Essay on Corporate Attention

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Abstract

This thesis empirically examines the determinants and consequences of managers attention. To assess that we use textual analysis of chairman and CEO's letters to shareholders of FTSE 350 companies during the 2000-2016 period. The thesis developed to answer three main questions: What determines managers attention? Does it affect company performance? Does it depend on company ownership?

The first paper investigates how managerial attention to goals and stakeholders has changed over time. Building on the attention-based view, we argue that managerial attention is shaped by institutional logics, as well as organizational roles and firm-specific factors. We find that, over time, attention to shareholders declined and attention to customers, society and CSR increased. These shifts were more pronounced during the financial crisis and for prominent firms. Organizational roles strongly affected the allocation of attention. Our findings support several key tenets of the attention-based view and shed light on the recent debate over the purpose of the corporation.

The second paper considers the significant role of managerial attention across companies and studies its impact on business activity. The paper investigates whether attention to a particular goal/stakeholder drives corresponding company performance or its market value. Obtained results are consistent with both problemistic- and opportunity- driven search theories. In line with the former one, companies that face low financial performance, operation efficiency or customer satisfaction dedicate more attention to such problems trying to overcome them. Following the latter one, companies that dedicate more attention toward growth and innovation as potential opportunities and improve corresponding performance.

The third paper examines how investors' CSR orientation and ownership concentration affect a single goal of firms' CSR performance and corresponding communications. We create a measure of investors' CSR orientation by distinguishing between *responsible investors* – those that have publicly pledged to implement the United Nations Principles of Responsible Investment – and *non-responsible investors*, who have not. We find that responsible investors positively affect CSR performance, while ownership concentration is detrimental to it. Also, both ownership concentration and investors' CSR orientation could explain why some companies use greenwashing or engage in actual well-doing.

Introduction

Motivated by the attention-based view (ABV) theory (Ocasio, 1997) of the firm, my dissertation examines antecedents and consequences of managerial attention to different goals and stakeholders in a sample of FTSE350 public companies over the period between 2000 and 2016.

Attention is a fundamental human constraint (Simon H. A., 1976; Ocasio, 1997). Because human information processing capabilities are bounded, managers cannot attend to all the relevant aspects of their firms' environment and must selectively choose on what issues to focus on. Prior research has shown that managerial attention has important consequences for corporate decision-making and performance (Kaplan, 2008; Rerup, 2009; Bettinazzi & Zollo, 2017; Belenzon, Hashai, & Patacconi, 2019). A limitation of this literature, however, is that it has largely focused on very specific dimensions of attention, typically over short intervals of time. That could be explained w complexity of retrospective measure of attention as it is hard or even impossible to unbiasedly assess. The survey, commonly applied in such cases, is costly, suffers from low response rates, and is hardly replicable. More importantly, its measure of past managers' attention is highly affected and could be biased by what has happened between a particular moment in past and the surveying date.

With this work, I want to overcome such limitations by applying a textual analysis approach (Loughran & McDonald, 2016) that is novel to the specific area but broadly used in other business and economics studies. Analyzing letters to shareholders written by companies' top management I hope to retrospectively reveal their real priorities and how they allocate their scarce attention.

In this thesis, I address specifically goals and stakeholders as a key part of each company strategy that affects almost all actions. Despite the important role of corporate goals and stakeholders it is very little known how managers allocate attention among them and how it has changed over time. While most of the recent literature recognizes the deviation from shareholders wealth primacy toward multiple goals the real managers' shift in point of view stays underinvestigated. It left unknown how managers responded to such a change and whether they shift their priority to other than financial objectives. It became important to understand what could push managers to prioritize some goals more than other and what consequences it could have.

Similarly, the deviation from single shareholder primacy doctrine does not provide clear guidance how prioritize other stakeholders. It grants managers with extended freedom of choice and leave them fully accountable for all the consequences. Therefore, it is vital to understand how managers react to such change in the environment and whether it could become a competitive advantage paying more attention to a particular stakeholder.

The first chapter of my dissertation, titled "**The evolution of corporate attention: Evidence from UK public companies, 2000-2016**" and joint with my advisors, Professors Andrea Patacconi of UEA and Anastasiya Shamshur of the University of Kent, takes a first step in filling these gaps. It serves as a descriptive and introductory chapter to managers' attention considering that it is for the first time being investigated over such a long horizon.s

Building on the attention-based view theory (Ocasio, 1997), I argue that three sets of factors influence the allocation of managerial attention: (i) environmental factors, (ii) managerial roles and characteristics, and (iii) firm-specific factors. I focus especially on environmental factors because there is considerable agreement that, over the last few decades, corporations experienced a significant shift in prevailing institutional logics. They shift from what is commonly called the "shareholder primacy view", to a "stakeholder view" that recognizes the importance of multiple stakeholders, not just shareholders, in defining the proper purpose of the corporation.

To measure how managerial attention has changed over time, I collected annual reports of FTSE350 non-financial companies for the period 2000-2016 and focused on the CEO and Chairman statements. These documents are more likely to be written by these managers themselves, and reflect their personal views. I performed textual analysis of these statements using a 'dictionary' approach that recently become broadly applied across different economics area. I selected five goals (financial performance, innovation, operations, growth, and CSR) and five corporate stakeholders (shareholders, customers, employee, business partners, and society) that are generally regarded as important. I analyze these two groups separately considering that each goal competes for managers attention with other goals but is complementary to stakeholders. Attention to a specific goal (stakeholder) was measured by calculating how often it was mentioned in a statement, relative to other goals (stakeholders). In line with prior studies, I posit that, if a manager mentions a goal or stakeholder more often in his or her statement, then the manager also pays more attention to that goal or stakeholder (relative to other goals or stakeholders). To validate

such measures, I also run several robustness checks, including correlations between measures of attention and relevant corporate performance.

Consistent with a shift in institutional logics and the growing acceptance of the stakeholder view, I find that over the sample period, attention to shareholders decreased, while attention to customers, society, and CSR increased. These trends were particularly pronounced during the financial crisis of 2007-2009 and among more prominent firms.

The results also reviled evidence of a clear division of managerial attention within corporations. I find that CEOs tend to focus on the operational aspects of management (innovation, growth, operations) and pay more attention to external stakeholders (customers and business partners). Chairmen, by contrast, are more internally oriented, focusing their attention on internal stakeholders (shareholders and employees). These patterns arguably reflect CEOs and Chairmen's different responsibilities, with CEOs involved in day-to-day operations and Chairmen being responsible for governance and communications with key stakeholders.

This study makes several contributions to the management literature.

First, it contributes to the attention-based view by identifying several important determinants of the allocation and evolution of managerial attention. Applied framework is grounded on Herbert Simon's theory of organizational goals which I integrate with advances in stakeholder theory and the attention-based view.

The paper also moves beyond anecdotal evidence to examine, for the first time to my knowledge, trends in the allocation of managerial attention across multiple goals and stakeholders over an extended period of time. The presented facts are consistent with several key tenets of the attention-based view, in particular the importance of institutional logics, performance levels, and organizational roles. For instance, our results on performance are consistent with a classic tenet of the attention-based view – that a decline in performance below some aspirational level forces firms to overcome inertial forces and focuses their attention on survival and problem solving.

Finally, obtained results have implications for the debate on the proper purpose of the corporation. Several scholars have noted that, while managers are increasingly willing to incorporate the interests of various stakeholders in corporate decision-making, the emphasis so far has largely been on creating "shared value" and "win-win" situations. That is, the emphasis has

largely been on building a "business case" for corporate social responsibility. This approach is problematic from an ethical viewpoint because there are many situations where legitimate social concerns may be at odds with corporate profitability (thus, 'real' trade-offs may be present).

The second chapter of my dissertation titled "**The relationship between corporate attention and company performance.**" and is written as a solo paper. It has significantly less impact from my supervisors comparing to other two parts. In this chapter I use the same dataset as in chapter 1 and examine the relationship between managerial attention and different dimensions of company performance. Previous studies (Fu, Tang, & Chen , 2020; Yadav, Prabhu, & Rajesh, 2007; Joseph & Wilson, 2018) identified managers' roles in channeling attention but they usually concentrate on a single goal and a single manager's position. Over the wide list of goals, the effect stays unclear especially in a highly competitive environment when more than one goal is aimed at the same time. Where both higher overall attention to goals or its reallocation across them could cause the effect or even have an opposite direction. That lead to a question – whether additional attention to some goals is more rewarding than to another.

Even more pronounced is the situation within attention to stakeholders, brought to the forefront with the deviation from shareholders primacy doctrine. While a shift toward multiple stakeholder orientation has a positive effect on company performance (Donaldson & Preston, 1995; Hillman & Keim, 2001; Edmans, 2012; Leung, Song, & Chen, 2019) it stays unclear whether some stakeholders are more important than other. For example, shifting attention toward customers could help build product loyalty, increase its prices and consequently improve the company's financial performance. But it stays unclear whether it overperforms losses from associated lower attention to other stakeholders. Shift toward multiple stakeholders orientation theory brought managers significant freedom whom to prioritize more but made them fully accountable for such choice. It becomes a key question "*...to whom (or what) do managers pay attention?*" (Mitchell, Agle, & Wood, 1997).

Motivated by the ABV theory I try to empirically test it and shed some light on the direction of more granular attention – performance relationship. Following the theory, it works in both ways. From one side, there is problem/threat driven arguments since attention helps to identify existing problems in company and drives the solution search process (Greve, 2008; Blettner, He, Hu, & Bettis, 2015; Gaba & Greve, 2019; Rerup, 2009). That explains potential negative relationship

between attention and corresponding company performance where latter comes first. From the other side, there is opportunity driven arguments as managers are permanently in search for new opportunities and dedicate more their attention toward it (Shepherd, McMullen, & Ocasio, 2017; Yadav, Prabhu, & Rajesh, 2007; Li, Maggitti, Smith, Tesluk, & Katila, 2013; Joseph & Wilson, 2018; Levy, 2005). Where such search will be eventually rewarded causing positive relationship between attention to goal/stakeholder and related performance measure.

Results revealed that effect appears to work both ways. I find that attention over different goals and stakeholders is associated with corresponding output measures (e.g., attention to innovation is associated with higher R&D expenditures) that depending on its nature could be higher or lower.

Over some issues, attention appears to cause higher corresponding output, arguably because it is associated with managers' effort or commitment to a particular issue. For instance, an increase in managers' attention to innovation goes hand in hand with higher R&D expenditure, increase in sales, product quality, and production efficiency. An increase in attention to growth is associated with actual corporate growth measured in different ways including such common measures as logarithm of revenue, logarithm of market capitalization, and logarithm of the number of employees.

Over other issues, consistent with a view of attention that is problem or threat driven, I find that current low performance attracts additional attention. For instance, companies with low financial performance, operation efficiency, or customer satisfaction dedicate more attention to these issues. Higher attention to financial performance comes with corresponding low company financial performance and seems to be solved with cost-cutting strategy. Such companies decline CapEx, R&D, and charity expenditure in order to deal with the situation rather than stimulate the revenue. Similarly, higher attention to operation seems to be driven by a decline in companies' profitability (ROA) and other operational efficiency measures such asset turnover ratio and payables payment periods.

This study empirically connects three attention theories. First, it supports the ABV theory and recognize significant role of managers attention across different companies' activities. Which helps both recognize existing problem and look for a potential solution. Second, this study provides evidence of problemistic driven attention theory (Greve, 2008; Blettner, He, Hu, & Bettis, 2015) as it clearly prevails across several goals/stakeholders. As, for example, decline in company

operation performance comes hand in hand with higher managers attention toward it. Third, this chapter supports alternative – opportunity driven theory of managers attention (Shepherd, McMullen, & Ocasio, 2017). When additional attention could help to identify possible opportunity for company performance improvement. The most prominent example from my results is attention to growth at it seems come first and then lead to actual company expanding.

In the third chapter of my dissertation, titled "**Responsible investors, ownership concentration, and CSR performance and communications**", also joint with my advisors Professors Andrea Patacconi and Anastasiya Shamshur, I concentrate on a single goal of corporate social responsibility (CSR). I examine the relationship between ownership concentration at the firm level and company propensity to engage in CSR and communicate corresponding information to a broad audience. To assess the latter one, I used the attention measure implemented in the previous two chapters. Obtained from CEO and chairman letters to shareholders, it represents both what managers consider important and what they decide to communicate in their narrative.

Considering the high influence of ownership on companies' behavior and on managers' decisions, it is vital to understand whether it could stimulate companies to act in a more environmentally friendly way. Among recent studies, it became focal that shareholder type could have strong effect on company well-behavior (Chen, Dong, & Lin, 2020). But two aspects stay out of academic attention, potentially over- or under-estimate the effect and causing mixed findings in the area. First, there is significant unaccounted heterogeneity as investors within the same types could persuade different objectives or at least to a different extend. Where such difference exists even among institutional investors (Dyck, Lins, Roth, & Wagner, 2019) as only 57% of sampled institutional investors were UN PRI signatories. Second, previous studies do not separate ownership and ownership concentration effects that actually could have opposite directions. These two issues could be a reason why the empirical evidence on the effects of owners on CSR has remained largely inconclusive (see Faller & zu Knyphausen-Aufseß, 2018, for an excellent survey).

The key idea of the paper is that greater ownership concentration could have a mixed effect that to a high extend depends on shareholder perception about CSR. On one side, greater ownership concentration means shareholders have higher stakes in the company and bear proportionally higher CSR expenses at cost of lower dividend payments. Not surprisingly, that shareholders have

less interest in company well-doing and most likely would resist such engagement as detrimental to their wealth. The opposition would be even stronger with higher ownership concentration since shareholders receive more voting power over the company and could instill their will more successfully.

On the other side, greater ownership concentration in the hands of responsible investors may actually increase corporate commitment to CSR. Such investors receive non-financial benefits from the company well-doing and, to some extent, are willing to sacrifices potential dividend payments for a greater good. The effect should be even stronger as more concentrated voting power by responsible investors increase the efficiency of such shareholders activism.

Previous studies stress the importance of investors' perception about CSR but face the problem of how to reveal such hidden identity. The common approach uses institutional investors as more environmentally friendly and found some evidence that it has positive effect on company CSR performance (Chen, Dong, & Lin, 2020). However, it does not take into account the heterogeneity across institutional investors and that investor of other types might be also CSR friendly as well. In this chapter, I follow recent practice (Dyck, Lins, Roth, & Wagner, 2019) and use the Principles for Responsible Investment (PRI) signatory to identify responsible investors as a more precise approach. I also control separately for the share of responsible investors and their concentration since these two are different effects and potentially could have opposite directions. To my knowledge, it is the first time when they are controlled separately in single regression.

I find that higher ownership concentration leads to a decline in companies' CSR performance but instead increases managers' communication about CSR. That means managers do not "walk the talk". With voting power concentrated among a smaller number of shareholders, managers talk more about CSR in their letters to shareholders, but this does not correspond to real action as CSR performance declines. Where such effect is mainly driven by non-responsible investors.

Considering separately concentration within responsible and non-responsible groups of shareholders I found that later one has a much weaker effect. Responsible investors concentrating more voting power still tend to push companies to decline CSR engagement but have a much lower effect. It seems that the internal motivation of such investors plays an important role but does not overtake their shareholders' wealth maximization nature. The effect assesses specifically the

concentration impact as regression separately controls for the overall share of responsible investors in the company. Which in line with expectations, has the opposite effect.

A higher overall share of responsible investors in the company has a positive effect on the company's CSR score. Responsible investors with higher voting power put more pressure on their companies and make them act in a more SCR friendly way without any significant change in managers' attention to CSR.

Since ownership has a mixed effect on CSR performance and CSR communication, I study them in combination and consider 4 types of companies' behavior. Overall, companies with higher ownership concentration are less likely to behave as "CSR public-doer", combining high attention to and performance over CSR. Instead, they use a "CSR greenwashing" strategy with high attention to CSR but low performance, or alternatively behave as "CSR non-doer" with both low CSR attention and CSR performance.

Over responsible investors, I find that with higher concentration they push companies to behave more neutrally as "CSR non-doers", with both low CSR performance and low CSR communication. While higher overall stake of responsible investors pushes companies to behave in a more radical and CSR friendly way. It decreases the likelihood that a company would use a "CSR Greenwashing" strategy and increases instead of the likelihood that it would choose either "CSR public-doer".

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Table of Contents

Abstract ... 2

Introduction ... 3

Paper 1: The evolution of corporate attention: Evidence from UK public companies, 2000-2016 ... 16

1. Introduction ... 16

2. Theoretical background ... 19

2.1. Goals as constraints arising from stakeholders' demands ... 19

2.2. The allocation of managerial attention to multiple goals and stakeholders ... 21

2.2.1. Institutional logics ... 21

2.2.2. Organizational roles and structure ... 26

2.2.3. Performance feedback ... 28

3. Methodology and data ... 29

4. Results ... 34

5. Dictionary verification ... 38

5.1. Industry difference ... 38

5.2. Attention over company life cycle ... 40

6. Discussion and concluding remarks ... 41

7. Tables and figures ... 44

8. Online appendix ... 53

Paper 2: The relationship between corporate attention and company performance. ... 56

1. Introduction ... 56

2. Theoretical considerations and empirical hypotheses ... 58

2.1. Attention concept ... 58

2.2. Top managers' attention ... 59

2.3. Attention over stakeholders ... 62

2.4. Attention over goals ... 64

3. Data ... 66

4. Methodology ... 68

4.1. Natural language processing (variable construction) ... 68

4.2. Regression specification ... 70

4.3. Reporting ... 72

5. Results ... 73

5.1. Intro ... 73

5.2. Attention to financial performance 74
5.3. Attention to innovation 74
5.4. Attention to growth 75
5.5. Attention to operation 76
5.6. Attention to CSR 76
5.7. Attention to shareholders 78
5.8. Attention to employees 78
5.9. Attention to customers 79
5.10. Attention to society 80
6. Robustness check 80
6.1. Long lasting effect 80
6.2. Instrumental proliferation 80
6.3. Endogeneity problem 81
6.4. Other modifications 82
7. Conclusion 83
8 Tables and figures 85
Paper 3: Responsible investors, ownership concentration, and CSR performance and communications 96
1 Introduction 96
2 Conceptual framework 100
2.1 Shareholders' heterogeneity in CSR orientations 102
2.2 Responsible vs non-responsible investors 104
2.3 CSR communications 106
3 Data 108
4 Empirical specifications 109
5 Results 111
5.1 Ownership concentration 111
5.2 Responsible vs non-responsible 113
5.3 Concentration effect on company behavior 114
5.4 Robustness check 116
6 Conclusions 118
7 Tables and figures 120
8 Online Appendix 125

Overall thesis conclusion 131
References 139

List of Tables and Figures

Figure 1. Data sample 44
Figure 2. Change in attention 52
Figure 3. Company reporting time frame 72
Figure 4. Four groups split 120

Table 1. The dictionary over goals and stakeholders 45
Table 2. Summary statistics 46
Table 3. Correlation matrix: Attention over goals and stakeholders 46
Table 4. Validation of attention measures 47
Table 5. Evolution of attention 48
Table 6. Differences in attention between CEOs and Chairmen 49
Table 7. Differences in attention between FTSE 100 and FTSE 250 companies 50
Table 8. Performance feedback 51
Table 9. ESG variables description 85
Table 10. Summary statistics for attention, financial and ESG measures 86
Table 11. The relationship between attention to financials and company performance 87
Table 12. The relationship between attention to innovation and company performance 88
Table 13. The relationship between attention to growth and company performance 89
Table 14. The relationship between attention to operation and company performance 90
Table 15. The relationship between attention to CSR and company performance 91
Table 16. The relationship between attention to shareholders and company performance 92
Table 17. The relationship between attention to employees and company performance 93
Table 18. The relationship between attention to customers and company performance 94
Table 19. The relationship between attention to society and company performance 95
Table 20. Summary statistics 120
Table 21. Probability to have high CSR performance (marginal effects) 121
Table 22. Responsible vs non-responsible shareholders effect (marginal effects) 122
Table 23. Summary statistics across 4 CSR groups 123
Table 24. The ownership concentration effect on CSR (probability to be in 1 out of 4 groups) 123
Table 25. Responsible investors vs non-responsible investors comparison 124

Appendix A1. Differences in attention between FTSE 100 and FTSE 250 companies 53
Appendix A2. Difference in managers' attention between industries 54
Appendix A3. Managers' attention to goals and stakeholders during company life cycle 55
Appendix A4. Probability to have high CSR communication (marginal effects) 125
Appendix A5. Responsible vs non-responsible shareholders effect (marginal effects) 126
Appendix A6. Ownership concentration separately for TOP shareholders 127
Appendix A7. Concentration within TOP 5 responsible and non-responsible shareholders 128
Appendix A8. Marginal effect in TOP 5 (responsible vs non-responsible) 129
Appendix A9. Impact of ownership concentration on CSR performance and CSR communication (continuous model) 130

Paper 1: The evolution of corporate attention: Evidence from UK public companies, 2000-2016

1. Introduction

Attention is a fundamental human constraint (Simon H. A., 1976; Ocasio, 1997). Because human information processing capabilities are bounded, managers cannot attend to all the relevant aspects of their firms' environment and must selectively choose which issues to focus on. Prior research has shown that attention allocation has important implications for corporate decision-making and performance (Kaplan, 2008; Rerup, 2009; Bettinazzi & Zollo, 2017; Belenzon, Hashai, & Patacconi, 2019). This literature, however, has generally focused on very specific dimensions of attention, such as the extent to which managers pay attention to existing or emerging technologies (Eggers & Kaplan, 2009) or to social versus economic goals (Stevens, Moray, Bruneel, & Clarysse, 2015). Not much is known about how managers distribute their attention between several goals and stakeholders, and how their allocation of attention has changed over time.

This paper takes a first step towards filling these gaps. Building on the attention-based view of the firm (March & Simon, 1958; Ocasio, 1997), we examine three major determinants of the allocation of managerial attention: (i) institutional logics (Thornton & Ocasio, 1999; Thornton, 2004), (ii) organizational roles and structure (Simon H. A., 1964; Joseph & Ocasio, 2012), and (iii) performance feedback (Cyert & March, 1963; Gaba & Joseph, 2013; Joseph, Klingebiel, & Wilson, 2016).

Institutional logics are socially constructed systems of values and beliefs that allow individuals to make sense of their social reality (Friedland & Alford, 1991; Thornton & Ocasio, 1999). Logics are important because they focus the attention of decision-makers to specific sets of issues and solutions (Ocasio, 1997; Thornton & Ocasio, 2008). Since at least the late nineteenth century, two distinct logics regarding the proper purpose of the corporation have co-existed. The shareholder primacy view holds that corporations should be run in the interest of their owners (Berle, 1930; Jensen & Meckling, 1976; Jensen, 2001); their only social responsibility is to increase their profits (Friedman, 1970). The stakeholder view holds instead that corporations should concern themselves

with more than just shareholder value (Dodd, 1932; Freeman, 2010; Kaplan, 2019). Corporate legitimacy rests on providing secure jobs to employees, quality products to customers, and positive contributions to society (Woodward, Edwards, & Birkin, 1996). Thus, to operate successfully in the long term, corporations should also pay attention to the needs of their other stakeholders.

The last few decades have witnessed a significant shift in the relative importance of these two logics (Ioannou & Serafeim, 2015; Kaplan, 2019). In the 1980s and 1990s, the shareholder primacy view was undoubtedly the dominant logic in Anglo-Saxon boardrooms. Since the early 2000s, however, the stakeholder view has made large inroads. One reason was the wave of corporate scandals in the US and Europe at the beginning of the millennium (e.g., Enron in 2001, WorldCom in 2002, Parmalat in 2003). The financial crisis of 2007–2009 also shook confidence in big business and raised concerns about the role of corporations in society. Investors, consumers, workers and online activists increasingly demanded that corporations demonstrate their social credentials. This shift in logics is well-exemplified by the changing attitudes of the Business Roundtable, an association whose members include many of America's most prominent CEOs. In 1997, the Business Roundtable held that "the paramount duty of management and of boards of directors is to the corporation's stockholders". In 2019, however, the Business Roundtable revised this statement, committing 181 of its members to lead their companies for the benefit of all stakeholders, not just their shareholders.[1]

To study the implications of this shift in logics, we examine the set of issues (goals and stakeholders) that managers pay attention to. We collected annual reports of FTSE 350 non-financial companies for the 2000–2016 period. Within each report, we focused on the chairman and CEO's letters to shareholders, as these statements offer relatively unfiltered discussions of key strategic issues and may thus provide a useful window into the beliefs and cognition of top managers. We performed a textual analysis of these statements using a 'dictionary' approach.[2] We focused on five goals – financial performance, innovation, operations, growth, and corporate social responsibility (CSR) – and five stakeholders – shareholders, customers, employees, business

[1] See the Business Roundtable's "Statement on Corporate Governance" (September 1997), available at http://www.ralphgomory.com/wp-content/uploads/2018/05/Business-Roundtable-1997.pdf and the "Statement on the Purpose of a Corporation" (August 2019), available at https://system.businessroundtable.org/app/uploads/sites/5/2021/02/BRT-Statement-on-the-Purpose-of-a-Corporation-Feburary-2021-compressed.pdf.

[2] Papers employing this dictionary approach include Cho and Hambrick (2006), Eggers and Kaplan (2009) and Gamache, McNamara, Mannor and Johnson (2015), among many others. See Loughran and McDonald (2016) for a survey.

partners, and society. We measured attention to specific goals or stakeholders by calculating how often they were mentioned in a statement, relative to other goals or stakeholders. As in prior work (e.g., Eggers & Kaplan, 2009), we posit that, if a manager mentions a goal or stakeholder more often in his or her statement, then he or she also pays more attention to that goal or stakeholder than to others. To validate our measures, we demonstrate robust correlations between our attention measures and corresponding corporate outcomes.[3]

Consistent with a shift in institutional logics and the emergence of a stakeholder focus, we find that, over our sample period, attention to shareholders decreased, and attention to customers, society, and CSR increased. These trends were particularly pronounced during the financial crisis of 2007–2009 and for prominent firms.

The attention-based view also posits that organizational structure distributes managerial attention, with managers in different roles or units in the organization focusing on different issues (March & Simon, 1958; Simon H. A., 1976; Rerup, 2009; Joseph & Ocasio, 2012; Crilly & Sloan, 2014). We find evidence of a clear division of managerial attention within the corporation. CEOs concentrate on the operational aspects of management (innovation, growth, operations) and pay more attention to external stakeholders (customers, business partners, and society). Chairmen, by contrast, pay more attention to internal stakeholders (shareholders and employees). These patterns arguably reflect CEOs and chairmen's different responsibilities, with CEOs in charge of running the company and chairmen responsible for internal governance.

A third important mechanism affecting the allocation of attention is performance feedback (Gaba & Joseph, 2013; Joseph, Klingebiel, & Wilson, 2016). Poor firm performance triggers responses directed toward the solution of the underlying problems (Cyert & March, 1963). Gaba and Joseph (2013), in particular, argue that performance shortfalls activate responses directed toward improving operational efficiency, with corporate and business unit managers focusing on cutting costs and increasing output. Resources also tend to be shifted from long-term projects to existing products and markets. Our evidence strongly supports Gaba and Joseph's arguments. We find that poor firm performance is associated with greater attention to operations and customers, and less attention to growth and employees. Poor performance appears to focus attention on short-

[3] For instance, we show that attention to innovation is positively related to firm-level R&D expenditures, and attention to business partners is positively related to the number of alliances a firm has.

term survival, to the detriment of longer-term expansion (Staw, Sandeland, & Dutton, 1981; March & Shapira, 1987).

Our study makes three main contributions to the literature. First, we add to the attention-based view by highlighting the importance of several determinants of the allocation and evolution of managerial attention. Stakeholder theory has emphasized three stakeholder attributes – power, legitimacy, and urgency – that determine "to whom and to what managers actually pay attention" (Mitchell, Agle, & Wood, 1997, p. 854; see also Agle, Ronald, & Sonnenfeld, 1999; and Madsen & Rodgers, 2015). By integrating Simon's (1964) theory of organizational goals with stakeholder and attentional perspectives, we provide an alternative but complementary framework. Our results support several key tenets of the attention-based view, specifically the importance of institutional logics, organizational roles, and performance feedback.

A second contribution of this paper is to provide a more granular analysis of attention to goals and stakeholders than is typically available. Most papers on the attention-based view focus on one-dimensional constructs, such as the extent to which managers pay attention to existing versus emerging technologies (Eggers & Kaplan, 2009) or to social versus economic goals (Stevens, Moray, Bruneel, & Clarysse, 2015) . By distinguishing between multiple goals and stakeholders, however, we reveal unexpected patterns. For instance, we expected the emergence of the stakeholder view to be accompanied by an increase in attention to all stakeholders other than shareholders. However, we found that, while attention to society and customers increased, attention to employees did not. As we discuss in the concluding remarks, this finding may hint at differences between instrumental and ethical perspectives in stakeholder theory.

Finally, this paper provides, for the first time to our knowledge, large-scale evidence on the evolution of managerial attention over an extended period of time. In related work, Ioannou and Serafeim (2015) find that the emergence of the stakeholder view was accompanied by shifts in analysts' perceptions. Specifically, over time, analysts started issuing more optimistic recommendations for firms with high CSR ratings. High-status analysts were also the first to become more optimistic about CSR. Consistent with Ioannou and Serafeim's findings, we also find that more prominent firms were especially likely to embrace the emergent stakeholder logic.

2. Theoretical background

2.1. Goals as constraints arising from stakeholders' demands

Following Simon (1964), goals can be conceptualized as constraints that define a satisfactory course of action. Consider for instance a manager examining how to reduce the carbon footprint of her company. The manager may deem a policy satisfactory if it satisfies the following three constraints: (i) it is not too expensive, (ii) it produces substantial environmental benefits, and (iii) it is visible enough that the firm enjoys significant reputational benefits. If these three constraints or goals are met, the policy is deemed satisfactory.

An advantage of this definition is that it makes it clear that decisions are seldom "directed toward achieving a goal. It is easier, and clearer, to view decisions as being concerned with discovering courses of action that satisfy a whole set of constraints" (Simon H. A., 1964, p. 20, emphasis in original). For Simon, therefore, a realistic theory of human and organizational decision-making must include the pursuit of multiple goals (see also Obloj & Sengul, 2020). Of course, it may be that not all goals are equally important, and their relative importance may change over time. For instance, if the manager in our example was endowed with a small budget, then cost considerations would be paramount. However, if her budget was increased, then environmental and reputational considerations may become more salient.

In organizations, goals typically originate from the demands of key stakeholders. Organizations can be seen as coalitions of participants who make contributions to the organization and receive in exchange monetary and non-monetary inducements (March & Simon, 1958; Cyert & March, 1963). The stakeholders of a firm are all the groups or individuals with a legitimate claim or "stake" in a company, and on whose cooperation the success of the firm depends (Freeman, 2010; Jones, 1995). Thus, stakeholders include not just a firm's shareholders but also its employees, customers, business partners and even society at large, because all firms use communal resources such as security, laws, and physical and human infrastructure.

Organizational goals result from combining the demands of various stakeholders.[4] These demands create constraints that organizations must attempt to satisfy. Shareholders, for instance, may demand satisfactory profitability. Employees may demand decent wages and working

[4] In the behavioral theory of the firm (March & Simon, 1958; Cyert & March, 1963), only individual agents have well-defined preferences. Organizational goals are derived from individual preferences through a bargaining process.

conditions. Customers may demand safe and reliable products. Stakeholders' demands can be multidimensional and partially overlapping. Shareholders, for instance, may demand not just profitability but also that the corporation demonstrate social responsibility. Employees may be concerned not just with decent wages but also with a minimum level of corporate profitability (to protect their jobs). Stakeholders' demands sometimes overlap and sometimes are in conflict. When demands are in conflict, managers and directors must mediate between diverging interests. In the behavioral theory of the firm, the bargaining power of each stakeholder depends on how unique and important the contribution is that he or she can offer to the organization.

2.2. The allocation of managerial attention to multiple goals and stakeholders

Given multiple goals and stakeholders, how do managers decide on which issues to focus on? Ocasio (1997) defines attention as encompassing the noticing, encoding, and focusing of time and effort by decision-makers on issues and potential solutions. Given the limits to human rationality, managers must be selective in the issues and solutions they attend to at any one time. Corporate outcomes, therefore, are bound to be affected by how managers allocate their attention.

The attention-based view highlights three sets of factors that influence how managers allocate their attention: (i) institutional logics, (ii) organizational roles and structure, and (iii) performance feedback. We analyze these three sets of factors in turn, with special focus on deriving empirically testable hypotheses.

