i.e. assurance leads to improvements in the quality of the information, although after the release of the report, rather than ahead of it). Michelon et al. (2019) adopt a more critical perspective and suggest that these restatements are a means for assurance providers to establish their legitimacy in a new market. Whereas a financial restatement would damage the reputation of the auditor in the financial reporting context, Michelon et al. (2019) argue that a restatement of information from prior sustainability reporting is less likely to be viewed negatively as in financial reporting for the following reasons:

- lack of clear/universally adopted reporting standards,
- ambiguous assurance guidelines, and
- under-developed or non-existent firm-specific internal sustainability reporting systems, among others.

Michelon et al. (2019) do not deny that assurance eventually leads to the discovery of errors (even if after the release of the report), and therefore may contribute to improving in the long term the quality of sustainability information. However, they also highlight the following key challenges for sustainability assurance research and practice:

- the lack of guidance in assurance standards when it comes to materiality threshold;
- the lack of regulatory filings for the disclosure of these restatements,
- and the need to understand which effects –if any– material restatements have for stakeholders.

A.2.5. Alternative approaches to quality definitions

Whereas the majority of accounting research relies on objective, accurate proxies for the concept of quality of reporting, other epistemological streams of literature take a different perspective. This is particularly true for the field known as social and environmental accounting, that has investigated the role of social and environmental (or sustainability) reporting for stakeholders, as well as the role of stakeholder engagement in producing social and environmental reporting²¹. Two key messages come from this literature, in relation to the quality of reporting.

²¹ The GRI framework recommends stakeholder engagement in the definition of what issues are material for reporting. In other words, it recommends that stakeholders have a say on the issues and topics they wish to see

First, this literature ascribes the potential for an educational, aspirational, emancipatory role to this type of reporting (Christensen et al., 2013). The emancipatory role is defined in terms of its ability to develop good reporting practice that also transforms the underlying corporate activities and decisions (See also Section E). In Thomson and Bebbington's (2005) words: *"education should lead to a desire and ability to develop 'praxis' whereby knowing about the world and having an emancipatory goal in mind leads to actions which transform individual and collective lives in a just and equitable manner"* (p. 510). Such educational role, albeit idealised and ambitious, gives sustainability reporting a legitimate aspiration. In such a context, accounts are considered educational artefacts and the quality of the information (and potential for education and change they convey) *is related to the underlying quality of the stakeholder engagement that leads to the production of this accounts. "What emerges, however, is that there is the (at least implicit) belief that if social and environmental reporting flows from a stakeholder engagement process then the reporting will be 'good', or at least better than it would have been if it hadn't taken place. The quality of the reporting, therefore, is intimately linked to the quality of stakeholder engagement which precedes and is part of the report"* (Thomson & Bebbington, 2005, p. 517). Whereas Thomson and Bebbington use a pedagogical lens to discuss the quality of reporting in terms of its emancipatory potential, the literature also suggests the production of these emancipatory potential requires a conceptualisation of dialogic forms of accountability (Brown, 2009; Brown et al., 2015; Irvine & Moerman, 2017). In this perspective, reporting is considered as part of the governance system, conceptualised not as control, but as participatory governance (Bebbington et al., 2007; Brown & Dillard, 2015). Although participatory governance and dialogic accountability have the potential to bring change, they could still be subject to managerial capture, if their adoption was done symbolically (Bebbington et al., 2007; Brown & Dillard, 2013a, 2013b; Passetti et al., 2019).

Second, and linked to the point above, stakeholders may produce information about the company, complementing that released by companies. Considering this set of "external" information may impact the overall quality of corporate reporting, in that the voice of the stakeholders interested in the impact of corporate activities may improve the overall accountability. These "counter-accounts" are alternative financial or narrative accounts that are externally produced to promote corporate transparency and accountability, with the potential for social change (Gallhofer & Haslam, 2017; Gallhofer et al., 2006; Irvine & Moerman, 2017). In other words, any report prepared by relevant stakeholders can be conceived as a counter-account: *"information and reporting systems employed by groups (...) with a view to promoting their causes or countering prevailing official [corporate] position(s)"* (Gallhofer et al., 2006, pp. 681-682). These counter-accounts can be radical and distanced, or engaged and consensus-seeking (O'Sullivan & O'Dwyer, 2009), because of the different rationales motivating the stakeholder groups. Therefore, the overall performance of a company can be understood through a construction of the performance portrayed in multiple reports (Georgakopoulos & Thomson, 2008). As counter-accounts represent a reconstruction of the social reality of the firm, they help building accountability (Boiral, 2013; Rodrigue, 2014).

Another element that emerges from non-mainstream literature is that narrative forms of reporting can be analysed in the light of dynamics of power, e.g. discourse analysis (Beelitz & Merkl-Davies, 2012; Mäkelä, 2013), story-telling (Al-Htaybat & von Alberti-Alhtaybat, 2018; Beattie, 2014; Courtis, 2004; Higgins et al., 2014; Lai et al., 2018), sense-making and sense-giving (Beattie, 2014; Merkl-Davies & Brennan, 2011). For others, quality can be assessed considering the judgements of various groups involved, whether preparers or other

discussed in a sustainability report. This is in contrast to the approach adopted by the SASB, where issues are ex ante defined as material in terms of their potential impact on capital markets.

stakeholders (Chaidali & Jones, 2017; Diouf & Boiral, 2017; Helfaya et al., 2019; Higgins et al., 2014; Hui & Matsunaga, 2015; Lai et al., 2018).

Finally, a few papers have analysed lack of success of certain forms of reporting, and tried to identify the reasons, as well as to reflect on the lessons learned (Nielsen & Roslender, 2015; Roslender & Nielsen, 2017). The two papers by Nielsen and Roslender focus on the demise of the intellectual capital statement (ICS) reporting framework that emerged from the Danish Guideline Project (DGP). The findings suggest that the practice failed to achieve enough traction, possibly because of other regulatory pressures related to different forms of reporting or the financial crisis. They highlight that, despite the lack of success and continuation, it was deemed as a positive experience with benefits mainly for the internal management and employees. In those organisations that persevered with some form of reporting, the key difference was the presence of champions at the senior management level who would advocate enthusiastically about the importance and relevance of the intellectual capital statement. The authors also relate the lack of institutionalization of the practice in the country to weak regulatory requirements to report on the issue (and therefore suggest that making disclosure mandatory is imperative). Further, they identify a lack of competence and willingness to promote and engage in the practice on the side of the accounting profession.

A.3. Concluding comments

Defining the quality of corporate reporting is a challenging endeavour, and likely to be driven by the notion of what is the purpose of corporate reporting for standard setters, regulators and academics alike. The following key conclusions can be drawn:

- The academic literature has identified three perspectives in this regard: **valuation**, **stewardship** and **accountability** (Beyer et al., 2010; Jonas & Blanchet, 2000). While valuation and stewardship have long been the main roles attributed to financial information, recently they have also been considered in relation to non-financial information. The accountability view has instead traditionally assumed a broader view of corporate reporting, as addressing the needs of a variety of stakeholders, with the inherent complexities and trade-offs that different information needs have in terms of what and how to report.
- The quality of financial information can be defined in terms of how useful information is for investors and lenders when making investment decisions. However, it also entails a transparency connotation in that it should faithfully represent the firm's underlying performance.
- In practice, the quality of financial information will depend on how well the reporting process is able to measure and capture the underlying performance, but management discretion can influence both positively and negatively the quality of financial information. In other words, the quality is related to the set of reporting incentives of the firm. It is possible that market pressure to deliver short-term reported performance impair the quality of financial reporting overall, by undermining the long-term viability of firm's performance (i.e. "real earnings management"), as documented by survey-based studies.
- Broadly speaking, there are trade-offs among the different attributes of financial information (for example between timeliness and accuracy, between comparability and relevance). Earnings attributes are desirable to the extent that they reduce information risk and the expected rate of return for shareholders. The literature

seems to suggest that accounting-based attributes are associated with stronger capital market effects than market-based attributes

- With respect to accounting conservatism, while it may decrease the value relevance of earnings, it does benefit lenders and borrowers in debt-contracting and protects shareholder against overcompensating management (see also Section D)
- Narrative reporting has been investigated as complementing and explaining firm's performance. The literature has made an effort to identify qualitative characteristics that indicate whether narrative information is providing *meaningful information* to the users of corporate reporting, as management is prone to adopt impression management techniques that can obfuscate poor results or emphasize good ones. What is "meaningful" to users is very much related to the specific issue that is being reported on, so that in order to evaluate the quality of narrative reporting one should consider both the topic (e.g. greenhouse gas emission, business strategy, risks) as well as the user (e.g. shareholders, lenders or other stakeholders).
- Studies that have employed manual content analysis of narrative reporting typically have the limitation of small samples and/or issue of subjectivity in the coding itself, but they have the merit of having identified detailed frameworks to define which characteristics make disclosure of higher quality. The advent of computational linguistic and natural language processing will help overcome the limitation of small sample studies and increase the external validity of the research findings, under the assumption that they are able to correctly identify key characteristics of the narratives.
- Whereas audit and assurance are deemed to increase the quality of financial reporting, for sustainability/CSR reporting the evidence is not so clear, mainly due to the lack of comparable reporting practices, ambiguous assurance guidelines (including issues materiality thresholds) and relatively young and underdeveloped reporting systems.
- A stream of research suggests that, at the conceptual level – corporate reporting can have an emancipatory, transformative power, especially with respect to social and environmental issues (see also Section E). However, it would require that the process of reporting embeds and develops from close interactions with stakeholders and participatory governance.

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Section B

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B. What is the role of regulation in corporate reporting? How does regulation affect (financial or non-financial) information reported?

Leuz (2010) identifies four economic reasons to justify the regulation of financial reporting and disclosure practices:

- the existence of externalities,
- market-wide cost savings from regulation,
- insufficient private sanctions and dead-weight costs from fraud,
- and agency conflict that could be mitigated by disclosure.

However, it is important to note that disclosure is not only subject to regulation but can also itself be considered a regulatory mechanism (Spira & Page, 2010). In other words, disclosure regulation is used to steer corporate practices towards desired outcomes (Christensen et al., 2017). With the introduction of a disclosure mandate, firms are expected to alter the activities they are required to report on whenever stakeholders may use the information to put pressure on firms (Christensen et al., 2019). See Section E for more details on real effects of corporate disclosure.

Reporting regimes can be created privately or by the law. While public regulators have the advantage of having more investigative and enforcement power, the advantage of private-sector regulators (or so called “private authority regulation”) is expertise in technical matters (Bushman & Landsman, 2010; Leuz, 2010). However, both types of regulators may be prone to capture.

The case for mandatory disclosure is sustained by the public interest theory, which takes the position that markets are subject to failures, and that (benevolent and competent) government can correct them. However, this theory has been criticised on three lines of argument:

1. competition and market orderings can mitigate market failures,
2. when the above does not happen, contracts correctly written and enforced can also resolve market failures,
3. the assumption of benevolent and competent governments does not necessarily hold true. In fact, regulators can themselves be captured by their own self- (rather than the public-) interest.

Hence, regulation introducing mandatory disclosure may not be effective in solving the market failure if regulators (whether public or private) are indeed captured. Ultimately, regulation is a political decision process (Bushman & Landsman, 2010; Christensen, 2010; Moran, 2010; Sunder, 2016) and inevitably the political agenda will affect the design and scope of reporting regulation.²²

²² Rowbottom and Schroeder (2014) explore the repeal of legislation requiring UK companies to report an operating and financial review and “*illustrate the process by which accounting regulation is influenced by political ideology*” (p.656). While most research focuses on political and ideological influences that lead to predictable regulatory outcomes, this paper is interesting because it analyses under which circumstances “the power of political influence was largely resisted by those it was intended to benefit, leading to an unpredictable regulatory outcome” (p. 656).

The effects of regulation on reporting practices are likely to be conceptually related to the regulation on disclosure. First, a key point is *what* firms should report, although this issue is strictly related to why the regulation would be beneficial in the first place. “*If the underlying rationale for regulation is to create cost savings by mandating a standardised solution which is close to what firms would be willing to provide in private contracts, then the rules should focus on general purpose information that is likely to be useful for many different contracts. If the underlying rationale is based on dead-weight costs from fraud and agency conflicts, the rules should focus on information*” (Leuz, 2010, p. 234).

Second, there is an issue of *how much discretion* to leave to firms. Discretion is a double-edge sword (see Section A). While the application of discretion has the potential to make the regulation less costly for the firm and allow managers to convey private information and better reflect the underlying economic performance, it can also be used opportunistically (Christensen et al., 2019; Leuz, 2010). See section C and D for specific examples.

Third, reporting outcomes are also likely to be affected by the costs associated with implementing disclosure regulation (Bushman & Landsman, 2010; Leuz, 2010; Leuz & Wysocki, 2016). Besides direct costs of producing, distributing and verifying the information, there are likely to be indirect costs because disclosing information to capital markets can also inform other parties (whether it is competitors, regulators, etc.).

Fourth, disclosure regulation comes into force within a pre-existing set of other institutional arrangements and complementarities (Bushman & Landsman, 2010; Leuz & Wysocki, 2016; Moran, 2010), as reporting regulation is usually an element of a country’s institutional infrastructure. All of these elements, and the interdependencies among them (Leuz, 2010) are likely to affect the effectiveness of the regulation (as defined by the regulator), as well as how firms respond to the new disclosure regulation.²³

Finally, mandating disclosure also implies setting up a certain enforcement regime. This requires consideration of, for example, which authority is designated to enforce the rule, how compliance will be monitored and what potential sanctions are available in case of a violation. Enforcement is a key variable in determining not only how firms will adjust reporting practices, but also how the market perceives the introduction of new mandatory standards for reporting (Christensen et al., 2013). Further, the interactions and dynamics between voluntary and mandatory disclosures are likely to be important when implementing new disclosure mandates (Cianciaruso & Sridhar, 2018; Einhorn, 2005): mandatory disclosures may influence the incremental information content of voluntary disclosures, and therefore also contribute to explaining the firm’s discretionary disclosure strategies. See also evidence provided by Francis et al. (2008), discussed in Section A.

A thorough review of the literature on the economics of disclosure and financial reporting regulation is provided by Leuz & Wysocki (2016), to which we refer for more insights on the consequences of disclosure regulation. The key points raised by Leuz & Wysocki are as follows:²⁴

1. Research on the effects of disclosure and regulation is not always able to provide evidence for causal effects, which require identifying counterfactuals (i.e. groups that are not affected by the regulation) or natural experiments that allow a good identification of the regulatory effects. Common to the literature on earnings quality, it is hard to

²³ For an overview of different approaches to reporting, see Leuz (2010) and Leuz, Nanda, and Wysocki (2003).

²⁴ We acknowledge some overlap with discussion in later sections. However, we note that these issues are pertinent to the same problem, although in relation to different research questions, and therefore give them visibility wherever necessary.

disentangle the disclosure outcomes from underlying performance, which would be necessary in order to have a clear view of how regulation changes disclosure and the economic consequences of such change. Similarly, it is hard for research to provide an accurate account of costs and benefits of disclosure regulation.

2. There is less research that looks at market wide effects of regulation (spillovers), despite the fact that this evidence would be central to the purpose of the regulation itself.
3. The literature has mostly focused on regulation in the US rather than other countries, but because of the interaction among elements of the countries' institutional frameworks, studying other countries would provide a richer understanding of regulatory effects, whether intended or unintended, and beyond just consequences for capital markets.
4. The adoption of IFRS worldwide has created a huge literature on the effects of reporting standards internationally, but there are few studies that are able to attribute capital market effects to the change in accounting standards. There are two reasons for this: (1) IFRS were not adopted in isolation but together with other institutional arrangements, making it difficult to separate the effects of IFRS adoption from other concurrent institutional changes; (2) IFRS were adopted together with changes also in enforcement rules, which, again, makes it hard to identify the effect of IFRS adoptions separately.
5. Impact assessments and post-implementation reviews could be done more openly and involve researchers more extensively. Researchers need the support of legislators and regulators to be able to estimate causal effects and cost-benefit analysis of disclosure regulation. This implies that to have good economic analysis regulation should be designed with "ex-post" analysis in mind, which also includes the collection of the necessary data.

In the remainder of this chapter, we will review empirical papers that have focused on the effects of regulation on corporate reporting (B.1) and provide an overview of studies that have studied the evolution of reporting (B.2).

B.1. Empirical papers on the effects of regulation on corporate reporting

As noted above, in point 3 from the literature review by Leuz and Wysocki (2016), most of the academic evidence is focused on the US context. Two regulations that have attracted a lot of attention are the Regulation Fair Disclosure and the Sarbanes-Oxley Act. With respect to key findings, we refer to Leuz and Wysocki (2016), who include a very thorough and comprehensive review of these studies (see Section 4.2, pp. 560-571). Further, in relation to the stream of accounting research on internal controls related to the regulatory changes introduced by the Sarbanes-Oxley Act, we refer to the very recent literature review by Chalmers et al. (2019). Finally, Christensen et al. (2019) offer an economic analysis of CSR/sustainability reporting standards adoption that includes a comprehensive review of the literature investigating the consequences of CSR reporting regulation. We refer to this report for further insights.

B.1.1. Studies on European Directives

Christensen and colleagues (2016) look into the implementation of two EU Directives affecting disclosure through security regulation: the Market Abuse Directive (on insider trading and market manipulation) and the Transparency Directive (on reporting and disclosure). The

Transparency Directive focuses also on improving supervisory regimes and enforcement rather than expanding existing disclosure requirements. Both Directives have the overarching goal of reducing adverse selection in capital markets and they therefore focus on market liquidity. One key element of interest in this study is the research design, that allows for plausible causal evidence, which is something that most studies in the area cannot provide. The idea behind the research design is to make sure that there is not “something else” that may explain the capital market outcomes documented in relation to the adoption of the regulation.

Christensen et al. (2016) exploit the fact that the Directives were adopted in the 27 EU countries at different points in time. This is important for three reasons. First, it is less likely that any documented market outcome across different countries is affected by concurrent, but unrelated, economic shocks. Second, this staggered implementation (i.e. different dates of adoption in different countries) makes the investigation less likely to pick up other market responses to events that may have given rise to the Directives in the first place. Third, they exploit the existence of unregulated markets (that are not affected by the new directives) within the EU countries to control for concurrent country-specific shocks. Their insights are also useful because the benefits documented on capital markets vary across countries, indicating that although the same regulation was imposed across all of them, other institutional features, including prior regulation and ability to enforce the new rules, matter. It is important to note that archival studies that can reasonably provide causal effects of disclosure regulation with such rigorous research design are rare. At most, evidence in the area can be interpreted qualitatively (as associations) and little can be said on the economic magnitude of the effects.

One recent study looks at the more recent Non-Financial Reporting Directive (NFD) (Aureli et al., 2019) in the UK, Italy and France. This Directive imposes minimum requirements, allowing EU member states flexibility in implementation action in terms of the content of the new disclosure requirements. These authors analyse the domestic regulation in force before and after the introduction of the directive, suggesting a convergence of rules and some change in certain countries. For example, they find similarities in provisions that encourage completeness, clarity, comparability, accuracy and reliability. However, country regulators made different efforts to implement the new requirements. Italy, despite being the country with the highest distance from the new reporting requirements, moved from a poor regulation to a most stringent one, whereas France used the new regulation to carry prior requirements forwards. The UK already had reporting requirements in law that were similar to those in the directive and, as such, the UK changed relatively little.

As the Directive implementation is recent, there are yet to be published studies that look at its effects on firm disclosures. Regardless, in order to properly assess the effects of the Non-Financial Reporting Directive, it is important to note that studies will face similar research identification strategies as described in Christensen et al. (2016) and Leuz and Wysocki (2016). Further, the effects of this Directive will also depend on pre-existing regulatory requirements which may be quite different, not just in terms of what they require, but also in terms of their tradition within the institutional setting of each country (Hibbitt & Collison, 2004).

B.1.2. Reporting regulation in the UK

In the UK, major legislative changes affected the period 1920-50, as companies began to rely more on funds raised on the stock exchange, transforming the reporting environment as we know it today. Prior to the Cohen Committee report of 1945, disclosure requirements were modest, with legislation providing a minimum standard that could be voluntarily supplemented by managerial discretion. As noted, managerial discretion can be used the most when the legislation is less demanding, and at the same time affect also the direction and scope of

future regulation. In other words, whether discretion is used purposefully or opportunistically will also influence how the legislator will design and implement future regulations. Arnold and Matthews (2002) analyse corporate disclosure data for the years 1920, 1935 and 1950 in an effort to provide a picture of the status quo, in the aftermath of the Royal Mail case of 1931 (which revealed fundamental problems with the distinction between provisions and reserves), and at a closing date that incorporates the effects of the 1948 Act on disclosure levels. This study analyses the financial disclosure of a sample of 50 companies and find that transparent disclosure practices become more common among a small number of firms. However, the regulatory changes seem to have had a modest impact in the wider business community. This early evidence is aligned with more recent studies on US (Dyer et al., 2017) and international firms (Lang & Stice-Lawrence, 2015).

Other studies based on the UK setting analyse the effect of the introduction of various version of the UK Corporate Governance Code on disclosure²⁵. For example, Sheridan and colleagues (2006) identify changes in the quantity of corporate news announcements (dealing with strategy and operating activities of firms) issued following the publications of corporate governance codes. These announcements, although voluntary in nature, were retrieved from the London Stock Exchange Regulatory News Service (and therefore bearing potentially price-sensitive information) for a continuing sample of 46 companies, during a period of 13 years (1989-2002). The evidence suggests that the number of announcements issued per quarter increased after the issue of the Cadbury (1992), Greenbury (1995) and Hampel (1998) Reports and less so after the publication of the Turnbull Report (1999) and the introduction of the Combined Code (2000).

Notably, the Turnbull Report focused on providing a conceptual framework for risk management, of which risk disclosure is a key component. Solomon et al. (2000) conduct a survey of UK institutional investors to understand their attitude toward risk disclosure. Their evidence suggests that although institutional investors do not generally favour a regulated environment for risk disclosure or a general statement of business risk, they agreed that risk disclosure would help their investment decisions and that risk disclosure was an important and relevant issue for the corporate governance reform. Further, the survey (based on 97 institutional investors) reveal that the characteristics of the funds managed and the investment horizons affect investors' attitudes towards risk disclosure. Pension and insurance funds were more likely to agree that a corporate governance process should aim to encourage best disclosure practices within companies, but they also highlight the need to emphasize the maintenance of self-regulation. As with any survey, the responses today could be very different.

The theme of risk disclosure in the UK setting is later picked up in Spira and Page (2010)²⁶ who look at the UK Companies Act 2006 requirement to make disclosures relating to risks and future prospects. While in the US, securities legislation is based on a "hard, mandatory" approach to disclosure, the development of the UK corporate governance policy has followed a softer approach, based on the comply-or-explain principle (Zeff, 2013). In this context, disclosure is seen to be beneficial from three linked and overlapping perspectives: *"in securing corporate accountability and the exercise of good corporate governance on behalf of*

²⁵ Studies have also considered more broad levels of compliance and disclosure with respect to the provisions of the Corporate Governance Code. Elmagrhi et al. (2016) consider 100 UK listed companies from 2008 to 2013 and analyse their disclosures with respect to the 120 CG provisions drawn from the 2010 UK Combined Code. They document a substantial variation in the levels of disclosure of governance practices, that is driven by characteristics of the board of directors (size of the board, proportion of independent directors and board diversity).

²⁶ This study is also useful to illustrate that while we can observe the change in reporting behaviour in the content of the disclosures themselves, the behavioural effect in corporate policies and practices which disclosure is intended to affect are difficult to assess (see also Section E in this regard).

stakeholders; in enabling better investment decisions and the smooth running of capital markets; and as a form of indirect regulation that achieves the goals of regulators” (Spira & Page, 2010, p. 410).

However, as mentioned in the opening of this section, disclosure itself can be considered a tool for regulation (Spira & Page, 2010) to steer the behaviour of companies towards improving practices and performance upon which they now have to disclose (Christensen et al., 2017). However the regulatory choice to mandate disclosure to encourage companies to make changes in the underlying practices may have two outcomes: (1) it can be effective in improving those behaviour or (2) it may encourage boilerplate responses (Christensen et al., 2019) and *“a falsehood that, if discovered, may adversely affect the reputational capital of the directors involved. Box ticking and boilerplate statements may be the outcome of this process”* (Spira & Page. p. 428). See Section E for a more detailed discussion of this literature.

Spira and Page (2010) provide evidence that full compliance with specific disclosure is not the only response and identify other types of compliance response: boilerplate disclosures and statement of the obvious. *“Boilerplate disclosures are to be expected and it hardly seems likely that, given official guidance, companies will reinvent wording that has already been thought through by high-powered committees. Furthermore, as we found when looking at disclosures, deviation from the wording provided in the guidance introduced ambiguity and perhaps the suspicion that one was reading an explanation of noncompliance rather than additional information about compliance. Statements of the obvious are distinguished from boilerplate in that they do not rely on pre-existing forms of words, but nevertheless amount to ‘filler’ in the sense that they fulfil the requirement for a narrative disclosure, but leave the reader with the feeling that the company is providing the disclosure without anything individual to say. Both boilerplate and statements of the obvious, however, have little to say about the specific situation of the company making the disclosure.”* (p. 428).

The use of boilerplate disclosure can be explained in light of three possible high-level institutional forces:

1. direct instructions to make a particular disclosure influence the use of certain wording,
2. companies imitate each other, or follow the lead of others, including consultants and auditors) and
3. there are shared patterns of thoughts are present across professions and networks that affect the disclosure practice

However, evidence of widespread boilerplate disclosure does not necessarily imply that disclosure as a regulatory tool is ineffective. If the requirement to disclose influences behaviour directly, the form and content of the disclosure may be less important than the internal process by which disclosure is produced, for which we need more evidence. See Section E for more details.

Other studies based in the UK have explored the role of regulation in affecting non-financial information (Bernardi & Stark, 2018; Williamson & Lynch-Wood, 2008). Williamson and Lynch-Wood (2008) compare the “Companies Act 1985 (Operating and Financial Review and Directors’ Report etc.) Regulations 2005” with the Companies Act 2006. These regulations had the aim of improving corporate reporting on social and environmental matters by promoting transparency on key drivers of corporate performance. The operating and financial review (which has now been replaced by the strategic report) would contain a discussion of

- the development and performance of the business during the financial year,

- the trends and drivers underlying the development and performance during the financial year,
- and trends and factors potentially affecting the future development and performance of the business.

Using a survey from 79 companies affected by the regulation and secondary data on the reactions of different stakeholders to the changes in the law, Williamson and Lynch-Wood (2008) show that companies that had to comply with the requirements of the operating and financial review were sufficiently prepared for its implementation and, given the choice, preferred the operating and financial review to be statutory. The authors therefore conclude that reasons for repealing the operating and financial review had then been overstated. However, they also assert that these new reporting requirements were unlikely to meet the information needs of all stakeholders. *“By relegating the interests of wider stakeholders, [the new reporting requirements] seem to ignore the evidence that stakeholder conflict exists and that this conflict is usually resolved in favour of shareholders (Owen et al., 2001). This leads us to conclude that without far-reaching institutional rights being built into the law the differentials between stakeholder groups will remain (Swift, 2001), which will continue to undermine the legitimacy of corporate actions”* (p. 137).

The arguments presented immediately above are aligned with the idea that the quality of reporting (and the relevance of disclosures) are to be assessed with reference to the purpose of reporting itself (see Section A). For example, in the case of social and environmental information, the interests of stakeholders other than investors are particularly relevant and could affect both what information is reported and the way that information is reported. A typical example is greenhouse gas emissions. Until recently, and before the emergence of the label ‘climate emergency’, capital markets were perhaps uninterested in such information as it did not bear the regulatory and reputational risks it bears today. Therefore, the presence of this specific purpose was not considered “material” for investors, yet it may have helped regulators and policy makers. Furthermore, the quantity of emissions at the local level are material to the community of people living in proximity to the site creating the emissions (an oil well, a factory, etc.). However, in itself this information may not be material for investors, who are generally more interested in the total levels of pollution from emissions. Should firms report specific information about average emission levels at the site-level, and across different areas, where regulatory burdens are different? Or should they report total emission levels? When does a social and environmental issue become material and for whom?

Such key questions are fundamental in the debate about whether corporate reporting should be conceived to satisfy the information needs of shareholders and investors, at the expense of other stakeholders. Scholars have criticized this approach and proposed accounting and reporting models to reach wider stakeholders (Harrison & van der Laan Smith, 2015).

B.2. Evolution of reporting

Despite the decrease in value relevance of financial statements in the US setting (Hail, 2013; see also to Section C.2.3 where the reasons for this are discussed), financial statements are still deemed to be an essential component of the financial reporting system, and the corporate governance model of a firm (Baker & Wallage, 2000; Davern et al., 2019). A notable exception is the point of view of Baruch Lev and Feng Gu, expressed in their book “The end of accounting and the path forward for investors and managers” (Lev & Gu, 2016). One key reason for their claims about “the end of accounting” is the decreasing role that financial reporting has for valuation purposes in capital markets. However, as outlined in Section A, the usefulness of financial reporting for investors is only one of the potential purposes of corporate reporting.

