Linkage between strategy and financial performance disclosure in annual reports:

A new reporting path for organizational learning

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Abstract

We examine the reporting practice of linkage between strategy disclosures (management discussion of firm strategy and the business model) and financial performance disclosures in annual reports as a path for organizational learning. For identification we use the UK Company Law Amendment mandating a Strategic Report as a separate section of the annual report so that strategy disclosures provide sufficient context for financial statements. We confirm that the linkage between strategy and performance disclosures in annual reports increases incrementally after the amendment for firms that are more strongly affected by the Company Law Amendment. For these firms, we document an incremental rise in measures associated with organizational learning (e.g., measures of organizational changes and workforce engagement). Our study has important policy implications for the structure of textual disclosure in annual reports.

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1. Introduction

Policy makers and capital markets participants have put management discussions of strategy and business model (strategy disclosures) at the forefront of management commentary in annual reports (IASB 2021a; EFRAG 2013, 2021a; Athanasakou, Eugster, Schleicher, & Walker, 2020). Strategy disclosures have garnered growing attention due to the rising importance of intangibles in business models, the growing complexity of the 'new economy' business models, and firms' efforts to integrate social and environmental matters into their strategies (FRC, 2022). Policy makers stress the importance of linkage between strategy and performance disclosures (i.e. management discussion on financial performance) in annual reports, so that firms communicate a holistic value creation story to stakeholders and demonstrate that the board has a clear and coherent vision and that the reporting reflects how the business is managed (FRC, 2014; FRC, 2015, p. 11). In this paper, we examine the role of linkage between strategy and performance disclosures in reinforcing learning within the organization, i.e. the process of improving organizations' actions through better knowledge and understanding (Fiol & Lyles, 1985, p. 803).[1] We focus on the internal effect of organizational learning, as evolving reporting practices have influenced collaboration across teams and the level of shared knowledge and understanding within the organization. Organizational learning is critical, as it is a key resource for sustaining competitive advantage, especially in knowledge-intensive economies (Stata, 1989, p. 64), and for devising strategies that achieve true sustainability (Kaplan, Serafeim, & Tugendhat, 2018).

[1] There are many definitions of organizational learning, with most of them entailing aspects of both *cognitive* and *behavioral* changes (Tsang, 1997). The cognitive aspect refers to knowledge, understanding, and insights and the behavioral change aspect refers to lessons learned by an organization that have impact upon its future behavior.

Firms devote an increasing space of the annual report content to strategy disclosures. In the UK, where firms have considerable flexibility in the content and structure of the management discussion and analysis sections of the annual report, strategy disclosures are a prominent component (Athanasakou, Walker, Young, Alves, El-Haj, & Rayson, 2022). A key challenge to the usefulness of strategy disclosures is the use of boilerplate text (e.g., sentences with little firm-specific content), or the inclusion of clutter and or unnecessary information (Brown & Tucker 2011; Athanasakou et al., 2020). Financial reporting regulators have actively sought to address this issue, by issuing guidelines that emphasize the importance of linking strategy disclosures to financial performance disclosures as a way of providing more context on how firms generate value (FRC, 2014; FRC, 2015; SEC, 2024). Reporting regulators strongly advocate for such linkages, highlighting them as a critical factor in enhancing the usefulness of annual reports (FRC, 2014). This notion of linkage of disclosures, in the form of a cohesive synthesis and alignment of information across sections of the annual report, is notable as it tackles an element of the structure of reporting that matters for users, beyond the volume and content of disclosures.

From a theoretical perspective, when it comes to assessing the usefulness of linkage between disclosures, literature on accounting valuation and organizational learning provides some useful insights (See Section 2). Annual report linkage between management discussions on the two key pillars of value creation, strategy and financial performance, could improve organizational learning by reinforcing shared understanding and collective enquiry among the teams of the organization into the value creation process, and participative decision-making in implementing firm strategy. A reporting model that promotes linkage between strategy and performance disclosures may also offer an organizational context feature that reinforces knowledge search, creation, retention and transfer by acting as a repository institutional memory system of the firm's

key value drivers and key success factors each year. Consistent with theoretical insights, reporting regulators allude to the possibility of operational synergies when multiple teams within an organization join up to produce an annual report that links well strategy discussions with discussions about financial performance. While policy insights and theory motivate linkage between strategy and performance disclosures in annual reports, management may avoid such reporting practice due to agency considerations (e.g., when the firm is not performing in line with expectations), or if the practice does not add incremental value to the company's communication with internal stakeholders. Our study therefore responds to the empirical research question of whether a higher linkage between strategy and performance disclosures in annual reports reinforces organizational learning.

The UK offers fertile ground for addressing our research question as there have been several regulatory initiatives that promote strategy disclosures in annual reports, highlighting particularly linkage of strategy content with the rest of the annual report content. A prominent regulatory initiative was the 2013 Amendment in the UK Company Law that mandated all UK companies to include a Strategic Report as a separate section in their annual report to include strategy-related content, insights on the main strategic objectives, principal risks and uncertainties, and an analysis of the business's development and performance along with key performance indicators (The Companies Act 2006 Strategic Report and Directors' Report, Regulations 2013, Statutory Instrument 2013, 1970). This fundamental change in the structure of the annual report textual disclosure fuelled the reporting practice of linkage between strategy disclosures (which to that point were emanating in different parts of the report) and performance disclosures, so that the report provides sufficient context for the related financial statements and a complete representation of the company's value creation process.

We develop an empirical measure to capture linkage between strategy and performance disclosures in annual reports, $Strategy\_Performance_{Linkage}$, by combining information in two linkage scores that capture cross-sectional content. The first score captures cross-sectional strategy content, i.e. strategy disclosures featuring in performance sections of the annual report (e.g., financial review, CFO review, performance review). The second score captures cross-sectional performance content, i.e. financial performance disclosure featuring in strategy sections of the annual report (e.g., strategy, business model and strategy, strategy report sections). We use the annual report table of contents to extract the annual report sections, and measure strategy disclosures using a strategy and business model dictionary (as in Athanasakou, Eugster, Schleicher, & Walker, 2020 and Athanasakou, Boshanna, Kochetova, & Voulgaris, 2023) and performance disclosures using the performance dictionary of El-Haj, Alves, Rayson, Walker and Young (2020).

Using a sample of annual reports of UK firms over the period 2001-2019, our results are as follows. First, using a differences-in-differences design where a subset of firms that are plausibly more (less) strongly affected by the 2013 Company Law Amendment are a treatment (control) sample, we document a significant incremental rise in $Strategy\_Performance_{Linkage}$ following the 2013 Company Law Amendment for treatment firms. This initial finding affirms that $Strategy\_Performance_{Linkage}$ exhibits the predictable triggering effects of the 2013 Company Law Amendment.

Second, using the same differences-in-differences design, we document an incremental rise in proxies for organizational learning and specifically measures of organizational change (captured by asset growth, sales growth) and measures of workforce productivity and workforce

retention following the 2013 Company Law Amendment for treatment versus control firms. This result is consistent with our hypothesis that a higher linkage between strategy disclosures and performance disclosures is associated with higher levels of organizational learning.

Our results are robust to controlling for factors that potentially affect linkage between strategy and performance disclosures, other annual report textual features (including the level of strategy and performance disclosures), and firm and year fixed effects. For our differences-in-differences design, since the 2013 Company Law Amendment applied to all firms, we identify treatment firms as those that did not disclose a separate strategy section in any of the three years prior to the 2013 Company Law Amendment, and control firms as those that did. Control firms had already adopted a reporting structure that supported linkage between strategy and performance disclosures. To account for the existence of potential pre-treatment linear trends, which may be possible under this setting of imperfect compliance, we additionally use linear trend tests. We do not reject the pre-treatment parallel trends in $Strategy\_Performance_{Linkage}$ and in measures of organizational learning for our treatment and control groups. We also show that the measures of organizational learning are higher for firms that marked the highest improvement in the level of $Strategy\_Performance_{Linkage}$ after 2013 Company Law Amendment (after controlling for improvements in the level of strategy and performance disclosures). This result lends additional support to the hypothesized association.

We complete our analysis by exploring the resolution of uncertainty effects of the linkage between strategy and performance disclosures. An interesting aspect of the introduction of the Strategic Report is that it offered scope for resolution of internal uncertainty, as it necessitated the joining up of different groups within the organization with potentially diverse perceptions about

key value drivers to produce a single coherent story of value creation. Resolution of internal uncertainty is also central to theoretical arguments that support the organizational learning effects of a reporting model that links well strategy to performance disclosures. Measuring internal uncertainty using the annual report count of the uncertainty wordlist (Fin-Unc) of Loughran and McDonald (2011), we find that treatment firms have incrementally lower levels of internal uncertainty following the 2013 Company Law Amendment in their annual report compared to control firms. We also find that firms with the largest treatment period improvement in uncertainty in the annual report have incrementally higher levels of organizational learning. These additional analysis offers further insights on organizational learning effects of the reporting practice of linkage between strategy and performance disclosures, supporting internal resolution of uncertainty as a channel, while also uncovering spillover effects of the linkage on qualitative aspects of the annual report.

We finally explore the resolution of external uncertainty effects of the linkage between strategy and performance disclosures. Using the bid-ask spread following the release of the annual reports as a proxy for investor uncertainty, we find that treatment firms experience an incremental decline in their bid-ask spread following the 2013 Company Law Amendment, compared to control firms. We also show that firms that marked the highest improvement in the level of $Strategy\_Performance_{Linkage}$ after 2013 Company Law Amendment exhibit lower levels of information asymmetry.

Our study contributes to the expanding body of literature on annual report narratives and strategy disclosures. Evidence to date suggests that strategy disclosures are useful in reducing information asymmetry in capital markets of different jurisdictions (Wang, Chua, Simnett, &

Zhou, 2024; Athanasakou et al., 2023; Athanasakou et al., 2022; Athanasakou et al. 2020; Baginski, Bozzolan, & Mazzola, 2017; Simoni, Bini, & Giunta, 2019). We add to this stream of the literature in two ways. First, we examine the effects of a fundamental feature of strategy disclosures, that of their *linkage* with performance disclosures in the annual report. Our results suggests that this structural feature of the annual report disclosures is incrementally important in reducing information asymmetry to the length of either type of disclosure. This evidence adds to evidence of the information asymmetry reducing role of strategy reporting as a mandated reporting framework (Wang et al., 2024), highlighting the distinct importance of the structure of strategy disclosures in terms of their linkage to financial disclosures. Second, we provide new evidence on *internal organizational* effects of this structural feature in annual reports, demonstrating its role in enhancing organizational learning. This insight broadens our understanding of how the structure of strategy disclosures can influence not only external stakeholders but also internal processes within organizations.

Our study also contributes to research on financial reporting regulation. A substantial body of literature highlights the positive consequences of financial reporting regulation (see Leuz & Wysocki, 2016 for a review). This research increasingly emphasizes the real effects of reporting regulation, mainly in the form of higher investment efficiency (e.g. Biddle, Hilary, & Verdi, 2009; Cheng, Dhaliwal, & Zhang, 2011; Badertscher, Shroff, & White, 2013; Chen, Young, & Zhuang, 2013). Real effects of reporting regulation on organizational behavior remain an important motivation for reporting regulators. Our study responds to the call for more evidence that speaks to this motivation (Leuz & Wysocki, 2016, 278), by alluding to real effects of mandating a structure in annual reports that promotes linkage between strategy and financial performance disclosures. We highlight organizational learning as an interesting, yet relatively underexplored,

real effect of financial reporting regulation. Organizational learning is crucial for effective strategy implementation and deeply connected with integrated reporting models, as such models foster integrated thinking, shared understanding, engagement, and inclusivity in strategy execution.

Our study also contributes to the broad literature on voluntary disclosure by highlighting a novel aspect of textual disclosures: the *linkage* of content between different parts of the content. In doing so, our study extends prior research that examines various properties of textual disclosures that matter (e.g., Bozanic & Thevenot, 2015; Lehavy, Li, & Merkley, 2011; Brown & Tucker, 2011). Linking information on the fundamental pillars of value creation is a feature emphasized as desirable by both the IASB and the UK Financial Reporting Council (FRC) in their guidance on management commentary (IASB 2021a, FRC 2015). The notion of linkage has also been put in the spotlight by the International Integrated Reporting Council's (IIRC) International Integrated Reporting Framework (IIRC, 2013), with an emphasis on the interconnectedness of reporting on financial, social and environmental performance. Integrated reporting models are appealing as they require integrated thinking, which within organizations that work cooperatively has the potential to change the way organizations think about business and sustainability (Adams, 2015). Despite the rising importance of integrated reporting, there have been few attempts to operationalize the notion within the annual report disclosures (Setia, Abhayawansa, & Joshi, 2022). Our study offers a way of measuring the linkage between the discussion of two key value drivers, strategy and financial performance, and echoes the need for future research to consider this aspect when analyzing the usefulness of the annual report content.

Finally, our study has policy implications. Our findings can directly inform the IASB and international financial accounting and reporting regulators about the desirable effects of linking

information across sections of the annual report. Mandatory reporting that fosters linkage between strategy disclosures and performance disclosures can engender organizational learning. Such linkage is a critical feature that regulators can promote, especially when considering reporting of key elements of firm strategy and business model that are high uncertain and complex (e.g., intangible strategic resources, complex value propositions) or non-financial in nature (e.g., social and environmental matters). This insight is particularly relevant to ongoing regulatory projects that focus on intangible assets, cryptocurrencies, and management commentary (IASB, 2021a, 2021b) and to policy initiatives on sustainability reporting (IASB, 2023; FRC, 2021, 2023; SEC, 2024) and on reporting of non-financial measures (e.g. Non-Financial Reporting Directive, EFRAG, 2021b).