2.2.1. Institutional logics

Context – the situation a decision-maker finds herself in – is a major determinant of the allocation of attention (Ocasio, 1997). For instance, inside a corporation, problem-solving activities may be triggered by external stimuli including customer complaints, changing regulations, or competitor moves.

To influence decision-making, however, external stimuli must be recognized as important. Beliefs and value systems – the cultural context – is what allows decision-makers to interpret their social reality and identify which stimuli are important. Thornton and Ocasio (1999, p. 804) define institutional logics as "socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence,

organize time and space, and provide meaning to their social reality". Institutional logics differ from individual cognitive frames because they capture aspects of the cultural environment which affect the cognition and behavior of individual actors. Institutional logics exert their influence on cognition through two main mechanisms: (i) they generate "a set of values that order the legitimacy, importance, and relevance of issues and solutions; and [(ii) they provide] decision makers with an understanding of their interests and identities. These interests and identities generate in turn a set of decision premises and motivation for action" (Thornton & Ocasio, 2008; see also Ocasio, 1997).

From an attentional perspective, institutional logics are important because they focus the attention of decision-makers on specific sets of issues and solutions (Ocasio, 1997; Thornton & Ocasio, 2008). Institutional logics can be studied at the organizational, industry, and societal level. At the societal level, several logics such as those of the state, the family and the market have been distinguished (Friedland & Alford, 1991; Bhappu, 2000; Thornton, William, & Lounsbury, 2012). Logics have also been identified at the industry level, since firms in the same industry may share common values, beliefs, and interests (Thornton & Ocasio, 1999; Kitchener, 2002). Finally, logics can be identified at the organizational level; in that case, one may speak of corporate culture (Schein, 2010) or enterprise logic (Crilly & Sloan, 2012).

Historical contingency is a fundamental assumption of the institutional logics perspective (Thornton & Ocasio, 2008). Values, beliefs, and social practices evolve over time; thus, the relative importance of different logics tends to change over time (and may also vary across space). Several studies demonstrate the increasing importance of market logics in contemporary America, relative to other logics such as those of the family, religion, or profession (e.g., Thornton & Ocasio, 1999; Lounsbury, 2002; Zajac & Westphal, 2004; Glynn & Lounsbury, 2005). Typically, this literature builds on historical accounts to identify shifts in institutional logics and shows that they lead to similar shifts in attention and in new determinants for executive decisions (Thornton & Ocasio, 1999; Thornton, 2004).[5]

While some logics may be more prevalent than others, different logics can coexist. Moreover, cultural evolution may not necessarily result in a replacement of earlier logics, but in a blending

[5] This literature argues that institutional logics cannot be satisfactorily measured through any one variable or set of variables. Researchers use instead historical analyses of prevailing logics, and connect these analyses to quantitative research.

or hybridization of logics. Glynn and Lounsbury (2005), for instance, examine how growing resource constraints affected the Atlanta Symphony Orchestra in the US. In response to declines in patronage, government support and attendance, the orchestra increasingly introduced more mainstream or 'pop' interpretations of classical music, modifying the pure canon of 'highbrow' music traditionally associated with the symphony. Among music critics, this led not to a rejection of the long dominant 'aesthetic' logic, but to a hybridization of logics, whereby a more commercially oriented 'market' logic was blended with aesthetic considerations.

Similarly to most of the prior studies, we build on historical accounts to identify major shifts in institutional logics. Our focus is on the two logics that are believed to characterize the proper purpose of the corporation: the shareholder primacy view and the stakeholder view. The shareholder primacy view posits that corporations should be run in the interest of their owners (Berle, 1930; Jensen & Meckling, 1976). Within the boundaries of the law, the only social responsibility of business is to increase profits (Friedman, 1970). The stakeholder view posits instead that corporations have duties that extend beyond shareholder value maximization and include a larger set of stakeholders (Freeman, 2010; Jones, 1995). Customers, employees, business partners and society all make investments that are crucial to the success of the company; thus, their needs and interests should also be taken into account by corporate leaders.

In the 1980s and the 1990s, the shareholder primacy view was undoubtedly the dominant logic in Anglo-Saxon boardrooms. Reflecting this consensus, the Business Roundtable, an organization whose members include the CEOs of many of America's largest companies, declared in 1997 that "the paramount duty of management and of boards of directors is to the corporation's stockholders; […] The notion that the board must somehow balance the interests of stockholders against the interests of other stakeholders fundamentally misconstrues the role of directors".[6]

In the early 2000s, however, public attitudes began to change. A wave of corporate scandals and the financial crisis of 2007–2009 shook confidence in big business. As Porter and Kramer (2011) noted, corporations began to be viewed as a major cause of social, environmental and economic problems. Corporate social responsibility became increasingly important to investors, employees and consumers alike. According to the Forum for Sustainable and Responsible Investment, sustainable investment in the United States grew from $639 billion in 1995 to $17.1

[6] See the Business Roundtable, Statement on Corporate Governance (September 1997), available at http://www.ralphgomory.com/wp-content/uploads/2018/05/Business-Roundtable-1997.pdf.

trillion at the start of 2020, with the most rapid growth having occurred since 2012.[7] At the start of 2018, global sustainable investment, as measured by the Global Sustainable Investment Alliance, reached $30.7 trillion in five major geographical markets, which include the United States and Europe (a 34 percent increase since 2016).[8] The PwC Global CEO Survey also found that, in 2016, 27 percent of CEOs believed that their customers sought relationships with organizations that addressed wider stakeholder needs. That figure was expected to rise to 44 percent in 5 years' time. Similarly, 59 percent of CEOs believed that top talent wanted to work with organizations that shared their social values. That figure was expected to rise to 67 percent in 2021.[9] Reflecting these shifting attitudes, Porter and Kramer (2011, p. 4) redefined the purpose of the corporation "as creating shared value, not just profit per se". In 2019, the Business Roundtable also revised its 1997 statement, committing 181 corporate leaders to lead their companies for the benefit of all their stakeholders, not just their shareholders.[10]

A key tenet of the attention-based view is that shifts in prevailing logics should be reflected in shifts in the set of issues that decision-makers pay attention to. In the last twenty years, the business community has witnessed a profound shift from a dominant shareholder primacy logic to a more contested situation where many if not most CEOs subscribe to the stakeholder view. Because of this shift, we expect that, in recent years, top managers' attention to shareholders declined and attention to all other stakeholders increased. In relation to goals, we expect to see a similar effect since deviation from shareholders' wealth maximization doctrine shifts managers' attention away from company financial performance toward other goals, especially CSR. We do not expect that shift would be drastic to alter priorities over goals, considering that change in institutional logic is a slow process. But it will strong enough sign that such change could happen in future.

> **Hypothesis 1.** *Over the last 16 years, top managers' attention to shareholders declined and attention to other stakeholders (customers, employees, business partners and society) increased. Moreover, within goals, attention to financial performance declined and attention to CSR increased.*

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[7] See https://www.ussif.org/files/US%20SIF%20Trends%20Report%202020%20Executive%20Summary.pdf.

[8] See the 2018 Global Sustainable Investment Reports, available at http://www.gsi-alliance.org/wp-content/uploads/2019/06/GSIR_Review2018F.pdf.

[9] See the 19th Annual Global CEO Survey by PwC, available at https://www.pwc.com/gx/en/ceo-survey/2016/landing-page/pwc-19th-annual-global-ceo-survey.pdf.

[10] See the statement on the Purpose of a Corporation" (updated April 2020), available at **Error! Hyperlink reference not valid.**.

Institutional scholars have long argued that logic shifts are often triggered by some type of exogenous shock (e. g., Fligstein, 1990; Glynn & Lounsbury, 2005). In the present context, corporate scandals and the financial crisis of 2007–2009 (which was largely perceived as being caused by corporate greed) most likely acted as catalysts for change. The financial crisis, in particular, was a watershed moment because it greatly tarnished the reputation of many large institutions. Senior managers in banks and investment firms were blamed for creating and deploying highly complex financial instruments that exacerbated the crisis. Public confidence in large corporations (particularly financial institutions) plummeted.

In this type of environment, we would expect corporations to emphasize their contributions to society, and de-emphasize their contributions to shareholders. As the Financial Times (2020) put it, "In a crisis, […] The goal must be to contribute what you can, and emerge from the crisis with a sterling public reputation".[11] We expect, therefore, that, during the financial crisis, managers paid special attention to society and CSR, and less attention to shareholders and financial performance.

> **Hypothesis 2:** *During the financial crisis especially, top managers' attention to shareholders and financial performance declined, and attention to society and CSR increased.*

Institutional theory also emphasizes that organizations respond to social pressures to conform to prevailing practices; indeed, a core theme in institutional theory is the question of why there is so much homogeneity in organizational fields (DiMaggio & Powell, 1991). Prevailing practices embody widely understood and normatively sanctioned ideas about appropriate behaviors. Ideas, beliefs, and values (i.e., institutional logics) constitute the basis for identifying "archetypal templates" to which organizations should conform (Greenwood & Hinings, 1996).

Prominent organizations are typically those that most closely conform to prevailing practices and the underlying logics they embody (Cliff, Jennings, & Greenwood, 2006). Institutional theory defines prominence in terms of high status: Prominent organizations are examplars that other

[11] See the Financial Times (15/04/2020), available at https://www.ft.com/content/a48793d8-7e3e-11ea-82f6-150830b3b99a.

organizations seek to imitate (DiMaggio & Powell, 1983; Haveman, 1993; Kraatz & Moore, 2002). As such, prominent organizations are frequently at the forefront of emerging trends. For instance, Ioannou and Serafeim (2015) find that, not only did the emergence of a stakeholder focus shift analysts' perceptions of CSR, but also that the analysts with the highest status were the first to become more optimistic toward firms with high CSR scores.

We suggest that, as prevailing logics shifted toward a wider acceptance of the stakeholder view, prominent firms led the way. In particular, during the last twenty years, attention to shareholders declined and attention to other stakeholders increased especially among prominent firms.

Hypothesis 3: *The trends in Hypothesis 1 were more pronounced among prominent firms than among non-prominent firms.*

2.2.2. Organizational roles and structure

Simon (1976) argues that, because of bounds to human rationality, organizations must be designed so that only limited information is brought to the zone of attention of an individual decision-maker. Organizations must provide "attention-directors" that channel the behaviors of their members in a way that is congruent with their ultimate goals. Methods that organizations use to influence the amount of information that employees receive and must process include the division of work, the establishment of work practices, hierarchy of authority, communication systems, and training and indoctrination (internalization).

Division of work implies that different roles are created within organizations. People assigned to different roles specialize in processing different types of information. Therefore, zones of attention vary systematically depending on organizational roles (Simon H. A., 1964; Simon H. A., 1976; Ocasio, 1997; Joseph & Ocasio, 2012). And could have significant effect on corresponding company performance. For example, presence of a Chief sustainability officer, as a specific attention carrier, increases the company's socially responsible activity and lover its irresponsible activity (Fu, Tang, & Chen , 2020).

In turn, this division of work allows organizations to efficiently process large quantities of information. Indeed, the chief problem of organizing is to integrate and coordinate specialized

information (Galbraith, 1977; Garicano, 2000; Patacconi, 2009). By integrating the specialized attention of multiple individuals (assigned to different roles), organizations can collectively attend to a large number of issues and stakeholders (Crilly & Sloan, 2014).

Two very important roles in public corporations are the chairman of the board and the CEO. The CEO is responsible for running the company and presiding over its day-to-day operations. He or she is responsible for all the major strategic decisions in the company, which include (i) developing strategic plans, (ii) establishing priorities in terms of corporate objectives, long-term strategies, guiding principles and corporate milestones, and (iii) establishing strategic frameworks for the allocation of corporate resources.

The CEO reports to the board of directors, which is presided over by a chairman (or chairwoman). The board has a dual mandate: to advise management on strategic issues and to monitor managerial performance. The chairman is responsible for leading the board and ensuring its effectiveness.

One key responsibility of the board is to engage with the company's stakeholders. The UK Corporate Governance Code mentions two stakeholders in particular: shareholders and employees.[12] The 2016 revision of the Code, for example, notes that "[t]here should be a dialogue with shareholders based on the mutual understanding of objectives. The board as a whole has responsibility for ensuring that a satisfactory dialogue with shareholders takes place".[13] The most recent 2018 revision of the Code also mentions that "[t]he board should ensure that workforce policies and practices are consistent with the company's values and support its long-term sustainable success. The workforce should be able to raise any matters of concern".[14]

Because of the nature of their roles, we suggest that CEOs should pay more attention to the operational aspects of management (innovation, growth, operations) and to external stakeholders (customers, business partners and society) than chairmen. Chairmen, by contrast, should pay more attention to internal stakeholders (shareholders and employees).[15]

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[12] The UK Corporate Governance Code is particularly relevant in the context of our study because the firms in our sample are listed in the UK.

[13] The 2016 UK Corporate Governance Code, p. 6. Available at https://www.frc.org.uk/getattachment/ca7e94c4-b9a9-49e2-a824-ad76a322873c/UK-Corporate-Governance-Code-April-2016.pdf.

[14] The 2018 UK Corporate Governance Code, p. 4. Available at https://www.frc.org.uk/getattachment/88bd8c45-50ea-4841-95b0-d2f4f48069a2/2018-UK-Corporate-Governance-Code-FINAL.PDF.

[15] Survey evidence from the US provides some support for these ideas. Based on a sample of 2,361 directors in 291 US public companies, Wang and Dewhirst (1992, p. 121) found that CEO directors (i.e., those with experience as

Hypothesis 4: *Relative to chairmen, CEOs should pay more attention to the operational aspects of management (innovation, growth, operations) and to external stakeholders (customers, business partners and society). Conversely, chairmen should pay more attention to internal stakeholders (shareholders and employees).*

2.2.3. Performance feedback

Early attentional views of the firm suggest that performance below some aspirational level triggers "problemistic search" – search stimulated by a problem and directed toward solving that problem (March & Simon, 1958; Cyert & March, 1963). A significant decline in performance, especially if it threatens the survival of the firm, also tends to shift risk attitudes, focusing managerial attention toward asset preservation (Staw, Sandeland, & Dutton, 1981; March & Shapira, 1987).

Building on these ideas, we examine how the allocation of managerial attention to goals and stakeholders changes in response to a deterioration in a firm's financial performance. Particularly relevant is the work of Gaba and Joseph (2013). They argue that a performance shortfall tends to activate responses (both at the corporate and business unit level) that focus on operational efficiency. Business unit managers concentrate on reducing costs and increasing output, thereby improving efficiency. Corporate managers also introduce broad cost-cutting measures, such as reductions in discretionary spending or human resources.

Gaba and Joseph (2013, p. 1105) also suggest that business units tend to shift resources "from exploratory or long-term projects to more current projects that are closer to shipping. Hence less attention is given to uncertain technologies". Cost-cutting measures imposed from the center also force business units to concentrate on existing products, rather than exploratory, innovative projects.

Overall, Gaba and Joseph suggest that performance shortfalls shift managerial attention toward operations and core products, and away from innovation and growth. In terms of stakeholders, the greater focus on core products should arguably induce managers to pay more attention to (existing)

CEOs) were "more concerned with issues such as customers' needs and compliance with government's regulations and laws and less concerned with issues associated with shareholders than non-CEO directors".

customers. Because cost-cutting measures may affect adversely wages and employment, we expect managers to pay less attention to employees in their communications.

> **Hypothesis 5:** *Poor firm performance induces managers to pay greater attention to operations and customers, and less attention to innovation, growth and employees.*

3. Methodology and data

To study the evolution of managerial attention across multiple goals and stakeholders, we first need to find a consistent way to measure it over an extended period of time. Measuring managerial attention is challenging. For example, commonly used survey approaches suffer from problems of reliability, replicability and low response rate, while their cross-sectional nature makes it difficult to perform dynamic analyses (Kaplan, 2011; Osborne, Stubbart, & Ramaprasad, 2001).

To overcome these problems and track managerial attention over time, we use a well-established textual analysis methodology (see Loughran & McDonald, 2016, for a survey). Scholars argue that words frequently used in company documents, especially in CEO letters to shareholders, convey important information about the issues managers pay attention to (Ocasio, 1997; Ocasio, 2011). Critics, however, contend that these letters are often crafted by communication professionals, rather than the CEOs themselves (Hodgkinson, Maule, & Bown, 2004; Kaplan, 2011). Nevertheless, CEOs sign these letters and bear responsibility for their content. CEOs are likely to work in close collaboration with communication professionals to highlight the issues that are important to them and for their company. These letters typically review the company's recent performance and discuss future strategic objectives. Thus, they offer ample opportunity for managers to emphasize the importance of different goals and stakeholders.

In this paper we focus on five important goals and five important stakeholders. Among goals, we identify financial performance, innovation, operations, growth and CSR. Among stakeholders, we identify shareholders, business partners, customers, employees and society. We create a comprehensive dictionary for each goal and stakeholder group.[16] Using these dictionaries,

[16] For each goal and stakeholder group, we search synonyms in Sketch engine and The Corpus of Contemporary American English online tools. We then pilot-test the lists of synonyms and keep only relevant synonyms; dubious synonyms and synonyms with multiple meanings are eliminated. Our dictionaries are further tested by randomly

summarized in Table 1, we construct our measures of managerial attention. For example, to measure attention to customers, we count how many times words such as "customer", "client", "consumer", "user", "buyer", etc., were mentioned in the text.

<< Insert Table 1>>

Our main data source are the annual reports of FTSE 350 companies listed on the London Stock Exchange (LSE). In line with UK regulatory requirements, these documents typically contain a lot of descriptive information about companies' past performance, current situation, future strategic objectives and potential risks. UK annual reports are significantly more informative than their US counterparts (the 10-K forms), which are highly regulated and mainly focus on financials. The current US legislation (SEC regulation[17]) even specifically restricts content disclosed in the MD&A section to:

> *"…material information relevant to an assessment of the financial condition and results of operations of the registrant including an evaluation of the amounts and certainty of cash flows from operations and from outside sources…"*

Whereas, UK legislation provide significant freedom for information disclosed in strategic report and letters to shareholders specifically. Thus, they are arguably better suited than 10-K forms to examine managerial cognition.

Previous studies support this statement. Even 20 years ago Collins, Davie, & Weetman (1993) found evidence that UK registered companies provide more informative reports than US companies. Even reporting within the same regulation their Management Discussion and Analysis (MD&A) reports contain more forward-looking information and are more detailed in terms of information about risk, uncertainty.

Among that, there are several other issues that makes 10-K irrelevant or even non-applicable to the purpose of this research. Simple analysis of 10-K form reviled that in majority cases there are no letter to shareholder. Whereas, commonly analyzed the MD&A section represent a joint

selecting 20 CEO and 20 chairman's letters from our set of annual reports. Based on readings of these reports, we update the dictionary and exclude synonyms if their meaning is inaccurate in the context of the report or add new synonyms to the dictionary if they correspond to a particular goal/stakeholder and do not have multiple meanings.

[17] Item 303 of Regulation S-K (https://www.law.cornell.edu/cfr/text/17/229.303)

managerial statement that makes impossible to analyze how managers role in company affect their attention.

Additionally, the absence of fully accountable manager for MD&A content makes more plausible that it is actually crafted by communication professionals. Whereas CEO (chairman) letters to shareholders are commonly signed by the authors that makes him or her legally responsible for its content.

One issue with UK annual reports is that there is no centralized database where this information can be collected. We therefore had to manually collect this information from the companies' official websites, as well as several other sources, including Thomson Reuters Eikon database, Wayback Machine internet archive, Morning Star, Northcote, and Zonebourse online resources. Our sample includes annual reports of UK non-financial companies that were part of FTSE350 index (as of 28-Jul-2017) over the 2000 to 2016 period.

Unfortunately, we had to restrict investigated time span due to existing limitations that were out of our control. First of all, we perform data collection in the year 2017 and could collect only available annual reports for preceding years. Second, we tried to extend the research horizon before the year 2000 but only a small number of annual reports were available. More companies from our sample did not exist before that year or they were private and were not obliged to publish such documents. Also, collected rare early reports suffered from several issues as they were commonly in non-digital form, were very short and quite often did not contain letters to shareholders.

We follow common academic practice and select FTSE350 non-financial companies for our research. Similar to previous studies we exclude the financial sector as it has a different business operation and would rather bring bias into research. Compared to other alternatives, the chosen sample has several advantages that make it better fit the purpose of this research. Sampled annual reports are written in plain English language, follow single country regulations and represent multinational companies that are free from specific country bias and make our results comparable and generalizable.

Opposite that, for example, the top 500 European companies are registered in different countries and could significantly be affected by local regulation and cultural differences. Reports of these companies are written in different languages and in many cases miss letters to shareholders, which makes such sample unapplicable at all for purpose of this study.

We focus on two sections of UK annual reports: (i) the letter (or statement) of the chairman to shareholders, and (ii) the letter (or statement) of the CEO to shareholders. A few companies in our sample provide a joint CEO and chairman statement. When we measure managerial attention without distinguishing between the roles of the chairman and the CEO, we use these joint letters, and combine the other firms' chairman and CEO letters into a single statement for each firm. When we distinguish between the roles of the chairman and the CEO, we consider letters from individual chairmen and CEOs, and we omit joint letters from the analysis. The number of chairmen's, CEOs' and joint letters collected over the 2000-2016 period is summarized in Figure 1.[18]

<< Insert Figure 1>>

We perform textual analysis by counting how many times each goal or stakeholder was mentioned in the letters using the dictionaries from Table 1 and normalize the total by computing shares of attention for each goal or stakeholder as follows:

$$Attention_{i,t,k} = \frac{n_{i,t,k}}{\sum_{l=1}^{5} n_{i,t,l}}. \quad (1)$$

Here $Attention_{i,t,k}$ measures the share of attention allocated by the managers of firm *i* in year *t* to goal or stakeholder *k*, and $n_{i,t,k}$ measures the number of times goal or stakeholder *k* was mentioned in the letter by firm *i* in year *t*. We index the five goals and the five stakeholders by *l*.

We supplement these attention measures with firm-level information from the Thomson Reuters Eikon and Datastream databases. The resulting dataset covers the 2000-2016 period and contains information on 2,742 firm-year observations.

As shown in Table 2, for goals managers in our sample pay on average about 38% of their attention to financial performance and about 35% to growth. For stakeholders, customers attract 35% of managers' attention, followed by employees (28%) and shareholders (19.6%).

<< Insert Table 2>>

[18] Annual reports are collected in a searchable pdf format. These searchable pdf files are then transformed to text files using R library "pm" and Xpdf utility. Chairman and CEO's letters to shareholders containing fewer than 350 words are dropped from the analysis because they are not of sufficient length to draw reliable conclusions and could potentially indicate a problem with a specific pdf-to-text file conversion.

Table 3 provides the correlation matrix between the attention measures for goals and stakeholders. Unsurprisingly, attention to shareholders and to financial performance are positively related (0.187). Attention to shareholders, however, is negatively related to all other goals, especially attention to innovation (–0.184). This suggests that a shareholder focus may be a sign of short-termism. Managers who are customer-oriented, by contrast, allocate more attention to innovation and growth (correlations of 0.130 and 0.095, respectively). Finally, there is a strong correlation between attention to society and CSR (0.469). Companies that pay a lot of attention to society tend to focus less on financial performance (correlation of –0.199), growth (–0.128) and innovation (–0.110) and more on operations (0.170).

<< Insert Table 3>>

A concern is that the letters to shareholders from which we obtain our attention measures may largely be rhetorical exercises. Instead of reflecting the issues that chairmen and CEOs care about, they may be crafted by communications professionals to create positive impressions. To mitigate this concern, we use specific firm-level outcomes to validate our measures of attention. The idea is that, if our attention measures actually capture issues that are important to managers, then we should observe significant correlations between our measures of attention and corresponding firm-level outcomes. If instead our letters were just rhetorical exercises, these correlations should be weak or insignificant.

Table 4 shows significant correlations between our attention measures and corresponding firm-level outcomes (always controlling for firm and year fixed effects). For instance, column 2 in Panel A shows a positive and significant correlation between attention to innovation and contemporary firm-level R&D expenditures. Managers that emphasized innovation more in their letters to shareholders also tended to spend more on R&D in the same year. Panel A also shows positive and significant correlations between attention to operations and operating expenses (scaled by net sales), attention to growth and firm's reinvestment rate, and attention to CSR and Thomson Reuters ESG Score (which measures environmental, social and corporate governance performance). Interestingly, the correlation between attention to financial performance and Tobin's Q is negative and significant.[19] We interpret this negative correlation in the light of 'problemist search' theory:

[19] The same is true if instead of Tobin's Q we use several other profitability measures.

poor financial performance tends to focus managerial attention on ways to solve the performance problem.

Panel B focuses on stakeholders. Positive and significant correlations are found between attention to shareholders and market capitalization, attention to business partners and number of strategic alliances and joint ventures (computed from the SDC Platinum database), attention to customers and the Thomson Reuters Product Responsibility Score, and attention to society and the Thomson Reuters Social Pillar Score. The correlation between attention to employees and the Thomson Reuters Workforce Score, however, is negative and significant.

<< Insert Table 4>>

4. Results

We begin our analysis by studying the evolution of top managers' attention over the 2000 to 2016 period. Figure 2 shows the average share of managers' attention allocated to goals (Panel A) and stakeholders (Panel B). These shares are remarkably stable over time. In terms of goals, firms tended to prioritize financial performance and growth, which when combined, accounted for about 70–75 percent of attention, depending on the year of observation. Attention to operations accounted for a significantly lower share of managerial attention (about 15–19 percent), while attention to innovation and to CSR fluctuated around 5 percent each.

Moving to stakeholders, companies prioritized customers, employees and shareholders. Customers attracted the highest share of managerial attention (about 33–39 percent). Attention to customers was particularly pronounced around the financial crisis (39 percent), while attention to shareholders decreased during that period (16 percent).

<< Insert Figure 2 >>

To analyze trends in greater detail, we proceed with a multivariate analysis. We estimate the equation:

$$Attention_{it} = \beta_0 + \beta_1 * Trend + \beta_2 FC_{it} + \beta_2 lnTA_{it} + f_i + \tau_t + \varepsilon_{it},$$

where $Attention_{it}$ indicates the share of attention to a specific goal or stakeholder i at time t. *Trend* is a time trend, *FC* is a dummy variable that captures the effects of the 2007-2009 financial crisis as defined by the CEPR, and $lnTA_{it}$ controls for firm size. We further include firm fixed effects (f_i) to control for unobservable time-invariant firm-level heterogeneity and year fixed effects (τ_t) to account for changes in overall macroeconomic conditions. Standard errors (ε_{it}) are robust to arbitrary heteroskedasticity.

Table 5 summarizes the results. Starting with goals, we observe a significant increase in managerial attention to CSR over the 2000–2016 period. There was also a significant increase in attention to customers and society, and a decrease in attention to shareholders. These patterns are consistent with Hypothesis 1 and a shift in institutional logics in the direction of greater focus on stakeholders. Interestingly, however, not all stakeholders received more attention: there is no evidence that attention to employees also increased.

Hypothesis 2 suggests that, especially during the 2007-2009 financial crisis, companies emphasized their contributions to society and de-emphasized their contributions to shareholders. Consistent with this hypothesis, the financial crisis dummy had a positive and significant effect on attention to CSR and society (columns 5 and 10) and negative effect on attention to shareholders (column 6). However, there was no negative effect on attention to financial performance (column 1). The results also indicate that, during the financial crisis, managers paid less attention to innovation and growth, and more attention to operations and customers, than during non-crisis times. As we will see (Table 8), these results mesh well with those on (poor) financial performance.

<< Insert Table 5>>

Prominent firms. Institutional theory suggests that prominent organizations are those that most closely conform to prevailing practices and the underlying logics they embody. As institutional logics shifted in the direction of greater focus on stakeholders, we expect prominent organizations to be at the forefront of these trends. Thus, we expect the trends identified in Hypothesis 1 to be more pronounced for prominent firms than for less prominent firms (Hypothesis 3).

To test this idea, we distinguish between the two groups of firms that compose the FTSE 350 Index: those that belong to the FTSE 100 Index and those that belong to the FTSE 250 Index. Companies listed in the FTSE 100 Index are the 100 most valuable companies traded on the London Stock Exchange; because of importance in the global economy, they receive a great deal of attention from media, investors and governments. Companies listed in the FTSE 250 Index are the 101st to the 350th largest companies on the London Stock Exchange. They are smaller and receive far less attention than FTSE 100 companies. We refer to the companies listed in the FTSE 100 Index as the more prominent firms.[20]

Table 6 presents the results of regressions where our main specification is augmented to account for FTSE 100 membership. Specifically, our regressions now also include interaction terms between a FTSE 100 dummy variable and the time trend, and between the FTSE 100 dummy variable and the financial crisis.

Consistent with Hypothesis 3, we find that, over the 2000–2016 period, FTSE 100 companies reduced their attention to financial performance and increased their attention to CSR faster than FTSE 250 companies. The financial crisis also reduced attention to financial performance especially among FTSE 100 companies. However, trends in attention to stakeholders did not significantly differ between FTSE 100 and FTSE 250 companies. Overall, there is some support for Hypothesis 3, although the evidence is less clear-cut than we expected.

<< Insert Table 6>>

We also study the difference in managers' attention between FTSE 100 and FTSE250 companies but leave the results in the appendix (see Appendix A1). We find that over goals companies from FTSE 100 dedicate more attention to financial performance and growth; while FTSE 250 companies pay more attention to innovation, operation, and CSR. Over stakeholders, we find only a minor difference as FTSE 100 companies are more worried about customers and less about business partners compared to FTSE 250.

[20] In our main estimations, we use the list of FTSE 100 companies as of 28-Jul-2017. However, tracking companies' FTSE 100 membership over time yields very similar results.

Organizational roles. The analysis so far has studied the evolution of managerial attention by examining chairman and CEO's letters to shareholders jointly. However, most firms in our sample provide separate letters from their CEOs and chairmen. This gives us the opportunity to study differences in attention between these two roles. We capture these differences by including a CEO dummy variable in our main specification. Table 7 reports the estimation results.

We observe significant differences in attention in relation to all goals and all stakeholders between CEOs and chairmen. In terms of goals, CEOs paid substantially less attention to financial performance and CSR, and considerably more attention to innovation, operations and growth, than chairmen. In terms of stakeholders, CEOs focused more on business partners, customers and society, and less on shareholders and employees, than chairmen.[21]

These findings support Simon's (1976) idea that managerial zones of attention vary systematically with organizational roles. Specifically, we find strong support for the view that CEOs largely focus on the operational aspects of management and external stakeholders, while chairmen focus more on internal stakeholders (Hypothesis 4). Managers in different roles specialize in processing different types of information.

<< Insert Table 7>>

Performance feedback. Finally, we explore links between the allocation of managerial attention and a firm's financial performance. Recent work combining the attention-based view with performance feedback theory suggests that performance shortfalls should focus managerial attention toward improving operational efficiency, to the detriment of innovation and growth (Gaba & Joseph, 2013; Hypothesis 5). To examine these ideas, we modify our main specification to include current and past performance, as measured by Tobin's Q. The results are reported in Table 8.

Consistent with Hypothesis 5, we find that a decrease in current performance was associated with a significant increase in attention to operations and a significant decrease in attention to growth. A decrease in current performance was also associated with a significant increase in attention to customers and a decrease in attention to employees. No effect of current and past

[21] These differences persist over the whole sample period, with minor variation between years.

performance on attention to innovation was detected. Overall, the results suggest that a decline in performance concentrates managerial attention on short-term survival (by improving operations, limiting wage growth, and emphasizing customers), to the detriment of long-term growth.

<< Insert Table 8>>

5. Dictionary verification

The key part of our work was to develop a dictionary as it is the first time the bag-of-words approach was applied to goals and stakeholders. There are no analogs that could fit the purpose of our research. Therefore, it became a real challenge and we expect will be a significant contribution to future research. In this part, we perform additional analysis to justify our dictionary.

We compare our dictionary with recent Eklund and Michael (2021) work that analyze 13 strategy categories. Despite different object of analysis, we found strong similarity between their "Customer-Orientated strategy" and out customer synonyms. However, we could claim that our customer synonyms are more comprehensive as they include "passenger", "buyer", "shopper".

We did several additional steps to confirm dictionary validity and justify our findings. First, to avoid any critiques we finalize the work over dictionary before running any analysis. That guarantee objectivity of our findings and made impossible any fine tuning.

Second, we aimed to create extensive dictionary therefore search synonyms for each goal and stakeholder in two online corpus management software: Sketch engine and The Corpus of Contemporary American English. Both these engines use n-grams approach to identify synonyms over different corpora and could be easily accessed online. We keep synonyms only relevant to our research objective while dropping dubious or with multiple meanings.