The literature has in fact highlighted that stewardship and accountability (i.e. needs of users that are not necessarily investors) also are key aims that corporate reporting can serve.

Such views are also expressed in Baker & Wallage (2000). They acknowledge that the currently accepted model of financial reporting may be disrupted or transformed by technological innovation, but they also state that predicting with certainty the future of financial reporting is a difficult task (Hail, 2013). Almost 20 years ago, they brought forward the idea that *“the currently accepted model of financial reporting may not reflect the manner in which investment decisions are actually made, consequently raising the question of whether investor decision-making should be the principal raison d’etre of financial reporting”* (p. 174). Their conceptual paper argues that there is still need for financial reports to serve the need of corporate governance, for the benefits of a wider range of stakeholders, and society more in general.

Starting from, and adapting, the recommendations of an ICAS discussion/conceptual report on *“Auditing into the Twenty-first Century (McInnes, 1993)”*, a new financial reporting model would give more emphasis on the accountability of directors towards a wider group of stakeholders, and with regards to a wider range of matters not strictly related to financial performance (Baker & Wallage, 2000). Although such a model would be controversial, Baker and Wallage (2000) argue that if decision usefulness is to be the primary criterion to assess the quality of financial reports, then there is a need to clarify who the decision-makers are. Currently, these decision makers are the shareholders and investors. *“If the focus of accounting standards setting bodies were to shift to a wider notion of decision-making and stakeholder groups, it is likely that financial reports, including audited financial statements, would look quite different than they do at present. If adopted, the recommendations of the ICAS document would mean significant changes to the accepted financial reporting model and the current system of corporate governance”* (p. 183). They further conclude that to improve financial reporting, the institutional process by which changes are developed needs to be *“oriented to the public interest, focused on the right objectives, open to new ideas, proactive in obtaining the needed information, and free of needless barriers to progress”*. Any new reporting regulation - in their view - should be responsive to the changing circumstances of the public interest.

Fifteen years after the paper by Baker & Wallage (2000), others have reiterated the need for financial reporting to go beyond serving the needs of shareholders only (Harrison & van der Laan Smith, 2015). In 2010, the FASB carried out a revision of its conceptual framework through the release of Statement of Financial Accounting Concepts No. 8. This statement essentially limited the range of addressees of financial reporting to potential investors and creditors. With these decision-makers in mind, information serves the purpose of allowing rational investment decisions which also consider the prospects of future performance. Harrison & van der Laan Smith (2015) develop a critique of the FASB choice to limit the range of addressee of financial reports. They question that accounting practices should be founded only on financial-focused theories and challenge the idea of shareholder supremacy (vis-à-vis other stakeholders). In their paper, they propose a model for the responsibility of the public accounting profession, and they call for the profession to consider the development of standards for reporting information for the needs of a broader group of stakeholders than just investors and creditors. Along similar lines, but even more provocative, is the standpoint of Brown and Dillard (2015) who also challenge the shareholder focus of conventional accounting and call for new approaches that promote wider accountability and participatory governance (see Section A).

One key consideration emerging from this debate is that widening the scope of corporate reporting to also include the provision of non-financial information does not necessarily require that the purpose of corporate reporting will change or has changed. Furthermore, the inclusion of non-financial information may not be enough to satisfy the information needs of decision-

makers other than shareholders. Recently critiques have been made that the Integrated Reporting (<IR>) framework (and the Sustainability Accounting Standard Board - SASB), for example, while having broadened the range of information companies are asked to report, has done so with a disproportionate focus on the needs of investors (Flower, 2015; see also Section D.2.3). Similar concerns have been brought about by the requirements of the Non-Financial Reporting Directive (Monciardini, 2016). For a brief overview of the major standard setters in CSR reporting, please refer to Rupley et al. (2017, pp. 173–174).

Christensen et al. (2019) also note that the definition of what is deemed material when it comes to sustainability reporting is unclear, as the relevant decision makers for this type of information would be much broader (for more details, refer to Section 6.2 of their paper). The GRI framework, in this regard, recommends extensive stakeholder engagement in the definition and identification of social and environmental matters that are to be deemed as material, whereas the SASB, for example, identifies which items are material by industry in terms of their potential effects on capital markets. Ultimately, which approach is better – once again – depends on the purpose of reporting, but it is important to note that there is a trade-off between the two. There is a risk that items that do not necessarily have (short term) financial implications for capital markets, do have an impact for other stakeholders (i.e. negative externalities) and until these potential negative impacts become a risk for the firm (whether operational or reputational), it may go unaccounted for (refer to example on greenhouse gas emissions reported the previous section).

Along these lines, Unerman et al. (2018) note that sustainability reporting often includes issues that “*are not captured in, or are external to, the financial dimensions of transactions and events as communicated in financial reporting*” (p. 498). In other words, these “externalities” arise from corporate activities, but are borne by others, and therefore do not bear implications for the short-term financial performance (although they may have long-term effects). However, Unerman et al. (2018) note that as these externalities are recognised as financial risks or opportunities, firms may voluntarily internalise them (i.e. change underlying practices to avoid negative financial implications or exploit potential benefits). Despite the challenges in quantifying these externalities, the ultimate argument in their paper is that in order to communicate the financial impacts of externalities, the “silos” between the domains of financial reporting and sustainability reporting should be broken down.

There are other papers that have reflected upon the evolution of CSR/sustainability reporting, in light of the fact that (a) it is increasingly becoming an integral part of wider corporate reporting, and (b) that several international and supranational initiatives are likely to increase the intertwining between sustainability and traditional financial reporting (<IR>). Tschopp & Huefner (2015) provide an overview of the evolution of CSR reporting in comparison with financial reporting. (See Figure B.1 below, which reports for convenience Table 1 from their paper for an overview). Their analysis suggests that CSR reporting is still in its infancy, characterized by a lack of standardization and deficiencies in comparability, indicating that the quality of CSR reporting is still relatively low compared with that of financial reporting. However, there is a trade-off between comparability and relevance of information. While standardization helps comparability, it may render information less relevant for decision making if the standards do not allow enough discretion or story-telling (see more discussion about trade-offs of attributes of information in Section A, see also Section D.2.3). A more recent study further suggests that there is a lack of convergence in the definition of what is non-financial reporting among regulators and standard setters (Stolowy & Paugam, 2018). Because of this inconsistency, there is a lot of variation also in corporate reporting practices.

Regulatory disclosure regimes when it comes to social and environmental matters are quite different among the US, Canada and Europe (Schneider et al., 2018), although the line between what is mandatory and what is voluntary has become blurred recently across the three settings. Specifically, despite disclosure being mandatory, regulation typically only sets

minimum reporting requirements, and therefore managers are still left with considerable discretion on what and how to report. This implies that we may be able to observe heterogeneity in the quality and substance of information provided. Further, recent regulatory initiatives may modify the reporting channel through which information is delivered to the public rather than asking for new information to be released. An example of such regulatory initiative is studied by Christensen et al. (2017). Section 1503 of the Dodd-Frank Act required mandatory inclusion of mine-safety disclosures in the financial reports for SEC-registered firms, owners of a US mine. However, this information is (and was) already publicly available on the Mine Safety and Health Administration website. The effects of this new mandate on firm behaviour documented in Christensen et al. (2017) suggest that many investors may be relying mainly on the official financial market channels for their information (see also Section E). We need better understanding of how different regulatory approaches to disclosure of social and environmental matters affect firm's disclosure response and practices.

Table 1 The evolution of reporting

	Modern financial reporting	CSR reporting
Period	In the early 1900s, financial reports provided little value. They were used more for marketing purposes. Information was not comparable, consistent, reliable, or useful. The Progressive movement in the 1920s and 1930s led to increased transparency. The evolution of capitalism, industrialization, and increased participation in capital markets led to modern financial reporting	In the early 1970s, CSR reports provided little value. They were used more for marketing purposes. Information was not comparable, consistent, reliable, or useful. Environmentalism in the 1970s and sustainability movements and social activism in the 1990s led to an increase in the demand for such reports. Socially responsible investing and the rise of institutional investors led to modern CSR reporting
Places	Only 33 countries do not allow the use of IFRS. Once the convergence of IFRS takes place in the US, IFRS will be the true global standard	In 2003, France became the first country to include a CSR reporting requirement for publicly traded companies. Several other European countries also have CSR reporting requirements. However, there is no movement toward mandatory reporting on a global scale
People	Investors, corporations, governments, suppliers, customers, and employees	Investors, corporations, governments, suppliers, customers, labor unions, employees, citizens, and non-government organizations
Practices	The EU has adopted IFRS, but the U.S. and some other nations are reluctant to eliminate national GAAP fearing IFRS are not stringent enough. However, a Roadmap toward convergence has been developed	No agreed upon international standard meeting the needs of all stakeholders. However, the GRI's G3 are the most widely used and recognized standards
Propagation	Intergovernmental institutions and NGOs have played key roles in promoting IFRS. Institutions such as the World Trade Organization, OECD	Intergovernmental institutions and NGOs are actively involved in the promotion and diffusion of CSR reporting
Products	IFRS are more principles-based standards. U.S. GAAP involves more rule-based standards with more specific application guidance	GRI reporting requirements are structured and rule-based. UN Global Compact and AA1000 reporting requirements are based on guidance and principles
Profession	Governmental regulatory bodies [for example, the SEC and FASB in the U.S. (domestically) and the IASB (globally)]	Governmental regulatory bodies (see "Places" section) and numerous reporting agencies (for example, the GRI, AccountAbility, the United Nations Global Compact, and the recent formation of the SASB)

Figure B.1 - Overview of the differences between financial and CSR reporting

Source: Tschopp, D., & Huefner, R. J. (2015). *Comparing the Evolution of CSR Reporting to that of Financial Reporting*. *Journal of Business Ethics*, 127(3), 565–577. <https://doi.org/10.1007/s10551-014-2054-6>

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B.3. Concluding comments

The literature justifies the introduction of disclosure regulation either as enabling economic effects on the functioning of the financial markets, or as a tool to steer corporate practices towards desired outcomes. While the review of these capital market and "real" effects will be discussed in the following sections, this section has provided an overview of the effects on reporting itself.

- The tension that emerges is that corporate responses to disclosure regulations and mandates depend on the firms reporting incentives and management discretion (as

highlighted also in Section A), as well as on other institutional arrangements in place before the regulation.

- Furthermore, regulations often come into force with a set of other mechanisms that may affect reporting practices, for example the level of enforcement and the ability of oversight bodies to verify compliance and impose penalties. Research has not always been able to distinguish the effect of the disclosure mandate from that of these other arrangements and mechanisms. Therefore, it is hard to make causal claims.
- The literature has focused more on the capital markets effect of disclosure regulations (see Section C), and less is known on how reporting practices change. However, the literature has documented widespread boilerplate disclosure, for example in relation to the adoption of the guidance provided by the Turnbull report. Nevertheless, this does not necessarily imply that disclosure as a regulatory tool is ineffective. It is still possible that the requirement to disclose influences behaviour directly, but we need more evidence.
- A final note is that most regulatory actions continue to have a strong focus on investors' needs, and less so on other stakeholders. This is not a problem in itself, but there is the possibility that regulation ends up creating "blind spots" if there is no overlap between what investors and other stakeholders deem as relevant and material.
- There are several calls from scholars that encourage the embedding of wider stakeholder interests in conceptual frameworks for corporate reporting. However, in practice the guidance provided to firm is still mixed. For example, in the aftermath of the EU Non-Financial Reporting Directive that mandates the reporting of social and environmental information, firms have discretion in terms of which reporting standards/guidance to follow (if any).
- Different guidelines may have different focuses in terms of who are the main users of these information. While the recent guidance published by the EU Commission on climate related disclosures (European Commission, 2019) claims that materiality in the context of environmental information is double-fold (financial materiality and social/environmental materiality), the guidance provided by the Task Force on Climate-related Financial Disclosure (TCFD) adopts a financial materiality perspective only. More research is needed to better understand these tensions.

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Section C

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C. What are the information needs of shareholders and how is the corporate reporting information used by them?

This section addresses a number of key issues covered by the FRC's Future of Corporate Reporting project. First, it discusses direct evidence on shareholders' information needs and their usage of corporate reporting information (and its various components such as financial statements, narrative reporting, non-financial reporting, etc.; see Section A). Second, it summarises the empirical evidence regarding the links between corporate reporting and the stock market. Importantly, the analysis of capital market effects of corporate reporting also provides indirect evidence on investors' use of corporate reporting information in determining their trading and investment decisions. For instance:

- the examination of market liquidity effects of corporate reporting allows for the drawing of conclusions into the role that corporate reporting has in reducing information asymmetries between firms and investors;
- the analysis of market reactions (in terms of return or volatility effects) to the release of corporate reporting illustrates how market participants perceive and process the information reported;
- value relevance studies illustrate the extent to which corporate reporting information is useful for valuation purposes (see Section A), etc.

Third, the discussion of this section addresses the question about the audience of corporate reporting information, we also cover the literature on investment analysts below (rather than in Section D where we discuss other stakeholders), following the approach of prior studies, e.g. Cascino et al. (2013, 2014). Schipper (1991, p. 105) argues that given the analysts' importance as "intermediaries who receive and process financial information for investors, it makes sense to view analysts ('sophisticated users') as representative of the group to whom financial reporting is and should be addressed".²⁷ The distinction between analysts and equity investors is particularly blurred for buy-side analysts who support portfolio investment decisions of investment management firms (using among others information processed by sell-side analysts, including their forecasts) and have significant influence on the trading activities of fund managers (Brown et al., 2016; Cheng et al., 2006; Frey & Herbst, 2014). Plausibly, similar arguments apply to other forms of corporate reporting, including non-financial reporting.

Finally, the discussion below allows us to address further a broader question about the purpose of corporate reporting in general and of specific disclosures in particular (complementing the insights of Section A). Importantly, the evidence summarised here mostly pertains to the valuation role of corporate reporting (as defined in Section A), with relatively few insights applying to the stewardship role (cf. Section A) and the usage of corporate reporting information in this context.²⁸

Section C.1 below reviews the literature discussing direct evidence of information needs of shareholders and analysts and their use of corporate reporting. Section C.2 summarises the

²⁷ For the sake of consistency, the relatively limited literature on the usage of analysts' information in credit decisions is discussed in Section D, where information usage of information by other stakeholders, including creditors, is covered.

²⁸ Section E.3 further discusses indirect evidence on shareholder' usage of corporate reporting information for stewardship purposes. In particular, it reviews the literature on the links between corporate reporting and governance outcomes (e.g. managerial compensation and turnover).

studies examining capital market effects of financial and non-financial information reported by companies. In doing so, it documents how investors incorporate the information contained by corporate reporting in their share and option trading (and how it gets reflected in prices/returns). Therefore, it provides indirect evidence on investors' use of such information. Section C.3 reviews the literature focussing on the information environment, specifically examining effects of corporate reporting on the forecasts and recommendations by sell-side analysts as well as the link between corporate reporting and analyst coverage.

C.1. Direct evidence on information needs of equity investors and their usage of corporate reporting information

C.1.1. Survey-based and other direct evidence on information needs of equity investors and their usage of corporate reporting information

The literature providing direct evidence on information needs of equity investors and their usage of information is relatively scant, with most of the studies in this stream making inferences from survey- or interview-based research, sometimes combined with experimental designs.²⁹ Some earlier relevant studies have been reviewed by Bradshaw (2011) and Cascino et al. (2013; 2014), although their reviews focus on financial reporting only. Therefore, the discussion below complements and expands the prior reviews, focusing predominantly on more recent literature.³⁰

Overall, the existing empirical literature disagrees about the usefulness of various components of financial reporting, as already alluded to in Section A. Earlier studies reviewed by Cascino et al. (2013, 2014) as well as the findings of Brown et al. (2016) and Cascino et al. (2016) highlight the paramount importance, relevance, and usefulness of financial statements data to equity investors. However, there is a disagreement as to whether it (a) holds true to the same extent across various jurisdictions and (b) remains to be as important nowadays as it used to in the past (Davern et al., 2019).

Drake et al. (2018) track the requests for accounting reports stored in the SEC EDGAR database and find that investors use historic along with the most recent financial reports, in particular for difficult-to-analyse firms. Requests for historic reports during the fiscal year are positively associated with financial reporting complexity and requests around earnings announcements are positively associated with accounting discretion and negative earnings shocks. Brown et al. (2016) document that US buy-side analysts find 10-K or 10-Q reports more useful than quarterly conference calls and management earnings guidance for determining their share recommendations. However, Brown et al. (2015) challenge such a claim. Their survey of analysts' shows that private communication with management is a more useful input to analysts' earnings forecasts and share recommendations than information from financial statements. Importantly, companies tend to cater to information needs of the users of corporate disclosures. Specifically, managers of companies where forward-looking information (most frequently, earnings per share guidance) is requested or asked about by analysts during quarterly conference calls are more likely to provide similar guidance in future

²⁹ Surveys could potentially suffer from untruthful responses by the participants (Bradshaw, 2011). Moreover, there is a risk that they could "lead" the respondents in the sense that they make assumptions about the presumed uses of corporate reporting by investors for a particular purpose, e.g. valuation.

³⁰ The literature examining the links between corporate reporting and shareholder trading activities and patterns, including insider trading, is covered in Section C.2.1 where we discuss trading and liquidity effects of corporate reporting rather than here.

quarters. This finding confirms that analysts shape managers' disclosure choices in a meaningful way (Chapman & Green, 2018).

As discussed in Section A, the usefulness of financial reports depends on the purpose for which the information is to be used (in particular valuation v. stewardship, see Section A). Professional investors consider financial accounting information to be more relevant for valuing of firms as opposed to assessing performance of their managers³¹ (Cascino et al., 2016). Not all financial statement information is considered equally useful by equity investors either, with the importance of (consolidated) income statements usually dominating balance sheet figures, although the importance of the latter is higher for underperforming firms (Cascino et al., 2013, 2016). Nevertheless, Davern et al. (2019) find that financial reporting (specifically, reported net income, shareholders' equity, and operating cash flows) remains relevant for investment decisions in the Australian context. Moreover, their field evidence also demonstrates that no one financial statement dominates in investor decision making.

There is also some evidence that both professional and non-professional investors use non-GAAP earnings/performance measures. While professional investors often regard such measures to be more value-relevant and informative about managerial performance than statutory measures such as net income, non-professional investors use non-GAAP measures because they are swayed by management's emphasis of such numbers and thus subjected to cognitive biases (Cascino et al. 2016; Davern et al. 2019; Elliott, 2006). Cascino et al. (2016) also discuss in detail professional investors' perceptions of usefulness and reliability of specific line items in financial statements, highlighting the concerns of perceived subjectivity and managerial biases. Yet, Barton and Mercer (2005) conduct an experiment examining how analysts react to self-serving disclosures by managers that blame firms' poor financial performance on temporary external factors and find that analysts perceive such disclosures as plausible, at least in some instances. When such explanations are considered credible, analysts provide higher earnings forecasts and share valuations than if the explanation had not been provided. However, Barton and Mercer (2005) also show that these disclosures can backfire if analysts find them implausible. Specifically, implausible explanations that blame poor performance on temporary external factors lead analysts to provide lower earnings forecasts and assess a higher cost of capital than if the explanation had not been provided.

Clatworthy and Jones (2008) examine how UK-based analysts and fund managers cope with international differences in financial reporting systems when analysing overseas equities. Among both groups they find a substantial reliance on sources other than the annual report when analysing overseas companies. Moreover, they also evidence greater reliance on alternative sources to accounting information (such as other foreign analysts) in countries characterised as having weak equity markets (i.e. countries with a below-average ratio of market capitalisation to national income, mostly in Continental Europe). Finally, Clatworthy and Jones (2008) identify coping mechanisms that analysts and fund managers employ when analysing overseas securities, including reliance on locally based analysts, use of non-accounting information, use of more familiar accounting standards and restating accounts to a more familiar basis.

There is also a debate in the literature about the usefulness of narrative information included in the periodic report vis-à-vis financial statement figures. Such 'non-accounting' information is used to contextualise and add meaning to accounting data (Barker & Imam, 2008) and constitutes a highly important source of information about companies for professional investors (Cascino et al., 2016). In this context, Orens and Lybaert (2007) survey sell-side financial analysts and find that their use of non-financial information reported by the companies

³¹ The literature examining the usage of corporate reporting in such a stewardship context is discussed in more detail in Section E below.

improves the accuracy of the analysts' forecasts. The benefits stem primarily from the use of more forward-looking information and more internal-structure information. Yet, Campbell and Slack (2008) challenge the value of narrative information for users of corporate reporting and suggest that the amount of such information included in annual reports might be excessive. Narrative information is more subjective and therefore also prone to managerial opportunism and impression management (see Section A for more details). Moreover, the experimental study of Hales et al. (2011) suggests that investors might be swayed by the tone of the language used, depending on their trading strategies. In particular, vivid language significantly influences the judgment of investors who hold contrarian positions (e.g. short investors in a bull market), it has limited influence on the judgment of investors who hold positions consistent with the general tenor of the market (*ibidem*).

While financial reporting, and financial statements in particular, have been seen as a cornerstone of corporate reporting for years (the sentiment echoed by participants of the survey by Cascino et al., 2016), more recent literature provides some examples of studies focussing on usefulness of non-financial corporate reporting. For instance, Diouf and Boiral (2017) interview a range of corporate stakeholders, including fund managers and analysts, to ascertain their perceptions of firm sustainability reports. They find that investors perceive the reports to reflect impression management strategies used by firms to highlight the positive aspects of their sustainability performance and to obfuscate negative outcomes rather than address information needs of investors. The survey of sell-side equity analysts and of fund managers by Slack and Tsalavoutas (2018) raises similar questions over the usefulness of corporate reporting following the International Integrated Reporting (<IR>) Framework. Despite institutional-level support for <IR>, the interviews reveal that its usefulness to fund managers and equity analysts is low, which might partly stem from low level of familiarity with this reporting standard among mainstream equity market actors (*ibidem*). On the other hand, Amel-Zadeh and Serafeim (2018) survey mainstream investment organizations on their usage of reported environmental, social, and governance (ESG) information. The primary factors driving such a usage are relevance to investment performance, followed by client demand, product strategy, and then, ethical considerations. An important impediment to the use of ESG information is the lack of established reporting standards for such disclosures (*ibidem*). Yet, many investors surveyed by Stubbs and Higgins (2018) support mandatory <IR> because, in their experience, voluntary sustainability reporting has not led to more substantive disclosures or increased the quality of reporting.

C.1.2. Concluding remarks

The findings of the literature studying direct evidence on information needs of equity investors and their usage of corporate reporting information can be summarised as follows.

- Financial statements remain an important source of information about firms used by investors and analysts primarily for valuation purposes.
- Narrative reporting complements and contextualises financial statements information, but is sometimes be used as an impression management tool misleading the audience of corporate reporting (see Section A as well).
- The importance of other communication channels (e.g. other disclosures or private communication with managers) has increased over time and rivals that of periodic corporate reporting for some information users (e.g. analysts).
- There is some emerging evidence that some users incorporate non-financial reporting information in their investment decisions, but its usefulness so far is limited

by lack of established reporting standards for such disclosures and low level of familiarity with this type of reporting.

C.2. Capital market effects of financial and non-financial corporate reporting

The literature examining capital market effects of corporate reporting is vast, with some of the sub-topics being subject of recent literature reviews.³² Therefore, the discussion below complements prior reviews, focussing particularly on the issues of highest relevance for the FRC project. We refer readers to prior work for more in-depth coverage of some of the related issues. For instance, Barth et al. (2001), Healy and Palepu (2001), and Kothari (2001) expertly summarise earlier academic work on capital market relevance of financial accounting information, providing foundation for more recent studies. Reviews by Cascino et al. (2013, 2014) provide an update on a more recent literature on this broad topic, while a more focussed study by Bertomeu and Cheynel (2016) reviews theoretical literature examining the links between corporate disclosures and cost of capital. Finally, Ruch and Taylor (2015) summarise the literature on accounting conservatism and its capital market consequences.

Beyer et al. (2010) review research on capital market implications of managers' voluntary accounting information disclosure decisions and of similar disclosures mandated by regulators. Leuz and Wysocki (2016) review the literature on the impact of regulation pertaining to corporate disclosure and financial reporting on firm-level and market-wide outcomes. It also identifies major empirical shortcomings plaguing the relevant studies and highlights methodological challenges faced by the researchers in this area. A related review by Ahmed et al. (2013) has a much narrower scope and provides a meta-analysis of empirical literature on the effects of IFRS adoption.³³ Finally, while the literature reviews listed above focus on financial reporting, a recent review by Christensen et al. (2019) provides economic analysis of adoption of CSR and sustainability reporting standards. A recent review by Elshandidy et al. (2018) summarises the literature on informativeness of risk reporting and its capital market effects. Chalmers et al. (2019) review recent literature on internal control reporting, including findings pertaining to capital market effects of such reporting internationally. Finally, Christensen et al. (2019) reviews the literature on the effects of CSR reporting on shareholders and analysts in Section 4.2 and 4.4 of their paper, respectively.

Typically, the studies discussed in this section follow one of the following research designs:

- Examination of the effects of companies reporting a particular type of information, or providing a particular form of reporting (often on voluntary basis), e.g. effects of voluntary adoption of International Integrated Reporting (<IR>) Framework at a company level;
- Examination of the effects of companies reporting particular information within a standard corporate reporting framework, e.g. reporting of earnings missing analysts' consensus forecasts;

³² Here, while talking about capital markets, we restrict our attention to equity markets. We cover the issues pertaining to debt markets in Section D.1, which focusses on credit providers.

³³ This important regulatory change has been extensively studied by prior literature, but the detailed analysis of its effects is of only peripheral relevance for the current FRC project and therefore below we only review the corresponding literature when doing so is aligned with other goals of the project.

- Examination of the effects of regulatory changes pertaining to corporate reporting, e.g. country-wide adoption of IFRS or International Integrated Reporting (<IR> Framework);
- Examination of the effects that regulatory changes have on the capital market effects of firms' reporting particular information, e.g. has IFRS adoption strengthened the link between accruals quality and the firms' cost of capital?

As alluded to in Section B above, Leuz and Wysocki (2016) highlight common methodological challenges and shortcomings of the empirical literature on the effects of corporate disclosures in general, and on their capital market effects in particular. First, studies examining voluntary disclosures could suffer from self-selection biases (i.e. firms choose a certain reporting practice for reasons that also affect the capital market outcomes) that are not always properly controlled for in the empirical research design. Second, the evidence on casual effects of disclosure and reporting regulation is often difficult to obtain and relatively rare (with many studies reporting just associations). This is mostly due to difficulties in identifying counterfactuals, unaffected control groups, and/or truly exogenous natural experiments that would allow a clean identification of the regulatory effects and their economic consequences.³⁴ Third, it is difficult to separate the measurement of disclosure outcomes (e.g. reporting quality) separately from the underlying economics. Fourth, many studies focus on isolated micro-level outcomes, largely ignoring broader externalities, network effects or spill-overs, and market-wide effects. Despite applying a quality threshold to the literature reviewed, many of the studies discussed below suffer to at least some extent from one or more of the issues listed above and therefore the corresponding results should be interpreted with caution.

C.2.1. Trading and liquidity effects

This section discusses the links between corporate reporting (as well as the corporate reporting environment) on trading and stock market liquidity, e.g. how reporting influences on trading volume, bid-ask spreads, market depth, volatility of liquidity, trading by informed investors, and volatility, among others. Leuz and Wysocki (2016) argue that such liquidity issues could underpin some other capital market effects of corporate reporting (predominantly, cost-of-capital effects, but plausibly also other measures discussed in other parts of this section, i.e. value relevance, stock returns, and volatility).³⁵ While we acknowledge that such an indirect mechanism (i.e. liquidity channel) could work, it is unlikely to be the only channel linking corporate reporting with capital market outcomes (and the studies reviewed in sub-sections that follow, i.e. C.2.2-C.2.5, do not identify it explicitly. Hence, below we only focus on more direct effects of corporate reporting on trading and market liquidity issues and discuss the effects on the cost of capital, firm value, stock returns and volatility in separate stand-alone sub-sections.

Generally, the existing literature predominantly supports the intuition that better corporate reporting and corporate reporting environment mitigate information asymmetries, which is then associated with improvements in liquidity at both micro and macro levels (Leuz & Wysocki,

³⁴ This is one of the most common reasons for the endogeneity problems affecting some of the corresponding empirical literature. In very simple terms, endogeneity implies that the statistical model is no able to control for everything that may affect both the variable of interest (i.e. reporting) and the outcome (i.e. market effect).

³⁵ The intuition here stems from the fact that corporate disclosures and reporting affect the degree of information asymmetries among investors and in doing so the probabilities of informed traders using their informational advantages to trade shares. Investors and market makers require compensation for potential risk of trading with an informed investor.

2016). On the other hand, reduction in mandatory disclosure requirements negatively affect stock liquidity, even for firms that voluntarily maintain their disclosure level (Cheng et al., 2013), which could have implications for regulation of disclosure (cf. Section B).