2. Institutional setting and hypotheses development

2.1 Regulatory demand for the linkage between strategy and financial performance disclosures in annual reports

The notion of linkage between information about firm strategy and the business model and the rest of the annual report as a way of promoting greater cohesiveness in the annual report was explicitly brought forward by the UK FRC in the implementation guidelines for the 2013 Amendment of Company Law, which required UK firms to report strategy related disclosures in a separate section of the annual report, the Strategic Report. The Strategic Report must contain a fair review of the company's business, a description of the principal risks and uncertainties facing the company, and a balanced and comprehensive analysis of the development and performance of the company and its position, including an analysis of key performance indicators (The Companies Act 2006 Strategic Report and Directors' Report, Regulations 2013, Statutory Instrument 2013, 1970). For quoted companies, the Strategic Report must also contain the main trends and factors

likely to affect the future development, performance and position of the company along with information about environmental matters, the company's employees and social community and human rights issues. By prescribing these contents, the 2013 Company Law Amendment fuelled the reporting practice of linkage between strategy disclosures and the rest of the annual report content in two ways. First, strategy disclosures that were emanating in separate parts of the annual report before the amendment (e.g., Chairman's statement, financial highlights, business review, financial review, CSR report, risk report), would be integrated into the Strategic Report with the specific direction to provide a comprehensive analysis of performance.[2] Second, the rising importance and weight of the Strategic Report triggers spillovers of strategy content (e.g. through cross-referencing) in other sections of the annual report (e.g. remaining financial performance sections, governance and remuneration sections) offering ground for more linkages between strategy content and the rest of the annual report.

To guide UK firms in this major shift in the financial reporting arena, FRC issued a series of implementation guidelines (FRC, 2014, 2015). The first guidance document (FRC, 2014) included a distinct objective to promote greater cohesiveness in the annual report through improved linkage between information within the Strategic Report and the rest of the annual report. FRC highlighted linkage as essential to enhancing the individual pieces of information in the annual report and increase their relevance to investors (FRC, 2014, p.39). In its follow-up guidance, FRC observed that the introduction of the strategic report had led to more cohesive and communicative annual reports with better linkage between related information and more focus on clear and concise reporting (FRC, 2015, p. 3). The guidance document also offered techniques for

[2] An interesting aspect of this change in structure is that the Strategic Report, unlike separate statements, must be approved by the board of directors and signed on behalf of the board by a director or the secretary of the company.

further strengthening linkages between sections (e.g. through cross-referencing and signposting, FRC, 2015, p. 11).

2.2 Peer disclosure dynamics and the linkage between strategy and performance disclosures

Peer disclosure practices played a key role in encouraging good linkage between strategy and performance disclosure in annual reports. Following the 2006 revision of the Company Law, which mandated firms to introduce a business review section in the annual report, some firms started including a separate section of the annual report to discuss strategy content. The 2010 revision in the Corporate Governance Code reinforced this practice, as a separate strategy section allowed firms to discuss strategy and the business model in more detail as prescribed by the revision.[3] The FRC further promoted this initiative by showcasing examples of 'best reporting practice' on strategy disclosures, that linked strategic objectives to measurable key performance indicators and reported actual results. Such an exemplary layout was recommended to facilitate stakeholders to evaluate the precision and fitness of the firm's strategy and the business model and the plan in place for its successful implementation. Therefore, peer disclosures dynamic trends nourished the interest in the practice of linkage between strategy and performance disclosures before the fundamental shift of the 2013 Company Law Amendment introducing the Strategic Report.

[3] The 2010 revision in the UK Corporate Governance Code required that for periods beginning on or after June 29, 2010, annual reports should explain the basis on which the preparer generates or preserves value over the longer term (the business model) and its strategy for achieving its objectives (FRC, 2010, para. C.1.2). This new disclosure provision was in response to a House of Commons Treasury Committee report (2009) that had called for more detail in management discussions in the annual report on how the company creates and preserves value. The 2010 revision of the Corporate Governance Code triggered a rise in strategy disclosures, manifested also by a rise in the number of firms that chose to introduce a separate section in the annual report to introduce strategy content (Athanasakou et al., 2022).

2.3 A reporting path for organizational learning

The framework of fundamental analysis for company valuation offers a clear motivation for linking strategy to performance disclosures, as strategy and financial performance analysis are two of the five key steps to derive the firm's intrinsic value (Palepu, Healy, & Peek, 2010).[4] If management links well the discussion of these two key steps in the annual report, they can offer an optimal information set to stakeholders for understanding the value creation process.[5] After reviewing company practices, FRC identified an additional benefit of introducing Strategic Reports in the annual report associated with the collaboration between internal teams of the organization (FRC, 2015). The introduction of the Strategic Report in the annual report gives firms the opportunity to bring together teams across the organization, which have responsibility for different parts. The Strategic Report content manifests this collaboration by featuring quotes and commentaries from different members of the top management team (e.g., general counsel, executive vice-president of global operations, human resources, information services, corporate affairs, commercial operations), reports from various committees (e.g., operations, technology, sustainability, innovation), board approval, and a signature on board's behalf by a diverse group of executives (e.g., company secretary, CEO, CFO). The joining up of top management teams in bringing together the Strategic Report facilitates the identification of linkages between areas and can help produce a more 'joined-up' annual report (FRC, 2015, p.4), while reducing duplication in efforts and bringing forward synergies in operations. A company culture that fosters continuous

[4] Strategy analysis being one of the key steps in fundamental analysis for company valuation has been a key argument for the usefulness of strategy disclosures in annual reports (Athanasakou et al., 2022).

[5] Providing clear ties between strategy disclosures and financial performance commentary stands also to reduce self-serving bias in performance commentaries of annual report narratives (Keusch, Bollen & Hassink, 2012).

improvement and collaboration between internal teams may see these changes from the introduction of the strategy report as an opportunity for organizational changes and improvements.

From a theoretical perspective, literature on organizational learning offers some further insights on the potential role of linkage between the strategy to financial commentary. Organizational learning entails aspects of both cognitive and behavioral changes through knowledge and understanding (Fiol & Lyles, 1985; Tsang, 1997) and is reinforced by new insights (Argyris & Schon, 1978), new structures (Chandler, 1962), or new systems (Miles, 1982). Having a reporting model that promotes linkage between strategy and performance disclosures, may offer new insights and structures that encourage organizational learning. An integrated reporting model is likely to reinforce *shared understanding* across all organization units (all departments, functions, and management levels) of firm capabilities that drive its competitive advantage and the extent those capabilities translate to financial outcomes, which enables better planning. Reinforcing a shared understanding of the value creation process is necessary in view of the common diverse perceptions of the key drivers among the members of the top management team (FRC, 2018). Further to reinforcing shared understanding, a reporting model that promotes linkage between strategy and performance content may also foster *collective inquiry* into the value creation process, and more *participative decision-making* in implementing firm strategy, which are two key factors facilitating organizational learning (Chiva, Allegre, & Lapiedra, 2007). These forces encourage a more inclusive bottom-up approach to implementing firm strategy, which stands to improve engagement and productivity in using strategic resources.

Parallel arguments may be drawn using Argote, Lee, and Park's (2020) mapping of organizational learning processes into knowledge search, knowledge creation, knowledge

retention and knowledge transfer. Under this framework a reporting model that promotes linkage between strategy and performance content may act as an organizational context feature that can reinforce all these learning processes. Such a reporting model may encourage *knowledge search* and *creation* by improving the organization's ability to interpret a financial year as succeeding or failing to meet expectations, and therefore improving the intensity of searching the causes and taking remedial action. An annual report that links well strategy to performance disclosures can also reinforce *knowledge retention* and *transfer* by acting as a repository memory system of the key dials of value creation within the organization, and such repositories have been shown to affect future performance of the organization. As a repository of knowledge that is also publicly available through annual reports, integrated strategy reporting models can also be effective means of transferring knowledge across organizations that may reinforce the learning processes of other organizations from peer learning.

The above policy and theoretical insights lead us to the following hypothesis:

H1: Higher linkage between strategy and performance disclosures within the annual report is associated with higher levels of organizational learning.

There are at least two sources of tension to this hypothesis. The first is the existing channels of internal communication. To the extent the organization has enhanced internal communications mechanisms (e.g., reports, incentives) that reinforce a shared understanding of the value creation process, collective inquiry and participative decision-making (e.g., bottom-up approach in organizational structure), a cohesive reporting model that promotes linkage between strategy and performance disclosures may not achieve an incremental effect. The second source of tension relates to agency costs of higher transparency associated with such a reporting model. Clear ties

between strategy the financial performance disclosures may discourage organizational learning when financial performance outputs do not align with strategic objectives, or even when strategic objectives align with financial performance, but the alignment is not in the best interest of internal stakeholders (e.g., strategic priorities do not embrace workforce wellbeing).

3. Research design

3.1. Sample and variables

Our sample of UK firms consists of London Stock Exchange (LSE) listed constituent firms of the FTSE All-Share Index from 2001–2019, excluding financial firms and investment trusts (as they are subject to different sets of regulations). As we use textual analysis of companies' annual reports to capture linkage between strategy and financial performance disclosures, we begin by obtaining annual reports from online resources. We download annual reports published in a PDF format. We match the initial list of reports to firms with data on automated disclosure scores made available to the public via the Corporate Financial Information Environment (CFIE) research program at Lancaster University CFIE - The Corporate Financial Information Environment (lancs.ac.uk).[6] Merging yields 5,657 firm-year observations with textual data. Next, we merge with accounting, employee and market data obtained from DataStream. We removed textual observations that did not have any identifiers from DataStream. This process yields 5,130 firm-year observations over 2001-2019.

3.2. Measure of linkage between strategy and performance disclosures

Our theoretical construct for the linkage between strategy and performance disclosures is the cohesive synthesis and alignment of information on strategy and performance across sections of

[6] The databases section includes a variety of textual scores for UK firms, including a breakdown of the scores by the sections as identified from the annual report table of contents.

the annual report.[7] We operationalize this construct using automated textual analysis that captures cross-sectional strategy content, i.e. linkage of strategy disclosures to performance sections of the annual report and cross-sectional performance content, i.e. linkage of performance disclosures to strategy sections of the annual report at the firm level (*Strategy_Performance*$_{Linkage}$). We explore the section breakdown feature of UK annual reports (El-Haj et al., 2020) to assess cross-sectional content, i.e. the prominence of strategy disclosures in *financial performance sections* of the annual report, and the prominence of *performance disclosures* in strategy *sections* of the annual report.[8] The more strategy disclosures feature within the financial performance sections, or performance disclosures feature in strategy sections, the higher the linkage between the two types of disclosure.[9] Using annual report section titles from the annual report table of contents, we identify financial performance sections in the annual report as sections with a label name that includes: "performance", "Chairman's statement", "CEO review", "CFO review", "Business review", "operating review", "financial review", as these sections are key in including performance disclosures, i.e., management discussion about the firm's financial performance. We identify

[7] This is in line with FRC's broad definition of linkage as relationships or interdependencies between facts and circumstances disclosed in the annual report (FRC, 2014, §6.16, p.18).

[8] El Haj et al. (2020) use a retrieval algorithm to perform structured text extraction from PDF annual reports. The algorithm locates the table of contents in PDF reports, synchronizes page numbers in the report with pages in the PDF file, retrieves content for each section listed in the table of contents using synchronized page numbers to identify where sections start and end, and then classifies sections into common elements of a representative UK report including chair's letter, business review (management commentary), governance statement, remuneration report, audit report, financial statements and notes.

[9] This process may involve repetition of either type of disclosure, strategy disclosure or performance disclosures, in different sections of the annual report. While repetition of information may result in boilerplate language when lacking context, it could serve as a useful tool for incremental disclosures, if disclosure presented in different contexts reinforces key messages and insights and improves understanding. This is likely to be the case for strategy disclosures when linked to different parts of the annual report, as repetition in this case may reinforce understanding of strategic priorities, while also highlighting alignment of action with objectives and successful implementation of strategy (especially when strategy information is discussed against targeted and realized financial outcomes). This notion relates closely to our measures. Given that our measures are based on cross-sectional content, to the extent some strategy or performance disclosures are repeated, we capture repetition in different sections which is likely to enhance the context and usefulness of either type of content (strategy or performance).

strategy sections in the annual report, as sections with a label name that includes "strategy", or "strategic" or "business model". Using the identified sections, we calculate two linkage scores of strategy and performance contents as follows.

$$Strategy_{Linkage} = FractionalRank[\frac{StrategyScore\ in\ Performance\ Sections}{StrategyScore\ in\ Strategy\ Sections}] \quad (1)$$

$$Performance_{Linkage} = FractionalRank[\frac{PerformanceScore\ in\ Strategy\ Sections}{PerformanceScore\ in\ Performance\ Sections}] \quad (2)$$

We calculated the score of strategy content linkage, $Strategy_{\text{Linkage}}$ based on fractional ranks by year of the ratio of strategy disclosures in financial performance sections of the annual report divided by strategy disclosures in strategy sections in the annual report. Scaling sets a benchmark for the level of linkage of strategy content based on the level of strategy disclosures. We measure strategy disclosures (*StrategyScore*) using a strategy and business model dictionary, which is based on the Athanasakou et al. (2022) list of 231 keywords that reflect strategy and business model (see Appendix B).[10] This list of 231 keywords was created by pooling the indices of the five leading business strategy textbooks and academic research, thus originates from a jurisdiction-free dictionary that captures the evolving nature of the strategy and business model concepts in academic research.[11] This dictionary (also used in Athanasakou et al., 2023 and Athanasakou et al., 2020), has been validated through

[10] We note that this list of 231 keywords (Appendix B) includes multiple keywords relating to social and environmental matters (e.g. environmental, social, culture, employee, social, social factor, responsibility), enabling a score of strategy disclosures that also captures management discussions of strategic matters around environmental and social responsibility.

[11] The list of 231 keywords was created by pooling the indices of the five leading business strategy textbooks (Porter, 1985, pp. 541-559; Barney & Clark, 2007, pp. 307-316; Rumelt, 2011, pp. 323-334; Magretta, 2012, pp. 229-237; Grant, 2013, pp. 643-656) and the word lists from Ronda-Pupol and Guerras-Martin (2012). The initial list of keywords extracted from the textbooks and academic research was further (a) filtered to exclude generic words that are unlikely to reflect strategy content (e.g., profit, asset); (b) expanded to include inflections, plurals, and alternative spellings (North America vs. UK); and (c) curated to focus on words that are likely to reflect strategy content.

manual tests and empirical validity tests.[12] For each annual report, we use the CFIE-FRSE annual report App (CFIE - The Corporate Financial Information Environment (lancs.ac.uk)) to obtain *StrategyScore* as a count of the 231 keywords appearing in each of the relevant sections. If the company does not identify a separate strategy section, in equation (1), we replace the denominator with *StrategyScore_Front* which is the count of the 231 keywords in all front-end sections of the annual report (i.e., all narrative sections preceding the auditors' report, statement of directors' responsibilities, financial statements and notes to the accounts excluding governance and remuneration sections). We focus on these front-end sections, because they are more likely to contain management discussions about strategy and the business model.