Third, we pilot-test (Kabanoff, Waldersee, & Cohen, 1995) the dictionary and randomly select 20 CEO/chairman statements from annual reports. We drop a synonym if it was used with wrong meaning in sampled reports and add new if they perfectly fit all criteria.

Finally, we run a cross-analysis of our findings and check that they correspond to common sense. Where among other, we identified a reasonable difference in attention to the CSR between industries and its evolution over company life cycle.

5.1. Industry difference

To verify the dictionary, we study consistency in managers attention between industries. We classify all companies into 9 main industries following their SIC code. In the regression we replace the firm fixed effect with industry fixed effect dummies and set the "Manufacturing" industry as a basic level. We check that our sample is diversified enough and each sector is well represented. The only exception is the "Agriculture, forestry and fishing" industry which has rare representatives in the FTSE350 index and could end up with biased industry specific estimates. We report the sector regression results but omit it from further discussion and analysis.

The coefficient in front of each industry dummy (Appendix A2) represents the difference in attention between particular industry and the base level ("Manufacturing"). With obtained results, we endorse the common knowledge about the industries and confirm the validity of the implemented approach. In line with the expectation, we found that "Mining" and "Manufacturing" are highly dependent on skilled labor force and keep high attention to their employees. Both sectors set low attention to customers as either do not distribute their products directly or have long-lasting established contracts.

Contrary to that, "Retail trade", "Wholesale trade", "Services" and "Transportation, communication, …" sectors represent the last stage in the supply chain and keep the highest attention over other industries to customers. The success and market competitiveness of these sectors are highly dependent on customers' opinion and satisfaction. Following the same reasoning, these sectors keep lower attention to shareholders which have relatively less influence on overall business performance.

Society, the last but not least important stakeholder, receive the highest attention in construction and mining sectors. Both these sectors commonly require legal permission from local authority and are highly dependent on society opinion. Any confrontation with society could trigger a negative response or even cause a strike and halt company operation. The overall results confirm that each stakeholder receive attention proportionally to its impact on overall business performance in a particular industry.

The similar pattern is present in managers' attention over goals between different industries. The financial performance receives the highest attention in sectors commonly dependent on credit resources such as construction, retail, trade and real estate. The innovation goal receives high

attention in the manufacturing sector that is more oriented toward intensive growth and observe innovative leadership as a main competitive advantage (i.e. Apple).

Opposite to that, there are industries, mainly raw materials producers, that has limited space for product improvement and use efficiency as a competitive advantage. Specifically, "Mining", "Transportation, Communication, Electricity, Gas and Sanitary services" sectors are highly dependent on the efficiency of the business processes and therefore sustain high attention to operations. Similarly, these sectors in line with construction have a significant impact on the overall environment and keep high priority over CSR.

5.2. Attention over company life cycle

We verify our dictionary studying the difference in managers attention over company life cycle. To measure and test such evolution numerically we add company age as an additional explanatory variable into the regression model. For this purpose, we collect companies' incorporation dates from two different sources: Thomson Reuters Eikon database and from Wikipedia. The former source presents the legal date of company incorporation and could correspond to the date of company merge, segregation or re-registration. Whereas, the latter source presents the date of business settlement and omits changes in company legal status. Driven by the difference in two definitions, we separately run regressions over both cases but obtain very similar results.

Regression results (see Appendix A3) meet common sense and support our dictionary validity. During the early stages, companies are just getting their place on a market. It is crucial establish a stable relationship with business partners, build a new brand and create a pool of regular customers. Consequently, we find that young companies dedicated additional attention to business partners and customers. As the company becomes more mature, managers shift the attention toward shareholders and employees. Companies become more dependent on their shareholders, who could intervene with company strategic decision, and employees, whose withdrawal could be very costly and risky.

In terms of goals, young companies concentrate more attention on innovation and growth whereas mature companies are more oriented toward financial performance, operation and CSR. Such difference corresponds to the common fact that companies have different objectives over the life cycle. Right from the settlement company management is mainly focused on developing and

establishing a unique product/services in order to achieve and anchor their place on a market. At the next stage it secures the obtained results through more efficient operation, controlling and targeting financial performance and leading business in a more responsible and sustainable way.

6. Discussion and concluding remarks

This paper contributes to the attention-based view literature by identifying several important determinants of the allocation and evolution of managerial attention. Theoretically, we build on Simon's (1964) theory of organizational goals, which we integrate with recent advances from the attention-based view and stakeholder theory. Empirically, we improve upon existing contributions by developing measures of managerial attention for several different goals and stakeholders. In so doing, we move beyond one-dimensional constructs (e.g., economic versus social goals) to provide a more granular and nuanced perspective on attention. The temporal span of our analysis (2000-2016) is also quite significant, allowing us to examine both long-term trends and short-term shocks in the allocation of attention.

The stylized facts we present are consistent with several key tenets of the attention-based view, in particular the importance of institutional logics, organizational roles and structure, and performance feedback.

Consistent with a shift in institutional logics and a more widespread acceptance of the stakeholder view, we document that, over our sample period, attention to shareholders decreased and attention to customers and society increased. Shocks such as the 2007-2009 financial crisis magnified these changes. Several papers have examined how shifts in logics affect corporate outcomes. In the higher education publishing industry, Thornton and Ocasio (1999) document how a shift from an editorial to a market logic led to different determinants of executive succession. Belenzon, Patacconi and Zarutskie (2016) find that shifts in logics associated with events such as marriage lead to predictable changes in firm behavior and performance. Ioannou and Serafeim (2015) document a shift in analysts' perceptions of CSR during a period where the stakeholder view gained broader acceptance. However, to the best of our knowledge, this paper is the first to provide a large-scale empirical analysis of how changes in institutional logics affected the evolution of managerial attention to several different goals and stakeholders.

We found a clear division of managerial attention within organizations. Relative to chairmen, CEOs paid more attention to the operational aspects of management and external stakeholders, while chairmen focused more on internal stakeholders. These findings are consistent with the idea that organizational structure segments managerial attention (Simon H. A., 1964; Joseph & Ocasio, 2012) and that specialized patterns of attention allow organizations to collectively address the concerns of many stakeholders (Crilly & Sloan, 2014). Recent work has examined differences in patterns of attention between organizational levels (Gaba & Joseph, 2013; Joseph, Klingebiel, & Wilson, 2016; Belenzon, Hashai, & Patacconi, 2019) or business units (Crilly & Sloan, 2014). This work builds on Chandler's (1990) insight that organizational structure segments attention between headquarters (focusing on strategy) and business units (focusing on implementation), as well as between units (with middle managers concentrating on different products and geographical markets). By contrast, this paper returns to Simon's (1964) emphasis on organizational roles. The 2018 UK Corporate Governance Code also requires that "[t]here should be a clear division of responsibilities between the leadership of the board and the executive leadership of the company's business". We empirically document this clear division of responsibilities between the chairman and the CEO, whereby each of them focuses on different aspects of the firm's agenda and they collectively address the concerns of all stakeholders.

We also find that poor firm performance led to a reallocation of managerial attention across goals and stakeholders. The patterns of results we document provide strong support for Gaba and Joseph's (2013) theoretical arguments. They developed their framework to explain differences between corporate and business unit managers in product termination decisions. Our evidence suggests that their theorizing has much broader applicability.

In our empirical work, we always control for industry fixed effects. This is important because managers from the same industry are likely to share similar beliefs, opportunities and constraints, and thus their attention patterns may vary systematically by industry (Thornton & Ocasio, 1999; Thornton & Ocasio, 2008). In unreported regressions, we also explored how patterns of managerial attention vary across industries. The results are very intuitive. For instance, we find that mining is strongly oriented toward operations and CSR, while the retail sector is strongly oriented toward financial performance and customers. Industry does appear to be a relevant boundary for identifying institutional logics (Thornton & Ocasio, 1999).

Our findings have implications for the debate over the purpose of the corporation. Managers increasingly concede that corporations should incorporate the interests of stakeholders in their decision-making. The emphasis so far, however, has largely been on creating "shared value", "win-win" scenarios, and a "business case" for CSR (Porter & Kramer, 2006; Porter & Kramer, 2011). This can be problematic because there are many situations where legitimate stakeholder concerns may be at odds with firm profitability (Crane, Palazzo, Spence, & Matten, 2014; Kaplan, 2019).

In our analysis, we document that the decline in attention to shareholders was not accompanied by an increase in attention to all other stakeholders. While attention to society and customers increased, there is no evidence that attention to employees also increased. One possible explanation for this unexpected finding is that (sincere) attention to employees (for instance by raising wages or improving working conditions) may compromise profitability. To a large extent, it may require "redistributing the pie" more than "growing the pie". In an increasingly competitive marketplace, it is not unreasonable to expect that a solid business case for attention to customers or even society may be built. However, issues such as low pay, short-term contracts, and working conditions may be much harder to address. Our evidence suggests that corporations increasingly incorporate stakeholders' concerns into their decision-making when creating a "win-win" scenario is possible. Situations that may compromise profitability (i.e., 'real' trade-offs) are largely neglected.

We conclude with two important remarks. First, while we provide several stylized facts that are broadly consistent with the attention-based view, our analysis is largely descriptive. A rigorous causal exploration of possible mechanisms, perhaps exploiting a natural experiment, will require more work.

Second, we measure attention to goals and stakeholders using CEOs' and chairmen's public statements in annual reports. While these statements typically reflect issues that concern top management, to some extent they may also be crafted to create favorable impressions (Cornelissen, 2000; Melloni, Patacconi, & Vikander, 2019). That is, in their statements, managers may only pay lip service to certain goals and stakeholders. In our analysis, we demonstrate robust correlations between our measures of attention and outcome measures at the firm level. This provides some reassurance that, in their statements, managers typically talk about important strategic issues that concern them in their activities. Nevertheless, exploring to what extent words match deeds in greater detail is an important direction for future research.

7. Tables and figures

Figure 1. Data sample

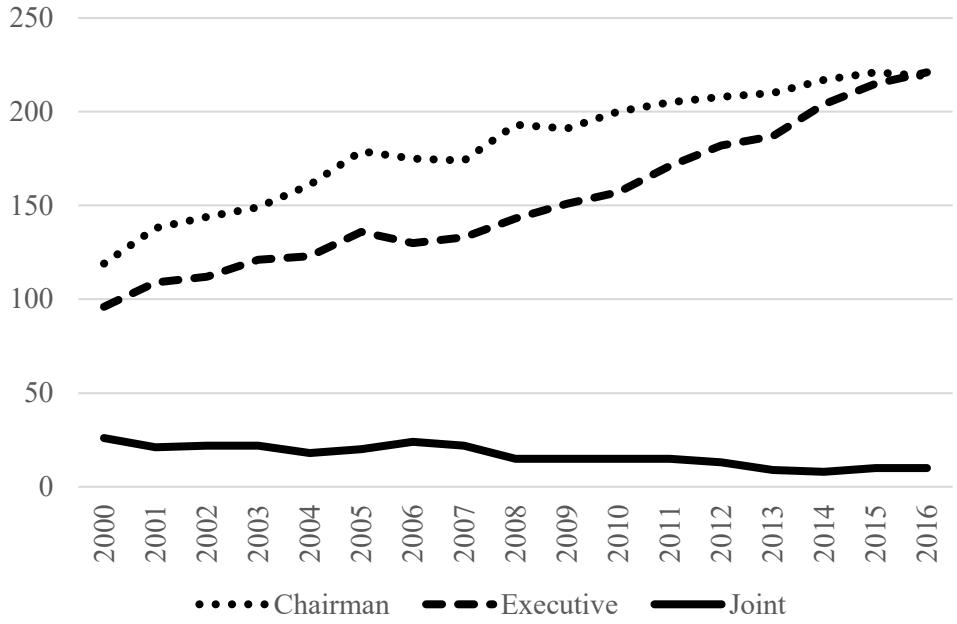


Table 1. The dictionary over goals and stakeholders

Term/Cluster	Synonyms/ Collocation
	Panel A: Goals
Financial performance	profit*, profitability*, profitable*, revenue*, performance*, sales*, financial* performance*, EPS*, earnings*, free* cash* flow*, EBIT*, return*, cash*, income*, dividend*, market* capitalization*, market* capitalisation*
Innovation	science*, scientific*, technology*, innovation*, research*, R&D*, technological*, research* and* development*, innovative*, innovate*, patent*, licensing*, technologies*
Operations	efficiency*, risk*, optimization*, operation*, maximise*, maximize*, maximisation*, maximization*, optimisation*, optimization*, optimising*, optimizing*, optimise*, optimize*, efficient*, efficiencies*, productivity*, competitive* advantage*, cost*, restructuring*
Growth	market* share*, expansion*, growth*, international*, market*, China*, Chinese*, India*, global* footprint*, invest*
CSR	society*, environmental*, earth*, planet*, sustainability*, societal*, social*, climate* change*, corporate* social* responsibility*, corporate* responsibility*, volunteer*, carbon* reduction*, carbon* emission*, charity*, charitable*, renewable*, greenhouse*, fundraising*, community*, communities*, regulation*, regulatory*
	Panel B: Stakeholders
Shareholders	shareholder*, investor*, owners*, creditor*
Business partners	partner*, suppliers*, alliance*, collaborator*, collaboration*
Customers	customer*, client*, guest*, visitor*, patient*, consumer*, passenger*, buyer*, user*, shopper*, audience*, viewer*
Employees	employee*, worker*, staff*, fellow*, team*, management*, our* people*, its* people*, executives*, colleague*, workforce*, crew*
Society	government*, society*, country*, community*, communities*

Table 2. Summary statistics

				Distribution		
Variable	Firms	Mean	Std. Dev.	5th	50th	95th
Attention to Goals						
Financial Performance	2742	37.85	11.34	20.00	37.31	57.14
Innovation	2742	5.20	6.31	0.00	3.06	18.18
Operation	2742	16.29	8.69	4.62	14.89	32.35
Growth	2742	35.30	10.36	18.92	35.01	52.76
CSR	2742	5.36	6.00	0.00	3.57	17.31
Attention to Stakeholders						
Shareholders	2741	19.60	15.49	0.00	16.13	50.00
Business Partners	2741	7.90	9.42	0.00	5.26	25.93
Customers	2741	35.28	21.26	0.00	35.71	70.59
Employees	2741	28.29	14.90	6.90	26.83	54.17
Society	2741	8.92	10.12	0.00	5.88	29.03
Firm-level controls						
Ln(Assets)	2673	21.85	1.62	19.31	21.72	24.63
Tobin's Q	2499	3.71	4.92	1.33	2.51	9.45

Notes: This table provides summary statistics for the main firm-level variables used in the econometric analysis. Variables measuring attention to goals and stakeholders are constructed using textual analysis of annual reports of FTSE 350 non-financial companies over the period 2000-2016.

Table 3. Correlation matrix: Attention over goals and stakeholders

	Shareholders	BusPartners	Customers	Employees	Society
Financial Performance	0.187	-0.091	0.019	-0.029	-0.199
Innovation	-0.184	0.138	0.130	-0.006	-0.110
Operations	-0.025	-0.015	-0.127	0.100	0.170
Growth	-0.027	0.020	0.095	-0.032	-0.128
CSR	-0.077	0.014	-0.153	-0.029	0.469

Notes: This table reports correlations between our measures of attention to goals and stakeholders. Variables measuring attention to goals and stakeholders are constructed using textual analysis of annual reports of FTSE 350 non-financial companies over the period 2000-2016.

Table 4. Validation of attention measures

Panel A: Goals

	Tobin's Q	R&D expenditures	Operating expenses	Reinvestment rate	ESG Score
	(1)	(2)	(3)	(4)	(5)
Financial Performance	-0.021*				
	(0.011)				
Innovation		0.003***			
		(0.001)			
Operations			0.004***		
			(0.001)		
Growth				0.002***	
				(0.000)	
CSR					0.230***
					(0.066)
Ln(Total Assets)	-0.526**	-0.007*	0.002	-0.010**	5.684***
	(0.242)	(0.003)	(0.006)	(0.005)	(0.424)
Constant	14.427**	0.160**	0.729***	0.238**	-72.374***
	(5.614)	(0.072)	(0.131)	(0.113)	(9.346)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.085	0.514	0.377	0.071	0.462
Observations	2550	465	2547	2548	2048

Panel B: Stakeholders

	Market Capitalization	No. of alliances	Product Responsibility Score	Workforce Score	Social Pillar Score
Shareholders	0.077**				
	(0.038)				
Business Partners		0.027***			
		(0.008)			
Customers			0.126**		
			(0.050)		
Employees				-0.109**	
				(0.053)	
Society					0.100*
					(0.058)
Ln(Total Assets)	10.837***	0.337***	7.975***	5.329***	5.994***
	(1.838)	(0.109)	(0.810)	(0.741)	(0.571)
Constant	-222.038***	-7.306***	-133.815***	-54.830***	-69.058***
	(38.666)	(2.412)	(18.635)	(16.825)	(12.429)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.575	0.327	0.297	0.230	0.379
Observations	2549	1427	2027	2026	1776

Notes: This table examines the relationship between our attention measures and corresponding firm-level outputs. Tobin's q is defined as the market value of the firm divided by total assets. R&D expenditures are research and development expenditures scaled by total assets. Operating expenses are total operating expenses scaled by net sales. Reinvestment rate is the retained earnings for the fiscal period divided by average common shareholders equity for the same period. ESG Score is an overall company score based on the reported information in the environmental, social and corporate governance pillar provided by Thomson Reuters (TR). Market capitalization measures the market value of the firm. Number of strategic alliances and joint ventures is collected from the SDC Platinum database. TR Product Responsibility Score reflects a firm's capacity to produce quality goods and services integrating the customer's health and safety, integrity and data privacy. TR Workforce Score measures a company's workplace health and safety, job satisfaction, diversity and equal opportunities, and development opportunities for its workforce. TR Social Pillar Score measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. Variables measuring attention to goals and stakeholders are constructed using textual analysis of the annual reports of FTSE 350 non-financial companies over the period 2000-2016.

Table 5. Evolution of attention

	Attention to Goals					Attention to Stakeholders			
	Fin. perform.	Innovation	Operations	Growth	CSR	Shareholders	Bus. partners	Customers	Employees
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Time trend	-0.006	-0.011	0.013	-0.159	0.163***	-0.250**	-0.016	0.254*	-0.133
	(0.099)	(0.045)	(0.065)	(0.098)	(0.041)	(0.112)	(0.065)	(0.139)	(0.123)
Financial Crisis	0.079	-1.913***	2.233***	-1.597*	1.198***	-2.795**	0.131	2.411*	-1.238
	(0.981)	(0.395)	(0.719)	(0.960)	(0.449)	(1.129)	(0.771)	(1.338)	(1.333)
Ln(Total Assets)	-0.297	0.097	-0.283	0.391	0.092	-0.793	-0.168	0.160	1.077
	(0.795)	(0.336)	(0.483)	(0.857)	(0.332)	(0.825)	(0.588)	(0.938)	(1.039)
Constant	43.511**	4.286	22.497**	28.655	1.052	39.091**	11.603	30.557	6.785
	(16.833)	(7.150)	(10.217)	(18.192)	(7.008)	(17.625)	(12.513)	(19.982)	(21.990)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.407	0.628	0.488	0.343	0.516	0.458	0.369	0.607	0.334
Observations	2663	2663	2663	2663	2663	2662	2662	2662	2662

Notes: The table reports the results of firm fixed effect regressions that examine the evolution of managerial attention to goals (columns 1-5) and stakeholders (columns 6-10) for FTSE 350 non-financial companies over the period 2000-2016. Standard errors (in brackets) are robust to arbitrary heteroscedasticity and allow for serial correlation through clustering by firms.

Table 6. Differences in attention between CEOs and Chairmen

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operations	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Time trend	0.118	0.0003	-0.059	-0.231**	0.172***	-0.234**	-0.041	0.265**	-0.121	0.132*
	(0.099)	(0.047)	(0.065)	(0.097)	(0.042)	(0.117)	(0.060)	(0.124)	(0.120)	(0.067)
Financial Crisis	0.090	-1.659***	2.188***	-1.102	0.482	-2.735**	-0.406	2.007	0.218	0.916
	(0.907)	(0.360)	(0.630)	(0.868)	(0.480)	(1.161)	(0.664)	(1.244)	(1.222)	(0.713)
CEO	-11.467***	2.324***	4.256***	5.909***	-1.021***	-16.342***	3.464***	21.211***	-9.939***	1.606***
	(0.682)	(0.211)	(0.309)	(0.498)	(0.390)	(0.796)	(0.391)	(0.838)	(0.868)	(0.444)
Ln(Total Assets)	-0.684	-0.043	0.051	0.281	0.394	-0.310	0.316	-1.405	1.076	0.322
	(0.707)	(0.337)	(0.468)	(0.770)	(0.303)	(0.749)	(0.552)	(0.900)	(0.951)	(0.540)
Constant	58.868***	5.344	12.672	27.893*	-4.777	39.426**	-0.807	50.637***	12.796	-2.052
	(14.830)	(7.071)	(9.882)	(16.219)	(6.345)	(15.799)	(11.736)	(19.182)	(20.079)	(11.364)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.408	0.484	0.367	0.268	0.318	0.401	0.250	0.530	0.260	0.321
Observations	5565	5565	5565	5565	5565	5552	5552	5552	5552	5552

Notes: The table reports the results of firm fixed effect regressions that examine differences in attention between CEOs and chairmen over goals (columns 1-5) and stakeholders (columns 6-10) for FTSE 350 non-financial companies over the period 2000-2016. Standard errors (in brackets) are robust to arbitrary heteroscedasticity and allow for serial correlation through clustering by firms.

Table 7. Differences in attention between FTSE 100 and FTSE 250 companies

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operations	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Time trend	0.110	-0.018	-0.084	-0.110	0.102**	-0.345**	-0.027	0.324*	-0.045	0.093
	(0.123)	(0.051)	(0.077)	(0.113)	(0.043)	(0.134)	(0.072)	(0.170)	(0.143)	(0.084)
Financial Crisis	1.108	-2.147***	1.578**	-1.492	0.954*	-3.074**	0.938	2.756*	-1.817	1.197
	(1.124)	(0.413)	(0.741)	(1.066)	(0.502)	(1.273)	(0.966)	(1.521)	(1.554)	(0.827)
FTSE 100 × Time trend	-0.282**	0.018	0.234***	-0.118	0.149**	0.227	0.023	-0.168	-0.209	0.126
	(0.136)	(0.061)	(0.089)	(0.132)	(0.073)	(0.167)	(0.088)	(0.201)	(0.165)	(0.117)
FTSE 100 × Financial Crisis	-2.359**	0.563	1.473*	-0.190	0.513	0.558	-1.984**	-0.752	1.530	0.648
	(1.145)	(0.431)	(0.876)	(1.177)	(0.546)	(1.249)	(0.996)	(1.699)	(1.646)	(0.848)
Ln(Total Assets)	-0.337	0.094	-0.244	0.364	0.123	-0.744	-0.136	0.128	1.005	-0.253
	(0.790)	(0.334)	(0.471)	(0.856)	(0.331)	(0.824)	(0.576)	(0.944)	(1.035)	(0.694)
Constant	44.209***	4.358	21.781**	29.171	0.480	38.153**	10.933	31.153	8.221	11.541
	(16.740)	(7.116)	(9.974)	(18.162)	(6.992)	(17.593)	(12.269)	(20.091)	(21.922)	(14.666)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.411	0.628	0.492	0.343	0.519	0.458	0.370	0.607	0.335	0.448
Observations	2663	2663	2663	2663	2663	2662	2662	2662	2662	2662

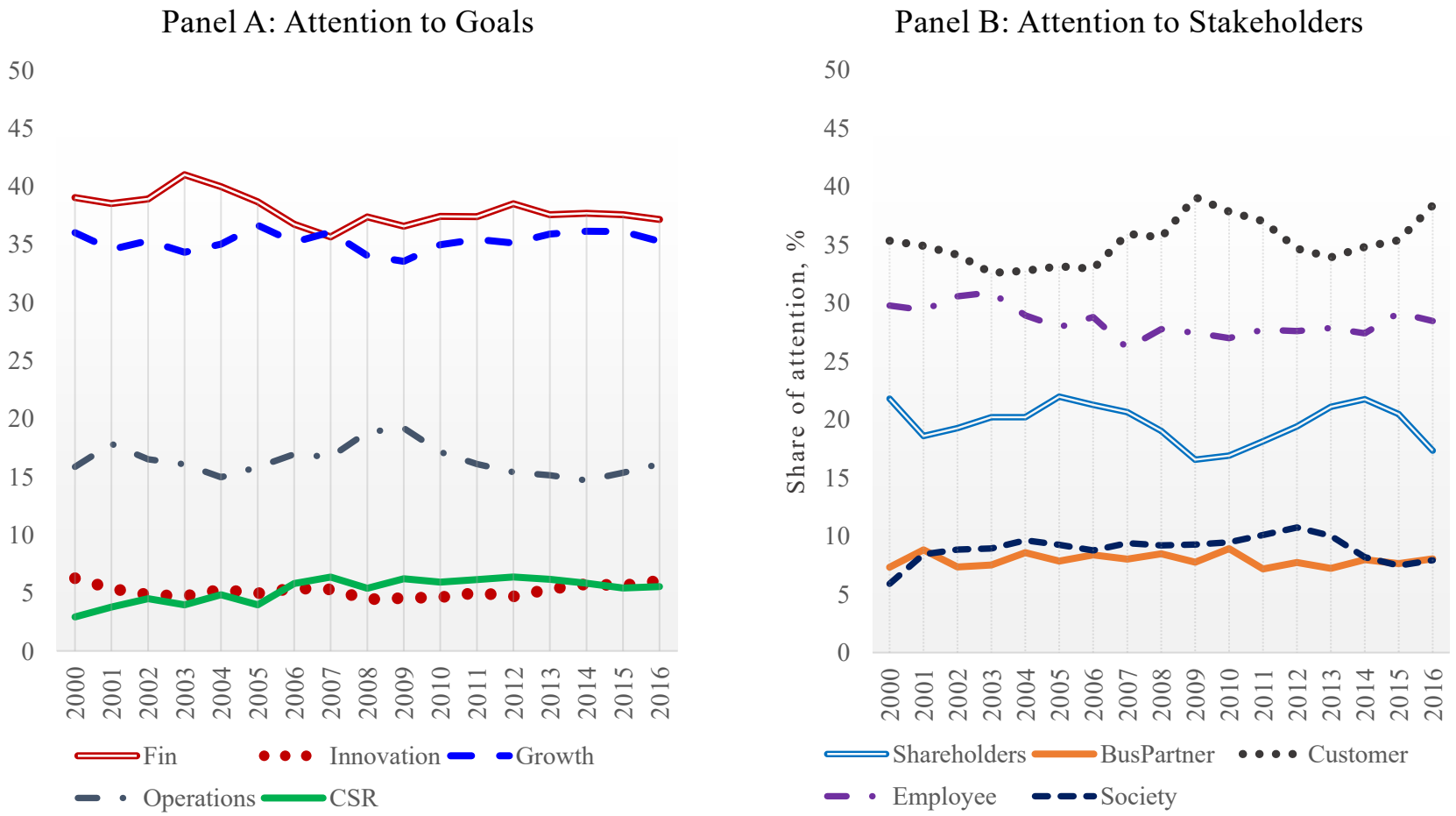
Notes: The table reports the results of firm fixed effect regressions that examine the evolution of managerial attention over goals (columns 1-5) and stakeholders (columns 6-10) for FTSE 100 and FTSE 250 non-financial companies over the period 2000-2016. Standard errors (in brackets) are robust to arbitrary heteroscedasticity and allow for serial correlation through clustering by firms.

Table 8. Performance feedback

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operations	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Tobin's Q	-0.072	-0.006	-0.286***	0.334**	0.030	0.037	0.020	-0.344*	0.339*	-0.052
	(0.112)	(0.078)	(0.110)	(0.167)	(0.048)	(0.139)	(0.119)	(0.183)	(0.196)	(0.076)
Tobin's Q_{t-1}	-0.122	0.103	-0.144	0.104	0.059*	-0.013	-0.141	0.034	0.089	0.031
	(0.096)	(0.065)	(0.094)	(0.099)	(0.033)	(0.080)	(0.114)	(0.137)	(0.114)	(0.050)
Financial Crisis	0.734	-0.797	-0.446	-0.895	1.405*	-2.482	-1.352	6.811***	-2.423	-0.553
	(1.613)	(0.570)	(1.178)	(1.286)	(0.746)	(1.876)	(1.328)	(2.382)	(2.074)	(1.283)
Ln(Total Assets)	-1.855*	0.268	0.389	1.118	0.080	-1.017	0.393	-0.514	0.447	0.692
	(1.084)	(0.498)	(0.662)	(0.889)	(0.423)	(1.158)	(0.739)	(1.587)	(1.250)	(0.825)
Constant	77.798***	-0.892	11.559	9.508	2.026	41.259*	0.807	45.255	18.537	-5.858
	(22.904)	(10.625)	(14.133)	(19.176)	(8.910)	(24.720)	(15.940)	(34.024)	(26.600)	(17.454)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.420	0.674	0.492	0.366	0.505	0.418	0.400	0.596	0.342	0.445
Observations	2086	2086	2086	2086	2086	2085	2085	2085	2085	2085

Notes: The table reports the results of firm fixed effect regressions that examine the effects of firm performance on the allocation of managerial attention over goals (columns 1-5) and stakeholders (columns 6-10) for FTSE 350 non-financial companies over the period 2000-2016. Standard errors (in brackets) are robust to arbitrary heteroscedasticity and allow for serial correlation through clustering by firms.

Figure 2. Change in attention



8. Online appendix

Appendix A1. Differences in attention between FTSE 100 and FTSE 250 companies

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operation	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Time trend	0.0799	-0.0118	-0.0993	-0.0749	0.106***	-0.418***	-0.0334	0.346**	0.0266	0.0789
	(0.110)	(0.052)	(0.070)	(0.102)	(0.037)	(0.127)	(0.070)	(0.158)	(0.128)	-0.067
Financial crisis	1.068	-2.082***	1.451*	-1.464	1.027*	-3.231**	1.001	2.865*	-1.894	1.258
	(1.160)	(0.422)	(0.770)	(1.095)	(0.523)	(1.339)	(0.984)	(1.549)	(1.574)	(0.846)
FTSE 100	3.164*	-2.336***	-6.860***	11.35***	-5.316***	1.557	-8.822***	5.639**	0.501	1.124
	(1.812)	(0.896)	(1.244)	(1.730)	(0.904)	(2.161)	(1.324)	(2.731)	(2.308)	(1.399)
FTSE100 x Time trend	-0.296**	0.028	0.226**	-0.105	0.147**	0.246	0.045	-0.207	-0.201	0.117
	(0.141)	(0.065)	(0.091)	(0.137)	(0.075)	(0.173)	(0.094)	(0.209)	(0.168)	(0.116)
FTSE 100 x Financial crisis	-2.028*	0.600	1.674*	-0.634	0.388	0.615	-2.005*	-0.718	1.559	0.548
	(1.183)	(0.432)	(0.888)	(1.210)	(0.578)	(1.260)	(1.033)	(1.712)	(1.673)	(0.875)
Constant	39.00***	5.116***	25.26***	25.94***	4.678***	23.61***	10.63***	36.47***	30.27***	-0.974
	(1.709)	(0.795)	(1.078)	(1.602)	(0.560)	(2.060)	(1.140)	(2.494)	(2.009)	(1.041)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.455	0.376	0.602	0.335	0.445	0.409	0.628	0.489	0.340	0.510
Observations	2742	2742	2742	2742	2742	2741	2741	2741	2741	2741

Notes: The table reports the results of firm fixed effect regressions that examine the evolution of managerial attention over goals (columns 1-5) and stakeholders (columns 6-10) for FTSE 100 and FTSE 250 non-financial companies over the period 2000-2016. Standard errors (in brackets) are robust to arbitrary heteroscedasticity and allow for serial correlation through clustering by firms.