The improvements in liquidity could be reflected in lower trading costs (in particular, bid-ask spreads), increased depth of the market (i.e. ability to execute larger trades), and increased speeds of order execution. Specifically, at the macro level, liquidity has been shown to improve following the adoption of common accounting standards, like IFRS (e.g. Gao et al., 2018; Lang & Stice-Lawrence, 2015; Lepone & Wong, 2018), of Sarbanes-Oxley Act of 2002 (Gupta et al., 2018; Jain et al., 2008), of Regulation Fair Disclosure (Chiyachantana et al., 2004), and of a country-wide adoption of IFRS or International Integrated Reporting (<IR>) Framework (Barth et al., 2017). For instance, following Sarbanes-Oxley Act adoption, US firms have been mandated to provide management's report on internal controls (as per Section 302) and such disclosures have been shown to reduce stock return volatility (Gupta et al., 2018).

At a micro level, an increase in a firm's reporting frequency (from semi-annually to quarterly) reduces investors' incentives to acquire private information between consecutive announcement dates, thus reducing information asymmetries among investors and, consequently, increases share liquidity and stimulates trading (Cuijpers & Peek, 2010). Difficult-to-read annual reports hinder investors' ability to process and analyse information contained in corporate annual reports, reducing thereby their willingness to trade which decreases stock liquidity (Boubaker et al., 2019). Bid-ask spreads around unexpected loss announcements are greater when preceded by higher levels of income smoothing, suggesting that investors have difficulties seeing through managerial opportunistic motives before the unexpected loss announcements (Yu et al., 2018). Finally, Heflin et al. (2005) document that effects of corporate reporting on stock liquidity are more complex than previously argued. While firms with higher-rated disclosures are charged lower effective (i.e. executed rather than quoted) bid-ask spreads, they are also quoted lower depth of the market, consistent with the notion that better disclosures reduce information asymmetry but also cause some liquidity suppliers to exit the market (*ibidem*).

Corporate reporting is strongly associated with fluctuations in a firm stock liquidity as well. For instance, liquidity is usually lower (with bid-ask spreads higher) prior to earnings announcements and higher afterwards (Chakrabaty & Shaw, 2008; Huang & Skantz, 2016; Johnson & So, 2018; So & Wang, 2014). Johnson and So (2018) document an interesting asymmetry: the cost of trading on negative news, relative to positive news, increases before earnings announcements (suggesting that financial intermediaries reduce their exposure to announcement risks by providing liquidity asymmetrically). On the other hand, Huang and Skantz (2016) document that the post-announcement reduction in information asymmetry (and the corresponding increase in liquidity) is greater when managers or analysts issue non-GAAP earnings at the earnings announcement and when the magnitude of the non-GAAP earnings adjustment by the analysts is larger. This suggests that earnings adjustments by analysts and managers increase the amount and precision of earnings information and help to narrow information asymmetry between informed and uninformed traders following earnings announcements.

Attributes of corporate reporting and the reporting environment are also related to trading volume, as well as the timing of trades by (some groups of) investors. For instance, following the cross-listing in the US (subjecting non-US firms to more stringent reporting requirements), their post-earnings-announcement trading volume increases significantly (Bailey et al., 2006). For firms cross-listed in the US, their earnings and book-value reconciliation adjustments (from IAS to US GAAP) are positively associated with the abnormal trading volume (Chen & Sami, 2008).

Kravet and Muslu (2013) examine companies' textual risk disclosures in 10-K filings and find that annual increases in risk disclosures are associated with increased trading volumes around and after the filings. Baginski et al. (2018) find that, after controlling for economic factors, abnormal trading volume is higher when the linguistic tone of publicly released management forecasts is more positive, suggesting that there is significant investor disagreement over the implication of this tone for firm value. Further tests in the paper show that the net buying behaviour of small investors is positively associated with residual tone, while larger investors tend to sell on this signal.

Other studies document similar differences in reaction to particular corporate disclosures by less-informed small (often small and individual) investors and better-informed (usually larger and institutional) investors. For instance, trading volume around a management forecast release is significantly related to a proxy for investor disagreement over management forecast information, but not significantly related to analyst forecast dispersion before a management forecast, which is a proxy for investor disagreement over information available before the information event (Cho & Kwon, 2014).

Dorminey et al. (2018) show that loss announcements (as opposed to earnings announcements reporting profits) generate more investor disagreements and more trading volume. Earnings announcements that decrease analysts' consensus are associated with more post-announcement trading volume, indicating that investors' private information becomes useful only in conjunction with information in the announcement and that this information is important enough to spur trading (Barron et al., 2005). Frankel and Li (2004) find that while financial statement informativeness is negatively associated with the frequency of insider purchases, company news - good or bad - is positively associated with insider purchase frequency. However, the information asymmetry risk is reduced by the analyst following (i.e. number of analysts following the firm), which is associated with reduced profitability of insider trades and reduced insider purchases (*ibidem*). Alexander et al. (2014); Campbell et al. (2009), Ke and Ramalingegowda (2005) provide evidence that institutional investors (in particular, transient ones i.e. those actively trading to maximise short term profits) trade to exploit the post-earnings announcement drift through their arbitrage trading strategies. Yet, Levi and Zhang (2015) document that even some institutional investors are reluctant to trade in the high-information-asymmetry days before earnings announcements³⁶ unless forced to do so by liquidity needs.

Tsai (2014) documents that some informed individual investors trade aggressively (and profitably) around earnings announcement dates. Yet, individuals are significant net buyers after both negative and positive extreme earnings surprises, consistent with behavioural explanation (i.e. attention effects). Finally, Blankespoor et al. (2019) find that individual investors tend to disregard accounting information and their trading behaviour is largely driven by recent history of stock returns.

C.2.2. Cost-of-capital effects

This section discusses the associations between corporate reporting (both financial and non-financial) as well as corporate reporting environment and firms' (implied) cost-of-capital. The focus here is on the cost of capital in general and cost of equity in particular, while the issues specific to the cost of debt are discussed in D.1.1 below. Bertomeu and Cheynel (2016) review theoretical literature on the subject in quite some detail and therefore we do not replicate their

³⁶ Yet, Donders et al. (2000) find increased trading volumes in the share option markets around announcement days.

discussion here. Overall, there appears to be quite some degree of consensus in this theoretical literature that more extensive and higher-quality corporate disclosures are associated with lower cost of capital (e.g. Bertomeu et al., 2011, or Cheynel, 2013, are good examples of studies generating such a prediction). Interestingly, while some of the models predict a negative link between corporate reporting and the cost of capital irrespectively of whether disclosures are mandatory or voluntary, the model of Bertomeu et al. (2011) predicts the link to be present only for mandatory disclosures.

Christensen et al. (2019), Larcker and Rusticus (2010), and Leuz and Wysocki (2016) review some of the relevant empirical literature on the subject (in particular, earlier studies). Therefore, our review complements and updates these prior reviews. Importantly, Larcker and Rusticus (2010) highlight endogeneity issues³⁷ that have plagued some of the earlier empirical research in this area and discuss how an instrumental-variable approach (i.e. a variable that induces changes in the explanatory variable, but has no effect on the dependent variable) could mitigate against such concerns in the cost-of-capital studies. However, finding a valid instrument is not easy.

A number of empirical studies confirm a negative link between the quality of various aspects of corporate reporting/disclosures and firms' cost of capital. For instance, Shroff et al. (2013) document that following the regulatory reform relaxing US firms' restrictions on disclosures in the periods preceding security offerings, firms provide significantly more of such pre-offering disclosures, which are in turn associated with decreased costs of raising equity capital. Francis et al. (2005) test the prediction that firms more reliant on external financing are more likely to undertake higher levels of disclosure and that a higher level of disclosure should, in turn, lead to a lower cost of external capital. Using an international sample of companies from 34 countries, they document beneficial effects of voluntary disclosures on cost of both equity and debt capital. El Ghouli et al. (2011) and Plumlee et al. (2015) find a negative relation between the quality of a firm's voluntary environmental and social disclosures and cost of equity capital, but Clarkson et al. (2013) and Qiu et al. (2016) find no such effect, and Richardson and Welker (2001) find the relation to be positive.

While Zhou et al. (2017) document a negative link between the quality of integrated reporting and firms' cost of capital in South Africa, this result is not mirrored in the study by Barth et al. (2017) despite the same institutional setting. Cole and Jones (2015) document that higher quality of Management's Discussion and Analysis (MD&A) is associated with lower cost of capital in the US. Elzahar et al. (2015) illustrate that the quality of disclosures pertaining to financial KPIs (mandated in the UK) has a negative effect on the firms' cost of capital.

However, Leuz and Wysocki (2016) review a number of early studies on the topic to argue that the empirical evidence on the negative link between corporate disclosures and the cost of capital is somewhat mixed, holding only for a) some firms or b) some types of disclosures, or c) in only some institutional contexts. For instance, Li (2015) documents that firms domiciled in countries with more conservative financial reporting systems have lower cost of equity and debt capital. Daske (2006) shows that adoption of internationally recognised financial reporting standards (IAS/IFRS or US GAAP) by German companies has not reduced the cost of capital for adopting firms as expected, and has actually led to its increase. Daske (2006) proposes two potential explanations for this finding: (1) it may stem from difficulties in estimating cost of capital (leading to estimation errors), or (2) from specific institutional factors pertaining to the nature of the transition process towards the use of international reporting standards in

³⁷ The endogeneity problems referred to here are related to situations when either (1) the outcome and explanatory variables are simultaneously determined (i.e. simultaneous-equation bias) or (2) a variable that affects both the outcome and explanatory variables is not included in the regression model (i.e. correlated omitted variable bias). Larcker and Rusticus (2010) illustrate that both are common in empirical accounting research.

Germany, inadvertently decreasing comparability of financial reports across firms within Germany and across different periods for the same firms.

Finally, Hoberg and Lewis (2017) argue that management could use corporate reporting strategically with the aim of lowering their firms' cost of capital. MD&A disclosures of fraudulent firms are abnormally extensive as far as their volume is concerned. Yet, they are of lower quality: they discuss fewer details explaining the drivers of firm's performance and disclose more information about positive aspects of firm performance, consistent with the use of impression management strategies (see Section A).

C.2.3. Value relevance studies

This section discusses studies that examine the value relevance of information provided by corporate reporting (both financial and non-financial) and the impact of it on the reporting environment. Methodologically, the focus here is predominantly on the studies that employ valuation models, such as e.g. Ohlson's (1995) valuation model or one of its extensions, and then examine the incremental impact that particular items reported by companies have on firm value. Studies directly examining the impact of corporate reporting on share prices and returns (including event studies) are discussed in Section C.2.4 below. As before, we acknowledge that some of the relevant earlier literature has been summarised by prior reviews (e.g. Ahmed et al., 2013; Ball & Sadka, 2015; Barth et al., 2001; Cascino et al., 2013 and 2014; Christensen et al., 2019; and Kothari, 2001). Thus, the discussion below complements these prior summaries. In short, there is ample evidence that financial accounting information has been value-relevant³⁸, although its relevance has decreased over time both in the US and internationally (Balachandran & Mohanram, 2011; Hail, 2013). At the same time value relevance of financial information varies across countries (Fletcher & Novotny-Farkas, 2017; Hail, 2013; Hung, 2000), as discussed below. Hail (2013) discusses potential explanations for differences in relevance of accounting numbers for valuation purposes across firms, countries, and periods. In particular, he discusses the role of three institutional and macroeconomic trends in this context:

- IFRS adoption;
- fair value accounting;
- accounting scandals or market bubbles.

Moreover, Hail (2013) suggest that other potential explanations exist as well. For instance, the following are likely to contribute to the changing role of the income statement versus the balance sheet and the overall relevance of financial information under GAAP (*ibidem*):

- shift from a mainly manufacturing to a service-oriented economy;
- increasing reliance on information sources and intermediaries other than annual reports (e.g. financial analysts, media, blogs, etc.);

³⁸ The literature evidencing value relevance (or lack thereof) of non-financial reporting is relatively scarce as it has only started to emerge in recent years making it more difficult to draw firm conclusions from it (Christensen et al., 2018).

- emergence of new technologies to disseminate information quickly and cheaply outside of the accounting system;
- ongoing integration of global product and capital markets;
- rising volatility of market values due to changes in the market structure (e.g. trading by institutional investors and hedge funds, electronic trading, etc.).

“As long as these potential explanations differ across countries (which they likely do) and are correlated with the institutional proxies [used] (...) (which they likely are), they will be reflected in the differential trends in value relevance” (Hail, 2013, pp. 353).

Regarding the impact of the reporting environment on value-relevance of financial reporting information, Ahmed et al. (2013) and Choi et al. (2013) examine the impact of IFRS adoption for value relevance. Ahmed et al. (2013) find that the value relevance of equity book value has not increased post-IFRS adoption, whereas the value relevance of earnings has generally increased when assessed using price models. Eng et al. (2014) examine whether accounting figures reported under IFRS by firms cross-listed in the US are comparable with those reported under US GAAP and find that value relevance, timeliness, and accrual quality of accounting numbers under US GAAP are not significantly different than those under IFRS.

More specifically, as far as financial institutions are concerned, McInnis et al. (2018) compare the value relevance of banks' financial statements under fair value accounting with that under current GAAP, which is largely based on historical costs. They find that the combined value relevance of equity book value and income under fair value is lower than that under GAAP. They question the relative usefulness of fair value accounting for bank valuation in the US. Fietcher and Novotny-Farkas (2017) use a global sample of IFRS banks and find that assets designated at fair value through profit or loss are generally less value-relevant than held-for-trading assets and available-for-sale assets, particularly so in bank-based economies. This effect is weakened by a richer firm-level information environment and the presence of institutional investors with fair value experience. Finally, Barth et al. (2014) find that net income adjustments resulting from mandatory 2005 IFRS adoption in Europe are value-relevant for both financial and non-financial firms.

Hail (2013) examines trends in value relevance of a number of balance sheet and income statement numbers over a 30-year period and confirms that the loss in relevance of the income statement discussed above has continued in recent years and is present in a large international sample, in particular in countries with strong institutions. While the overall relevance of the balance sheet remains stable, Hail (2013) finds a downward trend during earlier years of the sample analysed (up to mid-1990s), which reverses in subsequent years, especially in common law countries (i.e. countries with legal system of the English-law origin) with strong investor protection, strict disclosure requirements, and integrated markets. His results suggest that changes in the economy, the institutional environment, and in how firms operate affect the relative importance of accounting information for use in firm valuation by outside stakeholders.

Akbar et al. (2011) documents incremental value relevance of cash flow statement-derived measures (in addition to the balance sheet and income statement information) in the UK. Jones and Smith (2011) show that even supposedly transitory items, such as gains and losses reported as other comprehensive income and as special items, are value-relevant and have predictive power for forecasting both future net income and future cash flows. Brown and

Shivakumar (2003) document that pro-forma earnings³⁹ reported by managers and analysts are more value-relevant than GAAP net income in the US. This finding implies that pro-forma earnings contain value-relevant information beyond that provided by operating earnings obtained by users (i.e. investors) from firms' directly from financial statements. Ota (2000) explores a unique Japanese institutional setting where stock exchanges require firms to provide next year's earnings forecasts and find them to be value-relevant. The presence of such an effect could be attributed to the relatively high accuracy of management forecasts.

As far as value relevance of non-financial corporate reporting is concerned, Moneva and Cuellar (2009) evidence that financial environmental disclosures (investments, costs and contingencies) are value-relevant, but non-financial ones are not. Furthermore, their evidence confirms that environmental information provided on compulsory basis has recently become more value-relevant. Ioannou and Serafeim (2017) document a similar positive link for mandatory CSR disclosures. Yet, Plumlee et al. (2015) shows that even firm's voluntary environmental disclosures are value-relevant. Specifically, higher quality of such disclosures is associated with higher firm value through two channels: lower cost of equity capital and higher expected future cash flows.

However, the results of Cho et al. (2015b) challenge the claim that CSR disclosures are positively valued by shareholders. Finally, Qiu et al. (2016) find that value effects of CSR disclosures vary by the type of the disclosure: while environmental disclosures (more often studied in the literature) do not appear to be valued, firms that make higher social disclosures have higher market values, with the link being driven by higher expected growth rates in the cash flows of such companies, rather than by cost-of-capital effects.

C.2.4. Event studies and other share price/return effects studies

While this section examines a fundamental issue closely related to the one discussed in C.2.3 above, the methodological approach is different, with the focus on stock returns rather than employing valuation models. The vast majority of the studies discussed here employ some variation of an event study methodology, where abnormal share price reactions to companies' disclosures are analysed and the factors explaining the strength of these disclosures examined.⁴⁰ By far the most commonly studied event is the earnings announcement and the subsequent post-announcement return pattern, so-called post-earnings announcement drift, PEAD hereafter, Kothari, 2001).⁴¹

³⁹ Pro-forma earnings most often refer to earnings that exclude certain costs (e.g. non-recurring or non-operating items) that a company believes result in a distorted picture of its true profitability. Pro-forma earnings are not in compliance with standard GAAP methods and are usually higher than those that comply with GAAP.

⁴⁰ Abnormal return is the difference between the actual return of a security (or a portfolio of securities) and its expected return. In an event study context, such an expected (normal) return is defined as the return that would be expected if the event, e.g. earnings announcement, did not take place on a particular date. The review by MacKinlay (1997) succinctly outlines the basics of this methodological approach.

⁴¹ Recent examples of studies belonging to this long-tradition stream of research include Alegria et al. (2009), Atiase et al. (2005), Baber et al. (2006), Bailey et al. (2006), Baker et al. (2019), Balakrishnan et al. (2010), Ball and Shivakumar (2008), Barber et al. (2013), Bartov et al. (2000), Beaver et al. (2018), Caylor et al. (2007); Christensen et al. (2004), Collins et al. (2009), DeFond et al. (2007), Dorminey et al. (2018), Efendi et al. (2014), Files et al. (2009), Francis et al. (2007); Francis et al. (2002a, 2002b), Fredrickson and Zolotoy (2016), Guillamon- Saorin et al. (2017), Herrmann et al. (2011), Jegadeesh and Livnat (2006), Johnson and So (2018), Johnson and Zhao (2012), Liang et al. (2018), Liu et al. (2003), Lobo et al. (2017), Michaely et al. (2016), Nguyen and Truong (2018), Olibe (2016), Perotti and Wagenhofer (2014), Rees and Thomas (2010), Rees and Twedt (2011), Shivakumar (2006), Shu (2013), and Wilson (2008), while earlier studies are reviewed by Kothari (2001).

The predominant picture emerging from this literature is that while the short-term market reaction to unexpected earnings (i.e. abnormal return) is positively related with an earnings surprise, the reaction is not just concentrated in the period of days immediately following the earnings announcements. The PEAD persists for weeks or even months after the announcement, possibly up to four quarters afterwards (see e.g. Balakrishnan et al., 2010, Jegadeesh & Livnat, 2006, Kothari, 2001 and the studies summarised there).⁴² The earnings surprise is usually measured as standardised earnings surprise (SUE) defined as a difference between realised and expected earnings standardised by dividing it by the deviation of unexpected earnings (see e.g. Jegadeesh & Livnat, 2006; Liu et al., 2003; Rees & Thomas, 2010). Various studies differ in terms of how they calculate expected earnings with the benchmarks employed using for instance time series-based models of earnings, analyst (consensus) forecasts, etc. Other earning surprise measures include mean/median analyst EPS forecast error divided by share price or other price-based measures (*ibidem*). Hence, most of the studies discussed here examine the earnings post-announcement effects following meeting or missing some of the earnings thresholds, such as reporting a profit, reporting an increase in earnings, and meeting analysts' forecasts, etc. (see e.g. Herrmann et al., 2011; Jegadeesh & Livnat, 2006; Johnson & So 2018; Liu et al., 2003; Rees & Thomas, 2010). Importantly, a number of studies, including Johnson and So (2018) indicate that the announcement effects are asymmetric, depending on the sign of the earnings surprise (i.e. whether reported earnings exceed or fall short of a benchmark), and propose a liquidity-based explanation for this phenomenon.

Numerous studies examine earning announcement effects across companies, countries, and periods. A typical interpretation of the corresponding results could be summarised as follows: a stronger market reaction in the period directly surrounding the earnings announcements and/or weaker PEAD could be seen as evidence of earnings (and their announcements) being more informative (Baber et al., 2006; Francis et al., 2007; Francis et al., 2002a and 2002b; Liang et al., 2018). Along these lines, PEAD is stronger for announcements with higher information uncertainty and for firms whose stock returns demonstrate greater idiosyncratic volatility both in the US and international samples (Baber et al., 2006; Francis et al., 2007). Liang et al. (2018) shows that immediate market reactions to earnings announcements are stronger for firms whose managers are perceived as more credible and less prone to misreport.

A number of studies document that earnings have become informative over time, strengthening the immediate market reaction surrounding the announcement date (see e.g. Francis et al., 2002a and 2002b; Collins et al., 2009; Efendi et al., 2014).⁴³ One of the explanations put forward for this is the accompanying increase in the other supplementary disclosures provided by firms at the time of earning announcements (Baber et al., 2006; Francis et al., 2002b).⁴⁴ Guillamon-Saorin et al. (2017) argues that despite firms' attempts to sometimes use this additional information (such as non-GAAP earnings disclosures) as impression management tools, investors are able to see through such attempts. Similarly, Johnson and Schwartz (2005) cast doubt on the notion that investors are, on average, misled

⁴² This delay in market full response to loss/profit quarterly announcements makes it possible to construct a profitable trading strategy (investing in shares of extreme-profit firms and short-selling extreme-loss ones) found to deliver annualised return of 21% (Balakrishnan et al., 2010). Moreover, the profits from this loss/profit anomaly are not due to previously documented accounting-related anomalies (*ibidem*).

⁴³ Wilson (2008) challenges this finding, however.

⁴⁴ This assertion is partly challenged by Arif et al. (2018) who examine increasingly common practice of firms disclosing earnings announcements concurrently with the 10-K filing instead of first issuing a 'stand-alone' earnings announcement. They find that for such concurrent disclosures, the market reaction is muted even when controlling for the announcement timing, and PEAD is greater.

by pro-forma earnings disclosures despite the widespread concern expressed in the financial press and by regulators.

Efendi et al. (2014) find that earnings informativeness (see Section A) has increased following the change of reporting format, i.e. the mandatory implementation of eXtensible Business Reporting Language (XBRL) for filing. Earnings informativeness depends not only on the characteristics of reporting companies and the reported earnings numbers. For instance, Lobo et al. (2017) examine earnings announcement effects for announcements accompanied by simultaneous analyst forecast revisions and find larger (smaller) earnings response coefficients (a proxy for the informativeness of earnings, see Section A) for announcements accompanied by reinforcing (contradicting) analyst forecast revisions. Other factors that increase earnings informativeness include country-level quality of earnings and investor protection (DeFond et al., 2007), the prevalence of institutional investors in the shareholder base (Bartov et al. 2000; Shu, 2013), and visibility of the reporting firm (Fredrickson & Zolotoy, 2016). Michaely et al. (2016) find that stock returns around earnings announcements vary depending on the day of the week on which announcement takes place. The worst earnings news are announced on Friday evenings, i.e. times when the investors' and analysts' attention is likely to be at the lowest. This finding suggests that managers opportunistically time the releases of such bad news and then seem to exploit the resulting trading opportunities (Michaely et al., 2016). Baker et al. (2019) and Fredrickson and Zolotoy (2016) show that earnings announcements impact not only the returns of the reporting firms themselves, but also of their peers.

Overall, the discussion above illustrates that earnings announcements are important events that have substantial stock return consequences manifesting themselves in both short and medium run. While we have indicated that returns underreact to earnings information in the short run, Alegria et al. (2009) and Nguyen and Truong (2018) document that earnings announcement dates nevertheless contain disproportionately high numbers of trading days with extreme daily returns.⁴⁵ Yet, this phenomenon is put in a broader context by Ball and Shivakumar (2008) who quantify the relative importance of earnings announcements in providing new information to the share market. They find that approximately 5% to 9% of total information incorporated in share prices annually is associated with earnings announcements (with the average quarterly announcement being associated with approximately 1% to 2% of total annual information), therefore providing a modest but not overwhelming amount of incremental information to the market. These figures indicate that the primary economic role of reported earnings is not to provide timely new information to the share market. Instead, Ball and Shivakumar (2008) argue that the role of earnings lies elsewhere, e.g. in periodic contract settlement, in particular debt and managerial compensation contracts. Moreover, because accounting earnings primarily report actual outcomes, they play an economic role in the confirmation of prior information (*ibidem*). Finally, Ball and Shivakumar (2008) argue that accurate reporting of actual earnings outcomes exerts an accountability discipline on managers' and analysts' forward-looking statements, such as growth prospects and earnings forecasts. Some of these issues are covered in more detail in subsequent sections of this report.

Some studies examine the price effect of financial accounting information beyond that of headline earnings numbers. For instance, Thomas (1999) investigates whether abnormal returns can be earned using public information about firms' domestic and foreign earnings.

⁴⁵ Specifically, Alegria et al. (2009) defines extreme returns as those of magnitude of more than 2 standard deviations of daily returns for a given stock. Nguyen and Truong (2018) define an extreme daily return on a given stock as a highest daily return on that stock in a given month.

The results indicate that the market understates foreign earnings' persistence.⁴⁶ As a result, it is possible to construct a zero-investment trading strategy that consistently earns positive returns for a period of up to one year, with most of the positive returns concentrated in the few days surrounding the subsequent year's quarterly earnings announcement dates. Huang and Zhang (2012) note that until recently, studies in accounting research have predominantly focused on using earnings information to explain stock returns. Their article confirms that information provided by the other primary financial statement—the balance sheet—is incrementally useful for determining returns, in particular for firms where earnings informativeness is low. Ng et al. (2013) documents that stock market under-reacts not only to earnings figures (in line with PEAD, see above), but also to managers' earnings forecast, with the magnitude of under-reaction increasing in the perceived credibility of the forecasts. Atiase et al. (2005) show that the reaction to management's earnings forecasts is less pronounced if these are released at the same time as earnings announcements. Heflin et al. (2016) examine the effect of Regulation Fair Disclosure (FD) on public management earnings forecasts and find it to be asymmetric. Specifically, FD increased managers' use of management forecasts as a downward-guidance mechanism to help meet or beat earnings expectations, with this effect being more pronounced when existing analyst forecasts are optimistic and when firms had selective disclosure policies pre-FD. Finally, Tucker (2007) shows that openness of managers issuing profit warnings is not penalised by the markets: after controlling for selection bias, warning firms' returns remain lower than those of non-warning firms in a short-term window ending five days after earnings announcement, but when this window is extended by three months, warning and non-warning firms exhibit similar returns.

In addition to PEAD, another widely studied accounting-related return phenomenon is the so-called accrual anomaly, first documented by Sloan (1996). It refers to the empirical fact that the current level of accruals is negatively related to abnormal returns over the following year. This result suggests that the market fails to appreciate that the accrual component of earnings is less persistent than the cash flow component. Consequently, the market appears to overreact to earnings that contain a large accruals component. This result holds for both extreme positive and negative accruals. The over-reaction is subsequently reversed when earnings are reported in the following year and the market learns that the earnings of the previous period are not sustainable (Collins & Hribar, 2000). Collins and Hribar (2000) discuss the related literature and then jointly examine PEAD and the accrual anomaly. They find that the accrual mispricing appears to be distinct from PEAD: a hedge portfolio trading strategy that exploits both forms of market mispricing generates abnormal returns in excess of those based on either unexpected earnings or accruals information alone.

Chen and Khurana (2015) document that elimination of 20-F reconciliation form for firms cross-listed in the US (which was used to reconcile their home country-based reporting to US GAAP), simplifying their reporting requirements, is accompanied by positive cumulative abnormal returns for firms reporting according to IFRS. However, this effect is absent for non-IFRS-reporting firms. Chen and Khurana's (2015) findings seem to suggest that reporting requirements impose compliance costs (of preparation and auditing of a particular report), on firms, which shareholders can find excessive.

Following recent methodological and computational advances, researchers have started to examine price/return effects of qualitative information contained in the narrative part of corporate reports employing textual analysis tools (see Loughran & McDonald, 2016, for a review of related literature).⁴⁷ Loughran and McDonald (2014) find that 10-K document file

⁴⁶ See Section A for a discussion of earnings persistence.

⁴⁷ Given the nascent state of the field, the methodological debate on the merits of various methodological approaches is ongoing (Henry and Leone, 2016; Lewis and Young, 2019; Loughran and McDonald, 2011). Please

size, argued to be a simple yet effective measure of a financial statement readability, is positively related with the magnitude of earnings surprises, which suggests that firms trying to obscure mandated earnings-relevant information “bury” the results in longer documents. Guay et al. (2016) challenge this premise and argue that managers use voluntary disclosures to mitigate the negative effects of financial statement complexity. In particular, a positive relation between financial statement complexity (measured as an aggregate of various readability proxies, see Section A) and voluntary disclosure is stronger when liquidity decreases around the filing of the financial statements and/or when a firm has more outside monitors (such as financial analysts covering the firm or institutional shareholders invested in its equity), and is weaker when firms have poor performance and greater earnings management (*ibidem*).

