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The Causes and Consequences of Corporate Short-Termism

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Graduate Program in Business

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ABSTRACT

Corporate short-termism is one of the most significant concerns facing companies and society today. It demands that companies maximize profits in the short term regardless of the long-term consequences. Corporate short-termism can destroy long-run wealth generation, fuel job lay-offs, impede innovation, and neglect society’s social and environmental interests. Paul Polman, CEO of Unilever, declares that short-termism “lies at the heart of many of today’s problems.”

In spite of the potential harm it may cause, corporate short-termism is one of least understood topics in management research. Anecdotal evidence suggests that financial market pressures fuel corporate short-termism, but little research has explored this claim. Difficulties of measuring and empirically testing short-termism have contributed to this limited work. In my dissertation, I develop a new measure of organizational time horizons to test the presence of short-termism in companies. I then apply this measure to answer the question: What are the causes and consequences of corporate short-termism?

In three essays, I postulate that financial markets affect organizational time horizons (Essay #1), which ultimately influence organizational-level outcomes, such as the corporate investment decisions of managers (Essay #2) and the resiliency of companies (Essay #3). I investigate these hypotheses in three empirical studies using data on large, multinational companies across an array of industries. The methods I employ include textual analysis, difference-in-differences, two-stage least squares with instrumental variables, and survival analysis. Taken together, this body of work provides a clearer understanding of the role that financial markets have in shaping the temporal perceptions of managers, and how these perceptions affect managers’ strategic decisions and the performance of their companies.

Keywords: short-termism, organizational time horizons, temporal orientation, financial analysts, institutional investors, business sustainability, organizational resilience
CO-AUTHORSHIP STATEMENT

I hereby declare that this thesis proposal incorporates some material that is the result of joint research. Essay #1 was co-authored with Dr. Tima Bansal, and Essay #3 was co-authored with Dr. Bansal and Dr. Yang Yang. I am the first and principal author of both papers. As the principal author, I took the lead on both papers, including: formulating research questions, conducting the literature review, developing the research design, collecting, analyzing and interpreting data, and preparing the first complete draft of the manuscript. I also acted as the sole presenter of the research at various conferences. Dr. Bansal contributed as an adviser throughout the research process in Essays #1 and #3, and also by editing, refining, and revising the complete drafts. Dr. Yang entered as a co-author of Essay #3 approximately two years after the first draft of the manuscript was completed to help structure the front-end of the manuscript and offer suggestions regarding the empirical analysis. With the above exceptions, I certify that this dissertation and the research to which it refers is fully a product of my own work.
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It is a rare honour to have the opportunity to participate in Ivey’s Ph.D. program, especially for one who started his post-secondary education in the humble halls of a Canadian college. Having now completed my degree, I am left with the realization that this entire journey would not have been possible without the help and support of many people, some of whom I would like to acknowledge here.

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In all your ways acknowledge Him, and He will make straight your path -- Proverbs 3:6
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CHAPTER ONE – INTRODUCTION

The qualities most useful to ourselves are, first of all, superior reason and understanding, by which we are capable of discerning the remote consequences of all our actions; and, secondly, self-command, by which we are enabled to abstain from present pleasure or to endure present pain in order to obtain a greater pleasure in some future time.

-- Adam Smith in The Theory of Moral Sentiments

If we think long term, we can accomplish things that we couldn't otherwise accomplish.

-- Jeff Bezos, CEO of Amazon

Time is an important reference point for any strategic decision maker (Mosakowski & Earley, 2000). Some individuals focus on the distant past and others focus on the distant future, whereas others think only a few days away (Ancona, Okhuysen, & Perlow, 2001b; Bluedorn, 2002). Decision makers, including corporate managers, often have overly short time horizons (Porter, 1992; Souder, Reilly, Bromiley, & Mitchell, 2015) and a bias for immediate gratification and temporal discounting (Loewenstein & Thaler, 1989); they generally prefer to enjoy smaller benefits now than wait for larger rewards later (Frederick, Loewenstein, & O'Donoghue, 2002). Short time horizons can lead to short-termism, defined as “decisions and outcomes that pursue a course of action that is best for the short term but suboptimal over the long run” (Laverty, 1996: 826).

At the heart of my dissertation, I argue that short-termism hinders effective management and undermines sustainable businesses -- those that balance intergenerational equity by meeting their present needs without compromising their ability to meet future needs as well. Sustainability in this sense is not solely about social and environmental performance, but rather intertemporal decision making and balancing the short and long terms (Bansal & DesJardine,
2014). My interest lies in answering the question: **What are the causes and consequences of corporate short-termism?**

Corporate short-termism undermines the welfare of society and the environment. Successfully addressing many social and environmental issues requires companies to make long-term investments; when companies forgo such investments, they can either withhold benefits to others or create widespread harm for others. First, corporate short-termism can withhold benefits to others because many long-term investments that stakeholders profit from, such as those in employee development programs or pollution mitigation technologies, do not maximize short-term profits (Bansal & DesJardine, 2014; Slawinski & Bansal, 2015). Forgoing these investments, however, detracts from creating stronger workforces and a healthier natural environment. Second, corporate short-termism can harm people by encouraging corporate accidents or scandals. For example, it is believed that corporate short-termism within British Petroleum led the company’s executives to cut back on necessary safety precautions that contributed to the 2010 Deepwater Horizon oil spill in the Gulf of Mexico.¹ Corporate short-termism invites malfeasance and excessive risk taking among managers and has been connected to major cases of corporate fraud, such as those at Enron, Tyco, and WorldCom.

Corporate short-termism also harms companies because many practices that encourage short-term profit maximization will compromise long-term value creation (Marginson & McAulay, 2008; Souder et al., 2015). For example, managers can curtail spending on R&D and innovation to help bolster a company’s short-term profits (Bushee, 1998; Cheng, 2004; Manso, 2011), but such behaviour also undermines the company’s long-term competitiveness by rendering its products and services obsolete (Ofori-Dankwa & Julian, 2001). Likewise, the

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tendency to pursue short-term profits encourages managers to forgo necessary investments in new capital equipment (Souder & Bromiley, 2012), make short-sighted value-reducing acquisitions (Gaspar, Massa, & Matos, 2005), and underinvest in marketing (Mizik & Jacobson, 2007) and advertising (Currim, Lim, & Kim, 2012), all of which are actions that may ultimately undermine long-term performance. Despite the potential consequences of corporate short-termism, researchers and practitioners contend that managers, especially those in the United States, tend to trade off long-term value creation for short-term results (Hayes & Abernathy, 1980; Porter, 1992). In fact, roughly 80 percent of managers admit that they would willingly sacrifice long-term performance to smooth earnings or meet a short-term earnings target (Graham, Harvey, & Rajgopal, 2005).

Overall, corporate short-termism is potentially very harmful to the long run welfare of society and the environment, capital markets and the economy, and companies themselves. Summarizing the potential concern of corporate short-termism in today’s business context, the CFA Institute warns that “the obsession with short-term results by investors, asset management firms, and corporate managers collectively leads to the unintended consequences of destroying long-term value, decreasing market efficiency, reducing investment returns, and impeding efforts to strengthen corporate governance” (Krehmeyer, Orsagh, & Schacht, 2006). Lees and Malone (2011: 1) blame short-termism “for some of the worst excesses of the global financial crisis and an excess of ‘public bads.’” Corporate short-termism is a concern that warrants considerable attention.

Despite the importance of corporate short-termism to both business and society, there is little research in organizational studies on this subject (Laverty, 1996; Marginson & McAulay, 2008) and on time in general (Ancona, Goodman, Lawrence, & Tushman, 2001a; Bluedorn &
Denhardt, 1988; Butler, 1995; Mosakowski & Earley, 2000). Specifically, Reilly, Souder, and Ranucci (forthcoming: 11) note that, “little work has been devoted to developing and testing arguments pertaining to time horizon itself.” The limited attention is alarming given the importance of time horizons in influencing corporate behaviours (Ancona et al., 2001b; Bluedorn, 2002; Sorokin, 1964) and sustainable outcomes. Contributing to our limited understanding of the subject, most studies on time horizons and corporate short-termism are conceptual, not empirical. Accordingly, with limited research and empirical evidence, the causes and consequences of corporate short-termism remain “controversial” (Marginson & McAulay, 2008: 275) and filled with “much debate” (Kochhar & David, 1996: 73). My dissertation begins with this debate in mind by reviewing and integrating existing research on time horizons and corporate short-termism to identify the areas in which further study is necessary.

At the heart of this debate -- and my research -- is the role of financial markets. CEOs of some of the world’s largest companies are blaming quarterly earnings targets, financial analysts, and short-term oriented investors for limiting their ability to manage their companies in a long-term manner. Michael Dell, for instance, privatized Dell to avoid, “the scrutiny, quarterly targets and other limitations of operating as a public company.” Not surprisingly, investors and financial analysts have not taken those accusations lightly. Firing back at executives, Larry Fink, CEO of Blackrock, the world’s largest asset management firm, claims that “we need executives in business to start focusing on what is right in the long run.” There is a clear tension at hand, with some believing that markets systematically over-value short-term payoffs, and others attesting that markets favour long-term value but are thwarted by myopic managers (Bushee, 1998; David, Hitt, & Gimeno, 2001; Klassen, 2001; Porter, 1992). For example, Brochet, Serafeim, and Loumioti (2012: 28) find evidence that investors select companies for their time horizons,
arguing that, “executives with a short-term orientation attract investors who are fixated on quarterly numbers.” My research directly addresses the tension between financial markets and corporate managers by examining the role of market actors in influencing the time horizons of managers and their strategic investment decisions.

The limited amount of research on corporate short-termism is likely partially attributable to the difficulties of measuring time horizons. Laverty (1996: 851) comments that, “The most far-reaching challenge to advancing the [short-termism] debate consists in research approaches to observation and measurement of inter-temporal choice.” With few exceptions (e.g., Souder & Bromiley, 2012; Wang & Bansal, 2012), studies have not empirically tested organizational time horizons, leaving it as a theorized construct. Moreover, the very few studies that have measured time horizons have relied either on individual-level scales, where data is difficult to collect (e.g., Klassen, 2001; Marginson & McAulay, 2008; Wang & Bansal, 2012), or accounting-based proxies, such as research and development (R&D) expenditures (Bushee, 1998; Cheng, 2004). These measures, however, have potential limitations. For example, accounting-based proxies only capture observable behaviour (Aghion, Van Reenen, & Zingales, 2013), are sensitive to accounting procedures (Acharya & Subramanian, 2009), may suffer from incomplete and inaccurate data, and, in the worst cases, may be uncorrelated to time horizons altogether (Laverty, 1993). Summarizing the potential limitations of accounting-based and other measures, Reilly et al. (forthcoming: 16) remark that, “None of these [existing] measures explicitly captures time; instead, they try to draw inferences about time on the basis of available data… as suitable measures with a more explicit treatment of time are developed, it is important for scholars to go back and determine the amount of confidence to place in these conclusions by attempting to replicate the results with the better measures.” My research reviews the challenges
of measuring time horizons alongside these existing measures and presents a new measure of organizational time horizon using textual analysis of corporate archival documents (e.g., 10-K filings and conference call transcripts).

Organizational time horizons and corporate short-termism are relevant to conversations on business sustainability. Sustainable businesses balance the short and long term by meeting their current needs without comprising their future -- that is, they do not “borrow” from the future (Bansal & DesJardine, 2014). Much prior research in corporate social responsibility (CSR) and business sustainability has tended to focus on the short-term benefits of social and environmental practices without considering the longer-term implications of these practices. Specifically, researchers argue that social and environmental practices improve financial performance and reduce firm-specific risks (e.g., Bansal & Clelland, 2004; Margolis, Elfenbein, & Walsh, 2007) in a direct, causal, and relatively quick manner. This logic, however, may have inadvertently caused researchers and managers to overlook the more latent and long-term benefits. Focusing specifically on organizational resilience, my research begins to explore the more latent and long-term benefits of short-term (e.g., making philanthropic contributions) and long-term (e.g., improving workplace diversity) social and environmental practices.

My dissertation is primarily motivated by the limited attention that management scholars have placed on understanding the factors that influence time horizons and the role these horizons have in shaping corporate behaviours and collective outcomes. In three distinct but related essays, I postulate that financial markets affect organizational time horizons (Essay #1), which ultimately influence organizational-level outcomes, such as the corporate investment decisions of managers (Essay #2) and the resiliency of companies (Essay #3). I investigate these hypotheses in three empirical studies using data on large, multinational companies across an array of
industries. The methods I employ include textual analysis, difference-in-differences, two-stage least squares with instrumental variables, and survival analysis. Taken together, this body of work provides a clearer understanding of the role that financial markets have in shaping the temporal perceptions of managers, and how these perceptions affect managers’ strategic decisions and the performance of their companies. Consequently, this work also begins to answer Bateman and Barry’s (2012: 1002) call for more “theories and strategies that help people and organizations pursue and achieve important long-term goals.”

In my first essay, I explore the relationship between financial markets and corporate short-termism. By drawing on the behavioral theory of the firm, I argue that the mechanism to corporate short-termism is through the performance expectations of financial analysts. I argue that organizational time horizons shorten when companies fail to meet analysts' performance expectations, and lengthen when they exceed analysts' performance expectations. However, this effect is asymmetric -- underperformance has a more potent effect than over-performance on organizational time horizons. To test these and other related hypotheses, I analyze 3,136 quarterly earnings conference call transcripts from 98 companies in extractives industries between 2006 and 2013. Findings from this essay point to the important role that analysts’ expectations have in shaping short-termism among publicly held companies.

In my second essay, I examine whether the number of financial analysts covering a company causes corporate short-termism by influencing organizational time horizons and the horizons of companies’ capital investments. I hypothesize that greater analyst coverage leads to more pressure on managers to perform in the short term, which biases them against making longer-term capital investments. To establish causality, I employ a difference-in-differences technique that exploits a series of quasi-natural experiments. Using a matched sample of 2,462
U.S.-based companies, I find that companies that lose a covering analyst extend their attention further into the future and invest more in longer-term capital, compared to similar companies that do not lose an analyst. I explore several contingencies in this relationship, finding that the effect is stronger for companies in fast-moving industries, and for companies with stronger corporate governance policies. Given that long-term investments are a core part of any sound corporate strategy, results from this essay begin to illustrate the role of financial analysts in creating unsustainable outcomes for business and society.

In my third and final essay, I investigate the long-term and more latent benefits of social and environmental practices. Specifically, I posit that social and environmental practices build organizational resilience, which helps companies recover from global and general crises. I further argue that long-term, strategic social and environmental practices are more strongly associated with organizational resilience than short-term, tactical social and environmental practices. However, measuring the outcomes of latent variables with long-term benefits is challenging. I overcome this challenge by investigating how social and environmental practices affected the severity of the shock on companies and the time to recovery of companies in the five years following the onset of the 2008 global financial crisis. I test my theory with 963 U.S.-based companies and find evidence that strategic, not tactical, social and environmental practices contribute to organizational resilience. These findings help illustrate the important role that long-term investments have in affecting the resiliency of companies and markets.

Three leading findings emerged from these essays. First, findings from Essay #1 and Essay #2 help unpack the highly controversial relationship involving short-termism between financial markets and corporate managers (Laverty, 1996; Marginson & McAulay, 2008). On one hand, markets are believed to encourage short-termism by exerting short-term pressures on
managers; on the other hand, they can also alleviate short-termism by helping managers focus their attention on making investments that enhance long-term value. Essay #1 illustrates how missing the market’s earnings expectations (e.g., quarterly earnings benchmarks) shortens organizational time horizons and Essay #2 shows how analyst pressure does the same, ultimately leading managers to make fewer long-term investments.

Second, in Essay #1 and Essay #2, I make a methodological contribution by developing and applying an archival-based approach to assess organizational time horizons by use of textual analysis. To operationalize time horizons, I undertook a systematic process to create a data dictionary and ratio using textual analysis of corporate archival documents (conference call transcripts and 10-K filings) that generated a valid and reliable measure. Textual analysis is well suited for capturing the subconscious cognitive processes of managers that are otherwise difficult to measure (Barr, 1998; Li, 2010; Nadkarni & Chen, 2014). Textual analysis also has advantages over surveys and accounting-based proxies when measuring time horizons. First, surveys in large publicly traded companies often generate unreliable and very few responses. Here, textual analysis is advantageous because many corporate archival documents are publicly available, thereby not limiting the sample size. Second, accounting proxies of organizational time horizons are constrained by infrequent reporting, sensitivities to accounting principles, and capturing behaviours (e.g., R&D expenditures) rather than cognitions. In contrast, textual analysis can be computed frequently (e.g., every quarter when using conference call transcripts), is not sensitive to accounting practices, and is able to capture cognitive processes (Li, 2010). For these reasons, textual analysis is well suited for studying temporal perceptions in organizations and should make conducting future research in this area more feasible.
Third, my research offers new insights into the consequences of corporate short-termism. In 2014, the average age of industrial equipment in the U.S. rose above 10 years to its highest level since 1938 (Hagerty, 2014). A heavy reliance on older capital can undermine the competitiveness of companies and the health of society and the environment (Hayes & Abernathy, 1980; Porter, 1992). In Essay #2, I hypothesize and empirically illustrate that greater analyst coverage increases the pressure managers experience to perform in the short-term, which biases them away from making long-term capital investments. In Essay #3, I illustrate the important role that long-term investments have in building organizational resiliency. Specifically, I find that long-term, strategic social and environmental practices help build organizational resilience, whereas short-term, tactical practices do not. Taken together, these results suggest that companies that fall victim to short-termism, focusing on securing quick wins and short-term rewards, will overinvest in short-term strategies (e.g., capital) in ways that undermine their future performance and resiliency.

Overall, it is evident that more research is needed on how temporal perceptions manifest in organizations and how these perceptions affect corporate behaviours and collective outcomes. My research addresses this gap by helping researchers better understand the causes and consequences of corporate short-termism.