Appendix A2. Difference in managers' attention between industries

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operation	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Agriculture, Forestry and Fishing	-6.983***	20.91***	-6.834***	-5.384***	-1.709***	-18.03***	-1.403*	15.75***	0.423	3.270***
	(1.052)	(0.930)	(0.808)	(0.865)	(0.454)	(1.353)	(0.801)	(1.794)	(1.328)	(0.753)
Construction	6.274***	-6.685***	0.413	-5.175***	5.173***	-2.512	4.745***	-9.684***	-3.795*	11.25***
	(1.264)	(0.927)	(1.214)	(1.271)	(1.142)	(2.553)	(1.804)	(2.617)	(2.029)	(1.876)
Mining	-6.721***	-6.410***	12.00***	-2.990**	4.117***	6.200***	1.296	-24.40***	3.975*	12.93***
	(1.326)	(1.080)	(1.623)	(1.514)	(0.904)	(2.302)	(1.447)	(2.981)	(2.205)	(1.719)
Manufacturing	---------- Base level ----------									
	-	-	-	-	-	-	-	-	-	-
Real Estate and Payment systems	3.427**	-5.605***	-2.098**	4.068***	0.207	8.659***	0.254	-7.188	-3.436	1.711
	(1.341)	(1.111)	(1.025)	(1.369)	(0.987)	(3.235)	(1.258)	(4.583)	(2.443)	(1.313)
Retail Trade	6.459***	-5.590***	-0.991	0.890	-0.769	-5.995***	0.317	12.36***	-4.930**	-1.751
	(1.883)	(0.976)	(1.057)	(1.567)	(0.634)	(1.872)	(1.680)	(3.094)	(1.999)	(1.109)
Services	1.996	-3.680***	-0.677	2.159*	0.202	-5.778***	-0.830	8.172***	-2.135	0.570
	(1.400)	(1.038)	(0.947)	(1.188)	(0.662)	(1.977)	(1.241)	(2.608)	(1.859)	(1.069)
Transportation, Communications, Electric, Gas and Sanitary service	-1.772	-4.487***	4.822***	-3.389**	4.827***	-4.892***	-1.745*	11.77***	-7.022***	1.890
	(1.299)	(0.996)	(1.181)	(1.508)	(1.312)	(1.776)	(1.043)	(2.644)	(2.076)	(1.251)
Wholesale Trade	7.191***	-5.920***	-1.474	1.317	-1.114	-4.633	-0.188	12.11**	-5.560***	-1.725
	(2.010)	(1.211)	(1.258)	(1.999)	(0.900)	(3.866)	(1.719)	(4.721)	(2.004)	(1.520)

Notes: This table reports the difference in corporate attention between industries comparatively to the base industry – manufacturing. The columns 1-5 present the difference in attention structure over goals while columns 6-10 present the difference in attention structure over stakeholders. All listed values are obtained as an industry fixed effects from the linear regression with an attention to a particular goal/stakeholder as a dependent variable, while on the right-hand side there are time variable, financial crises dummy and two fixed effects controls (industry and year). The measure of attention is obtained through natural language processing of merged CEO's and Chairman's statements. Which were manually collected from annual reports of FTSE350 non-financial companies issued during the 2000-2016 period. The crises dummy, in line with the CEPR recession identification, is equal 1 for the period 2007-2009 and stays 0 in all other years.

Appendix A3. Managers' attention to goals and stakeholders during company life cycle

	Attention to Goals					Attention to Stakeholders				
	Fin. perform.	Innovation	Operation	Growth	CSR	Shareholders	Bus. partners	Customers	Employees	Society
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Time trend	-0.040	0.025	-0.177***	0.076	0.117***	-0.337***	0.085	0.362***	-0.240**	0.129**
	(0.083)	(0.042)	(0.056)	(0.083)	(0.035)	(0.099)	(0.061)	(0.131)	(0.102)	(0.056)
Financial crisis	0.392	-1.914***	2.264***	-1.984**	1.242***	-2.537**	0.180	2.119	-1.344	1.583**
	(1.008)	(0.411)	(0.744)	(0.976)	(0.476)	(1.157)	(0.795)	(1.334)	(1.325)	(0.729)
Firm age (Wikipedia)	0.013***	-0.033***	0.184***	-0.217***	0.052***	0.066***	-0.092***	-0.173***	0.198***	0.001
	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)
Constant	39.45***	8.186***	6.071***	47.56***	-1.263**	15.03***	18.97***	55.31***	12.54***	-1.851**
	(1.213)	(0.627)	(0.844)	(1.236)	(0.487)	(1.567)	(0.902)	(1.974)	(1.523)	(0.838)
Firm Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.406	0.626	0.486	0.340	0.503	0.445	0.370	0.601	0.331	0.444
Observations	2,750	2,750	2,750	2,750	2,750	2,749	2,749	2,749	2,749	2,749

Notes: This table reports the company age impact on its attention over stakeholders (columns 1-5) and over goals (columns 6-10). Each column is a summary of a separate linear regression, where an attention to a particular goal/stakeholder is a dependent variable and explanatory variables are: time, crisis dummy, company age and two fixed effects controls (company and age). The age variable represents a number of full years passed from company incorporation. The attention measure is obtained through natural language processing of merged CEO's and Chairman's statements. Which were manually collected from annual reports of FTSE350 non-financial companies issued during the 2000-2016 period. The financial crisis dummy, in line with the CEPR recession identification, is equal to 1 for the period 2007-2009 and stays 0 in all the other years.

Paper 2: The relationship between corporate attention and company performance.

1. Introduction

The studies from different economic fields address the heterogeneity in companies' outcomes. They empirically identify broad range of factors that determine company performance: board characteristics (Liu, Wei, & Xie, 2014; Ullah, Akhtar, & Zaefarian, 2018; Boulouta, 2013), company governance (Minnick & Noga, 2010; Ellul & Yerramilli, 2013; Chen & King, 2014; Hoechle, Schmid, Walter, & Yermack, 2012), corporate culture (Huang, Li, Meschke, & Guthrie, 2015; Guiso, Sapienza, & Zingale, 2015), managers characteristics (Waldman, Siegel, & Javidan, 2006), environmental factors (Yongtae, Li, & Li, 2014) etc. However, it stays uncovered how these factors get channeled from their origin and determine implemented actions and achieved results.

To formalize firm behavior Ocasio (1997) developed the attention-based view model (ABV) and identify managers attention as a key channeling instrument. The model identifies CEO and the top management group as the most critical players in attention regulation. The model has invoked a number of studies that investigate managers' role in implemented decisions and their attention as channeling instrument but face a lack of empirical proof. The goal of this work is to overcome such limitation and empirically test several aspects of the ABV model.

The deviation toward multiple stakeholders orientation theory provides wide freedom in company resources allocation and lead to different performance among companies. While the multiple stakeholders orientation per se has a positive effect on company market value, financial performance the effect is not the same among stakeholders (Donaldson & Preston, 1995; Hillman & Keim, 2001; Edmans, 2012; Leung, Song, & Chen, 2019). It becomes a key question "*...to whom (or what) do managers pay attention?*" (Mitchell, Agle, & Wood, 1997). The segregated studies identify the significant impact on company performance and market value that has orientation on customers (Tuli & Bharadwaj, 2009), employees (Huang, Li, Meschke, & Guthrie, 2015; Edmans, 2012), CSR (Orlitzky, Schmidt, & Rynes, 2003; Peloza, 2009; Aguinis & Glavas, 2012). Driven by resource scarce theory and competition between stakeholders groups for managers attention (Greenley & Foxall, 1998) we try to link together previous fragmented

findings. We empirically investigate the distribution of managers' attention over key stakeholders rather than study them separately on an individual basis.

We also consider that managers pursuing different goals could determine company performance and market perception about its value. As company more likely to implement expansive global strategy when managers dedicating more attention to external and diverse environment (Levy, 2005).

Our study makes several contributions to the literature. First, we contribute to mainly theoretical literature about managers' attention and its impact on company broad performance. We test and provide empirical evidence of problem/threat and opportunity driven by managers' attention stated in AVB model (Ocasio, 1997). We found that managers increase their attention to a particular problem/threat when there is a decline in customer satisfaction, financial or operational performance. And most important, such attention allocation pays back, it allows to overcome the erupted problems and improve company performance over time. In line with the opportunity driven hypothesis we found that higher managers' attention to growth and innovation pay off and improve company performance and could have a long-lasting effect.

Second, this study contributes to the attention measurement methodology that could not justify the direction of causality effect. The most previous findings (Torres & Tribó, 2011) are limited to cross-sectional data, following the attention measurement complexity, and mainly use surveys or quasi-experiment design. In this work we create a longitudinal dataset of managers' attention that covers 2000-2016 time span and control for year and company effects. To the best of our knowledge, this study is among the first that applies panel data design and find the intertemporal effect of managers' orientation over stakeholders and goals.

Third, this work contributes to the literature on textual analysis of corporate disclosure. To the best of our knowledge, it is the first study that addresses an extensive set of CEO and chairman statements reported in line with the UK regulations over 16 years time span. The previous studies almost exclusively use US standardized 10-K form reports, which are freely available in digital form but are less informative and considerably limited in the disclosed information. With this work we also develop the first dictionary of words related to 5 key goals and 5 key stakeholders that do not have analogues so far. To verify its validity, we manually sample-check part of narratives and

also apply the synonyms search from two standard copulas (Sketch engine and The Corpus of Contemporary American English).

Fourth, this study contributes to the CSR literature and identify several relationships between managers' attention to CSR and company contemporaneous and future performance. First, higher managers' attention to CSR actually transforms into real action like higher emission score and resource use scores. Second, we find evidence in support of slack resources theory. Companies with higher financial performance are more prone to dedicate their attention and resources to CSR. On a long-time horizon, such resource distraction from main activity has a negative effect. It leads to worse company performance and decline in its market value in the following year.

Fifth, this work contributes to the stakeholders' management literature that is mainly theoretical or limited to cross-sectional datasets. Our work support Donaldson & Preston (1995) hypothesis that stakeholder management contributes to the economic performance and empirically measure such impact. We found that the effect varies over attention to different stakeholders and have both a positive and negative sign. We adjust the customer orientation literature (Narver & Slater, 1990) and find the intertemporal two-way effect between customer orientation and company performances.

Six, this work also has regulatory implication. It provides a justification that in line with legal requirements company top-managers use letter to shareholders to deliver important information and it should not be seen as cheap talk. That managers use letter to shareholders as an additional method to eliminate information asymmetry and should not be considered purely from the impression management technique (Brennan, Guillamon-Saorin, & Pierce, 2009). In this work we found evidence both in support and oppose the impression management technique.

2. Theoretical considerations and empirical hypotheses

2.1. Attention concept

The broad literature stresses the scarcity of human attention resource and investigates its impact on their behavior (DellaVigna, 2009). Through a number of experiments, the psychology literature stresses the human inability to keep attention to multiple elements even in such a simple

process as dichotic reading (Broadbent, 2013). This resource, being scarce and highly competitive in extremely information growing environment, has a wide and significant effect on broad company activity. The overall internal and external to the company attention could affect its strategy and behavior. As an internal example, analyst attention has a positive and significant effect on company innovation and R&D (Aggarwal & Hsu, 2013). While, as an example of external, the high shareholders attention could determine company performance and its market value (Kang, Anderson, Eom, & Kang, 2017).

Attention, as the first stage of information processing sequence (Abrahamson & Hambrick, 1997; Daft & Weick, 1984), takes the key role in every company decision process and is crucial even for problem identification per se. With the development of ABV theory (Ocasio, 1997), the recent studies push to the frontend the role of TOP-managers' attention and study its impact on company performance and strategic decisions. In particular, (Yadav, Prabhu, & Rajesh, 2007) find that firm has a higher level of innovation when its CEO dedicate more attention to future events or external events in general sense. Whereas the shortage of attention or its wrong allocation could trigger huge financial loses, downgrade company reputation and lead to ecological catastrophe. That has happened to BP as top managers' lack of attention to safety that potential lead to the Deepwater Horizon oil spill in 2010 (Amernic & Craig, 2017).

From an organization perspective, Ocasio defined attention as "*…the noticing, encoding, interpreting, and focusing of time and effort by organizational decision makers on both issues and answers*" (Ocasio, 1997). Accentuating the key role of company management, as well as environment and organization structure, for identifying issues such as problems, opportunities and threats (Tuggle, Sirmon, Reutzel, & Bierman, 2010). Where each of these issues separately serves as a motive for attention reallocation and has been addressed in previous studies.

2.2. Top managers' attention

Problem-driven attention is commonly considered as a key instrument of the problemastic search process that helps with problem identification and solution search. It is defined as *"… search that is stimulated by a problem … and is directed toward finding a solution to that problem"* (Cyert & March, 1963, p. 121). And differs from other search objectives as requires problem

presence and its recognition. That means, to start the search company should fail or anticipated failing in one of its goals and stops the search when the solution, with the aspired level of goal performance, is found. Where low financial or goal-related performance enhances the search (Greve, 2003). The problemastic search happens in a bounded rationality environment and contrary to the optimization problem does not look for the best solution but rather got satisfied with the first best solution above aspirational level. Corresponding subjectively allocated attention plays a key role in both solution search and corresponding strategic decisions (Blettner, He, Hu, & Bettis, 2015).

Another, stated in the ABV theory, motive for attention allocation is search for or development previously identified opportunities. That commonly considered as either top-down and bottom-up process and stress key role of top managers in both cases (Shepherd, McMullen, & Ocasio, 2017). Whereas issue characteristics per se due to some extend affect its identifiability (Bansal, Kim, & Wood, 2018)

Managers' ability to timely identify and pay attention toward casually emerging opportunities and problems have a key effect on company future performance. As part of a constantly changing environment, both opportunities and problems serve as the primary impetus for organization action and commonly require direct top managers' attention. The ability to properly identify each of them has a drastic effect on the company's future performance. It could endow the company with a significant competitive advantage or jeopardize its existence. Properly allocated attention serves as a starting point for a long chain of company action and serves as necessary but not sufficient for company success.

Prior findings show that managers prioritize and allocate more attention toward threads and problems which are key to company survival (Gaba & Greve, 2019). Inability to identify such a thread or performing it not in a timely matter could have drastic consequences for the company. Novo Nordisk case serves as an almost anekdotal example of top management inattention to the company‘s long-standing problem/thread (Rerup, 2009). Missed incompliance with the government regulation halt company insulin production for almost half a year. On top of that, the company had to ask its main competitor to take over most of its United States customers. Even being recognized in a timely manner by middle management the problem had caused significant losses due to lack of TOP managers attention.

Similarly, top managers‘ attention has a key role over business opportunities that could help to timely identify golden goose case. That otherwise, without proper attention, could be missed as it has happened to Polaroid and digital imaging (Tripsas & Gavetti, 2000), Kodak and digital camera (Lucas Jr & Goh, 2009), Western Union and patent for telephone (Hochfelder, 2002), Excite and Google (Battelle, 2011), Hewlett-Packard and personal computer (Audia & Rider, 2005). Over all these examples, companies wasted internally developed technology or direct proposition to purchase newly developed simply due to lack of attention and inability to identify its potential.

Top managers have a key role in determining company attention and developing corresponding strategic actions (Ocasio, 1997; Shepherd, McMullen, & Ocasio, 2017). They exercise this function either by directly targeting their own and employee's attention or through adjusting company organization structure (Crilly & Sloan, 2014). It is hard to undervalue the top managers' influence on a wide range of company's decisions and financial outcome. Endowed with significant power they stay responsible and legally binding for overall company performance and accountable for potentially unfavorable outcomes. That drives academic attention toward top managers high role and their broad impact on company behavior and performance (Wang, Holmes, Oh, & Zhu, 2016; Surroca, Prior, & Tribo Gine, 2016; Kacperczyk, 2009).

Following the upper echelons theory, organizational outcomes are at least partially predicted by managers' background characteristics. It determines how managers allocate their scarce resource – attention over different companies' activities, threads and opportunities (Hambrick & Mason, Upper echelons: The organization as a reflection of its top managers, 1984; Joseph & Wilson, 2018). How pursuing different heterogenous goals managers affect firms' environmental scanning, ability to identify oncoming issues and ultimately company performance (Pryor, Holmes, Webb, & Liguori, 2017; Cho & Hambrick, 2006).

The transformational leadership theory study how managers' actions and individual characteristic affect company innovation (Jung, Wu, & Chow, 2008; García-Morales, Jiménez-Barrionuev, & Gutiérrez-Gutiérrez, 2012), overall performance (Nemanich & Keller, 2007; Peterson, Galvin, & Lange, 2012), engagement in CSR (Waldman, Siegel, & Javidan, 2006), customers and employees satisfaction (Liao & Chuang, 2007). Their individual heterogeneous characteristics explains why some companies stand out of the crowd and achieve more than many

similar analogs. As it has happened with Steve Jobs and Apple, Andy Grove and Intel (Yadav, Prabhu, & Rajesh, 2007).

The previous findings justify the significant impact of managers' attention on different aspects of company behavior. It drives and has a positive impact on company innovation (Yadav, Prabhu, & Rajesh, 2007; Li, Maggitti, Smith, Tesluk, & Katila, 2013; Vuori & Huy, 2016). It enhances company growth with extensive attention allocated toward it (Joseph & Wilson, 2018).

However, each of these studies commonly addresses only a single element of company activity, considering the link between managers' attention and corresponding company performance. While leaving untouched the broader picture of possible interrelation and completion for attention between different objectives. With our work, we would like to overcome such limitation and investigate in one piece how attention distributed over multiple goals (stakeholders) affect corresponding company measures.

2.3. Attention over stakeholders

The deviation from Friedman (1970) unique shareholders' wealth maximization doctrine provides significant freedom for managers' decisions. Instead of being single-minded managers receive freedom in orientation over a range of related stakeholders (Freeman, 2010). They become responsible for defining priorities and resource allocation over legitimate groups of stakeholders (Donaldson & Preston, 1995). With the adoption of constituency statutes across an increasing number of US states, the board of directors becomes legally responsible to consider the interest of all corporate stakeholders. But it neither provides a full list of such stakeholders nor a guideline for attention allocation among them (Hale, 2003; Geczy, Jeffers, Musto, & Tucker, 2015; Leung, Song, & Chen, 2019). As a result, it becomes a key question "*...to whom (or what) do managers pay attention?*" (Mitchell, Agle, & Wood, 1997).

The existing studies, scattered over different fields, recognize positive effect from both multiple stakeholder orientation per se (Donaldson & Preston, 1995; Luk, Yau, Tse, Sin, & Chow, 2005; Leung, Song, & Chen, 2019; Harter, Schmidt, & Hayes, 2002; Hillman & Keim, 2001; Greenley & Foxall, 1998) as well as higher attention to separate specific stakeholder.

The marketing literature stresses the importance of higher attention to customers and employees, as part of market orientation, and present associated positive effects (Greenley & Foxall, 1998; Narver & Slater, 1990). Where higher attention to customers and improved customer satisfaction benefit company both in a short term and on long term (Bernhardt, Donthu, & Kennett, 2000; Homburg, Koschate, & Hoyer, 2005).

On the other side, the managerial literature commonly stresses the importance of customer and CSR orientation as a potential source to improve company brand equity (Torres & Tribó, 2011) and consequently company performance (Russo & Fouts, 1997). With higher customer orientation management could better understand the market, customers' needs (Jaworski & Kohli, 1993) and assess how it will evolve over time. This knowledge helps management to continuously create superior value for customers (Narver & Slater, 1990) and provides a company with a competitive advantage. However, companies do not benefit equally while operating in the same market. The difference in managers' assumptions, beliefs and biases about market and customers' needs determines heterogeneity in company behavior and response to the same challenges and potential opportunities (Day, 2011). It is hard to undermine the positive effect of customers' satisfaction on company performance especially when it is being claimed as a central goal by many companies.

The finance literature mainly stresses the orientation toward employees and shareholders. That higher attention to employees could improve their satisfaction and has, previously documented, positive effect on company performance (Harter, Schmidt, & Hayes, 2002; Judge, Thoresen, Bono, & Patton, 2001; Bernhardt, Donthu, & Kennett, 2000; Huang, Li, Meschke, & Guthrie, 2015; Edmans, 2012; Edmans, 2011). Higher managersɔ attention to employees could stimulate the workers' efficiency and company profit (Halac & Prat, 2016). From one side, it could help to recognize good or bad employees' behavior, therefore, could solve the moral hazard problem. On the other side, in line with the Hawthorne effect attention could serve as a signal of employees' importance.

However, such segregated findings leave shaded the broad picture when different stakeholders compete for managers' attention. Considering only a single stakeholder it stays unclear whether the effect is driven by higher overall attention toward all stakeholders or due to its reallocation across them. Whether prioritizing some stakeholders is more beneficial than others and under what

conditions? Existing studies stress the positive effect of attention toward different stakeholders on company performance and raise the question about the causality chain behind such mechanism.

We try to shed some light on such question and investigate the relationship between managers' attention toward key stakeholders and broad corresponding financial and non-financial performance. Following the thorough review of previous findings and existing academic practice we address 5 non-overlapping primary stakeholders: shareholders, customers, employees, society and business partners (Waddock & Graves, 1997; Donaldson & Preston, 1995; Mitchell, Agle, & Wood, 1997; Hillman & Keim, 2001; Adams, Licht, & Sagiv, 2011; Tantalo & Priem, 2016; Crilly & Sloan, 2014; Freeman, 2010). Where each of them plays a key role in companies everyday routine. And corresponding to previous findings, managers' engagement over each of these stakeholders has a positive effect on company performance.

> ***Research question:*** *there is a relationship between managers attention to stakeholders and corresponding company performance.*

2.4. Attention over goals

The notion of organizational goals is another central aspect of strategic literature. It has a strong impact on broad company behavior and could be a source of performance heterogeneity across companies. The effect is obvious in the case of a single goal; each company pursues a subjectively selected goal and aligns its strategy and operation routine to achieve higher corresponding performance or aspiration level. According to the behavior theory of the firm, it is an ideal case, while in reality companies pursue multiple goals that result in high complexity of such effect and importance of its further investigation. Previous findings identified that an increase in goal performance is more likely when it is considered important and attain additional attention, but it becomes less likely with a higher number of pursued objectives/goals (Obloj & Sengul, 2020; Ethiraj & Levinthal, 2009). Stressing in such a way high importance of goal selection and attention split over a chosen bundle of goals. Dealing with a heterogeneous array of potential goals, it becomes a matter of company and management choice what to put on the plate and how to allocate scarce attention over chosen multiple goals. Such a particular decision could be detrimental for

company success and could explain heterogeneity in companies' performance and differences in long-term results.

The existing literature commonly specifies two approaches to how companies allocate their attention over different goals trying to explain its heterogeneity over companies and over time. First, the sequential theory (Cyert & March, 1963, p. 117) that considers only single goal persuasion and a time and grounded on Simon's (1995) "*...sequential search through a pool of alternative until an aspiration level of satisfying outcome is obtained*". It considers an ordered queue of goals where attention is gradually allocated from top to bottom and shifts to the next in the queue when performance on the first reaches above the aspiration level (Greve, 2008; Smulowitz, Rousseau, & Philip, 2020). Second, the simultaneous focus on multiple performance goals through decentralization of decision making or increase in slack resource of attention (Cyert & March, 1963, p. 43). We leave the discussion of these two theories out of the scope of this study and investigate attention allocated during the yearly time interval. It could be driven both by simultaneous orientation toward multiple goals or ordered shift between them.

The development of AVB theory raised the question whether higher attention to a particular goal is associated with its actual achievement and could improve corresponding performance. On one side, with more concentrated attention to a particular goal, it becomes easier to identify a related issue and also to find a better and more efficient solution. On the other side, it comes with the decline in attention toward other goals and could jeopardize the probability for their success. Consequently, making the segregated result not clear.

The existing studies address such question but mainly from theoretical perspective and consider separately only single goal per study leaving the effect of attention rebalancing untouched. Joseph & Wilson (2018) stress positive relationship between growth and attention to it; emphasizing the key role of company attention structure and corresponding processes. Similarly, higher attention to innovation helps to detect, develop and deploy new technologies. A shift in attention toward future events, external events or novel information could stimulate company innovation (Yadav, Prabhu, & Rajesh, 2007; Li, Maggitti, Smith, Tesluk, & Katila, 2013; Vuori & Huy, 2016) and have long-term effect on company performance.

Another important aspect of company behavior where managers' attention could play a significant role is Corporate Social Responsibility (CSR). Top managers, above other factors, have

a significant effect on company attention allocation over corporate goals. In particular, SEO with less self-regarding values stimulates the company to pay more attention toward social goals (Stevens, Moray, Bruneel, & Clarysse, 2015). These studies recognize the positive effect of stakeholders' attention toward CSR (Madsen & Rodgers, 2015) but leave open the role of managers' attention and whether it actually enhance CSR activism.

Even a change in a more granular focus of managers' attention leads to a subsequent change in company strategic actions. In aviation, a company shift from engineering orientation more toward entrepreneurial cause an improvement in passenger service, size of the fleet, number city-pairs served, and advertisement expenditure (Cho & Hambrick, 2006). Shift manager's attention toward the external environment leads to a more expansive global strategic posture (Levy, 2005).

These studies identified strong effect of attention but stay scattered over different aspects of companies' performance. The effect could significantly differ when consider constrained level of attention and multiple competing objectives simultaneously. With this study we address such situation. We investigate the relationship between company performance and managers' attention distribution over 5 key goals: financial performance, innovation, growth, operation and CSR. We address these goals as detrimental for company short- and long-term performance. They get high priority in the corporate sector and are frequently addressed among academic research in strategy, finance, and economics. These goals are constructed to be most orthogonal and have a low effect on each, considering high interdependency in goal performance (Hu & Bettis, 2018).

> ***Research question:*** *There is a relationship between managers attention to corporate goals and corresponding company performance.*

3. Data

As the main data source, we use narratives from companies' annual reports issued according to the UK regulation. The documents commonly contain a lot of descriptive information about companies past performance, current situation, future strategic objectives and potential risks (Osborne, Stubbart, & Ramaprasad, 2001). They are significantly more informative compared to the US standardized analog (10-K form) which are almost exclusively used in existing studies. The

10-K form considerably limits the disclosed information as it is highly regulated, strictly standardized, lack of managers' opinion and are more oriented on financial disclosure. However, opposite to SEC collection of 10-K forms, there is no database for UK standardized annual reports and require a lot of manual collection.

To overcome the problem of measuring top managers' attention, we create a new dataset of CEOs' and chairmen' letters to shareholders and applied natural language processing. For each company, we collect annual reports in electronic form from different sources (corporate web-pages, Wayback Machine archive, Thomson Reuters Eikon, Morning Star, Northcote, Zonebourse). Then we manually cropped CEO's and chairman' letters to shareholders and use R and Xpdf utility to transform it into pure text form. And finally, we apply the dictionary approach, that will be described in the following section, to create the panel dataset of top-managers' attention over 5 ley goals and 5 key stakeholders.

We follow common practice in literature and construct our sample of non-financial companies from FTSE350 listed on 28-Jul-2017 (Hassanein, Zalata, & Hussaine, 2019). In order to keep the sample consistent over time, we also include companies' predecessors if any originated as an equal merge of two or more ancestors (i.e. Dixons Retail and Carphone Warehouse Group). We specifically target companies listed that follow UK reporting standards as less restrictive. Contrary to the US 10-K form, the UK annual reports have less regulated form, has more informative narratives and has wide freedom in the form of disclosed information and its representation. Top managers, being legally responsible for its content and any fraud or false reporting, face only general requirement regarding disclosed information and incorporate in the report information about company past, current and future that is important to shareholders.

After a preliminary investigation, we narrow down our analysis to 2000-2016 period as electronic documentation become common practice not far ago. Annual reports issued in digitized pdf format before the year 2000 are rather exceptions than common practice and could not be statistically representative. We also intentionally drop the observation when a letter to shareholder includes less than 350 words. Too short narratives are not descriptive enough and natural language processing could cause more bias than get information from it. Unfortunately, not all companies have digital reports for the whole time span, some companies only recently originated or become public. So, we end up with unbalanced panel data that consists of 2744 company-year observation.

In order to evaluate the effect of company attention on non-financial performance we follow the literature and use the Thomson Reuters ESG dataset (Boulouta, 2013). It became an enhancement and replacement of widely previously used ASSET4 dataset. It includes more than 400 of non-financial metrics that are aggregated in three main groups: Environmental, Social and Governance. To obtain the final dataset we merge managers' attention with companies' financial performance and the ESG data both taken from the Thomson Reuters Eikon database. From the whole ESG dataset, we keep main aggregated measures and relevant to each investigated goal and stakeholder. Where the whole list of variables is provided in the variables description (*Table 9*) and summary statistics (*Table 10*).

<< Insert Table 9>>

<< Insert Table 10>>

4. Methodology

4.1. Natural language processing (variable construction)

Similar to the 1st paper, we follow literature recommendation and consider annual reports as "*…snapshots that capture the amount of top-managers attention devoted to various facets of company's environment year by year*" (D'Aveni & MacMillan, 1990). To measure more precisely top–managers' attention we use CEO and Chairman letters to shareholders from each annual reports. These narratives fit the purpose to develop managers' attention measure as their authors have no restrictions or limitations regarding disclosed information, stay legally responsible for the content and enclose the narrative with the signature. Both these narratives represent top-managers' standpoint, therefore, we join them and analyze as one piece of text, following our research objective.

To overcome the methodological scrutiny of measurement managers' attention we follow recent practice and apply the natural language processing (NLP) approach (Abrahamson & Hambrick, 1997; Chen & King, 2014; Yadav, Prabhu, & Rajesh, 2007; Gebauer, 2009; Kaplan, 2008; Eggers & Kaplan, 2009; Kabanoff & Brown, 2008). This approach allows to examine a wide range of corporate attention (Kaplan, 2011) while staying consistent with previously applied

methodology (Surroca, Prior, & Tribo Gine, 2016). Opposite to the survey and quasi-experiment it allows to collect longitudinal data while pertaining relatively low cost, does not suffer from the low response rate problem and could be easily replicated (Kaplan, 2011; Posner & Schmidt, 1984; Osborne, Stubbart, & Ramaprasad, 2001).

Over the whole list of NLP methods, we chose the dictionary approach as the most straightforward and easily replicable (Smith & Taffler, 2000; Loughran & McDonald, 2016). It proxies the importance or attention to a key term (i.e. customer) based how often it or its synonyms ("customer", "client", "consumer", "user", "buyer" etc.) were mentioned in the narrative. As more important term would be mentioned more frequently and receive higher authors attention comparing to all the rest. The whole method is based on defined in advance dictionary – pairs of key terms and their synonyms.

To the best of our knowledge, there are no previously determined dictionaries neither over corporate goals nor over stakeholders, therefore, following Loughran & McDonald (2011) recommendation, we have to create it from scratch (see Table 10). To do so, first we define non overlapping 5 most important stakeholders and 5 most important goals commonly distinguished in literature (Adams, Licht, & Sagiv, 2011; Bowman, 1984; Crilly & Sloan, 2014; Posner & Schmidt, 1984; Flammer & Kacperczyk, 2015; Perrini & Tencati, 2006; Tantalo & Priem, 2016; Clarkson, 1995; Freeman, Managing for stakeholders: Trade-offs or value creation, 2010). Second, we search synonyms for each goal and stakeholder in two online corpus management software: Sketch engine and The Corpus of Contemporary American English. Both these engines use n-grams approach to identify synonyms over different corpora and could be easily accessed online. We keep synonyms only relevant to our research objective while dropping dubious or with multiple meanings. Third, we pilot-test (Kabanoff, Waldersee, & Cohen, 1995) the dictionary and randomly select 20 CEO/chairman statements from annual reports. We drop a synonym if it was used with wrong meaning in sampled reports. We also add a new synonym to the dictionary from sampled statements if it corresponds to a particular goal/stakeholder and does not represent more than one sense.

<< Insert Table 1 (from 1st paper)>>

Following the procedure, we calculate how many times each goal and stakeholder were mentioned in the joint CEO and chairman narrative ($n_{company,year,CEO}$). While these measures integrate managers' attention it is also affected by the length of narrative and authors writing style. To overcome such side effects and purify the measure we apply the normalization procedure separately over goals and stakeholder and switch to relative measure. We normalize the mentioning of a specific goal (stakeholder) by the number of mentioning of all 5 goals (stakeholders) in the narrative:

$$Share_{company,year,customer} = \frac{n_{company,year,customers}}{\sum_{i=1}^{5} n_{company,year,i}}$$

The new measure represents the share of managers' attention to a particular goal (stakeholder) over all 5 alternative goals (stakeholders). For simplicity of further discussion, we will address it as managers' attention while keeping in mind that it is actually a relative measure.

4.2. Regression specification

To analyze the relationship between managers' attention and company performance we run dynamic panel regression:

$$y_{it} = \beta_0 + \beta_1 y_{it-1} + \beta_2 * Att_{it} + \beta_2 * Att_{it-1} + \beta_3 * Size_{it} + \beta_4 * Risk_{it} + \eta_i + v_t + \epsilon_{it}$$

where y_{it} is one of financial and non-financial variables provided in the summary table (Table 10); Att_{it} and Att_{it-1} are respectively the current and lagged managers attention to a particular goal or stakeholder; $Size_{it}$ and $Risk_{it}$ are two standard controls for financial literature measured respectively as ln(Assets) and Debt/Assets ratio (Wintoki, Linck, & Netter, 2012; Boulouta, 2013; McGuire, Sundgren, & Schneeweis, 1988; Waddock & Graves, 1997; Hillman & Keim, 2001).