We calculate the score for performance content linkage, $Performance_{Linkage}$ based on fractional ranks by year of the ratio of performance disclosures in strategy sections of the annual report divided by financial performance disclosures in performance sections of the annual report. Scaling sets a benchmark for the level of linkage of performance content based on level of performance disclosures. We measure performance disclosure (*PerformanceScore* in 2) using the performance dictionary developed by El-Haj et al. (2020) (see Appendix C). The performance dictionary and counts across sections are made available to the public via the CFIE research program (CFIE - The Corporate Financial Information Environment (lancs.ac.uk)). For equation (2), we count *PerformanceScore* for the relevant sections. If the company does not identify a separate strategy

[12] Athanasakou et al. (2022, p.15) validate the strategy and business model dictionary through a manual test where strategy disclosure score-based classifications of disclosure quality yielded high precision and recall rates (above 70%) with a sample of double-blind manually scored reports. Strategy disclosure scores have also exhibited the predictable rise in response to mandates for increase in strategy disclosures by UK reporting regulators (Athanasakou et al., 2022, p.18). Also, strategy disclosure scores exhibited predictable associations with the cost of equity capital (Athanasakou et al., 2020, Table 7), and found to be among the key determinants of the cost of equity capital, as compared to other textual properties.

section, in equation (2), we replace the numerator with *PerformanceScore_Front*, which is the count of all performance keywords in all front-end sections of the annual report, excluding governance and remuneration sections.

In both linkage scores we use fractional ranks of the ratios by year for two reasons. First, fractional ranks are fit when aiming to combine different disclosure scores into one index, and this is plausible given that firms may link strategy content to performance sections and performance content to strategic sections. Second, we rank the indices by year to control for time trends, which are common in disclosures scores, in the estimation process.[13] We create an overall index for the linkage between strategy to performance disclosures, $Strategy\_Performance_{Linkage}$ using the percentile rank of the sum of (1) and (2), similar to Athanasakou et al. (2020).[14] This ranking procedure allows to implement equal weighting to the two linkage scores, $Strategy_{Linkage}$ and $Performance_{Linkage}$. The overall index $Strategy\_Performance_{Linkage}$ ranges from 0% to 100%.

4. Validating *Strategy_Performance*$_{Linkage}$

4.1 Validation test

If $Strategy\_Performance_{Linkage}$ reflects the linkage between strategy and performance disclosures, it should exhibit a systematic association with the regulatory initiative and peer

[13] Our results remain if we do not rank by year and instead estimate ranks based on the entire sample. For completeness, Table D2 in Appendix D reports distribution of *Strategy*$_{Linkage}$ and *Performance*$_{Linkage}$ using this ranking procedure. Time trends are more pronounced in these alternative measures. We report our main results using the ranks by year as they are less sensitive to linear trends that are common on disclosure scores, allowing a more powerful identification of treatment effects between groups on the year of the treatment.

[14] Athanasakou et al. (2020) estimate fractional ranks based on different disclosure scores of annual report narratives (including strategy disclosures), and an overall index based on the percentile rank of the sum of the fractional ranks of these scores.

disclosure dynamics that promote this important feature in the annual reports. We run this validation test using the following regression for $Strategy\_Performance_{Linkage}$:

$$Strategy\_Performance_{Linkage_{i,t}} = a_0 + a_1 CLA2013_t + a_2 Treated_{i,t} + a_3 CLA2013_t \; x \; Treated_{i,t} + a \; Lagdevind\_Strategy\_Performance_{Linkage_{i,t}} + + \lambda X_{it} + \varphi_i + \omega_t + u_{i,t}, \quad (3)$$

By mandating the inclusion of a Strategic Report as a separate section of the annual report, the 2013 Company Law Amendment triggered a shock to the structure of the annual report content targeted to promote strategy disclosures content and a higher level of linkage between these disclosures and the remaining content of the annual report. As such, we first introduce *CLA2013* as an indicator variable equal to 1 for accounting periods ending on or after 2013, when the 2013 Company Law Amendment became effective.[15] Appendix A provides definitions for all variables. We expect $Strategy\_Performance_{Linkage}$ to exhibit a significant rise after the amendment. As many UK firms had started disclosing a strategy section on their annual report before this amendment (See Section 2.2), we use a more powerful identification strategy for the effect of the amendment. Even though the 2013 Company Law Amendment applied to all UK firms, we expect heterogeneity in the treatment effects based on the firm's disclosure practices before the amendment. Specifically, we adopt a difference-in-difference approach in which we identify the treatment (control) group of firms as firms that are plausibly more (less) strongly affected by the 2013 Company Law Amendment. Our control group are firms with an annual report that contained

[15] The 2013 Company Law Amendment became effective for all UK firms for accounting periods ending on or after September 30 2013. As the 2013 Company Law Amendment provisions were announced earlier in 2013, we consider the entire 2013 as the year of implementation to also allow for better identification of our treatment (control) sample, i.e. firms most (least) affected by the 2013 Company Law Amendment as their annual report did not (did) contain a separate strategy section in any of the years prior to 2013 (2010, 2011, 2012).

a separate strategy section in any of the three years prior to the 2013 amendment (2010, 2011, 2012).[16] These firms had a reporting structure that already supported linkage between strategy disclosures and the rest of the annual report. Our treatment group firms (*Treated*=1) are firms with annual reports that did not contain a separate strategy section in any of the three years preceding the 2013 Company Law Amendment (2010, 2011, 2012). We expect $Strategy\_Performance_{Linkage}$ to exhibit a significant rise after the amendment for the treated firms, i.e., a positive loading on *CLA2013 x Treated.*

To account for the peer disclosure dynamics that have promoted linkage between strategy and performance disclosure (Section 2.2), we also introduce a measure of the deviation of the firm-level linkage from the industry average in the previous period ($Lagdevind\_Strategy\_Performance_{Linkage}$). If firms adjust their level of linkage between strategy and performance disclosures to industry standards, we expect a positive loading on $Lagdevind\_Strategy\_Performance_{Linkage}$.

Our specification controls for factors that may affect linkage between strategy and performance disclosures. Our vector of potential confounders (λX_{it}) includes an indicator of good news, in the form of high profit margins or positive changes in earnings (*GoodNews*), firm size (*Size*), research and development spending (*RD-Sales*), intangible assets intensity (*Int_Intensity*), capital assets intensity (*Capital_Intensity*), sales growth (*SalesGrowth*), operating performance (*ROA*), product market competition (*Competition*), and debt issues (*Debt Issues*). We control for key annual report properties, e.g. the annual report length (*Wordcount*) and forward-looking

[16] Our differences-in-differences design is similar to other settings, where a change in regime is applicable to all firms and researchers explore heterogeneity in effects based on firms' expectations/practices before the enforcement of the regime (e.g., Fiechter, P., Hitz, and Lehman 2022, Gallemore, Hollander, Jacob and Zheng 2024).

disclosures (*Forward-Looking*), to account for general disclosure trends. We control for strategy and performance disclosures in the front end of the annual report (*StrategyScore_Front, PerformanceScore_Front*) to mitigate concerns that our proxy captures the effects of the overall level of strategy or performance disclosures rather than their linkage. Finally, we control for the effect of the 2010 revision in the UK Corporate Governance Code (*CGC_2010*) to account for variation in linkage driven by the earlier policy affecting strategy content. We include firm-fixed effects (φ_i) to control for time-invariant firm characteristics and year-fixed effects (ω_t) to control for time trends and unobserved heterogeneity.

4.2 Summary statistics

Table 2 Panel A presents mean *Strategy_Performance*$_{Linkage}$, *Strategy*$_{Linkage}$, and *Performance*$_{Linkage}$ by year. [17] In our sample period, the mean of the combined index *Strategy_Performance*$_{Linkage}$ increases from 0.317 in 2001 to 0.601 in 2019. Mean *Strategy*$_{Linkage}$ rises from 0.476 to 0.494, while *Performance*$_{Linkage}$ marks a much sharper rise from 0.038 in 2001 to 0.498 in 2019. The rise in the measures starts before the 2013 Company Law Amendment, following earlier regulatory initiatives (2006 revision of the UK Companies Act and the 2010 revision of the Corporate Governance Code), which likely reflects peer disclosure dynamics in

[17] Appendix D Table D1 presents the mean of the ratios $\frac{StrategyScore\ in\ Financial\ Performance\ Sections}{StrategyScore\ in\ SBM\ sections}$ and $\frac{Performance\ in\ SBM\ Sections}{Performance\ in\ Financial\ Performance\ sections}$ that we use to calculate fractional ranks by year for estimating *Strategy*$_{Linkage}$ (1) and *Performance*$_{Linkage}$ (2). Given the scaling, the ratios capture the relative presence of either type of disclosure across sections. For example, the average of 0.119 for the first ratio in 2001 suggests that strategy disclosures in performance sections is almost 20% of the strategy disclosures featuring in strategy sections. Scaling sets a benchmark for the level of linkage of strategy content, based on level of strategy disclosures. Higher percentages indicate a higher level of strategy content linkage in performance sections. The respective mean for the second ratio is 0.8% suggesting a much lower level of performance content linkage in strategy sections. While the second ratio marks the highest rise following the 2013 Company Law Amendment, by the end of the sample period the two ratios converge close to 60%, suggesting a similar level of strategy and performance content linkage across sections. The rise in strategy content linkage and performance content linkage also manifests in the combined index *Strategy_Performance*$_{Linkage}$ in Table 2.

linkage practices. As such, the combined index provides a measure of linkage between strategy and performance disclosures that captures the evolving nature of the practice, i.e., the effects of both peer disclosure dynamics and the policy mandates.

Table 2 Panel B presents mean $Strategy\_Performance_{Linkage}$, $Strategy_{Linkage}$, and $Performance_{Linkage}$ by year for treatment firms (no strategy section disclosing firms before the amendment) and control firms (strategy section disclosing firms before the amendment). $Strategy\_Performance_{Linkage}$ rises sharply for the treatment group in the first year following the 2013 Amendment from 0.149 to 0.402. The rise is evident in both $Strategy_{Linkage}$ (rising from 0.191 to 0.346) and $Performance_{Linkage}$ (rising from 0 to 0.308). For the control sample $Strategy\_Performance_{Linkage}$ remains at similar levels in that year (moving from 0.643 to 0.616), and so do the two linkage scores, $Strategy_{Linkage}$ and $Performance_{Linkage.}$

Table 3 provides descriptive statistics of the main variables used in our baseline regression. The averages of $Strategy\_Performance_{Linkage}$, $Strategy_{Linkage}$ and $Performance_{Linkage}$ are 0.493, 0.471, and 0.349. Most sample firms report good news (*Goodnews*, 74%) and a substantial fraction of the observations belongs to the period following the 2013 Company Law Amendment (*CLA2013*, 0.423).

Table 4 reports the Pearson correlations among the variables of equation (3). As expected, $Strategy\_Performance_{Linkage}$ is highly correlated with $Strategy_{Linkage}$ (0.766) *and* $Performance_{Linkage}$ (0.816). $Strategy_{Linkage}$ is not correlated with $Performance_{Linkage}$, consistent with the two linkage scores capturing non-overlapping variation in linkage efforts. $Strategy\_Performance_{Linkage}$ and $Performance_{Linkage}$ also exhibit a positive and significant correlation with *CLA2013*. As expected, $Strategy\_Performance_{Linkage}$ is also positively correlated

with the prior year deviation of the firm-level *Strategy_Performance*$_{Linkage}$ from industry averages. *Strategy_Performance*$_{Linkage}$ is positively correlated with the annual report length (*Wordcount*), forward-looking disclosures (*Forward-looking*) and strategy disclosures (*StrategyScore_Front*). We control for all those textual features in our multivariate models.

4.3 Validation test results

Table 5 reports the results of equation (3) for *Strategy_Performance* $_{Linkage}$ (Column 1). *CLA2013* is positive and significant, consistent with a rise in linkage between strategy and performance disclosures after the 2013 Company Law Amendment for control firms. The coefficient on *CLA2013* x *Treated* is positive and significant. The result suggests that the rise in *Strategy_Performance* $_{Linkage}$ is more pronounced for the treatment group of firms, i.e., firms that were not disclosing a strategy section in any of the three years prior to the amendment. The coefficient on *Lagdevind_Strategy_Performance*$_{Linkage}$ is positive and significant, consistent with firms adjusting their linkage between strategy disclosures and performance disclosures to align with industry levels. Results for the control variables suggest that *Strategy_Performance*$_{Linkage}$ increases with deteriorating operating performance (*ROA*), the inclusion of forward-looking content (*Forward-Looking*) and the length of strategy disclosures (*StrategyScore_Front*) and performance disclosures (*PerformanceScore_Front*).[18] In columns 2 and 3, we repeat the analysis for *Strategy*$_{Linkage}$ and *Performance*$_{Linkage}$. The coefficient on *CLA2013* x *Treated* is positive and highly significant. The coefficients on *Lagdevind_Strategy*$_{Linkage}$ and *Lagdevind_Performance*$_{Linkage}$ are *also* positive and significant, affirming the positive association

[18] The result for operating performance suggests that firms with deteriorating performance are less likely to link strategy to financial performance disclosures, consistent with one of the sources of tension underlying H1 (Section 2.3).

of the two measures with deviations of those measures from industry averages. In Columns 3-6, we repeat the analysis focusing on the narrower window of years around the 2013 Company Law Amendment (2010-2016). The coefficient on *CLA2013* x *Treated* remains positive and highly significant in all three columns.

Taken together, the results in Table 5 suggest that $Strategy\_Performance_{Linkage}$, $Strategy_{Linkage}$ and $Performance_{Linkage}$ exhibit the predictable associations with the 2013 Company Law Amendment and the peer disclosure dynamics that promoted linkage between strategy and performance disclosures. Our results are robust to additional controls, time-variant firm characteristics, and remaining textual features. The differences-in-differences result for the pool of treatment firms (no strategy section disclosing firms before the amendment) to the pool of control firms (strategy section disclosing firms before the amendment) offers more validation to our measure and gives us the opportunity to use this in our research design to investigate the effect of linkage between strategy and performance disclosures on organizational learning.