Karapandza (2016) shows that firms talking less about the future (i.e. using fewer future tense phrases) in their annual reports generate positive abnormal returns of about 5% annually. Such a lack of forward-looking statements result in companies being perceived as more risky with shareholders expecting to be compensated (through higher returns) for bearing the corresponding risk (*ibidem*). Feldman et al. (2010) examine whether the management discussion and analysis (MD&A) section of Forms 10-Q and 10-K has incremental information content beyond financial measures such as earnings surprises and accruals. They find that short-run market reactions around the SEC filing (i.e. over three days surrounding the date of the filing) are significantly associated with the tone change of the MD&A section (relative to the prior filing), even after controlling for accruals and earnings surprises. Management’s tone change is also positively related to medium-run returns over the period from 2 days after the SEC filing date until 1 day after the subsequent quarter’s preliminary earnings announcement (*ibidem*). Feldman et al. (2010) document that this drift (similar in nature to PEAD discussed earlier) cannot be explained by financial information conveyed through accruals and earnings surprises (*ibidem*). Baginski et al. (2018) document a negative relation between the tone of management’s earnings forecasts and future stock returns. Finally, Huang et al. (2014) investigate whether and when firms manage the tone of words in earnings press releases and find that abnormal positive tone a) predicts negative future earnings and cash flows, and b) is positively associated with upward perception management events, such as, just meeting/beating thresholds or future earnings restatements. Such an abnormally positive tone has a positive stock return effect at the earnings announcement and a delayed negative reaction in the one and two quarters afterward. Overall, the evidence is consistent with managers using strategic tone management to mislead investors about firm fundamentals, in particular in case of older firms or firms less able to manage earnings through accruals (*ibidem*).

Existing literature also provides some evidence on the association between non-financial corporate reporting and stock returns (see Christensen et al., 2019, for a recent review). Beneish et al. (2008) show that firms making disclosures about internal control weaknesses (voluntarily under Section 302 of Sarbanes-Oxley Act) experience negative announcement returns, but negative effects are smaller for larger firms reporting under Section 404 of the Act, suggesting that public disclosures are more informative for smaller firms that likely have higher pre-disclosure information uncertainty. Amer (2018) studies companies that have joined the United Nations Global Compact (UNGC) and are required to submit annual ESG report to UNGC. She finds that failure to report to the UNGC is penalised by the financial markets with an average cumulative abnormal return of -1.6% over a period of 5 trading days around the event, indicating that even voluntary reporting commitments undertaken by firms have substantial financial market consequences. Liesen et al. (2017) show that corporate disclosures of quantitative greenhouse gas (GHG) emissions and, to a lesser extent, carbon performance are value-relevant. Specifically, investors could have achieved abnormal risk-

see Section A for further discussion of methodological aspects of text-based measures of the quality of corporate reporting.

adjusted returns of up to 13.05% annually by exploiting inefficiently priced positive effects of (complete) GHG emissions disclosure and good corporate climate change performance in terms of GHG efficiency in their portfolio construction. Their results imply that investors should not neglect environmental disclosures and performance when making investment decisions (as financial markets were inefficient in pricing publicly available information on carbon disclosure in the sample period). Consequently, Liesen et al. (2017) call for mandatory and standardised information on carbon performance, which would consequently not only increase market efficiency, but also result in better allocation of capital within the real economy. Along these lines, Grewal et al. (2019) examine the equity market reaction to events associated with the passage of the EU directive mandating increased nonfinancial disclosures pertaining to firms' ESG performance (applicable to firms listed on EU exchanges or with significant operations in the EU). They predict and find an average negative market reaction of -0.79% . This effect is less negative for firms having higher pre-directive ESG performance or higher pre-directive ESG disclosures. At the same time results are accentuated for firms having the most material ESG issues, as well as investors anticipating proprietary and political costs as a result of the mandated disclosures. Overall, their results are consistent with the equity market correctly perceiving net costs (benefits) for firms with weak (strong) nonfinancial performance and disclosure around key events surrounding the mandatory disclosure regulation of nonfinancial information (*ibidem*).

C.2.5. Volatility effects

Numerous studies investigate the link between the timing and content of corporate reporting and volatility of stock and option returns. For instance, Sridharan (2015) shows that financial statement information can be useful for predicting future realised stock volatility. Importantly, the information contained in financial statements allows for improvements in forecasting (relative to predictions based on stock- and option-market-based information), potentially improving performance of investors' trading strategies (*ibidem*).

More specifically, a number of studies investigate patterns of volatility around the earnings announcement dates. Barth and So (2014) find that investors anticipate some earnings announcements to convey news that increases market return volatility and pay a premium to hedge this non-diversifiable risk. Donders et al. (2000) document that stock return volatility implied by the option prices increases before announcement days and drops afterwards. Truong et al. (2012) finds these effects to be asymmetric, i.e. positive earnings surprises and positive profit announcements produce a larger uncertainty resolution than negative earnings surprises and loss announcements. Hann et al. (2019) illustrate that earnings announcement impact not only the stock and option volatility of announcing firms, but also of their industry peers. This suggests that earnings announcements help to resolve uncertainty about the value of not only the announcing firm but also its peers. Specifically, there is a significantly positive association between changes in the implied volatility of each industry's first announcer and its peers around the first announcer's earnings announcement (*ibidem*). Importantly, the aforementioned reductions in post-announcement volatility are positively related to the quality of accounting information (in particular, earnings quality), as documented for reporting firms by Anagnostopoulou and Tsekrekos (2016) and for peer effects by Hann et al. (2019). In a similar vein, Rajgopal and Venkatachalam (2011) hypothesise and find that deteriorating earnings quality is associated with higher idiosyncratic return volatility over the period of 1962–2001. In other words, poor earnings quality could expose investors to risks for which they would not be compensated (in terms of expected returns).

A small number of studies have looked at the association between volatility and corporate reporting beyond financial accounting numbers. For instance, Kravet and Muslu (2013) examine companies' textual risk disclosures in 10-K filings and find that, surprisingly, annual

increases in risk disclosures are associated with increased stock return volatility. This is in contrast to prior literature documenting resolved uncertainties in response to various types of company disclosures. However, this effect is less pronounced for firm-level disclosures that deviate from those of other companies in the same industry and year, supporting critics' arguments that firm-level risk disclosures are more likely to be boilerplate. Rogers et al. (2009) find a similar positive association between earnings guidance provided by managers and volatility. However, Billings et al. (2015) document a link between abnormal run-ups in volatility and the managers' decision to issue a forecast after controlling for the market's ability to anticipate the guidance which suggests that the casual link works in the opposite direction. Upon disentangling pre-guidance volatility changes from post-guidance volatility changes, Billings et al. (2015) find no evidence that guidance increases volatility, refuting the finding of Rogers et al. (2009).

Following the adoption of the Sarbanes-Oxley Act, US firms have been mandated to provide management's report on internal controls (as per Section 302) and such disclosures have been shown to reduce stock return volatility (Gupta et al., 2018). Benlemlih et al. (2018) paint a more nuanced picture and find a negative and significant association between firms' environmental and social disclosures and a firm's total and idiosyncratic risk, but not systematic risk (defined as per Capital Asset Pricing Model, CAPM). This result suggests that corporate transparency can help companies to build a positive reputation and trust with their stakeholders, which in turn can help mitigate the firms' idiosyncratic/operational risk.

Finally, firms that voluntarily choose to increase their reporting frequency (and switch to quarterly reporting) somewhat surprisingly suffer from higher price volatility, offsetting some of the benefits of more frequent reporting (Rahman et al., 2017). Thus, while the evidence summarised in this section suggests a negative link between the scope and quality of corporate reporting and volatility of stock and option returns, some questions about the robustness of this finding remain.

C.2.6. Concluding remarks

We have shown that corporate reporting matters for and is used by investors. Its relevance manifests itself in a number of ways detailed below.

- High-quality financial reporting reduces information asymmetries faced by market participants, which in turn reduces information advantages of informed investors (such as e.g. corporate insiders). Consequently, stock market liquidity improves. For instance, trading costs (reflected through bid-ask spreads) decrease, market depth increases, and trading volumes increase. These liquidity effects are stronger if disclosure regulatory regime is stronger (see Section C.2.1). So far, there is not enough empirical evidence illustrating similar effects for non-financial reporting (e.g. ESG reporting).
- There appears to be quite some degree of consensus in both theoretical and empirical literature that more extensive and higher-quality corporate disclosures reduce perceived riskiness of the firms and therefore they are associated with lower cost of capital in general and lower cost of equity capital in particular (see Section C.2.2). Again, these effects have mostly been documented for financial reporting, although the literature examining the effects of non-financial reporting and integrated reporting has started to emerge recently.
- There is ample evidence that financial accounting information has been value-relevant, although its relevance has decreased over time both in the US and

internationally (see Section C.2.3). Value relevance of financial reporting also varies across firms and countries.

- A number of studies document that information provided by ESG reporting is also value-relevant and this finding holds for both mandatory and voluntary disclosures (see Section C.2.3).
- The release of corporate reporting (both financial and non-financial) is an important factor explaining stock returns (see Section C.2.4).
- Yet, only a small proportion of total information incorporated in share prices is associated with earnings announcements suggesting that the primary economic role of reported earnings is not to provide timely new information to the share market.
- Empirical evidence suggests that market reaction to the releases of corporate reporting information is not instantaneous (as illustrated e.g. by the PEAD phenomenon) with share prices only slowly reflecting the information over time (see Section C.2.4).
- The return effects of narrative corporate reporting vary with its linguistic characteristics (e.g. tone) and readability (see Section C.2.4).
- Finally, Section C.2.5 documents that corporate reporting is useful in explaining and predicting volatility of stock and option returns, illustrating another aspect of usefulness of such information for investors.

C.3. Corporate reporting and financial analysts

This section examines earnings forecasts, share recommendations and coverage by financial analysts and the link between these and corporate reporting.⁴⁸ In doing so, we mirror the approach of Section C.2. above by providing indirect evidence of usage of corporate reporting information by financial analysts. As before, we acknowledge that some of the relevant topics have been extensively reviewed by prior reviews such as Beyer et al. (2010), Bradshaw (2011), Ramnath et al. (2008), as well as, to a lesser extent, Brown et al. (2015), Cascino et al. (2013, 2014), and Christensen et al. (2019). Therefore, our discussion below complements and updates these prior reviews, extending the focus beyond the effects of narrowly defined financial reporting information and covering the emerging literature on analysts' use of non-financial information, in particular CSR reporting.

Before delving into details as to whether and how corporate reporting is associated with analysts' forecasts, recommendation, and coverage, we discuss how corporate disclosures influence analysts' timings of forecast revisions and the way they process and produce information. The usefulness of analyst research potentially derives from two sources: the discovery of private information and interpretation of public information, with the literature disagreeing as to which one dominates (Asquith et al., 2005; Francis et al., 2002a; Ivković & Jegadeesh, 2004). Chen et al. (2010) explore the relative importance of these two sources around the earnings announcement dates and find that information discovery (interpretation) dominates in the week before (after) firms announce their earnings. In addition, they find that

⁴⁸ We focus on the usage of corporate reporting by financial analysts and do not discuss here the literature on the effect that analysts forecast can have on corporate reporting choices (in particular, earnings management). The latter is outside of the focus of the FRC project.

the interpretation role increases in importance with the difficulty of financial accounting information, yet the information discovery role is more important overall. Livnat and Zhang (2012) challenge this conclusion: examining a broad set of corporate public disclosures, they suggest that investors value analysts' ability to promptly interpret public disclosures, especially less structured or non-financial disclosures more highly than their ability for information discovery. Yet, Jegadeesh and Livnat (2006) show that analysts revise their forecasts of future earnings in response to revenue surprises, but they are slow to incorporate fully the information in revenue surprises, possibly exacerbating PEAD discussed earlier. De Franco et al. (2011) stress the relative importance of the analysts in interpreting the information reported by companies, in particular in notes to financial statements. Equity analysts are more likely to issue a report and to update their target price estimates at the earnings announcement dates when the magnitude of the accounting adjustments calculated from financial statement note information is larger (*ibidem*).

Keskek et al. (2014) document reputation herding behaviour of analysts in both discovery and interpretation stages around the earnings announcements, with earlier forecasts having higher quality than later forecasts (suggesting that analysts who are more capable participate early in discovering and analysing of information). Finally, Altinkiliç and Hansen (2009) attribute the clustering of analysts' recommendation releases around the earnings dates to analysts strategically piggy-backing on earnings information to improve the perceived performance of their recommendations. However, Yezegel (2015) argues that analysts issue recommendations when they face greater demand from investors, when the relative supply of information available on earnings announcements is higher and when they detect mispricing. This finding once again stresses the importance of analysts in interpreting of publicly released information.

C.3.1. Corporate reporting and analyst forecasts

A sizeable body of literature examines the links between the features of corporate reporting and characteristics of analyst forecasts such as forecast dispersion/consensus and/or forecast accuracy.⁴⁹ For instance, Tsao et al. (2016) document that firms that provide voluntary monthly earnings disclosures have more accurate and less dispersed analyst earnings forecasts and have lower overall uncertainty and less commonality of information in analysts' earnings forecasts. Firms restating their financial reports in the past due to irregularities (as opposed to errors) suffer from a decreased credibility in their subsequent reporting, which in particular influences reduction in analyst accuracy and an increase in forecast dispersion in the post-restatement period, while other restatement firms exhibit only an increase in forecast error, suggesting that restatements affect analyst behaviour in forming judgements regarding subsequent earnings announcements (Ye & Yu, 2017).

A number of studies have also investigated the effects of including a specific type of information in corporate reporting and of the quality of such information on the analyst forecast accuracy, precision, and likelihood of updates. The examples of such information items include reporting on firms' accounting policies (Hope, 2003), estimates of values of employee share options (Bratten et al., 2016) or other complex derivatives (Chang et al., 2016), R&D expenses (Hill et al., 2018), or disaggregated earnings guidance (Lansford et al., 2013). Overall, the common conclusion of these studies tends to be that analyst forecast dispersion decreases

⁴⁹ Analysts' forecast dispersion (as opposed to consensus) refers to the disagreement among analysts regarding the expected earnings per share (EPS) of a given firm. It is usually measured as the standard deviation among analysts' forecasts for a forecast horizon divided by the realized EPS. Forecast accuracy is usually defined as the absolute value of the percentage difference between realized EPS and forecasted EPS.

and analyst precision increases are associated with higher transparency as well as higher quality, broader scope, and lower complexity of information disclosed by firms.

Similar conclusions are reached by studies employing linguistic analysis of corporate disclosures to examine the effects of its quantity and quality (e.g. readability, specificity) on analyst forecast dispersion and precision (e.g. Bozanic et al., 2018; Hope et al., 2016; Lehavy et al. (2011). Interestingly, contrasting the results of Kravet and Muslu (2013) and Hope et al. (2016) illustrate that depending on whether the focus is on the effects of quantity or quality of disclosures, the conclusion can differ. While Hope et al. (2016) show that improved quality (i.e. specificity as opposed to boilerplate) of risk disclosures is beneficial, allowing analysts assess firms' fundamental risks better, Kravet and Muslu (2013) show that increases in the extent of risk disclosures are associated with more dispersed forecast revisions around the filings, suggesting that textual risk disclosures could increase analysts' and investors' risk perceptions. Similar conclusions are reached for the length of 10-K financial statement file by Loughran and McDonald (2014): longer reports are associated with higher analyst forecast dispersion.

It is not just the contents and length of narrative reporting, but also the type of language used that matters for analyst forecasts. For instance, the use of pessimistic language tone in financial statements is positively associated with forecast accuracy and analyst coverage (Iatridis, 2016). Causal reasoning intensity on earnings-related financial outcomes of a large sample in MD&A sections of firms' financial reports in the US is positive and significantly associated with a firm's causal reasoning intensity and analyst earnings forecast accuracy respectively, while the link is negative and significant for analysts' earnings forecast dispersion (Zhang et al., 2019).

C.3.2. Corporate reporting and analyst coverage

Characteristics of corporate reporting (such as e.g. frequency, quality, readability, or tone) influence the likelihood that a particular firm is covered by analysts in the first place. Analyst coverage is higher for firms with less readable financial statements (Lehavy et al., 2011)⁵⁰ and for firms voluntarily disclosing monthly or quarterly earnings (Rahman et al., 2007; Tsao et al., 2016), once again evidencing investors' demand for interpretation of corporate disclosures by analysts. Analyst coverage drops following firm restatements (Ye & Yu, 2017; see also Section A). Analyst coverage is higher for firms with more pessimistic language tone in their financial statements (Iatridis, 2016) and for firms with higher causal reasoning intensity on earnings-related financial outcomes in their MD&As (Zhang et al., 2019).

The extent of analyst coverage also depends on macro-level factors characterising the reporting environment. For instance, following the adoption of IFRS, analyst coverage, in particular by foreign analysts, improves (De George et al., 2016; Lang & Stice-Lawrence, 2015). Such macro-level factors also affect forecast dispersion and accuracy (Barniv et al., 2005; Barth et al., 2017; De George et al., 2016; Jiao et al., 2012; Lang & Stice-Lawrence, 2015). Specifically, following IFRS adoption, forecast dispersion has decreased and forecast accuracy has improved (Choi et al. 2013; De George et al., 2016; Jiao et al., 2012; Lang & Stice-Lawrence, 2015). Barniv et al. (2005) compare analysts' performance in common- and civil-law countries, with the former (i.e. countries with a legal system of the English-law origin) usually having higher-quality financial reporting systems. They find that analysts with superior ability and resources in common-law countries will more consistently outperform their peers because appropriate market-based incentives exist, there. In civil-law countries, where the demand for earnings information is reduced because of weaker corporate governance

⁵⁰ Lang and Stice-Lawrence (2015) examine the impact of IFRS adoption and suggest the opposite, however.

mechanisms and lower-quality financial reporting⁵¹, analysts with superior ability will less consistently provide superior forecasts (*ibidem*).

C.3.3. Usage of analyst forecasts by investors

The literature also sheds some light on the usage of analyst reports by market participants. For instance, Kanagaretman et al. (2005) that analyst forecast properties and analyst coverage provide equity specialists with useful information, which then gets reflected in measures of market liquidity, i.e. depth of the market and bid-ask spreads. Francis et al. (2002a) argues that analyst reports do not substitute for earnings announcements or erode their informativeness but strengthen their price effects instead. The conclusion of analyst earnings forecasts decreasing information asymmetry at earnings announcement is corroborated by Amiram et al. (2016). Along the same lines, Zhang (2008) shows that the responsiveness of analyst forecasts to current earnings announcements reduces PEAD and is associated with shifting a larger portion of market earnings reactions to a narrow event window following the announcement.

Kirk et al. (2014) argue that investors may use individual analyst forecasts as additional benchmarks in evaluating reported earnings because the consensus forecast under-utilises private information contained in individual analyst forecasts. They also find that measures reflecting such private information have incremental explanatory power over the consensus forecast for the market's reaction to earnings news. Huang and Skantz (2016) show that issuance of non-GAAP earnings numbers by management (pro-forma earnings) and analysts ("street earnings") increase the amount and precision of earnings information and thus help to narrow information asymmetry between informed and uninformed traders following earnings announcements, improving price discovery.

C.3.4. Corporate reporting environment and analyst forecasts

Kim et al. (2017) show that after firms stop providing quarterly earnings guidance, their investor base becomes composed of a larger (smaller) proportion of long-term (short-term) institutions, who put more (less) weight on long-term (short-term) earnings in firm valuation, become more (less) sensitive to analysts' long-term (short-term) earning forecast revisions. Such firms are less likely to dismiss chief executive officers for missing quarterly earnings targets by small amounts, relative to investors in firms that continue to issue quarterly earnings guidance. These findings evidence a particular benefit of stopping quarterly earnings guidance, i.e. the reduction of short-termism among investors.

Barth et al. (2017), Bernardi and Stark (2018a), and Zhou et al. (2017) examine how another aspect of the corporate reporting environment, namely the mandated adoption of integrated reporting (<IR>) framework in South Africa, affects capital markets in general and financial analysts in particular and they provide somewhat contrasting results in this respect. While

⁵¹ Common-law countries are generally perceived to have stronger investor protection laws higher-quality financial reporting. In such a setting, earnings information can play a more prominent role in corporate governance mechanisms and therefore have greater value relevance. The greater value relevance of earnings information increases investors' demand for that information when making decisions. On the other hand, financial accounting systems are generally perceived to be of lower quality in their ability to reflect accurately the underlying economic activity of the firm in civil-law countries. Moreover, financial accounting practices in civil-law countries are oriented less toward serving the needs of outside investors and investor protection laws are weaker. These factors likely weaken the demand by investors for earnings information (see Barniv et al., 2005, and studies cited there).

Barth et al. (2017) argues that higher integrated reporting (<IR>) quality is not associated with greater analyst target price forecast accuracy, Zhou et al. (2017) find that analyst forecast errors reduce as a company's level of alignment with the <IR> framework increases. Moreover, Zhou et al. (2017) document that the beneficial effects of <IR> persist after controlling for factors relating to financial transparency and the issuance of stand-alone non-financial reports, suggesting that <IR> is providing incrementally useful information to the capital market over and above existing reporting mechanisms. Bernardi and Stark (2018a) corroborate these benefits of <IR> and show that ESG disclosure levels are not robustly associated with analyst forecast accuracy before the IR regime was introduced. However, they argue that these disclosures, in particular environmental disclosures, are associated with forecast accuracy after the introduction of the <IR> regime, suggesting a mediating rather than direct effect of <IR>.

C.3.5. ESG reporting and financial analysts

The studies examining the links between ESG disclosures and analyst coverage and forecasts include Bernardi and Stark (2018b), Dhaliwal et al. (2011), Dhaliwal et al. (2012), Lee et al. (2018), and Muslu et al. (2019). Bernardi and Stark (2018b) illustrate a positive link between analyst following and the quality of firms' environmental and social disclosure. Dhaliwal et al. (2011) examine the initiation of voluntary CSR reporting and find that initiating firms with superior social responsibility performance attract dedicated institutional investors and analyst coverage (although this result holds mainly for firms with good CSR performance). Moreover, these analysts achieve lower absolute forecast errors and dispersion. Lee et al. (2018) examine the relationship between corporate social responsibility (CSR)-related information and the value of financial analysts' share recommendations. They find that the value⁵² of analysts' recommendation revisions is lower for companies that voluntarily issue CSR-related reports compared to those that do not make such disclosures (suggesting some substitutability between corporate disclosures and analyst reports). Moreover, the overall effect of CSR on the informativeness of analysts is stronger in the recent years.

Dhaliwal et al. (2012) examine the relationship between disclosure of nonfinancial information (proxied by issuance of stand-alone CSR reports) and analyst forecast accuracy using firm-level data from 31 countries. They find that the issuance of stand-alone CSR reports is associated with lower analyst forecast error, with this relationship being stronger in countries where CSR performance is more likely to affect firm financial performance (i.e. countries that are more stakeholder-oriented, as reflected by the composite measure⁵³ constructed by Dhaliwal et al., 2012). The relationship is also stronger for firms and countries with more opaque financial disclosure, suggesting that issuance of stand-alone CSR reports plays a role complementary to financial disclosure (*ibidem*). The results in Dhaliwal et al. (2012) should however be interpreted with caution, given that they use a very rough proxy for CSR reporting (i.e. the presence of absence of a CSR report). Finally, Muslu et al. (2019) develop a disclosure score based on the tone, readability, length, and the numerical and horizon content of stand-alone CSR report narratives. They then examine the relationship between the CSR disclosure scores and analyst forecasts. The findings of Muslu et al. (2019) suggest that the contents of companies' CSR reports help to improve analyst forecast accuracy, but this relationship only

⁵² Lee et al. (2018) measure the value of analysts' recommendation revisions indirectly by examining abnormal stock returns around the date when the revisions are issued.

⁵³ This composite measure considers different features of the institutional environment that are likely to affect how firms manage their CSR activities, such as e.g. employment laws, social security systems, human rights legislation, CSR reporting legislation, etc.

holds for companies with high-quality substantive CSR reports (as measured by CSR disclosure scores).

C.3.6. Concluding remarks

As discussed above, corporate disclosures influence contents and timings of analyst forecast revisions and the way they process and produce information, which illustrates that corporate reporting could be useful for analysts and, implicitly, for investors whom they serve.⁵⁴ The relevance of corporate reporting information for analysts manifests itself in a number of ways summarised below.

- Analyst earnings forecasts are more accurate and less dispersed for firms with higher quality of financial and non-financial corporate reporting (see Sections C.3.1 and C.3.5).
- Analyst forecast accuracy and dispersion also vary with the institutional corporate reporting environment (see Section C.3.4).
- Characteristics of corporate reporting (such as e.g. frequency, quality, readability, or tone) and of corporate reporting environment (e.g. mandatory adoption of a particular reporting standard) influence the likelihood that a particular firm is covered by an analyst in the first place (see Section C.3.2).

⁵⁴ In this context, the literature stresses analysts' role in interpretation of public information (such as corporate reporting) in particular.

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Section D

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D. What are the information needs of stakeholders (other than shareholders) and how is this information used?

This section focuses on the information needs of stakeholders (other than shareholders) and their usage of corporate reporting. Among those, creditors (who are the other type of capital providers besides shareholders) play a particularly important role. As outlined below, the existing literature on information usage by this specific stakeholder group focuses mostly on financial reporting. Given the breadth of the creditor-related relevant literature, we discuss studies pertaining to credit markets in Section D.1, separately from the studies examining the information needs and information usage by other stakeholders (e.g. consumers, employees, suppliers, managers, industry bodies, professional associations, accounting firms, consultants, NGOs, academics; see Section A for further discussion)⁵⁵ discussed in Section D.2. In contrast with Section D.1, the literature reviewed in Section D.2 predominantly pertains to non-financial corporate reporting, complementing the recent review of the relevant literature by Christensen et al. (2019, Section 4).

Section D answers big questions about (a) the information needs of creditors and of other stakeholders and (b) their usage of corporate information, pertinent to the FRC Future of Corporate Reporting project. It illustrates how the annual report (and its components such as financial statements or narrative information) are useful to different groups of stakeholders. Finally, in doing so, it provides an indirect evidence on who the audience for corporate reporting is.

D.1. Corporate reporting and creditors

The empirical literature on the links between corporate reporting, the corporate reporting environment and credit markets mostly examines public debt markets (i.e. corporate bond markets) or (bank) loans (which are an example of a private debt market transaction). The evidence on other sources of credit, e.g. on trade credit, is quite scarce (Cascino et al., 2013). Moreover, the vast majority of the studies relevant for this section focus on financial reporting information and/or the financial reporting environment only (with a notable exception of the literature review by Christensen et al. (2019), and the literature summarised there). Early literature on the topics discussed here has been extensively reviewed by Armstrong et al. (2010), Ball et al. (2008), Cascino et al. (2013, 2014), Christensen et al. (2019), Penalva and Wagenhofer (2019), Shivakumar (2013), and Taylor (2013). Rather than updating the, our review updates and complements those reviews.⁵⁶

Ball et al. (2008) and Ball and Shivakumar (2008) put the relevance of this section into perspective by making a bold claim that demand for financial reporting information arises in credit rather than equity markets, making financial statements more useful to lenders than to shareholders. Ball et al. (2008) also argue that debt markets demand high scores on

⁵⁵ Some aspects of the usage of corporate reporting by regulators and standard setters are covered by Section B above, while others are not within the scope of this FRC project. The usage of corporate reporting information by auditors is also excluded from the review for the same reason.

⁵⁶ Importantly, our literature search has not identified any studies directly examining the usage of corporate reporting by creditors besides those already covered by prior reviews (e.g. Cascino et al., 2013). Hence, Section D.1 relies solely on indirect evidence derived from data about debt contract terms, bond and CDS spreads, bond returns, credit ratings, etc.

timeliness, and conservatism, because debt contract terms (in particular, debt covenants⁵⁷ discussed below) utilise reported numbers.⁵⁸ On the other hand, equity markets do not rate financial reporting consistently with these metrics, because (among other things) they adjust for the total information incorporated in prices (*ibidem*). Ball et al. (2008) corroborate their claims empirically for an international sample of firms.

Cascino (2017) and Even-Tov (2017) examine the relation between share and bond markets and the role that accounting information plays in this context. Specifically, Cascino (2017) examines how accounting conservatism affects the sensitivity of corporate bond returns to changes in the value of equity (i.e. the hedge ratio). Cascino (2017) finds that for firms that report conservative earnings and use covenants in their bond contracts there is on average a stronger association between share and bond returns. Even-Tov (2017) shows that the bond price reaction to earnings announcements has predictive power for post-announcement share returns and that this predictive ability is driven by the bonds of firms with low credit rating scores (non-investment grade ones).

The remainder of this section focuses on the effects of corporate reporting (and of the corporate reporting environment) on two specific features of debt financing: cost of debt, which is discussed in Section D.1.1, and debt covenants, discussed in Section D.1.2. Finally, Section D.1.3 discusses how information provided by corporate reporting could be useful for distress and bankruptcy prediction and for credit ratings. Hence, while Section D.1.1 focuses predominantly on valuation role of corporate reporting (see Section A), from the creditors' perspective Sections D.1.2 and D.1.3 illustrate how corporate reporting could be helpful for creditors (and agents serving them, such as credit rating agencies) to monitor the use of the capital, i.e. the stewardship role of corporate reporting (see Section A).

D.1.1. Cost of debt and access to credit market markets

Not many studies directly examine the relevance of corporate reporting information and of the reporting environment on access to credit (i.e. issues such as credit rationing, provision of trade credit, etc.). However, there are numerous examples of studies illustrating this relationship indirectly by examining the link between corporate reporting and the cost of debt in general and loan pricing in particular. Earlier literature on the related issues has been reviewed e.g. by Armstrong et al. (2010), Cascino et al. (2013, 2014), and Taylor (2013). Therefore, our review complements and updates theirs.