This dissertation is organized in the following way. In Chapter 1, I define my key constructs and provide a theoretical background for this research by reviewing the relevant literature in the domains of organizational time horizons and corporate short-termism. I use this chapter to identify the research gaps that I intend to fill. The following three chapters are each dedicated to my three individual empirical studies. In Chapter 5, I conclude my dissertation by discussing the overall findings and contributions of this research and its limitations, some of
which present opportunities for future work. A conceptual map and theoretical overview of my three essays are presented in Figure 1 and Table 1, respectively.

Figure 1: Conceptual Map of Dissertation Essays

Essay #1

- Analyst upgrades and downgrades
- Investor horizons
- Organizational time horizons

Essay #2

- Analyst coverage
- Organizational time horizons
- Organizational capital investment horizons

Essay #3

- Tactical (short-term) social and environmental practices
- Strategic (long-term) social and environmental practices
- Organizational resilience
Table 1: Theoretical Overview of Dissertation Essays

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<tr>
<th>Essay title:</th>
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<tbody>
<tr>
<td>Essay 1: Failing to meet analysts’ expectations: How financial markets contribute to corporate short-termism</td>
</tr>
<tr>
<td>Essay 2: Under pressure: The causal effect of financial analyst coverage on long-term capital investments</td>
</tr>
<tr>
<td>Essay 3: Bouncing back: Organizational resilience in the context of the 2008 global financial crisis</td>
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<tr>
<td>Essay 1: Mark DesJardine and Tima Bansal</td>
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<td>Essay 2: Mark DesJardine</td>
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<td>Essay 3: Mark DesJardine, Tima Bansal, and Yang Yang</td>
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<th>Research question</th>
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<tr>
<td>Essay 1: Do met and unmet performance expectations affect organizational time horizons?</td>
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<td>Essay 2: Do financial analysts constrain or encourage capital investments with long horizons?</td>
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<td>Essay 3: Do social and environmental practices contribute to organizational resilience in a crisis?</td>
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<th>Theory</th>
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<td>Essay 1: Behavioral theory of the firm</td>
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<td>Essay 2: Short-termism and decision making</td>
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<td>Essay 3: Resilience theory</td>
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<th>Dependent variable(s)</th>
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<td>Essay 1: Organizational time horizon</td>
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<td>Essay 2: Asset durability; Organizational time horizon</td>
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<td>Essay 3: Time to recovery; Severity of loss</td>
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<td>Essay 1: Analyst upgrades and downgrades Investor horizons</td>
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<td>Essay 2: External market pressures</td>
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<td>Essay 3: Social and environmental practices</td>
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LITERATURE REVIEW

Individual and Organizational Temporal Orientation

Individuals and organizations have different perceptions of time that form their temporal orientation (Bluedorn, 2002; Zimbardo & Boyd, 1999). Some actors will focus on the distant past or feel a strong sense of urgency, whereas others tend to focus more on the distant future and feel limited urgency. Temporal orientation captures several dimensions of an individual’s or organization’s perceptions of time, including time horizon (the distance into the past or future one considers; Bluedorn & Ferris, 2004), time urgency (the chronical hurriedness one feels; Landy, Rastegary, Thayer, & Colvin, 1991), temporal focus (whether one focuses on the past,
present, or future; Zimbardo & Boyd, 1999), and temporal direction (whether one thinks from the future to present or present to future; Slawinski & Bansal, 2012). Of these dimensions, time horizon and temporal focus have received the most attention from organizational researchers.

An individual’s temporal orientation affects their behavior. Perceptions are a way of regarding, understanding, or interpreting something, influencing the information people process and how information is encoded, stored, retained, and used (Waller, Huber, & Glick, 1995). What individuals perceive affects their choices and actions (Hambrick & Mason, 1984; Thomas, Clark, & Gioia, 1993). Zimbardo and Boyd (1999: 1272) state that individuals’ perceptions of time dictate the information they process, forming their “expectations, goals, contingencies, and imaginative scenarios” and shaping their behaviours (Waller, Conte, Gibson, & Carpenter, 2001). For example, individuals who focus on the present, compared to those who focus on the past or future, are more likely to seek pleasure, act impulsively, ignore the future consequences of their current actions, and fail to plan for the future (Zimbardo & Boyd, 1999). The temporal perceptions that make up temporal orientation are important for understanding the decisions, plans, and actions of people (Mosakowski & Earley, 2000; Sorokin, 1964).

Individual temporal orientations form organizational temporal orientations and affect organizational outcomes. Frequent interpersonal communication and social interaction occurs within organizations (Fulk, 1993), which can guide judgments and lead to conformity of views, beliefs, and behaviours (Turner, 1991). For example, as one individual experiences a sense of urgency to complete a task then others may experience a similar urgency, until that urgency becomes reflected throughout the entire organization. As a result, individuals’ temporal orientation will influence the organization’s temporal orientation and collective action (Ancona et al., 2001b). Das (1987), for instance, finds a relationship between individuals’ temporal
orientation and their organization’s planning horizon. As well, Mohammed and Nadkarni (2011) show that team members’ temporal orientation affect team performance, and Nadkarni and Chen (2014) find that CEO’s temporal orientation shape the level of new product innovation within companies. Measuring the temporal orientations of individuals becomes important for understanding an organization’s temporal orientation. Accordingly, I draw from the literature on individual time horizons to explain organizational time horizons.

**Organizational Time Horizons and Corporate Short-Termism**

Some individuals focus on the distant past and others focus on the distant future, whereas others think only a few days away (Ancona et al., 2001b; Bluedorn, 2002). Time horizon refers to “the temporal distances into the past and future that individuals and collectivities typically consider when contemplating events that have happened, may have happened, or may happen” (Bluedorn, 2002: 114). Actors that focus on the distant past or distant future characterize longer time horizons, whereas those that focus closer to the present characterize shorter time horizons. Several experiments show people characterize seemingly irrational short-term biases (Benzion, Rapoport, & Yagil, 1989; Mannix & Loewenstein, 1994).

The characteristics and orientation of senior managers and the organizational context will affect organizational time horizons, so time horizons are malleable over time (Souder & Bromiley, 2012). For example, Martin, Wiseman, and Gomez-Mejia (2015) found that CEOs become more likely to invest in long-term projects as their accumulated option wealth increases, and Marginson, McAulay, Roush, and Van Zijl (2010) found that organizations that use non-financial measures prioritize shorter-term outcomes.

Organizational time horizons are central to understanding how intertemporal choices are made within organizations (Mosakowski & Earley, 2000). Intertemporal choice is a
characteristic of decisions in which the timing of costs and benefits are spread out over time (Loewenstein & Thaler, 1989). Managers must often decide between different courses of action that affect when benefits are realized; some decisions maximize earnings in the short term, and others provide greater returns in the more distant future. For example, Roychowdhury (2006) finds evidence that managers attempt to avoid reporting annual losses by introducing price discounts to temporarily increase sales, overproducing to report lower cost of goods sold, or reducing discretionary expenditures to improve reported margins. In each case, managers with short horizons focus on meeting an immediate earnings objective, which causes them to make decisions that increase short-term earnings and reduce future returns. Organizational time horizons help elucidate why managers make certain decisions.

Time horizons are positively related to uncertainty, which can affect the level of risk in decision-making. Prelec and Loewenstein (1991: 784) comment that “time and uncertainty are typically correlated with one another in the real world” and that “anything that is delayed is almost by definition uncertain.” It is generally argued that because there is greater uncertainty in the long term than the short term, decisions with long horizons introduce a higher degree of risk (i.e., likelihood of something not going according to planned) than short-term decisions (Souder and Shaver, 2010). Accordingly, scholars have used decisions with long horizons as a proxy for high risk (e.g., Fried & Slowik, 2004; Palmer & Wiseman, 1999; Thaler, Tversky, Kahneman, & Schwartz, 1997).

However, Souder and Shaver (2010) disambiguate time horizons from risk, noting that these are separate dimensions. Providing examples in the cable television industry, they illustrate that some long-term decisions have very little risk (e.g., converting a service fleet to newer, more efficient technology) and some short-term decisions have very high risk (e.g., offering free
installation and promotional discounts to attract new subscribers). In my research, I follow Souder and Shaver’s assertion that time horizons and risk are different dimensions that are not always positively correlated with one another. Hence, there are many situations where decisions with long horizons have little uncertainty. The distinction between time horizons and risk and uncertainty is important when identifying the factors that influence organizational time horizons.

Going forward, I continue to use the term time horizon. It should be noted though that similar ideas to time horizons have been expressed using the terms temporal orientation (Souder & Bromiley, 2012), time perspective (Zimbardo & Boyd, 1999), temporal depth (Nadkarni, Chen, & Chen, 2015), and myopia (Thanassoulis, 2013b). Reilly et al. (forthcoming: 7) state that “the proliferation of terms to describe similar concepts has obscured connections across studies pertaining to time horizon.” Accordingly, I cite various studies that speak to time horizons, but use different labels to discuss this concept.

**Corporate Short-Termism and the Concern of Short Organizational Time Horizons**

Excessively short organizational time horizons encourage corporate short-termism. Hambrick (1981: 299) remarks that an “organization’s executives can only act on those phenomena to which their attention is drawn.” When the distant future consequences of current decisions and actions are ignored, then companies become susceptible to making decisions and forming strategies with adverse long-term consequences. As a result, short organizational time horizons can potentially lead to corporate short-termism, where “decisions and outcomes that pursue a course of action that is best for the short term but suboptimal over the long run” (Laverty, 1996: 826). Short organizational time horizons might induce corporate short-termism in the form of lower investments in innovation (He & Tian, 2013), stakeholder relationships (Barnett, 2007), and environmental improvements (Klassen & Whybark, 1999).
There is growing evidence that short organizational time horizons can have detrimental consequences for companies and the broader social, environmental, and economic systems in which they operate. Souder et al. (2015) find that the vast majority of public U.S.-based companies tend to prefer short-term capital investments over longer-term investments that optimize financial performance (Souder et al., 2015); Flammer and Bansal (2016) show that firm value and operating performance increases when companies adopt a longer-term horizon; Antia, Pantzalis, and Park (2010) find that longer decision horizons are associated with higher levels of firm valuation and performance; Ortiz-de-Mandojana and Bansal (forthcoming) find that companies that invest in long-term social and environmental practices experience higher sales and higher survival rates; and, Slawinski and Bansal (2012) find that companies that primarily focus on the short term tackle climate change by investing in efficiency-based solutions that are largely incapable of addressing rising temperatures (Senge, Smith, Kruschwitz, Laur, & Schley, 2008). Overall, having a better idea of what affects organizational time horizons will allow researchers to more clearly understand the decision-making processes of managers and the consequences of corporate short-termism.

In my research, I refer to a short time horizon not as a problem in and of itself, but that it may potentially lead to the problem of corporate short-termism by emboldening companies to neglect their future in favour of satisfying short-term objectives. Indeed, there are different times when shorter or longer time horizons are necessary among companies. For example, following the deaths of 1,130 people after a commercial building collapsed in Bangladesh in 2013, several companies shifted their attention towards immediately addressing their labour practices and holding press conferences to address stakeholder concerns. These companies that shifted shortened time horizons fared well in comparison to their competitors that maintained longer
time horizons and overlooked the situation, triggering stronger activist protests and widespread stock selloffs. Neglecting short-term performance entirely can jeopardize a company’s survival in the long term (Souder & Shaver, 2010) and plans for long-term sustainability only matter if survival occurs in the short term (Gray & Whittaker, 2003). Some short-term pressures can even help business, for instance by forcing them to better manage their working capital. Levinthal and March (1993) remark that, just as they may do with the short term, firms can overemphasize the long term as well.

Overall, although zero-sum trade-offs may occur between the short and long term, the general objective of managers should not be to permanently focus their attention on one point in time, but to shift their horizons according to their companies’ needs and circumstances and balance trade-offs between the short and long term (March, 1991). As Peter Drucker (2013: 54) explains, the “specific task of managers is to harmonize in every decision and action the requirements of the immediate and long-range future. Managers cannot sacrifice either without endangering the enterprise.” In sum, both shorter and longer term horizons are warranted at different stages of an organization’s life -- corporate short-termism arises only when the short term takes such great priority that organizations undermine their long-term wellbeing.

Short-termism is closely related to the concepts of: 1) temporal myopia (Jacobs, 1991; Levinthal & March, 1993), which is most often used among finance scholars; 2) hyperbolic discounting (Dasgupta & Maskin, 2005; Plambeck & Wang, 2013), which is commonly discussed in behavioral economics; and 3) present focus (Cojuharenco, Patient, & Bashshur, 2011), which has a long history of study in psychology. I draw on numerous studies that discuss these other concepts while researching corporate short-termism.
Operationalizing and Measuring Organizational Time Horizons

Laverty (1996: 851) claims that “the most far-reaching challenge to advancing the [short-termism] debate consists in research approaches to observation and measurement of inter-temporal choice.” With few exceptions (e.g., Souder & Bromiley, 2012; Wang & Bansal, 2012), researchers have not directly tested organizational time horizons so empirical evidence in the short-termism debate remains sparse. New measures of organizational time horizons are needed to advance the conversation. Here, I undertake this challenge by looking at how organizational time horizon differs from other types of organizational horizons, how organizational time horizon has been operationalized, and how it has been measured in past research.

Researchers have identified distinct types of organizational horizons without examining how they are connected. For example, Das (2006) proposes alliance horizon to represent the intended duration of an alliance; Smith and Barclay (1997) use strategic horizons to study the extent to which companies differ in their planning, strategy, and result orientations; Miller and Friesen (1982) develop planning horizons to capture the degree of concern that managers place on the short- and long-term adequacy of their product lines and product designs; and others observe investment horizons to gauge how long investors intend on holding their securities (Arthurs, Hoskisson, Busenitz, & Johnson, 2008; Samuel, 2000). Each of these various horizons focuses on the duration of specific strategies, behaviours, or outcomes of individuals or organizations. In contrast, organizational time horizons pertain only to cognition and time.

Previous work has differed in whether organizational horizons are continuous or dichotomous, with some studies explicitly truncating horizons into distinct categories. For example, Abernethy, Bouwens, and Lent (2013) discern between three categories of time horizons: a short time horizon is less than one quarter; a medium time horizon is one quarter to
one year; and a long time horizon is anything greater than one year. Conversely, Gaspar et al. (2005) place the labels short and long on opposite ends of an investment horizon scale, and suggest investors can have an investment horizon that ranges from very short to very long. A dichotomous measure is more appropriate to measure temporal focus, since this construct reflects the three distinct categories of past, present, and future (e.g., Nadkarni & Chen, 2014). In contrast, organizational time horizon refers to a spectrum of time that ranges from infinitely far into the past to infinitely far into the future, making a continuous measure more appropriate.

Considering how various horizons have been operationalized in past research, an appropriate measure of time organizational time horizon will capture the cognition of managers and use a continuous measurement scale.

*How Short is “Short?”*

For the most part, no particular span of time (e.g., number of years) has been attached to the labels short term and long term. favouring a continuous measure of organizational time horizons, I share this approach, allowing what is “short” or “long” to vary across (1) industries and (2) time. Companies with “short” time horizons focus their attention on events that occur closer in the future or past than the average company in their industry in that reference period; companies with “long” time horizons focus their attention further into the future than their industry’s average company.

First, I avoid attaching a fixed time to “short” and “long” across all companies because what is considered short in one industry might be considered long in another industry. Companies within an industry typically face the same environmental factors as their peers (Cool & Schendel, 1987; Hunt, 1972; Porter, 1980) so they should naturally fix their attention on a similar point in time. Consequently, average time horizons vary widely by industry. Shorter time
horizons, for instance, are often commonplace in industries that change quickly. Offering support for industry-specific time horizons, Souder et al. (2015) found that the average time horizon for petroleum refining companies (SIC Code = 29) is about 19 years and for printing and publishing companies (SIC Code = 27) is roughly 7.3 years. Accordingly, using the industry-specific reference point I propose, a 10-year time horizon would be considered short (below average) for petroleum refiners, but long (above average) for printing and publishing companies.

Second, time horizons can also vary by time period. For example, following the 2008-09 global financial crisis, as working capital tightened and companies struggled to survive, it became common for managers to redirect their attention towards the immediate future. This shorter view was warranted as the difficulties of the immediate future outweighed the importance of long-term planning. What is considered “short” in one period (e.g., a three-year horizon in a stable operating environment) might be considered “long” in another (e.g., a three-year horizon during an economic crisis). Accordingly, using the time-specific reference point I propose, short (long) time horizons occur when a company focuses its attention closer (further) in the past or future than the average company in its industry in a specific time period.

Before closing this section, it is worth briefly noting that what is considered short can also vary by country or region. Companies from the UK, for instance, generally have shorter time horizons than German companies (Segelod, 2000) and the same is true for American companies relative to their Japanese counterparts. Consequently, multinational studies of time horizons should control for country effects.

*Previous Measures of Time Horizons*

Scientific progress on time horizons has been impeded by the absence of a validated measure of organizational time horizons. For the most part, researchers have relied on surveys...
that employ individual-level scales (e.g., Marginson & McAulay, 2008; Wang & Bansal, 2012) and organizational-level accounting-based proxies, such as research and development (R&D) expenditures (Bushee, 1998; Cheng, 2004; Chrisman & Patel, 2012; Desyllas & Hughes, 2010; Hopp, 1987) or capital expenditures (Martin et al., 2015; Souder & Bromiley, 2012), to measure organizations’ time horizon. For example, companies with higher R&D expenditures are interpreted as having longer time horizons since they invest more in an activity (R&D) that is assumed to pay off far in the distant future (Laverty, 1993). While both surveys and accounting-based proxies have advantages when measuring organizational time horizons, they also have limitations that are worth considering.