5. Linking Strategy to Performance Disclosure Outcomes

5.1. Measures for organizational learning

Organizational learning has been defined in various ways, with most definitions encompassing both *cognitive* and *behavioral* changes (Tsang, 1997). The cognitive changes aspect refers to knowledge, understanding, and insights, and the behavioral changes aspect refers to lessons learned by an organization that have impact upon its future behavior.

For the behavioral changes aspect part, we start by considering measures of organizational change (*Org_Change*). Organizational changes outputs, like sales growth, are often used to capture organizational learning outcomes (e.g. He & Wong, 2004; Chan, Li & Pierce, 2014). To

measure organizational change, we follow the approach of Feng, Li and McVay (2009) and use the principal component of asset growth (*LeadAssetGrowth*), sales growth (*LeadSalesGrowth*), and leverage (*LeadLeverage*). *LeadAssetGrowth* is one year ahead asset growth (the difference between one year ahead total assets and current year total assets divided by current year total assets). Similarly, *LeadSalesGrowth* is one year ahead sales growth (the difference between one year ahead sales and current year sales, divided by current year sales). *LeadLeverage* is one year ahead leverage calculated as the ratio of total debt to total assets.

For the cognitive changes aspect part, we consider measures of workforce engagement, in terms of workforce productivity and workforce retention. The literature has generally assumed and found that organizational behavior changes are more strongly associated with workforce-related measures than financial measures (e.g., Park and Shaw 2013; Huselid 1995; Shaw Gupta and Delery 2005). Also, workforce productivity is a typical proxy for the productivity gains associated with organizational memory, and a key output of the knowledge creation and knowledge transfer processes of organizational learning (Argote, Lee, & Park, 2020; Jain, 2020; Song, Tucker, Murrell, & Vinson, 2018; Chan, Li, & Pierce, 2014; Darr, Argote, & Epple, 1995). Workforce retention is also typical force for the knowledge retention process underlying organizational learning, since personnel is a key source for retaining institutional memory (Argote et al., 2020; David & Brachet, 2011; Carley, 1992).[19] As such, workforce productivity and retention are likely to capture the gains of the learning processes facilitated by a reporting model that links strategy to performance disclosures that we discussed in developing H1 (i.e. better shared understanding of the value creation process, more collective enquiry and participative

[19] Under this lens, personnel is viewed a key repository for knowledge in the organization and a backdrop of institutional memory. As such, workforce turnover (retention) leads to information loss (gains) and a reduction (increase) in institutional memory.

decision-making, and improved knowledge search, creation retention and sharing). We measure *Workforce_Engagement* using the principal component of workforce productivity (*Workforce_Productivity*) and workforce retention (*Workforce_Retention*). We measure *Workforce_Productivity* using the ratio of one year ahead sales scaled by the number of employees, following Shaw, Park and Kim (2013). We measure *Workforce_Retention* using an inverse measure of employee turnover (Park & Shaw, 2013) that captures zero or positive one year ahead changes in the number of employees scaled by the number of employees.

5.2. Model specification

To investigate the effects of the reporting practice of linkage between strategy and performance disclosures on organizational learning, we use the following regression model:

$$\text{Organizational Learning}_{i,t} = \beta_0 + \beta_1 CLA2013_t + \beta_2 Treated_{i,t} + \beta_3 CLA2013_t \; x \; Treated_{i,t} + \beta_4 Controls_{i,t} + a_i + \delta_t + \varepsilon_{i,t}, \quad (4)$$

As measures of organizational learning, we use a measure of organizational change (*Org_Change*) and a measure of workforce engagement (*Workforce_Engagement*) as defined above. To account for the endogenous nature of linkage between strategy and performance disclosures, we use the differences-in-differences design that we used in equation (3). Our pool of treatment firms (*Treated*=1) are firms not disclosing a strategy section in their annual reports in any of the three periods preceding the 2013 Company Law Amendment. As the control group of firms disclosed a strategy section before the amendment (and therefore had already witnessed the organizational learning effects of linkage efforts beforehand), they control for the effects on organizational learning of any regulatory and economic changes that are concurrent to the 2013 amendment that may be unrelated to linkage efforts. As such, if in line with H1 higher linkage between strategy and performance disclosures is associated with higher levels of organizational

learning, we expect the coefficient on $CLA\_2013\ x\ Treated_{i,t}$ to be positive for our measures of organizational learning. We control for all the determinants of $Strategy\_Performance_{Linkage}$ from equation (3), including firm-fixed effects (α_i) and year-fixed effects (δ_t) to control for remaining unobserved heterogeneity. Controlling for the level of strategy disclosures through *StrategyScore_Front* and the 2010 revision in Corporate Governance (*CGC_2010*) and for the level of performance disclosures through *PerformanceScore_Front* are key to capturing potential effects on organizational learning associated with the level of strategy and performance disclosures rather than their linkage.

5.3 Empirical Results

Table 6 reports the results of equation (4) using measures of organizational change. In the first column, we report the results for *Org_Change*. The coefficient on *CLA2013 x Treated* is significant in both specifications. In columns 2-4, we report results for the individual components of *Org_Change*, namely *LeadAssetGrowth*, *LeadSalesGrowth* and *LeadLeverage*. The coefficient on *CLA2013 x Treated* is positive and significant for *Asset_Growth* and *Sales_Growth*, but not for *LeadLeverage*.[20] The results suggest that treatment firms had a beneficial effect on measures of organizational change (asset and sales growth). In Table 7 we repeat the analysis on the narrower window of years around the 2013 Company Law Amendment (2010-2016). The coefficient on *CLA2013 x Treated* is positive and significant for *Org_Change*, *LeadAssetGrowth* and *LeadSalesGrowth*. The magnitude of the coefficients suggests that treated firms experience an

[20] A detailed analysis of the principal component *Org_Change* (see Appendix E-Panel A) suggests that *Asset_Growth* and *Sales_Growth* are the key contributors to *Org_Change*, with *LeadLeverage* contributing to a lesser extent.

incremental 6.5% increase in organizational learning (12% in asset growth and 10% in sales growth) following the 2013 Company Law Amendment compared to the control group.

Table 8 reports the results of equation (4) using the workforce engagement measures. Column 1 reports the results for *Workforce_Engagement*, while Columns 2 and 3 report the results for the components *Workforce_Productivity* and *Workforce_Retention.*[21] The coefficient on *CLA2013 x Treated* is significant in all three specifications. In columns 4-6, we repeat the analysis on the narrower window of years around the 2013 Company Law Amendment (2010-2016). The coefficients on *CLA2013 x Treated* remain positive and significant. The results suggest that treatment firms had a beneficial effect on workforce engagement both in terms of workforce productivity and retention. The magnitude of the coefficients suggests that treated firms experience an incremental 18.5% increase in workforce engagement following the 2013 Company Law Amendment compared to the control group.

Taken together, results in Tables 6-8 suggest that firms that are plausibly more strongly affected by the 2013 Company Law Amendment exhibit positive incremental changes in measures of organizational learning manifested in changes of organizational changes (asset growth and sales growth) and workforce engagement (productivity and retention). This result is consistent with H1.

5.4 Differences-in-difference tests

Differences in differences (DiD) research designs rely on the perfect compliance assumption, in that no treatment firms receive the treatment in the pre-treatment period and that all firms in the treatment group, receive the treatment in the post-treatment period. In our setting, perfect

[21] Detailed analysis of the principal component *Workforce_Engagement* in Appendix E (Panel B) suggests that *Workforce_Productivity* and *Workforce_Retention* contribute equally to *Workforce_Engagement*.

compliance would hold if there were no firms that front-ran the disclosure mandate by choosing to voluntarily disclose a separate strategy section before the Company Law Amendment. The presence of firms that pre-emptively adopted this disclosure practice by having a separate strategy section in their annual report introduces the concept of imperfect compliance, and triggers our using these firms as our control sample.

To account for the existence of potential pre-treatment linear trends, which may be possible under imperfect compliance, we conduct linear trend tests. These tests augment the DID model with terms that capture the differences in slopes between treated and control firms in pre-treatment periods and in post-treatment periods (see Abadie & Cattaneo, 2018 for a review of linear trends). If the differences in slopes in pre-treatment periods are zero, the linear trends in the outcome variable are parallel during pre-treatment periods.

Panel A of Table 9 reports DiD linear trends tests for equation (3). The average treatment effect of the treated firms (no strategy section disclosing firms before the amendment) is significant (ATET=0.354, t = 9.07), suggesting that the 2013 Company Law Amendment effect on $Strategy\_Performance_{Linkage}$ for the treated firms is robust to time-specific linear trends. The F-test is insignificant ($F\text{-}stat$ = 0.28, p = 0.954), suggesting that we retain the pre-treatment parallel trends assumption in $Strategy\_Performance_{Linkage}$ in the linear trends model.

Panel B of Table 9 reports DiD tests for the linear trends model run for equation (4), using *Org_Change* as a measure for organizational learning. The average treatment effect of the treated firms is significant (ATET= 0.066, t = 2.78), suggesting that the 2013 Company Law Amendment effect on *Org_Change* for the treated firms is robust to time-specific linear trends. The F-test is

again insignificant (*F-stat* = 3.50, p = 0.114), suggesting that we do not reject the pre-treatment parallel trends in *Org_Change* in the linear trends model.

Panel C of Table 9 reports DiD tests for the linear trends model run for equation (4), using *Workforce_Engagement* as a measure for organizational learning. The average treatment effect of the treated firms is significant (ATET= 0.219, *t* = 2.07), suggesting that the 2013 Company Law Amendment effect on *Workforce_Engagement* for the treated firms is robust to time-specific linear trends. The F-test is again insignificant (*F-stat* = 1.86 p = 0.173), suggesting that we do not reject the pre-treatment parallel trends in *Workforce_Engagement* in the linear trends model.

Taken together, the results in Table 9 lend support to the validity of our differences in differences conclusions for the 2013 Company Law Amendment on the treated firms.

5.5 Organizational learning and the level of linkage between strategy and performance disclosures.

While the DiD design allows for more powerful identification of the hypothesized effects in the presence of a regulatory shock in the linkage between strategy and financial performance disclosures, it does not allow inferences on how organizational learning effects vary with the level of the linkage. To investigate this, we run an alternative specification of (4), where we replace *CLA2013 x Treated* with an indicator variable for firms that had the largest treatment period improvement in the linkage between strategy and performance disclosures. To this end, we calculate the average $Strategy\_Performance_{Linkage}$ for the period pre- and post-*CLA2013* periods, calculate the pre-post firm-level movement in the level of $Strategy\_Performance_{Linkage}$ and construct an indicator variable equal to one for firms in the top quartile of this improvement $(Improvers\_Strategy\_Performance_{Linkage})$. In this specification, we further add two indicator

variables for firms that had the largest improvement on the level of strategy disclosures post-CLA2013 (*Improvers_StrategyScore*) and on the level of performance disclosures post-CLA2013 (*Improvers_PerformanceScore*) to control for potential effects on organizational learning associated with improvements in the level of strategy or performance disclosures rather than their linkage.

Table 10 reports the results of this specification for *Org_Change* and *Workforce_Engagement.* The sample for this test is reduced to firms with at least two observations in both subperiods. The coefficient on *Improvers_ Strategy_Performance*$_{Linkage}$ is positive for both outcomes. The predictable heterogeneity in treatment effects provides further comfort that the DiD results so far are not a consequence of other regulatory or economic shocks unrelated to strategy performance linkage efforts. Combined with the results in Tables 6-9, these results lend further support that it is the linkage between strategy and performance disclosures that is associated with higher levels of organizational learning, as H1 predicts.

5.6 Internal resolution of uncertainty, linkage between strategy and performance disclosures and organizational learning

In principle, annual report content should lead to a resolution of uncertainty. Prior literature that examines the usefulness of annual report content for investors largely focuses on metrics associated with the resolution of investor uncertainty. A novel aspect of our study is that we focus on the resolution of uncertainty internally within the organization triggered by the introduction of the Strategic Report. The introduction of the Strategic Report necessitates the joining up of the different groups (e.g. general counsel, executive vice-president of global operations, human resources, information services, corporate affairs, commercial operations), who may have diverse

perceptions about the key value drivers of the organization (FRC, 2018), to produce a single coherent story of value creation. By offering the opportunity to reach a consensus on the key value drivers for the organization, this 'joined-up' annual report is likely to entail a lower level of uncertainty about the value drivers that matter. The notion of the resolution of uncertainty is also central to the learning gains associated with higher linkage of strategy to performance content discussed in developing H1, i.e. arguments around better *shared understanding* of the value creation process across all units of the organization and the annual report acting as a repository of institutional memory on the value creation process. As such, we triangulate our analysis with additional tests about a) the internal resolution of uncertainty effects of a higher linkage between strategy and performance disclosures and b) the organizational learning effects of a lower level of internal uncertainty.[22]

We construct an empirical measure for internal uncertainty based on the level of uncertainty exhibited in the annual report. Our measure, *UncertaintyAR*, is based on the uncertainty dictionary (Fin-Unc) of Loughran and McDonald (2011) https://sraf.nd.edu/loughranmcdonald-master-dictionary/.[23] This dictionary (285 keywords, such as approximate, contingency, depend, fluctuate, indefinite, uncertain) puts emphasis on the general notion of imprecision, rather than risk, and is, therefore, aligned with our objective to capture internal uncertainty about firm operations. If, in line with the arguments leading to H1, a higher linkage between strategy and financial disclosures reinforces a better shared understanding of the

[22] The organizational learning literature offers some further insights about the association between the uncertainty and learnings processes. Haunschild and Miner (1997) show that uncertainty over the efficiency of practices and structures can moderate vicarious learning processes. Under this lens, knowledge repositories that resolve uncertainty about the firm strategy and business model may foster the learning processes.