We control for company (η_i) and year (v_t) fixed effects to capture the heterogeneity in performance over time and over companies. We include current and lagged attention as an explanatory variable to distinguish between contemporaneous and on long-lasting effects and to eliminate potential bias, when explanatory lagged variable from population model is omitted in the estimated regression (Plümper, Troeger, & Manow, 2005; Reed, 2015).

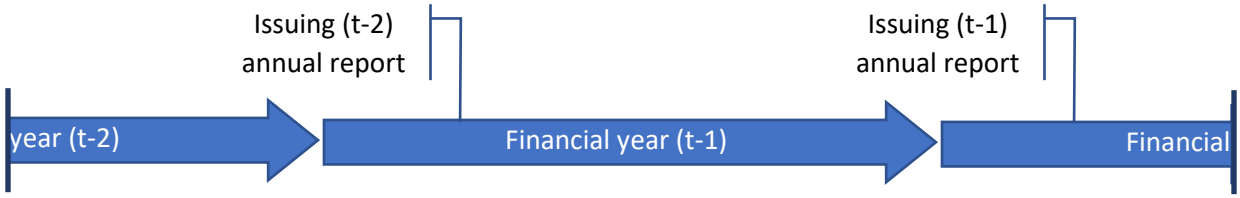
We follow several arguments and embrace the lagged dependent variable to the right-hand side of the regression. First, it account on potentially dynamic relationship (Minnick & Noga, 2010; Liu, Wei, & Xie, 2014; Sila, Gonzalez, & Hagendorff, 2016; Cremers, Litov, & Sepe, 2017) between dependent and explanatory variables that could cause an endogeneity problem (Bedendo & Colla, 2015; Wintoki, Linck, & Netter, 2012). When current company attention could be determined by the company previous financial or non-financial performances. Second, it captures performance persistence, when previous company results could predict its future outcomes. Third, it serves as a proxy to control for company broad characteristics on the particular date (Wintoki, Linck, & Netter, 2012).

Such a model represents the classical dynamic panel data regression and requires different estimation approach to address the "dynamic panel bias" (Nickell, 1981) common to fixed and random effect estimators. To tackle this problem, we follow common practice and use the system GMM estimator with two sets of instruments: in levels and in differences (Blundell & Bond, 1998; Arellano & Bover, 1995). It overcomes the weak instrumental problem and outperforms the model in differences when data are strongly persistent over time (Maurice & Sarafidis, 2015; Bond, 2002; Blundell, Bond, & Windmeijer, 2001). The significant advantage of such methodology is in its reliance on internal instruments. It uses the lagged values of dependent the variable, and eliminate search and additional data collection for an appropriate instrumental variable. The approach has broad field of implication (Wawro, 2002; Hutchison & Noy, 2005; Lochner, 2007) while stay consisted with standard IV estimators (Yongtae, Li, & Li, 2014; Liu, Wei, & Xie, 2014; Ellul & Yerramilli, 2013; Chen & King, 2014; Miletkov, Poulsen, & Wintoki, 2014; Bedendo & Colla, 2015).

The system GMM model treats all variables from the right-hand side of regression other than lagged dependent variable as exogenous and uncorrelated with the error term (Baltagi, Demetriades, & Law, 2009; Arellano & Bond, 1991). We assume that our data satisfy this assumption while as an extension consider possible exogeneity in corporate attention. Driven by theoretical recommendations we instrument it with higher lags. Facing the problem of such instrument validity, we use this approach only as a robustness check.

4.3. Reporting

Figure 3. Company reporting time frame



There is a significant delay between the end of the financial year and annual report official publication (see Figure 3). Legally, this period is bounded to 6 months for a wide range of companies (Companies House, 2018) and only to 4 months for public listed companies according to the UK legislation (FCA Handbook), specifically the Disclosure and Transparency Rules, and LSE listing regulation (London Stock Exchange). Due to such difference, it is hard to clearly justify the direction of the causality effect between current year managers' attention and current company performance.

Following the problem-driven attention, the low company performance in a particular area could attract managers' attention. As an example, company low financial performance could become a target of managers' attention and therefore indicate a negative relationship. From the other side, higher attention could allow to identify great opportunity and improve company performance. As an example, higher managers' attention to innovation could trigger the development of a new product and has a positive effect on company financial performance.

The time lag in company reporting and data construction do not allow econometrically to clearly differentiate between these two-way effects. But following the opposite direction of their impact the regression would capture extreme cases when attention driven or problem-driven outperform the other. When the significant positive effect indicates higher attention to performance direction effect than other way around. Unfortunately, such identification approach would not capture when both effects counteract each other.

5. Results

5.1. Intro

We start this section with findings shared over all regressions. These patterns stay steady as we use the same model for each of 5 goals and 5 stakeholders. First, company size (ln(Assets)) has a positive effect on company market value. It is not surprising as a bigger company would have higher market value. Second, in line with the existing literature (Huang, Li, Meschke, & Guthrie, 2015) company size has a negative effect on company financial performance (ROA) and tobinQ. It could be explained with management complexity in big organizations as it is much harder to pertain control over big company while keeping high its performance and assets utilization. Third, company risk (Debt/Assets) has a negative effect on all three previous measures. Riskier companies have lower financial performance and more negative perception from stock markets.

To verify the dynamic nature of the model and to test whether higher-order lags of the dependent variable should be incorporated in the model we follow standard practice and run autocorrelation tests (Arellano & Bond, 1991). The obtained results justify the model assumption as AR(1) statistics are significant and stay very close to 0. While, with only a few exceptions, AR(2) statistics stay not significant and far away from 0 value. Guided by heterogeneity in error terms we apply the Hansen test to verify instrument validity (Roodman, 2009b). Over all regressions, it stays equal or very close to 1.000 value, therefore, we could not reject the hypothesis of instrument validity.

In the rest of this section, we separately consider attention over each of chosen goals/stakeholders and study how it affects two groups of variables. The first group is “common dependent variables” that include general and commonly used in the literature measures of market value (tobinQ, ln(MCap)) and financial performance (ROA). The objective behind such a choice is to compare the effect within attention over different goals/stakeholders. The second group of variables is “specific dependent variables” which are individually selected for each goal/stakeholder and should better represent company corresponding performance. It let to check whether company attention corresponds to real action and could be driven either by existing problem or potential opportunity.

5.2. Attention to financial performance

We found (see Table 11) that higher managers' attention to financial performance is associated with a decline in a wide range of company expenditure: R&D, capital expenditure, donation and number of employee (columns 5-8). That corresponds to applied expenses cutting strategy when companies being anxious about their performance. Such strategy has only weakly positive and statistically non-significant effect on company financial performance measures, such as ROA (column 3). But, contrary to revenue extensive search strategy, leads to a noteworthy decline in revenue (column 4).

The regression results indicate mixed and indistinguishable from zero relationship between attention to financial performance and company's market related measures (column 1-2), such as tobinQ and ln(MCap). It could indicate that investors care more about companies' actual financial performance and do not take into account managers attention toward it. From one side, investors, being aware of mangers' impression managing technique (Brennan, Guillamon-Saorin, & Pierce, 2009), do not take that into account. From the other side, it could be the result of a negative long-term effect of cost-saving strategy that managers apply with higher attention to financial performance.

<< Insert Table 11 >>

We did not find strong evidence that attention to financial performance has a long-lasting effect on selected dependent variables. The coefficients in front of its lagged value stay statistically not significant. It has the only weakly positive value on the number of employees and could indicate that shortening the labor force could have an only temporary cost-saving effect. While on the long horizon could lead to even opposite effect with higher number of employees.

5.3. Attention to innovation

Table 12 present our empirical findings of the broad impact of managers attention to innovation. Not surprisingly, we found that it has a positive effect on company investment in R&D (column 4). That lasts long and has a more pronounced and significant impact on future R&D expenses. Contrary to that, higher attention to innovation has a negative effect on capital expenditure (column 5). Both contemporaneous and one year lagged coefficients have negative

sign while staying not statistically significant. That corresponds to a substitution effect between R&D and capital expenditure when managers become more innovation-oriented. Capital expenditure commonly is weakly linked to innovation and, as an extensive path of company growth, could actually distract financing from innovation. Over market measures, we found only weak evidence that investors positively assess company higher attention to innovation (column 1-2). Both contemporaneous and lagged coefficients stay positive but statistically not significant in tobinQ and ln(MCap) regressions.

We go further and investigate how attention to innovation per se affect investment related outcomes. Specifically, whether it leads to a higher quality delivered goods/services or improve the efficiency of production. We found evidence in support of both these hypotheses. First, higher managers' orientation on innovation has a positive effect on two goods quality related proxies: revenue and "ESG product responsibility score" (column 6-7). Second, it is linked to higher generated revenue per employee and lower energy consumption (column 8-9) as two production efficiency measures.

<< Insert Table 12>>

5.4. Attention to growth

Table 13 summaries findings how attention to growth affects company performance. First of all, as anticipated, it has a positive effect on growth associated measures. A company with higher attention to growth has higher revenue (column 4), size of the labor force (column 5) and better financial performance (ROA). Second, it has a positive effect on market-related measures (columns 1-2). That could be driven by company actual growth from one side or be the result of investors positive perception about top-managers' higher orientation on growth.

The overall impact is contemporaneous and does not last long. The coefficient on lagged company size variables on the right hand in both regressions (columns 5-6) is less than 1 and as a result the effect slowly fade away. Similarly, the lagged attention to growth per se has neutral impact as coefficients in front of lagged attention is close to zero or even have a negative sign.

<< Insert Table 13>>

5.5. Attention to operation

Surprisingly, contrary to our expectation, we found that higher attention to operation does not improve company performance but rather has the opposite effect. It corresponds to a decrease in operation and financial efficiency measures such as assets turnover ratio, payables payment period and ROA (columns 3-5). Also, it is positively related to the debt burden of company capital even after controlling for debts to assets ratio (columns 6). These results oppose to the impression management hypothesis as managers stress the weak part of company performance. And rather correspond to problem-driven attention theory. Managers, facing the decline in company efficiency, try to overcome such problem and pay additional attention to company operation.

The results also revealed a negative relationship between managers' attention and company market value measures (columns 1-2). From one side it could indicate investors negative perception about increased attention to the operation. From the other and more reasonable side, it could be just an outcome of worsened company performance. That weak company operational performance independently leads to an increase in managers' attention to operation and a decrease in company market value.

<< Insert Table 14 >>

5.6. Attention to CSR

In this part we examine how attention to CSR affect company behavior and performance (see Table 15). We study its impact on environment-related scores from Thomson Reuters ESG dataset while leaving the other ESG pillars for later related sections. In line with slack resource theory (McGuire, Sundgren, & Schneeweis, 1988) and previous findings (Waddock & Graves, 1997) the results show that higher managers' attention to CSR is associated with higher financial performance (column 3). Company is more prone to dedicate its attention to the CSR when it has excessive financial resources rather than when it faces low financial performance. From the other side, we found that attention to CSR is not a cheap talk or investor obfuscation strategy. It has a positive contemporaneous impact and more importantly long-lasting effect on company

environmental performance (columns 4-5). The coefficients for one year lagged attention to SCR is statistically significant and is higher than for current attention to CSR.

On the long term, company CSR orientation serves for the best interest of other stakeholders and rather has a negative outcome for shareholders. We found (columns 1-3) that higher top-managers' attention to CSR over time decrease company financial performance and has a negative impact on company market value. That negative effect of slack resources reallocation to CSR is higher than its reputation to gain or potentially improved management (Waddock & Graves, 1997). We expect our findings to be more precise as we control for both previous CSR performance, current and lagged attention in the same regression. Whereas the existing literature studies the effect in separate regressions and does not account for potential persistence in CSR over time.

We found a potentially positive contemporaneous but statistically insignificant effect of attention to CSR on company market price. That correspond to companies' ability mitigate or contributes to stock price crash risk with CSR engagement (Yongtae, Li, & Li, 2014). Where the corresponding recent real-world example is the lack of BP's managers' attention to safety that leads to caused ecological catastrophe and corresponding market reaction (Amernic & Craig, 2017)

In line with the existing literature on CSR, we found that bigger companies exhibit more socially responsible behavior (Waddock & Graves, 1997). The size coefficient in all CSR related variables (columns 4-7) stays positive and highly statistically significant. We also found weak evidence that risk has a negative effect on CSR. The coefficient of the corresponding variable has a negative sign and stay not statistically significant in three out of four CSR related regressions. In support of our dictionary validity, we found a positive and statistically significant contemporaneous relationship between our measure of top managers' orientation on CSR and corresponding measure from Thomson Reuters ESG dataset (column 7). Obtained independently these measures have strong and significant correlation.

<< Insert Table 15>>

5.7. Attention to shareholders

In Table 16 we report the estimation results for the relationship between top-managers' attention to shareholders and company performance. We found that it has a positive effect on company market value and correspond to investors positively perception of managers' dedication to shareholders. Coefficients in front of contemporaneous attention in both tobinQ and ln(Mcap) regression are positive and statistically significant (column 1-2).

We did not find substantial evidence that an increase in market value is mediated through improved financial performance or governance quality. Current attention to shareholders has positive statistically not significant effect on ROA (column 3). And any positive effect of improved financial performance on market value, if there is such, would be leveled out with the decrease in dividend yield (column 5). There is also no evidence that governance quality might positively affect investors' perception of the company. The current attention to the shareholders in governance, management and shareholders score stay insignificant and even has a negative sign (column 6-8). Consequently, leading to the conclusion that managers attention to shareholders per se increase company value.

Finally, we found that higher managers' attention to shareholders corresponds to company deleverage (column 9). The corresponding coefficient in front of contemporaneous and lagged attention is negative and highly significant even after controlling for debt-to-asset ratio (risk measure). It indicates that managers pay more attention to companies' main source of financing and adjust corresponding company strategy according to their views. Considering the model specification and significant effect from lagged attention to shareholders we could conclude that effect is direct and not other way around.

<< Insert Table 16 >>

5.8. Attention to employees

In Table 17 we summarize regressions results for managers attention to employes. There is no clear pattern of how it affects company performance. With few exceptions, most coefficients for current and lagged attention stay not statistically significant. There is only weak evidence in support of the problem-driven hypothesis. In all regression models, the current level of attention

to employees is associated with negative company financial performance and market value (columns 1-2). It is also associated with a decline in working environment scores (columns 5-7) and decrease in safety workforce safety (columns 8-10).

There is weak evidence that higher attention to employees over time resolves listed above problems. That higher managers' devotions to employees in a company tend to improve its working environment, improve safety and even achieve better financial performance. The coefficient for lagged attention to employees has opposite sign comparing to the coefficient for current attention (columns 3-10).

<< Insert Table 17>>

5.9. Attention to customers

The results in Table 18 point out the significant relationship between managers' attention to customers and a broad range of company performance. In line with problem driven attention hypothesis, managers become more customers oriented when there is a decline in company financial performance, its market value or customers' satisfaction (columns 1-5). In all these regressions the coefficient for current attention has a negative sign and stay statistically significant. Following the ABV model, attracted at such way attention to customers bring long-lasting positive effect on a broad range of company outcomes. First, over time it has a positive effect on investors perception about company and its market value. The coefficient for lagged attention in both tobinQ and ln(MCap) regression is positive and statistically significant (column 1-2). Second, it has a positive impact on company performance measures such as ROA and sales per employee (columns 3-4). Finally, but not surprisingly, higher managers' attention to customers improve customers' satisfaction and corresponds to an increase in the quality of delivered goods and services (columns 5-6).

<< Insert Table 18 >>

5.10. Attention to society

Table 19 summarize our findings on the impact of top-managers' attention. Similarly to the CSR, it has a negative long-lasting effect on company market value and financial performance. In all three regressions (columns 1-3) the coefficient for 1 year lagged attention has negative and statistically significant value. We also found weak evidence that higher managers' attention to society turns into action. First, corresponding coefficients for current and lagged attention has a positive sign but stay statistically not significant. Second, higher managers' attention has a positive effect on current and future level of company donations (column 5).

<< Insert Table 19 >>

6. Robustness check

6.1. Long lasting effect

We try to encounter for a potentially long-lasting effect stated in several dynamic panel data studies (Hoechle, Schmid, Walter, & Yermack, 2012). We add the second lag of corporate attention in each regression specification to measure how it affects a wide range of company behavior and performance. We find that coefficients in front of the second lag of attention almost exclusively stay insignificant while there are only minor changes in all other estimates. That indicates modest persistence in attention effect or be a consequence of small sample size.

6.2. Instrumental proliferation

Despite the fact that we use only 2 lags of the exogenous variables as instruments the model might suffer from instrumental proliferation effect (Roodman, 2009a; Roodman, 2009b). Almost all regression results have implausible good Hansen p-value equal to 1.000 while a number of regression coefficient do not have reported standard deviation. We study both sources of instrumental proliferation effect (Roodman, 2009b) and show that they do not affect our findings.

The first one is caused by a quadratic increase in instruments number with time when the model uses all previous lags for this purpose. That is not the case in this study, our model incorporates only 3 lags and results stay the same if we decrease the number of lags to 2. We go further and run the system GMM with collapsed instruments. We found almost no difference with previously

reported results. There is only minor fluctuation in coefficients values and they stay statistically significant with only a few exceptions.

The second source originates from a FEGMM weighting matrix construction when its estimation requires a high number of sample moments. We believe that it is not the case in our study. To avoid such an effect, we already use one step GMM and cluster errors over companies and years. It estimates fewer parameters comparing to two-step GMM. We go further and decrease even more the number of estimated parameters. We drop the year fixed effect but receive the same results. The only noteworthy difference is non-zero values of Hansen J-statistics over different regressions however, the corresponding p-value is still equal to 1.

Driven by such results, the high level of Hansen p-value is just partially could be caused with instrumental proliferation effect. While it's other and more important part could be explained with distinct enough instruments quality and proper model specification. There is a number of studies which use more lags as instruments but report considerably lover Hansen p-value (Suarez, Cusumano, & Kahl, 2013).

6.3. Endogeneity problem

The dynamic panel data model, following the specification, could suffer from simultaneity and measurement error problem (Wintoki, Linck, & Netter, 2012; O'Connor & Rafferty, 2012). To control for these effects, we follow the common approach and instrument potentially endogenous explanatory variables with their higher lags. Initially proposed by (Arellano & Bond, 1991; Blundell & Bond, 1998) such approach should resolve the potential problem of endogeneity and provide more precise estimators when lags represent good IV and when endogeneity is not severe (Bazzi & Clemens, 2013; Abdallah, Goergen, & O'Sullivan, 2015). This approach has shown its validity and help to properly identify the effects in different fields: corporate governance (Wintoki, Linck, & Netter, 2012; Liu, Wei, & Xie, 2014; Boulouta, 2013; O'Connor & Rafferty, 2012; Huang, Li, Meschke, & Guthrie, 2015; Hoechle, Schmid, Walter, & Yermack, 2012), strategy (Van Biesebroeck, 2005), macroeconomics (Loayza, Schmidt-Hebbel, & Servén, 2000; Beck, Levine, & Loayza, 2000; Levine, Norman, & Thorsten, 2000; Easterly, Loayza, & Montiel, 1997), political studies (Evans & Pickup, 2010; Scheve & Slaughter, 2004), management (Ullah, Akhtar, & Zaefarian, 2018; Ellul & Yerramilli, 2013), corporate finance (Chen & King, 2014; Minnick & Noga, 2010).

We run two model specification. First, we consider strict endogeneity in managers' attention and assume high persistence in corporate attention. We include its contemporaneous and lagged values in the regression and use 2nd, 3rd and 4th lags as IVs. That for all $s < t$:

$$E\langle \epsilon_{it} | y_i^{t-1}, x_i^s, \eta_i \rangle = 0; t = 1, \dots, T$$

Second, we consider managers' attention might not be persistent. That 2nd and higher order lags of endogenous variables could purely correlate with its current value of attention and might not provide precise estimates (Bazzi & Clemens, 2013). We weaken requirements and assume that attention is predetermined (sequentially exogenous) rather than is fully endogenous (Maurice & Sarafidis, 2015; Blundell, Bond, & Windmeijer, 2001). That previous equation holds for all $s \leq t$. We include its contemporaneous and lagged values of managers' attention in the regression and use 1st, 2nd and 3rd lags as IVs. It should increase the quality of instruments since 1st lag attention has a higher correlation with contemporaneous value, comparing to the 2nd lag. For both these cases, the results are very similar. We find that while many regression coefficients become insignificant they still keep the same signs.

6.4. Other modifications

We also run several regression modifications. First, we use all previous lags of the dependent variable as instrument variables. The model almost identically replicates previously stated results and correspond to the base model specification which uses only 2 lags. Second, instead of clustering the residuals (with year and company) we run the two-step GMM regression. We obtain similar to the reported earlier results. Regression coefficients maintaining the same sign and, in many cases, even have higher statistical significance. Plenty of coefficients become statistically significant contrary to the original model specification.

Third, we search for an external instrument as significant corporate decisions are driven with company-specific characteristics or could rather indicate the reporting obfuscation strategy. We follow previous identification practice and use average corporate attention over industry–year combination as an instrument (Cremers, Litov, & Sepe, 2017; Huang, Li, Meschke, & Guthrie, 2015). In such an adjusted model the coefficients for contemporaneous and lagged attention keep the same sign as before but has much higher standard deviation and therefore become statistically not significant. That corresponds to our previous findings and indicate that mean attention is not

the best instrument. It explains only part of attention variation over goals and stakeholders while its most part is the company individually driven.

Fourth, we follow the common practice and compare the system GMM and fixed effect estimated coefficients (Baltagi, Demetriades, & Law, 2009). Considering that 16 years is a long enough time interval, it should substantially minimize the dynamic panel data endogeneity problem common to fixed effect estimator. We observe that, with few exceptions, most of the coefficient keep the same sign and there is an only minor change in coefficients' statistical significance.

7. Conclusion

This study examines the relationship between managers' attention and a broad range of company performance. That top-managers, being highly constrained in their available resources, differently allocate their attention over 5 key goals and 5 key stakeholders that consequently correspond with heterogeneity in companies' outcomes. Either as a potential mediator or producing the direct impact, it interacts with company performance in both ways.

With this work we empirically test part of the (Ocasio, 1997) model and provide evidence for both problems driven and opportunity driven of managers' attention. From one side, CEO and chairman, facing weak financial or operational performance, prioritize more the erupted problem and shift their scares attention toward it. From the other side, their higher attention to the growth and investment, as a potential opportunity, lead to company real growth and enhanced company performance.

With this work we contribute to the mainly theoretical literature about the managers' attention and implement novel to the particular topic but broadly adopted in the field natural language processing approach. It allows retrospectively and more precisely measure managers' attention relatively to survey and quasi-experiment used in rare empirical studies. For this purpose, we manually create a dataset of CEO and chairman letters to shareholders for FTSE350 companies over the last 16 years, that to the best of our knowledge does not have analogs.

We contribute to the long-lasting debate about whether higher CSR orientation bring value added to the shareholders or it is approached to the best interest of other stakeholders. In line with

the later view, we found that higher managers' attention to CSR corresponds to better current financial performance and correspond to slack resources theory. We found that companies with better financial performance tend to dedicate more attention to CSR and society and carry out real CSR related initiatives. In line with the theory, we also found a negative long-lasting effect of resources allocation to SCR. The devotion of slack managers' attention to CSR decrease company market value and financial performance in the following year.

This work has also implication to the enduring stakeholders management debate. Our results indicate that higher CEO and chairman attention to the shareholders send a positive signal to the market and consequently increase company market value. It also corresponds to a company deleverage strategy as borrowed capital ratio decreases. Potentially it corresponds to the management obfuscation literature as we did not find strong evidence that higher attention to shareholders causes positive change in company governance or shareholders related measures.

We also found that problem driven hypothesis explains the shift in managers' attention to other stakeholders. CEO and chairman tend to prioritize customers more when there is a significant decline in company financial results, market value and customers' satisfaction. It allows to overcome such decline and improve all these performance measures in a year. Both managers tend to prioritize more employees when there is an increase in number fatalities and a decline in employees' satisfaction measures. However, there is only weak evidence that it has a positive effect as all coefficients stay statistically not significant.

8 Tables and figures

Table 9. ESG variables description

Name	Description
ESG Resource Use Score	Resource use category score reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
ESG Emissions Score	Emission category score measures a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes.
ESG Innovation Score	Environmental innovation category score reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.
ESG Management Score	Management category score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
ESG Shareholders Score	Shareholders category score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.
ESG CSR Strategy Score	CSR strategy category score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.
ESG Workforce Score	Workforce category score measures a company's effectiveness towards job satisfaction, healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
Governance Pillar Score	The corporate governance pillar measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances in order to generate long term shareholder value.
Customer Satisfaction	The percentage of customer satisfaction as reported by the company
Employee Satisfaction	The percentage of employee satisfaction as reported by the company.
Employees injuries	Number of injuries that caused the employees to lose at least a working day relative to one million hours worked.
Annual training Hours	Average hours of training per year per employee.
ESG Human Rights Score	Human rights category score measures a company's effectiveness towards respecting the fundamental human rights conventions.
ESG Community Score	Community category score measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics.
ESG Product Responsibility Score	Product responsibility category score reflects a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity and data privacy.
ln(EnergyUse/ Revenue)	Total direct and indirect energy consumption in gigajoules divided by net sales or revenue in US dollars.
ln(# of Employee Fatalities)	Number of employee fatalities resulting from operational accidents.
ln(Donations/ Revenue)	Total amount of all donations divided by net sales or revenue.

Table 10. Summary statistics for attention, financial and ESG measures

				Distribution			
Variable	obs.	Mean	Std.Dev.	min	5th	95th	max
Panel A: Attention measures (share)							
Financial performance	2749	0.38	0.11	0.00	0.20	0.57	0.78
Growth	2749	0.35	0.10	0.04	0.19	0.53	0.79
Innovation	2749	0.05	0.06	0.00	0.00	0.18	0.44
Operation	2749	0.16	0.09	0.00	0.05	0.33	0.61
CSR	2749	0.05	0.06	0.00	0.00	0.17	0.41
Business partners	2748	0.08	0.09	0.00	0.00	0.26	1.00
Customer	2748	0.35	0.21	0.00	0.00	0.71	1.00
Employee	2748	0.28	0.15	0.00	0.07	0.54	1.00
Shareholders	2748	0.19	0.15	0.00	0.00	0.50	1.00
Society	2748	0.09	0.10	0.00	0.00	0.29	0.64
Panel B: Financial measures							
tobinQ	3347	2.0	2.8	0.5	0.9	4.3	79.0
ln(MCap)	3366	21.7	1.5	16.7	19.4	24.6	26.3
Dividend Yield	3418	3.9	16.3	0.0	0.0	7.1	482.8
Dividend Payout Ratio	3112	79.6	452.9	0.0	0.0	166.9	22300.0
ROA	3491	9.3	17.1	-400.0	-4.7	27.3	298.8
ln(Assets)	3528	21.7	1.6	13.5	19.1	24.5	26.7
ln(Revenue)	3507	21.3	1.7	13.1	18.5	24.1	26.9
ln(Employees)	3451	8.7	2.0	1.6	5.1	11.5	13.4
ln(Revenue/Employee)	3379	12.3	1.0	7.1	10.7	14.0	15.5
ln(Sales/ Employee)	3350	12.6	1.0	7.1	11.2	14.4	16.0
LTDebt/ TotCapital	3518	39.9	423.3	0.0	0.0	74.4	25044.1
Debt / Assets	3527	0.3	0.2	0.0	0.0	0.6	1.9
CapEx/Assets	3447	49.0	50.7	0.0	1.6	138.5	710.5
R&D / Assets	515	0.0	0.0	0.0	0.0	0.1	0.4
Payables Payment Period (days)	2498	143.8	538.7	0.0	9.3	424.6	14087.0
Asset Turnover	3473	1	1	0	0	3	13
Panel C: ESG measure							
ESG Resource Use Score	2605	66	24	1	24	98	100
ESG Emissions Score	2605	63	25	0	16	97	100
ESG Innovation Score	2605	52	24	1	16	94	100
ESG Management Score	2605	51	28	0	7	95	100
ESG Shareholders Score	2605	51	29	0	6	96	100
ESG CSR Strategy Score	2605	56	28	0	11	96	100
ESG Workforce Score	2612	67	23	1	23	97	100
Governance Pillar Score	2306	52	20	4	18	84	98
Customer Satisfaction	441	79	15	9	48	97	99
Employee Satisfaction	561	77	9	35	59	90	98
Employees injuries (per 1 mil. worked hours)	911	4	4	0	0	12	25
Annual training Hours (per empl)	861	52	44	0	5	136	176
ESG Human Rights Score	2612	61	25	1	25	97	100
ESG Community Score	2612	49	29	0	5	95	100
ESG Product Responsibility Score	2612	52	27	1	10	95	100
ln(EnergyUse/ Revenue)	1122	-8	2	-21	-10	-4	-2
ln(# of Employee Fatalities)	685	1	1	0	0	3	4
ln(Donations/ Revenue)	2135	-8	2	-14	-11	-5	-3

Table 11. The relationship between attention to financials and company performance

	common dependent variables			specific dependent variables				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	tobinQ	ln(MCap)	ROA	ln(Revenue)	R&D / Assets	CapEx/ Assets	ln(Donations / Revenue)	ln(Employees)
FinPerform attention (t)	0.014	-0.038	0.557	-0.150**	-0.015	-6.619	-0.445*	-0.164***
	(0.170)	(0.125)	(1.128)	(0.059)	(0.011)	(4.600)	(0.243)	(0.061)
FinPerform attention (t-1)	0.072	0.013	0.794	0.080	0.006	-6.214	-0.405	0.107*
	(0.144)	(0.097)	(0.968)	(0.049)	(0.007)	(6.125)	(0.317)	(0.065)
dependentVariable (t-1)	0.797***	0.729***	0.593***	0.971***	0.603**	0.457***	0.689***	0.908***
	(0.088)	(0.105)	(0.067)	(0.008)	(0.268)	(0.012)	(0.117)	(0.032)
ln(Assets) (t)	-0.045***	0.182**	-0.304***	0.025***	-0.001	0.649	0.067	0.052**
	(0.009)	(0.082)	(0.096)	(0.009)	(0.001)	(0.726)	(0.049)	(0.024)
debt / Assets (t)	-0.095	-0.312***	-5.349***	-0.122***	-0.030	4.582	0.157	-0.012
	(0.067)	(0.075)	(0.997)	(0.043)	(0.020)	(5.274)	(0.222)	(0.043)
Constant	1.362***	2.033***	10.692***	0.130	0.051	8.670	-3.776**	-0.245
	(0.284)	(0.640)	(2.223)	(0.123)	(0.036)	(14.819)	(1.909)	(0.280)
Observations	1,866	1,916	1,969	2,035	351	1,987	1,336	2,028
Number of keyNameID	221	222	236	237	49	237	201	233
Company FE	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.032	0.000	0.000	0.000
AR2 p-value	0.709	0.691	0.242	0.017	0.694	0.92	0.198	0.113
Hansen p-value	1	1	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 12. The relationship between attention to innovation and company performance

	common dependent variables			specific dependent variables					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	tobinQ	ln(MCap)	ROA	R&D / Assets	CapEx/ Assets	ln(Revenue)	ESG Product Responsibility Score	ln(Revenue/Employee)	ln(EnergyUse/ Revenue)
Innovation attention (t)	0.007	0.252	2.212	0.071**	-11.821	0.295***	25.244**	0.285***	-2.659***
	(0.255)	(0.242)	(2.965)	(0.034)	(8.188)	(0.103)	(12.357)	(0.090)	(0.874)
Innovation attention (t-1)	0.362	0.258	-1.169	0.044	-9.215	-0.245***	-16.790	-0.240***	-1.528*
	(0.297)	(0.192)	(2.715)	(0.028)	(9.050)	(0.067)	(14.812)	(0.077)	(0.835)
dependentVariable (t-1)	0.790***	0.722***	0.598***	0.466*	0.457***	0.966***	0.570***	0.959	0.324
	(0.083)	(0.105)	(0.065)	(0.245)	(0.005)	(0.009)	(0.037)	(.)	(0.198)
ln(Assets) (t)	-0.047***	0.189**	-0.325***	-0.002*	0.812	0.031***	3.076***	0.006*	0.081
	(0.009)	(0.083)	(0.096)	(0.001)	(0.750)	(0.010)	(0.400)	(0.004)	(0.081)
debt / Assets (t)	-0.077	-0.304***	-5.255***	-0.028*	3.112	-0.129***	9.069**	-0.119*	0.746
	(0.068)	(0.075)	(0.965)	(0.016)	(5.479)	(0.044)	(3.755)	(0.062)	(0.458)
Constant	1.425***	1.979***	11.416***	0.059*	1.930	0.120	-46.650***	0.366	-6.702**
	(0.203)	(0.559)	(2.016)	(0.032)	(15.450)	(0.093)	(8.907)	(.)	(2.619)
Observations	1,866	1,916	1,969	351	1,987	2,035	1,713	1,950	705
Number of keyNameID	221	222	236	49	237	237	230	224	128
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.051	0.000	0.000	0.000	0.000	0.021
AR2 p-value	0.688	0.706	0.261	0.787	0.822	0.014	0.159	0.249	0.914
Hansen p-value	0.001	0.000	1.040	0.000	0.000	0.000	0.000	0.000	0.000