There exists significant research indicating that the quality and credibility of financial information is (a) reflected in the cost of debt capital in general (e.g. Bonsall & Miller, 2017; Francis et al., 2005; Li, 2015) and (b) is incorporated into the pricing of bank loans in particular (e.g. Anagnostopoulou, 2017; Bharath et al., 2008; Costello & Wittenberg-Moerman, 2011; Graham et al., 2008; Kim et al., 2011). The basic logic is that accounting quality is expected to affect loan pricing either by determining the ease of predicting the future financial position of borrowing firms and their ability to repay their loans, or by influencing the level of information asymmetry between insiders and outsiders (Anagnostopoulou, 2017; Bharath et al., 2008;

⁵⁷ Debt covenants are agreements between a company (a lender) and a creditor usually stating limits or thresholds for certain financial ratios that the company may not breach.

⁵⁸ Beatty et al. (2008), Franke and Müller (2019), Guay (2008), Penalva and Wagenhofer (2019), and Ruch & Taylor (2015) discuss the role of accounting conservatism in credit markets in more detail and review the corresponding literature. Moreover, Gong and Luo (2018) argue that private information that lenders obtain about borrowers' (in particular, through the lenders' relationships with the borrowers' major customers) can facilitate more timely and precise evaluation of borrowers' creditworthiness. Such an information reduces lenders' reliance on accounting conservatism in the borrowers' financial statements.

Graham et al., 2008). The reporting quality aspects shown to matter for bank loan pricing include:

- accrual-based measures (proposed by Dechow and Dichev, 2002, and McNichols, 2002; see also Section A) examined by Anagnostopoulou (2017) and Bharath et al. (2008);
- prior mis-reporting and resulting restatement (Graham et al., 2008);
- voluntary adherence to IFRS (Kim et al., 2011);
- or reporting of material internal control weaknesses (Costello & Wittenberg-Moerman, 2011).

Mansi et al. (2011) illustrate that the activity of financial analysts could be beneficial not just for equity investors (as discussed in Section C.3 above) but can also mitigate information asymmetries between a firm and its creditors. Specifically, a common factor based on earnings forecast accuracy, forecast dispersion, and forecast revision volatility significantly relates to both credit ratings and credit spreads. Anagnostopoulou (2017) also documents an important mediating effect of the institutional environment in an international setting: accounting quality matters for the determination of loan spreads only in combination with the level of legal enforcement, and this only holds for countries with stronger legal enforcement. Finally, using accrual-based measures, De Franco et al. (2017) documents that reporting quality (as reflected by discretionary accruals, see Section A) weakens the association between estimated managerial ability and bank loan pricing.

Li (2015) shows that country-level measures of accounting standard conservatism are associated with lower firms' cost of debt capital. Examining an international sample, Francis et al. (2005) find that firms in industries with greater external financing needs (as per model by Rajan & Zingales, 1998) have higher voluntary disclosure levels and the expanded disclosure policy for these firms leads to a lower cost of debt capital. Bonsall & Miller (2017) examine the impact of financial disclosure narrative on bond market outcomes. They find that less readable financial disclosures are associated with a higher cost of debt, as reflected in firms' bond spreads. Donker et al. (2018) examine the consequences of a specific type of corporate disclosures, namely profit warnings, as a negative information-releasing event during the normal course of business and evaluate the evolving nature of relationship banking before and after such an event. They show that lenders generally increase the cost of loans and loan security after profit warnings. Asquith et al. (2005) shows that financial reporting information is often incorporated in loan pricing in a dynamic manner by making the interest charged on a bank loan a function of the borrower's current credit rating or of their financial ratios (such as debt-to-EBITDA, leverage, or interest coverage). Then, the interest rate in the contract varies directly with changes in measures of financial performance (instead of using a fixed spread over a floating benchmark interest rate such as e.g. LIBOR). Such pricing mechanisms could eliminate the need for unnecessary re-contracting (e.g. re-financing by the borrower or change of the loan terms by the lender, such as, for example, requesting additional collateral by the borrower). These innovative pricing schemes also allow for asymmetric adjustments to the spreads depending on whether the borrower's performance improves or deteriorates. Asquith et al. (2005) examine contingencies where specific types of adjustments are used, e.g. interest-decreasing performance pricing is more likely when multiple performance measures predict credit quality better.

Bharath et al. (2008) and Florou and Kosi (2015) distinguish between public (e.g. corporate bonds) and private debt markets (e.g. banks loans). Florou and Kosi (2015) examine a global sample of public bonds and private loans and find that mandatory IFRS adopters are more likely, post-IFRS, to issue bonds than to borrow privately. They also show that mandatory

IFRS adopters have lower bond costs (i.e. bond yield spreads), but not lower loan spreads, and that the observed debt market benefits are concentrated in countries with larger differences between domestic GAAP and IFRS. Bharat et al. (2008) also find that accounting quality affects the choice between public and private debt markets. Specifically, poorer accounting quality borrowers preferring private debt, i.e. bank loans, consistent with the hypothesis of banks possessing superior information access and processing abilities that reduce adverse selection costs for borrowers. The study also shows that accounting quality has a significant but differential impact on debt contract design in the two markets (i.e. public v. private debt), consistent with differences in re-contracting flexibility across the two markets. Specifically, in the case of private debt (where there is greater re-contracting flexibility), both the price (i.e. interest) and non-price (i.e. maturity and collateral) terms are significantly more stringent for poorer accounting quality borrowers. However, for public debt, only the price terms are more stringent. Allaya et al. (2019) and Donker et al. (2019) corroborate the claim that previously discussed factors influencing debt pricing, i.e. extent of reporting and its credibility, improve firms' access to debt with more favourable terms, in particular longer maturity. Finally, accounting information not only influences primary credit markets (as discussed above), but it also has implications for the efficiency of the secondary trading of debt securities (Wittenberg-Moerman, 2008). Wittenberg-Moerman (2008) finds that timely loss recognition reduces the bid-ask spreads suggesting that conservative reporting decreases information asymmetry regarding borrowers.

Gong et al. (2018) examine the link between non-financial (CSR) disclosures and debt financing and find that Chinese firms with high CSR disclosure quality face lower costs of corporate bonds. This inverse relationship is stronger for firms with weak corporate governance and firms located in regions with weak institutional environments. Moreover, firms' misconduct significantly mitigates the influence of CSR disclosure quality. Finally, firms with higher quality of CSR information are less likely to be subject to collateral terms, but they tend to include covenants that are more restrictive (*ibidem*).

D.1.2. Debt covenants

This section discusses the specific issue of the links between corporate reporting and debt covenants.⁵⁹ In particular, we discuss the literature on the characteristics of corporate reporting information and of the reporting environment on the likelihood of using particular forms of covenants, their stringency, etc. We also review how reporting information is used to structure loan covenants. We acknowledge that Shivakumar (2013) and Taylor (2013) review earlier studies on this topic in quite some detail. Therefore, our review complements and updates theirs. In particular, the existing reviews provide an excellent typology of the common covenant types and reveal that prevalence of covenants (including, accounting-based ones) is considerably larger in private debt than in public debt.

The literature documents the considerable decrease in prevalence of most types of accounting-based debt covenants, in particular balance sheet-based ones, over time (Ball et al., 2015; Demerjian, 2011; Taylor, 2013). This trend has been at least partly attributed to the implementation of IFRS and increased emphasis of accounting standard setters on fair-value accounting, which has reduced the usefulness of balance sheet items for debt contracting (Ball et al., 2015; Demerjian, 2011; Shivakumar, 2013). Shivakumar (2013) highlights three

⁵⁹ We focus on the usage of corporate reporting in the design and implementation of loan covenants and do not discuss literature on the effect that the presence and nature of covenants can have on corporate reporting choices (in particular, on earnings management). The latter issue is outside of the focus of the FRC project.

key reasons as to why fair-value accounting (as opposed to historical cost approach) might be less useful for debt contracting:

1. Fair-value accounting removes the focus on an asset's cash flows and requires firms to record asset price changes arising from changes in discount rates as an immediate gain or loss in the financial statements, even if such fluctuations in discount rates are transitory only (Shivakumar, 2013). The "inclusion of these transitory gains and losses in income statements could lower the relevance of income statement numbers for debt contracting, as these gains and losses provide little information about the firm's ability to service the debt in the future. In fact, by frequently violating covenants included to act as trip-wires to signal a borrower's financial distress, transitory gains and losses could simply lead to an increased need for renegotiation of contracts and thus to an increase in contracting costs" (Shivakumar, 2013, pp. 377-378).⁶⁰
2. Fair-value reporting also affects the usefulness of balance sheet numbers for debt contracting, because of the inclusion of fair-value changes to a firm's own credit. When a firm's default risk increases, the liabilities on the firm's balance sheet shrink, causing the firm to potentially recognise a gain (Ball et al., 2015). "Covenants based on fair-value accounting numbers could lead to perverse outcomes, with deteriorations in a firm's credit risk loosening covenant constraints (such as loosening leverage ratios), and thereby increasing a manager's ability to take actions that are detrimental to lenders. Moreover, fair-valuing liabilities would lower the effectiveness of balance-sheet-based covenants in constraining managerial risk-taking, as losses from projects undertaken by risk-seeking managers will partly be offset by gains from reduced liability values" (Shivakumar, 2013, p. 378).
3. Fair-value accounting also increases the reliance on estimates. Apart from assets traded in active markets, fair values for most other assets require managerial judgement, opening up the potential for misuse of fair-value estimates, particularly when these are not verifiable (Ball, 2006; Kothari et al., 2010; Shivakumar, 2013).

The claim about fair-value accounting being uniformly detrimental for debt contracting is challenged by Demerjian et al. (2016) who argue that fair-value adjustments are included when they are most likely to improve performance measurement and debt covenants are being adjusted to take into account changes in reporting standards. Finally, Kim et al. (2011) show that banks impose more favourable non-price terms on IFRS adopters, particularly less restrictive covenants.

An influential paper by Christensen and Nikolaev (2012) argue theoretically that financial covenants control the conflicts of interest between lenders and borrowers (i.e. agency costs of debt) via two different mechanisms outlined below

1. Capital covenants (relying on information about sources and uses of capital, i.e. balance sheet information only) align debt holder and shareholder interests.
2. Performance covenants (relying on current-period profitability and efficiency indicators formulated in terms of income statement and cash flow statement information alone, or in combination with balance sheet data, e.g. debt-to-cash flow ratio) serve as trip-wires that

⁶⁰ However, such inclusion of transitory gains and losses in the income statement might be justified as being relevant for evaluating managerial performance or for capturing the true economic income for the firm during the period (Shivakumar, 2013).

limit agency problems by transferring control to lenders when the value of their claim is at risk (i.e. when bankruptcy is likely).

Christensen and Nikolaev (2012) then test the predictions of their model and find that the use of performance covenants relative to capital covenants is positively associated with:

- the financial constraints of the borrower;
- the extent to which accounting information portrays credit risk;
- the likelihood of contract renegotiation;
- and the presence of contractual restrictions on managerial actions.

These findings illustrate how different financial reporting information is useful for debt contracting depending on the circumstances.

Costello and Wittenberg-Moerman (2011) examine the effect of financial reporting quality on the trade-off between monitoring mechanisms used by lenders. They find that when a firm experiences a material internal control weakness (as reflected in a Sarbanes-Oxley Act-mandated internal control report), its lenders decrease their use of financial covenants and financial-ratio-based performance pricing provisions and substitute them with alternatives, such as price and security protections and credit-rating-based performance pricing provisions. Costello and Wittenberg-Moerman (2011) also document that changes in debt contract design following internal control weaknesses are substantially different from those following restatements, where lenders impose tighter monitoring on managers' actions, but do not decrease their use of financial statement numbers. This finding contrasts with those of Graham et al. (2008) who examine the link between corporate misreporting and bank loan contracting and find that compared with loans initiated before restatement, loans initiated after restatement have significantly more covenant restrictions. Again, it illustrates how features of financial reporting information affect the details of debt contracts offered to firms.

Looking into specific financial statement-derived items, Cook et al. (2014) show that a borrower's coverage ratio has a negative statistical and economic impact on the inclusion of all categories and sub-categories of restrictive bond covenants. Demerjian (2017) shows that debt covenant intensity (i.e. the number of financial covenants used in a loan package) is associated with greater uncertainty, which is reflected among others by the analysts' earnings forecasts dispersion and the within-industry standard deviation of quarterly profit growth. Hence, the covenants imposed by lenders do not only depend on the information reported by the borrowers, but also by their industry peers.

Finally, Carrizosa and Ryan (2017) identify covenants in commercial loan contracts that require public borrowers to periodically disclose two types of accounting-related private information to lenders: projected financial statements for future periods and monthly historical financial statements. They examine this interesting phenomenon and find that that:

- loan contracts include these covenants in settings where they enhance lenders' loan contract monitoring;
- these covenants are positively associated with the frequency of loan contract amendments;
- and lenders trade on the borrower private information they receive in secondary loan markets.

D.1.3. Credit ratings and distress prediction

The literature on the use of corporate (financial) reporting information to predict corporate distress and bankruptcy dates back to at least the 1960s (see e.g. Altman, 1968; Beaver, 1966). Some of the earlier studies have been extensively reviewed by Beaver et al. (2005), Beaver et al. (2011, 2012), and Mossman et al. (1998), illustrating the debate on the effectiveness of information provided by corporate financial reporting in predicting firm bankruptcies. Therefore, the literature review in this section should be seen as updating these extant literature reviews and expanding their scope by covering the impact of corporate reporting on credit ratings and credit default swap (CDS) spreads.

In this context, Beaver et al. (2012) identify proxies for discretion over financial reporting, the importance of intangible assets, the comprehensiveness of the accounting model and recognition of losses. They find that each of these proxies for financial reporting attributes is associated with financial ratios that are less informative in predicting bankruptcy. Furthermore, time-series tests reveal a decline in the predictive ability of financial ratios for bankruptcy and document that this decline is associated with the aforementioned measures of financial reporting attributes (*ibidem*). Akins (2018) finds that improved reporting quality (following the adoption of SFAS 131 improving segment disclosure) is associated with less uncertainty about credit risk as captured by disagreement among the credit rating agencies and that reporting quality is more important in reducing uncertainty when debt market participants have less access to private information. Kim et al. (2013) construct an index of financial statement comparability for firms and find that this measure is negatively related to lower credit spreads for both bonds and five-year CDSs. Chan et al. (2013), Florou et al. (2017), and Wu and Zhang (2014) examine the effects of either voluntary or mandatory adoption of internationally recognised accounting standards (i.e. IFRS or US GAAP) on firm credit ratings. Florou et al. (2017), and Wu and Zhang (2014) document the increase in credit relevance of financial statements, the increase of which is particularly pronounced for higher risk speculative-grade issuers and in countries with a particularly strong rule of law. Chan et al. (2013) and Florou et al. (2017) also provide evidence consistent with increased transparency and credibility of financial reporting translating into increases in creditworthiness, reflected in credit ratings, in the post-adoption period. However, Charitou et al. (2015) show that not all firms are winners and post-adoption disclosures after mandatory IFRS implementation in 19 European countries in 2005 reduced implied default risk for some of the companies only. Finally, Barker and Hayes (2004) extensively discuss the case study of Enron and illustrate how shortcomings in US GAAP requirements allowed the company to use misleading accounting practices (in relation to off-balance-sheet financing, revenue recognition, and financial statement disclosures) and in doing so conceal the economic fundamentals of the business.

Shivakumar et al. (2011) document that credit market's respond not only to the release of earnings or other financial statement data, but also to earnings guidance provided by management. They examine changes in CDS spreads to management earnings forecasts and document how credit markets react significantly to management forecast news and that the reactions to forecast news are stronger than to actual earnings news. The forecast news is mainly relevant for firms with poor credit ratings or announcing bad news. Moreover, the relevance of management forecasts to credit markets is particularly strong during periods of high uncertainty (such as e.g. recent financial crisis).

Bonsall and Miller (2017), Cecchini et al. (2010), and Mayew et al. (2015) examine linguistic properties of narrative financial disclosures and link them to changes in credit ratings and likelihood of bankruptcy. Bonsall and Miller (2017) find that firms required to improve the readability of their filings experience more favourable ratings and lower bond rating disagreements. Cecchini et al. (2010) and Mayew et al. (2015) show that attributes of narrative

information provided in MD&A could predict corporate bankruptcy. Strikingly, the performance of such linguistic-based models compares favourably with quantitative prediction methods (*ibidem*). In particular, the information in MD&A disclosures is more useful in predicting bankruptcy relative to financial ratios three years prior to bankruptcy, which suggests that MD&A disclosures are more timely than financial ratios and hence, a leading indicator of going concern problems (Mayew et al., 2015).

D.1.4. Concluding remarks

We have shown that corporate reporting matters for and is used by creditors and agents serving them (such as credit rating agencies). Its relevance manifests itself in a number of ways detailed below.

- Financial corporate reporting information serves a valuation role. It provides creditors with relevant information, which they take into account in their decisions to extend credit to companies and to price it appropriately. Higher quality and credibility of financial information lowers the cost of debt capital. In particular, it is incorporated into the pricing of bank loans and is reflected by spreads on corporate bonds (see Section D.1.1).
- The quality of financial reporting also determines access to particular credit markets: firms with poorer accounting quality are more likely to use private debt (e.g. bank loans) as opposed to public debt such as corporate bonds (see Section D.1.1).
- The literature also documents the effects of financial reporting regulatory environment (e.g. country-level measures of accounting conservatism, adoption of IFRS, etc.) on access to credit markets and on credit pricing (see Section D.1.1).
- The quality of financial reporting also affects non-price terms of credit (such as maturity and collateral), which are more stringent for poorer accounting quality borrowers (see Sections D.1.1 and D.1.2).
- The financial reporting information could be useful in stewardship role (see Section A). For instance, accounting-based debt covenants are a mechanism to monitor creditors' performance, financial reporting information is a key input to commonly used bankruptcy-prediction models, etc. (see Sections D.1.2 and D.1.3).
- The prevalence of debt covenants (including, accounting-based ones) is considerably larger in private debt than in public debt. However, the literature documents considerable decrease in prevalence of most types of accounting-based debt covenants, in particular balance sheet-based ones over time. This trend has been at least partly attributed to the implementation of IFRS and increased emphasis of accounting standard setters on fair-value accounting, which has reduced the usefulness of balance sheet items for debt contracting (see Section D.1.2).
- Financial reporting information serves a valuation role for various credit-related financial markets: it influences corporate debt pricing on the secondary market, pricing of credit default swaps, etc. (see Sections D.1.1 and D.1.3).
- Finally, there is only very limited evidence of relevance and usage of non-financial reporting (e.g. CSR reporting) in the context of credit markets.

D.2. Corporate reporting and other stakeholders

There exists a very limited literature directly examining the use of financial reporting information by stakeholders who are not capital providers. A rare example of such a study is Drake et al. (2017) who conduct a demographic analysis of financial statement downloads from SEC EDGAR database and find that four demographic characteristics (income, household characteristics, education, and local conditions) are key factors explaining the usage of the EDGAR database of financial statements. On a relative basis, education has significantly more explanatory power for financial statement usage than does income or household characteristics. Financial statement usage is higher in areas with major cities, more accounting and finance jobs, higher capital gains and dividend income, greater access to broadband internet, a top-100 business school, or higher rates of college-educated residents. Usage is lower in ZIP codes with more fixed income, self-employment income, retirees, unemployed workers, homeowners, or households with children (*ibidem*). An important limitation of Drake's et al. (2017) study is that, due to lack of data availability, it cannot examine whether the users of financial statements are actually investing in the companies whose financial statements are being requested or whether they should be classified as other stakeholders.

D.2.1. Supply-chain effects

Cheng and Eshleman (2014), Gosman et al. (2004), and Hui et al. (2012) examine the association between supply-chain links between firms and financial reporting. Gosman et al. (2004) show that major customers (recognised as such in corporate disclosures by their suppliers) have higher operating profitability and profitability persistence, with the sources of the higher profitability consistent with purported advantages of supply chain arrangements (i.e. customer relationships being a proxy for unrecorded organisational-capital intangibles). Hui et al. (2012) argue that powerful firm's suppliers and customers prefer it to account more conservatively due to information asymmetry and these stakeholders' asymmetric payoffs with respect to the firm's performance. They indeed find that when a firm's suppliers or customers have greater bargaining power, the firm recognizes losses more quickly. Finally, supplier-firm shareholders are found to respond to the earnings announcements of their major customers (Cheng and Eshleman, 2014). In particular, shareholders in suppliers to other companies tend to overreact to earnings news on those companies' customers because that news contains imprecise information about the suppliers' future cash flows.. Cheng and Eshleman (2014) also find that the overreaction declines with the strength of the economic ties between the supplier and the customer.

D.2.2. Labour force and whistleblowers

A number of studies investigate the link between firms' labour forces and their financial reporting. Ji and Tan (2016) show that firms strategically vary their disclosure policies in response to labour unemployment concern, in particular providing more "bad news" earnings forecasts when unemployment concern is low. A similar effect of unemployment concern on disclosure holds when the tone of 10-K and 10-Q filings is used as an alternative proxy for corporate disclosure (*ibidem*). Call et al. (2017) examine the association between employee quality and financial reporting outcomes and find that firms with a high-quality workforce, particularly at a firm's headquarters, exhibit higher accruals quality, fewer internal control violations, and fewer restatements. These firms also issue superior management forecasts, in terms of frequency, timeliness, accuracy, precision, and bias (*ibidem*).

Call et al. (2018) suggest that whistleblowers, including firm employees, are a valuable source of information for regulators who investigate and prosecute financial misrepresentation. However, Call et al. (2016) find that firms grant more rank-and-file share options when involved in financial reporting violations, consistent with management teams' incentives to discourage employee whistleblowing. Lowe et al. (2015) state that while the Sarbanes–Oxley Act of 2002 requires company executives to certify financial statements and internal controls as a means of reducing fraud, many companies have operationalized this by instituting a sub-certification process and requiring lower-level managers to sign certification statements. Given that these lower-level organizational members are often the individuals who are aware of fraud (and are in the best position to provide information on the fraudulent act), the unintended consequence of the sub-certification process may have the effect of reducing employees' intentions to report wrongdoing (*ibidem*).

D.2.3. Non-financial corporate reporting and stakeholders

Chalmers et al. (2019) thoroughly review the literature on firm internal controls and their disclosures finding that such disclosures affect shareholders and analysts, as well as various stakeholders of a firm. In particular Su et al. (2014) find that internal control weakness disclosures adversely affect customers' perceptions of firms' ability and incentives to honour implicit commitments to customers and therefore customers are less willing to buy from such firms (which is then shown to lead to a decline in firms' sales growth after such a disclosure).

Studies by Briem and Wald (2018), Searcy and Buslovich (2014), and Stubbs and Higgins (2018) provide direct evidence of stakeholders' perspectives on integrated reporting <IR>. In particular, Briem and Wald (2018) illustrate that companies follow coercive pressures from investors and other stakeholders (such as NGOs and customers) when obtaining external assurance of their integrated reports and that they tend to raise their non-financial indicators and increase their credibility and reliability. Stubbs and Higgins (2018) evidence limited appetite for mandating of <IR> among corporate insiders, such as executives. Yet, many stakeholders (e.g. regulators, standard setters, industry bodies, professional associations, or accounting firms) believe that <IR> will become the reporting norm over time if left to market forces as more and more companies adopt the <IR> practice. Over time <IR> is expected to be perceived as a legitimate practice, where the actions of integrated reporters are seen as desirable, proper, or appropriate (*ibidem*).

Abdo et al. (2018), Bradford et al. (2017), Diouf and Boiral (2017), Haque et al. (2016), O'Dwyer et al. (2005), Searcy and Buslovich (2014), and Wong & Millington (2014) provide direct evidence on the perspectives on CSR/sustainability reporting taken by various categories of investors and other stakeholders (e.g. consumers, employees, managers, regulators, standard setters, industry bodies, professional associations, auditors, accounting firms, consultants, NGOs, academics).⁶¹ A common theme of a number of these studies is the discrepancy between the information that the stakeholders expect on the one hand and the contents of the disclosure standards and actual disclosures made by the companies on the other hand (Abdo et al., 2018; Bradford et al., 2017, Haque et al., 2016, Diouf & Boiral, 2017, O'Dwyer et al., 2005). Specific stakeholders' concerns identified by the literature in this context include:

⁶¹ Section A.2 above also discusses the conflicting pressures from various stakeholder groups. However, in some cases these discrepancies may result in firms tending to adopt ad-hoc reporting strategies for different stakeholders, pretending to be addressing their respective concerns (Cho et al., 2015).

- companies' tendency to take a tick-box approach providing only minimum disclosure requirements and concerns about the credibility of the information provided (Abdo et al., 2018);
- mismatch between dimensions of reporting, e.g. those promoted by the Global Reporting Initiative (GRI) and customers' information needs (Bradford et al., 2017);
- tendency for sustainability reports to reflect the impression management strategies used by companies to highlight the positive aspects of their sustainability performance and to obfuscate negative outcomes (Diouf & Boiral, 2017);
- an apparent preoccupation with financial performance and advancing shareholders interest coupled with a failure by managers to accept accountability (Haque et al., 2016);
- general resistance to disclosures on the part of companies (O'Dwyer et al., 2005).

These findings have clear implications for the regulation of corporate disclosures and enforcement of reporting standards (see also discussion in Sections A and B above). For instance, it might be desirable for the regulators to engage stakeholder groups in the process of design and implementation of reporting standards to ensure that their information needs are adequately satisfied. The findings also raise a bigger question about prioritising potentially conflicting information needs of various groups of stakeholders (in particular, vis-à-vis shareholders) by the bodies responsible for regulating corporate reporting and disclosures.

Haque et al. (2016), O'Dwyer et al. (2005), and Searcy and Buslovich (2014) also highlight the issues of lack of proactive stakeholder engagement as an impediment to the efficiency of the disclosure process. For instance, Searcy and Buslovich (2014) document that the majority of the corporations considered stakeholder input in preparing their sustainability/integrated reports. In the vast majority (more than two-thirds) of the cases corporations relied exclusively on internal personnel to write the report, with the remaining corporations using a combination of internal and external authors.⁶²

Fernandez-Feijoo et al. (2014), Guenther et al. (2016), Liesen et al. (2015), and Thijssens et al. (2015) examine the effects of pressure of various stakeholder groups (e.g. government, customers, clients, employees, media, NGOs, general public) on CSR disclosures, in particular environmental ones, which allows for drawing some indirect inferences about the information needs of these groups of stakeholders. There is some disagreement as to how effective this pressure is. For instance, while Liesen et al. (2015) suggest that external stakeholder pressure is a determinant of the existence, but not of the completeness of emissions disclosure, Fernandez-Feijoo et al. (2014) find that stakeholder pressure improves the quality of transparency of sustainability reports prepared within the GRI framework. While Guenther et al. (2016) show that all stakeholders are associated with carbon disclosures, Thijssens et al. (2015) argue that differences in environmental disclosures between companies are mainly associated with differences between their environmental stakeholders' legitimacy, implying varying degree of effectiveness of stakeholder pressure. Finally, Axjonow et al. (2018) find that, in contrast to the common belief, stand-alone CSR reports do not influence corporate reputation among non-professional stakeholders like (potential) consumers, employees, and the general public changes. However, they are able to

⁶² Engagement of stakeholders in the corporate reporting process discussed here is of a different nature than that discussed in the context of their production of shadow-accounts (also known as counter-accounts), which has been discussed in Section A. Here we refer to stakeholders being engaged in the preparation of the company's own reporting information.

demonstrate that stand-alone CSR reports influence corporate reputation among professional stakeholders.

D.2.4. Concluding remarks

We have illustrated above that corporate reporting information (in particular, non-financial reporting) has a very broad audience covering many categories of stakeholders who are not capital providers (e.g. consumers, employees, suppliers, managers, industry bodies, professional associations, accounting firms, consultants, NGOs, academics). In this context, corporate reporting information is primarily relevant in terms of its accountability role (see Section A).

- Corporate reporting not only matters for the company that releases information, but it also has effects on firms along the supply chain (see Section D.2.1). It also affects behaviour of retail customers, indicating that they are within the audience of corporate reporting as well (see Section D.2.3).
- There is some evidence that managers consider the labour force to be within the audience of the corporate reporting (including financial reporting) and use corporate reporting strategically to strengthen firms' bargaining positions (see Section D.2.2).
- The corporate reporting environment has consequences for whistleblowing and could therefore facilitate or hinder the accountability role of corporate reporting (see Section D.2.2).
- Non-financial reporting has huge potential to address the information needs of various stakeholders. Yet, this potential remains largely unfulfilled so far due to discrepancies between the information that stakeholders expect and the contents of the disclosure standards and actual disclosures made by companies (see Section D.2.3).
- This mismatch is magnified by a lack of stakeholder engagement in the process of design and implementation of reporting standards and in the reporting activities of the companies (see Section D.2.3).
- To date, academic literature has largely failed to solve conceptually the problem of prioritising the potentially conflicting information needs of various groups of stakeholders, in particular vis-à-vis shareholders (see also Section A). This unresolved question is of vital importance for the bodies responsible for regulating corporate reporting and disclosures, like the FRC.