[23] Hope, Li, Ma and Su (2023) uses the Fin-Unc dictionary to measure the level of uncertainty in firms press releases and news reports. Smith (2023) uses the Fin-Unc dictionary to measure the level of uncertainty in audit engagements as reflected in auditor reports.

value creation process (capabilities, resources and outcomes) among the members of organization, we expect the reporting practice to be associated with lower levels of internal uncertainty about firm operations. To test this conjecture, while maintaining the power of our DiD design, we first repeat equation (3) using *UncertaintyAR* as the dependent variable. Column 1 of Table 11 reports the regression results. The coefficient on *CLA2013* x *Treated* is negative and significant, consistent with treatment firms exhibiting incrementally lower levels of internal uncertainty in the annual report.

To draw a direct link to organizational learning, the final two columns of Table 11 report the results of *Org_Change* and *Workforce_Engagement* on indicators of firms that marked the highest treatment period improvement in resolution of internal uncertainty (*Improvers_UncertaintyAR*). *Improvers_UncertaintyAR* is an indicator of firms in the bottom quartile of the change in *Uncertainty_AR* from the period pre- to the post- *CLA2013* period. The coefficients on *Improvers_UncertaintyAR* are both positive and significant, consistent with firms that marked the highest treatment period improvement in internal uncertainty after the 2013 Company Law Amendment exhibiting higher levels of organizational changes and workforce engagement.

Taken together, results in Table 11 suggest that higher linkage of strategy to performance disclosures is associated with the resolution of internal uncertainty as manifested in the annual report, and that marked the highest improvement in internal uncertainty also witness higher levels of organizational learning. This evidence uncovers spillover effects of the reporting practice of linkage between strategy and performance disclosures on qualitative aspects of the annual report content that are associated with organizational learning (lower uncertainty). At the same time, this evidence offers further insights on the organizational learning effects of the reporting practice of

linkage between strategy and performance disclosures, highlighting the resolution of internal uncertainty as a channel.

5.7 Information asymmetry

We complete our analysis by investigating the effects of linkage between strategy disclosures and performance disclosures on the resolution of external uncertainty within the investor community. As a proxy for information asymmetry, we use *Lead(Bid-Ask),* which is the bid-ask spread following the release of the annual report, i.e. is the natural logarithm of the average bid-ask spread for the 52 weeks starting in the sixth month after fiscal year-end *t*, scaled by share price five months after fiscal year-end *t*. We repeat equation (4) using *Lead(Bid-Ask)* as the dependent variable. Table 12 reports the regression results. The coefficient on *CLA2013 x Treated* is negative and significant. This result suggests that treatment firms also witness a beneficial effect (reduction) in information asymmetry. In column 2, we replace *CLA2013 x Treated* with the indicator variable for firms that marked the largest treatment period improvement in linkage between strategy and performance disclosures. In this specification, we further control for firms that had the largest improvement on the level of strategy disclosures post-CLA2013 (*Improvers_StrategyScore*) and performance disclosures (*Improvers_PerformanceScore*). The coefficient on *Improvers_ Strategy_Performance*$_{Linkage}$ is negative and significant, lending further support that it is the linkage between strategy and performance disclosures that is associated with lower levels of information asymmetry.

6. Conclusion

Our study is the first, to our knowledge, to investigate the impact of an important feature of annual reports, that of the linkage between strategy disclosures and performance disclosures, on

organizational learning. Over a sample period (2002-2019), we document a significant rise in the level of linkage between these two important components of the annual report disclosures. Our results affirm the positive shock on this reporting practice introduced by company law mandating a separate Strategic Report section to promote strategy content in annual reports and more linkage between strategy disclosures and the remaining annual report content. We find that firms that were more strongly affected by this mandate benefited from positive changes in measures associated with organizational learning, and specifically measures of organizational change captured by asset growth, sales growth, and workforce productivity and retention. These firms also exhibit improvements in internal uncertainty, as manifested in their annual report, and information asymmetry with the investor community.

Our analysis highlights the linkage between strategy disclosures and financial performance disclosures as an important factor that can trigger positive organizational changes. This finding yields important insights for policy makers when considering implementation guidance on financial reporting guidelines on annual report content. As strategy disclosures incorporate discussion on many items of a contentious nature, including intangible and complex strategic resources, or strategic resources of a highly non-financial nature (e.g. social capital and environmental responsibilities), the importance of linkage to performance disclosures can also inform policy makers when considering recognition and disclosure issues around those items. This insight is especially interesting in the presence of the International Sustainability Standards Board standards, IFRS S1 and IFRS S2 (IASB 2023). The new standards highlight the critical importance of linking sustainability-related risks and opportunities to firm strategy and the business model and financial performance. An interesting path for future research once IFRS S1 and S2 are

implemented, would be to examine the linkage among management discussions on all three key value drivers, i.e. strategy, sustainability and financial performance within the annual report.

Our study provides a method for measuring the linkage between two key components of the annual report, strategy disclosures and performance disclosures, and echoes the need for future research to consider this aspect when analyzing the usefulness of the annual report content. While we believe that our measure offers valuable insights, we regard it only as a preliminary attempt to capture linkage of content. We encourage future research to explore alternative measures that may be unconditional to the structure of the annual report document (e.g., the existence of a table of contents) and consider other, more technologically advanced ways of linkages, such as cross-references and hyperlinks.

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Table 1
Sample selection process

Item	Observations
Textual data	5,657
Missing accounting data	(527)
Final textual and accounting data for the regression	5,130

Table 1 reports our sample selection criteria. We collected annual reports from publicly available sources and accounting and market data from DataStream.

Table 2
Distribution of key measures of integrating strategy disclosures with performance disclosures across years

Panel A: Entire sample

Year	*Mean Strategy_Performane*$_{Linkage}$	*Mean Strategy*$_{Linkage}$	*Mean Performance*$_{Linkage}$
2001	0.317	0.476	0.038
2002	0.318	0.452	0.070
2003	0.306	0.441	0.069
2004	0.332	0.455	0.098
2005	0.346	0.457	0.119
2006	0.374	0.425	0.213
2007	0.403	0.437	0.246
2008	0.437	0.454	0.283
2009	0.478	0.462	0.338
2010	0.532	0.472	0.409
2011	0.542	0.474	0.420
2012	0.574	0.483	0.462
2013	0.586	0.481	0.487
2014	0.593	0.493	0.497
2015	0.595	0.490	0.495
2016	0.598	0.492	0.498
2017	0.598	0.493	0.498
2018	0.597	0.494	0.497
2019	0.601	0.494	0.498

Panel B: Treated versus Control firms

Year	*Mean Strategy_Performane*$_{Linkage}$		*Mean Strategy*$_{Linkage}$		*Mean Performance*$_{Linkage}$	
	Treated =1	*Treated* =0	*Treated* =1	*Treated* =0	*Treated* =1	*Treated* =0
2001	0.237	0.323	0.246	0.493	0.143	0.030
2002	0.218	0.326	0.291	0.465	0.064	0.071
2003	0.220	0.314	0.317	0.453	0.048	0.071
2004	0.264	0.337	0.353	0.464	0.090	0.099
2005	0.276	0.353	0.417	0.461	0.040	0.127
2006	0.395	0.372	0.506	0.416	0.161	0.218
2007	0.341	0.410	0.410	0.441	0.164	0.255
2008	0.327	0.451	0.391	0.463	0.152	0.301
2009	0.215	0.516	0.295	0.486	0.038	0.381
2010	0.176	0.586	0.250	0.506	0.000	0.471
2011	0.162	0.606	0.227	0.515	0.000	0.490
2012	0.149	0.643	0.191	0.531	0.000	0.537
2013	0.402	0.616	0.346	0.504	0.308	0.516
2014	0.520	0.603	0.422	0.502	0.438	0.505
2015	0.540	0.601	0.441	0.496	0.444	0.501
2016	0.529	0.605	0.424	0.498	0.442	0.503
2017	0.598	0.598	0.548	0.488	0.442	0.503
2018	0.532	0.602	0.481	0.495	0.393	0.506
2019	0.566	0.603	0.505	0.493	0.425	0.503

Table 2 presents the annual means of *Strategy_Performance*$_{Linkage}$, *Strategy*$_{Linkage}$, and *Performance*$_{Linkage}$ across years. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment, i.e. firms not disclosing a strategy section in their annual reports in any of the three years prior to the amendment (2010-2012). Appendix A provides detailed definitions for all variables.

Table 3
Descriptive statistics for key variables

Variables	N	Mean	SD	Q1	Median	Q3
Strategy_Performane$_{Linkage}$	5,130	0.493	0.306	0.25	0.500	0.75
Strategy$_{Linkage}$	5,130	0.471	0.326	0.192	0.500	0.75
Performance$_{Linkage}$	5,130	0.349	0.363	0.000	0.246	0.702
CLA2013	5,130	0.423	0.494	0.000	0.000	1.000
Lagdevind_Strategy_Performance$_{Linkage}$	5,130	0.000	0.224	-0.130	0.000	0.129
Lagdevind_Strategy$_{Linkage}$	5,130	-0.022	0.269	-0.223	-0.010	0.183
Lagdevind_Performance $_{Linkage}$	5,130	-0.144	0.260	-0.330	-0.145	0.008
Good News	5,130	0.734	0.442	0.000	1.000	1.000
Size	5,130	13.894	1.788	12.677	13.714	14.958
RD SALES	5,130	1.863	6.435	0.000	0.000	0.21
Int_Intensity	5,130	0.259	0.237	0.041	0.202	0.429
Capital_Intensity	5,130	0.273	0.272	0.048	0.173	0.429
Competition	5,130	0.802	0.185	0.697	0.848	0.963
SalesGrowth	5,130	0.105	0.324	0.000	0.042	0.145
ROA	5,130	0.039	0.105	0.013	0.045	0.083
Debt Issues	5,130	0.388	0.487	0.000	0.000	1.000
Wordcount	5,130	61,116	32,971	37,798	55,600	76,784
Forward-Looking	5,130	669	378	382	613	887
StrategyScore_Front	5,130	1,002	720	424	824	1,434
Performance_Front	5,130	292	182	164	260	377
CGC2010	5,130	0.549	0.497	0.000	1.000	1.000
Org_Change	4,358	-0.027	0.267	-0.179	-0.016	0.142
LeadAssetGrowth	4,382	0.191	2.317	-0.02	0.063	0.187
LeadSalesGrowth	4,358	0.256	5.083	-0.013	0.065	0.172
LeadLeverage	4,382	0.224	0.197	0.073	0.202	0.321
Workforce_Engagement	4,158	-0.014	1.018	-0.603	-0.384	0.092
Workforce_Productivity	4,177	376	609	102	176	359
Workforce_Retention	4,158	0.106	0.214	0.000	0.029	0.112
Lead(Bid-Ask)	4,117	0.009	0.016	0.001	0.002	0.009

Table 3 reports summary statistics for the variables used in the regression analysis for the sample period 2000-2019. Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels.

Table 4

Pearson correlations among key variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
(1) Strategy_Performane$_{Linkage}$	1.000																				
(2) Strategy$_{Linkage}$	0.766*	1.000																			
(3) Performance$_{Linkage}$	0.816*	0.263*	1.000																		
(4) CLA2013	0.287*	0.053*	0.346*	1.000																	
(5)Lagdevind_Strategy_Performance$_{Linkage}$	0.177*	0.158*	0.128*	0.000	1.000																
(6) Lagdevind_Strategy$_{Linkage}$	0.013*	0.178*	-0.121*	-0.261*	0.834*	1.000															
(7) Lagdevind_Performance$_{Linkage}$	0.202*	0.049*	0.255*	0.146*	0.862*	0.461*	1.000														
(8) Good News	-0.049*	-0.018*	-0.054*	-0.081*	0.010*	0.047*	-0.017*	1.000													
(9) Size	0.200*	0.178*	0.138*	0.124*	0.044*	0.002	0.046*	-0.004	1.000												
(10) RD_SALES	-0.028*	-0.002	-0.039*	-0.030*	-0.021*	0.004	-0.040*	-0.053*	-0.187*	1.000											
(11) Int_Intensity	0.084*	0.031*	0.090*	0.134*	0.029*	-0.034*	0.057*	-0.125*	-0.010*	0.124*	1.000										
(12) Capital_Intensity	0.051*	0.057*	0.028*	0.002	-0.001	0.027*	-0.034*	-0.066*	0.115*	-0.147*	-0.384*	1.000									
(13) Competition	0.069*	0.012*	0.086*	0.106*	-0.005	-0.062*	0.026*	-0.058*	-0.122*	-0.036*	0.075*	0.197*	1.000								
(14) SalesGrowth	-0.012*	-0.010*	-0.005	-0.056*	-0.007	0.011*	-0.016*	0.094*	0.001	0.048*	-0.005	-0.015*	-0.037*	1.000							
(15) ROA	0.031*	-0.026*	0.068*	0.050*	0.014*	-0.041*	0.061*	0.216*	0.030*	-0.133*	-0.028*	0.001	0.090*	0.102*	1.000						
(16) Debt issues	0.031*	0.039*	0.015*	0.025*	0.005	0.003	0.003	-0.066*	0.151*	-0.063*	0.001	0.101*	0.003	0.098*	-0.036*	1.000					
(17) Wordcount	0.333*	0.177*	0.322*	0.483*	0.034*	-0.145*	0.120*	-0.083*	0.643*	-0.038*	0.122*	-0.005	-0.019*	-0.028*	0.005	0.082*	1.000				
(18) Forward-Looking	0.370*	0.185*	0.367*	0.560*	0.033*	-0.172*	0.135*	-0.117*	0.566*	-0.009*	0.150*	0.007	0.027*	-0.029*	0.008	0.066*	0.946*	1.000			
(19) StrategyScore_Front	0.388*	0.171*	0.402*	0.622*	0.034*	-0.187*	0.144*	-0.085*	0.503*	-0.023*	0.165*	-0.065*	0.005	-0.038*	0.048*	0.070*	0.850*	0.855*	1.000		
(20)PerformanceScore_Front	0.314*	0.185*	0.294*	0.380*	0.025*	-0.110*	0.083*	-0.065*	0.473*	-0.008	0.150*	-0.093*	-0.036*	-0.013*	0.035*	0.054*	0.740*	0.716*	0.766*	1.000	
(21) CGC2010	0.336*	0.057*	0.408*	0.775*	-0.003	-0.313*	0.169*	-0.072*	0.132*	-0.019*	0.157*	-0.003	0.152*	-0.055*	0.071*	-0.018*	0.490*	0.558*	0.598*	0.384*	1.000