The primary limitations of using surveys in management research are the difficulties and costs associated with obtaining sufficient valid and reliable responses. Response rates from CEOs and other senior executives are typically fairly low in large, public companies. Moreover, survey design, distribution, and collection require considerable resources in terms of time and effort on behalf of the researcher(s). Even when resources are not a constraining factor, a social-desirability bias can cause respondents to answer questions in ways that make them look or feel better, which presents a problem when measuring time horizons since many individuals would not want to admit to having a very short-term outlook. Respondents may not be motivated or willing to provide accurate, honest, and complete answers. Lastly, the accuracy of measuring historical time horizons is likely to be quite low since many respondents will fail to correctly remember how they thought about time in the past. This limitation combined with the costs of distributing multiple studies over time makes longitudinal studies difficult. Overall, despite their popularity and potential advantages, surveys present numerous shortcomings when measuring time horizons.
The following review of accounting-based proxies focuses on R&D expenditures and asset durability, since these are the two most common measures that are used for measuring time horizons. R&D expenditures are assumed to be positively correlated to time horizons. Asset durability (Souder & Bromiley, 2012), a more recent development for measuring time horizons, uses capital expenditures data from companies’ financial statements to capture the horizons of their new capital investments each year (i.e., the expected life of newly purchased capital). Higher depreciation rates and depreciation expenses and lower capital expenditures decrease asset durability. A lower value for asset durability signals that a company is making fewer investments in long-term capital and, therefore, has a shorter time horizon. There are several limitations of using accounting-based proxies to measure organizational time horizons.

First, accounting-based proxies capture behaviours rather than cognition (Aghion et al., 2013). For example, asset durability measures the actual amount of money a company allocates to capital investments rather than the company’s perceptions about capital investments. Organizational time horizon is just one of many factors (e.g., budget, goals, strategy, competitors, cost of capital, etc.) that will influence a company’s capital or R&D spending.

Second, accounting-based proxies are highly sensitive to accounting procedures (Acharya & Subramanian, 2009) in ways that complicate their ability to accurately capture organizational time horizons. For example, R&D and capital expenditures are reported differently (either expensed or capitalized) depending on whether a company follows IFRS or GAAP accounting procedures. The CFA Institute warns finance professionals of these accounting complications: “Measuring temporal orientation is not simple. Each of the [accounting-based] measures… requires careful judgement and knowledge of firm financial reporting standards. These measures

\[\text{Asset durability}_{it} = \frac{\text{CAPEX}_{it}}{[\text{Depreciation expense}_{it} - (\text{Gross PP&E}_{it} - \text{CAPEX}_{it}) \times \text{Depreciation rate}_{i,t-1}]}\]
are further complicated by their interdependence. For instance, when using R&D as a proxy for
temporal orientation researchers should adjust for capitalized expenditures to equate all expenses on research and development to the same term (this year). However, any capitalized
development costs should also be reclassified on the cash flow statement from an investing outflow to an operating outflow if accruals are used as a measurement. In other words, the complexity of capturing one measure (R&D in this case) may also affect that of another (e.g., accruals).” Companies also use different depreciation methods for capital accounting purposes, which will alter asset durability in misleading ways. For example, a company using the double-depreciation method will show lower asset durability in earlier years than a company that purchased the equivalent piece of capital and accounted for it using straight-line depreciation. The intricacies of accounting procedures need to be taken into close consideration when using accounting-based proxies.

Third, the direction of correlation between some accounting-based proxies and organizational time horizons is unclear and inconsistent. For example, R&D is assumed to be positively correlated to time horizons, but R&D may produce short-term benefits (Mansfield, Rapoport, Schnee, Wagner, & Hamburger, 1972). Therefore, companies with very short time horizons may spend a lot on R&D in an effort to secure these short-term benefits, suggesting that high levels of R&D infer short time horizons. The direction and strength of the relationship between accounting-based proxies and organizational time horizons is further confounded by other factors that impact these proxies. For example, family companies typically invest less in R&D for socio-emotional reasons, but still have longer time horizons than non-family companies (Chrisman & Patel, 2012). Accordingly, it is easy to misclassify firms as having shorter or longer
time horizons depending on their R&D spending or capital expenditures. The researcher must judge carefully the series of factors that influence these spending decisions.

Fourth, accounting-based proxies often suffer from incomplete and inaccurate data. Many companies fail to report R&D expenditures and accounting figures vary drastically across industries. Moreover, companies in some industries may not allocate any money towards a particular accounting item used to capture organizational time horizon. For example, internet companies may have limited or no spending on capital and mining firms may report very little, if any, R&D expenditures. As well, if reported, these figures are often only available on an annual basis, whereas other measures can be used to compute organizational time horizons more frequently.

Fifth, financial constraints may affect a company’s accounting expenditures in ways that do not align with their time horizon. This presents the possibility of misclassifying companies as having either short or long time horizons based on their accounting data. For example, financially constrained companies with long time horizons may be unable to invest in R&D or capital, even when they desire to. Measuring cognition directly mitigates this potential misclassification problem.

Overall, given the preceding five limitations, it is not surprising that Laverty (1993) questioned the use of R&D as a proxy of organizational time horizon after finding little association between R&D expenditures and a long run value index (a similar comparison is yet to be done for asset durability given its newness in the literature). The potential limitations of surveys and accounting-based proxies present opportunities for developing a new measure of organizational time horizon.
Antecedents of Organizational Time Horizons

There are many factors that will influence the time horizons of managers. For example, the time period used when measuring organizational performance, how managers’ rewards and penalties are tied to those performance measures, and the degree of accountability managers face for any long-term adverse consequences of their decisions, all become important considerations for managers deciding how far they should look into and invest in the future. In addition to these organizational-level factors, managers have their own individual behavioural biases and personal objectives, and the environment in which an organization operates can also play a role as recessionary (growth) periods may demand shorter (longer) time horizons. Overall, many factors must be taken into consideration when isolating any individual antecedent of organizational time horizon. In the following two sections, I review individual-, organizational-, and environmental-level antecedents and outcomes that have been related to organizational time horizons. Figure 2 provides an illustration of how these antecedents and outcomes are reviewed.

Figure 2: Multi-Level Model of Antecedents and Outcomes of Organizational Time Horizons

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3 I say “related” because many of these papers do not explicitly refer to time horizons.
Many antecedents and outcomes have been linked to time horizons only in theory. The vast majority of studies position time horizons as an untested theorized mechanism that connects empirically tested antecedents to empirically tested outcomes. Time horizons are often restricted to theory partially due to the difficulties of measuring them. Figure 3 depicts the common theoretical and empirical approach to studying time horizons and He and Tian (2013) provide an example of this approach. He and Tian find that more coverage from financial analysts results in lower firm innovation -- not shorter or longer time horizons. The authors reason such a relationship exists because financial analysts (the empirically-tested antecedent) exert short-term earnings pressures on managers, shortening their time horizons (the untested theoretical mechanism) in ways that deter them from investing in areas that require long-term thinking, such as innovation (the empirically-tested outcome). Or, as another example, there is a burgeoning literature showing how short-term incentive structures lead executives to manage (or manipulate) earnings in ways that positively affect their companies’ reported performance and result in higher personal compensation (Bergstresser & Philippon, 2006; Oberholzer-Gee & Wulf, 2012). Researchers argue that short-term incentives result in shorter time horizons, leading managers to focus on short-term rewards at the expense of the potential long-term value destroying consequences of earnings management practices. However, most of these studies do not measure or test time horizons so it is possible that incentives cause managers to manage earnings for reasons not related to time. In sum, positioning time horizons purely as a theoretical mechanism is problematic for understanding the relationship between these antecedents and outcomes.

Researchers have suggested many antecedents at the individual-, organizational-, and environmental-levels that influence organizational time horizons. I review this literature and summarize my findings in Table 2. Many of these studies do not explicitly mention time
horizons; rather, time horizons are proposed as the mechanism that explains the association between two other constructs, often with a temporal component (e.g., investment horizon or innovation capability).

At the individual level, organizational time horizons have been linked to career concerns (Holmström, 1999; Narayanan, 1985), herding behavior (Zwiebel, 1995), and CEO time to retirement (Cheng, 2004; Dechow & Sloan, 1991). For example, CEO’s who are nearing retirement are more likely to focus on short-term payoffs (Mannix & Loewenstein, 1994) and protecting their stock options in the short run (Matta & Beamish, 2008).

**Figure 3: Common Approach for Studying Organizational Time Horizons**

[Diagram showing the relationship between Organizational time horizons, Pressure affecting managers’ time horizon, Temporal outcome of that pressure, theorized mechanism, empirically tested relationship]

A long history of research in psychology has also uncovered the behavioral biases individuals have that affect their time horizons. One particularly important bias is *innate impatience*. Beginning in the late 1960s, Walter Mischel studied the ability of hundreds of children to delay gratification. In his experiments, Mischel’s team offered each child the choice between one small reward provided immediately or two small rewards if they waited for a short period (often 15 minutes). Results from the experiments showed that even in some of the earliest years of life -- often 7 to 9 years old -- people embody different abilities to delay gratification (i.e., sacrifice immediate rewards to wait for larger rewards later). Adam Smith, in the *Theory of*
Moral Sentiments, spoke of a “two-self” individual, characterized by patience and impatience. Smith’s model has since been expanded upon by psychologists, philosophers, and, behavioral economists into a model of the patient “planner” and the impatient “doer.” The behavioral biases that affect time horizons, such an innate impatience, are important considerations for understanding time horizons. For a more thorough review of these biases and other individual-level drivers, see Berns, Laibson, and Loewenstein (2007).

Another important factor that spans across the individual, organizational, and environmental levels is uncertainty. As noted earlier, decisions with long-term outcomes typically introduce greater uncertainty than decisions with short-term outcomes (Prelec & Loewenstein, 1991). Because individuals prefer to minimize uncertainty in their decision-making, they may favour shorter time horizons and avoid the complications that can come from thinking further into the future (e.g., having to process more information or model more complex scenarios). An individual’s aversion to risk, an organization’s risk management systems, and an environment’s level of turbulence are examples of factors related to uncertainty that might influence time horizons.

At the organizational level, time horizons have been suggested to be influenced by a company’s performance relative to its performance aspirations (Souder & Bromiley, 2012), use of financial or non-financial measures (Marginson et al., 2010), board ineffectiveness, in terms of size, experience, shareholding, and independence (Gonzalez & André, 2014), founder-CEO status (Fahlenbrach, 2009), managerial discipline (Edmans, 2011), susceptibility to hostile takeovers (Stein, 1988), and public or private listing type (Mortal & Reisel, 2013).

The largest body of research at the organizational level focuses on how time horizons are affected by employment contracts and executive compensation schemes (Bolton, Scheinkman, &
Xiong, 2006; Cadman & Sunder, 2014; Cheng, 2004; Currim et al., 2012; Laux, 2012; Peng & Röell, 2008, 2014; Souder & Shaver, 2010; Thanassoulis, 2013a; Von Thadden, 1995). In finance and accounting, the main theme of this work has been to show how compensation schemes, such as bonus contracts and option vesting periods, can create a short-term mindset among executives. There is also a long history of studying how entrepreneurs’ incentives affect their time horizons (Biais & Casamatta, 1999; Edmans, 2011; Gümbel, 2005; Von Thadden, 1995). See: Sternad (2014) for a more thorough review of this literature.

At the environmental level, organizational time horizons have been connected to industry structure (Thanassoulis, 2013a), regulatory policies (Aguilera, Rupp, Williams, & Ganapathi, 2007), financial reporting disclosure requirements (Gigler, Kanodia, Sapra, & Venugopalan, 2014), financial market stock price pressures (Stein, 1989), information asymmetry between managers and investors (Bebchuk & Stole, 1993) and investor informativeness (Nyman, 2005), institutional shareholder ownership (Bushee, 1998), shareholder horizons (Cadman & Sunder, 2014; Gaspar et al., 2005), shareholder turnover (Froot, Perold, & Stein, 1991), shareholder cross-shareholdings (Shuto & Iwasaki, 2014), blockholder ownership (Edmans, 2009), and the market’s preference towards different types of growth strategies (Aghion & Stein, 2008).

From the antecedents of organizational time horizons listed above, those related to financial markets are likely the most widely contested and least understood (Hansen & Hill, 1991; Jensen, 1986; Samuel, 2000). On one hand, financial analysts and investors are believed to encourage managers to focus on achieving short-term goals to the detriment of long-term outcomes (He & Tian, 2013). On the other hand, managers are argued as the source of their own short-termism, and financial analysts and investors instead encourage managers to make long-term investments (Brochet et al., 2012). Consequently, academics and practitioners continue to
debate the influence that financial markets have on organizational time horizons. In the next few pages, I briefly highlight the key arguments put forth by both sides.

Table 2: Antecedents of Organizational Time Horizons

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<th>Level</th>
<th>Antecedent</th>
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<td>Holmström (1999)</td>
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<td>Cohen, Levy, and Sasson (2013); Narayanan (1985)</td>
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<td>Probability of managerial turnover</td>
<td>Palley (1997)</td>
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<td>CEO time to retirement or tenure</td>
<td>Cheng (2004)</td>
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<td>Dechow and Sloan (1991)</td>
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<td></td>
<td>Herding bias</td>
<td>Zwiebel (1995)</td>
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<td>Psychological (perceived) time</td>
<td>Ariely and Zakay (2001)</td>
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<td>Klapproth (2008)</td>
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<td></td>
<td>Mental health (e.g., ADHD)</td>
<td>Barkley, Edwards, Laneri, Fletcher, and Metevia (2001)</td>
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<td>Managers’ personal objectives</td>
<td>Bebchuk and Stole (1993)</td>
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<td>Position in organization</td>
<td>Marginson and McAuley (2008)</td>
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<td>Managers’ perceptions of capital market short-term pressures</td>
<td>Demirag (1995b)</td>
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<td>Organizational</td>
<td>Performance relative to aspirations</td>
<td>Gentry and Shen (2013)</td>
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<td>Souder and Bromiley (2012)</td>
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<td>Use of accounting and performance measures</td>
<td>Abernethy et al. (2013)</td>
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<td>Chakhovich, Ikaheimo, and Seppala (2010)</td>
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<td>de Aguiar, Pinheiro, and Oyadomari (2014)</td>
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<td>Ittner, Larcker, and Meyer (2003)</td>
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<td>Johnson and Kaplan (1987)</td>
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<td>*See Sternad (2014) for a review of this literature</td>
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| Table 2 continued | Board characteristics and effectiveness | Arthurs et al. (2008)  
Gonzalez and André (2014) |
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<td>CEO-founder status</td>
<td>Fahlenbrach (2009)</td>
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| Takeover threats and takeover protection | Kacperczyk (2009)  
Stein (1988)  
Zhao, Chen, Zhang, and Davis (2012) |
| Private versus public listing status | Asker, Farre-Mensa, and Ljungqvist (2011)  
Bernstein (2015)  
Ferreira, Manso, and Silva (2014)  
Mortal and Reisel (2013) |
| Employment contracts and executive compensation schemes | Bebchuk and Fried (2010)  
Bolton et al. (2006)  
Cadman and Sunder (2014)  
Dechow and Sloan (1991)  
Devers, Wiseman, and Holmes (2007)  
Edmans, Fang, and Lewellen (2013)  
Gopalan, Milbourn, Song, and Thakor (2014)  
Hoskisson, Hitt, and Hill (1993)  
Ladika and Sautner (2015)  
Laux (2012)  
Martin et al. (2015)  
Peng and Röell (2008)  
Peng and Röell (2014)  
Schotter and Weigelt (1992)  
Souder and Shaver (2010)  
Thanassoulis (2013a)  
Von Thadden (1995)  
Zhang and Gimeno (2016)  
*See Sternad (2014) for a review of this literature |
| Family versus non-family operated companies | Chrisman and Patel (2012)  
Lumpkin and Brigham (2011)  
Lumpkin, Brigham, and Moss (2010)  
Miller, Le Breton-Miller, and Lester (2011)  
Zellweger (2007) |
| Organizational slack | Martin et al. (2015)  
Matejka, Merchant, and Van der Stede (2009)  
Souder and Shaver (2010)  
Van der Stede (2000) |
<p>| Organizational culture | Laverty (2004) |</p>
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<th>Barton, Brown, Cound, Marsh, and Willey (1992)</th>
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<td>Dahmlmann, Brammer, and Millington (2008)</td>
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<td>Environmental knowledge</td>
<td>Goodman (1973)</td>
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| Industry structure | Nadkarni et al. (2015)  
Thanassoulis (2013a) |
| Environmental intensity of price competition | Graafland (2016) |
| Market dynamism | Bakker and Knoben (2014)  
Nadkarni and Chen (2014) |
| Financial disclosure reporting frequency | Bhojraj and Libby (2005)  
Gigler et al. (2014) |
| Capital market price (earnings) pressure | Demirag (1995a)  
Stein (1989)  
Zhang and Gimeno (2010)  
Zhang and Gimeno (2016) |
| Institutional investor ownership and shareholder horizons | Aghion et al. (2013)  
Bushee (2001)  
Bushee (1998)  
Cadman and Sunder (2014)  
Connelly, Tihanyi, Certo, and Hitt (2010)  
Hansen and Hill (1991)  
Harford, Kecskes, and Mansi (2014)  
Gaspar, Massa, and Matos (2005)  
Samuel (2000)  
Thanassoulis (2013b)  
Wahal and McConnell (2000) |
| Institutional investor activism | David et al. (2001) |
| Foreign investor ownership | Bena, Ferreira, Matos, and Pires (2015) |
| Investor turnover | Froot et al. (1991) |
| Cross-shareholdings | Shuto and Iwasaki (2014) |
| Blockholder ownership | Edmans (2009)  
Song (2014) |
| Noise trading | Shleifer and Vishny (1990) |
| Market preference for firm strategy | Aghion and Stein (2008) |
| Investor informativeness | Nyman (2005) |
Table 2 continued

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<th>Financial (security) analyst coverage</th>
<th>Benner and Ranganathan (2012)</th>
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<td>He and Tian (2013)</td>
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<td>Irani and Oesch (2012)</td>
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<td>Media pressures</td>
<td>Aspara, Pajunen, Tikkanen, and Tainio (2014)</td>
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<td>General capital market pressures</td>
<td>Fuller and Jensen (2002)</td>
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<td>Graham et al. (2005)</td>
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Financial Analysts

Recent literature suggests that financial markets place excessive pressures on managers to act in ways that overvalue short-term results.\(^4\) Jacobs (1991) argues that the stock market undervalues investments that will pay off only in the long run, such as innovation (e.g., Holmstrom, 1989). Moreover, financial analysts set overly optimistic near-term earnings targets (Hong & Kubik, 2003). Yet, missing these targets results in equity devaluations, which adversely affects managers’ compensations and increases the risks of hostile takeovers (Stein, 1988). Therefore, managers prioritize quarterly targets highly when making operating and accounting decisions (Beatty, Ke, & Petroni, 2002) and go to great lengths to satisfy financial analysts’ expectations (Fuller & Jensen, 2002). Focusing on meeting these expectations biases managers’ attention towards short-term profitability instead of long-term value creation (Bebchuk & Stole, 1993; Thakor, 1990). Consequently, financial analysts might encourage shorter organizational time horizons by creating perceived pressures on managers to perform in the short term.