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 13. The relationship between attention to growth and company performance

	common dependent variables			specific dependent variables	
	(1)	(2)	(3)	(4)	(5)
VARIABLES	tobinQ	ln(MCap)	ROA	ln(Revenue)	ln(Employees)
Growth attention (t)	0.081	0.226**	1.750	0.158***	0.193***
	(0.139)	(0.092)	(1.106)	(0.048)	(0.063)
Growth attention (t-1)	-0.001	-0.126	0.034	-0.007	0.020
	(0.130)	(0.107)	(1.266)	(0.045)	(0.070)
dependentVariable (t-1)	0.787***	0.725***	0.594***	0.975***	0.913***
	(0.082)	(0.107)	(0.065)	(0.008)	(0.022)
ln(Assets) (t)	-0.047***	0.185**	-0.323***	0.024***	0.050***
	(0.009)	(0.084)	(0.097)	(0.008)	(0.017)
debt / Assets (t)	-0.092	-0.313***	-5.269***	-0.115***	-0.005
	(0.068)	(0.076)	(0.970)	(0.042)	(0.042)
Constant	1.433***	1.985***	11.768***	-0.011	-0.355*
	(0.234)	(0.565)	(2.081)	(0.102)	(0.199)
Observations	1,866	1,916	1,969	2,035	2,028
Number of keyNameID	221	222	236	237	233
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000
AR2 p-value	0.717	0.712	0.244	0.018	0.104
Hansen p-value	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 14. The relationship between attention to operation and company performance

	common dependent variables			specific dependent variables		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	tobinQ	ln(MCap)	ROA	Asset Turnover	Payables Payment Period (days)	LTDebt/ TotCapital
Operation attention (t)	-0.333	-0.516***	-7.920***	-0.064	-28.286**	3.697
	(0.204)	(0.178)	(1.901)	(0.046)	(11.671)	(2.266)
Operation attention (t-1)	-0.068	0.185	1.102	0.051	-4.478	-0.446
	(0.158)	(0.124)	(1.273)	(0.046)	(12.688)	(3.007)
dependentVariable (t-1)	0.774***	0.714***	0.574***	0.868***	0.751***	0.163***
	(0.079)	(0.109)	(0.060)	(0.068)	(0.095)	(0.061)
ln(Assets) (t)	-0.046***	0.197**	-0.286***	-0.010**	2.353**	0.382
	(0.009)	(0.086)	(0.097)	(0.004)	(1.024)	(0.285)
debt / Assets (t)	-0.086	-0.316***	-5.339***	-0.079*	-2.833	96.766***
	(0.070)	(0.079)	(0.979)	(0.043)	(7.197)	(7.082)
Constant	1.517***	2.130***	12.002***	0.327**	-33.018*	-6.347
	(0.222)	(0.609)	(1.994)	(0.152)	(17.926)	(6.202)
Observations	1,866	1,916	1,969	2,058	1,400	1,850
Number of keyNameID	221	222	236	231	212	224
Company FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.054	0.000
AR2 p-value	0.725	0.601	0.218	0.419	0.045	0.647
Hansen p-value	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 15. The relationship between attention to CSR and company performance

	common dependent variables			specific dependent variables			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	tobinQ	ln(MCap)	ROA	ESG Resource Use Score	ESG Emissions Score	ESG Innovation Score	ESG CSR Strategy Score
CSR attention (t)	0.346	0.198	7.430***	7.215	9.961	-7.952	28.658***
	(0.217)	(0.135)	(1.121)	(6.528)	(6.255)	(9.792)	(9.204)
CSR attention (t-1)	-0.551**	-0.273*	-4.983**	12.195***	15.111**	10.989	4.791
	(0.225)	(0.165)	(2.327)	(3.459)	(6.810)	(7.693)	(7.886)
dependentVariable (t-1)	0.799***	0.727***	0.597***	0.552***	0.444***	0.650***	0.670***
	(0.082)	(0.105)	(0.068)	(0.066)	(0.136)	(0.050)	(0.071)
ln(Assets) (t)	-0.044***	0.184**	-0.356***	3.132***	3.778***	1.440***	2.735***
	(0.009)	(0.084)	(0.096)	(0.727)	(1.086)	(0.470)	(0.761)
Debt / Assets (t)	-0.089	-0.313***	-5.299***	2.507	-4.854	-2.232	-1.406
	(0.066)	(0.077)	(0.976)	(2.537)	(3.277)	(2.760)	(2.527)
Constant	1.275***	2.011***	12.425***	-40.475***	-48.377***	0.000	-33.771**
	(0.251)	(0.573)	(2.095)	(13.015)	(17.353)	(0.000)	(14.238)
Observations	1,866	1,916	1,969	1,712	1,712	1,712	1,712
Number of keyNameID	221	222	236	229	229	229	229
Company FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR2 p-value	0.715	0.699	0.238	0.032	0.295	0.225	0.774
Hansen p-value	1	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 16. The relationship between attention to shareholders and company performance

	common dependent variables			specific dependent variables					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	tobinQ	ln(MCap)	ROA	LTDebt/ TotCapital	Dividend Yield	Dividend Payout Ratio	Governance Pillar Score	ESG Management Score	ESG Shareholders Score
Shareholders attention (t)	0.197***	0.136**	1.076	-3.828***	-0.404**	-0.632	-1.381	-0.177	-2.343
	(0.073)	(0.062)	(0.860)	(1.105)	(0.187)	(3.706)	(3.765)	(3.764)	(5.960)
Shareholders attention (t-1)	0.039	-0.066	0.223	-4.110***	-0.312*	0.183	4.064	5.917	6.576
	(0.079)	(0.057)	(0.805)	(1.225)	(0.174)	(5.714)	(3.674)	(4.116)	(4.633)
dependentVariable (t-1)	0.797***	0.730***	0.595***	0.169***	0.379***	0.250***	0.435***	0.399***	0.509***
	(0.081)	(0.105)	(0.065)	(0.062)	(0.069)	(0.083)	(0.068)	(0.024)	(0.025)
ln(Assets) (t)	-0.050***	0.181**	-0.351***	0.518*	0.098***	0.521	1.566***	0.886*	0.829
	(0.009)	(0.083)	(0.094)	(0.277)	(0.033)	(0.601)	(0.462)	(0.522)	(0.585)
debt / Assets (t)	-0.095	-0.316***	-5.287***	96.491***	0.505	18.755***	2.242	2.097	0.002
	(0.067)	(0.076)	(0.962)	(7.170)	(0.342)	(6.346)	(3.588)	(4.505)	(3.280)
Constant	1.368***	2.002***	12.771***	-6.754	-0.315	25.812**	-6.669	0.000	4.726
	(0.226)	(0.584)	(1.992)	(6.181)	(0.731)	(12.216)	(8.914)	(0.000)	(12.213)
Observations	1,865	1,916	1,968	1,848	1,797	1,614	1,531	1,710	1,710
Number of keyNameID	221	222	236	224	225	222	213	229	229
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AR2 p-value	0.627	0.549	0.254	0.592	0.059	0.470	0.632	0.976	0.772
Hansen p-value	1	1	1	1	1	1	1	1	1

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 17. The relationship between attention to employees and company performance

	common dependent variables			specific dependent variables						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	tobinQ	ln(MCap)	ROA	ln(Employees)	ESG Workforce Score	ESG Human Rights Score	Employee Satisfaction	ln(# of Employee Fatalities)	Employees injuries (per 1 mil. worked hours)	Annual training Hours (per empl)
Employee attention (t)	-0.105	-0.062	-0.674	0.076	-4.830	-2.366	-0.547	0.766***	1.066*	10.582**
	(0.089)	(0.061)	(0.509)	(0.047)	(4.098)	(2.961)	(1.137)	(0.198)	(0.564)	(5.339)
Employee attention (t-1)	-0.078	-0.024	1.228	0.023	0.907	4.878	1.578	-0.186	-0.568	-9.518
	(0.069)	(0.070)	(0.858)	(0.031)	(3.593)	(3.571)	(2.556)	(0.273)	(0.519)	(6.224)
dependentVariable (t-1)	0.801***	0.730***	0.600***	0.894***	0.521***	0.654***	0.909	0.284	0.881	0.783***
	(0.080)	(0.106)	(0.066)	(0.019)	(0.060)	(0.076)	(.)	(0.184)	(.)	(0.108)
ln(Assets) (t)	-0.047***	0.181**	-0.325***	0.062***	2.384***	2.733***	-0.112	0.123***	0.005	0.034
	(0.009)	(0.083)	(0.097)	(0.016)	(0.511)	(0.668)	(0.137)	(0.035)	(.)	(1.472)
debt / Assets (t)	-0.098	-0.317***	-5.203***	-0.008	-0.122	-2.300	0.957	0.461	-0.455*	0.595
	(0.068)	(0.077)	(0.954)	(0.048)	(2.387)	(2.380)	(1.010)	(0.441)	(0.240)	(3.626)
Constant	1.380***	2.041***	12.240***	-0.402**	-19.369*	-39.661***	10.810***	-1.725**	-0.219	-11.054
	(0.243)	(0.598)	(2.199)	(0.200)	(10.557)	(11.801)	(2.337)	(0.772)	(.)	(32.979)
Observations	1,865	1,916	1,968	2,028	1,711	1,711	283	306	541	476
Number of keyNameID	221	222	236	233	230	230	96	69	111	114
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000	0.000	0.061	0.009	0.001	0.000
AR2 p-value	0.709	0.673	0.279	0.0983	0.690	0.112	0.015	0.058	0.773	0.002
Hansen p-value	1	1	1	1	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 18. The relationship between attention to customers and company performance

	common dependent variables			specific dependent variables		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	tobinQ	ln(MCap)	ROA	ln(Sales/ Employee)	Customer Satisfaction	ESG Product Responsibility Score
Customer attention (t)	-0.112*	-0.100*	-0.843	-0.092***	-5.719*	4.652
	(0.061)	(0.058)	(0.637)	(0.030)	(2.972)	(3.271)
Customer attention (t-1)	0.153**	0.189***	0.121	0.030	4.440	6.587*
	(0.065)	(0.066)	(0.701)	(0.032)	(3.255)	(3.411)
dependentVariable (t-1)	0.797***	0.727***	0.598***	0.724***	0.830***	0.568***
	(0.082)	(0.105)	(0.061)	(0.042)	(0.024)	(0.036)
ln(Assets) (t)	-0.046***	0.185**	-0.345***	0.032***	0.483	3.428***
	(0.008)	(0.083)	(0.090)	(0.010)	(0.728)	(0.417)
debt / Assets (t)	-0.094	-0.321***	-5.183***	-0.313***	-3.315	7.767**
	(0.069)	(0.078)	(0.937)	(0.094)	(4.881)	(3.908)
Constant	1.296***	2.012***	12.570***	2.893***	9.733	-57.751***
	(0.208)	(0.550)	(1.855)	(0.473)	(18.347)	(9.705)
Observations	1,865	1,916	1,968	1,923	224	1,711
Number of keyNameID	221	222	236	226	78	230
Company FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000	0.000
AR2 p-value	0.577	0.521	0.240	0.004	0.314	0.146
Hansen p-value	1	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 19. The relationship between attention to society and company performance

	common dependent variables			specific dependent variables	
	(1)	(2)	(3)	(4)	(5)
VARIABLES	tobinQ	ln(MCap)	ROA	ESG Community Score	ln(Donations/ Revenue)
Society attention (t)	0.005	-0.013	1.961	0.673	0.456**
	(0.088)	(0.081)	(1.278)	(5.361)	(0.187)
Society attention (t-1)	-0.198	-0.225*	-2.485*	2.482	0.599**
	(0.125)	(0.134)	(1.386)	(5.901)	(0.270)
dependentVariable (t-1)	0.792***	0.724***	0.603***	0.496***	0.683***
	(0.080)	(0.105)	(0.066)	(0.077)	(0.115)
ln(Assets) (t)	-0.044***	0.189**	-0.321***	4.171***	0.065
	(0.009)	(0.083)	(0.093)	(0.726)	(0.047)
Debt / Assets (t)	-0.091	-0.318***	-5.183***	-0.088	0.166
	(0.066)	(0.077)	(0.940)	(3.984)	(0.240)
Constant	1.407***	2.037***	11.475***	0.000	0.000
	(0.215)	(0.577)	(2.004)	(0.000)	(0.000)
Observations	1,865	1,916	1,968	1,711	1,334
Number of keyNameID	221	222	236	230	201
Company FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
AR1 p-value	0.000	0.000	0.000	0.000	0.000
AR2 p-value	0.677	0.698	0.234	0.028	0.211
Hansen p-value	1	1	1	1	1

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Paper 3: Responsible investors, ownership concentration, and CSR performance and communications

1 Introduction

Shareholders exert a significant influence on corporate decision-making. By exercising their voting rights, appointing directors, or through other formal or informal channels, they contribute to strategy formulation and policy selection. Several studies demonstrate that shareholders and their characteristics have important effects on strategic decision-making, including R&D investment (Baysinger, Kosnik, & Turk, 1991; Hoskisson, Hitt, Johnson, & Grossman, 2002) and international expansion (Dhanaraj & Beamish, 2004; Cui & Jiang, 2012).

More recently, this literature has investigated the effects of equity ownership on the propensity of firms to engage in corporate social responsibility (CSR). A fundamental assumption in this literature is that shareholders are heterogeneous in how they evaluate CSR initiatives (Dam & Scholtens, 2013; Mackenzie, Rees, & Rodion, 2013). CSR engagement is typically conceptualized as an investment, costly in the short term but potentially useful in the long term. The benefits of CSR engagement are also conceptualized as both financial and non-financial. CSR engagement may increase shareholder value by improving corporate image and reputation, for instance by attracting capital from socially responsible investors or sales from socially conscious customers. Companies may also engage in CSR for non-instrumental reasons, for instance because their owners or managers intrinsically care about social problems, or because they are responsive to societal pressures.

Owners may differ in their temporal orientations and in the weight that they attach to financial and non-financial outcomes. Investors with short time horizons may focus on quarterly earnings and may therefore be reluctant to support CSR initiatives (Kim, Wan, Wang, & Yang, 2019; McCahery, Sautner, & Starks, 2016; Neubaum & Zahra, 2006). Long-term investors, by contrast, may value these investments more highly (Aguilera, Vicente, Capapé, & Cuñat, 2019; Nguyen, Kecskés, & Mansi, 2020). Family owners may have a strong socio-emotional connection to their

firms; therefore, they may invest substantially in CSR to enhance their company's image and build a positive legacy (Zellweger, Nason, Nordqvist, & Brush, 2013; Block, 2010). Similarly, state-owned companies may be especially likely to pursue social or political goals such as full employment (Bai, Lu, & Tao, 2006; Cazurra, Inkpen, Musacchio, & Ramaswam, 2014)[22].

Despite these conjectures, however, the empirical evidence on the effects of owners on CSR has remained largely inconclusive (see Faller & zu Knyphausen-Aufseß, 2018, for an excellent survey). Some studies find results consistent with the conjectures above, other studies find opposite results, and others still find insignificant results. There is no robust evidence, for instance, that short-term institutional investors such as mutual funds or investment banks are associated with lower levels of CSR engagement (Johnson & Greening, 1999; Dam & Scholtens, 2013).[23] Family ownership is typically associated with greater CSR engagement (Berrone, Cruz, & Gomez-Mejia, 2010; Cruz, Larraza–Kintana, Garcés–Galdeano, & Berrone, 2014); however, managerial equity ownership (which is also strongly associated with family ownership) tends to reduce CSR engagement. State ownership is correlated with higher CSR engagement in some countries (e.g., Western Europe; see Boubakri, Guedhami, Kwok, & Wang, 2019) but not in others (e.g., China; see McGuinness, Vieito, & Wang , 2017).

One possible explanation for these inconclusive results is that, even within specific ownership classes (e.g., mutual funds, family owners), significant heterogeneity may persist. For instance, while some mutual funds may pay little attention to CSR, others may value CSR highly as a way to insure against corporate scandals and reputational risk. It seems important, therefore, to measure CSR orientation at the level of individual investors, rather than differentiating between relatively heterogeneous ownership classes.

In this paper, we take a step in that direction. We follow recent practice (Dyck, Lins, Roth, & Wagner, 2019) and distinguish between *responsible investors* – those that have publicly pledged to implement the United Nations Principles of Responsible Investment (UNPRI or PRI) – and *non-responsible investors*, who have not. Because of the visibility of this commitment, we expect

[23] By contrast, the evidence that long-term institutional investors (e.g., pension funds, life insurance companies) support CSR investment is much more compelling (Chen, Dong, & Lin, 2020).

responsible investors to care more about CSR initiatives than non-responsible investors. The pledge may thus provide a useful measure of (pro-)CSR orientation at the individual investor level.

We examine how the CSR orientation of a firm's investors (responsible versus non-responsible) and ownership concentration affect the firm's propensity to engage in CSR. We argue that, because non-responsible investors primarily focus on short-term financial results, they may be reluctant to support CSR initiatives that may compromise profitability, especially when they own a large stake in a company. As such, ownership concentration in the hands of non-responsible investors should be correlated with poor CSR performance.

By contrast, the effects of ownership concentration in the hands of responsible investors should be more nuanced. On the one hand, just like non-responsible investors, responsible investors will also care about the short-term impact of CSR initiatives on profitability. On the other hand, however, they may also enjoy greater non-financial or long-term benefits from CSR initiatives. Responsible investors may also feel compelled to "walk the talk" when their stake in a company is particularly large. As a result of these conflicting incentives, the effects of ownership concentration may less clear-cut for responsible investors than for non-responsible investors.

Using a large and comprehensive dataset of FTSE 350 companies over the period 2006-2016, we empirically examine these issues. We provide three sets of results. First, consistent with existing evidence from Western countries (e.g., Walls, Berrone, & Phan, 2012; Dam & Scholtens, 2012), we document that ownership concentration is associated with lower CSR performance. Second, we show that responsible investors' total ownership stake is associated with higher levels of CSR performance. This supports the presumption that responsible investors are more committed to CSR. Third, and most importantly, we show that the results on ownership concentration are driven by non-responsible investors. Consistent with our theoretical framework, non-responsible investors seem reluctant to engage in CSR especially when their stake in a company is large. By contrast, responsible investors appear to evaluate the costs and the benefits of CSR engagement in a more balanced fashion.

In addition to CSR performance, we also examine the effects of CSR orientation and ownership concentration on CSR communications. We measure CSR communications by performing textual analysis of annual reports. The more a company discusses CSR in its CEO or chairman's letters to shareholders, the higher the company's level of CSR communications. We classify companies into

four mutually exclusive types, depending on whether their levels of CSR performance and communications are above or below the median values in our sample. For instance, a company is classified as a "CSR public doer" (respectively, a "CSR non-doer") if both its CSR performance and CSR communications are above (respectively, below) the sample median. A company is classified as a "greenwasher" if its CSR performance is below the median but its CSR communications are above the median. Finally, a company is classified as a "CSR silent-doer" if its CSR performance is above the median but its CSR communications are below the median.

We show that, as the total ownership stake of responsible investors increases, a company is more likely to be classified as a public-doer, and less likely to be classified as a non-doer. Moreover, higher ownership concentration decreases the probability that the company is classified as a silent-doer, and increases the probability that it is classified as a greenwasher. These ownership concentration results are also driven by non-responsible investors. They suggest that companies owned by non-responsible investors attempt to make up for their low levels of CSR engagement by mentioning CSR more in their communications with investors. Companies owned by responsible investors engage more in CSR but are also relatively more modest in communicating their initiatives.

This paper makes several contributions to the corporate governance literature. Scholars and practitioners have suggested that companies committed to CSR should pay attention to the background of their investors (e.g., Dam & Scholtens, 2012). We find that the pledge to implement the Principles of Responsible Investment is a useful signal of CSR orientation. Distributed ownership also appears to be more conducive to CSR engagement than concentrated ownership.

A major contribution of this paper is to demonstrate the importance of considering the effects of CSR orientation and ownership concentration *jointly*. CSR performance is reduced only when the ownership of a firm is concentrated in the hands of non-responsible investors. Ownership concentration in the hands of the largest responsible investors seems to have a positive effect on CSR performance, although this effect is not statistically significant. Either because they include non-financial considerations or long-term benefits in their calculations, responsible investors appear to put greater weight on the potential benefits of CSR investment than non-responsible investors.

Compared to non-responsible investors, responsible investors also appear to have different preferences concerning CSR communications. They appear to exercise more restraint in discussing their CSR goals or outcomes. Companies may also want to take the preferences of their investors regarding CSR communications into account when setting their strategies.

2 Conceptual framework

As standard in the corporate governance literature, we use the terms "CSR", "CSR initiatives", and "CSR engagement" interchangeably to refer to specific corporate activities that show socially responsible or environmentally conscious behavior (see, e.g., Faller & zu Knyphausen-Aufseß, 2018). Examples of CSR initiatives include Amazon's investments in electric vehicles to reduce its carbon footprint, Tesco's commitment to healthier food choices, and Xerox's community involvement program.

A key concern in the literature is to understand the motivations that induce firms to engage in CSR. CSR initiatives typically involve financial outlays (e.g., replacing a fleet of petrol vehicles with electric vehicles) and, given these costs, it is not clear why corporations should engage in CSR.

Three groups of theories have been used to help explain corporate engagement in CSR (Carroll, 1999; Garriga & Melé, 2004). For the sake of exposition, we label these perspectives the agency view, the instrumental stakeholder view, and the non-instrumental stakeholder view. We acknowledge, however, that within each perspective, significant differences exist.

Agency theory postulates that there are significant conflicts of interests between managers and shareholders. In the absence of monitoring or appropriate incentives, managers would frequently take actions that benefit them personally at the expense of their firm's shareholders. Managers could for instance award themselves excessive pay or perks (Jensen & Meckling, 1976) or may engage in value-destroying "empire building" (Jensen, 1986; Jensen & Murphy, 1990).

One possible type of agency problem is overinvestment in CSR. Managers may want to engage in CSR because it boosts their egos or reputations, while the costs are borne by the firm. Shareholders, by contrast, may be less eager to engage in CSR, because they are the ones that ultimately bear the costs of such investments.[24] The recent removal of Danone's CEO illustrates the possibility of backlash by activist shareholders, when sustainability performance is not matched by satisfactory financial results.[25]

To summarize, the agency view conceptualizes CSR engagement as the outcome of an agency problem. Managers can be tempted to use shareholders' money to pursue their own socio-political goals. High-powered incentives (e.g., CEO ownership) may help mitigate the problem, by better aligning managers' preferences with those of shareholders. Shareholders may also actively monitor managers and intervene in corporate matters. The presence of a powerful blockholder (or, more generally, high shareholder concentration) would help in this case, because large shareholders have both greater incentives and greater ability to affect corporate decision-making.

A second class of theories emphasize the financial benefits that accrue to shareholders from CSR engagement. These theories do not conceptualize CSR as a "waste" or the outcome of an agency problem. Rather, they argue that companies may invest in CSR to enhance their image and reputation, thereby improving customer loyalty (Luo & Bhattacharya, 2009; Lev, Petrovits, & Radhakrishnan, 2010; Elfenbein, Fisman, & McManus, 2012; McWilliams & Siegel, 2001), employees satisfaction (Flammer & Kacperczyk, 2019; Burbano, 2016) or access to finance (Cheng, Ioannou, & Serafeim, 2014; Chava, 2014; Cheah, Jamali, Johnson, & Sung, 2011; Goss & Roberts, 2011; Ghoul, Guedhami, Kwok, & Mishra, 2011). Many authors also conceptualize

[24] In practice, of course, it is difficult to determine what an "optimal" level of CSR investment should be, and what instead constitutes CSR "overinvestment". The optimality of different policies and contingent on shareholders' preferences, which may be hard to elicit and aggregate.

[25] See, for instance, https://www.forbes.com/sites/frankvangansbeke/2021/03/20/sustainability-and-the-downfall-of-danone-ceo-faber-12/?sh=7735e5345b16.

CSR expenditures as a form of insurance against reputational risk (Jo & Na, 2012; Albuquerque, Koskinen, & Zhang, 2019).

Because the instrumental theories above emphasize the benefits to shareholders of CSR engagement, they do not constitute a radical departure from the traditional 'shareholder primacy view' and can be interpreted as an 'enlightened' version of it (Jones, 1995; Garriga & Melé, 2004). If there is a difference between instrumental theories of CSR engagement and the traditional shareholder primacy view, is that instrumental theories emphasize non-obvious, long term benefits of CSR engagement. It follows that companies with a higher proportion of long-term investors should engage more in CSR, because they would care more about these long-term benefits. Companies that engage more in CSR should also attract a greater proportion of long-term investors.

Third, non-instrumental theories of CSR engagement emphasize non-financial reasons for investing in CSR. These theories conceptualize business as an integral part of society, which cannot operate in isolation from governments, communities and other social groups. To maintain their legitimacy in society, companies must behave responsibly and serve a higher purpose than simply maximizing profits. Because with power also comes social responsibility, corporations should use their resources and political influence for the common good (Scherer & Palazzo, 2011; Frynas & Stephens, 2015). Some argue socially responsible behaviors are simply the right thing to do, and should be done regardless of whether these behaviors increases company profits (Muller & Kolk, 2010; Garriga & Melé, 2004).

2.1 Shareholders' heterogeneity in CSR orientations

All these perspectives emphasize shareholders' preferences as a major determinant of CSR engagement. Non-instrumental theories argue that shareholders often care about behaving ethically and doing the "right" thing; thus, they enjoy some intrinsic or non-financial benefits when their companies engage in CSR. Instrumental theories posit that companies often benefit from CSR investments, at least in the long term. Agency theories suggest instead that CSR initiatives are often initiated by management and may be excessive from a purely profit-maximizing viewpoint; thus, shareholders may have an incentive to reduce them.

Shareholders' preferences matter because shareholders have many tools at their disposal to influence corporate decisions (Dimson, Karakaş, & Li, 2015; Sharma & Henriques, 2005). Investors with large ownership stakes, for instance, may directly engage with management. They frequently attend meetings where their concerns can be raised and adjustments can be demanded. They may also appoint directors who can act and vote in their best interest.

Even with smaller ownership stakes, shareholders may still be able to influence corporate decision-making. Small and medium investors could perform screening before investing to avoid companies that do not act in line with their expectations. The threat of investors' exit is a powerful device to force managers to listen carefully to investors' concerns. Investors can issue shareholders proposals to raise awareness on specific issues and vote on these proposals.

Because shareholders exert a significant influence on corporate decision-making, scholars have attempted to understand whether different types of owners may tend to encourage different types of corporate policies. In particular, the literature has suggested that investors may be heterogeneous in the way they evaluate and support CSR initiatives. Some investors may perceive CSR as excessive and discourage it, while others may actively encourage it.

CSR orientation, for instance, has been linked with characteristics of individual shareholders such as gender, age, wealth, and education (Cheah, Jamali, Johnson, & Sung, 2011). Among institutional investors, a significant influence appears to be exerted by investment horizon (Gloßner, 2019; Kim, Kim, Kim, & Park, 2019), location (Kim, Wan, Wang, & Yang, 2019), control over investment (Cox, Brammer, & Millington, 2008), and institutional investor type (Dyck, Lins, Roth, & Wagner, 2019).

Building on the discussion above, we expect shareholders with non-instrumental motives to be especially likely to encourage their firms to behave responsibly, even when this comes in conflict with profitability. Moreover, those with longer investment horizons should be more likely to support CSR initiatives than those with shorter investment horizons. Short-term, purely financially motivated investors should be especially likely to oppose CSR initiatives.

2.2 Responsible vs non-responsible investors

Most existing research assumes that specific categories of shareholders (e.g., family owners, mutual funds) are more or less oriented toward CSR than others. This is problematic because, even within specific categories, substantial heterogeneity may persist. In this paper, in line with Dyck, Lins, Roth, & Wagner (2019), we infer the CSR orientation of individual investors depending on whether they have committed to the United Nations Principles for Responsible Investment (UNPRI, or PRI).

The PRI is an international organization created to encourage responsible investment, defined "as a strategy and practice to incorporate environmental, social and governance (ESG) factors in investment decisions and active ownership".[26] PRI signatories commit to follow 6 key principles and incorporate ESG issues in their investment and stewardship policies, while also promoting these principles in the investment industry. The membership is purely voluntary and does not raise legal obligations; however, it attracts public attention and could lead to reputational damage if signatories are non-compliant. Significant non-compliance can also lead to membership termination. During the period 2018-2020, for instance, the PRI warned 165 members that they were not meeting the minimum requirements and, after 2 years of engagement, five signatories were delisted (23 also delisted themselves for a variety of reasons).[27]

The key assumption we make is that PRI signatories are on average more oriented toward CSR than non-signatories. This could be either because PRI signatories are investors with strong non-instrumental motivations or because they are especially long-term oriented (or both). Accordingly, we categorize PRI signatories as "responsible investors" and hypothesize that they will be associated with firms with superior CSR performance (i.e., ESG scores). This positive association may emerge either *ex ante* because, at the investment selection stage, responsible investors focus on high CSR performers, or *ex post* because responsible investors push their firms to behave responsibly. By contrast, "non-responsible investors" (i.e., non-PRI signatories) may

[26] https://www.unpri.org/download?ac=10223
[27] https://www.unpri.org/reporting-and-assessment/signatories-delisted-for-not-meeting-the-minimum-requirements/6480.article
https://www.reuters.com/article/global-investments-pri-idUKL5N2GK24T

disproportionately be drawn from the set of purely financially motivated or short-term investors. Thus, they may be more likely to be associated with firms with poor CSR records.

> **Hypothesis 1.** *Companies where responsible investors have a larger ownership stake exhibit better CSR performance than companies where responsible investors have a lower ownership stake.*

Ownership concentration is also likely to exert a significant influence in the propensity of a company to engage in CSR. A robust finding in the literature is that, at least in Western countries, greater ownership concentration is associated with lower levels of CSR performance (e.g., Walls, Berrone, & Phan, 2012; Dam & Scholtens, 2012). A possible explanation for this finding is offered by agency theory. Agency theory holds that only shareholders with significant ownership stakes have the incentives to properly monitor management. When there are no large shareholders, managers will be largely free to overinvest in CSR. However, when large shareholders are present, monitoring will improve and "wasteful" CSR expenses will be reduced.

Note that agency theory assumes that shareholders will often oppose CSR initiatives started by management. This may not necessarily be true. In particular, as argued above, some "responsible" investors may have a strong CSR orientation. Thus, we hypothesize that the negative association between ownership concentration and CSR performance will be largely confined to the "greedy", short-term investors typically associated with agency theory (i.e., the non-responsible investors). By contrast, the prediction for how ownership concentration in the hands of responsible investors will affect CSR performance is more nuanced. Specifically, the prediction will depend on whether responsible investors are keener to engage in CSR than management. If they are, then higher ownership concentration in the hands of responsible investors will be associated with superior CSR performance at the firm level. However, if responsible investors have a lower orientation toward CSR than management, the effect of higher ownership concentration in the hands of responsible investors will be to lower CSR performance.

Hypothesis 2 below restates the typical finding in the literature is that greater ownership concentration is associated with lower levels of CSR performance. However, it also adds that this effect may be driven by the "greedy", non-responsible investors typically associated with agency theory.

Hypothesis 2. *Companies with high ownership concentration perform worse in CSR than companies with low ownership concentration. (ii) This result is driven by the ownership staked of non-responsible investors.*

2.3 CSR communications

To benefit from their socially responsible behaviors, companies must communicate their CSR initiatives to the relevant stakeholders (Crane & Glozer, 2016). Without CSR communications, firms may not be able to obtain the recognition they deserve for their activities and may therefore forego the associated reputational benefits. Most CSR initiatives are scarcely visible and without proper disclosure would remain unnoticed. Lack of disclosure would therefore greatly reduce the positive impact of CSR on financial performance implied by instrumental theories.