Table 4 provides the correlations between our main regression variables. Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 5

Linkage between strategy and performance determinants: Difference-in-Difference Design

Variables	$Strategy\_Performance_{Linkage}$ (1)	$Strategy_{Linkage}$ (2)	$Performance_{Linkage}$ (3)	$Strategy\_Performance_{Linkage}$ (4)	$Strategy_{Linkage}$ (5)	$Performance_{Linkage}$ (6)
	Entire sample			**Short window (2010-2016)**		
CLA2013	0.053	0.039	0.043	-0.083**	-0.045	-0.094**
	(0.838)	(0.582)	(0.616)	(-2.104)	(-1.047)	(-2.198)
Treated	-0.348***	-0.195	-0.431***	-0.862***	-0.751***	-0.771***
	(-3.077)	(-1.467)	(-4.677)	(-4.951)	(-3.704)	(-5.157)
TreatedxCLA2013	0.153***	0.099***	0.174***	0.348***	0.210***	0.409***
	(6.074)	(3.275)	(6.370)	(10.699)	(5.398)	(12.049)
$Lagdevind\_Strategy\_Performance_{Linkage}$	0.163***			0.132***		
	(9.332)			(4.508)		
$Lagdevind\_Strategy_{Linkage}$		0.199***			0.168***	
		(12.057)			(6.004)	
$lagdevind\_Performance_{Linkage}$			0.175***			0.138***
			(9.822)			(4.695)
Goodnews	0.004	0.005	0.003	-0.004	-0.000	-0.006
	(0.440)	(0.473)	(0.272)	(-0.245)	(-0.005)	(-0.351)
Size	0.016	0.014	0.014	0.018	0.005	0.027
	(1.471)	(1.118)	(1.077)	(0.591)	(0.130)	(0.793)
RD_Sales	0.001	0.001	0.000	0.007	0.009	0.003
	(0.475)	(0.625)	(0.037)	(1.503)	(1.337)	(0.497)
Int_Intensity	0.026	0.028	0.032	-0.064	-0.082	-0.012
	(0.491)	(0.458)	(0.511)	(-0.546)	(-0.602)	(-0.091)
Capital_Intensity	0.028	-0.034	0.087	-0.087	-0.112	-0.045
	(0.532)	(-0.573)	(1.460)	(-1.118)	(-1.156)	(-0.545)
Competition	-0.011	-0.009	0.003	-0.169	-0.300	-0.013
	(-0.183)	(-0.130)	(0.046)	(-0.704)	(-1.167)	(-0.046)
SalesGrowth	-0.001	0.002	-0.004	-0.020	-0.005	-0.030
	(-0.044)	(0.188)	(-0.326)	(-0.789)	(-0.184)	(-0.989)
ROA	-0.059*	-0.126**	0.011	0.063	-0.031	0.142
	(-1.635)	(-2.332)	(0.206)	(0.652)	(-0.321)	(1.223)
Debt Issues	-0.000	0.006	-0.006	0.005	0.018	-0.008
	(-0.027)	(0.657)	(-0.603)	(0.400)	(1.154)	(-0.515)
Wordcount	-0.000	-0.000	-0.000**	-0.000	-0.000*	-0.000
	(-1.493)	(-0.502)	(-1.997)	(-1.385)	(-1.655)	(-0.845)
Forward-Looking	0.000**	0.000	0.000***	0.000***	0.000**	0.000***
	(2.498)	(0.909)	(3.325)	(3.235)	(2.103)	(2.906)
StrategyScore_Front	0.000***	0.000	0.000***	0.000*	0.000	0.000**
	(3.762)	(0.038)	(5.564)	(1.857)	(0.684)	(2.083)
PerformanceScore_Front	0.000***	0.000***	0.000*	0.000	0.000	0.000

	(3.331)	(3.767)	(1.794)	(0.233)	(0.236)	(0.470)
CGC2010	-0.016	-0.037	0.004	-0.045	-0.031	-0.051
	(-0.354)	(-0.901)	(0.092)	(-0.934)	(-0.658)	(-1.041)
Constant	0.113	0.187	-0.041	0.480	0.848	-0.005
	(0.705)	(1.024)	(-0.215)	(0.927)	(1.468)	(-0.009)
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	5,130	5,130	5,130	1,943	1,943	1,943
R-squared	0.495	0.439	0.519	0.517	0.518	0.534

Table 5 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on $Strategy\_Performance_{Linkage}$ (column 1), $Strategy_{Linkage}$ (column 2), and $Performance_{Linkage}$ (column 3). CLA2013 is an indicator variable equal to 1 for fiscal years ending on or after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In columns 1-3, we use the full sample, while in columns 4-6, we use a reduced sample that restricts the period to a shorter window (2010-2016) around the 2013 Company Law Amendment. Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6

Linkage between strategy and performance disclosure and organizational change

	Org_Change	*LeadAssetGrowth*	*LeadSalesGrowth*	*LeadLeverage*
Variables	**(1)**	**(2)**	**(3)**	**(4)**
CLA2013	0.113***	0.263***	0.057	-0.017
	(2.993)	(3.958)	(0.705)	(-0.807)
Treated	1.221***	0.923***	0.513***	-0.715***
	(24.702)	(9.546)	(4.958)	(-33.297)
TreatedxCLA2013	0.044***	0.115***	0.102***	0.004
	(2.849)	(3.710)	(3.091)	(0.510)
Lagdevind_Strategy_Performance$_{Linkage}$	-0.018	-0.014	-0.042	0.005
	(-1.622)	(-0.648)	(-1.615)	(0.853)
Goodnews	0.004	0.010	0.018	0.001
	(0.605)	(0.874)	(1.418)	(0.194)
Size	-0.164***	-0.327***	-0.154***	0.037***
	(-13.540)	(-13.816)	(-5.439)	(6.540)
RD_Sales	0.004*	0.005	0.003	-0.002**
	(1.847)	(1.227)	(0.684)	(-2.379)
Int_Intensity	-0.034	-0.076	0.193*	0.040
	(-0.637)	(-0.700)	(1.656)	(1.487)
Capital_Intensity	-0.107**	-0.073	-0.057	0.087***
	(-2.099)	(-0.827)	(-0.575)	(3.031)
Competition	-0.108**	-0.128	-0.000	0.034
	(-2.111)	(-1.352)	(-0.001)	(1.256)
SalesGrowth	-0.033***	-0.017	-0.206***	-0.013***
	(-2.588)	(-0.800)	(-5.464)	(-2.598)
ROA	0.445***	0.562***	0.220*	-0.174***
	(8.642)	(6.601)	(1.783)	(-6.539)
Debt Issues	-0.013**	0.019*	0.056***	0.023***
	(-2.224)	(1.715)	(4.173)	(7.036)
Wordcount	-0.000**	-0.000**	-0.000	0.000
	(-1.977)	(-2.127)	(-1.425)	(0.172)
Forward-Looking	-0.000	0.000	-0.000	0.000
	(-0.274)	(0.683)	(-0.380)	(0.527)
StrategyScore_Front	0.000***	0.000**	0.000*	-0.000
	(3.026)	(2.573)	(1.947)	(-0.850)
PerformanceScore_Front	-0.000**	-0.000	-0.000	0.000
	(-2.097)	(-1.412)	(-1.472)	(0.804)
CGC2010	0.011	0.000	-0.004	-0.011
	(0.489)	(0.012)	(-0.077)	(-0.969)
Constant	1.582***	4.598***	2.025***	0.221***
	(8.842)	(13.123)	(4.835)	(2.751)
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	4,347	4,371	4,347	4,371
R-squared	0.710	0.399	0.296	0.812

Table 6 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on organizational change (*Org_Change*). *CLA2013* is an indicator variable equal to 1 for fiscal years ending after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In column 1, we show the impact of *TreatedxCLA2013* on *Org_Change*. Then, we break down the components of *Org_Change* into asset growth (column 2), sales growth (column 3), and the lead leverage (column 4). Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 7: Linkage between strategy and performance disclosure and organizational change (short window)

	Org_Change	*LeadAssetGrowth*	*LeadSalesGrowth*	*LeadLeverage*
Variables	**(1)**	**(2)**	**(3)**	**(4)**
CLA2013	0.044**	0.082**	0.041	-0.013
	(2.220)	(2.229)	(1.041)	(-1.066)
Treated	1.295***	1.231***	0.236	-0.751***
	(14.580)	(8.239)	(0.932)	(-19.333)
TreatedxCLA2013	0.065***	0.117***	0.098**	-0.013
	(3.362)	(2.821)	(2.180)	(-1.198)
Lagdevind_Strategy_Performance$_{Linkage}$	-0.019	0.003	-0.072**	0.008
	(-1.350)	(0.130)	(-2.164)	(0.981)
Goodnews	-0.010	-0.019	-0.016	0.001
	(-1.284)	(-1.330)	(-0.910)	(0.274)
Size	-0.190***	-0.422***	-0.034	0.052***
	(-5.932)	(-8.208)	(-0.368)	(3.888)
RD_Sales	-0.005	-0.004	-0.000	0.002
	(-1.569)	(-0.664)	(-0.038)	(1.101)
Int_Intensity	0.059	0.095	-0.233	-0.038
	(0.638)	(0.473)	(-0.841)	(-0.849)
Capital_Intensity	-0.099	0.103	-0.262	0.070
	(-1.131)	(0.802)	(-1.430)	(1.342)
Competition	-0.092	-0.157	0.293	0.051
	(-0.641)	(-0.724)	(0.816)	(0.571)
SalesGrowth	-0.011	-0.012	-0.206***	-0.019*
	(-0.503)	(-0.430)	(-2.716)	(-1.904)
ROA	0.417***	0.449***	0.477**	-0.152***
	(4.144)	(3.454)	(2.053)	(-2.582)
Debt Issues	-0.023***	0.003	0.005	0.021***
	(-2.925)	(0.184)	(0.277)	(4.585)
Wordcount	-0.000*	-0.000**	-0.000	0.000
	(-1.752)	(-2.518)	(-1.399)	(0.392)
Forward-Looking	-0.000	0.000	-0.000	0.000
	(-1.035)	(0.523)	(-0.662)	(1.407)
StrategyScore_Front	0.000**	0.000	0.000	-0.000
	(2.357)	(1.621)	(0.134)	(-1.448)
PerformanceScore_Front	-0.000	-0.000	-0.000	0.000
	(-1.230)	(-0.763)	(-0.389)	(1.046)
CGC2010	0.005	0.027	-0.023	-0.003
	(0.212)	(0.815)	(-0.419)	(-0.285)
Constant	2.026***	6.075***	0.460	-0.002
	(4.009)	(7.530)	(0.322)	(-0.011)
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Observations	1,781	1,794	1,781	1,794
R-squared	0.823	0.480	0.357	0.876

Table 7 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on organizational change (*Org_Change*) on a reduced sample that restricts the period to a shorter window (2010-2016) around the 2013 Company Law Amendment. *CLA2013* is an indicator variable equal to 1 for fiscal years ending on or after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In column 1, we show the impact of *TreatedxCLA2013* on *Org_Change.* Then, we break down the components of *Org_Change* into asset growth (column 2), sales growth (column 3), and the lead leverage (column 4). Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1.

Table 8:

Linkage between strategy and performance disclosure and workforce engagement

	Long window			*Short window (2010-2016)*		
VARIABLES	***Workforce_ Engagement***	***Workforce_ Productivity***	***Workforce_ Retention***	***Workforce_ Engagement***	***Workforce_ Productivity***	***Workforce_ Retention***
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
CLA2013	-0.064	100.297	-0.069	-0.077	57.170	-0.047*
	(-0.365)	(1.515)	(-1.510)	(-0.798)	(1.619)	(-1.823)
Treated	0.958***	79.982	0.286***	0.861	72.364	0.270*
	(3.766)	(1.191)	(4.042)	(1.564)	(0.573)	(1.730)
TreatedxCLA2013	0.194***	60.868**	0.044**	0.185**	64.640**	0.039*
	(2.842)	(2.040)	(2.576)	(2.268)	(1.983)	(1.849)
Lagdevind_Strategy_Performance$_{Linkage}$	-0.106**	-19.317	-0.025*	-0.092	-6.321	-0.027
	(-2.051)	(-0.904)	(-1.856)	(-1.466)	(-0.242)	(-1.575)
Goodnews	0.045	14.276	0.008	-0.005	-2.377	-0.003
	(1.636)	(1.420)	(1.148)	(-0.127)	(-0.215)	(-0.292)
Size	-0.324***	-55.169***	-0.089***	-0.293**	-69.135	-0.078**
	(-5.760)	(-2.658)	(-5.941)	(-2.521)	(-1.563)	(-2.557)
RD_Sales	0.005	2.666	0.001	-0.019	-0.688	-0.006
	(0.589)	(1.447)	(0.402)	(-1.172)	(-0.310)	(-1.251)
Int_Intensity	-0.227	-121.280	-0.009	-0.505	-41.307	-0.118
	(-0.937)	(-1.512)	(-0.138)	(-0.744)	(-0.419)	(-0.618)
Capital_Intensity	-0.587***	49.664	-0.202***	-0.455	-79.909	-0.118*
	(-2.909)	(0.462)	(-4.085)	(-1.558)	(-0.632)	(-1.655)
Competition	0.357	41.712	0.087	-0.384	-516.658**	0.018
	(1.553)	(0.441)	(1.504)	(-0.615)	(-2.343)	(0.106)
SalesGrowth	0.101	80.745**	-0.006	0.185	132.798**	0.019
	(1.464)	(2.209)	(-0.363)	(1.607)	(2.232)	(0.654)
ROA	1.036***	174.287*	0.265***	1.047***	47.217	0.296***
	(4.633)	(1.806)	(4.810)	(2.988)	(0.466)	(3.118)
Debt Issues	0.121***	15.282	0.030***	0.067*	-5.221	0.019**
	(4.242)	(1.516)	(4.054)	(1.785)	(-0.397)	(1.974)
Wordcount	-0.000	-0.000	-0.000	-0.000*	-0.001	-0.000*
	(-0.750)	(-0.257)	(-0.779)	(-1.705)	(-0.825)	(-1.685)
Forward-Looking	0.000	0.068	0.000	0.000	0.084	0.000
	(0.530)	(1.139)	(0.161)	(1.101)	(1.164)	(0.682)
StrategyScore_Front	0.000**	0.023	0.000**	0.000	-0.021	0.000
	(2.353)	(1.040)	(2.437)	(0.728)	(-0.699)	(1.348)
PerformanceScore_Front	-0.000***	-0.143***	-0.000***	-0.000	-0.040	-0.000
	(-3.646)	(-3.060)	(-2.994)	(-1.424)	(-0.638)	(-1.399)
CGC2010	0.153	28.902	0.041	0.148	17.306	0.045*
	(1.475)	(0.871)	(1.456)	(1.600)	(0.586)	(1.796)
Constant	3.702***	795.118**	1.227***	4.344**	1,614.681**	1.219***
	(4.553)	(2.456)	(5.763)	(2.492)	(2.287)	(2.654)
Firm fixed effects	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES
Observations	4,150	4,169	4,150	1,738	1,749	1,738
R-squared	0.587	0.812	0.344	0.718	0.908	0.408