A competing hypothesis is that financial analysts help extend organizational time horizons by reducing information asymmetry between managers and investors. Stock prices do not fully reflect all of the information available to managers (Brennan, Jegadeesh, &

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\(^4\) By “overvalue,” I refer to behaviours that undermine the long run value of the firm. Such behaviours may have short-term benefits, but go against the interests of long-term shareholders. Some examples of behaviours that fit into this category include committing accounting fraud to meet earnings benchmarks, decreasing needed production levels to lower costs and increase short-term profits, and introducing temporary sales discounts that undermine a brand’s value profile to boost short-term sales.
Swaminathan, 1993). In particular, given the high uncertainty of their probability of success and potential pay-offs, long-term investments are likely to result in larger mispricing of companies’ stock prices than short-term investments (Shleifer & Vishny, 1990). Mispriced stock prices caused by long-term investments can harm managers by reducing their compensations, threatening their job security, or exposing them to hostile takeovers (Stein, 1988). By acting as a medium between managers and investors, a primary role of financial analysts is to reduce information asymmetry (Brennan & Subrahmanyam, 1995; Hong, Lim, & Stein, 2000; Yu, 2008). If analysts help companies more accurately convey the expected value of long-term investments to investors then they will reduce equity mispricing, thereby allowing managers more latitude to extend their time horizons and make longer-term investments. Given these competing arguments and the realization that “there is dearth of direct evidence on the real effects of analysts” (Derrien & Kecskés, 2013: 1410), additional work is needed to understand whether and how financial analysts affect organizational time horizons.

Investigators

Investors have varying investment horizons and return preferences that influence their portfolio allocations (Bushee, 2001). Short-term oriented investors seek immediate and incremental returns. These investors trade on speculations of contemporaneous performance and typically have high portfolio turnover rates (Cespa, 2002). Equity day traders, described as speculators, are the extreme case of short-term oriented investors as they generally buy and sell stocks within only several hours so that all positions are closed before the end of each trading day. Cadman and Sunder (2014) use venture capitalists (VCs) as an example of short-horizon investors; hedge funds are also commonly cited as being short-term.
On the other end of the spectrum, investors focus on long-term value creation and typically invest for long periods of time. These investors anticipate periodic volatility and, as such, have low portfolio turnover rates (Cespa, 2002). Researchers typically assume pension funds, endowment funds, and foundations have long-term orientations, which are reflected in their portfolio holdings and stock turnover rates (e.g., Tihanyi, Johnson, Hoskisson, & Hitt, 2003; Zahra, 1996). Lower stock turnover rates signal longer-term oriented investors and exert less near-term stock price pressure on managers (e.g., Froot et al., 1991).

Some previous research suggests that the rise of institutional investors has shifted managers’ attention towards short-term investment strategies rather than seeking long-term value in their investments (Johnson & Kaplan, 1987; Porter, 1992). Investors (or fund managers), who are focused on maximizing the value of their capital in the short-term, encourage corporate managers to focus on meeting quarterly earnings expectations and producing short-term results (Johnson & Greening, 1999; Neubaum & Zahra, 2006). For example, these investors can threaten to sell their shares if their earnings expectations are not met (Graves & Waddock, 1994), triggering stock sell-offs (Skinner & Sloan, 2002; Womack, 1996) and decreasing managers’ compensation and job security (Farrell & Whidbee, 2003; Puffer & Weintrop, 1991; Wiersema & Zhang, 2011). As a result, companies may become financialized as managers cater to the interests of short-term investors (see Davis, 2009b).

A competing hypothesis is that managers are inherently short-term oriented and investors play little role in influencing their time horizons (Brochet et al., 2012). Extant research in psychology shows that people generally hold an excess preference for returns sooner rather than later (Dasgupta & Maskin, 2005; Laibson, 1997; Loewenstein & Prelec, 1992). Regardless of financial markets, managers may disproportionally focus their attention on the short term, rather
than the long term. Furthermore, organizational-level factors, such as compensation schemes (Souder & Bromiley, 2012) and the composition of boards of directors (Johnson & Greening, 1999), might be the reason why some managers have short time horizons. Brochet et al. (2012) argue that investors select companies to suit their investment horizons, which suggests that managers first decide whether to prioritize short- or long-term goals and investors then finance the companies that align with their personal time horizons.

Overall, the relationships between financial market actors, namely financial analysts and investors, and organizational time horizons are equivocal. The lack of consensus in this area has contributed to the debate that surrounds the causes of corporate short-termism. I explore the relative efficacy of these opposing predictions in the first two essays of this dissertation.

**Outcomes of Organizational Time Horizons**

*Organizational-Level Outcomes*

As mentioned earlier, few organizational-level outcomes have been directly empirically linked to time horizons (Das, 1987; Yadav, Prabhu, & Chandy, 2007). Rather, organizational time horizons are often theorized as the mechanism that links some antecedent to a particular organizational-level outcome. For example, time horizons are believed to mediate the link between investors and analysts and companies’ earnings management practices (Balsam, Bartov, & Marquardt, 2002; Bhojraj, Hribar, Picconi, & McInnis, 2009; Roychowdhury, 2006), R&D expenditures (Bushee, 1998), innovation (He & Tian, 2013), capital investment (Benner & Ranganathan, 2012), mergers and acquisitions (Gaspar et al., 2005), and financing and investing decisions (Derrien & Kecskés, 2013). Yet, time horizons have not been empirically measured in any of these studies. Time horizons have also been connected to corporate strategy (e.g., increasing sales growth vs. improving per-unit profit margins; Aghion & Stein, 2008),
innovation (Manso, 2011), corporate structuring decisions (Davis, 2009a; Salter, 2013), and under- and over-investment in marketing (Chapman & Steenburgh, 2011; Mizik, 2010; Mizik & Jacobson, 2007) and advertising (Currim et al., 2012). Again, few of these studies have empirically measured and tested organizational time horizons.

Leaving organizational time horizon as an untested mechanism that connects analysts and investors, or any other antecedent, to organizational-level outcomes provides unsatisfactory conclusions. In fact, much of the research that leaves organizational time horizon as a theoretical mechanism provides contradictory results. For example, some researchers find that greater short-term institutional investor ownership results in higher R&D spending (Baysinger, Kosnik, & Turk, 1991; Hansen & Hill, 1991), whereas others find the opposite (Graves, 1988). Likewise, some empirical studies have found that analysts increase firm innovation (Atanassov, 2013), whereas others have found evidence suggesting otherwise (He & Tian, 2013; Jung, 2016). As was discussed earlier, He and Tian (2013) postulate that time horizon is the mechanism by which analyst coverage negatively influences innovation. The authors argue that analyst pressures cause managers to espouse shorter time horizons and, as a result, make fewer investments in innovation. Yet, investments in innovation building processes can have short-term benefits (see Mansfield et al., 1972), which introduces the possibility that companies with fewer analysts covering them actually invest more in innovation in search of these short-term benefits. Without measuring organizational time horizons and empirically testing these relationships, researchers cannot be confident in their results or that organizational time horizon is the mechanism that underlies their findings.

5 For example, innovation can generate more efficient processes that immediately increase short-term profitability or improve employee morale and retention by positively influencing employees’ attitudes about the future prospects of a company.
Societal-Level Outcomes

Organizational time horizons have also been connected to societal-level outcomes and corporate social performance (Mallin, Michelon, & Raggi, 2013; Neubaum & Zahra, 2006; Oh, Chang, & Martynov, 2011; Slawinski & Bansal, 2012, 2015). The general belief is that short-term actions by companies often lead to detrimental consequences for the broader economic, environmental, and social systems in which those companies are situated. Society thrives when companies invest in long-term initiatives, such as employee training, innovation, and environmental projects, but such initiatives can be slow to produce benefits and therefore easily overlooked by companies with short time horizons (Bansal & DesJardine, 2014; Oh et al., 2011). For example, meaningful stakeholder relationships (Barnett, 2007) and successful environmental plans (Klassen & Whybark, 1999) take time to build and maintain. In support of this view, previous research in the area of executive compensation has shown that schemes that emphasize short-term earnings encourage managers to forgo investments in social and environmental practices (Fabrizi, Mallin, & Michelon, 2014; Frye, Nelling, & Webb, 2006; Mahoney & Thorne, 2005; McGuire, Dow, & Argheyd, 2003). Others have shown that price intensity can evoke short-term thinking and lead to lower environmental performance (Graafland, 2016). When managers focus predominantly on the short term and systematically favour investments that generate profits quickly, then they may underinvest in the areas that most widely benefit society and the environment.

Slawinski and Bansal (2015) offer some of the most helpful insights about how short time horizons and intertemporal tensions can affect sustainable outcomes. From their in-depth study of Canadian-based oilsands producers, the authors found that companies that juxtapose the short term and long term developed more complex and longer-term solutions to climate change than
companies that focused solely on either the short term or long term. Moreover, oil producers that ignored the long-term implications of their investments favoured efficiency-based solutions when addressing climate change. Yet, efficiency-building practices are temporary solutions that fail to address the more fundamental issues of how oil production contributes to climate change (Senge et al., 2008). Slawinski and Bansal reason that implementing meaningful social and environmental initiatives that benefit society and the environment requires companies to consider both the short and long terms.

A list of the outcome variables that have been connected either theoretically or empirically to organizational time horizons is provided in Table 3.

**Defining Sustainability**

In the following text, I use the labels social and environmental practices (SEPs) to refer to two particular types of investments companies can make. Such investments are often discussed under the rubric of sustainability (Bansal & DesJardine, 2014) but are not necessarily sustainable. Sustainability is best defined as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987: 43). Hence, sustainability requires balancing intertemporal tensions and benefits across time. With this in mind, I do not use the terms SEPs to refer to sustainable practices or actions since such practices may compromise the welfare of current or future generations. Community support programs, for instance, benefit society immediately but fail to be sustainable when they cannot solve the underlying issues of the related social problem. Building new infrastructure, such as schools and hospitals, can simultaneously relieve short-term afflictions while failing to build a community’s capacity to provide teaching and medical services, thereby exacerbating the economic stress the community
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<tr>
<th>Level</th>
<th>Outcome</th>
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<td>Organizational</td>
<td>Organizational restructuring</td>
<td>Davis (2009a)</td>
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<td>Corporate growth strategy</td>
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<td>Competitive aggressiveness</td>
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<td>Institutional corruption</td>
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<td>Earnings management</td>
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<td>Human capital</td>
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<td>R&amp;D expenditures</td>
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<td>(Fixed) Capital investments</td>
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<td>Souder and Bromiley (2012)</td>
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<td></td>
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<td>Wahal and McConnell (2000)</td>
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<td>Investment opportunities</td>
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<td>Asker et al. (2011)</td>
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<td>Financial performance</td>
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<td>Antia et al. (2010)</td>
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<td>and shareholder value</td>
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<td>Flammer and Bansal (2016)</td>
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<td></td>
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<td>Harford et al. (2014)</td>
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<td>Souder et al. (2015)</td>
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<td>Mergers and acquisitions</td>
<td></td>
<td>Gaspar et al. (2005)</td>
</tr>
<tr>
<td>Financing and investing</td>
<td></td>
<td>Derrien and Kecskés (2013)</td>
</tr>
<tr>
<td>decisions</td>
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Table 3 continued

<table>
<thead>
<tr>
<th>Societal</th>
<th>Environmental strategy</th>
<th>Slawinski and Bansal (2015)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate social performance</td>
<td>Fabrizi et al. (2014)</td>
<td>Frye et al. (2006)</td>
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<tr>
<td>Environmental performance</td>
<td>Graafland (2016)</td>
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faces in the long term. Therefore, I use the term *sustainability* to refer to the intertemporal balancing required of companies to meet their needs across time; and I use *SEPs* to refer to the particular types of strategies undertaken by companies to address social and environmental issues, regardless of whether those practices are sustainable.

**EMPIRICAL OUTLINE**

Having provided a theoretical overview of the papers and a review of the most relevant literature on organizational time horizons and corporate short-termism, I now present Table 4 to outline how I empirically investigate the research questions my review presents. The table below provides an overview of the methodology, including the dependent, independent, and control variables, data sources, the sample and time frame, and the type of empirical analysis.

Each of the following three chapters presents one of the three individual essays that compose this dissertation. In each essay, I review the relevant literature, present a series of hypotheses and a description of the methods I use to test those hypotheses, describe the results, and comment on the implications and importance of the findings. In Chapter 5, I tie the three
essays together by discussing the overall findings and contributions of this research, as well as the opportunities for future research that this work presents.
Table 4: Empirical Overview of Dissertation Essays

<table>
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<tr>
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<th>Essay 1</th>
<th>Essay 2</th>
<th>Essay 3</th>
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<tbody>
<tr>
<td><strong>Title</strong></td>
<td>Failing to meet analysts’ expectations: How financial markets contribute to corporate short-termism</td>
<td>Under pressure: The causal effect of financial analyst coverage on making long horizon capital investments</td>
<td>Bouncing back: Organizational resilience in the context of the 2008 global financial crisis</td>
</tr>
<tr>
<td><strong>Dependent variable(s)</strong></td>
<td>Time horizon = # of long time horizon words / (# of short time horizons words + # of long time horizon words)</td>
<td>Asset durability = CAPEX/ [{Depreciation expense, (Gross PP&amp;E - CAPEX)× Depreciation rate}]</td>
<td>Severity of loss = lowest point that firm i’s stock price fell in the 12-month period following September 16, 2008 Time to recovery = # of months for the average stock price to return to its closing price on September 16, 2008</td>
</tr>
<tr>
<td><strong>Left-hand side (LHS) variables</strong></td>
<td>Downgrades; Upgrades; Investor horizon</td>
<td>Analyst reduction; Industry speed</td>
<td>Strategic social and environmental practices (SSEP); Tactical social and environmental practices (TSEP)</td>
</tr>
<tr>
<td><strong>Control variables</strong></td>
<td>Firm size; ROA; Cash holdings; Financial leverage; Altman’s Z; Asset turnover; Analyst coverage; Stock-based compensation; Executive age</td>
<td>Firm size; ROA; Cash holdings; Financial leverage; Asset turnover</td>
<td>Firm size; Firm age; Intangible assets; Operational efficiency; Profitability; Financial leverage; Liquidity; Capital intensity; Proximity to bankruptcy</td>
</tr>
<tr>
<td><strong>Primary analysis</strong></td>
<td>textual analysis ordinary least squares</td>
<td>textual analysis difference-in-differences</td>
<td>survival analysis (Cox) two-stage least squares (2SLS) with instrumental variables ordinary least squares</td>
</tr>
<tr>
<td><strong>Textual analysis</strong></td>
<td>Conference call transcripts</td>
<td>MD&amp;A section of 10-K filings</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Source of textual documents</strong></td>
<td>Factiva, Thomson Reuters, Bloomberg, FactSet, and company websites</td>
<td>SEC EDGAR</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Sample</strong></td>
<td>98 U.S.-based extractives companies listed on S&amp;P 500</td>
<td>2,462 U.S.-based, publicly listed companies (various industries)</td>
<td>963 U.S.-based, publicly listed companies (various industries)</td>
</tr>
</tbody>
</table>
REFERENCES


Zhang, Y. & Gimeno, J. 2016. Earnings Pressure and Long-Term Corporate Governance: Can Long-Term-Oriented Investors and Managers Reduce the Quarterly Earnings Obsession? *Organization Science*.


Abstract

Recent research has shown that earnings pressure from financial analysts and investors encourage managers to make decisions that over-prioritize short-term profits relative to long-term value. According to this body of research, these pressures cause managers to shorten their time horizons, focusing their attention in the present and ignoring the long run implications of their decisions. However, many competing studies have shown that managers are often short term even when investors are not, and analysts and investors reward firms that make long-term investments. The equivocal findings may arise because the relationship between financial market pressures and managerial behaviours is distal. I theorize and test a more proximal relationship by arguing that the mechanism through which analysts influence managers is analysts’ recommendations, and that the direct relationship is with managerial cognition. To test my hypotheses, I use textual analysis to analyze 3,136 quarterly earnings conference call transcripts of 98 firms in extractives industries between 2006 and 2013. The results suggest that organizational time horizons shorten when analysts downgrade firms, and lengthen following upgrades. However, this effect is asymmetric -- downgrades have a more potent effect than upgrades on organizational time horizons. Furthermore, these relationships change depending on the sequences of downgrades and upgrades and investors’ investment horizons.

**Keywords:** Time horizons, Short-termism, Time horizons, Analyst recommendations, Financial analysts, Investor horizons
There are many critics of corporate short-termism. They argue that short-termism not only undermines long-term corporate profits (Souder, Reilly, Bromiley, & Mitchell, 2015), but compromises the economic, social, and environmental health of society (Slawinski & Bansal, 2015). Despite these costs, many organizations focus their attention on the short term (Graham, Harvey, & Rajgopal, 2005; Laverty, 1996; Marginson & McAulay, 2008). These short-term tendencies beg the question: what drives corporate short-termism?