Studies demonstrate that lack of stakeholders' awareness about a company's CSR can have detrimental effects. For instance, customers that are unaware of a product's environmental or socially responsible features may choose a lower-priced alternative (McWilliams & Siegel, 2001; Du, Bhattacharya, & Sen, 2010; Servaes & Tamayo, 2013). Lack of communication about CSR activities may hinder a company's ability to attract, motivate and retain talented workers (Bhattacharya, Sen, & Korschun, 2008). Investors need to have access to CSR performance information if they are to use this information in their investment decisions (Hockerts & Moir, 2004).

We argue that, to enjoy the financial and reputational benefits of CSR, responsible investors will encourage their firms to communicate their high levels of CSR engagement. Responsible investors will also demand high levels of CSR disclosure (together with high actual levels of CSR performance) because they must demonstrate that they are meeting their commitment to incorporate ESG factors in their investment decisions and active ownership. Finally, at the investment selection stage, responsible investors will prioritize firms that not only perform well in CSR, but can also publicly demonstrate their superior CSR results.

Hypothesis 3. *Companies where responsible investors have a larger ownership stake are more likely to be classified as CSR public doers, and less likely to be classified as CSR non-doers.*

Non-responsible investors may not perceive significant benefits from engaging in CSR; hence, they may invest in companies that are relative CSR laggards. This does not mean, however, that they perceive no benefit: it is simply that, in their view, the costs of CSR engagement outweigh its benefits.

A cheap strategy for companies to reap the benefits from CSR engagement without having to pay its costs is to exaggerate their CSR performance in their communications, or to disclose CSR information in a selective or deceptive way. "Greenwashing" refers to companies making false or misleading environmental claims, often with the purpose of boosting brand image or increasing sales. "Woke-washing" refers to corporations adopting the veneer of progressive values for profit. Terms such as "pink-washing" and "purpose-washing" have also been introduced. Here, for simplicity, we use the term "greenwashing" to refer to all types of false or misleading CSR claims.

We suggest that companies owned by non-responsible investors will be especially likely to engage in greenwashing, especially when non-responsible investors own dominant stakes. As discussed above (Hypothesis 2), high ownership concentration, particularly in the hands of non-responsible investors, is likely to be associated with low CSR performance. To mitigate the reputational costs, companies controlled by non-responsible investors may decide to make false or misleading CSR claims, thus engaging in some greenwashing.

Responsible investors may instead be far less likely to invest in companies that engage in greenwashing. We envisage two reasons. First, companies where responsible investors own a large stake tend to perform well in CSR; thus, their companies' CSR claims may simply be largely true. Second, responsible investors are likely to be very concerned with getting involved in accusations of greenwashing. Indeed, the reputational costs of getting caught in false or misleading claims are likely to be especially large for investors that have preached the mantra of sustainability, and are therefore open to accusations of hypocrisy.

We suggest the following.

Hypothesis 4. *(i) Companies with high ownership concentration are more likely to be classified as greenwashers, and less likely to be classified as CSR silent-doers. (ii) The result is driven by non-responsible investors.*

3 Data

To study how different owners and ownership concentration affect a company's CSR performance, we create a panel dataset with the company and year as the unit of observation. We follow common practice and construct our sample of non-financial FTSE 350 companies (fixed on 28-Jul-2017 when we started data collection). These companies operate internationally, represent different industries, and commonly have quite distributed ownership structure without single shareholder dominance. We collect all available data for the 2000-2016 period and create a panel dataset with the company and year as the unit of observation.

From the Thomson Reuters Eikon database (Refinitive) we collect companies' historical financial performance, ESG related measures (ASSET 4 database), and ownership structure with investors characteristics. As CSR performance measure we use ESG Score that aggregates three key pillars: environmental, social and corporate governance pillars. To identify responsible investors, we collect the list of Principles for Responsible Investment (PRI) with the exact signing date. We consider investors as responsible only after it signs the corresponding act and becomes a member of the PRI group. We use fuzzy matching to match PRI signatories with ownership data and manually check the consistency of the procedure. Over each company*year observation we collapse shareholders data to measure responsible investors' stake and different ownership concentration measures.

To measure CSR communications, we examine CEOs and chairmen's letters to shareholders in annual reports. We use the text in these letters to develop measures of managerial CSR communication using a dictionary approach. To perform such analysis, we first manually collected companies' annual reports from their webpages, webpages archives (Wayback Machine), and different databases (Thomson Reuters Eikon, Morning Star, Northcote, Zonebourse). We restricted our attention to the period from 2000 to 2017 since digitized annual reports have only recently become common. Only a small number of reports is available before the year 2000 and they are very short on narrative (non-strictly financial) disclosure.

We define a CSR dictionary that includes both the most relevant synonyms in general and synonyms that are more often used in managers' letters. We justify the dictionary in several possible ways. First, we use external online corpus management software (Sketch engine and The Corpus of Contemporary American English) to independently identify a list of possible synonyms that address CSR. These engines apply the n-grams approach over big enough corpora to find a list of synonyms for a particular word. We pick only those that by meaning correspond to CSR. Second, we pilot-test the dictionary (Kabanoff, Waldersee, & Cohen, 1995) and obtain sentences from our sample that correspond to each particular word from the dictionary and control that it was properly used in the sentences and correspond to the CSR. Third, we randomly choose 20 CEO/Chairman statements and proofread the dictionary. During each of these steps, we drop a word if it was often used with other than CSR meaning and add new to the dictionary when we identified the proper one and justify its relevant and single application over texts. Fourth, we run a cross-analysis of our findings and check that they correspond to common sense. We identified a reasonable difference in attention to the CSR between industries, between CEO and chairman, its evolution over time, and in the response to the financial crisis 2007-2009.

We follow common practice and apply normalization procedure to eliminate the impact of possible endogeneity. Where among other, in the longer text CSR would be addressed more times than in short text. To overcome such limitation, we calculate the frequency of CSR related words per 100,000 words. And use it as CSR communication measure.

4 Empirical specifications

We use two econometric strategies to study how different ownership characteristics affect a company's CSR performance. First, we use a probit model to estimate the probability that a company has high CSR performance. We define high (low) CSR performance if the company perform above (belove) the sample mean, calculating it separately for each year. The model should help to capture possible non-linear causality and also catch the effect even if the relationship is linear:

$$\Pr(y_{it} = 1) = \Phi(\ \beta_0 + \beta_1 OwnerConc_{it} + \beta_2 RespInv_{ti} + \beta_3 \ln Assets_{it} + \beta_4 \frac{debt}{Asset} + \beta_5 tobinQ + \eta_i + \psi_t + \epsilon_{it})$$

where y_{it} is the binary outcome variable and is equal 1 when company i has CSR performance above the sample average at year t. In order to split the impact of ownership concentration ($OwnerConc_{it}$) and the influence of responsible invertors power we separately include these variables in the regression ($RespInv_{ti}$). To show the consistency of results we run regressions with several different measures of ownership concentration. Following existing studies, we use stake of TOP 1/3/5 investors (Calza, Profumo, & Tutore, 2016; Li & Zhang, 2010; Lau, Lu, & Liang, 2016), shareholders Herfindahl-Hirschman (Barnea & Rubin, 2010) and number of investors as an opposite to concentration measure. Above other explanatory variables, in line with the literature (Dam & Scholtens, 2013; Barnea & Rubin, 2010), we control for size ($\ln Assets_{it}$), risk ($\frac{debt}{Asset}$) and market effect ($tobinQ$). To eliminate possible differences over industries and time differences we also control for industry (2 digits SIC code) η_i, year ψ_t fixed effects.

Second, we study the effect of ownership concentration separately within responsible and non-responsible shareholders. We expect that each of these two groups with higher voting power concentration could differently affect company behavior. Higher concentration within responsible (non-responsible) shareholders could increase (decrease) company CSR performance. We use the same regression model but separately calculate concentration within responsible and non-responsible shareholders and include both these measures into regression:

$$\Pr(y_{it} = 1) = \Phi(\ \beta_0 + \beta_1 RespOwnerConc_{it} + \beta_2 NonRespOwnerConc_{it} + \beta_3 RespInv_{ti} + \beta_4 \ln Assets_{it} + \beta_5 \frac{debt}{Asset} + \beta_6 tobinQ + \eta_i + \psi_t + \epsilon_{it})$$

Third, we study whether companies "walk the talk" and company's CSR communication matches with its CSR performance. We define 4 types of company behavior according to a combination of CSR performance and CSR communication. And apply the multinomial logistic model to estimate the likelihood of each scenario. Each of the 4 behavior types characterized by high or low CSR performance and high or low CSR communication. Graphically they correspond to 4 quadrants on such a two-dimensional coordinate system (see Figure 4).

We split into high and low CSR performance/communication separately for each year to control for possible its variation over time. When a company's CSR performance matches with its CSR communication there are 2 possible outcomes which we name as "CSR public-doer" and "CSR non-doer". In the first case, a company keeps both high CSR performance and high CSR communication while in the second case they both are low. Two other possible types of companies' behavior, when a company does not walk the talk, are "CSR silent-doer" and "CSR greenwasher". In the first one company has low CSR impression but high corresponding performance while it is the opposite in the second case.

5 Results

5.1 Ownership concentration

We begin by examining the effects of responsible owners and ownership concentration on a company's CSR performance. To overcome possible non-linearity, we use probit model and estimate the probability that the company will have high CSR performance (above the median level). *Table 21* reports the output of such regression and summarizes marginal effects from 6 probit models with different measures of ownership concentration.

We control separately for responsible shareholders' stake and found support for *Hypothesis 1.* Companies where responsible investors have a larger ownership stake exhibit better CSR performance. The corresponding coefficients over all model specifications are positive and statistically significant. These results could be driven by both direct or reverse effects. The direct effect considers that responsible shareholders with higher voting power push companies to perform better in CSR. Whereas following the reverse effect, companies with a higher level of CSR performance could attract more investments from responsible investors.

<< Include Table 21 >>

By contrast, ownership concentration has a clear negative effect on CSR performance, as suggested in *Hypothesis 2*. The estimated coefficients over all 6 models are highly statistically

significant and have a positive sign on all 5 ownership concentration measures and a negative sign on ownership dispersion measure.

We use 6 different proxies to justify the consistency of findings since there is no unified approach how to measure ownership concentration. In columns 1-3 we use a share of 1, 3, and 5 company's biggest shareholders. The estimated coefficients over all these tree regressions have negative signs and more importantly, have similar absolute values. A 10% increase in the company's biggest shareholders stake decreases its probability to have high CSR performance by approximately 3,73% - 4,23%. In Column 4 we use the Herfindahl-Hirschman index, as a standard market concentration measure, and find similar results. The estimated coefficient is negative and has an even bigger absolute value.

However, all these 4 measures of ownership concentration have the main flaw as they are highly affected by principal shareholder stake. They overweight its impact while almost disregard the concentration by minor shareholders. With the last 2 proxies, we try to overtake such a limitation. In Column 5 we use the average stake among all disclosed shareholders that put equal weight on ownership concentration among all shareholders. The corresponding regression coefficient has a negative sign, is statistically significant, and has very close to the TOP 1/3/5 shareholders' effect. Finally, in column 6 we use the number of disclosed investors as a proxy for ownership dispersion where its higher value means a higher number of shareholders and is more likely associated with less concentrated voting power. In line with previous results, the corresponding coefficient is statistically significant and has a positive sign. It indicates that companies with more dispersed ownership tend to perform better in CSR.

Among other controls and in line with existing literature (McWilliams & Siegel, 2001) we find that company size and market perception have a significant effect on company CSR attitude. Bigger companies perform better in CSR as they have more disposable resources, attract more public attention, and simply value business continuity more. Similarly, positive market perception (Tobin Q) has a positive impact on CSR performance.

5.2 Responsible vs non-responsible

Next, we investigate whether ownership concentration, for responsible or non-responsible investors separately, drives such effect. To test that we split each company's shareholders into two corresponding groups and run the same analysis controlling separately for concentration within responsible and non-responsible groups of shareholders. We did a minor adjustment for Herfindahl Index to measure concentration separately over these two groups. We sum up the squared shareholders' stakes separately within responsible and non-responsible shareholders rather than adding them all together.

Table 22 reports the outcome of such an investigation. In line with previous results and stated *Hypothesis 2 ii)*, we found that concentration within non-responsible shareholders declines company CSR performance and most likely drives the whole effect. All 5 ownership concentration coefficients have a negative sign, are statistically significant, and have quite similar absolute values. While the coefficient on dispersion measure is positive. The results for concentration within responsible shareholders are not so conclusive. Almost all estimated coefficients are not statistically significant and have mixed signs. The stakes of TOP 1 and TOP 1-3 responsible shareholders have a positive sign whereas all other models report the opposite – negative effect. It might indicate that leading responsible shareholders could improve company CSR performance when concentrating more voting power.

<< Include Table 22 >>

Our best guess is that such results most likely are driven by different effects between the biggest and other responsible shareholders. To verify that we run similar regression but controlling separately for each of TOP 5 shareholders from responsible and non-responsible groups. In *Appendix A7* we summarize the marginal effect from such a probit model and confirm our guess. The leading responsible shareholders seem to have a positive or neutral effect on company CSR performance as it is the only one with a positive estimated coefficient. All other coefficients for TOP 5 within responsible and non-responsible shareholders have a negative sign and rather decrease company CSR performance.

5.3 Concentration effect on company behavior

Since companies' CSR performance and CSR communication do not always respond equally to external factors, we study them in combination. Following the procedure described in the methodology section, we split sampled data into 4 quadrants over CSR performance * CSR communication coordinates. Where each quadrant is characterized by whether companies have CSR performance above the median and whether companies have CSR communication above the median. A simple summary statistic (Table 23) already reveals the first evidence of a difference in ownership concentration and ownership structure among these 4 behavioral groups. “CSR silent doers” and “CSR public doers” companies have a bigger number of responsible investors and higher their concentration. Whereas the concentration of all investors in these 2 groups is actually lower.

<< Include Table 23 >>

We use multinomial logit regression to estimate company behavioral type and report the marginal effect on two key explanatory variables (see Table 24). Coefficients on the right half of the table measure how overall responsible investors’ stake determines company probability to behave in 1 out of 4 ways. Our findings strongly support the *Hypothesis 3*. Responsible investors and their activism push companies to behave in a more CSR-friendly way. Companies, where responsible investors have a larger ownership stake, are more likely to be classified as CSR public doers, and less likely to be classified as CSR non-doers. Over all 6 model specifications, the estimated coefficient has a positive sign for CSR public doer type and a negative sign for CSR non-doer outcome. In both cases, coefficients are statistically significant with more than 99% level of confidence.

The coefficients on the left half of the table estimate how ownership concentration affects company behavior and support *Hypothesis 4 i)*. Companies with high ownership concentration are more likely to be classified as greenwashers, and less likely to be classified as CSR silent-doers. The corresponding coefficient for greenwashing behavior type stays positive and statistically significant over different measures of ownership concentration. While the estimated coefficients for CSR silent doer type of behavior stay negative. The only exception is a model where the

average investor stake is used as a concentration proxy. It reports close to zero coefficient and could be the result of a weak proxy in this specific case.

Our estimates also report that companies with concentrated ownership are more likely to behave as CSR non doer with low CSR performance and communication. The estimated coefficient has a positive sign on concentration measures and negative on dispersion measures. Surprisingly, but there is only weak evidence that ownership concentration pushes a company away from being CSR public doer. Coefficients have mixed signs and statistically are close to zero. One possible explanation is that the effect is not the same across all shareholders. It could be driven by their internal characteristics such as attitudes toward well-doing.

<< Include Table 24 >>

To identify such difference, we analyze separately concentration within responsible and non-responsible shareholders. Controlling for concentration within each group we run the same multinomial logit regression. Table 25 report the marginal effect of such regression and present how ownership concentration affects the likelihood that company will follow a particular type of behavior. Estimated results strongly support the *Hypothesis 4 ii)* and indicate that the negative effect from ownership concentration is driven mainly by non-responsible investors. Most of the coefficients are statistically significant and share similar effect over different measures of concentration and dispersions. Companies with more concentrated non-responsible shareholders are less likely to be classified as CSR silent doer or CSR public doer. Instead, they are more likely to be CSR non doer or use greenwashing. That coincides with non-responsible investors' objectives who most likely care less about high CSR performance since it does not bring financial benefits.

Over responsible shareholders, results are not so strong as most coefficients do not significantly differ from zero and some even have a flipping sign. The only strong result is for CSR non-doer outcome. Regression estimates indicate that with a higher concentration within responsible shareholders companies more likely to be classified as CSR non-doer. The coefficients on concentration measures, except model with top #1 responsible investor, have a positive sign and is negative on dispersion measure. In the nutshell, ownership concentration has a negative

effect on company CSR-related behavior and to the most extend is determined by non-responsible investors.

<< Include Table 25 >>

5.4 Robustness check

We investigate whether there is any difference between TOP 5 shareholders being responsible or non-responsible. These two groups of investors could have different attitudes toward CSR and with higher ownership could have even opposite impact on company behavior. For example, principal shareholder being responsible with higher voting power could persuade the company to behave in a more SCR-friendly way. While non-responsible investors might be less interested in CSR and push company rather to increase dividends payments. To address such a difference, we follow (Greene, 2010) methodology and include to the model an interaction term between investor's share and a dummy variable indicating whether an investor is responsible ($Top1isResp_{it} = 1$):

$$\Pr(y_{it} = 1) = \Phi(\beta_0 + \beta_1 Top1isResp_{it} + \beta_2 Top1Share_{it} + \beta_3 Top1Share_{it} * Top1isResp_{it} +$$

$$+\beta_4 RespInv_{ti} + \beta_5 Crisis_t + \beta_6 \ln Assets_{it} + \beta_7 \frac{debt}{Asset} + \beta_8 tobinQ + \eta_i + \psi_t + \epsilon_{it})$$

In *Appendix A8* we report regression marginal effects separately for responsible and non-responsible shareholders. From these results it is clear that there is no big difference whether TOP shareholder is responsible or non-responsible. Investors of both types concentrating more voting power worsen company CSR performance. The coefficient on concentration measure among each of TOP 5 shareholders is negative regardless of whether shareholder being responsible or non-responsible. More than half of the estimated coefficients are statistically significant.

In all fairness, there is a minor difference in ownership concentration between responsible and non-responsible shareholders. The negative effect of principal (TOP #1) responsible shareholder is lower than non-responsible shareholders. Surprisingly, but over all other (TOP #4 - #5) major shareholders the difference is opposite and responsible investors seem to have a higher negative

effect than non-responsible. Our sample is not big enough to confirm such results with a high level of statistical precision. It is quite rare that a responsible investor is present among TOP shareholders therefore it causes high estimated variance for the corresponding coefficient and makes it hard to test such difference.

We use several other robustness checks to confirm our findings. The applied normalization resolves some issues of textual analysis endogeneity but it has its own limitations. But it does not consider the risk that some companies might express their attention to goals (including CSR) in narratives more often than other. Therefore, as a robustness check, we use an alternative normalization measure. We define 5 mutually exclusive goals (financial performance, operation, innovation, growth, and CSR) and follow the same procedure to measure company communication over each of these goals. Then we calculate the share of managers' attention to CSR:

$$Share_{company,year,CEO,CSR} = \frac{n_{company,year,CEO,CSR}}{\sum_{i=1}^{5} n_{company,year,CEO,i}}$$

where such a measure is calculated for each narrative and represents the distribution of managers' attention over the chosen 5 goals. We run the same analysis and obtain similar results only with a minor change in level of statistical significance.

We use an alternative measure of CSR performance to check the robustness of our results. Instead of the overall ESG score, we use just the Emission score and find similar results with a minor change in coefficients and their level of significance. We also run a linear OLS regression model and found similar results that higher ownership concentration has a negative effect on CSR performance. The coefficients on corresponding proxies have a negative sign but are not statistically significant (*Appendix A9*). It confirms a non-linear relationship between ownership concentration and CSR performance.

The results also support findings over other controls and indicate a positive effect of company size and market perception on CSR performance. Among other results, the risk seems to have a positive effect on CSR performance as corresponding coefficients have a positive sign and are weakly significant. Also, quite surprising but results indicate that during the financial crisis companies actually performed better in the CSR as the coefficient on such dummy is positive and stays highly statistically significant among all the model specifications. Despite the slack resource

theory dealing with the decline in financial performance companies actually improve the CSR performance. That could possibly help to retain the responsible stakeholders that are less worry about a decline in financial performance.

6 Conclusions

This paper considers shareholders' significant impact on corporate decision-making and specifically on company CSR engagement. It examines how ownership concentration and shareholders' perception affect company CSR performance and corresponding communications. It revealed that a higher stake of responsible investors shifts companies toward better CSR performance but higher ownership concentration has opposite – negative effect.

Such results confirm the high role of investors intrinsic motivation behind shareholders impact on company behavior. Responsible investors follow their non-financial objectives and push companies to be more environmentally friendly. Whereas investors oppose such activity when the company has a more granular ownership structure. They rather pursue financial motives and try to minimize the proportionally higher cost of company CSR engagement that they bear.

Additionally, we study how concentration separately within responsible and non-responsible groups of shareholders affects company behavior. We find that non-responsible investors cause the main negative effect from ownership concentration and lower companies CSR engagement. Such investors care more about company financial performance and oppose potentially wealth decreasing expenditure.

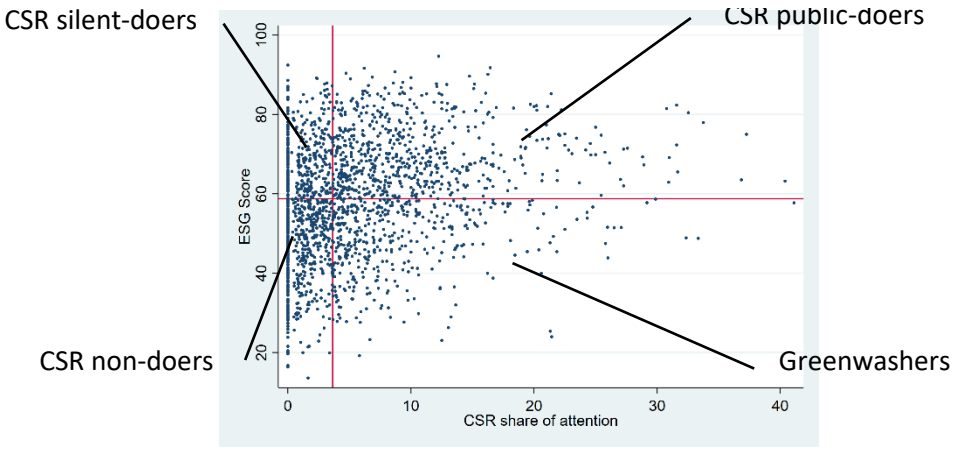
On the other side, despite our expectations, we found that concentration within responsible shareholders does not stimulate the company to behave in a more environmentally friendly way but rather has an opposite effect. Dealing with both financial and non-financial motives responsible investors prioritize financial incentives more having a more granular ownership structure. The only exception, that requires further investigation, is the biggest responsible investor in the company who might have a positive effect when concentrates more voting power. To the best of our knowledge, this is the first study that in one model control for both responsible investors' stake in the company and corresponding ownership concentration.

With this work, we also investigate how ownership concentration and investors' perception affect CSR communication. We found that a higher stake of responsible investors enhances companies to follow their words and both talk more and perform better across CSR. From the other side, we found that ownership concentration triggers shareholders' intrinsic financial objectives and has a negative effect on CSR engagement. Companies with a more concentrated ownership structure tend to behave more as greenwashers and less as CSR silent-doer.

Such negative effect is mainly driven by non-responsible shareholders who persuade financial motives more strongly and are ready to instill more extreme strategy. They induce the company into cheap talks, creating the company's positive reputation without actually engaging in CSR. Contrary to that, higher concentration within responsible shareholders has an opposite effect and reverts companies from greenwashing practice.

7 Tables and figures

Figure 4. Four groups split



Notes: The figure shows how the sample is split into 4 groups according to combination of CSR performance and CSR communication. Company performance/communication is compared to the sample average and allocated to 1 out of 4 mutually exclusive groups. The comparison and allocation are performed separately for each year while for the illustrative purpose the red lines represent just the overall sample averages.

Table 20. Summary statistics

				Distribution			
	Obs.	Mean	Std. Dev.	min	25th	75th	max
All resp. investors stake	2278	10%	7%	0%	5%	10%	42%
TOP 1 investor's stake	3156	10%	13%	0%	7%	20%	77%
TOP 1-3 investors' stake	3156	30%	16%	0%	20%	30%	88%
TOP 1-5 investors' stake	3156	30%	17%	0%	20%	40%	91%
TOP 1 resp. investor's stake	3156	4%	3%	0%	2%	5%	20%
TOP 1-3 resp. investors' stake	3156	7%	5%	0%	3%	9%	32%
TOP 1-5 resp. investors' stake	3156	7%	6%	0%	3%	10%	36%
TOP 1 Non-resp. investor's stake	3156	10%	13%	0%	6%	20%	77%
TOP 1-3 Non-resp. investors' stake	3156	30%	16%	0%	10%	30%	85%
TOP 1-5 Non-resp. investors' stake	3156	30%	17%	0%	20%	40%	91%
Average investor's stake	3156	0%	1%	0%	0%	0%	36%
Average resp. investor's stake	2278	1%	1%	0%	0%	1%	7%
Average non-resp. investor's stake	3156	0%	1%	0%	0%	0%	36%
Ownership HI	3156	0.060	0.084	0.000	0.020	0.050	0.600
Ownership resp HI	3076	0.003	0.005	0.000	0.000	0.004	0.044
Ownership non-resp HI	3156	0.050	0.084	0.000	0.010	0.050	0.600
N of investors (in hundreds)	3156	3.20	2.05	0.01	1.80	4.50	11.50
N of resp. investors (in hundreds)	3156	0.20	0.19	0.00	0.05	0.30	1.01
N of non-resp. investors (in hundreds)	3156	3.00	1.94	0.01	1.60	4.20	11.40
CSR communication above median	2440	0.5	0.5	0	0	1	1
ESG score above median	2388	0.5	0.5	0	0	1	1
ln(Assets)	3140	21.7	1.6	13.5	20.7	22.8	26.7
debt/Assets	3139	0.2	0.2	0.0	0.1	0.4	1.9
tobin Q	3033	2.0	2.9	0.5	1.2	2.2	79.0

Notes: resp. – responsible; HI - Herfindahl index

Table 21. Probability to have high CSR performance (marginal effects)

	High CSR perf.					
	Top 1	Top 1-3	Top 1-5	HI	Avg. stake	# of shareh.
	(1)	(2)	(3)	(4)	(5)	(6)
TOP 1 investor's stake	-0.423***					
	(0.079)					
TOP 1-3 investors' stake		-0.373***				
		(0.069)				
TOP 1-5 investors' stake			-0.394***			
			(0.068)			
Ownership HI				-0.670***		
				(0.126)		
Aver. inv. stake					-0.383***	
					(0.058)	
Number of investors						0.070***
						(0.009)
All resp. inv. stake	0.476***	0.458***	0.462***	0.502***	0.546***	0.409***
	(0.158)	(0.159)	(0.157)	(0.156)	(0.151)	(0.154)
ln(Assets)	0.165***	0.161***	0.158***	0.166***	0.138***	0.097***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.008)	(0.012)
debt/Assets	-0.012	0.000	0.004	-0.011	0.022	0.059
	(0.055)	(0.055)	(0.055)	(0.055)	(0.056)	(0.055)
tobin Q	0.009***	0.009***	0.009***	0.010***	0.007**	0.004
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	2,005	2,005	2,005	2,005	2,005	2,005

Notes: The table represents the effect of ownership concentration on probability that company have high CSR performance (above the sample median). It summarizes marginal effects from five models with different ownership concentration measures (TOP 1/3/5 shareholders stake, ownership Herfindahl-Hirschman index, average investors' share) and one model with ownership dispersion proxy measured as number of company's shareholders (measured in hundreds).
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 22. Responsible vs non-responsible shareholders effect (marginal effects)

	High CSR performance					
	TOP 1	TOP 1-3	TOP 1-5	HI	Aver. stake	# of shareh.
	(1)	(2)	(3)	(4)	(5)	(6)
TOP 1 resp. investor's stake	0.427					
	(0.569)					
TOP 1-3 resp. investors' stake		0.349				
		(0.748)				
TOP 1-5 resp. investors' stake			-0.671			
			(1.077)			
Ownership resp HI				-4.651		
				(3.749)		
Aver. resp. inv. stake					-0.116***	
					(0.041)	
N of resp. investors (per 100)						0.188
						(0.129)
TOP 1 Non-resp. investor's stake	-0.433***					
	(0.079)					
TOP 1-3 Non-resp. investors' stake		-0.396***				
		(0.071)				
TOP 1-5 Non-resp. investors' stake			-0.394***			
			(0.072)			
Ownership non-resp HI				-0.648***		
				(0.128)		
Aver. non-resp. inv. stake					-0.304***	
					(0.058)	
N of non-resp. investors						0.062***
						(0.012)
All resp. inv. Stake	0.239	0.059	0.889	0.787**	0.875***	0.370**
	(0.285)	(0.602)	(0.970)	(0.310)	(0.221)	(0.160)
ln(Assets)	0.165***	0.161***	0.155***	0.165***	0.130***	0.094***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.009)	(0.012)
debt/Assets	-0.007	0.004	0.008	-0.014	0.030	0.059
	(0.055)	(0.055)	(0.056)	(0.055)	(0.056)	(0.055)
tobin Q	0.010***	0.009***	0.009***	0.009***	0.006**	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	2,005	2,005	2,005	2,005	2,005	2,005

Notes: The table represents how ownership concentration separately within responsible and non-responsible groups of shareholders affect company CSR communication. It reports company probability to achieve high (above the sample average) CSR performance. The table summarizes marginal effects from 6 probit models with different measures of concentration. In Columns 1-3 we use the stake of TOP 1/3/5 responsible and non-responsible shareholders. In Columns 4, we use Herfindahl–Hirschman Index calculated separately within responsible and non-responsible shareholders. In Column 5 we use the average shareholders' stake. In Columns 6 we use number of company's shareholders (measured in hundreds) as a dispersion measure, inverse to concentration.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 23. Summary statistics across 4 CSR groups

	Non-doers mean	Silent-Doers mean	Public-Doers mean	Greenwashers mean	Total mean
TOP 1 investor's stake	0.16	0.12	0.12	0.17	0.14
TOP 1-3 investors' stake	0.29	0.23	0.23	0.29	0.26
TOP 1-5 investors' stake	0.38	0.31	0.30	0.37	0.34
TOP 1 resp. investor's stake	0.04	0.05	0.05	0.04	0.04
TOP 1-3 resp. investors' stake	0.07	0.08	0.08	0.07	0.07
TOP 1-5 resp. investors' stake	0.08	0.09	0.09	0.08	0.09
N of resp. investors	20	32	35	23	28
CSR communication above mean	0	0	1	1	0.52
SCR performance above mean	0	1	1	0	0.52
Observations	1897				

Notes: The table summarize the difference across 4 CSR of behavior.