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Section E

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E. How does corporate reporting affect managers' (or firms') behaviour?

In this section we consider what the academic literature says about 'real effects' and how corporate reporting impacts managers' and firms' behaviour.

Sections C and D have addressed evidence of how capital providers (shareholders and creditors) use financial information, making inferences, for example on the basis of liquidity, cost of capital, firm value, terms of debt contracts, and so forth. The analysis of real effects allows similar indirect inferences about how other stakeholders use corporate reporting information (importantly, both financial and non-financial). This provides a clear rationale as to why real effects are so important. It is not just corporate reporting driving the change of behaviour; it also gives insights about usage of reporting by various parties.

The literature reveals that effects on capital providers and other stakeholders are not necessarily mutually exclusive, which leads us to question whose behaviour is it that we are interested in? In terms of how other stakeholders utilise corporate reporting, the literature gives examples of compliance strategies and the use of reporting as an impression-management or PR tool. However, there are also examples of reporting influencing joined-up thinking and such decision-making becoming culturally embedded in organisations. There is some evidence that organizations *may* use disclosures to improve practice, but it is still early days for research on real effects, which faces many challenges, for example, proving causality versus correlation.

In this section, we start with how the academic literature defines real effects (Section E.1). Section E.2 then considers *how* and *why* behaviour may change due to the influence of reporting on issues such as regulation, compliance strategies and impression management, identity signalling, agenda-setting, and stakeholder engagement. In Section E.3 we look at *what* behaviour may change due to reporting, considering internal investment behaviour, executive compensation and turnover, takeovers, activism, integrated thinking, operations, the 'tone-at-the-top', and stewardship.

E.1. Definition of real effects

Real effects are defined as "situations in which the disclosing manager or reporting entity changes its behaviour in the real economy (e.g. investment, use of resources, consumption)" (Leuz & Wysocki, 2016, p. 545). This is in contrast to capital market effects, which describe the behaviour changes of those receiving the information (these are discussed in detail in Sections C and D above). However, the two are closely connected because it is often information about the potential or actual response of the reader that the author of the information is responding to (Kanodia & Sapra, 2016). Although some argue that managers have very little real discretion to change behaviours unless directly beneficial to shareholders (Harrison & van der Laan Smith, 2015), the real effects hypothesis contradicts the assumption that the accounting process is a neutral one. An example often discussed is the 2008-2009 financial crisis and whether accounting disclosures exacerbated the downward spiral in the economy or were merely "the messengers of an unpleasant reality" (Kanodia & Sapra, 2016, p. 624).

In academic literature, there is a substantial body of research looking at the effects of reporting standards internationally, specifically on the adoption of IFRS. However, reviews by De George et al. (2016) and Leuz and Wysocki (2016) conclude that few studies are able to attribute effects purely to the adoption of standards, because of other contributing factors, such as simultaneous institutional reforms and changes to reporting infrastructure (e.g. stricter enforcement). These interactions and complementarities make it impossible to attribute such

effects solely to the IFRS adoption, and are suggested areas for future research. However, these cited authors do provide a list of major categories of economic benefits of improved disclosure (Leuz and Wysocki, 2016, p. 545) (see Sections B, C and D above). The review by Leuz and Wysocki (2016) calls for more research into real effects, as there is considerably less on corporate behaviour than on capital markets. This is particularly important as more governments appear to be using disclosure requirements “as a public policy instrument to encourage or discourage certain behaviours and business practices” (p. 602) – more of which is covered below.

In addition to financial reporting, in recent years there has been an increasing body of literature considering the real effects of non-financial reporting, particularly since the growth of more narrative reporting and the development of Integrated Reporting (<IR>). Integrated reporting is considered a disruptive innovation in corporate reporting (Simnett & Huggins, 2015), merging financial and non-financial reporting. Accountants have sought such a solution for decades, but many academics reveal concern and skepticism about the IIRC project (Atkins et al., 2015; Brown & Dillard, 2014; de Villiers et al., 2014), concerned that ultimately <IR> will still promote the dominance of financial reporting over non-financial reporting. A dual objective of <IR> is the provision of better information for *both* internal and external decision-makers (Barth et al., 2017). Whilst the numbers-based financial reporting is aimed at financial stakeholders (the primary addressees of reporting), and the complexity of that information has in the past precluded its use by other stakeholders (Gray, 2006), more narrative reporting socializes accountability to a wider group of (often non-financial) stakeholders (Brown & Dillard, 2014; Lai et al., 2018). However, literature suggests that investors and other financial stakeholders continue to be the main recipients (and therefore focus) of integrated reporting (Lai et al., 2018; Rinaldi et al., 2018). Much of the current non-financial reporting literature focuses on issues of ESG or CSR reporting, but Castilla-Polo and Gallardo-Vázquez (2016) conducted a recent review of accounting literature on the reporting of intangibles, or Intellectual Capital, which is challenging to include in traditional financial reporting, albeit in contrast to the management literature which take more operational or strategic approaches. As intangible assets may include a wide range of aspects, they are often aggregated in to groups such as human capital (focusing on personnel – e.g. levels of diversity), structural capital and relational capital (external relationships and networks), and if reported as such give clear focus for managers of their importance. Recent changes in the guidance on reporting in the UK Corporate Governance Code (2018) appear to focus more on intangibles, such as inclusive cultures, and therefore this small body of literature may be relevant here and to future developments. Future research may track whether managers have subsequently focused more on such intangibles (in reporting and, if possible, in action), which may be linked to which stakeholders consider such narrative information important.

Across the literature that considers the real effects of corporate reporting, the main academic theories utilized for papers focusing on financial reporting were the traditional agency⁶³ and stakeholder⁶⁴ theories, with institutional theory⁶⁵ called upon when considering legitimacy and

⁶³ Agency theory explains the relationship between and behaviour of business principals (commonly owners/shareholders) and agents (company executives), who are believed to be motivated by different outcomes.

⁶⁴ Stakeholder theory states that modern businesses must serve not only shareholders and business owners, but all the multiple constituencies who are believed to be stakeholders of a business, for example; employees, creditors, suppliers, local communities, etc.

⁶⁵ Institutional theory describes how organisations are dependent on structures, rules, norms, and routines, explaining how these come to be stable and are subject to change processes, emphasizing ‘rational myths’, isomorphism and legitimacy.

isomorphism. More recently, articles invoked stewardship theory⁶⁶ and signaling theory⁶⁷ when considering the internal effects of reporting, and this can be seen in practice to align with the UK's changing approach to governance demonstrated in the 2018 Corporate Governance Code, moving away from a purely agency focus to that of stewardship.

E.2. How and why does reporting affect behaviour?

Changes in reporting requirements, whether financial or non-financial reporting, may bring about changes in corporate behaviour for many combinations of reasons. Several of the reasons for financial reporting changing behaviours have been covered in previous sections (for example, extensive discussion of Leuz & Wysocki, 2016), and it is important to note that both financial- and non-financial reporting requirements may bring about real effects (actual behaviour change), changes in disclosure strategies (which may or may not bring about corporate behavioural change), and capital effects (behavioural change on the part of the receivers of reported information).

E.2.1. Do mandatory or voluntary approaches affect behaviour more?

The regulation of financial and non-financial reporting has been covered extensively in Section B above and it may seem obvious that the simplest way to alter behaviour is to regulate it. But the questions over what is being regulated nevertheless remain; is it the reporting of behaviour or the actual behaviour? A body of literature focussed on the integration of information on environmental, social and governance issues, discusses the pros and cons of mandated versus voluntary reporting. Overall, the literature suggests that companies prefer a voluntary approach to non-financial reporting, whereas other stakeholders may prefer mandated (Stubbs & Higgins, 2018). In the context of <IR> adoption, one argument made by investors is that increased legitimacy and market forces will lead to more <IR> and therefore mandating is unnecessary (Stubbs & Higgins, 2018). Leong and Hazleton (2019), focusing on sustainability disclosure, argue that mandating is not likely to lead to social change because often the information disclosed is not useful for activists' purposes. However, mandated non-financial reporting is described as preferable because it has the potential to be more homogeneous, comparable and useful. This, however, would depend on it being well-designed and specified. A possible solution is for minimum standards to be recommended, but for organisations to be able to exceed these should they choose (see also Leuz & Wysocki, 2016), but with the inherent trade-off that leaving discretion to managers, may allow them to use it opportunistically (see Sections A and B for further details). The recent EU Non-Financial Reporting Directive is such an example, and future research will thus reveal further insights on this issue.

⁶⁶ Stewardship theory suggests that left to their own devices, managers will act as responsible stewards of the assets they control, behaving for the benefit of the organisation, rather than purely self-interest.

⁶⁷ Signalling theory within agency theory refers to when one party (the agent) conveys information about itself to another party (the principal). However, within management literature it explains what information gains salience and how people alter their behaviour in circumstances of imperfect information.

E.2.2. Changes in behaviour of disclosure and compliance strategies: Managing impressions

Whereas reporting changes may be brought in with the intention of having real effects on corporate behaviour, in fact they may just impact behaviours relating to disclosure and compliance strategies. See also Section A.2.2 for a discussion of impression management. One potential negative real effect of mandating is that if the costs of reporting are considered too onerous, or the companies are scared of the reputational damage of reporting, then firms may engage in avoidance strategies, such as actions to keep the firm under certain size limits, with investment cuts or re-categorising employees (Gao et al., 2009). For example, gender pay gap (GPG) reporting, recently mandated in the UK, was designed to encourage firms to reduce their GPG. Because it applies to all companies with over 250 employees (Goergen & Tonks, 2019), anecdotal evidence shows companies reducing or changing the contract types of employees. Further research is required on the unintended outcomes of reporting policies. Particularly with social, moral or ethical issues (e.g. CSR, diversity, tax-avoidance) research suggests firms are more likely to change behaviours (such as disclosing previous wrongdoing) in response to pressures from other peer firms, rather than as a response to formal regulatory pressures (Pffarer et al., 2008).

However, the harmonization of standards can lead to real effects such as increasing/changing certain activities, motivated by benchmarking – i.e. trying to avoid reputational damage, adopting at least minimal standards in comparison to competitors, and this has been covered extensively for financial reporting in previous sections (see in particular Section A.2.2). This suggests that the real effects would be strongest in those firms performing worst in whatever the benchmark issue is (Castilla-Polo & Gallardo-Vázquez, 2016; Christensen et al., 2019; Kim & Lyon, 2015; Milne et al., 2006). With particular regards to sustainability reporting, many papers express a deep scepticism of companies' non-financial reporting using metaphorical representations of 'a sustainability journey', which purports commitment, giving 'warts and all' perspectives, attempting to win trust from and improve legitimacy with their stakeholders (Al-Shaer & Zaman, 2019; Camilleri, 2018). In fact it is focused on creating a 'sustainable business rather than contributing to a sustainable society' (Milne et al., 2006, p. 819). Selective reporting can give an air of transparency, whilst masking the truth (Dawkins & Ngunjiri, 2008), although in their study looking at thousands of public firms across 45 countries, Marquis et al., (2016) found that those organisations known to have poorer environmental performance were often more visible to stakeholders and therefore less likely to be selective in disclosure. Institutional pressures and scrutiny may lead to more substantive, as opposed to symbolic transparency.

Early assumptions were that the balance of power between business and society would be altered by the additional information provided in social and environmental reporting, empowering stakeholders (Gray et al., 1996). However, more recently academics have suggested that corporate sustainability reporting may be counter-productive for social change (Boiral, 2013; Milne & Gray, 2013). A key aspect appears to be that of formal versus informal power, with a lack of the former described as "the biggest conceptual limitation to believing that sustainability accounting can promote organizational change" (Leong & Hazleton, 2019, p. 815). The question of the purpose of sustainability reporting is then raised – is it accounting to report *per se*, or is it accounting as a pre-cursor to change? In addition, there is growing criticism in the academic literature of sustainability reporting as an impression management tool (see also Section A.2.2), describing the "deceptive nature of discourse contained in stand-alone sustainability reports", whilst the company engages in covert politicking activity to the contrary (Cho et al., 2018, p. 865). Boiral (2013) analysed how 23 sustainability reports from firms in the energy and mining industry projected idealised versions of themselves, using Global Reporting Initiative indicators to camouflage sustainability problems. Demonstrating the counter-accounting approach, Boiral (2013) estimated that 90% of significant negative

events across those organisations were not reported, contravening the GRI principles of balance, completeness and transparency.

However, in their paper, entitled “It’s not always bad news”, focusing on integrated reporting, McNally and Maroun (2018) challenge the idea that <IR> is only about box-ticking and impression management, suggesting instead that it has the potential to expand our understanding of accounting systems, facilitating broader management controls and bringing a wider perspective to value creation.

E.2.3. Signalling identity

As well as managing external impressions of itself, what and how a company reports may play a role in signalling internal identity, which may impact corporate behaviour. Armstrong et al.’s (2010) review of the role of reporting financial information highlighted the important informal contracting roles of signalling and reputation. Signalling theory within agency theory refers to when one party (the agent) conveys information about itself to another party (the principal). However, within management or organizational studies literature (and based on social and psychological mechanisms) signalling theory explains which information gains salience and how people alter their behaviour in circumstances of imperfect information (see Connelly et al., 2011 for a review). Whilst <IR> challenges the dominant view of performance management as solely based on financial metrics (de Villiers et al., 2014), existing research on non-financial reporting says little about the actual process of its adoption. Gibassier et al. (2018) conduct a seven-year, longitudinal ethnographic study of a large multinational corporation and how they adopted <IR>, overcoming the lack of prescription regarding what the reports should contain. Their research findings acknowledge the aspirational nature of <IR> and how multiple participants developed collective conceptualizations of innovative ways to report, linking back to the foundational vision and mission of the company. Whereas previous studies have developed arguments about *why* companies may adopt IR, little research has shown *how* they do so. Gibassier et al. (2018, p. 1351) considering that process, argue that innovations such as <IR> can be generative, partly because they are ill-defined and unknown (and therefore companies need to consider how and why they are adopting it). Busco & Quattrone (2017) suggest that the additional time and effort invested in constructing the integrated report rejuvenates the original purpose, mission, vision, and thus makes the identity of the organization salient.

When reporting includes intangible assets, such as intellectual capital and goodwill, a company can make otherwise implicit assets explicit to its employees and other stakeholders (Castilla-Polo & Gallardo-Vázquez, 2016). This and other narrative aspects of reporting provide a greater understanding internally and externally of both identity development i.e. ‘who we are’ (Lev & Zambon, 2003), and how the company achieves its performance (Lai et al., 2015, p. 1398), in addition to improving an external image and corporate reputation. Intellectual capital and other intangibles, if measured and reported can be seen as a managerial resource in decision-making to be directed at organizational change (see Lev & Zambon, 2003). Internally, companies engaging in CSR reporting may do so in an effort to reflect core values (signalling theory) and beliefs about better governance (Dawkins & Ngunjiri, 2008). This ‘strategic storytelling’ (Higgins et al., 2014) may also be used to enhance legitimacy and dialogue with investors and analysts. Reporting that is able to signal identity internally can enhance organizational identification. In management and organizational studies, there is a vast literature on the positive benefits of organizational identification. For example, Vadera and Pratt (2013) state that such research highlights positive attributes of identification such as enhanced individual self-esteem, and greater job satisfaction. This in turn can increase employee loyalty, motivate employees to act in the firm’s best interests, reduce employee turnover and increase performance.

E.2.4. Agenda setting

Reporting may change corporate behaviour through its agenda-setting role (Camilleri, 2018; Leong & Hazelton, 2019; Qian & Schaltegger, 2017; Stephan, 2002). This is particularly the case when public commitment to disclosure is made upfront “to provide information regardless of its content” (Armstrong et al., 2010, p. 187).

In the context of <IR>, companies manage both the external environment and the six capitals⁶⁸ in its value management and value creation (Castilla-Polo & Gallardo-Vázquez, 2016). Through the narrative element of <IR>, the purpose and outcomes of social investments can be more clearly articulated and associated with longer-term notions of progress, risk and strategy. This articulation provides the focus for action for managers’ behaviours. Adams et al. (2016) analyse case studies of four major global companies, each using <IR> to distinguish themselves as a responsible company, telling more human-centred, value-creation stories, connected to firm financial performance. Increasing numbers of asset owners and asset managers, focused on more integrated reporting, are also seeking to meet the simultaneous objectives of both long-term returns and contributing to a more sustainable and inclusive world. This more engaged behaviour of owners and managers will likely influence the focus of a firm’s behaviour (Adams et al., 2019).

In the UK, publicity and media reports concerning reporting requirements for boardroom diversity have placed the gender agenda firmly in the spotlight. Since the Davies Review of 2011 and subsequent changes to the UK’s Code of Corporate Governance (2014 and 2018), the diversity agenda has spread to include the senior management pipeline and multiple characteristics and definitions of diversity (FRC, 2018). Media coverage (in the national and business press as well as social media), particularly of the largest listed companies (the FTSE 100 firms) has focused leaders’ agendas on the need to improve gender diversity, for reputational and relational purposes (Sealy et al., 2017).

E.2.5. Shareholder & stakeholder engagement

Better quality reporting may reveal activities to shareholders that are not aligned with their priorities (whether financial or otherwise). Therefore, in response to shareholder reaction (real or anticipated), companies may adjust or reduce some activities in order to align with shareholder interests (Christensen et al., 2019; Schultz et al., 2018). This may also work the other way to influence reporting. For example, Kim and Lyon (2015) investigate how companies may seek to either ‘greenwash’ (inflate their ESG credentials) or ‘brownwash’ (minimise them). They found this relationship to be dependent on the balance of power between consumer and investor stakeholders. Recently, Michelin et al. (2020), show an increase in the number of CSR disclosures for a sample of firms targeted by shareholder resolutions demanding improved transparency. However, they are unable to document a similar positive change in the underlying CSR practices. Additionally, Adams et al. (2016) found that while firms endeavour to present themselves as responsible, for example, by adopting UNGC or GRI, they may choose to avoid presenting themselves as maximising their

⁶⁸ The six capitals are financial, manufactured, intellectual, human, social and relationship, and natural.

stewardship in the annual report. This may be out of concern of an impression of a reduction in flexibility or competitiveness from adoption of standards.

New forms of disclosures have been aimed at widening the sphere of accountability shareholder primacy to include other stakeholders, “such as future generations, communities, customers, suppliers and employees” (Andon et al., 2015, p. 995). Behaviours may change in response to either financial or non-financial reporting but the latter may have broader effects as it has a wider user group – e.g. consumers, activists, special-interest groups – who may be interested in issues such as ethics, values and contributions to wider society (Christensen et al., 2019). This broader user group also makes it harder to predict the real effects. Accessible and good quality financial reporting and non-financial reporting reduces the transaction costs of this wider stakeholder group obtaining information, which may enhance their ability to push for change within organisations (Leong & Hazleton, 2019; Stephan, 2002). For example, Dyreng et al. (2015) describe how a non-profit UK activist group used a subsidiary disclosure requirement to exert pressure on companies using tax havens for their subsidiaries. Companies were publicly shamed for tax avoidance, which then led to them paying higher effective tax rates in subsequent years. Similar ‘shaming’ occurred during the Davies Review period (2011-2015) focused on gender diversity in UK boardrooms, highlighting the 21 FTSE 100 listed companies with all-male boards. Activist organisations such as The 30% Club (whose membership is senior business managers) use reported board membership data to increase the pressure for change. By 2014 there were no all-male boards among the 100 largest UK-listed firms. Narrative reporting on the benefits of increased diversity from those organisations with diverse boards, has contributed to increased activity by institutional investors on boardroom diversity in the UK; for example investors such as Legal & General Investment Management and the Church Investors Group have implemented a voting policy of 30% female representation on boards (Tornerio, 2019). However, it should be noted this is minority action, and power is limited by institutions such as capital markets, majority investors and competitors that push against such action (Leong & Hazleton, 2019). The increased transparency in the UK designed to increased shareholder activism and better stewardship may not yet have achieved that aim (Chiu, 2014).

E.3. What does corporate reporting change?

E.3.1. Investment efficiency

Leuz and Wysocki (2016, p. 551) suggest that “real effects studies face a number of challenges, including difficulties in separating capital markets and real effects and the measurement of investment efficiency”. A large body of research predicts and finds that financial reporting reduces information asymmetry and agency costs (see Armstrong et al., 2010 for a review), leading to more efficient investment (Badertscher et al., 2013; Bens & Monhan, 2004; Biddle et al., 2009; Bushman et al., 2006; Cheng et al., 2011; Goodman et al., 2014; Leuz & Wysocki, 2016). Much of the literature is predominantly focused on capital effects and this is addressed above extensively in sections C and D. The majority of literature looking at the impacts of reporting suggests that high quality financial reporting improves capital investment by reducing both under- and over-investment (Biddle et al., 2009). However, this may refer to investment behaviours within the firm issuing the reports, not just those receiving the information. For example, better financial reporting may decrease managers’ motivation “to engage in value destroying activities such as empire building in firms with ample capital” (Biddle et al., 2009, p. 4). Focusing on accounting fraud, Beatty et al. (2013) find that the quality of accounting information not only affects the firm’s own investments, but additionally plays a role in affecting others firms’ investments. Leuz and Wysocki (2016) also suggest that disclosures of public listed firms, as studied in this review,

improve the industry information environment, and thus private firms benefit as well as public ones.

In addition to reporting assisting external providers of capital in making efficient allocations, it has real effects on internal decision-making on actions that create value for the company. Christensen et al. (2019) give examples from the US, EU, China and Africa, where non-financial reporting may affect the attractiveness of CSR investments, which may impact the balance of CSR versus non-CSR investment. Accounting treatments may change spending and investing behaviours, due to spillover effects, as managers learn from other companies' disclosures, decreasing uncertainty regarding competitors' strategies or valuation, and adjust their own investment decisions (Admati & Pfleiderer, 2000; Christensen et al., 2017, 2019; De George et al., 2016; Dernev & Mangen, 2009; Schultz et al., 2018; Shroff, 2017).

Furthermore, investment decisions need not only be focused on capital. Jung et al. (2014) found that firms with higher quality reporting practices are associated with greater labour investment (i.e. employment decisions) efficiency that are more aligned with fundamental economic principles. Their study shows both less over investment (overhiring/underfiring) and less underinvestment (underhiring/overfiring).

E.3.2. Executive compensation

Remuneration reports have been mandated in the UK since 2002, with disclosure on performance targets, measures and benchmarks for senior managers (Zakaria, 2012). In fact, the level of disclosure on executive compensation contracts is higher in the UK than in other European countries (Conyon et al., 2011b). Accounting regulations are relevant to executive compensation decisions (Conyon & Peck, 2012), and there is a substantive literature considering the link between accounting performance measures and management compensation contracts (see review by Fields et al., 2001, on performance measurement choice in remuneration contracts; a review by Bushman and Smith, 2001, on the role of earnings in compensation settings, and see also Shivakumar, 2013).

In considering what performance measures are most appropriate to include in executive remuneration plans, Zakaria (2012, p. 191) suggests that they should be linked to shareholder value creation, be aligned with company strategy, and reflect operating performance, and be linked to balanced growth and returns. "To that end, financial performance measures are most commonly used as they are seen to be objective, quantifiable, and have a direct link to shareholder value (Miller, 2004)." CEOs achieving performance targets set in the US typically result in share option plans, but in the UK share grants (Long Term Investment Plans- LTIPs) are more common. The differences are due mostly to tax rules, legal regulations and accounting standards in the two countries. In the UK since the early 2000's share options have declined in favour of LTIPs (Conyon et al., 2011a) due to changes in corporate governance guidelines and accounting standards. These measures, either accounting or share-based, are determined by the remuneration committee (Conyon et al., 2000).

In a descriptive analysis of performance measures used in executive compensation, Zakaria's (2012) study of 440 UK large companies and 1,269 compensation plans found, unsurprisingly, that managers approve of highly attainable targets. Indjejikian and Nanda (2002) find that bonus targets do not reflect past performance, making it easier for managers to achieve. Earnings per share growth – benchmarked against Retail Price Index - and total shareholder return – benchmarked against peer companies – were the most popular performance measures. Zakaria suggests that these choices appear to be driven by "mimetic isomorphism" (DiMaggio & Powell, 1983) - firms mimicking the practice of other firms, in the absence of any clear guidelines.

Voulgaris et al. (2014) build on this and contribute to the academic debate on the role of IFRS and the fair value approach (FVA) in contracting (Shivakumar, 2013). Their study examines actual performance conditions used in executive compensation contracts, with a sample of over 3,000 UK firm-year observations over an eight-year period. Adoption of IFRS should make earnings more timely, volatile and accurately informative for investors and shareholders. However, Voulgaris et al. (2014) point to a “trade-off” decrease in use for other purposes, including feeding into the stewardship role of evaluating and rewarding managerial performance (Kothari et al., 2010; Zakaria, 2012; see also Section D.1). Post-IFRS accounting measures provide less useful information about managerial performance for performance-based compensation, as they are unable to screen out the market-related noise (Bushman & Smith, 2001; Kothari et al., 2010).

How investors use accounting information for valuation is different to how shareholders use it to evaluate a manager’s performance and contribution (i.e. reporting has distinct valuation and stewardship roles; see Banker et al., 2009; Bushman et al., 2006; Lambert, 2001; and Section A). Fair value accounting has an adverse effect on the stewardship role of accounting figures (Kothari et al., 2010; Wu & Zhang, 2009), as managers are not incentivised to utilise private information in their decision-making processes. This is despite Voulgaris et al.’s (2014) finding of an improvement in accounting quality since the adoption of IFRS in the UK.

Another trade off suggested by Carter et al. (2009) is that between encouraging effort and discouraging earnings management, through changing compensation practices. In a post-SOX environment in the USA, the CEO and CFO have responsibility for the integrity of the financial reports (Hui & Matsunga, 2015). Carter et al. (2009, p. 504) studied just under 20,000 CEOs and CFOs during the period 1996-2005 and found that post-SOX, the proportion of their total reward through salary decreased – i.e. more was through bonuses, consistent with more focus on effort (since the reduced flexibility of the reporting environment post-SOX resulted in less earnings manipulation) – although interestingly there was no evidence that firms changed their contracts. The less flexible reporting environment, post-SOX, resulted in a decrease in earnings management, “thus enhancing the ability of earnings to provide an indication of managerial effort”.

In addition to earnings based measures, Nwaeze et al. (2006) considered cash flow operations, an important indicator of success in some companies. Reporting on cash flow operations provides stewardship information distinct from other earnings information and reflects different aspects of CEO performance. Such managerial performance measures may be used to “supplement earnings-based measures, especially when earnings quality is low or when [cash flow operations] availability is a crucial determinant of enterprise activities, or both” (Nwaeze et al., 2006, p. 233).

As mentioned above, the integrity of communications from CEOs and CFOs to investors via financial reports may also be incorporated in the executive’s compensation arrangements, as boards may consider the quality of disclosures to be an important driver of firm value. There is a substantial body of literature exploring whether disclosure and corporate governance are substitutes or complements. Hui and Matsunga (2015, p. 1016) find that “firms with stronger governance structures are more likely to tie bonuses to disclosure quality in order to encourage effective communications.” Whilst communications about the retrospective performance of the company are key, Bertomeu (2012) points out that the most forward- looking information about the firm’s prospects may be contained in the share ownership of executives, rather than salary or bonuses. “Understanding how much information about future prospects is conveyed through managerial stock ownership is of interest as part of the broader literature that examines the interactions between contract design and firm performance, on the one hand, and the cost and benefits of disclosure, on the other hand” (Bertomeu, 2012, p. 472).

Linking executive compensation to some form of ESG measure is still not yet commonplace, but sustainability reporting is evolving and investors are increasingly identifying the value of sustainability performance (Tonello & Singer, 2015). Eccles et al. (2014) compared firms who have been conducting sustainability reporting for a long time (i.e. since the 1990s) with those that had not, to reveal a number of differences, such as established processes for stakeholder engagement, more long-term orientation, and higher measurement and disclosure of non-financial information. Boards made responsible for sustainability are also more likely to create sustainability committees, devoted to these issues (Salvioniet al., 2016). These high sustainability companies also significantly outperformed their counterparts over the long-term, both in terms of stock market as well as accounting performance. Some literature suggests that management needs to be incentivised and compensated for the increased risks of long-term social strategies (Eccles et al., 2014; Frye et al., 2006). Companies with longer term orientation are also more likely to link sustainability performance to executive compensation in order to sharpen their focus on sustainability issues.

In a recent US study, Burchman and Sullivan (2017) found just 2% of S&P500 firms tied environmental metrics to executive compensation, and 2.6% had a diversity metric. Safety metrics were more common, with 5%, mostly those in more dangerous environments, such as mining. Other factors influencing sustainability KPIs in the CEOs compensation package include having board-level sustainability committees and sustainability reporting assurance, particularly if the assurance is conducted by one of the 'Big 4', and when the firm is in a sustainability-sensitive industry, such as mining or energy (Al-Shaer & Zaman, 2019). Sustainability reporting assurance may lack credibility, however, due to the absence of a universally accepted benchmark for assessing sustainability sufficiency and competency (Michelon et al. 2019; Smith et al., 2011; see also Section A.2.4).