I focus my explanations on the role of the financial market’s performance expectations on organizational time horizons (a cognitive mechanism that leads to corporate short-termism). Grounding my theorizing in the behavioral theory of the firm (BTF), my baseline hypothesis is that financial analyst downgrades shorten organizational time horizons, whereas analyst upgrades do the opposite. By integrating BTF with prospect theory, I argue further that the effect of negative and positive market evaluations are assymetric -- analyst downgrades shorten time horizons more than analyst upgrades lengthen time horizons. I also argue that analyst recommendations in prior quarters and investors' investment horizons moderate these relationships.

I test my model by analyzing the effects of changes in analyst recommendations on organizational time horizons from 2006 to 2013. I measure organizational time horizons by analyzing the language managers used in 3,136 conference call transcripts. I found strong support for my hypotheses, indicating that analysts and investors play an important role in influencing organizational time horizons. In extended analysis, I test the relationship between organizational time horizons (cognition) and various firm behaviours (actions), which allows me to more fully discuss the relationship between analyst recommendations and corporate short-
termism. I find strong support across several corporate measures that reflect corporate short-termism.

This study makes both a theoretical and empirical contribution. On the theoretical side, I describe the relationship between analyst recommendations and organizational time horizons. Although practitioners have suggested that analysts encourage corporate short-termism (Ahmed, 2011) and researchers have shown that analysts affect firm behavior (Benner, 2010; Benner & Ranganathan, 2012, 2013; Gentry & Shen, 2013), the link between analyst recommendations and organizational time horizons has not been tested. Furthermore, I show that the effect is asymmetric: analysts’ downgrades shorten organizational time horizons more than upgrades lengthen them. These findings suggest that organizations are likely to become increasingly short-termist over time, especially if they experience frequent adjustments in analyst recommendations. I draw on prospect theory to inform managers' feelings of losses and gains, thereby answering the call to integrate more micro insights into BTF (Argote, 2015; Gavetti, Greve, Levinthal, & Ocasio, 2012). Both BTF and prospect theory are consistent in their assumptions, yet prospect theory offers insights into individuals' emotions and cognitions under conditions of losses or gains that help explain why and how analyst downgrades and upgrades affect time horizons asymmetrically.

Empirically, I develop a measure of organizational time horizons that uses textual analysis. Prior research has relied on measures of organizational time horizons that blur cognition and action (Reilly, Souder, & Ranucci, forthcoming). In contrast, I offer a measure that allows me to focus on the cognitive aspects of organizational time horizons. I respond to the criticisms raised by scholars about the measurement challenges of organizational time horizons that have impeded the study of short-termism (Laverty, 1996; Souder & Bromiley, 2012), while
answer the call for new measures of time horizons (Nadkarni & Chen, 2014; Reilly et al., forthcoming).

**THEORY DEVELOPMENT**

**Organizational Time Horizons**

An organization’s time horizon is “the temporal distances into the past and future that individuals and collectivities typically consider when contemplating events that have happened, may have happened, or may happen” (Bluedorn, 2002: 114). Organizations with longer horizons focus on the more distant past or future, and those with shorter horizons focus on the more recent past or near future.

Short organizational time horizons can have detrimental effects on organizations and society (Ancona, Okhuysen, & Perlow, 2001; Mosakowski & Earley, 2000; Reilly et al., forthcoming). Managers must often decide between courses of action that accrue fewer benefits in the short term and greater benefits in the long term, which is referred to as intertemporal choice (Loewenstein & Thaler, 1989). Hambrick (1981: 299) notes that an “organization’s executives can only act on those phenomena to which their attention is drawn.” When the future consequences of current decisions and actions are ignored, managers are more likely to make decisions and form strategies with adverse long-term consequences. As a result, short organizational time horizons can potentially lead to corporate short-termism, where “decisions and outcomes that pursue a course of action that is best for the short term but suboptimal over the long run” (Laverty, 1996: 826). Short-termism can influence firms’ competitive actions (Zhang & Gimeno, 2016), investments in long-term capital (Souder & Bromiley, 2012), innovation (He & Tian, 2013), and environmental improvements (Klassen & Whybark, 1999). Overall, the empirical evidence suggests that the majority of organizations choose short-term investments
over those that optimize performance in the long run (Souder et al., 2015), making corporate short-termism and organizational time horizons a central issue to organizational studies (e.g., Martin, Wiseman, & Gomez-Mejia, 2015; Souder & Bromiley, 2012; Zhang & Gimeno, 2016).

An organization’s environment and its internal context and systems can affect organizational time horizons, so time horizons can change over time (Souder & Bromiley, 2012). For example, Bakker and Knoben (2014) found that the pace of change in an industry affects short-term alliance behaviours, Zhang and Gimeno (2016) found that earnings pressures lead managers to favor short-term strategic actions, and Martin et al. (2015) found that incentive structures and financial slack interact to affect time horizons.

In recent decades, a growing body of researchers in management and finance has become interested in how financial market earnings pressures (e.g., Bhojraj & Libby, 2005; David, Hitt, & Gimeno, 2001; Porter, 1992; Stein, 1989; Zhang & Gimeno, 2010, 2016), executive incentive structures (e.g., Bolton, Scheinkman, & Xiong, 2006; Laux, 2012; Martin et al., 2015; Souder & Shaver, 2010; Thanassoulis, 2013), and performance measurement systems (Marginson, McAulay, Roush, & Van Zijl, 2010) affect organizational time horizons. Despite a growing interest in organizational time horizons, however, most studies do not discriminate between organizational time horizons as reflected in cognition versus action, and yet most of the theory points to time horizons as a cognitive construct. Furthermore, most studies do not operationalize time horizons (e.g., Souder & Bromiley, 2012; Wang & Bansal, 2012) but assume it is the mechanism that explains the relationship between two constructs, such as analyst coverage and innovation (e.g., He & Tian, 2013).

Failing to operationalize time horizons has created ambiguities in the relative influence of markets and managers on corporate short-termism (Hansen & Hill, 1991; Samuel, 2000). On one
hand, analysts and investors are believed to encourage managers to focus on achieving short-term goals to the detriment of long-term outcomes (He & Tian, 2013; Zhang & Gimeno, 2010, 2016). On the other hand, managers are argued as the source of their own short-termism, and analysts and investors instead encourage managers to make long-term investments (Baysinger, Kosnik, & Turk, 1991; Brochet, Serafeim, & Loumioti, 2012; Hansen & Hill, 1991).

The Behavioral Theory of the Firm

The behavioral theory of the firm (BTF) identifies the decision rules managers use to guide organizational actions. Rather than assuming that managers are rational, the BTF argues that managers apply cognitive short cuts, rules, and routines to make decisions. Decisions are often triggered by external stimuli and the most potent stimulus is the organization’s failure to meet its managers' aspirations (Cyert & March, 1963). Common aspiration levels considered by BTF scholars include firm financial performance, innovation, sales, and production performance. Falling short of aspirations provides strong motivation for managers to change behaviours (Bromiley & Harris, 2014; Chen & Miller, 2007; Greve, 1998) and search for solutions that reverse flagging performance (Cyert & March, 1963; Greve, 2003; Lant, Milliken, & Batra, 1992). In contrast, exceeding aspirations reduces managers’ impetus to change.

In general, when underperforming their aspirations managers tend to focus their search efforts on proximate solutions. Because their accumulated experiences had served them well to date, they tend to rely on what they already know. As well, managers can save on time consuming, expensive search costs by relying on past information, which is especially important under conditions of low performance. In other words, managers tend to satisfice, rather than fully compare all alternatives. Gavetti et al. (2012: 5) argue that such satisficing can shorten organizational time horizons, because “individuals resort to coping mechanisms that spare them
the need to anticipate distant futures,” leading firms to “solve pressing problems rather than
develop long run strategies” (Cyert & March, 1963: 119).

Empirical studies that apply the BTF explore the decision-making processes that lead to
organizational-level outcomes (e.g., risk-taking). Most studies investigate such processes in the
context of underperformance (Argote & Greve, 2007; Audia & Greve, 2006); few investigate
both under- and over-performance and those that do generally assume the effects are
symmetrical (e.g., Bromiley, 1991; Singh, 1986; Wiseman & Catanach, 1997). Moreover, these
studies rarely consider sequences or patterns of under- and over-performance. In this paper, I
argue that the effects of under- and over-performing analysts’ expectations on organizational
time horizons are asymmetrical and also depend on the previous period’s performance relative to
the aspiration level; I draw on prospect theory and psychology to inform these insights offered
by the BTF. Before I can theorize these relationships, I must describe my research context.

THE EMPIRICAL CONTEXT: ANALYSTS AND INVESTORS

Financial brokerage houses (e.g., Morgan Stanley) mediate between firms and investors
by providing investment advice to investors. Each brokerage house employs financial analysts
(also called sell-side analysts; hereafter “analysts”) to research and evaluate a designated group
of firms, on which their investment advice is based. Data are collected from the corporation’s
executive teams, industry experts, and other related sources. From these data, analysts will
predict stock prices typically monthly or quarterly. These predictions do not depend solely on
current performance, but are based on the informed judgments of analysts. Recently, the role of
analyst coverage and analyst earnings pressure in shaping organizational outcomes has attracted
growing research attention (Benner, 2010; Benner & Ranganathan, 2012; Zhang & Gimeno,
2010, 2016), but there still remains limited evidence on the role of analyst recommendations (Derrien & Kecskés, 2013).

Analysts recommend that investors 'buy,' 'sell,' or 'hold' a stock, depending on whether they expect that the stock will outperform, underperform, or perform equally to its peers or the overall market. A 'downgrade' is when an analyst changes his/her current recommendation from buy to hold (or sell) or from hold to sell. An 'upgrade' is a change from sell to hold (or buy) or from hold to buy. If firms garner unfavorable analyst recommendations, investors will often sell their shares, triggering subsequent declines in the firm’s stock price (Bartov, Givoly, & Hayn, 2002). Therefore, managers often aim to secure favorable recommendations from analysts. I use downgrades and upgrades, respectively, to represent underperforming and over-performing the aspiration level.

**HYPOTHESES**

**Organizational Time Horizons with Underperformance**

Managers strive to reverse analyst downgrades and do so as quickly as possible. Analyst downgrades signal to stakeholders that a firm’s outlook has worsened, which can trigger stock sell-offs (Skinner & Sloan, 2002; Womack, 1996) and decrease managers’ compensation and job security (Farrell & Whidbee, 2003; Puffer & Weintrop, 1991; Wiersema & Zhang, 2011). Previous research in various disciplines, including accounting (e.g., Roychowdhury, 2006), finance (e.g., Graham et al., 2005), and strategy (e.g., Zhang & Gimeno, 2016), provides considerable evidence on the pressure that managers experience to meet or exceed analyst expectations.

The pressure to reverse analyst downgrades motivates managerial search for solutions. However, the push for speed and efficiency in quickly reversing downgrades causes managers to
rely heavily on heuristics and cognitive shortcuts (Rastegary & Landy, 1993) and restrict the amount of information they consider in their search process. Specifically, because the long term presents greater uncertainty, managers focus their attention on proximate solutions. As Cyert and March (1963: 119) observe, managers “emphasiz[e] short-run reaction to short-run feedback rather than anticipation of long run uncertain events.”

This focus on proximate solutions leads managers to neglect long-term solutions since they introduce greater uncertainty and demand greater cognitive capacity to analyze. Managers focused on finding solutions to pressing problems that will reverse underperformance tend to satisfice, rely on coping mechanisms, and do not compare all alternatives (Cyert & March, 1963). Attempts to reverse underperformance leads managers to take short-term actions, such as the decision to forgo necessary investments in new capital equipment (Souder & Bromiley, 2012), make value-reducing acquisitions (Gaspar, Massa, & Matos, 2005), introduce sales discounts, overproduce, and reduce discretionary expenditures (Roychowdhury, 2006), and underinvest in advertising (Currim, Lim, & Kim, 2012). If managers were cognizant of the long term in their search process, then they would likely not take such short-term oriented actions. Overall, I expect that the pressure managers experience to quickly reverse analyst downgrades leads managers to constrict their search process in ways that direct their attention towards the present.

\textit{Hypothesis 1. Firms that are downgraded by analysts are more likely to exhibit shorter organizational time horizons than firms that are not downgraded.}

\textbf{Organizational Time Horizons with Underperformance Relative to Over-Performance}

Whereas underperforming relative to aspirations shortens organizational time horizons, I argue over-performing does the opposite, but to a lesser extent. Analyst upgrades indicate that a firm’s outlook has improved, evoking favorable responses from investors and instilling a feeling
of contentment among managers. Managers no longer feel urgency to respond to analysts and reverse the outcomes, as with underperformance, so they can spend more time on decisions, see connections between different time frames (Kahneman, 2003; Kahneman & Lovallo, 1993), and lengthen their time horizons.

Although analyst upgrades result in longer time horizons, I argue that this increase will be less than the decrease in time horizons caused by equivalent analyst downgrades. Whereas the BTF does not discriminate between the magnitude of the effects of under- and over-performance on organizational outcomes, prospect theory does. Empirical evidence shows that losses are roughly twice as painful psychologically as gains are beneficial and more intensely experienced physically than gains (Hochman & Yechiam, 2011). Hence, prospect theory proposes an asymmetric utility function where people are more averse to underperformance, than they are to over-performance (Barberis, Huang, & Thaler, 2006).

Asymmetrical aversion to underperformance and over-performance (i.e., loss aversion) has been shown across a wide range of outcomes. In this context, for instance, Brown, Wei, and Wermers (2013) find mutual fund managers sell more stocks following downgrades than they buy following upgrades. The authors suggest stronger reactions to downgrades occur because downgrades are more informative than upgrades and fund managers fear holding downgraded “disaster stocks” (e.g., Enron). According to Baumeister, Bratslavsky, Finkenauer, and Vohs (2001), humans are wired to avoid bad self-definitions than to pursue good ones, causing them to respond more severely to underperformance than they do to over-performance. I predict that managers disproportionately shorten their time horizons following downgrades because of the intense motivation they have to avoid downgrades.
Hypothesis 2. Firms that are upgraded by analysts are more likely to exhibit longer organizational time horizons than firms that are not upgraded, although the absolute effect of analyst upgrades is less than the absolute effect of analyst downgrades.

Sustained Under and Over-Performance

The BTF acknowledges that decision-makers will adjust their aspirations to previous performance, but is silent on how meeting previous performance relative to aspirations affects their reactions to meeting current aspirations (Greve, 1998) -- i.e., the sequences of under and over-performance. Research in individual decision-making offers insights (Elster & Loewenstein, 1992; Tversky & Griffin, 1991).

Individuals exhibit a backward contrast effect, where the utility of current performance depends on preceding performance levels. In particular, individuals generally prefer sequences that improve over time to sequences that remain the same or decline, even if the overall outcome is held constant (Loewenstein & Prelec, 1993). For example, people prefer increasing wages to stable or decreasing wages, even when the total income earned over time is the same across all three scenarios. The pain from previous negative outcomes (e.g., underperformance or lower wages) creates a favorable contrast to the current positive outcome (e.g., over-performance or higher wages), making the current positive outcome feel that much better. The BTF asserts that decision-makers adjust their current aspirations based on previous aspiration levels and performance (Greve, 1998). However, the contrast effect leads me to reason that, regardless of whether current aspiration levels adjust, current underperformance will shorten an organization’s time horizon more severely when preceded by a period of over-performance than by a period of underperformance. In other words, organizations may not aspire for more or less following over-performance or underperformance, but they will experience varying degrees of pain or success.
from future over-performance and underperformance depending on those earlier experiences. In my context:

\textit{Hypothesis 3. Firms are more likely to exhibit shorter organizational time horizons when analyst downgrades follow analyst upgrades than when downgrades follow downgrades.}

The Moderating Effects of Investors' Investment Horizons

The shares of companies are held by different types of investors who have different investment horizons (Bushee, 1998). Investors with short investment horizons seek quick, incremental returns. These investors are more likely to trade on speculations of contemporaneous performance and typically have high portfolio turnover rates (Cespa, 2002). Conversely, investors with long investment horizons aim to create long-term value, so are willing to overlook periodic volatility and hold stocks for longer periods of time (Cespa, 2002). As a result, long-term investors are more likely to overlook analyst recommendations.

With their firms facing downgrades from analysts, managers will more acutely feel the sense of loss with short-term investors, as these investors take flight. Conversely, managers will less acutely feel the sense of loss with long-term investors, as these investors will be able to see the long-term potential of the underlying business fundamentals and, therefore, are less likely to liquidate their shares based on short-term information. Accordingly, I predict that the composition of the firm's ownership will moderate the relationships between downgrades and upgrades and organizational time horizons.

\textit{Hypothesis 4a. The percentage of firms' stock held by short-term investors strengthens the negative relationship between analyst downgrades and organizational time horizons. The greater the percentage, the more negative the relationship.}

\textit{Hypothesis 4b. The percentage of firms' stock held by short-term investors weakens the positive relationship between analyst upgrades and organizational time horizons. The greater the percentage, the less positive the relationship.}
METHODS

Time Frame and Sample

The initial sample included all firms in the oil and mining industry (two-digit SIC codes from 10-14) that appeared on the S&P500 between 2006 and 2013. I delimited the study to one industry because collecting data for the dependent variable, organizational time horizons, is time intensive and prior research shows that organizational time horizons vary considerably by industry (Slawinski & Bansal, 2015; Souder et al., 2015). The power and validity of the results are stronger for data drawn from an entire industry, than randomly selected, sparse data drawn across multiple industries. I acknowledge, however, possible limitations in the generalizability of my findings across industries.