Table 8 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on *Workforce_Engagement* (columns 1 and 4), *Workforce_Productivity* (columns 2 and 4), and *Workforce_Retention* (columns 3 and 6). *CLA2013* is an indicator variable equal to 1 for fiscal years ending on or after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In columns 1-3, we use a full sample, while in columns 4-6, we use a reduced sample that restricts the period to a shorter window (2010-2016) around the 2013 Company Law Amendment. Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** p < 0.01, ** p < 0.05, * p < 0.1

Table 9

Summary results for linear trends tests

Panel A: ***Strategy_Performance*** $_{Linkage}$			
	Short window (2010-2016)		
	Strategy_Performance $_{Linkage}$	***F-statistic for parallel trends test***	***Probability value for F-test***
TreatedxCLA2013 (ATET)	0.354*** (9.07)	0.28	0.954
Includes other covariates	YES	YES	YES
Firm fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Firm x year linear trend	YES	YES	YES
Observations	1,943	1,943	1,943
Panel B: ***Org_Change***			
	Short window (2010-2016)		
	Org_Change	***F-statistic for parallel trends test***	***Probability value for F-test***
TreatedxCLA2013 (ATET)	0.066*** (2.780)	3.50	0.114
Includes other covariates	YES	YES	YES
Firm fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Firm x year linear trend	YES	YES	YES
Observations	1,787	1,787	1,787
Panel C: ***Workforce_Engagement***			
	Short window (2010-2016)		
	Workforce_ Engagement	***F-statistic for parallel trends test***	***Probability value for F-test***
TreatedxCLA2013 (ATET)	0.219** (2.07)	1.86	0.173
Includes other covariates	YES	YES	YES
Firm fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Firm x year linear trend	YES	YES	YES
Observations	1,742	1,742	1,742

Table 9 Panel A presents the results of the linear trends test of the DID difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on *Strategy_Performance*$_{Linkage}$ (equation 3) on the shorter window (2010-2016) around the 2013 Company Law Amendment. In Panel B, we report the linear trends test results for *Org_Change* (equation 4). In Panel C, we report the results of the for *Workforce_Engagement* (equation 4). A linear trends specification extends the fixed effect structure to include terms that capture the differences in slopes between treated and control firms in pre-treatment periods and in post-treatment periods. The models include all covariates, but for the sake of simplicity, we report only estimates for *TreatedxCLA2013*, which capture the average treatment effect for the treated group (ATET). The F-test is for the differences in slopes in pre-treatment periods. If insignificant, the linear trends in the outcome variable are parallel during pre-treatment periods. All variables are winsorized at the 1% and 99% levels. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 10

Organizational learning and the level of linkage between strategy and performance disclosure

Variables	*Org_Change*	*Workforce_Engagement*
	(1)	*(2)*
CLA2013	0.139***	0.088
	(3.405)	(0.516)
Improvers_Strategy_Performance$_{Linkage}$	0.750***	1.787***
	(10.629)	(4.957)
Lagdevind_Strategy_Performance$_{Linkage}$	-0.000	0.013
	(-0.005)	(0.226)
Goodnews	0.001	0.042
	(0.215)	(1.429)
Size	-0.161***	-0.348***
	(-13.115)	(-6.000)
RD_Sales	0.001	-0.001
	(0.433)	(-0.138)
Int_Intensity	0.003	-0.082
	(0.060)	(-0.314)
Capital_Intensity	-0.092*	-0.492**
	(-1.798)	(-2.385)
Competition	-0.080	0.281
	(-1.385)	(1.196)
SalesGrowth	0.007	0.196***
	(0.493)	(2.608)
ROA	0.535***	1.008***
	(11.248)	(4.443)
Debt Issues	-0.018***	0.102***
	(-2.911)	(3.550)
Wordcount	-0.000**	-0.000
	(-2.243)	(-1.137)
Forward-Looking	-0.000	0.000
	(-0.009)	(0.624)
StrategyScore_Front	0.000***	0.000**
	(2.607)	(2.457)
PerformanceScore_Front	-0.000	-0.000***
	(-1.035)	(-3.037)
CGC2010	0.007	0.160
	(0.336)	(1.580)
Improvers_StrategyScore	-0.037	0.876***
	(-0.500)	(3.179)
Improver_PerformanceScore	0.256***	0.507***
	(4.402)	(2.809)
Constant	1.739***	2.794***
	(10.863)	(3.863)
Firm fixed effects	YES	YES
Year fixed effects	YES	YES
Observations	3,248	3,206
R-squared	0.691	0.559

Table 10 reports the results of regressing measures of organizational learning measured by organizational change, *Org_Change* (column 1) and workforce engagement, *Workforce_Engagement* (column2) on an indicator of firms that marked the largest treatment period improvement in *Strategy_Performance*$_{Linkage}$. *Improvers_Strategy_Performance*$_{Linkage}$ is an indicator variable of firms in the top quartile improvement in average *Strategy_Performance*$_{Linkage}$ from the pretreatment (*CLA2013*=1) to the treatment period (*CLA2013=1*). *CLA2013* is an indicator variable equal to 1 for fiscal years ending on or after 2013. We control for *Improvers_StrategyScore,* an indicator variable of firms in the top quartile of improvement in average *StrategyScore* from the pre-treatment (*CLA2013*=0) to the treatment period (*CLA2013*=1). *StrategyScore* is our measure for strategy disclosures in the annual report. For these tests we retain firms with at least two observations in the pre- and post-treatment period. Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 11
Annual report uncertainty, linkage between strategy and performance disclosure and organizational learning

Variables	*Uncertainty_AR*	*Org_Change*	*Workforce_Engagement*
	(1)	(2)	(3)
CLA2013	-130.977**	0.141***	0.096
	(-2.527)	(3.447)	(0.561)
Treated	423.708***		
	(2.660)		
TreatedxCLA2013	-57.725***		
	(-2.796)		
Improvers_Uncertainty_AR		0.375***	1.282***
		(5.831)	(4.278)
Lagdevind_Strategy_Performance$_{Linkage}$		-0.019*	-0.106**
		(-1.704)	(-1.993)
Goodnews	5.427	0.001	0.042
	(0.859)	(0.205)	(1.443)
Size	-8.523	-0.161***	-0.350***
	(-0.764)	(-13.152)	(-6.025)
RD_Sales	0.807	0.001	-0.001
	(1.086)	(0.419)	(-0.146)
Int_Intensity	122.770***	0.006	-0.072
	(3.613)	(0.121)	(-0.275)
Capital_Intensity	123.383***	-0.091*	-0.487**
	(4.126)	(-1.787)	(-2.347)
Competition	87.232**	-0.076	0.296
	(2.261)	(-1.327)	(1.258)
SalesGrowth	15.797	0.007	0.197***
	(1.497)	(0.502)	(2.614)
ROA	154.610***	0.536***	1.011***
	(5.352)	(11.267)	(4.446)
Debt Issues	-4.504	-0.018***	0.102***
	(-0.603)	(-2.938)	(3.538)
Wordcount	0.017***	-0.000**	-0.000
	(6.959)	(-2.287)	(-1.185)
Forward-Looking	1.008***	-0.000	0.000
	(6.120)	(-0.004)	(0.615)
StrategyScore_Front	0.336***	0.000***	0.000**
	(10.376)	(2.658)	(2.566)
PerformanceScore_Front	-0.041	-0.000	-0.000***
	(-0.653)	(-1.042)	(-3.075)
CGC2010	28.259	0.006	0.152
	(1.548)	(0.274)	(1.508)
Improvers_StrategyScore		-0.411***	-0.400*
		(-5.696)	(-1.856)
Improvers_PerformanceScore		-0.493***	-1.265***
		(-8.913)	(-3.354)
Constant	-75.316	2.492***	4.576***
	(-0.520)	(13.043)	(4.848)
Firm fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Observations	5,123	3,248	3,206
R-squared	0.973	0.691	0.559

Table 11 Columns 1 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on annual report uncertainty *Uncertainty_AR*. *Uncertainty_AR* is the count of the Loughran and McDonald (2011) Fin-Unc list of 285 uncertainty keywords in the annual report. *CLA2013* is an indicator variable equal to 1 for fiscal years ending on or after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In columns 2 and 3 we regress our measure of *Org_Change* (Column 3) and *Workforce_Engagement* (column 4) on an indicator of firms that marked the largest treatment period improvement in *Uncertainty_AR*. *Improvers_Uncertainty_AR* is an indicator variable of firms in the bottom quartile change in average *Uncertainty_AR* from the pretreatment (*CLA2013*=1) to the treatment

period (*CLA2013=1*). For tests in columns 2-4, we retain firms with at least two observations in the pre-and post-treatment period and control for *Improvers_StrategyScore*, an indicator variable of firms in the top quartile of improvement in average *StrategyScore_Front* from the pre-treatment (*CLA2013*=0) to the treatment period (*CLA2013*=1). Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0$.

Table 12

Linkage between strategy and performance disclosure and information asymmetry

Variables	Lead-Bid-Ask	
	(1)	(2)
CLA2013	-0.015***	-0.016***
	(-6.238)	(-6.034)
Treated	0.008**	
	(2.050)	
TreatedxCLA2013	-0.002*	
	(-1.813)	
Improvers_Strategy_Performance$_{Linkage}$		-0.007*
		(-1.666)
Lagdevind_Strategy_Performance$_{Linkage}$	-0.000	0.000
	(-0.018)	(0.017)
Goodnews	0.001	0.000
	(1.197)	(1.061)
Size	-0.003***	-0.003***
	(-4.070)	(-3.652)
RD_Sales	-0.000*	0.000
	(-1.812)	(0.226)
Int_Intensity	0.003	-0.002
	(0.762)	(-0.495)
Capital_Intensity	0.001	-0.001
	(0.347)	(-0.331)
Competition	-0.010***	-0.012***
	(-2.771)	(-2.901)
SalesGrowth	-0.001	-0.002**
	(-1.340)	(-2.098)
ROA	-0.016***	-0.015***
	(-4.737)	(-4.493)
Debt Issues	-0.001	-0.000
	(-1.430)	(-0.508)
Wordcount	-0.000	-0.000
	(-0.629)	(-1.244)
Forward-Looking	0.000	0.000**
	(1.613)	(2.542)
StrategyScore_Front	0.000*	0.000
	(1.888)	(1.530)
CGC2010	0.000	-0.000
	(0.212)	(-0.035)
Improvers_StrategyScore		-0.002
		(-0.552)
Improvers_PerformanceScore		-0.009***
		(-2.893)
Constant	0.060***	0.074***
	(4.318)	(7.266)
Firm fixed effects	YES	YES
Year fixed effects	YES	YES
Observations	4,108	3,224
R-squared	0.634	0.565

Table 12 Columns 1 reports the results of difference-in-difference regressions of the treatment effects of the 2013 Company Law Amendment) on *Lead (Bid-Ask). Lead (Bid-Ask)* is the natural logarithm of the average bid-ask spread for the subsequent fiscal year. for the 52 weeks starting in the sixth month after fiscal year-end *t*, scaled by share price five months after fiscal year-end *t. CLA2013* is an indicator variable equal to 1 for the fiscal year ending after 2013. *Treated* is an indicator equal to 1 for the firms more strongly affected by the 2013 Company Law Amendment (firms not disclosing a strategy section in their annual report in any of the three years prior to the amendment (2010-2012). In column 2, we regress *Lead(Bid-Ask*) on an indicator of firms that marked the largest treatment period improvement in *Strategy_Performance*$_{Linkage}$. *Improvers_Strategy_Performance*$_{Linkage}$ is an indicator variable of firms in the top quartile improvement in average *Strategy_Performance*$_{Linkage}$ from the pretreatment (*CLA2013*=1) to the treatment period (*CLA2013=1*). For this test, we retain firms with at least two observations in the pre-and post-treatment period and control for *Improvers_StrategyScore*, an indicator variable of firms in the top quartile of improvement