A major financial cost that directors are responsible for is that of executive pay. In the UK, 'say on pay' is a very influential legislation in terms of both reporting, corporate governance and shareholder activism. The board of directors is solely responsible for the Directors' Remuneration Report (DRR) in the annual report, specifically not subject to the CEO or CFO signing it off. The DRR has to be approved at the annual general meeting and what is perceived by shareholders as excessive CEO pay can garner a high level of voting dissent. This then places the board under scrutiny and criticism and can be reputationally damaging. Therefore directors are sensitive to the threat of dissent (Ertimur et al., 2010; Ferri & Maber, 2013). One possible response in advance to proactively mitigate some damage is referred to as 'obfuscation' – i.e. trying to hide the realities in complex reporting (see also Section A.2.2). Although the content of remuneration reports is regulated, there is no requirement for 'plain English' and the information can be presented however the company chooses. In the US, Laksmana et al. (2012) find that the more excessive the CEO's compensation package, the less readable the disclosures were. CEO compensation packages *are* undoubtedly complex and the information is difficult to process. There is a huge literature in the behavioural and decision-making fields, looking at how people respond to complex information. One suggestion is that when the cognitive cost of processing information is very high, the reader disengages and/or the information (and the decision-making it predicates) may be discarded. This would have the effect of reducing shareholders' dissenting voices on say on pay. However, interestingly, this does not seem to be the case with the more sophisticated investors. These, for example institutional investors, can recognise the 'obfuscation' for what it is and take it as a warning sign, reacting negatively to the pay disclosure (Tan et al., 2014). "In this case, more difficult-to-read remuneration reports would backfire" (Hooghiemstra et al., 2017, p. 697). In their study of UK-listed firms 2003-2009, Hooghiemstra et al. (2017) find that even when institutional investors were the minority of shareholders, their negative response to such obfuscation caused voter dissent. They conclude that the readability of reports and disclosures affects shareholders' reactions (Miller, 2010; Tan et al., 2014).

By implication, regulators should recognise that boards can undermine regulators' efforts to ensure shareholders have sufficient information on the appropriateness of CEO compensation (Conyon & Sadler, 2010). Given the directors' current total discretion, regulators could minimise obfuscation by prescribing how the information should be presented in the DRR (Hooghiemstra et al., 2017, p. 698).

E.3.3. Executive turnover

The "principal role of the income statement is to measure firm performance for contracting, particularly with management", with the balance sheet more relevant to the stewardship role (Jarva et al., 2019, p. 249). Therefore, CEO turnover decisions may be affected by reporting, particularly following deviation from analysts' forecasts (Farrell & Whidbee, 2003). This is more often the case if the firm is followed by a large number of analysts and/or there is less agreement between them. Deviation from expected performance is the important issue, as the firm's board use expectations as part of their criteria for assessing CEO performance. Also referring to CEO performance, Carter et al., (2009, p. 504) state that earnings may provide "an indication of managerial effort". Burchman and Sullivan (2017, p. 3) also suggest that earnings reveal "essential insights into managerial effectiveness and thus a company's long-term prospects", so financial reporting is not only used by shareholders but also provides board directors with reliable and relevant information that allows effective advice to, monitoring and/or removal of management (Armstrong et al., 2010).

Extensive prior literature considers the determinants of CEO turnover, with a consistent, if not always strong inverse relationship between firm performance and CEO turnover (Brickley, 2003). Jarva et al. (2019) considered whether GAAP or 'street earnings' (analyst-adjusted GAAP, typically not including one-off expenses) are more relevant to this relationship. A proportion of the academic literature suggests that as street exclusions (of the non-recurring items that reduce profit) are not value-relevant, boards should not consider them when making decisions about CEO dismissal. Others suggest that street exclusions are relevant for internal corporate governance and decision making and therefore may well be useful in providing information on CEO performance. In their study of 2,635 turnover events between 1993-2016, Jarva et al. (2019) consider which was more important. Their findings reveal the "likelihood and speed of forced turnover – but not voluntary turnover – are positively related to street exclusions and, more generally, to GAAP earnings" (Jarva et al., 2019, p. 250). This suggests that GAAP earnings, used in decisions to retain a CEO, differ from street earnings, the performance measure used externally for valuation purposes. Boards may choose to use the more conservative and reliable GAAP earnings to evaluate, retain, or discipline CEO performance, as this may help legitimise their retention or dismissal decisions.

Boards may rely on accounting-based measures when considering CEO retention or dismissal and also on data only available internally (Hayes & Schaefer, 2000). CEOs communicate information that shaped street earnings, in order to avoid timely write-offs (Li & Sloan, 2017). They face a difficult choice: On the one hand they could suggest analysts use street earnings (avoiding losses), which may keep the company's share price high, but brings with it an increasing chance of scrutiny and therefore their possible dismissal. On the other hand, they could apply GAAP in a timely and appropriate manner – protecting their job but signalling loss to the stock market. In addition, communications between managers and analysts, privately or publicly, through the release of non-GAAP measures may be opportunistic: The managers may try to outperform expectations, engaging in "expectations management" (Guillamon-Saorin et al., 2017; Isidro & Marques, 2013).

E.3.4. Takeover activity

At a broader level, the adoption of corporate standards (e.g. IFRS) across industries or countries has been found to affect individual firm's decisions regarding mergers and acquisitions behaviour (de George et al., 2016). Financial statements are a key source of information for making takeover-related decisions (Raman et al., 2013). "Managerial monitoring also occurs through the market for external takeovers. Reporting quality impacts the effectiveness of this corporate governance mechanism (de George et al., 2016, p. 953)." Louis and Urcan (2014) find that the use of comparable accounting standards and better screening leads to more cross-border acquisitions, and suggest that it would simplify managers' post-acquisition integration. They also found an increased likelihood of cross-IFRS reporting entities merging, and that the use of comparable reporting standards also leads to more firms deciding to join cross-country listings (Chen et al., 2015). Concurring with Francis et al. (2015), Louis and Urcan (2014) conclude that it is improved comparability, resulting from IFRS adoption, rather than changes in actual reporting quality that causes the increase in cross-border M&A.

E.3.5. Integrated decision-making: a chicken and egg question

Literature on how reporting affects decision-making is challenged by questions of directionality (which comes first) and more empirical evidence is needed regarding the prevalence or magnitude of such effects (Leuz & Wysocki, 2016). Anecdotally, what gets measured gets managed, causing valuable constructive change in strategic thinking, which enables companies to convert data into action (Qian & Schaltegger, 2017; Burritt & Schaltegger, 2010), integrate thinking and decision-making, thus creating more value for the firm (Barth et al., 2017; De George et al., 2016). For example, in a case study, Lai et al. (2018, p. 1399) suggest that <IR> is "an integrated thinking facilitator", developing integrated thinking through enhancing dialogue across departments. The need or decision to produce sustainability reports may influence the board in terms of integrated thinking, connectivity and governance (Adams et al., 2019) and such disclosures may influence decision-making as companies are motivated to perform better. This is contrasted by Al-Htaybat and von Alberti-Alhtaybat (2018), whose case study suggests that the occurrence of integrated thinking within organisational strategy leads to the possibility of integrated reporting.

Which came first, the integrated thinking or the integrated reporting? This may be a function of compulsion or desire – i.e. if the company feels it is pushed into such reporting either through regulation or legitimacy concerns then integrated thinking may well be an unintended positive outcome of this – "an outside-in driven effect" for change (Qian & Schaltegger, 2017, p. 365). However, as Sustainable Development Goals gain more prominence (for example, environmental issues such as carbon output, or social issues such as leadership diversity), they may be incorporated more overtly into strategy and the firm's business models, leading to greater authenticity as firms behave more consistently with the values they espouse (Harrison & van der Laan Smith, 2015). If the focus of the reporting is in line with the broader organisational culture and/or the firm's institutional logics, managers may be more likely to change their behaviours accordingly (Bundy et al., 2013; Hall et al., 2015). This may include management approach, strategy, governance, the use of targets and reporting on performance against those targets, influencing the value chain and value creation behaviours that contribute to business success (Adams et al., 2019; Adams 2017a; 2017b). However, it is important to highlight that research has not yet clarified whether this is the case. Instead, as discussed in previous sections, there is a large amount of evidence that reporting is often used as an impression management tool.

This has led to calls for <IR> research to address senior management thinking and decision-making in practice (de Villiers et al., 2017), Vesty et al. (2018) conducted an in-depth case-study with one Chairman recalling the relationship between integrated thinking and integrated reporting. The Chairman was clear that the mission and values of the company drive strategy and that integrated strategic thinking drives reporting, rather than the other way around. Additionally, she claimed that the integrated annual report adds value in attraction and selection as it gives potential employees and senior managers a fuller, more accurate picture of the organisation's identity. The company found fully following the six capitals of <IR> restrictive and so adapted the rules, using it more broadly as a guide. The Chairman did believe in involving investors and stakeholders in the reporting journey and, contradicting other research (McNally et al., 2017), believed this was taken seriously. The main challenge the company faced with <IR> was moving beyond reporting value creation to reporting broader societal impact (i.e. both for-profit and for-purpose).

E.3.6. Board of directors

There are a number of studies considering how aspects of corporate governance, including board composition, influence the type and quality of reporting (e.g. Byron & Post, 2016; Klettner et al., 2014; Mallin et al., 2013), and more recently a growing literature of how commitment to quality reporting can influence both the board structure and ownership structure. In reality, the link between quality reporting and the number/quality of outside/non-executive directors' (NEDs) influence is likely to flow both ways (Armstrong et al., 2010). For example, Klein (2002) discusses the impact of more NEDs on the board, suggesting that their greater independence leads to better monitoring of the accounting/reporting processes, actively constraining earnings management. Alternatively, perhaps managers recognising the need for transparency in the financial reporting, invite more NEDs to join the board.

The literature examining shareholder activism and whether they hold directors accountable for internal controls, through shareholder voting, is not large. If, as a response to what is being reported, directors face a high number of withheld votes, this reputational penalty may motivate better director oversight (Ertimur et al., 2012). A study by Ye et al., (2013) considers the post-SOX-404 environment in the US and finds shareholders react negatively to the presence of material weaknesses reported in the 404 report and vote against managers. Unsurprisingly, shareholders demonstrate greater dissatisfaction with a higher number of weaknesses, but this can be mitigated if the company provides early warning of weakness during the financial year. Specifically, audit committee directors are not penalised for internal weaknesses but are penalised for accounting restatements.

In their comprehensive literature review Armstrong et al. (2010) highlight the role of accounting systems in corporate governance and debt contracting, particularly regarding "reducing the information-related agency costs that arise among managers [and] directors" (p. 227). An important theme in their review is the role of informal contracts – i.e. the unwritten expectations about behaviour and reward for directors – that manifest themselves in the facilitation of relationships and economic transactions. Their review points to a large body of descriptive literature in the decade 2000-2010 and calls for future research to investigate the direction of causality in the relationships amongst governance mechanisms and an organisation's accounting and reporting systems.

E.3.7. Reporting and operations

Disclosure of internal control systems may serve as a governance mechanism (Schultz et al., 2018), particularly in relation to operational elements. For example, several papers focus on 'dangerous' industries, such as resources and energy production. Christensen et al. (2017), looking at disclosure regulation on safety in the mining industry, conclude that information on social responsibility in financial reports can have additional real effects, even if this information is already available elsewhere. Increased awareness of safety issues was found to be linked to increases in compliance with mine-safety, leading to fewer violations and a decrease in injuries.

Based on the adage that 'what gets measured gets done', it should not be surprising that a number of papers do demonstrate such real effects - for example that carbon reporting can lead to better carbon performance (Burritt & Schaltegger, 2010; Qian & Schaltegger, 2017). Qian and Schaltegger (2017) demonstrate this positive association between Global 500 companies' carbon disclosure levels and their carbon performance (through emission intensities) data between 2008-2012. Taking a legitimacy and management perspective, Qian and Schaltegger (2017) state that even where disclosure had previously been used as a legitimizing tool, "carbon disclosure motivates companies and creates an outside-in driven effect for subsequent change and improvement in carbon performance" (Ibid, 2017, p.365).

However, there are a number of issues with this and similar studies. Firstly, they are based on the carbon emissions reported by organizations themselves, whereas research shows that emissions may be misstated (Ballou et al., 2018; Michelon et al., 2019). Secondly, although the paper attempts to address the causality issue with a change regression and fixed effects, it is unclear that this is sufficient to completely address the endogeneity issue. Thirdly, the study uses carbon emission *intensity*, so while it can be said that there is an increase in emission efficiency, the results do not say anything about the overall level of emissions *per se*. The findings are nevertheless interesting and useful to investors, but if a companies' overall emissions do indeed increase, that company cannot claim to be helping the planet. This is a clear example of the tension that is generated when disclosure is intended for investors but subsequently used by other stakeholders in different contexts.

Similarly, Kim and Lyon (2011) report that voluntary greenhouse gas emission reporting is not well understood. In their study of firms' strategic voluntary disclosures to US government, organisations in the same geographic region as one another were found to have reported very similarly, revealing normative pressures to adopt particular business practices. Firms also engaged in highly selective reporting and, despite reductions being reported by individual firms, the total level of emissions actually increased. In contrast, non-participating firms in the same region reduced their emissions over time. Those voluntarily disclosing tended to be larger firms facing stronger regulatory pressure.

Christensen et al. (2019) suggest a controversial real effect intention by policy makers or regulators may be to ensure the exit of firms perceived to be contributing to societal problems (such as dangerous or heavily polluting companies). They argue that a limitation of studies looking for behavioural change is that they are often focused on a single industry or a narrow sample.

However, the reporting on behavioural change connected to increasing gender diversity in UK boardrooms, did lead to a substantive change in the total number of women on boards across all listed premier companies (Sealy et al., 2017). Changes announced in 2012 by the Financial Reporting Council, requiring premium listed companies to report on their boardroom diversity policy and any objectives, were followed by a significant increase in the gender diversity of boards. However, within the aggregated increase (from 12.5% in 2012 to 25.8% in 2015), there were substantial differences between individual firms. For example, within firms ranged

from having 50% to 9.1% female directors. However, whilst the need to report may have increased the overall numbers of women, it does not tell us anything about changes in board behaviour or inclusive cultures. See also Section A for further details about the disconnect between corporate words and actions.

E.3.8. Reporting and the tone at the top

We consider how reporting regulations can influence the ‘tone-at-the-top’, by which we mean the general ethical climate throughout an organisation, set by senior management and the board of directors. Researchers disagree on how regulators can influence tone (Sundaramurthy & Lewis, 2003; Rosanas & Velilla, 2005), but as Lail et al. (2015) explain, this is theoretically underpinned by beliefs about what motivates managers. The assumption of agency theory is that managers act in their own best interest. The appropriate regulatory approach, therefore, is to mandate desirable behaviour through increased monitoring, decreased discretion and fear of punishment. This can induce a compliance-based approach. In contrast, an empowerment-based approach rooted in stewardship theory, sees managers as trustworthy guardians and grants greater discretion and less burdensome monitoring. An example of agency, compliance-based regulation is Dodd-Frank, in the US, with restrictions on financial markets, increased monitoring and more aggressive whistle-blowing programmes. Whereas, the UK’s recent 2018 update of the Code of Corporate Governance has taken a decisive step towards more stewardship-focused guidance, and future research opportunities await in tracking changes in reporting and behaviour. How reporting will affect managerial behaviour depends on its levels of monitoring versus discretion. Empowerment-based guidance gives potential for stakeholders to gain a more transparent view of how the company operates, but also gives managers more discretion to report opportunistically (see earlier Sections A.2 on impression management and E.2.2). Therefore, it “places a greater societal burden on management and magnifies the importance of setting a proper organisational tone” (Lail et al., 2015, p. 35). Future research should track the changes closely.

E.3.9. A final word on stewardship

The contemporary notion of stewardship concerns the use of reported accounting information to control what management does, with accountability to internal and external stakeholders, appraising past performance and controlling future managerial actions. It is often associated with accountability, control, and risk. However, as O’Connell (2016, p. 223) asks, is the Chief Financial Officer viewed as a steward of the company’s assets or the head of a profit centre? Boards rely on share prices and earnings to monitor managerial performance (Engel et al., 2003). So, higher quality reporting (i.e. improved transparency and reduced asymmetry) should therefore enhance corporate governance mechanisms, as managers are required to gather additional information, which should positively affect their decision-making (De George et al., 2016). For example, changes in the reporting environment can affect decisions about dividend payouts (Hail et al., 2014): Either the firm does not feel the need to have to signal success through excessive payouts (due to improved monitoring), or because of the decrease in overinvestment, there is more excess cash available for dividend payouts.

One objective of financial reporting is mitigating agency-principal conflicts. However, a notable change in IFRS is that stewardship ceases to be an aim in and of itself and is subsumed within decision-usefulness. This highlights an unresolved question within the academic literature of whether there is a role for stewardship in financial accounting, separate from decision-usefulness (see Section A on the purpose of corporate reporting)? Apart from studies considering managerial compensation (see Section E.3.2 above), literature on the

stewardship role in accounting research is sparse (O’Connell, 2016). As identified by De George et al.’s (2016) review on IFRS adoption, one limitation of IFRS and stewardship literature is that the research does not highlight the mechanisms through which IFRS adoption affects stewardship or the specific accounting attributes that drive change. Nor is it clear whether and how governance structures have been affected by IFRS.

O’Connell (2016, p. 224) concludes that “with the exception of work on the compensation-earnings association, the academic community appears to offer limited empirical guidance to standard-setters and others about the potential importance of stewardship in contemporary financial reporting. This commentary calls for a renewed emphasis on stewardship-based accounting research.”

E.4. Concluding thoughts

This section of the review has sought to answer the question “How does corporate reporting affect behaviour?”. As Sections C and D have addressed evidence of how capital providers (shareholders and creditors) use financial information, making inferences, for example on the basis of liquidity, cost of capital, firm value, terms of debt contracts, and so forth. The analysis of real effects allows similar indirect inferences about how other stakeholders use corporate reporting information (importantly, both financial and non-financial). This provides a clear rationale as to why real effects are so important. In addition to corporate reporting driving behavioural change, it also gives insights about the usage of reporting by various parties.

- However, one of the first points to make is that effects on capital providers and others are not necessarily mutually exclusive. It is often information about the potential or actual response of the receiver (e.g. capital providers) that the sender of the information is responding to. This also leaves us with the question in whose behavior are we interested (shareholders, managers, directors, or external stakeholders)?
- When searching for evidence of real effects, we find many studies considering the changes of an organisation’s behavior relating to disclosure or compliance strategies, as well as the use of reporting as an impression management or public relations tool. This may particularly be the case for the more recent non-financial elements of reporting. With a much smaller body of evidence relating to integrated and non-financial reporting, there is discussion as to whether non-financial reporting, and its ‘misuse’ as a public relations tool, can be counter-productive to social change. However, this begs the question as to the purpose of the reporting – is it and should it be social change? (see also Section A)
- A very interesting section of this literature considers the chicken and egg situation of whether integrated thinking and decision-making leads to integrated reporting or vice versa. Quantitative research may reveal associations, but not necessarily causation. This is where qualitative research and case studies may be useful, although less generalizable. The chicken and egg challenge may apply to reporting practices other than <IR>, but the literature on <IR> provides a useful illustration. We conclude that which came first is likely to differ on a case-by-case basis and may be a function of compulsion or desire. If the company is pushed into integrated reporting, either through regulation or legitimacy concerns, then more integrated thinking required for integrating reporting may well be an unintended positive outcome. However, whether the organisation chooses to act on this – i.e. change its behaviours – or is just focused on reporting as an impression management exercise varies, and the literature shows examples of each. Alternatively, if an organisation’s leadership is already strategically focused on integrating broader measures of performance (e.g.

environmental or social), then this approach will more likely enable successful integrated reporting. Examples were found in the literature of how such thinking and reporting have become culturally embedded over time in some organisations.

- Does improved reporting help steer corporate practices and improve them? The literature finds some evidence in this respect. However, there are also studies that suggest better disclosures do not necessarily lead to better outcomes. Further, as it is challenging to provide sound evidence of causality, results should be taken with caution and more research is needed.
- A potential unintended consequence of ESG-related regulatory initiatives is that, in the context of investor-primacy, companies may also report how ESG issues are impacting financial performance. While this in itself is not a problem, it does raise the question as to whether reporting on ESG issues should address primarily the interests of other stakeholders. Should reports be constructed in such a way that they inform readers more broadly about the social and environmental impacts of corporate activities, including how they contribute to the achievement, or impairment of the Sustainable Development Goals?
- How organisations respond to this will be affected by numerous contextual factors, including:
 - the organisational context and culture that supports (or not) changed behaviour,
 - industry norms and institutional pressures that support (or resist) the change,
 - the regulatory context (including compliance and empowerment), and
 - the national and societal context regarding acceptability and expectation of behaviour change, especially on social and environmental issues.
- Research on real effects is still in its infancy and faces many challenges. But, as more governments are using disclosure requirements as a public policy instrument to encourage or discourage certain behaviours and business practices, the need for more research into real effects is imperative. The Non-financial Reporting Directive, whose effects are too recent to be yet fully understood, presents some good research opportunities.

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Conclusions

This review reveals a vast literature on the role, characteristics and effects of corporate reporting, which includes studies of both financial and non-financial information. On one hand, the mainstream accounting research tradition has focused on the role of financial information in capital markets for valuation and stewardship purposes. On the other hand, a secondary stream of research on non-financial reporting has developed within the (social) accountability framework. Recent years have also seen increased attention being paid to non-financial reporting by mainstream scholars, whose research interests mainly focus on how non-financial reporting affects capital markets and investment decisions. The increased attention by accounting academics on non-financial reporting is due to recent changes in the regulatory environment which have introduced the mandatory disclosure of non-financial reporting (for example, the EU Directive 95/2014). Following a valuation perspective, non-financial information is useful to assess the types of risks and opportunities that companies must manage. The review also points to an extensive focus on “numbers” (e.g. financial statements) although, as the role of non-financial reporting and disclosure becomes more prominent, together with the introduction of computational linguistics techniques in accounting research, recent literature is increasingly interested in the role of narrative disclosure.

This concluding section starts by articulating the structure of the report against the key questions posed by the FRC and presents a list of the key findings emerging from the literature. It then presents the limitations of the review, the challenges for future research, and the key policy recommendations for the Future of Corporate Reporting project.

An overview of the report and its mapping to the key questions posed by the FRC

1. What are the characteristics of good corporate reporting?

Section A explains that the characteristics of good reporting are dependent on the purpose of reporting. The valuation and stewardship perspectives see reporting as addressing the needs of investors (see footnote 1 – e.g. financial stakeholders), both for investment decisions and monitoring purposes. The accountability view assumes reporting fulfills a duty to provide an account for those actions the organization is responsible for to all stakeholders, implying that good reporting is related to stakeholder engagement processes.

The academic literature adopting a valuation or stewardship perspective has mainly focused on characteristics defining the quality of financial statement information, as illustrated in Section A.1. For narrative information (see Section A.2), the literature has focused on disclosure attributes describing both the quantity and the richness of the message conveyed. Within the accountability view, the quality of corporate reporting is related to an aspirational/emancipatory role of reporting itself, in changing corporate practices and behaviors, and is often embedded in stakeholder engagement processes

2. What types of information are included as part of corporate reporting?

For the purpose of this review we define corporate reporting as financial and non-financial information included in annual reports, quarterly reports, restatements, earnings announcements and other ad-hoc stand-alone reports (such as sustainability, corporate social responsibility, integrated reports).

We use the term financial reporting to indicate disclosure of financial information such as that contained in the financial statements, including the notes, but also the narrative discussion of corporate performance (i.e. narratives or other quantitative indicators that complement financial data, for example narrative information in the strategic report or management discussion or analysis). Non-financial reporting includes corporate social responsibility, social, environmental or sustainability reports (which are interchangeable terms), as well as other types of narrative information included in specific sections of the annual reports (such as for example, risk disclosure, or disclosures about environmental, social and governance issues) or in other corporate documents (integrated reports, intellectual capital statements, etc.).

Following the development of research on corporate reporting, Section A is divided into research that has focused on financial information contained in the financial statements vs. research that has focused on narrative reporting (both financial and non-financial).

3. What is the role of non-financial/ESG/sustainability reporting?

Following a valuation/stewardship perspective with emphasis on investors' needs, non-financial/ESG/sustainability reporting serves the purpose of helping with interpreting, contextualizing and assessing the financial performance of firms (See various approaches to measuring the quality of narrative information in Section A.2). From an accountability perspective, the role of non-financial/ESG/sustainability reporting is to fulfill corporate accountability duties to a variety of stakeholders. These accountability duties include impacts of corporate activities that are not strictly financial, i.e. social and environmental. Further, the accountability view also ascribes the potential for an educational, aspirational, emancipatory role to this type of reporting, as long as it is embedded in stakeholder engagement processes (see section A.2.5).

4. How is non-financial/ sustainability reporting defined in academic literature? How is it used?

CSR and sustainability reporting can be defined as that which seeks to respond to public pressure over the societal and environmental impacts of corporate activities and/or to respond to specific legitimacy threats, such as environmental accidents (see Section A.2.2). Despite criticism over reporting practices, the accountability view argues that this type of reporting has the potential to provide stakeholders with an account of the social and environmental impact of corporate activities (see Section A.2.5). As noted in the opening of Section A, non-financial reporting has become relevant also for investors (see also Section B.2 for an overview of the evolution of reporting). Sections C and D provide a view on how this type of information is used by various stakeholders, including investors.

5. How does the annual report fit into the wider corporate reporting framework?

The annual report is still a very relevant and key documents for a corporate reporting framework, as it conveys information about corporate performance both through financial statements (see Section A.1) and through narrative information (see Section A.2), the importance of which has grown over time (see Section A.1.4. and Section A.2.3 for studies on the relevance of narrative disclosure for correctly interpreting financial

statement information). The evolution of reporting, including the role of the annual report is also discussed in Section B.2.

6. What is the role of regulation in corporate reporting?

The regulation of financial reporting and disclosure practices can be justified by the existence of externalities, market-wide cost savings from regulation, insufficient private sanctions and dead-weight costs from fraud, and agency conflict that could be mitigated by disclosure. Importantly, disclosure is not only subject to regulation but itself can be considered a regulatory mechanism. In other words, disclosure regulation is used to steer corporate practices towards desired outcomes. Section B discusses how regulation affects corporate reporting practices; the real effects of disclosure regulation are discussed in Section E.

7. What is the role of corporate reporting in building corporate accountability?

As explained throughout Section A, Section B also reiterates the above point by looking at the evolution of reporting, as well as at the implementation of specific regulations (for example in the UK, see Section B.1.2.)

8. How have different periodic reports evolved (preliminary announcements, interim reports, annual reports, sustainability reports)?

The evolution of different types of reports is discussed in Section B.2 which highlights: (1) financial statements are still deemed to be an essential component of the financial reporting system, and the corporate governance model of a firm; (2) the idea that investors are the key audience for corporate reporting has been questioned and debated; (3) widening the scope of corporate reporting to also include the provision of non-financial information does not necessarily require that the purpose of corporate reporting (or the focus on investors' needs) will change, or has changed.

9. What are the information needs of investors and how is this information used?

The information needs of investors stem from the three main functions of reporting identified in Section A, i.e. valuation, stewardship, and, to a lesser extent, accountability. Corporate reporting information (in particular, financial reporting) is the cornerstone of equity valuation and consequent trading decisions for (potential) equity investors (see Section C). Creditors use such information while assessing borrowers' credit risk, which in turn affects companies' access to credit and the terms of credit arrangements, e.g. loan pricing or debt covenants (see Section D.1). Corporate financial reporting also guides shareholders in their stewardship activities, e.g. it is used in setting executive compensation, determining executive turnover, and guiding shareholder activism (see Section E.3). Finally, financial analysts and credit rating providers are important users of corporate reporting information, processing it to meet the information needs of investors (see Sections C.3 and D.1.3).

10. Is there a link between corporate reporting and movements in share prices?

There is ample evidence of associations between corporate reporting information and capital market movements (not only equity markets, but also derivative and credit markets; see Sections C.2 and D.1). In particular, release of corporate reporting information affects investors' trading behavior (see Sections C.1.1 and C.2.1), share returns/prices (see Section C.2.5) and their volatility (see Section C.2.6). Such effects have been documented for financial reporting (both financial statements and narrative reporting) and non-financial reporting information (see Section C.2).

11. What are the information needs of users that are not capital providers and how is this information used?

Information needs of other stakeholders (e.g. consumers, employees, suppliers, managers, industry bodies, professional associations, accounting firms, consultants, or NGOs) mainly stem from an accountability role of corporate reporting, enabling these stakeholders to scrutinise the actions for which firms are held responsible in the eyes of these stakeholders (see Section A). Stakeholders use both financial and non-financial reporting information (see Sections A, D, and E). Examples include the usage of corporate reporting information for in whistleblowing, identifying targets of NGO campaigns, consumers' decisions to continue purchasing from the reporting firm, or in formulating of negotiating positions of labour force and/or of suppliers vis-à-vis such a firm (see Sections D.2, E.2 and E.3).