I chose the oil and mining industry for two reasons, including its long horizons and the flexibility managers have in attending to the short and long term. First, according to Souder et al. (2015), the average capital investment horizon for this industry is about 19 years, roughly 7 years longer than the next longest industry. Had I chosen an industry with a short time horizon, such as the tech or retail industry, then the impact of analyst recommendations on organizational time horizons may have been difficult to detect. Second, managers in the oil and gas industry have numerous ways that they can prioritize either short or long term outcomes (i.e., there are clear cases of intertemporal trade-offs). For example, managers can grow their operations through either brownfield (short term) or greenfield (long term) projects depending on their horizons. If I had chosen an industry with little temporal flexibility then the findings would likely be spurious and not interpretable. I encourage future researchers to test the generalizability of this theory to other industries, especially those with shorter time horizons.
I used the 2006 to 2013 research period for three reasons. First, the extended time frame captured the upturns and downturns of the business economic cycle (www.nber.com), mitigating the possibility that economic factors were confounding the results. Second, an eight year time frame allowed me to capture linguistic changes in time horizons over time (Yadav, Prabhu, & Chandy, 2007). Lastly, multi-year data permitted the independent variables to be lagged, sequences of under and over-performance to be tested, and sufficient data (four years’ worth) to be collected on investor horizons.

I further limited the sample to large (sales of at least $100 million) and established firms (at least 10 years old) to ensure sufficient analyst coverage and transcript availability. I retained single-business firms (>70% revenue from dominant business) to ensure the sample accurately represented firms in the oil and mining industry. Including highly diversified firms would add noise to the results and limit my confidence that I am specifically addressing oil and mining firms. I retained all firms that were listed in Institutional Brokers’ Estimate System (I/B/E/S) and covered by at least 10 analysts to ensure that no one analyst carried excessive weight in the results. Including firms with fewer than 10 analysts would increase the likelihood that the results are driven by outliers (e.g., capturing extreme changes in time horizons when firms with few analysts are downgraded or upgraded by most or all covering analysts). Lastly, I required that firms had no missing transcripts for any quarter from 2006 to 2013.

The final sample consists of 98 firms. I collected data quarterly, so this sample generated 3,136 firm-quarter observations to test H1 through H3. Hypotheses 4a and 4b require data on institutional ownership, which were only available from 2006 through 2010, which further restricted the sample to 95 firms and 1,161 firm-quarters.
Data Sources

All analyst data were obtained from the Institutional Brokers’ Estimate System (I/B/E/S) database. Institutional investor holdings data were collected from Thomson’s CDA/Spectrum data (form 13F) and institutional investor classification data from Brian Bushee’s website. I collected financial statement items for the control variables from Compustat, manually matching firms on key identifiers. Data for the primary dependent variable, organizational time horizons, were collected from conference call transcripts, which were pulled from Factiva, Thomson Reuters, Bloomberg, and company websites, because not all transcripts were available on all sites. All data are quarterly.

Measurement of Organizational Time Horizons

The two prior approaches to measuring organizational time horizons were not suitable for this study. Wang and Bansal (2012) surveyed CEOs of new ventures, but my focus on large publicly traded firms would yield few responses, making the data unreliable. Souder and Bromiley (2012) used asset durability to proxy organizational time horizons, but asset durability was not suitable for this study because asset durability a) captures behaviours, where I needed a measure of cognition consistent with my theorizing; and, b) does not capture the range of time-oriented investments, such as research and development, training, and expansion to new markets, relevant to time horizons.

I selected quarterly earnings conference call transcripts to analyze managers’ communications as the source material to capture organizational time horizons for several reasons. First, discussing a company’s short- and long-term strategies is a central component of conference calls. In fact, the National Investor Relations Institute (June 2013) on best practices for earnings releases requires that the company “Place the quarter’s results in the context of the
company’s near and long-term goals and/or strategies.” Second, conference call transcripts generally occur quarterly, so changes in language can signal reactions to analyst recommendations. Third, almost all companies that are rated by analysts hold quarterly conference calls.

Earnings call transcripts may be criticized for reflecting the company's efforts to manage impressions. For example, Fiss and Zajac (2006) and Rhee and Fiss (2014) effectively illustrate how managers can elicit favorable responses from stakeholders by the speech they use. Earnings call transcripts, however, provide a good window into organizational cognition for two reasons. First, prior research has often used corporate communications, including 10-K filings, letters to shareholders, press releases, to analyze organizational cognition (Barr, 1998; Li, 2010; Nadkarni & Chen, 2014). Researchers have argued that these reports are not merely impression management, as they capture the actual subconscious cognitive processes of managers that they are not even aware of themselves (Barr, 1998; Li, 2010). Second, earnings calls are even less subject to impression management than these other communication forms because they are unscripted, providing a window into the language being used inside the firm and the managers' cognition. Larcker and Zakolyukina (2012) found managers’ speech during earnings calls were an accurate predictor of deceptive accounting practices. Li (2010) comments that conversations during earnings calls are more spontaneous than in other corporate disclosures and therefore less likely to be influenced by a staged preparation. To mitigate the risk of pre-scripted impression management, I analyzed the MD&A and Q&A sections of the conference calls separately and did not find any material differences in the results.

To develop a measure of organizational time horizon using textual analysis, I compiled and validated a list of words, since there was no existing dictionary. I constructed the list in five
steps that align with recommendations for textual analysis (Krippendorff, 2012; Neuendorf, 2002).

**Step 1 – compiling a comprehensive dictionary of keywords.** I inductively generated a comprehensive set of key words to reflect managers’ time horizons from a variety of corporate documents, including conference call transcripts, annual reports, sustainability reports, press and earnings releases, and company website publications. I supplemented these key words with pre-established dictionaries on ‘time’ from the linguistic analysis programs Wordstat, Diction, and Linguistic Inquiry and Word Count (LIWC). I inflected each word and identified 166 unique synonyms of these words.

**Step 2 – categorizing keywords into short and long term.** The two co-authors and a third researcher divided this dictionary into three time horizons: short, long, and unclear. Only the words on which all three raters agreed as being short and long were unambiguous and remained in the dictionary.

**Step 3 – validating keywords in context.** I used Wordstat to identify the number of occurrences (“bag of words”) of each keyword in the transcripts. I applied Key Word in Context (KWIC) analysis to analyze at least 25 random occurrences of each keyword in context to ensure that the word was being used as expected. Nine words were dropped because of improper or ambiguous use (e.g., “now”). Table 5 provides some illustrations of keywords in context.

I applied three rules for counting the number of occurrences of each keyword. First, I did not count long term and short term when immediately followed by the words assets, liabilities, debt, interest, cash, sales, instruments, contract(s), or lease(s). Second, a keyword that was repeated within two words of itself was counted only once (e.g., “quarter-over-quarter” is
counted as a single occurrence of “quarter”). Third, I did not count words when negation words (no, not, none, neither, never, nobody) preceded the keyword (Loughran & McDonald, 2011).

*Step 4 – computing organizational time horizon.* I computed organizational time horizon for each transcript with the following ratio. A higher ratio indicates a longer time horizon.

\[
\text{Time horizon} = \frac{\# \text{ of long time horizon words}}{\# \text{ of short time horizon words} + \# \text{ of long time horizon words}}
\]
### Shorter organizational time horizon

<table>
<thead>
<tr>
<th>Company (Qtr/Yr)</th>
<th>Illustrative quotes from managers during quarterly earnings conference calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Murphy Oil (Q4/06)</td>
<td>…there's no point in going out any further than some <strong>short-term</strong> stuff.</td>
</tr>
<tr>
<td>ConocoPhillips (Q4/06)</td>
<td>And we need to get that done over the next several <strong>months</strong>.</td>
</tr>
<tr>
<td>Hess (Q4/06)</td>
<td>We think we had planned about 120 <strong>days</strong> and say it spud in the beginning of the <strong>year</strong>. So you are looking at four <strong>months</strong>, end of April possibly. And we’d like to try to beat that if we can. So the current proposals are not helping us in the short run.</td>
</tr>
<tr>
<td>ConocoPhillips (Q2/12)</td>
<td>In the <strong>short run</strong>, prices overshadow the operational and portfolio improvement successes we’ve had as a Company.</td>
</tr>
<tr>
<td>Noble (Q2/13)</td>
<td>That is what,12,000 barrels a <strong>day</strong>? Any extra <strong>week</strong> of that has a big impact in the <strong>quarter</strong>.</td>
</tr>
<tr>
<td>Chesapeake (Q1/06)</td>
<td>We believe have three big seismic chutes that are planned for the next 12 <strong>months</strong> in this area, targeting deeper exploration targets.</td>
</tr>
<tr>
<td>Halliburton (Q3/08)</td>
<td>…market may self-correct very quickly and we could find ourselves back in the game within a very <strong>short time</strong> period.</td>
</tr>
<tr>
<td>Pengrowth Energy (Q3/06)</td>
<td>In the <strong>short run</strong>, this location, in a very <strong>short period</strong> of time, makes access to capital…</td>
</tr>
</tbody>
</table>

### Longer organizational time horizon

<table>
<thead>
<tr>
<th>Company (Qtr/Yr)</th>
<th>Illustrative quotes from managers during quarterly earnings conference calls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chevron (Q3/10)</td>
<td>We think you really have to look at this in a broad sweep of time. <strong>Long-term</strong> this is -- the next several <strong>decades</strong> I think…</td>
</tr>
<tr>
<td>Calfrac Well Services (Q1/06)</td>
<td>We certainly are not a company that will overpay for an acquisition or merge, but our growth throughout our history has been basically organic. We have got to look at it <strong>long-term</strong> and when we first started this Company seven <strong>years</strong> ago, we could…</td>
</tr>
<tr>
<td>ConocoPhillips (Q4/12)</td>
<td>Over the <strong>long run</strong>, we will be replacing more than 100% of our reserves for the next five <strong>years</strong>.</td>
</tr>
<tr>
<td>Swift Energy (Q1/07)</td>
<td>At Swift Energy, we’ve always taken a <strong>long-term</strong> view and will continue to do what is in the best interest of our <strong>long-term</strong> shareholders.</td>
</tr>
<tr>
<td>EOG (Q2/07)</td>
<td>We guess our <strong>outlook</strong> for the next five <strong>years</strong> is that we think…</td>
</tr>
<tr>
<td>Occidental (Q1/13)</td>
<td>It is very important if you’re going to sign for <strong>long-term</strong> project -- 30 <strong>years</strong> or something like that.</td>
</tr>
<tr>
<td>Regency Energy (Q1/08)</td>
<td>We are comfortable that industry fundamentals warrant a more <strong>permanent</strong> change in my <strong>outlook</strong></td>
</tr>
</tbody>
</table>

**Table notes:** Words included in dictionary of organizational time horizon are bolded
Step 5 – validating the measure. I validated the ratio in Step 4 by asking six raters to assess the gestalt of 60 transcripts. I selected 30 transcripts from each of the bottom and top quartiles of the 3,136 sample of transcripts. Each of six raters was given the definition for organizational time horizons and asked to rate 10 randomly chosen transcripts as either short or long term. They rated 54 of the 60 transcripts consistently with the ratio in Step 4, resulting in an acceptable inter-rater reliability score of 90 percent. The Appendix lists the final dictionary.

Measures and controls

Downgrades and Upgrades

Using data from I/B/E/S, I analyzed changes in analyst recommendations. Analysts issue recommendations, which change periodically, to reflect their sentiment on the near-term prospects of firms. Generally, recommendations include buy, hold, or sell, but sometimes synonyms are used (e.g., ‘outperform’ to signify a buy recommendation) or additional recommendations are included to emphasize scale (e.g., strong buy). I computed Downgrades as the total number of downward recommendations issued in a quarter for each firm divided by the total number of analysts covering the stock. Likewise, Upgrades is the total number of upward recommendations issued in a given quarter for each firm divided by the total number of analysts covering the stock.

Short-Term Ownership

I manually merged Bushee’s (1998) institutional investor classification data, which classifies investors as transient, dedicated, and quasi-indexers, with institutional holdings (13F) data collected from Thomson to measure the investment horizons of different investors. Transient investors are more likely to trade on short-term information than dedicated investors and therefore have higher portfolio turnover. These classifications are accepted in both
accounting (e.g., Ke & Petroni, 2004) and management research (e.g., Connelly, Tihanyi, Certo, & Hitt, 2010; Zhang & Gimeno, 2016). I calculated *Short-term ownership* as the percentage of a firm’s shares held by transient investors minus the percentage held by dedicated investors. A higher number indicates greater ownership by short-term investors.

*Controls*

Following the relevant literature, I controlled for a vector of firm-level characteristics that could affect organizational time horizons. Each control variable controls for within-firm changes in the associated firm-level characteristic (e.g., change in a firm’s size over the sample window). In contrast, between-firm variation (e.g., large versus small firms) is controlled for using fixed-effects, which I elaborate upon below. All controls are included in the baseline regression. I incorporated the following controls into this study: firm size, return on assets, cash holdings, financial leverage, Altman’s Z, asset turnover, analyst coverage, stock-based compensation, and executive age.

*Firm size* equals the natural logarithm of one plus the book value of total assets. Controlling for firm size ruled out the concern that differences in organizational time horizons arose due to a firm’s changing stability since greater stability may result in firms becoming more comfortable focusing further into the future. *Return on assets* is the ratio of operating income before depreciation and amortization to the book value of total assets. Including a covariate for profitability (ROA) eliminated the possibility that firms adopted shorter time horizons as they faced greater short-term pressures associated with poorer performance (Souder & Shaver, 2010). I also note that changes in analyst recommendations are not the direct result of a firm’s financial performance, but rather how the firm performs relative to its peers or the market as a whole. Accordingly, firms with very high financial performance may still be downgraded, providing
further assurance that the results are not driven by financial performance. *Cash holdings* is the ratio of cash and short-term investments to the book value of assets; *Altman’s Z* measures a firm’s distance from bankruptcy, with a higher value indicating a lower risk of bankruptcy; and *Financial leverage* equals the sum of long-term debt and debt in current liabilities divided by the book value of total assets. Controlling for cash holdings, Altman’s Z, and financial leverage reduced the concern that changes in a firm’s financial health drove changes in its time horizon. For instance, having more cash on hand may buffer firms against external performance pressures (Tan & Peng, 2003). Similarly, greater financial distress might cause firms to focus more on short-term matters (Chen & Miller, 2007). *Asset turnover* is measured as sales over total assets. I included asset turnover as a proxy for operating speed. As firms move faster they might focus more on the short term given the need to keep up with rapid environmental changes (Ancona et al., 2001). *Analyst coverage* equaled the total number of analysts covering a firm. Including analyst coverage ruled out the concern that earnings pressure created by a higher number of analysts covering a firm caused firms to focus on short-term matters (He & Tian, 2013).

I also collected data from ExecuComp to control for managerial characteristics. *Stock-based compensation* is equal to the percentage of total direct compensation from restricted stock and the value of stock options granted. Using the percentage of total direct compensation (including salary, bonus, and stock compensation) from stock and options – rather than the absolute dollar amount – helps uncover a firm’s signaling of the priorities implied by its incentive structure (Souder & Bromiley, 2012). *Executive age* is the average age of the five highest-paid members of the top management team as disclosed in the firm’s proxy statement. Older people are more likely to characterize a long individual time horizon (Bluedorn & Ferris,
Due to sparse data in ExecuComp, I only included these two covariates in each model in the robustness checks.

**ANALYSES AND RESULTS**

**Analyses**

*Summary Statistics*

Table 6 provides summary statistics and correlations for each of the variables. On average, 8 percent of all words related to organizational time horizon signaled a long time horizon \((\text{Time horizon} = 0.08)\). Each quarter, the average firm was downgraded and upgraded by 8 percent and 5 percent, respectively, of analysts covering that firm. This equated to roughly 1.5 downgrades and 1 upgrade per quarter per firm. On average, short-term investors held 1 percent more of a firm’s shares than long-term investors. The averages of the control variables included total firm assets of $22.6 billion, ROA of 5.0 percent, cash holdings of 5.0 percent, financial leverage of 26.0 percent, an Altman’s Z of 2.06, and asset turnover of 16.0 percent. On average, 17 analysts covered each firm and executives were 53.5 years old and about 61 percent of their total direct compensation was through restricted stock and stock options.