Table 24. The ownership concentration effect on CSR (probability to be in 1 out of 4 groups)

		Non-doers	Silent-doers	Public-doers	Green-washers		Non-doers	Silent-doers	Public-doers	Green-washers
Model	Concentratin:									
(1)	Top 1	0.113	-0.257**	-0.038	0.183**	All resp. inv. stake	-0.518***	-0.132	0.663***	-0.013
		(0.089)	(0.107)	(0.104)	(0.075)		(0.171)	(0.171)	(0.176)	(0.156)
(2)	Top 1-3	0.156**	-0.203**	-0.085	0.132*	All resp. inv. stake	-0.466***	-0.131	0.626***	-0.029
		(0.076)	(0.087)	(0.090)	(0.068)		(0.172)	(0.172)	(0.177)	(0.157)
(3)	Top 1-5	0.173**	-0.169**	-0.137	0.134**	All resp. inv. stake	-0.463***	-0.103	0.599***	-0.034
		(0.075)	(0.083)	(0.087)	(0.067)		(0.170)	(0.170)	(0.175)	(0.156)
(4)	HI of ownership	0.157	-0.574***	0.082	0.335***	All resp. inv. stake	-0.537***	-0.158	0.703***	-0.008
		(0.141)	(0.201)	(0.169)	(0.112)		(0.169)	(0.170)	(0.174)	(0.154)
(5)	Average inv. stake	0.250***	0.074	-0.461***	0.137**	All resp. inv. stake	-0.428***	-0.000	0.512***	-0.084
		(0.058)	(0.085)	(0.114)	(0.054)		(0.165)	(0.165)	(0.172)	(0.152)
(6)	N of inv.	-0.065***	0.010	0.044***	0.010	All resp. inv. stake	-0.209	-0.063	0.462***	-0.189
		(0.010)	(0.009)	(0.010)	(0.010)		(0.168)	(0.170)	(0.174)	(0.157)

Notes: This table represents how ownership concentration affects company CSR behavior, probability that company will follows 1 out of 4 mutually exclusive scenarios. A company belongs to a particular quadrant depending on whether its CSR communication is above or below the sample average and whether its CSR performance is above or below than sample average. For example, a company is "CSR non-doers" when it has low (above the average) CSR performance and low (above the average) CSR communication. We measure CSR communication using textual analysis of letters to shareholders; for CSR performance measure we use the ESG score from Thomson Reuters Eikon (Refinitiv). The overall table represents marginal effects from multinomial logit regression with different measures of investors concentration (share of Top 1/3/5 investors, ownership Herfindahl-Hirschman index, average stake per shareholder), dispersion (# of investors measured in hundreds). The model also controls for company size (lnAssets), risk (debt/assets), market influence (tobinQ), and both year and industry fixed effects. Where y_{it} represents 1 of 4 possible typed of behavior.

$$\Pr(y_{it}=1) = \Phi(\beta_0 + \beta_1 OwnerConc_{it} + \beta_2 RespInv_{ti} + \beta_3 \ln Assets_{it} + \beta_4 \frac{debt}{Asset} + \beta_5 tobinQ + \eta_i + \psi_t + \epsilon_{it})$$

Table 25. Responsible investors vs non-responsible investors comparison

		Non-doers		Silent-doers		Public-doers		Greenwashers			Non-doers		Silent-doers		Public-doers		Greenwashers	
		coef.	sd.	coef.	sd.	coef.	sd.	coef.	sd.		coef.	sd.	coef.	sd.	coef.	sd.	coef.	sd.
										Responsilbe								
(1)	Top 1 r. inv.	-0.353	(0.601)	-0.102	(0.598)	0.288	(0.611)	0.167	(0.557)	Allresp.inv.stake	-0.434	(0.298)	0.06	(0.288)	0.577*	(0.297)	-0.198	(0.276)
(2)	Top 1-3 r. inv.	0.868	(0.806)	-0.118	(0.772)	0.07	(0.799)	-0.82	(0.742)	Allresp.inv.stake	-1.235**	(0.629)	0.11	(0.602)	0.64	(0.627)	0.49	(0.576)
(3)	Top 1-5 r. inv.	3.176***	(1.142)	0.094	(1.081)	-1.478	(1.124)	-1.792*	(1.034)	Allresp.inv.stake	-3.335***	(1.005)	-0.06	(0.946)	1.973**	(0.985)	1.425	(0.904)
(4)	HI r. inv.	2.196	(3.891)	-2.95	(4.097)	-2.333	(4.028)	3.087	(3.573)	Allresp.inv.stake	-0.734**	(0.316)	0.22	(0.326)	0.868***	(0.336)	-0.352	(0.296)
(5)	Av. staker. inv.	0.154***	(0.041)	-0.013	(0.051)	-0.106*	(0.059)	-0.035	(0.043)	Allresp.inv.stake	-1.128***	(0.219)	0.08	(0.215)	1.007***	(0.231)	0.037	(0.211)
(6)	N of r. inv.	-0.684***	(0.121)	0.136	(0.102)	0.316***	(0.108)	0.232**	(0.107)	Allresp.inv.stake	-0.106	(0.178)	-0.1	(0.176)	0.492***	(0.180)	-0.291*	(0.166)
										Non-responsilbe								
(7)	Top 1 non-r.	0.107	(0.089)	-0.247**	(0.107)	-0.049	(0.104)	0.189**	(0.075)	Allresp.inv.stake	-0.506***	(0.175)	-0.16	(0.177)	0.650***	(0.183)	0.019	(0.160)
(8)	Top 1-3 non-r.	0.173**	(0.078)	-0.187**	(0.088)	-0.109	(0.091)	0.123*	(0.069)	Allresp.inv.stake	-0.401**	(0.181)	-0.18	(0.183)	0.576***	(0.190)	0.004	(0.167)
(9)	Top 1-5 non-r.	0.192**	(0.077)	-0.146*	(0.084)	-0.166*	(0.088)	0.121*	(0.069)	Allresp.inv.stake	-0.374**	(0.182)	-0.15	(0.183)	0.513***	(0.190)	0.007	(0.168)
(10)	HI non-r.	0.155	(0.142)	-0.577***	(0.202)	0.087	(0.170)	0.335***	(0.112)	Allresp.inv.stake	-0.526***	(0.172)	-0.2	(0.174)	0.711***	(0.178)	0.015	(0.157)
(11)	Av. stake non-r.	0.227***	(0.055)	0.085	(0.081)	-0.453***	(0.112)	0.141***	(0.050)	Allresp.inv.stake	-0.361**	(0.171)	0.02	(0.173)	0.372**	(0.181)	-0.033	(0.156)

Notes: This table represents how ownership concentration separately within responsible and non-responsible shareholders affects company behavior, that company follows 1 out of 4 mutually exclusive behavioral types. The company belongs to a particular type depending on whether its CSR communication is higher or lower than the sample average and whether its CSR performance is higher or lower than sample average. For example, a company is "CSR non-doers" when it dedicates less than sample average CSR communication and has lower than sample average CSR performance. We measure CSR communication using textual analysis of letters to shareholders; for CSR performance measure we use the ESG score from Thomson Reuters Eikon (Refinitiv). The overall table represents marginal effects from multinomial logit regression with different measures of investors concentration (share of Top 1/3/5 investors, average stake per shareholder) and dispersion (# of responsible investors measured in hundreds). The model also controls for company size (lnAssets), risk (debt/assets), market influence (tobinQ), and both year and industry fixed effects.

8 Online Appendix

Appendix A4. Probability to have high CSR communication (marginal effects)

	High CSR communication					
	Top 1	Top 1-3	Top 1-5	HI	Avg. stake	# of shareh.
	(1)	(2)	(3)	(4)	(5)	(6)
TOP 1 investor's stake	0.151					
	(0.104)					
TOP 1-3 investors' stake		0.069				
		(0.089)				
TOP 1-5 investors' stake			0.036			
			(0.087)			
Ownership HI				0.359**		
				(0.163)		
Aver. inv. stake					-0.125**	
					(0.056)	
Number of investors						0.037***
						(0.011)
All resp. inv. stake	0.620***	0.580***	0.553***	0.650***	0.446**	0.348*
	(0.195)	(0.196)	(0.194)	(0.193)	(0.189)	(0.192)
ln(Assets)	0.090***	0.089***	0.089***	0.091***	0.076***	0.046***
	(0.008)	(0.008)	(0.009)	(0.008)	(0.009)	(0.015)
debt/Assets	-0.016	-0.018	-0.017	-0.017	-0.009	0.029
	(0.069)	(0.069)	(0.070)	(0.069)	(0.069)	(0.070)
tobin Q	0.003	0.003	0.003	0.003	0.002	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	1,717	1,717	1,717	1,717	1,717	1,717

Notes: The table represents the effect of ownership concentration on probability that company have high CSR performance (above the sample median) and high CSR communication. It summarizes marginal effects from five models with different ownership concentration measures (TOP 1/3/5 shareholders stake, ownership Herfindahl-Hirschman index, average investors' share) and one model with ownership dispersion proxy measured as number of company's shareholders (measured in hundreds).
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A5. Responsible vs non-responsible shareholders effect (marginal effects)

	High CSR communication					
	TOP 1	TOP 1-3	TOP 1-5	HI	Aver. stake	# of shareh.
	(1)	(2)	(3)	(4)	(5)	(6)
TOP 1 resp. investor's stake	0.187					
	(0.695)					
TOP 1-3 resp. investors' stake		-1.111				
		(0.921)				
TOP 1-5 resp. investors' stake			-3.462***			
			(1.300)			
Ownership resp HI				-0.732		
				(4.577)		
Aver. resp. inv. stake					-0.133***	
					(0.046)	
N of resp. investors						0.278**
						(0.138)
TOP 1 Non-resp. investor's stake	0.147					
	(0.105)					
TOP 1-3 Non-resp. investors' stake		0.063				
		(0.092)				
TOP 1-5 Non-resp. investors' stake			0.066			
			(0.091)			
Ownership non-resp HI				0.365**		
				(0.165)		
Aver. non-resp. inv. stake					-0.045	
					(0.055)	
N of non-resp. investors						0.024*
						(0.013)
All resp. inv. stake	0.562	1.436*	3.607***	0.729*	0.930***	0.246
	(0.354)	(0.744)	(1.171)	(0.384)	(0.259)	(0.201)
ln(Assets)	0.090***	0.086***	0.080***	0.091***	0.067***	0.041***
	(0.008)	(0.009)	(0.009)	(0.008)	(0.010)	(0.015)
debt/Assets	-0.015	-0.022	-0.021	-0.018	-0.010	0.026
	(0.070)	(0.070)	(0.069)	(0.069)	(0.069)	(0.070)
tobin Q	0.003	0.002	0.001	0.003	0.001	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES
Observations	1,717	1,717	1,717	1,717	1,717	1,717

Notes: The table represents how ownership concentration separately within responsible and non-responsible groups of shareholders affect company CSR communication. It reports company probability to achieve high (above the sample average) CSR performance. The table summarizes marginal effects from 6 probit models with different measures of concentration. In Columns 1-3 we use the stake of TOP 1/3/5 responsible and non-responsible shareholders. In Columns 4, we use Herfindahl–Hirschman Index calculated separately within responsible and non-responsible shareholders. In Column 5 we use the average shareholders' stake. In Columns 6 we use number of company's shareholders (measured in hundreds) as a dispersion measure, inverse to concentration.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A6. Ownership concentration separately for TOP shareholders

	High CSR perf.					High CSR communication				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	Top #1	Top #2	Top #3	Top #4	Top #5	Top #1	Top #2	Top #3	Top #4	Top #5
TOP #1 investor's stake	-0.423***					0.151				
	(0.0791)					(0.104)				
TOP #2 investor's stake		-0.256					-0.229			
		(0.279)					(0.325)			
TOP #3 investor's stake			-1.638***					-1.295**		
			(0.542)					(0.658)		
TOP #4 investor's stake				-2.309***					-1.455	
				(0.782)					(0.904)	
TOP #5 investor's stake					-1.720*					-2.460**
					(0.881)					(1.033)
All resp. inv. stake	0.476***	0.754***	0.753***	0.834***	0.848***	0.620***	0.504***	0.510***	0.559***	0.621***
	(0.158)	(0.152)	(0.148)	(0.149)	(0.151)	(0.195)	(0.189)	(0.186)	(0.186)	(0.189)
ln(Assets)	0.165***	0.170***	0.164***	0.163***	0.166***	0.0901***	0.0852***	0.0807***	0.0816***	0.0787***
	(0.00634)	(0.00643)	(0.00673)	(0.00677)	(0.00685)	(0.00811)	(0.00840)	(0.00861)	(0.00867)	(0.00872)
debt/Assets	-0.0123	-0.00733	-0.000826	-0.00506	-0.00585	-0.0163	-0.0101	-0.00806	-0.0141	-0.0106
	(0.0554)	(0.0562)	(0.0558)	(0.0558)	(0.0559)	(0.0694)	(0.0698)	(0.0694)	(0.0693)	(0.0693)
tobin Q	0.00946***	0.00977***	0.00929***	0.00927***	0.00949***	0.00284	0.00255	0.00204	0.00207	0.00180
	(0.00281)	(0.00283)	(0.00284)	(0.00283)	(0.00283)	(0.00376)	(0.00376)	(0.00382)	(0.00383)	(0.00386)
Observations	2,005	2,005	2,005	2,005	2,005	1,717	1,717	1,717	1,717	1,717
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The table represents the effect of ownership concentration on company probability to reach high (above the sample average) CSR performance and high CSR impression. Where the effect is calculated separately for ranked TOP 5 company's shareholders. The table summarizes marginal effects from probit model.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A7. Concentration within TOP 5 responsible and non-responsible shareholders

	High CSR performance					High CSR communication				
	TOP 1	TOP 2	TOP 3	TOP 4	TOP 5	TOP 1	TOP 2	TOP 3	TOP 4	TOP 5
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TOP 1 resp. investor's stake	0.427					0.187				
	(0.569)					(0.695)				
TOP 2 resp. investor's stake		-0.580					-0.530			
		(0.943)					(1.153)			
TOP 3 resp. investor's stake			-1.169					-4.356**		
			(1.517)					(1.844)		
TOP 4 resp. investor's stake				-4.589**					-5.152*	
				(2.283)					(2.886)	
TOP 5 resp. investor's stake					-4.009					-2.611
					(3.360)					(4.148)
TOP 1 Non-resp. investor's stake	-0.433***					0.147				
	(0.079)					(0.105)				
TOP 2 Non-resp. investor's stake		-0.271					-0.484			
		(0.282)					(0.326)			
TOP 3 Non-resp. investor's stake			-1.396***					-1.660**		
			(0.535)					(0.649)		
TOP 4 Non-resp. investor's stake				-1.462*					-1.735**	
				(0.747)					(0.874)	
TOP 5 Non-resp. investor's stake					-1.176					-2.005**
					(0.833)					(0.982)
All resp. inv. Stake	0.239	0.856***	0.819***	1.073***	0.945***	0.562	0.545	0.931***	0.831***	0.623**
	(0.285)	(0.272)	(0.243)	(0.220)	(0.206)	(0.354)	(0.335)	(0.297)	(0.269)	(0.257)
ln(Assets)	0.165***	0.169***	0.164***	0.164***	0.168***	0.090***	0.082***	0.074***	0.079***	0.080***
	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)	(0.009)
debt/Assets	-0.007	-0.004	-0.002	-0.005	-0.010	-0.015	-0.002	0.009	-0.006	-0.013
	(0.055)	(0.056)	(0.056)	(0.056)	(0.056)	(0.070)	(0.070)	(0.070)	(0.069)	(0.069)
tobin Q	0.010***	0.010***	0.010***	0.009***	0.010***	0.003	0.002	0.002	0.002	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	2,005	2,005	2,005	2,005	2,005	1,717	1,717	1,717	1,717	1,717

Notes: The table represents the effect of ownership concentration separately for biggest 5 shareholders from responsible and from non-responsible groups. The table represent marginal effect from probit model.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A8. Marginal effect in TOP 5 (responsible vs non-responsible)

	High CSR perf.					High CSR communication				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
VARIABLES	Top #1	Top #2	Top #3	Top #4	Top #5	Top #1	Top #2	Top #3	Top #4	Top #5
					resp. investor					
TOP #1 resp. investor margins	-0.143					-0.257				
	(0.836)					(0.947)				
TOP #2 resp. investor margins		-1.891*					0.0549			
		(1.008)					(1.364)			
TOP #3 resp. investor margins			-2.187					-0.808		
			(1.577)					(1.846)		
TOP #4 resp. investor margins				-3.432*					-3.747*	
				(1.882)					(2.099)	
TOP #5 resp. investor margins					-2.647					-7.409***
					(2.023)					(2.179)
					non-resp. investor					
TOP #1 non-resp. investor margins	-0.427***					0.161				
	(0.0797)					(0.105)				
TOP #2 non-resp. investor margins		-0.138					-0.205			
		(0.291)					(0.337)			
TOP #3 non-resp. investor margins			-1.574***					-1.359**		
			(0.569)					(0.691)		
TOP #4 non-resp. investor margins				-2.082**					-1.213	
				(0.831)					(0.956)	
TOP #5 non-resp. investor margins					-1.589*					-1.699
					(0.937)					(1.103)
					Margin difference					
Margins difference (resp – non-resp.)	0.284	-1.753	-0.613	-1.350	-1.058	-0.417	0.260	0.551	-2.534	-5.710
standard error	(0.842)	(1.054)	(1.655)	(1.989)	(2.138)	(0.955)	(1.406)	(1.933)	(2.208)	(2.315)
z statistic	0.337	-1.663	-0.370	-0.679	-0.495	-0.437	0.185	0.285	-1.148	-2.466
p value	0.736	0.0964	0.711	0.497	0.621	0.662	0.853	0.776	0.251	0.0137
95% upper bound	1.935	0.314	2.632	2.548	3.132	1.454	3.016	4.340	1.793	-1.172
95% lower bound	-1.367	-3.819	-3.857	-5.248	-5.248	-2.289	-2.495	-3.238	-6.862	-10.25
					regression statistics					
Observations	2,005	2,005	2,005	2,005	2,005	1,717	1,717	1,717	1,717	1,717
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The table represents the effect of ownership concentration among TOP 5 shareholders on company probability to have high (above the sample average) CSR performance/communication. Following (Greene, 2010) methodology, it summarizes the marginal effect from probit model separately for responsible and non-responsible shareholders using interaction term:

$$\Pr(y_{it} = 1) = \Phi(\ \beta_0 + \beta_1 Top1isResp_{it} + \beta_2 Top1Share_{it} + \beta_3 Top1Share_{it} * Top1isResp_{it} + \beta X_{it} + \epsilon_{it})$$

Where X_{it} includes other controls such as company size (lnAssets), risk (debt/assets), market influence (tobinQ), and both year and industry fixed effects.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A9. Impact of ownership concentration on CSR performance and CSR communication (continuous model)

	CSR score						CSR communication					
VARIABLES	(1) Top 1	(2) Top 1-3	(3) Top 1-5	(4) HI	(5) Avg. stake	(6) # of	(7) Top 1	(8) Top 1-3	(9) Top 1-5	(10) HI	(11) Avg. stake	(12) # of
TOP 1 investor's stake	-8.349						-1.239					
	(6.700)						(8.609)					
TOP 1-3 investors' stake		-3.257						3.603				
		(4.714)						(5.889)				
TOP 1-5 investors' stake			-2.637						3.119			
			(4.052)						(5.292)			
Ownership HI				-11.54						-0.489		
				(11.65)						(15.56)		
Aver. inv. stake					-0.717						0.624	
					(2.350)						(2.885)	
Number of investors						0.640						1.010
						(0.432)						(0.760)
All resp. inv. Stake	7.888	8.230	8.399	7.865	8.141	6.748	12.25	12.22	11.96	12.30	12.31	9.709
	(5.377)	(5.401)	(5.447)	(5.370)	(5.386)	(5.320)	(9.118)	(9.132)	(9.188)	(9.134)	(9.130)	(9.085)
ln(Assets)	1.949**	1.953**	1.945**	1.954**	1.919**	1.440	0.522	0.618	0.620	0.534	0.618	-0.297
	(0.934)	(0.929)	(0.928)	(0.933)	(0.925)	(0.990)	(1.364)	(1.375)	(1.379)	(1.371)	(1.445)	(1.428)
debt/Assets	4.667*	4.768*	4.798*	4.684*	4.838*	5.168*	-3.115	-3.109	-3.124	-3.111	-3.109	-2.517
	(2.765)	(2.771)	(2.770)	(2.767)	(2.773)	(2.821)	(5.933)	(5.966)	(5.971)	(5.919)	(5.961)	(5.994)
tobin Q	0.149**	0.151**	0.152**	0.150**	0.159**	0.137**	0.228	0.266	0.267	0.235	0.240	0.137
	(0.0625)	(0.0611)	(0.0611)	(0.0617)	(0.0615)	(0.0672)	(0.360)	(0.358)	(0.355)	(0.361)	(0.356)	(0.336)
crisisYears = 1	2.993***	2.982***	2.993***	2.976***	2.923***	2.865***	0.861	0.835	0.823	0.858	0.896	0.688
	(1.035)	(1.037)	(1.038)	(1.038)	(1.047)	(1.038)	(1.911)	(1.916)	(1.919)	(1.910)	(1.908)	(1.919)
Constant	8.831	8.315	8.480	8.150	8.381	16.54	6.578	3.215	3.087	6.143	4.025	21.11
	(20.42)	(20.32)	(20.28)	(20.45)	(20.32)	(21.14)	(29.67)	(30.04)	(30.19)	(29.80)	(31.61)	(30.03)
Observations	2,005	2,005	2,005	2,005	2,005	2,005	1,717	1,717	1,717	1,717	1,717	1,717
R-squared	0.251	0.249	0.249	0.250	0.249	0.251	0.016	0.016	0.016	0.016	0.016	0.018
Number of keyNameID	247	247	247	247	247	247	240	240	240	240	240	240
Company FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: The table represents the effect of ownership concentration on company CSR performance and CSR communication. It summarizes six models with different ownership concentration measures (the stake of TOP 1/1-3/1-5 shareholders (Columns 1-3 and 7-9), ownership Herfindahl-Hirschman index (Columns 4 and 10), average investors' share (Columns 5 and 11) and ownership dispersion proxy measured as number of company's shareholders (Columns 5 and 11).
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Overall thesis conclusion

The final chapter summarizes obtained above findings and presents its theoretical, methodological, and empirical contributions. It starts with a short revision of the thesis's main aims and objectives with a summary of its structure. It presents the main empirical findings over three separate chapters. And proceeds with the theoretical contribution as this thesis addresses and empirically tests several established theories. The next section presents methodological advancements that made the whole study possible and hopefully will enhance future related research. Finally, the last section provides the plan for further investigation and discusses several issues that the thesis might face.

1. Introduction

The main aim of this research was to analyze managers' attention and empirically test several tenets from Attention based view theory of the firm. Considering important managerial role in upper echelon (Hambrick & Mason, 1984) it became vital to understand how managers allocate their constraint attention and what outcome it could have. To answer that the whole thesis is split into three chapters addressing separately specific area of attention and its implication.

The first chapter present descriptive information about managers attention, study how it evolved over time and its response to several environmental factors. The second chapter address the relationship between managers' attention and corresponding company performance. The third chapter take a more granular look and investigate how different aspects of company ownership affect a single measure of CSR performance and wide audience attention toward it.

2. Empirical contribution

The thesis provides several key empirical findings about managers' attention.

First, managers keep their attention on goals and stakeholders quite persistent during the whole investigated time horizon. In terms of goals, they put most priority on financial performance and growth making them accountable for 70-75% of the attention. While the rest is split unequally over three other goals: innovation, operation, and CSR. In terms of stakeholders, they allocate most of their attention toward customers (33-39%) and employees (around 28%). Surprisingly,

shareholders occupy only around 20% of managers' attention and this share is decreasing over time.

Second, consistent with a shift in institutional logic attention to shareholders decreased, and attention to customers and society increased. That clearly represents the deviation from shareholders' primacy doctrine but questions why the corresponding increase is not equal across all other stakeholders. The recent 2007-2009 financial crisis only magnified these changes. Interestingly, but specifically prominent firms tend to drive such evolutional change. Considering the FTSE100 as more prominent than FTSE250, they respond much faster to changes and reduce with a higher speed their attention to financial performance while increasing attention to CSR.

Third, findings confirm a clear division of managerial attention within organizations. Even dedicating their resources to all goals/stakeholders, managers do not do that equally. CEOs paid more attention to the operational aspects of management and external stakeholders, while chairmen focused more on internal stakeholders.

Fourth, there is a clear and very intuitive difference in attention allocation across industries. Managers follow the specificity of their industry and put higher attention toward more salient goals and stakeholders which could have a drastic effect on overall company performance. For instance, mining is strongly oriented toward operations and CSR as one of the highly polluting and efficient dependent industries. Contrary to that, retail is financially dependent and the debt burden sector, therefore, is strongly oriented toward financial performance and customers. A similar pattern is observed over almost all investigated sectors.

Fifth, results confirm the relationship between managers' attention and a broad range of company performance measures. Where causality works in both directions in line with problem- and opportunity-driven theories. On one side, higher managers' attention to the growth and investment, as potential opportunities, helps the company to persuade those objectives and achieve real growth and enhanced company performance. On the other side, weak company financial or operational performance forces managers to prioritize the erupted problem more and shift their scares attention toward it.

In addition, problemstic- search theory prevails over managers' attention to customers and employees. Both CEO and chairman tend to prioritize customers more when there is a significant decline in company financial results, market value, and customer satisfaction. Such change in their attention pays off as helps to overcome the problem and improve corresponding performance in a

year. Similarly, both managers tend to prioritize employees more when there is an increase in the number of fatalities and a decline in employees' satisfaction measures. It is hard to claim that the direction of causality is the opposite as that would mean criminal managers' activity that led to fatalities.

Six, obtained attention-performance relationship corresponds to several theories. It supports signaling theory considering that higher managers' attention to shareholders is a good sign for investors that increase company market value. It supports slack resource theories as companies with better financial performance tend to dedicate more attention to CSR and society and engage more in actual CSR activities. But that comes with significant cost since devotion of slack managers' attention to CSR decreases financial performance and declines company market value in the following year.

Finally, this thesis considers shareholders' significant impact on corporate decision-making and specifically on company CSR engagement. It contributes to existing ownership literature and examines how ownership concentration and shareholders' perception affect company CSR performance and corresponding communications. While most existing studies consider institutional ownership inseparable from corresponding ownership concentration this thesis revealed that these two factors actually have opposite effects and to a high extent are driven by investors' intrinsic motivation.

Responsible investors persuade non-financial motives and push the company to engage in CSR more. With a higher join stake in the company, they have higher voting power and corresponding higher chances to instill their non-financial objectives. They exercise their power and appoint loyal management or trigger shareholder activism pushing the company to behave in a more environmentally friendly way. Important, that effect is caused by investors' intrinsic motives to be responsible drives rather than just their type.

Opposite to that, companies with more concentrated ownership engage less in CSR activities since it comes against shareholders' financial motives. With a higher stake in the company, the average investor bears a proportionally higher cost of such engagement and has higher incentives to oppose it. With corresponding more aggregated voting power they have higher chances to succeed and lower company CSR expenditure.

The main negative effect comes from concentration within non-responsible shareholders who persuade pure financial motives. Responsible investors, on the other side, deal with both financial and non-financial objectives. They face a dilemma behind doing good or higher dividend payments through lower company CSR expenses. The findings empirically show this dilemma by separately controlling for joint responsible investors' stake in the company and concentration. Opposite to previous studies, that have not done that, this thesis confirms that higher concentration for responsible investors still seems to have a weakly negative or zero effect.

Obtained findings showed that ownership has a different effect on company CSR engagement and corresponding communication about it. On one side, a higher stake of responsible investors enhances the company to follow their words and both engage more in CSR and communicate more about that. On the other, higher shareholders concentration pushes companies to behave more as greenwashers more communicating about CSR while actually doing less. It also decreases the likelihood of company's silent CSR behavior (high CSR engagement but low CSR communication) considering it detrimental to shareholders' financial objectives. Since, following instrumental theory, unnoticed company well-doing will not bring any benefits to it.

The negative effect is mainly driven by non-responsible shareholders who persuade financial motives more strongly and are ready to instill a more extreme strategy. They induce the company into cheap talks, creating the company's positive reputation without actually engaging in CSR. Contrary to that, higher concentration among responsible shareholders has the opposite effect and reverts companies from greenwashing practices.

3. Theoretical contribution

Attention based view

This thesis contributes to the attention-based model literature by identifying several important determinants of allocation and evolution of managerial attention. Obtained results are consistent with several key tenets of the attention-based view, in particular the importance of environmental factors, organizational roles and structure, and problem- or opportunity- attention.

Among a long list of environmental factors, this work considers the few most prominent of them. It showed that evolution in institutional logic, financial crisis, and industry specificity have

a clear and arguable logical impact on managers' attention. They all affect attention channeling within organizations and shift it toward more prominent issues within a particular moment of time. The change in institutional logic channel attention from shareholder toward other stakeholders and from pure financial orientation more toward CSR and other goals. Financial crises, as a thread to company existence, put it in survival mode and channel attention toward company operation and customers. Similarly, each industry specificity channels attention toward the most prominent issues within industries adapting to a particular environment.

In line with both problematic search and opportunity-driven theories together with the attention-based view definition of "issues", this work confirms the two-way causality effect between managers' attention and company performance. From one side "issues" is considered as an opportunity and higher attention toward it could help to trigger opportunity search and lead to higher company performance. On the other side, issues often represent a threat to the company and attract managers' attention in order to find the corresponding solution. Particular examples from this study would be a higher fatalities rate in the company that causes an increase in attention toward employees.

Shareholders vs stakeholders primacy

This thesis for the first time provides a large-scale empirical analysis of how the changes in institutional logic affected the evolution of managerial attention over stakeholders. While previous studies are more theoretical, this work provides explicit empirical evidence of deviation from shareholders primacy doctrine over the previous 16 years. In line with academic studies corporations moved away from single shareholders maximization toward multiple stakeholders orientation.

This work extends previous studies that mainly consider a single stakeholder per time. It observes the change in managers' attitudes over 5 key stakeholders and considers that under a competitive environment. When every single stakeholder competes with others for scarce managers' attention.

CSR engagement theories

This thesis contributes to CSR engagement literature in several ways. It confirms existing slack resource theories providing clear evidence that organizations with excessive financial resources engage in CSR more. However, that should be interpreted with causation considering its negative long-run effect on company financial performance and its market value.

It engaged in investors heterogeneity who could have different objectives even being of the same type (e.g. institutional investors). This study addresses directly investors' intrinsic motivation to behave responsibly and finds its strong positive effect on companies' CSR engagement. It revealed strong financial motives behind non-responsible investors, who oppose CSR engagement when their ownership concentration gets higher and leads to proportionally higher corresponding costs.

It revealed responsible investors' conflicting interest that comes with higher ownership concentration. On one side they bare a proportionally higher cost of CSR engagement while on the other have higher voting power and have higher chances to instill their non-financial objectives in the company.

It is the first study that separates ownership and concentration among responsible investors and finds that they have the opposite effect. That could explain previous ambiguous findings among existing studies that do not control for them separately.

4. Methodological contribution

Another aim of this study was to overcome the existing methodological impediment that bound academic findings within the theoretical framework. Despite its recognized importance, it become a real challenge for empirical studies to retrospectively assess managers' attention. The commonly applied survey approach suffers from high cost, low response rate, and is hard or even impossible to replicate. More importantly, it could be significantly biased since managers' response to the past is highly affected by all that happened after that moment. Where the bias would be stronger with more distant reviews in past.

This thesis overcomes such impediments by applying and justifying natural language processing methodology to measure managers' attention. Widely used in other areas it is applied

for the first time to assess managers' attention despite all comparative advantages recognized by previous studies. Specifically, it does not suffer from potential retrospective bias since the analyzed text stayed unchanged once being published. It could revile hidden patterns that are not explicitly expressed in the text. It stays easily replicable and highly extendable considering a wide range of textual analysis methodology and a long list of other available narratives.

This thesis contributes to the existing methodology by developing and justifying two dictionaries separately over 5 main goals and 5 main stakeholders. Surprisingly, but despite the highly recognized importance of these two aspects of managerial studies, there are no analogs in the existing literature and the whole task was addressed for the first time. Developed for the first time, these two dictionaries would make a significant impulse for long-lasting but ongoing debates about the purpose of corporations and wide stakeholder orientation. They open an extensive area for further investigation and could reveal unprecedented knowledge about past and current situations.

5. Research limitation and future research

Presented results and work on this thesis raised several challenges and areas for further investigation. In particular, it becomes vital to take a more granular look at managerial characteristics considering upper echelon theory (Hambrick & Mason, 1984) and managerial role to define companies' strategic, operational and overall activities. Their individual cognitive, physical, and other characteristics could have a significant impact on their attention allocation and could be a reason for cross firm's performance heterogeneity. Where among other, higher risk-acceptance by young managers, compared to more mature colleagues, could shift their attention more toward innovation and enhance corresponding company activity. Among stakeholders, they might care less about shareholders and more about customers aiming for future objectives rather than a sustainable current situation.

Considering that there is a two-way interaction between managers and the company it is important to separate these two effects. It would be important to understand how the appointment of CEO/chairman affects company attention allocation. While to what extent existing corporate culture drives managers' attention and could change their cognition.

Another important aspect for further investigation is to address common critiques about the authorship of letters to shareholders. It would be a great contribution to empirically justify the CEO and chairman's authorship of these narratives considering their high importance to a wide range of stakeholders and potential impact on company stock prices. Where Natural language processing methodology fit the purpose of such investigation. It has several approaches to measure narrative similarity and could numerically capture the change in writing style around the date of new CEO/chairman appointment.

Despite rigorous method verification and obtained findings consistent with common sense it still could benefit from further justification. It could clearly benefit from a rigorous causal exploration of possible mechanisms, perhaps exploiting a natural experiment, which will require more work.

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