12. What is the purpose of the annual report?

This question is usually not directly addressed by the literature and is conceptually subsumed in the broader issue of the purposes and functions of corporate reporting in general discussed above (see also Section A). Throughout the report (in particular Sections C-E), we discuss (mostly indirect) evidence on how various information contained in this major piece of corporate reporting is used by investors and other stakeholders.

13. Who is the audience of the annual report?

In most cases, the literature answers this question indirectly only by examining how investors and other stakeholders use corporate financial reporting information in general and annual reports in particular (see above). The limited direct evidence available suggests that both preparers of corporate reporting information and its users consider investors as the primary audience of such information. See also Figure 1 in Section A.

14. How is narrative information in the annual report used?

Narrative reporting complements and contextualises financial statement information for investors (when using the information in valuation or stewardship contexts), but is sometimes used as an impression management tool misleading the audience of corporate reporting (see Sections A, C.1, and C.2). Other stakeholders use narrative

and non-financial reporting predominantly in the context of accountability (see Sections A.2, D.2, and E.3).

15. What is the role of the financial statements?

The role of financial statements is mainly explained by the valuation and stewardship perspectives discussed in Section A, with a focus on investors' information needs. As such, the effects of financial statement information on capital markets is discussed in Section C. The debate as to whether financial reports could serve the needs of a wider range of stakeholders, and society more generally, is discussed in Section B.2.

16. How does corporate reporting affect behaviour?

Sections C and D address how corporate reporting affects the behaviours of capital providers (shareholders and creditors), using information to make inferences, for example on the basis of liquidity, cost of capital, firm value and terms of debt contracts (see above). What the literature says about 'real effects' and how corporate reporting impacts managers' and firms' behaviour, is addressed in Section E, allowing similar indirect inferences about how other stakeholders use corporate reporting information (importantly, both financial and non-financial), see also Section D.

Section E.2 considers *how* and *why* firm and managerial behaviour may change due to the influence of reporting on issues such as regulation and compliance strategies. It also considers the use of reporting as an impression management or PR tool (see also Section A.2.2), for identity signalling, agenda-setting, and stakeholder engagement. Section E.3 looks at *what* behaviours may change due to reporting, considering internal investment behaviour, executive compensation and turnover, takeovers, activism, integrated decision-making, operations, the 'tone-at-the-top', and stewardship.

17. What is the purpose of corporate reporting? How is this defined in academic literature?

In this concluding section, we reiterate how the purpose of corporate reporting is not uniquely defined, and summarise the key findings of the literature that support this assertion.

Key findings

Overall, our analysis suggests that corporate reporting (both financial and non-financial) matters for stakeholders, in particular investors, and its relevance manifests itself in a number of ways:

- The **purpose of reporting** is not uniquely identified. There are three overarching views on the role of reporting: the valuation role mainly considers reporting as addressing the information needs of, and use by, shareholders and potential investors for investment decisions (and therefore traditionally research in this area has focused on financial information); the stewardship role captures the role of financial information to monitor the behaviour of management by capital providers

(shareholders and creditors); the (social) accountability role considers the role of information for a wider set of stakeholders, whose main interests are not necessarily financial (and may potentially even conflict with 'pure' financial interests), but who are nevertheless affected by corporate activities. This latter stream has emerged via analysis of non-financial information and it entails the idea that reporting has the potential to change corporate behaviour (see Section E).

- As the purposes of reporting involve multiple users with varying needs, the way in which the quality of reporting is defined depends very much on what one considers to be the primary purpose of reporting. The literature provides several approaches to the conceptualisation of quality across its different research paradigms. Positivist research (which assumes the world can be understood in terms of causal relationships between observable and measurable variables, and that such relationships can be studied objectively using scientific methods) is focused on finding accurate, valid and reliable proxies for measuring reporting quality (assumed to be an objective reality). Interpretivist research (which assumes the world can be understood by gaining a deep understanding of a phenomenon and its complexity within a unique context, with such phenomena therefore often being studied using qualitative, descriptive methods) suggests that corporate reporting is socially constructed with different meanings assigned by different stakeholders.
 - The literature recognises that defining the purpose of reporting is inherently a political process. There is no consensus on whether corporate reporting should serve a valuation, stewardship or accountability purpose, nor which of these purposes should prevail over the others. As such, it is impossible to define uniquely what is meant by the quality of corporate reporting.
 - Academic research widely acknowledges that different stakeholders may have different information needs, so it is difficult for one size to fit all. For example, investors needs are still largely focused on financial information, although non-financial information becomes material to the extent that it carries financial implications (e.g. risks and opportunities). On the other side, other stakeholders may need a wider array of disclosures, not necessarily quantified or expressed in financial terms.
 - Even within a particular group of users, e.g. shareholders, the information needs can vary depending on the purpose for which corporate reporting is used, e.g. valuation versus stewardship.
 - Users face cognitive limitations, which implies that some users do not use all the information provided, as they are not able to adequately process it. This implies that users often rely on information intermediaries (e.g. analysts) to process information reported by companies, which highlights the key role that analysts play in the functioning of capital markets
- The **quality of reporting** is a multidimensional concept.
 - Several papers employ definitions of quality that derive from the qualitative attributes of reporting as stated in accounting conceptual frameworks or reporting guidelines, using multidimensional frames of analysis (i.e. quality is defined in terms of reliability, materiality, comparability, neutrality, completeness etc.)
 - The quality of reporting cannot be studied in isolation from the firm's wider reporting incentives, which include firm-specific factors, such as the governance system (e.g. the rules, practices and processes by which a company is directed and controlled) or growth opportunities, but also other market incentives and wider institutional arrangements.

- The quantity of information is not necessarily a proxy for quality as it does not allow one to fully capture the intrinsic characteristics of the information reported. Further, more disclosure may simply be associated with less meaningful information ('boilerplate' or statement of the obvious), as well with more opportunities to manage impressions, by obfuscating unfavourable news or emphasizing favourable news.
 - Recent developments in computational linguistics and their adoption in accounting research have facilitated the analysis of the textual characteristics of disclosure to assess the quality of corporate reporting.
 - The discretion left to management in reporting decisions (by accounting standards or reporting guidelines) is a double-edge sword – both for financial statements and narrative reporting. This discretion can be used to communicate "private" information and enhance the value of the signal conveyed by reporting, or to provide a comprehensive account of activities and impact of those corporate activities for which the firm is responsible, or it can be used to "bias" the representation of the company's underlying performance and practices.
 - Some out-of-the-box, yet more radical approaches to what is considered quality of reporting suggest that much could be learnt from dialogic accounting and participatory governance systems. Dialogic accounting is a practice that recognises multiple points of view and refuses to privilege capital markets and investors as 'priority' stakeholders. Such accounting practices also reject the idea of a universal narrative, preferring instead to think of a company as being exposed to a range of perspectives and interests from various stakeholders. Following this view, the overall portrayal of a firm's performance and practices should be assessed using not only self-reported information, but also accounts provided by stakeholders. In this perspective, the process of producing (or co-producing) corporate reporting with stakeholders would enhance the quality of reporting itself.
- The literature often documents a **mismatch** between the needs of users and what is being reported (this should not necessarily mean more disclosure, but rather reporting that better fits the users' needs). This is particularly the case for non-financial information such as CSR or sustainability information, where the literature has documented extensive use of impression management and gaps in performance portrayal.
 - A key concern in the literature about social/environmental information relates back to the purpose of reporting. Recent frameworks that encourage CSR/ESG reporting are very much focused on the information needs of **investors, rather than wider stakeholders**. In other words, while the scope of reporting is widening, the purpose of reporting is not changing, and for most regulators/standard setters the primary users of corporate reports are still shareholders and investors, i.e. they adopt a valuation/stewardship perspective rather than a (social) accountability view.⁶⁹ This is the case for example for standards like the <IR> framework and the SASB (focused on investors need), whereas the Global Reporting Initiative (GRI) standards are stakeholder-centric.

⁶⁹ Yet, while some evidence starts to emerge about investors' and analysts' growing appetite for using CSR/ESG reporting information for valuation/stewardship, existing reporting standards in this area are often not considered sufficiently useful for these purposes.

- The institutional environment matters in terms of how **regulations** affect corporate reporting practices (and their implications on capital markets).
 - Regulations of financial reporting and disclosure practices are introduced for different reasons, which include the existence of externalities, market-wide cost savings from regulation, insufficient private sanctions and dead-weight costs from fraud and agency conflict that could be mitigated by disclosure. Importantly, when disclosure regulation is introduced to steer corporate practices, the evidence suggests that the disclosure response is often boilerplate.
 - It is very challenging to disentangle the effect of the disclosure mandate on reporting behaviour from other potential concurrent changes (for example the level of enforcement).
 - As noted above, reporting discretion is a double-edge sword, and this applies even in the context of new reporting regulations and mandates, as firms will respond to new regulations and mandates in line with their reporting incentives, and with other institutional drivers that affect the quality of reporting.
 - The impact of the same form of reporting or reporting items on capital markets may vary depending on the rule of law or levels of investor protection, predominant ownership and financing patterns specific to the firms, other capital market developments, and level of enforcement.
- Corporate reporting **matters for and is used by stakeholders**, in particular investors (shareholders and creditors), and its relevance manifests itself in a number of ways.
 - For shareholders, the literature finds the indirect effects of corporate reporting manifesting themselves via market liquidity (e.g. bid-ask spread, market depth), trading behaviour, value relevance, cost of capital, stock returns and their volatility. The corporate governance literature also identifies how the information reported is used by (potential) shareholders for stewardship purposes, e.g. in setting executive compensation, assessing performance of managers and forcing executive turnover, identifying takeover targets, etc.
 - There is ample evidence of the use of corporate reporting information by financial analysts (who serve investors).
 - For creditors, corporate reporting information has been shown to matter for the terms of debt contracts agreed (e.g. covenants, pricing, and maturity), the ability to assess lenders' creditworthiness and to predict bankruptcy.
 - For other stakeholders, the literature is relatively scant and the evidence is not generalisable. Some examples include the use of corporate reporting information in whistleblowing, identifying targets of NGO campaigns, consumers' decisions to continue purchasing from the reporting firm, or in the formulation of negotiating positions of the labour force and/or of suppliers vis-à-vis such a firm.⁷⁰
- **Mandatory** disclosures seem to have stronger capital market effects than **voluntary** ones. However, there are several empirical challenges in documenting causal relationship, severely limiting the number of studies that reliably document economic effects of new disclosure regulations.
- Research shows that reporting practices may have **spillovers** to other firms (e.g. peers, companies along the supply chains, etc.), both in terms of capital market

⁷⁰ Moreover, the usage of reporting information by other stakeholders could translate into "real effects" discussed below.

effects for peers (when a firm reveals some private information this may also have effects on other peers in the industry or along the supply chain). Further, research also shows that their reporting practices subsequently get institutionalised (or imitated).

- Research on the “**real effects**” of disclosure (i.e. changes in corporate behaviour that are triggered by reporting) is still in its infancy and it faces many empirical challenges, so causal estimates are hard to obtain.
 - The research in the area has documented that behaviours are linked to reporting, i.e. corporate reporting has real effects on firms’ policies (e.g. investment) and on stakeholders (e.g. customers, which then translates into sales growth). However, it is yet unclear whether these real effects are aligned with the aim of reporting (e.g. whether ESG reporting influences ESG performance).
 - Furthermore, two problems with this research are (1) contextual factors that may affect the actual behaviour, which include, organisational context and culture or tone that supports (or not) the behaviour, the industry norms and institutional pressures that support (or resist) the change, the regulatory context (including compliance and empowerment) and the national and societal context regarding the acceptability and expectation of behaviour change, especially on social and environmental issues; and (2) the effects depend on whose behaviour one is interested in (shareholders, managers, directors, external stakeholders).
 - As the scope of disclosure and transparency regulation starts to expand beyond financial reporting, understanding the effects of firm practices and behaviours becomes of great importance and this is one area where more research is needed.
 - As societal attention to sustainable development increases and the awareness of future environmental and social challenges improves, a potential unintended consequence of regulatory initiatives in the field that maintain an investor-focus is to lead companies to report on how new risks and opportunities affect corporate financial performance, rather than how corporate activities affect sustainable development (i.e. reporting on externalities and impacts).
 - Disclosure through other means (such as social media, conference calls etc.) can also have real effects, but it is out of the scope of this review.
 - Documented evidence of impression management implies that non-financial disclosure may become almost akin to corporate communications and a PR function, which implies there is little need to change if companies can successfully manage impressions.
 - As more governments are using disclosure requirements as a public policy instrument to encourage or discourage certain behaviours and business practices, the need for more research into real effects is imperative.
- The Non-financial Reporting Directive, whose effects are too recent to be yet fully understood, presents some good research opportunities.

Limitations

We acknowledge some of limitations of our review. Given the vast scope of this exercise and the feasibility constraints (imposed by the resources and time-frame available to the team), we have faced a trade-off between the breadth of analysis against its depth. Moreover, while we believe the report offers a comprehensive and representative overview of the literature on

the topics covered, and the methodology followed, it cannot be classified as a fully systematic literature review on these topics. In particular, for the sake of brevity and feasibility of the exercise, in some cases we refer to recent literature reviews on selected topics covered here as well, updating, complementing, and enhancing these extant reviews rather than replicating them. Finally, we acknowledge limitations stemming from the less than perfect effectiveness of relatively simple automated keyword searches. We have attempted to address these by supplementing the sample of papers identified through this route with the inclusion of additional sources, guided by our expertise and academic judgement (as discussed above).

Some of the limitations also stem from the nature of the literature reviewed rather than from the methodological approach taken while reviewing it. In particular, the literature suffers from a relative paucity of studies on some of the newly emerging topics (in particular, regarding non-financial information and the corporate reporting information needs/use of non-investor stakeholders). Second, the geographic focus of the extant literature is predominantly a US setting, with a considerably smaller proportion of studies examining UK, European, Australian or cross-country samples. Relatively few studies focus on a single market other than US, UK, or Australia.

Key challenges

We identify the following key challenges for the future of corporate reporting in relation to the gaps that have not yet been fully addressed by the literature:

- Assessing the quality of reporting is a difficult endeavour for the reasons explained above. All evidence therefore should be interpreted accordingly and considerations about *what* should be reported, *why* and *how*, is, inherently, part of a political process.
- Causality in large scale empirical studies is challenging to prove; estimates gained from this literature should therefore be interpreted cautiously. Hence, a meaningful real impact assessment of new disclosure regulations and mandates cannot be provided.
- As non-financial reporting becomes more predominant, and as the role of narrative reporting (even within financial reporting) assumes more weight, two considerations are key: (1) there will be difficulties in designing comparability standards for non-financial reporting and ensuring reliability and credibility of this type of information; (2) reporting standards, guidelines and regulation will continue to face the challenges that allowing discretion in narrative reporting choices (minimum requirements) entails. In this regard, effective reporting standards and regulations need to be conceived together with other institutional arrangements such as, for example, enforcement.
 - Until very recently, the focus of the literature has been mostly on investors and mostly on large-scale indirect evidence (e.g. earnings announcements, analyst forecasts, etc.) rather than direct examination of stakeholder needs and their usage of corporate reporting information. It might be the case that as far as the big questions are concerned, we are in the situation of “we don’t know what we don’t know”. Hence, future research on the topic should embrace mixed-methods and/or experimental approaches to better ascertain directly what stakeholders’ needs are, and how corporate reporting is used. Further, case-based research may be able to provide insights on how the desired change is implemented inside organisations and what challenges and tensions may impede such change.

- The literature does highlight aspirational goals and potential for reporting, particularly around accountability and social change. For example, some studies reveal a change in real operations affecting mine safety, carbon disclosure, or leadership diversity. However, there are methodological challenges for large-scale studies. Regulators and academics need to work together, and more studies are needed on how reporting affects corporate behaviour, and to assess the economic impact of new regulatory mandates.
- Periodic and structured corporate reporting is only one of the many channels through which companies disclose information. With the advent of social media, as well as other interactive features of the internet that allow for real-time information to reach a broad audience, it is debatable (and unpredictable) whether structured reporting will remain the most important channel.

Policy discussion and recommendations

A key question for policy makers is whether the traditional investor-focus of most reporting regulation and guidance is considered to still be the most appropriate for the future of corporate reporting. The literature does not uniquely identify the purpose of reporting. There are three overarching views for the role of reporting: the valuation role mainly considers reporting as addressing information needs of, and use by, investors; the stewardship role captures the role of financial information to monitor management behaviour; the (social) accountability role considers the role of information for a wider set of stakeholders, whose main interests are not necessarily financial (and potentially even conflicting) and who are affected by corporate activities. While frameworks such as <IR> have created momentum in the financial community to acknowledge the importance of non-financial issues for corporate activities, and therefore contributed to expanding the scope of corporate reporting, several scholars criticise the excessive focus on the needs of investors, vis-à-vis other stakeholders and society. This focus often implies that considerations of what should be reported are related to risks and opportunities that may have financial implications for companies in the short-term, at the expense of transparency over externalities and impacts that may have long-term consequences, on companies' financial performance but also on society overall. While it is not for us to say whether policymakers and regulators should believe that capital markets are perfectly efficient, and ultimately will drive the optimal allocation of capital for the greater societal benefit, we can highlight that there is no academic consensus on this issue.

In order to ensure a proper impact assessment of reporting regulations, standards and guidelines, policies should be conceived and implemented with the aim of testing of their impact, for example by working collaboratively with academics to design randomized pilot studies or collect specific data around regulatory changes, even if only for a subset of firms affected.

Another recommendation is to reflect on the opportunity to consider more participatory models of reporting, where users could be more deeply engaged in the production process of the reporting itself, rather than being considered as only the addressees of corporate information. This clearly would present several challenges because of the different nature of various stakeholder interests, but dialogic accounting could potentially allow for a more pluralistic expression of public interest.

In relation to this, new forms of reporting that integrate financial and non-financial concerns such as the <IR> framework are important, although maintaining the focus on investor needs may inhibit more disruptive and innovative ways of conceptualising corporate reporting in the face of the challenges that society is facing today. The evidence on whether corporate

reporting actually changes firms' decision making or behaviour is debatable and there is not enough evidence to say whether investors' needs have been satisfied. This is an area that policy makers and regulation could further investigate, in collaboration with academia (which will continue to produce more evidence in the coming years).

Another recommendation in light of the evidence presented in this literature review is that standard setters and regulators may need to start considering not only what firms should report (content), but also how they should report it (format) and via which channels. This may mean going beyond structured and period reporting.

Appendix – Methodology

Following the discussions between the team preparing the report and the FRC, it was agreed that this literature review should focus on academic literature on corporate reporting as defined above. It was also agreed that the literature universe underpinning this exercise would be defined as studies included in Scopus (a largely comprehensive database of international academic literature), written in English, published (or accepted for publication) from 1992 onwards (with particular focus on more recent work), and identified by searching titles and abstracts for keywords from the pre-agreed list. This search was carried out between May and September 2019, and therefore papers published after this were not part of the review.

The list of keywords pertaining to financial and non-financial reporting was agreed as follows:

- financial report/disclosure;
- corporate report/disclosure;
- annual report;
- financial statement;
- corporate governance statement;
- remuneration report;
- earnings announcement/preliminary announcement;
- risk report/disclosure;
- voluntary report/disclosure;
- mandatory report/disclosure;
- narrative information/disclosure/reporting;
- strategic report;
- MD&A/management discussion and analysis;
- non-financial report/disclosure;
- corporate social responsibility/CSR report/disclosure/assurance;
- sustainability report/disclosure/assurance;
- social/environmental/governance report/disclosure/assurance;
- integrated report;
- stakeholder engagement/dialogue.

The usual stemming and lemmatisation procedures employed in linguistic studies were then followed (to eliminate the impact of a grammatical form of a word, to remove inflectional endings only and to return the base or dictionary form of a word, which is known as the lemma, allowing for the joint analysis of the common lemma, e.g. report, reports, and reporting). This first-stage exercise was concluded in May 2019 and it identified over 18 thousand papers. The second stage involved elimination of the papers with no full-text availability, missing information, missing abstracts, etc., which reduced the sample size to 16,428 papers.

Given the desire to focus on high-quality work and feasibility of the project, it was agreed that the scope be restricted to papers from journals belonging to the top two quality tiers, i.e. of quality classified as “world-leading in originality, significance and rigour” (4*) or “internationally excellent in originality, significance and rigour” (3*), as per the Academic Journal Guide (2018) published by the Chartered Association of Business Schools. This step allowed for a considerable reduction of the number of papers to be analysed, with the resulting sample containing 3,373 papers. In the fourth step, we examined these papers and applied the list of exclusions (as agreed with the FRC and discussed below), reducing the sample further to 2,814 papers. Among those, 6.2% of papers were published between 1992 and 2000, 34.4% between 2001 and 2010, and the remaining 59.4% from 2011 onwards.

This sample of 2,814 papers was then used to identify papers relevant for each section and subsection of the report using additional targeted keyword searches and academic judgement by the members of the team. While identifying the final set of papers to be included and covered in the report, we focused in particular on the most recent papers and papers not included in prior surveys of literature on the related topics.

Finally, we made a relatively small number of additions to the list of papers covered in this report (less than 10% of the total) by using papers not picked up by the automated searches discussed above, to reach the final sample of 538 papers covered in this report. The most common sources of these additions are as follows.

- “Snowballing”, i.e. additions to the list based on reading of the papers identified by automated searches;
- Seminal papers in the field, often pre-dating our sampling window;
- Some high-quality working papers of high relevance included based on our academic judgement;
- Published papers of relevance not picked up by automated keyword searches but included on the basis of our academic judgement.

Exclusions

Following discussions between the team preparing the report and the FRC, a number of exclusions, both in terms of topics and sources, were agreed in order to assure viability of the project within the agreed timeframe and its alignment with the FRC’s goals for the project. These include the following:

- exclusion of the literature on economic and regulatory determinants of reporting choices (for instance, accounting standards for the former and capital market determinants of earnings management for the latter), unless relevant for other aims of the FRC project;
- exclusion of the literature discussing information needs and usage of corporate reporting by regulators, in particular in enforcement actions by regulators or by the State (e.g. SEC enforcement);
- exclusion of the discussion of the literature on the use of corporate reporting by auditors;
- exclusion of the details of the implementation of some accounting standards (e.g. IFRS);
- focussing only on publicly listed companies (thus excluding private firms, charities, public sector bodies, etc.);
- focussing only on studies relevant for well-developed markets (thus, in particular, excluding a number of studies on emerging economies deemed irrelevant for the goals of the project);
- focussing on periodic and structured corporate reporting only, as defined above (thus excluding discussion of other corporate disclosure channels such as conference calls, companies’ websites and social media;

- focussing only on published and forthcoming English-language academic papers only, thus excluding most of the academic working papers (see above, however) and substantial body of the so-called “grey” practitioner-oriented literature on related topics.

References

Chartered Association of Business Schools (2018). Academic Journal Guide. Online publication.
<https://charteredabs.org/academic-journal-guide-2018/>

Glossary & Acronyms

10-K: The 10-K is a report filed annually by US public companies about their financial performance, submitted to the US Securities and Exchange Commission (SEC).

10-Q: The 10-Q is a report filed quarterly by US public companies about their financial performance, submitted to the US Securities and Exchange Commission, submitted to the US Securities and Exchange Commission, disclosing the financial performance of a US public listed company.

20-F: The 20-F is a form, submitted to the US Securities and Exchange Commission, containing the annual report and financials of a foreign company with shares listed on a stock exchange in the US.

CAPM: The capital asset pricing model (CAPM) is used to describe the relationship between systematic risk and the expected return of a security.

CDS: The credit default swap (CDS) is a financial contract that pays out in the event of a default of a bond issuing company the risk of a default by a bond issuing company (debtor).

CEO: A chief executive officer (CEO) is the senior executive responsible for a company's overall operations and performance.

CFO: A chief financial officer (CFO) is the senior executive responsible for managing a company's financial performance.

CSR: Corporate social responsibility (CSR) is a term used to describe a company's consideration of, and response to, the expectations and concerns of wider society.

Dodd-Frank: Dodd-Frank, otherwise known as The Dodd-Frank Wall Street Reform and Consumer Protection Act, is a US federal law that places strict regulations on the financial industry in an attempt to protect consumers and prevent an economic recession similar to that of the financial crisis of 2008.

EDGAR (SEC EDGAR): The electronic data gathering, analysis and retrieval (EDGAR) system is a public database displaying information submitted by foreign and US based companies listed on US markets, to the US Securities and Exchange Commission

EPS: Earnings per share (EPS), also known as net income per share, is a metric that reflects the income earned by each share of stock outstanding.

ESG: Environmental, social and governance (ESG) refers to a wider set of non-financial criteria used to evaluate a company.

FASB: The Financial Accounting Standards Board (FASB) is an independent institution whose primary goal is to establish and improve generally accepted accounting principles (GAAP) for use by US public companies.

FD: Regulation fair disclosure (Reg FD, or FD) is a rule, passed by the US Securities and Exchange Commission, that prevents a US publicly traded company from selectively disclosing important information.

FOG Index: The FOG Index is a statistical formula that provides a numerical output representing the readability of a given item of text.

FRC: The Financial Reporting Council (FRC) is the independent regulator responsible for the regulation of auditors, accountants and actuaries in the UK and Ireland. It sets standards and provides guidance in the areas of accounting standards, auditing standards, corporate governance and stewardship.

GAAP: Generally accepted accounting principles (GAAP) are a collection of commonly followed accounting rules and standards for financial reporting.

GHG: Greenhouse gas (GHG) accounting refers to the reporting and measurement of greenhouse gas emissions produced by a company's activities.

GRI: The Global Reporting Initiative (GRI) is an independent institution that aims to develop and disseminate global sustainability reporting guidelines to help organisations report information on the economic, social and environmental dimensions of their activities

IAS: International accounting standards (IAS), established by the International Accounting Standards Committee in 1973, are a collection of global accounting standards designed to facilitate the cross-country comparison of company reports.

IASB: The International Accounting Standards Board (IASB) is an independent institution that aims to develop and approve international financial reporting standards (IFRS).

ICAEW: The Institute of Chartered Accountants of England and Wales (ICAS) is a global professional body of chartered accountants, it acts as a regulator, educator and thought leader.

ICAS: The Institute of Chartered Accountants of Scotland (ICAS) is a global professional body of chartered accountants, it acts as a regulator, educator and thought leader.

IFRS: International financial reporting standards (IFRS) are a collection of global accounting standards that are issued by the International Accounting Standards Board.

IR: Integrated reporting (IR, or <IR>) is a reporting framework issued by the International Integrated Reporting Council (IIRC) that aims to communicate a company's short, medium and long-term value creation through the concise disclosure of a company's strategy, governance, performance and prospects.

KPI: A key performance indicator (KPI) is a measurement used to monitor the progress of an entity in reaching its targets.

LIBOR: The London InterBank Offered Rate (LIBOR) was a widely used benchmark for short-term interest rates, it reflects the average interest rate at which global banks can borrow from each other (to be phased out and replaced by the Sterling Over Night Index Average (SONIA)).

MD&A: Management discussion and analysis (MD&A) is a section of a US company's report in which management provide a narrative explanation of financial statements and other statistical data that relates to a company's performance.

MF: Management earnings forecasts (MF, or MEF) are voluntary disclosures, completed by members of management, detailing the expected earnings of a company (equivalent to a profit forecast).

NED: A non-executive director (NED) is a member of a company's board who is not part of the executive team.

NFD: The Non-Financial Reporting Directive (NFRD) is an EU law that requires large public interest entities to disclose non-financial and diversity information.

NFR: Non-financial reporting (NFR) refers to a company's disclosure of social, environmental and corporate governance information.

NGO: A non-governmental organisation (NGO) is a non-profit, citizens' group that functions independently of the government on a local, national or international level.

PEAD: Post earnings announcement drift (PEAD) is a tendency for a company's cumulative abnormal returns (i.e., abnormal profits generated by stock) to drift for several weeks, or even several months, following a positive earnings announcement.

Sarbanes-Oxley Act: The Sarbanes-Oxley Act is a US federal law –created in response to high-profile company scandals, such as Enron - that outlined new and enhanced standards for US public listed company boards, as well as management and public accounting firms.

SASB: The Sustainability Accounting Standards Board (SASB) is an independent institution whose aim is to develop and disseminate industry specific sustainability accounting standards that help organisations communicate information on environmental, social, human capital and corporate governance topics.

SEC: The US Securities and Exchange Commission (SEC) is an independent federal government agency responsible for protecting investors, maintaining markets, and facilitating capital formation.

Section 302 (of Sarbanes-Oxley Act): Section 302 of the Sarbanes-Oxley act states that the CEO and CFO of a company are directly responsible for the accuracy, documentation and submission of company filings, such as financial reports, to the US Securities and Exchange Commission.

SER: Social and environmental reporting (SER) refers to any financial or non-financial disclosure made by a company on the social and environmental impact of their activities.

SFAS 131: Statement of financial accounting standards (SFAS) 131, published by the Financial Accounting Standards Board, establishes standards for the way that public listed companies report information about operating segments when using US GAAP in financial reports.

SUE: Standardised earnings surprise (SUE) is the difference between the reported earnings and expected earnings of an entity, divided by the deviation of unexpected earnings of an entity.

XBRL: Extensible business reporting framework (XBRL) is a software standard which enables users to tag items within financial reports to the elements in a taxonomy.