*Model Choice*

I use a fixed-effects (FE) panel regression to remove the effect of any time-invariant characteristics of firms that might affect the results, enabling me to assess the net effect of the predictor variables on organizational time horizons. The Hausman test supported this decision \((p < .01)\). To test each of my hypotheses, I estimated an ordinary least squares (OLS) model where the dependent variable is \(\text{Time horizon}\). For H1 and H2, for instance, I estimated the following regressions:

\[
\text{Time horizon}_{it} = \alpha_i + \alpha_t + \beta \times \text{Downgrades}_{it} + \gamma' X_{it} + \epsilon_{it}, \quad \text{(Model 2)}
\]

\[
\text{Time horizon}_{it} = \alpha_i + \alpha_t + \beta \times \text{Upgrades}_{it} + \gamma' X_{it} + \epsilon_{it}, \quad \text{(Model 3)}
\]
Table 6: Descriptive Statistics and Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
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<tr>
<td>1. Time horizon</td>
<td>0.08</td>
<td>0.05</td>
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<tr>
<td>2. Downgrades</td>
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<td>0.10</td>
<td>-0.14*</td>
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<tr>
<td>3. Upgrades</td>
<td>0.05</td>
<td>0.08</td>
<td>0.15*</td>
<td>0.05</td>
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<tr>
<td>4. Asset durability</td>
<td>13.37</td>
<td>6.99</td>
<td>0.12*</td>
<td>-0.01</td>
<td>0.07*</td>
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<tr>
<td>5. Employee job security</td>
<td>53.11</td>
<td>9.21</td>
<td>0.01</td>
<td>0.01</td>
<td>-0.03</td>
<td>-0.09*</td>
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<tr>
<td>6. Workplace accidents</td>
<td>208.23</td>
<td>178.79</td>
<td>-0.11*</td>
<td>-0.03</td>
<td>-0.13*</td>
<td>0.08</td>
<td>-0.11*</td>
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<tr>
<td>7. Short-term ownership</td>
<td>0.01</td>
<td>0.04</td>
<td>-0.05</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.02</td>
<td>-0.07</td>
<td>0.03</td>
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<tr>
<td>8. Firm size</td>
<td>4.32</td>
<td>0.79</td>
<td>0.14*</td>
<td>-0.01</td>
<td>0.04*</td>
<td>0.09*</td>
<td>-0.11*</td>
<td>0.06</td>
<td>0.21*</td>
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<tr>
<td>9. Return on assets</td>
<td>0.05</td>
<td>0.04</td>
<td>-0.05*</td>
<td>-0.01</td>
<td>-0.04*</td>
<td>-0.18*</td>
<td>0.05</td>
<td>-0.07</td>
<td>0.02</td>
<td>-0.06*</td>
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<tr>
<td>10. Cash holdings</td>
<td>0.05</td>
<td>0.06</td>
<td>0.03</td>
<td>0.00</td>
<td>-0.01</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.02</td>
<td>-0.01</td>
<td>-0.02</td>
<td>0.09*</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. Financial leverage</td>
<td>0.26</td>
<td>0.15</td>
<td>-0.01</td>
<td>-0.05*</td>
<td>-0.04*</td>
<td>0.21*</td>
<td>0.00</td>
<td>-0.07</td>
<td>-0.18*</td>
<td>-0.15*</td>
<td>-0.24*</td>
<td>-0.23*</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>12. Altman’s Z</td>
<td>2.06</td>
<td>2.72</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.07*</td>
<td>0.10*</td>
<td>0.02</td>
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<td>-0.01</td>
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<td>0.09*</td>
<td>-0.15*</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>13. Asset turnover</td>
<td>0.16</td>
<td>0.16</td>
<td>-0.09*</td>
<td>0.04*</td>
<td>0.01</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.13*</td>
<td>0.29*</td>
<td>0.01</td>
<td>0.28*</td>
<td>0.22*</td>
<td>-0.14*</td>
<td>0.02</td>
<td></td>
<td></td>
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<tr>
<td>14. Analyst coverage</td>
<td>17.4</td>
<td>5.31</td>
<td>0.16*</td>
<td>0.07*</td>
<td>0.14*</td>
<td>0.09*</td>
<td>-0.15*</td>
<td>-0.19*</td>
<td>0.20*</td>
<td>0.51*</td>
<td>-0.02</td>
<td>-0.09*</td>
<td>-0.10*</td>
<td>-0.05*</td>
<td>-0.11*</td>
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<tr>
<td>15. Stock-based compensation</td>
<td>0.61</td>
<td>0.27</td>
<td>0.02</td>
<td>0.00</td>
<td>-0.01</td>
<td>0.15*</td>
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<td>0.06</td>
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<td>-0.17*</td>
<td>0.03</td>
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<tr>
<td>16. Executive age</td>
<td>53.56</td>
<td>3.61</td>
<td>-0.12*</td>
<td>0.01</td>
<td>-0.05</td>
<td>-0.08*</td>
<td>-0.02</td>
<td>0.31*</td>
<td>0.22*</td>
<td>0.17*</td>
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<td>0.10*</td>
<td>-0.32*</td>
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<td>0.14*</td>
<td>0.19*</td>
<td>0.08*</td>
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<tr>
<td>17. Internal earnings gap</td>
<td>0.00</td>
<td>0.04</td>
<td>-0.04*</td>
<td>0.05*</td>
<td>-0.01</td>
<td>-0.16*</td>
<td>0.06*</td>
<td>-0.04</td>
<td>0.03</td>
<td>-0.01</td>
<td>0.83*</td>
<td>0.07*</td>
<td>-0.21*</td>
<td>0.07*</td>
<td>0.16*</td>
<td>0.034</td>
<td>-0.07*</td>
<td>0.07*</td>
</tr>
</tbody>
</table>

Table notes: * p < .05
where \( i \) indexes firms; \( t \) indexes quarters; \( \alpha_i \) and \( \alpha_t \) are firm and quarter fixed effects, respectively; \( \mathbf{X} \) is the vector of control variables; and \( \varepsilon \) is the error term. To account for serial correlation of the error term, I clustered standard errors at the firm level (I obtained similar results if I clustered standard errors at the quarter or industry level using two-digit SIC codes). To examine whether the causes of varying organizational time horizons differ depending on cross-sectional characteristics, I extended the specifications above by interacting each independent variable with the relevant moderator. A positive and statistically significant interaction term would support H3 and a negative and statistically significant interaction term would support H4a and H4b.

**Results**

Results for hypotheses H1 through H4b are presented in Table 7. Hypothesis 1 was strongly supported (Model 2: \( \beta = -0.12, p < .001 \)), suggesting that losses in the form of analyst downgrades are associated with shorter organizational time horizons. Upgrades elicit the opposite relationship with organizational time horizons, as shown by the results from Hypothesis 2, which was strongly supported (Model 3: \( \beta = 0.09, p < .001 \)). To further test the relative effects of downgrades and upgrades, I reran Model 3 with Downgrades included as a covariate. In this case, the effects of downgrades (\( \beta = -0.11, p < .001 \)) and upgrades (\( \beta = 0.08, p < .001 \)) on organizational time horizons remained similar to the previous models. However, the relative size of the coefficients suggests that downgrades have a stronger absolute effect on organizational time horizons than upgrades, as I expected. Using a nested F-test, I found this difference was statistically significant (\( F_{1.97} = 27.19, p < .001 \)).

Next, I tested how contrasting sequences of under and over-performance affected organizational time horizons. Comparing the results from Model 4 and Model 5, I find that
Hypothesis 3 was supported: downgrades negatively affected organizational time horizons (Model 4: $\beta = -0.07$, $p < .001$), and this effect was stronger when the firm received more upgrades in the previous quarter ($\beta = 0.12$, $p < .05$). In comparison, the interaction between downgrades in the previous quarter and downgrades in the current quarter was not statistically significant (Model 5), showing there is no significant contrast effect between consecutive periods of underperformance.

In Model 6, the coefficients on downgrades ($\beta = -0.04$, $p < .001$) and the interaction term with short-term investor ownership ($\beta = -1.08$, $p < .01$) were negative and significant. This is consistent with Hypothesis 4a, which stated that firms that receive downgrades focus more on the short term and this relationship is strengthened when a greater percentage of a firm’s shares are held by short-term investors. Results from Model 7 support Hypothesis 4b as the coefficients from the main effect ($\beta = 0.08$, $p < .001$) and interaction term ($\beta = -0.86$, $p < .001$) were both statistically significant and in the direction hypothesized. These results suggest that organizations are less likely to adopt longer time horizons following upgrades when a greater proportion of their firms’ shares is held by short-term investors than held by long-term investors. I plot interaction graphs on organizational time horizons in Figure 4 and Figure 5 using one standard deviation above and below the mean to represent high and low levels of short-term ownership (Long & Freese, 2006).

**Robustness Checks**

I conducted a number of robustness checks. In all cases, the results did not change significantly from the main models. First, I applied between effects (BE) regression models to all hypotheses to control for variables that varied over time that were not captured by the control variables in the original FE models (e.g. changes in economic cycles). Second, I tested the
<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Downgrades</td>
<td>-0.12***</td>
<td>-0.07***</td>
<td>-0.06***</td>
<td>-0.04***</td>
<td>-0.06***</td>
<td>-0.08***</td>
<td>-0.86***</td>
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<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.02)</td>
<td>(0.24)</td>
</tr>
<tr>
<td>Upgrades</td>
<td>0.09***</td>
<td>0.01</td>
<td>0.07</td>
<td>-0.02*</td>
<td>0.13</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.01)</td>
<td>(0.06)</td>
<td>(0.01)</td>
<td>(0.11)</td>
<td>(0.11)</td>
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</tr>
<tr>
<td>Upgrades_{-1}</td>
<td></td>
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<td></td>
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<tr>
<td>Downgrades x ST ownership</td>
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<tr>
<td>Upgrades x ST ownership</td>
<td></td>
<td></td>
<td></td>
<td>-1.08**</td>
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<td></td>
<td></td>
<td></td>
<td>(0.36)</td>
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<td></td>
</tr>
<tr>
<td>Firm size</td>
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<td>-0.09</td>
<td>-0.17</td>
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<td>0.01</td>
<td>0.29</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>(0.17)</td>
<td>(0.20)</td>
<td>(0.22)</td>
<td>(0.17)</td>
<td>(0.17)</td>
<td>(0.29)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Return on assets</td>
<td>-0.07*</td>
<td>-0.07*</td>
<td>-0.04*</td>
<td>-0.05*</td>
<td>-0.06*</td>
<td>-0.08**</td>
<td>-0.06*</td>
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<tr>
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<td>(0.03)</td>
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<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.02)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>0.06</td>
<td>-0.02</td>
<td>-0.26</td>
<td>0.08</td>
<td>0.08</td>
<td>0.05</td>
<td>-0.21</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.13)</td>
<td>(0.17)</td>
<td>(0.13)</td>
<td>(0.13)</td>
<td>(0.15)</td>
<td>(0.12)</td>
</tr>
<tr>
<td>Cash holdings</td>
<td>-0.06*</td>
<td>-0.06**</td>
<td>-0.07</td>
<td>-0.05</td>
<td>-0.05</td>
<td>-0.07*</td>
<td>-0.06*</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.03)</td>
<td>(0.02)</td>
<td>(0.02)</td>
<td>(0.04)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.18</td>
<td>-0.01</td>
<td>-0.07</td>
<td>-0.07</td>
<td>-0.23</td>
</tr>
<tr>
<td></td>
<td>(0.12)</td>
<td>(0.13)</td>
<td>(0.22)</td>
<td>(0.11)</td>
<td>(0.12)</td>
<td>(0.27)</td>
<td>(0.22)</td>
</tr>
<tr>
<td>Altman’s Z</td>
<td>0.02***</td>
<td>0.05</td>
<td>0.02***</td>
<td>0.02***</td>
<td>0.02***</td>
<td>0.02***</td>
<td>0.02***</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.05)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Analyst coverage</td>
<td>0.11***</td>
<td>0.05</td>
<td>0.09*</td>
<td>0.12***</td>
<td>0.12***</td>
<td>0.08</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.04)</td>
<td>(0.04)</td>
<td>(0.03)</td>
<td>(0.03)</td>
<td>(0.05)</td>
<td>(0.04)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.07***</td>
<td>0.10***</td>
<td>0.07***</td>
<td>0.07***</td>
<td>0.07***</td>
<td>0.06***</td>
<td>0.07***</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Quarter FE</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Observations</td>
<td>3,136</td>
<td>1,683</td>
<td>1,349</td>
<td>3,038</td>
<td>3,038</td>
<td>1,161</td>
<td>1,161</td>
</tr>
<tr>
<td>R-squared Adj</td>
<td>0.37</td>
<td>0.41</td>
<td>0.43</td>
<td>0.39</td>
<td>0.39</td>
<td>0.48</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Notes: I exclude firm-quarters with zero DG (1,453) and UG (1,787) to avoid issues with zero-inflated errors; in a robustness test I find similar results when those observations are included. Due to lagging downgrades and upgrades, the first quarterly observation for each firm is missing in columns 4 and 5. The number of observations is lower in the short-term ownership interaction models since Brian Bushee’s investor classification data is only available until Q1 2011. Standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05
sensitivity of the findings to different formulations of key variables. I recalculated *Downgrades* and *Upgrades* as the total number of downgrades and upgrades issued for each firm in each quarter. Next, I recalculated *Short-term ownership* as the percentage of a firm’s shares held by transient investors minus the percentage held by dedicated and quasi-index investors.

Third, I manipulated the dependent variable, *Organizational time horizon*, in three different ways. In the first approach, I did not count keywords when used in conjunction with words that were specific to the oil and mining industry, such as barrels, basins, gas, production, reserves, and wells. I also computed Loughran and McDonald (2011) term weighted ratio of organizational time horizons. Term weighting gives lower weights for heavily used keywords, such as 'quarter', and is argued to improve the effectiveness of retrieval operations in linguistic analysis (Jurafsky & James, 2000). As a final test, I randomized the dictionary and blindly selected 80 percent of the words five times, rerunning the models with each new measure. None of the results significantly changed, which reassured me that individual keywords were not driving the findings.

Fourth, I used a firm’s earnings per share relative to the consensus earnings forecast to represent under- and over-performance using a different analyst performance benchmark. Computed every quarter, the consensus earnings forecast is the average of the combined earnings estimates from all analysts covering a firm. The extant literature in finance shows that top managers treat analyst forecasts as important earnings targets to meet (Bartov et al., 2002). In line with my expectations, I found that underperforming the consensus earnings forecast were associated with shorter organizational time horizons ($\beta = 0.02, p < .001$) and over-performing the consensus earnings forecast were associated with longer organizational time horizons ($\beta = 0.02, p < .001$). The more a firm beats the consensus earnings forecast benchmark, the longer its time
horizon. I also calculated this measure as both an actual dollar figure (rather than percentage) and a binary variable indicating whether a firm reported above (0) or below (1) the consensus earnings forecast and found no material differences in the results.

**Extended Analysis 1: Organizational Time Horizons and Firm Behaviours**

I have argued so far that analyst recommendations will affect organizational time horizons. However, there remains the additional puzzle as to whether analyst recommendations affect not only organizational cognition but also firm behaviours.

Organizational cognition plays an important role in influencing organizational behavior (Barr, 1998). Research has long shown that the sensemaking processes of scanning and interpretation affect organizations’ behaviours (Thomas, Clark, & Gioia, 1993). For example, Eggers and Kaplan (2009) find that cognition affects a firm’s decision to enter new technological markets; Barr (1998) find that cognition affects firms’ strategic responses to environmental events; and, a large body of work links cognition to the speed of organizational response to environmental events (e.g., Thomas et al., 1993). Building on these substantiated links between cognition and behavior, I believe that organizational time horizons will affect various organizational behaviours with temporal dimensions. Specifically, the shorter an organization’s time horizon, the more short-sighted will be its behaviours.

**Measures of Temporal Strategic Behaviours**

Drawing on prior literature on time horizons, I computed three separate measures to capture the temporality of firms’ behaviours. First, asset durability was used by Souder and Bromiley (2012) to capture temporal orientation, and reflects the average annual expected life of a firm’s property, plant, and equipment in a given year. I used quarterly data from Compustat to compute **Asset durability**, where a higher value indicates longer-term investment.
Second, numerous studies have reported the negative effects of laying off employees on organizational relationships and long-term performance (e.g., Cascio, 1993). Gittell, Cameron, Lim, and Rivas (2006), for instance, found that airlines with higher layoffs following the terrorist attacks of 9/11 inhibited their ability to recover from the crisis. Accordingly, firms with longer time horizons should lay-off fewer employees. Using annual data from ASSET4, I calculated Employee job security as the total number of announced lay-offs by the company divided by the total number of employees. I used data from ASSET4 since ASSET4 has been validated in prior CSR literature (e.g., Cheng, Ioannou, & Serafeim, 2014; Hawn & Ioannou, 2015) and offered the necessary fine-grained details.

Third, firms with longer horizons are more likely to invest in building a safer work environment that is beneficial to employee wellbeing (Grant, Christianson, & Price, 2007). Woods and Hollnagel (2006) reason that the benefits associated with the immediate costs of improving workplace safety are more easily seen in the long run. For example, short time horizons among executives at British Petroleum were partially accredited for the cuts in employee safety precautions that contributed to the 2010 oil spill in the Gulf of Mexico. Using annual data from ASSET4, I calculated Workplace accidents as the total number of injuries and fatalities reported by employees and contractors while working for a company.

Results and Analysis

Using OLS, I inserted the one-year lagged, annual value of Time horizon as the predictor variable in the model and exchanged the dependent variable with each of the three measures capturing the temporality of firms’ behaviours. Results from these models are reported in Table 8. I find time horizons in the previous year are positively associated with asset durability (Model 8: \( \beta = 36.76, p < 0.001 \)), employee job security (Model 9: \( \beta = 59.35, p < 0.001 \)) and negatively
Table 8: Fixed-Effects Regression for Investor Horizon

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Asset durability</th>
<th>Employee job security</th>
<th>Workplace accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time horizon_{t-1}</td>
<td>36.76***</td>
<td>59.35***</td>
<td>-738.2**</td>
</tr>
<tr>
<td></td>
<td>(11.97)</td>
<td>(17.12)</td>
<td>(347.5)</td>
</tr>
<tr>
<td>Firm size</td>
<td>-18.21***</td>
<td>-81.32</td>
<td>-4,476*</td>
</tr>
<tr>
<td></td>
<td>(4.55)</td>
<td>(151.0)</td>
<td>(2,313)</td>
</tr>
<tr>
<td>Return on assets</td>
<td>-25.58**</td>
<td>13.08</td>
<td>425.1</td>
</tr>
<tr>
<td></td>
<td>(10.48)</td>
<td>(17.28)</td>
<td>(671.0)</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>-179.1**</td>
<td>13.16</td>
<td>6,113*</td>
</tr>
<tr>
<td></td>
<td>(76.42)</td>
<td>(90.78)</td>
<td>(3,130)</td>
</tr>
<tr>
<td>Cash holdings</td>
<td>38.79***</td>
<td>-24.96*</td>
<td>-868.4***</td>
</tr>
<tr>
<td></td>
<td>(13.36)</td>
<td>(12.80)</td>
<td>(279.1)</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>656.1***</td>
<td>-18.72</td>
<td>284.6</td>
</tr>
<tr>
<td></td>
<td>(48.22)</td>
<td>(52.89)</td>
<td>(1,740)</td>
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<tr>
<td>Altman’s Z</td>
<td>3.361</td>
<td>-2.487</td>
<td>2,403</td>
</tr>
<tr>
<td></td>
<td>(4.031)</td>
<td>(4.560)</td>
<td>(2,837)</td>
</tr>
<tr>
<td>Analyst coverage</td>
<td>-9.133</td>
<td>7.540</td>
<td>-556.2</td>
</tr>
<tr>
<td></td>
<td>(13.55)</td>
<td>(13.44)</td>
<td>(423.9)</td>
</tr>
<tr>
<td>Constant</td>
<td>47.49***</td>
<td>51.60***</td>
<td>500.4**</td>
</tr>
<tr>
<td></td>
<td>(4.58)</td>
<td>(7.304)</td>
<td>(199.6)</td>
</tr>
<tr>
<td>Quarter FE</td>
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<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Observations</td>
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<td>432</td>
<td>111</td>
</tr>
<tr>
<td>Number of firms</td>
<td>98</td>
<td>66</td>
<td>25</td>
</tr>
<tr>
<td>R-squared Adj.</td>
<td>0.587</td>
<td>0.247</td>
<td>0.852</td>
</tr>
</tbody>
</table>

Notes: Higher (lower) values for models 8 and 9 (and 10) indicate a longer-term orientation. Data from Asset4 was limited for the firms in the sample, which restricted the sample size in models 9 and 10. All values for the covariates used in models 9 and 10 are computed as averages for each year to match the annual data collected from Asset4. Using firm-year data instead of firm-quarter reduced the number of observations. Time horizon is lagged by one year. I also lagged the control variables in separate models and found no material changes in the results. Standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05
Figure 4: The Effects of Analyst Downgrades and Investor Horizons on Organizational Time Horizons

Figure 5: The Effects of Analyst Upgrades and Investor Horizons on Organizational Time Horizons
associated with workplace accidents (Model 10: $\beta = -738.20$, $p < 0.01$). Overall, these results suggest that firms with longer time horizons appear to behave in ways that prioritize long-term value creation over short-term profits, lending further credence to the idea that time horizons are not solely impression management.