in average *StrategyScore_Front* from the pre-treatment (*CLA2013*=0) to the treatment period (*CLA2013*=1). Appendix A provides detailed definitions for all variables. All variables are winsorized at the 1% and 99% levels. Significance level: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix A Definitions of variables		
Variables	**Definition**	**Source**
Capital_Intensity	The ratio of net property, plant, and equipment (set to 0 if missing) divided by total assets.	DataStream
CGC2010	Equals one for fiscal years ending on or after 28 May 2011 (the effective date of the 2010 Corporate Governance Code revision) and zero otherwise.	As above
CLA2013	An indicator variable equal to 1 for accounting periods ending on or after 2013 (effective year of the Company Law Amendment), 0 otherwise.	As above
Competition	The Herfindahl measure of competitive intensity for industry *j* in year *t* is equal to -1× the sum of the market share of the four largest firms in industry *j* ranked by revenue.	As above
Debt Issues	An indicator variable of increases in the book value of debt of more than 5% during the year.	As above
Forward-Looking	The number of forward-looking words in the narrative's component of the annual report across all sections.	Annual reports and CFIE-Annual Report app
Goodnews	An indicator variable equal to 1, the abnormal profitability for firm i is on the top quartile or its net income change is above 0, zero otherwise. Abnormal profitability is the difference between the firm margin in the year under investigation and the average industry firm margin divided by standard deviation of the firm margin. Firm margin is equal to sales divided by sales minus operational income under the year of investigation.	DataStream
Improvers_Strategy_Performance$_{Linkage}$	Equals to one for firms with the top quartile improvement in average *Strategy_Performance*$_{Linkage}$ from the pre-treatment period (*CLA2013*=0) to the treatment period (CLA2013=1), and zero otherwise.	Annual reports and CFIE-Annual Report app
Improvers_PerformanceScore	Equals to one for firms with the top quartile improvement in average *PerformanceScore_Front* from the pre-treatment period (*CLA2013*=0) to the treatment period (CLA2013=1), and zero otherwise. *StrategyScore_Front.*	As above
Improvers_StrategyScore	Equals to one for firms with the top quartile improvement in average *StrategyScore_Front* from the pre-treatment period (*CLA2013*=0) to the treatment period (CLA2013=1), and zero otherwise. *StrategyScore_Front.*	As above
Improvers_Uncertainty_AR	Equals to one for firms with the bottom quartile change in average *Uncertainty_AR* from the pre-treatment period (*CLA2013*=0) to the treatment period (CLA2013=1), and zero otherwise.	As above
Int_Intensity	Total assets minus current assets and net property, plant, and equipment, all divided by total assets.	DataStream
Lagdevind_Performance$_{Linkage}$	It is the lag of *devind_Performance*$_{Linkage}$, where *devind_Performance*$_{Linkage}$ is calculated by subtracting the *Performance*$_{Linkage}$ of the sample firm value for each year from the industry median of *Performance*$_{Linkage}$.	Annual reports and CFIE-Annual Report app
Lagdevind_Strategy$_{Linkage}$	It is the lag of *devind_Strategy*$_{Linkage}$, where *devind_Strategy*$_{Linkage}$ is calculated by subtracting the *Strategy*$_{Linkage}$ of the sample firm value for each year from the industry median of *Strategy*$_{Linkage}$.	As above
Lagdevind_Strategy_Performance$_{Linkage}$	It is the lag of *devind_Strategy_Performance*$_{Linkage}$, where *devind_Strategy_Performance*$_{Linkage}$ is calculated by subtracting the *Strategy_Performance*$_{Linkage}$ of the sample firm value for each year from the industry median of *Strategy_Performance*$_{Linkage}$.	As above
LeadAssetGrowth	Asset growth is the difference between one year ahead total assets and total assets in the current fiscal year, divided by total assets in the current fiscal year.	As above

LeadSalesGrowth	Sales growth is the difference between one year ahead sales and sales in the current fiscal year, divided by sales in the current fiscal year.	As above
LeadLeverage	One year a head leverage calculated over the period following the release of the annual report. Leverage is the ratio of total debt to total assets.	Datastream
Lead(Bid-Ask)	Natural logarithm of average bid-ask spread for the 52 weeks starting in the sixth month after fiscal year-end *t*, scaled by share price five months after fiscal year-end *t*	As above
Org_Change	The first principal component of the linear combination of asset growth, sales growth, and lead leverage. Asset growth is the difference between one year ahead total assets and total assets in the current fiscal year, divided by total assets in the current fiscal year. Similarly, sales growth is the difference between one year ahead of sales and sales in the current fiscal year, divided by sales in the current fiscal year. Leverage is leverage t + 1, and leverage is calculated by taking the ratio of total debt to total assets.	As above
Performance$_{Linkage}$	The fractional rank by year is based on the number of performance keywords (Appendix C) in the strategy sections of the annual report divided by the number of performance keywords in the financial performance sections of the annual report. We identify financial performance sections in the annual report as sections with a label name that includes: "performance", "Chairman's statement", "CEO review", "CFO review", "Business review", "operating review", "financial review", as these sections are key in including performance disclosures. We identify strategy sections in the annual report, as sections with a label name that includes "strategy", or "strategic" or "business model". If the annual report does not include a separate strategy section, we count performance keywords in all front-end sections of the annual report (i.e., all narrative sections preceding the auditors' report, statement of directors' responsibilities, financial statements and notes to the accounts excluding governance and remuneration sections).	Annual reports and CFIE-Annual Report app
PerformanceScore_Front	Count of performance keywords in all front-end sections of the annual report (i.e., all narrative sections preceding the auditors' report, statement of directors' responsibilities, financial statements and notes to the accounts excluding governance and remuneration sections).	As above
RD Sales	The ratio of research and development expenses to total sales.	Datastream
SalesGrowth	The ratio of the difference between this year's and last year's sales to last year's sales.	As above
Size	Natural logarithm of total assets in year t.	As above
Strategy$_{Linkage}$	The fractional rank by year is based on the number of strategy and business model keywords (Appendix B) in the financial performance sections of the annual report divided by the number of strategy and business model keywords in the strategy sections of the annual report. We identify financial performance sections in the annual report as sections with a label name that includes: "performance", "Chairman's statement", "CEO review", "CFO review", "Business review", "operating review", "financial review", as these sections are key in including performance disclosures. We identify strategy sections in the annual report, as sections with a label name that includes "strategy", or "strategic" or "business model". If the annual report does not include a separate strategy section, we count strategy keywords in all front-end sections of the annual report (i.e., all narrative sections preceding the auditors' report, statement of directors' responsibilities, financial statements and notes to the accounts excluding governance and remuneration sections).	Annual reports and CFIE-Annual Report app
Strategy_Performance$_{Linkage}$	The percentile rank of the sum of *Strategy*$_{Linkage}$ and *Performance*$_{Linkage}$.	As above
StrategyScore_Front	Measure of strategy disclosures using the count of strategy and business model keywords (See Appendix B) in the front-end section of the annual report, i.e., all the sections preceding the financial	As above

	statements component of the annual report, excluding governance and remuneration sections.	
Treated	An indicator equal to 1 if the firm does not have a strategic section in the annual report in any of the three years preceding the 2013 Company Law Amendment (2010, 2011, 2012), which required all UK firms to include a Strategic Report), and zero otherwise. We identify strategy sections in the annual report as sections with a label name that includes "strategy", or "strategic" or "business model".	As above
Uncertainty_AR	Measure of uncertainty in the annual report, using the count of the Loughran and McDonald (2011) Fin-Unc dictionary of 285 uncertainty keywords https://sraf.nd.edu/loughranmcdonald-master-dictionary/.	As above
WordCount	Number of words counted across all sections of the annual report.	As above
Workforce_ Engagement	The first principal component of the linear combination of two proxies: *Workforce_Productivity* and *Workforce_Retention.*	Datastream
Workforce_Productivity	Sales in year t + 1 divided by the number of employees at the year t.	As above
Workforce_Retention	Zero or positive one year ahead changes in the number of employees divided by the number of employees.	As above
$LeadAssetGrowth$	Asset growth is the difference between one year ahead total assets and total assets in the current fiscal year, divided by total assets in the current fiscal year.	As above
$LeadSalesGrowth$	Sales growth is the difference between one year ahead sales and sales in the current fiscal year, divided by sales in the current fiscal year.	As above

Appendix B: 231 Strategy and Business Model Disclosures Keywords

aim	core competenc#	growth	next big thing	shared
KPI	corporate portfolio	hands-on management	norms	shareholder
abilities	cost driver#	heterogeneity	objectiv#	sharing
ability	cost improvement#	holistic	operat# effectiveness	shift#
adapt#	cost# of switching	human capital	operations	shifting
advantage#	create#	incubate	management	skill#
aiming	creati#	incubating	opportunism	social factor#
aims	cultural	inflection point#	organizational	social policy
ambition#	culture	innovate#	structure	social
analytic# tool#	customer#	innovation#	our network#	responsibility
attack	customiz#	innovative	out sourc#	socially
attack#	decentralis#	innovator#	out-sourc#	responsible
attractive	decentraliz#	intellectual property	performance criteria	specializ#
attractiveness	defensive	internal environment#	performance	stakeholder#
balanced scorecard	demand-side	internal organisation	indicator#	standardis#
barrier# to entry	demographic#	internalis#	performance	strateg#
behavior#	deploy	internationalisation	measure#	stream# of
behaviour#	differentiat#	interrelate#	performance	profit#
benchmark#	distribution	invent	monitoring	superior
best practice#	channel#	invest	performance target#	supply-side
bottom up	divers#	investing	pioneering	sustain#
bottom-up	driver	job satisfaction	plant size	switch back
brand#	drivers	know-how	political factor#	switching back
bundling	economies of scale	knowledge	portfolio	synerg#
business model#	efficien#	lead time#	management	tactic#
business process#	elastic	leader#	predatory	target#
business scope	emerging	lead-time#	principles	team-based
business system#	employee#	legal constraints	procurement	technical#
capabilit#	employment cost#	leveraged	profit measure#	technolog#
centraliz#	enhanc#	leveraging	profit pool#	trade off
centre# of	entrepreneur#	life cycle	property rights	uncertain#
excellence	entry	life-cycle	proprietary	unique
cluster#	environmental	local#	purchasing asset#	uniqueness
co operation	factor#	long term	purchasing power	utilise
co ordinat#	equilibrium	long-term	qualification cost#	utilization
cohesiveness	evolv#	low cost	quality	utilize
collaborat#	exclusive	low-cost	range of business#	value chain
commercialis#	experience curve	M & A	reliance on	value#
commodity	fail#	M&A	rely on	vision
product#	failure	managers	reputation#	
compete	firm level	markets	resource-	
competenc#	first mover	maximise profit#	respond	
competing	first-mover	measure# of profit	responding	
competitive	flexibility	merger# &	responsiveness	
competitive	focus#	acquisition#	risk#	
advantage#	follower#	merger# and	roadmap	
competitive force#	fragment#	acquisition#	scalable	
competitor#	game chang#	mission	scale	
complement#	game-chang#	multi-business#	scope	
complexity	geographic	multiple	scorecard	
containment	global#	network effect#	seller#	
coordinat#	goal#	network of	service	

Appendix C: Performance Keywords

sales
revenue
revenues
turnover
trading
cost
costs
expense
expenses
income
earnings
eps
e.p.s.
profit
profits
profitability
loss
losses
margin
margins
result
results

Appendix D

Table D1
Distribution of key ratios used for estimating $Strategy_{Linkage}$ and $Performance_{Linkage}$

Year	$Mean \frac{Strategy\ Score\ in\ Performance\ Sections}{Strategy Score\ in\ Strategy\ sections}$	$Mean \frac{Performance\ Score\ in\ Strategy\ Sections}{Performance\ Score\ in\ Performance\ sections}$
2001	0.119	0.008
2002	0.102	0.018
2003	0.209	0.014
2004	0.279	0.027
2005	0.296	0.039
2006	0.470	0.083
2007	0.450	0.131
2008	0.525	0.210
2009	0.764	0.224
2010	0.733	0.257
2011	0.821	0.320
2012	0.850	0.343
2013	0.658	0.537
2014	0.737	0.626
2015	0.660	0.559
2016	0.614	0.672
2017	0.655	0.677
2018	0.593	0.680
2019	0.613	0.630

Table D1 presents year averages of the ratios used to estimate fractional ranks in estimating $Strategy_{Linkage}$, and $Performance_{Linkage}$ (in equations 1 and 2). Appendix A provides detailed definitions for these variables. The ratios are winsorized at the 1% and 99% levels.

Table D2
Distribution of $Strategy_{Linkage}$ and $Performance_{Linkage}$ – ranks based on entire sample

Year	$Mean\ Strategy_{Linkage}$	$Mean\ Performance_{Linkage}$
2001	0.329	0.024
2002	0.294	0.044
2003	0.302	0.041
2004	0.335	0.061
2005	0.342	0.072
2006	0.345	0.155
2007	0.371	0.193
2008	0.412	0.237
2009	0.447	0.293
2010	0.501	0.398
2011	0.512	0.415
2012	0.553	0.491
2013	0.541	0.608
2014	0.591	0.684
2015	0.566	0.662
2016	0.571	0.700
2017	0.595	0.696
2018	0.591	0.687
2019	0.592	0.683

Table D2 presents averages by year of $Strategy_{Linkage}$, and $Performance_{Linkage}$ where fractional ranks are estimated using the entire sample. Appendix A provides detailed definitions for these variables.

Appendix E Principal Components Analysis.

Panel A: PCA *Org_Change*

Component	Eigenvalue	Difference	Proportion	Cumulative	Variable	Scoring coefficient for the first PC
Comp1	1.4455	0.445	0.482	0.482	*Asset_Growth*	0.7060
Comp2	1.001	0.448	0.334	0.816	*Sales_Growth*	0.7074
Comp3	0.5534		0.184	1.000	*LeadLeverage*	0.0330

Results of the principal component analysis (PCA) conducted to measure *Org_Change*. The first component accounts for 48.2 percent of the variation in *Org_Change* with an eigenvalue of 1.4455. The second component accounts for 33.4 percent of the variation in *Org_Change*. It appears that the first and second principal components contribute the most to the principal component based on their scoring coefficients. The third component has the lowest proportion (18.4 percent) and coefficient of 0.033, suggesting that it contributes the least to *Org_Change*. This indicates that the first two components, *Asset_Growth* and *Sales_Growth* are the main contributors to *Org_Change*.

Panel B: PCA *Workforce_Engagement*

Component	Eigenvalue	Difference	Proportion	Cumulative	Variable	Scoring coefficient for the first PC
Comp1	1.207	0.414	0.604	0.604	*Workforce_Productivity*	0.7071
Comp2	0.793		0.397	1.000	*Workforce_ Retention*	0.7071

Results of the principal component analysis (PCA) conducted to measure *Workforce_Engagement*. The first component accounts for 60.4 percent of the variation in *Workforce_Engagement* with an eigenvalue of 1.207. This component is the most significant single contributor to explaining the variation in *Workforce_Engagement,* followed by the second contributor, which explains an additional 39.7 percent of the variability. According to the scoring coefficients, each variable contributes to the principal component significantly suggesting that both ***Workforce_Productivity*** (0.7071) and ***Workforce_ Retention*** (0.7071) are key drivers of *Workforce_Engagement.*