**Extended Analysis 2: Internal Performance Aspirations**

To further support the salience of financial markets, and not internal performance, on organizational time horizons, I needed to assess the role of internal organizational performance benchmarks on organizational time horizons. I followed Souder and Shaver’s (2010) approach to measuring internal performance aspirations, by taking the median of the entire sample of the operating cash flow (EBITDA) divided by the book value of total assets of each firm. I calculated the *Internal earnings gap* by subtracting each firm’s earnings ratio by the average ratio for the entire sample (industry). I then added the *Internal earnings gap* to the baseline model. Results from this specification revealed that a firm’s performance relative to its internal aspiration level does not affect its time horizon ($\beta = -0.02$, $p = 0.526$). Combined with the main results, these results suggest that organizations do not adjust their time horizons to missing or exceeding internal performance aspirations, but they do to the performance aspirations of financial markets.

**DISCUSSION**

This study seeks to unpack the relationship between financial markets and corporate short-termism. In particular, I argue that underperforming analysts’ expectations (i.e., receiving downgrades) shortens organizational time horizons, which gives rise to corporate short-termism through altering a company’s strategic behaviours. To operationalize organizational time horizon, I analyzed the content of 3,136 quarterly conference call transcripts for 98 extractives
firms from 2006 to 2013. I coded each transcript to compare the number of short-term oriented words that managers used when speaking with analysts relative to the number of long-term oriented words.

**Theoretical Contributions**

This research makes four contributions to prior theory. First, it contributes to the small but growing literature on corporate short-termism by unpacking the mechanisms through which financial markets affect organizational time horizons. Both practitioners and academics frequently point to financial markets as the cause of short-termism (Bushee, 1998; Hansen & Hill, 1991; Marginson & McAulay, 2008; Samuel, 2000; Zhang & Gimeno, 2010, 2016). But, this perspective does not reconcile with the studies that show that analysts and investors prefer companies with long-term outlooks and investments (Baysinger et al., 1991; Gentry & Shen, 2013; Hansen & Hill, 1991; Woolridge, 1988). Part of the reason for these opposing arguments and findings may be because researchers have not fully unpacked the mechanisms through which financial markets and organizational time horizons interact. In this research, I argued that one mechanism is through analyst recommendations. The pattern of analysts' prior recommendations and investors' horizons affect the strength of this relationship. Specifically, when analysts downgrade stocks, organizations shorten their time horizons, and this relationship becomes stronger when downgrades follow upgrades and when more shares are held by short-term investors. Recent research in strategic management has shown the important role that analysts have in influencing the behaviours of firms (Benner, 2010; Benner & Ranganathan, 2012, 2013; Gentry & Shen, 2013), but this work has not looked at analyst recommendations and organizational time horizons. In this paper, I focused on recommendations as one central way in which analysts influence firms.
Second, I also extend the BTF by integrating insights about managers’ decision-making biases from prospect theory and psychology (e.g., contrast effect). I answer the call for integrating more micro insights into the BTF (Argote, 2015; Gavetti et al., 2012), thereby acknowledging that the BTF did not “reflect all of the recent efforts in the psychology of individual choice” (Cyert & March, 1963: 163) at the time it was developed. Prospect theory offers insights into the cognitive processes of decision makers that lie between the stimulus to act (i.e., gains and losses) and the decision outcome. Prospect theory draws on cognition and emotion to explain when and why managers follow and depart from rules and routines. In this paper, I deepened two aspects of the BTF, including asymmetrical preferences and contrast effects.

Specifically, I found that the impact of downgrades on shortening time horizons was more potent than the impact of upgrades on lengthening time horizons. In a similar context, Brown et al. (2013) found that mutual fund managers trade more stocks following downgrades than upgrades, but the authors offer limited reasoning why this is the case beyond the ideas that downgrades are more informative than upgrades and fund managers may fear holding “disaster stocks.” Providing insight into the mechanism behind their findings, I suggest these reactions to downgrades are more severe because downgrades are experienced as losses and losses elicit more severe reactions than gains because individuals are loss averse (Barberis et al., 2006). Given that analysts have a tendency to downgrade more often than upgrade, I anticipate that the time horizons of organizations will tend to shorten over time, which aligns with concerns among researchers and practitioners. I leave this effect for future researchers to explore.

I also explored a contrast effect that is relevant to theory on managers’ search processes. Contrast effects have not been considered in prior BTF research. Here I found that the tendency towards
shortening time horizons was heightened when a downgrade followed an upgrade. In general, this contrast effect shows that managers elicit more severe responses to underperforming their aspiration level when they previously over-performed their aspirations. Future BTF research would benefit by considering contrasts in sequences of under- and over-performance since such findings could inform existing results in many BTF focal areas, such as risk-taking (e.g., Audia & Greve, 2006), organizational fraud (e.g., Harris & Bromiley, 2007), and R&D search (e.g., Chen, 2008).

Third, in this paper I discriminate between organizational time horizons as cognition versus action or behavior. Prior literature generally does not discriminate between the two (see Reilly et al., forthcoming, for a recent review). So, in the extended analysis, I tested the relationship between time horizons and the temporality of firm behavior. Specifically, I found that shorter time horizons are positively associated with shorter-term behaviours that emphasize short-term profitability at the expense of long run value creation, such as lower asset durability (Martin et al., 2015; Souder & Bromiley, 2012), more employee lay-offs, and lower concern for workplace safety. This study, therefore, begins to reveal the effects of analyst recommendations on both cognitions and actions, which will help to sharpen future discussions of corporate short-termism, which have in the past largely confounded the two.

Fourth, this study also highlights the role that different performance metrics (benchmarks) have in affecting organizational search and change. Prior research has predominantly focused on three types of performance metrics, including internal performance, peer comparisons, and historical performance. As Gavetti et al. (2012: 25) note, the predominant focus of prior BTF research has been on “what constitutes an adequate level of performance, as opposed to the question of what constitutes the relevant performance metrics.” This study
contributes to this literature by introducing a fourth type of performance metric that is important in explaining decision makers’ responses to under- and over-performance, namely financial analyst performance expectations. Moreover, in the extended analysis, I compared the relative effect of this benchmark to existing benchmarks, namely internal performance expectations, finding that managers seem to respond more to the financial market’s response to not meeting performance expectations than the failure in meeting their own organizational aspirations. I encourage future researchers to study other performance benchmarks beyond the three types that have dominated the BTF literature.

**Methodological Contributions**

In this paper, I developed an archival-based approach to assess organizational time horizons through linguistic methods. To operationalize organizational time horizon, I systematically developed a dictionary of keywords and generated a valid and reliable measure. Organizational time horizon has so far been a difficult construct to capture, largely due to the shortcomings in existing measures (Souder & Bromiley, 2012). For example, in a review of previous measures, Reilly et al. (forthcoming: 16) comment that, “None of these [existing] measures explicitly captures time; instead, they try to draw inferences about time on the basis of available data… as suitable measures with a more explicit treatment of time are developed, it is important for scholars to go back and determine the amount of confidence to place in these conclusions by attempting to replicate the results with the better measures.” Fortunately, the advancement of linguistic analysis software presented me with the opportunity to address some of the shortcomings in these existing measures. Nadkarni and Chen (2014: 1827) suggest that to better understand temporal issues in management research, future research can use linguistic analysis of archival data to “develop valid measures of other important temporal constructs, such
as temporal depth.” Such approaches to measuring psychological attributes of managers allow researchers to answer the call for more methodological rigor in BTF to address research questions that have been otherwise impossible to study (Gavetti et al., 2012, 21).

**Concluding Note**

Corporate short-termism has been argued to erode organizational value in the long term and create societal harm, leading scholars and practitioners to call for more research to unpack how short-termism manifests in organizations (Laverty, 1996; Marginson & McAulay, 2008). I hope this research provides a stronger theoretical framework and additional empirical tools to not only encourage more research on corporate short-termism, but consider its broader implications to business and society.
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CHAPTER THREE – UNDER PRESSURE: THE CAUSAL EFFECT OF FINANCIAL ANALYST COVERAGE ON LONG-TERM CAPITAL INVESTMENTS

Abstract

This study examines whether the number of financial analysts covering a firm causes corporate short-termism by affecting the horizons of companies’ capital investments. I hypothesize that greater analyst coverage leads to more pressure on companies to perform in the short term, which biases companies against making longer-term capital investments. To establish causality, I employ a difference-in-differences technique that exploits a series of quasi-natural experiments. Using a matched sample of 2,462 U.S.-based companies, I find that companies that lose a covering analyst extend their attention further into the future and invest more in longer-term capital, compared to similar companies that do not lose an analyst. I also find that this effect is stronger for companies in fast-moving industries, and for companies with stronger corporate governance policies.

Key words: Capital investments; Sustainability; Investment horizons; Short-termism; Managerial decision making; Analyst coverage; Financial markets
“If we think long term, we can accomplish things that we couldn’t otherwise accomplish.”
-- Jeff Bezos, CEO of Amazon

There is growing concern that companies are failing to invest in the long term. Researchers and practitioners argue that managers are forgoing investments in long horizon projects in favor of investments that pay off more quickly (Laverty, 1996; Marginson & McAulay, 2008). Almost 80 percent of managers admit they are willing to forgo investments in order to meet short-term earnings targets (Graham, Harvey, & Rajgopal, 2005), resulting in lower spending in areas such as research and development (Derrien & Kecskés, 2013). In 2014, the average age of industrial equipment in the U.S. rose above 10 years to its highest level since 1938 (Hagerty, 2014). A heavy reliance on older capital can undermine the competitiveness of companies and the health of society (Hayes & Abernathy, 1980; Porter, 1992), and so identifying what causes companies to forgo investments in long-term capital is of central concern to management research.

Pressures to perform in the short term and long term are relevant to strategy since managers must regularly balance the trade-offs between short- and long-term investments and performance (March, 1991). Many strategies that create value in the long term, such as investments in employee development, sustainability, or innovation, require forgoing returns in the short term (Bansal & DesJardine, 2014). And yet, generating insufficient short-term performance can jeopardize a company’s survival in the long term (Souder & Shaver, 2010).

But research in strategic management and organizational theory generally has not addressed how performance pressures from the company’s environment influence the horizons of companies’ actions and strategies. Moreover, the temporal aspects of organizational research have received scant attention and little is understood about how companies manage conflicting time demands (Bansal & DesJardine, 2014; Mosakowski & Earley, 2000). This is alarming since
much research in institutional theory investigates how environmental pressures affect a wide range of firm outcomes (Scott, 2001). Even within this literature, little is understood about how pressures in a companies’ environment, including pressures from stakeholders, affect the temporal perceptions and investment horizons of companies.

It is clear from existing research that financial analysts influence companies’ actions and strategies (Benner, 2010; Benner & Ranganathan, 2012, 2013; Gentry & Shen, 2013; Zuckerman, 1999), providing the possibility that analysts contribute to the short-termism by influencing companies’ capital investment horizons (Souder, Reilly, Bromiley, & Mitchell, 2015). Analysts act as information intermediaries between companies and investors by engaging regularly with managers, setting short-term external performance benchmarks, and evaluating companies’ performance and future prospects (Brennan, Jegadeesh, & Swaminathan, 1993; Hong, Lim, & Stein, 2000; Yu, 2008). There is considerable evidence that analysts’ opinions and evaluations of companies strongly influence general market and public sentiment, as well as investors’ and other stakeholders’ actions (Francis & Soffer, 1997; Womack, 1996). Yet, in spite of analysts’ role in influencing companies’ and investors’ behaviours, the effect of analysts on companies’ temporal perceptions and capital investment horizons has not been studied, and, more broadly, “there is a dearth of direct evidence on the real effects of analysts” (Derrien & Kecskés, 2013: 1410).

In this paper, I take a first step toward better understanding whether analysts influence the temporality of companies’ actions and strategies. Specifically, I ask: Does financial analyst coverage affect the horizons of companies’ capital investments? Analyst coverage refers to the number of analysts that track and publish opinions on a company’s stock. Identifying the factors
that affect how companies allocate capital is central to strategy since most companies undermine their financial performance by overinvesting in short-term capital (Souder et al., 2015).6

I argue that analysts indirectly impact companies’ temporal perceptions and investment horizons and encourage short-termism by enabling investors to take short-term positions and inadvertently facilitating this type of trading. Analysts care more about a company’s long-term survival and accurately predicting its future earnings than influencing its investments. Investors, on the other hand, vary between short- and long-term, with many paying close attention to a company’s short-term performance (Bushee, 1998). The nature of public equity markets (e.g., low transaction costs) makes it very easy for investors to take short-term positions by moving quickly, seamlessly, and cheaply across stocks (Porter, 1992). By reducing information asymmetry, analysts further encourage investors to pay closer attention to a company’s short-term performance, and enable them to more accurately trade a company’s stock based on minor fluctuations in short-term performance. The power analysts have in influencing investor trading motivates managers to modify their investment strategies to meet analysts’ expectations.

This paper contributes to three related areas of research. First, previous studies have examined how managers’ incentives affect the temporality of companies’ behaviours (Flammer & Bansal, 2016; Souder & Bromiley, 2012; Souder & Shaver, 2010). Whereas this existing work focuses on organizational-level determinants of time horizons, my study shifts the focus to determinants in the organization's environment, which have largely been overlooked. Second, a limited body of research on analysts has focused on how analysts affect R&D spending (Derrien & Kecskés, 2013), innovation (He & Tian, 2013), and technological adaptation (Benner &

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6 I am not interested in determining the optimal level of short and long run investments in a company. Rather, since a growing body of evidence suggests that companies are focusing too heavily on the short term (see Souder et al., 2015 for one example), I am most interested in knowing what factors lead managers to adopt short time horizons. The performance implications of these shorter time horizons are covered in other research.
Ranganathan, 2012, 2013). Yet, because none of these variables accurately measure investment horizons, I cannot be certain how analysts affect the temporal perceptions and behaviours of companies. For example, innovation and R&D are not accurate proxies for a company’s investment horizon (Souder & Bromiley, 2012) since: a) innovation and R&D can produce short-term benefits (Mansfield, Rapoport, Schnee, Wagner, & Hamburger, 1972); b) investments in innovation can be radical (long-term) or incremental (short-term), which analysts perceive differently (Benner, 2010); c) companies may invest in innovation and R&D for reasons not related to investment horizons, such as socioemotional reasons (Chrisman & Patel, 2012); and d) R&D spending has little association with long run value indexes (Laverty, 1993). In conclusion, no research has tested how analyst coverage affects the temporality of companies’ actions and strategies. Exploiting a new measure (Souder & Bromiley, 2012), I investigate how changes in analyst coverage affect companies’ capital investment horizons.

Third, predicting how analysts affect capital investment horizons provides theoretical support into the antecedents of corporate short-termism (Laverty, 1996). Scholars and practitioners argue that managers overvalue short-term results relative to delayed returns and consequently underinvest in the long term (Porter, 1992). However, this bias towards short-term results may come from the pressures managers experience to meet investors’ short-term interests through analysts. The determinants of such corporate short-termism are not well understood (Marginson & McAulay, 2008).

Endogeneity concerns have constrained empirical studies from establishing a causal link between analyst coverage and investment horizons. To establish causality, I study the effect of analyst coverage on capital investment horizons using two types of quasi-natural experiments, brokerage closures (Kelly & Ljungqvist, 2012) and brokerage mergers (Hong & Kacperczyk,
2010), in a difference-in-differences methodology. Both closures and mergers cause analysts to be terminated, resulting in lower analyst coverage for companies previously covered by these analysts. I match companies that were affected by the brokerage disappearances to similar companies that were not affected, and compare the difference in the horizons of each group’s capital investments in the years following the events. Using this methodology allows me to control for time invariant variables and study the causality between analyst coverage and capital investment horizons.

**THEORETICAL DEVELOPMENT**

**Capital Investment Horizons**

Capital investments have varying time horizons. While all investments, by definition, incur immediate costs to produce benefits later (Maritan, 2001), investments differ in how quickly those benefits are realized. On one hand, companies can choose to forgo profits today to invest in strategies that build future competitive advantages, such as innovation or sustainability (Barnett, 2007). On the other hand, companies can opt to maximize short-term profits by investing in incremental capital projects that produce smaller but faster returns (Laverty, 1996).

To illustrate the difference between short- and long-term capital, consider the dilemma that many manufacturing companies face. Manufacturers can choose to either continue using their current machinery, effectively increasing their short-term profits by delaying any cash outflow, or incur the expense of buying new equipment in hopes of increasing their future productivity and competitiveness. In 2014, Toyota was scorned by investors for accumulating $40 billion in cash while failing to invest in new plants and machinery. Instead of investing in long-term capital, Toyota chose to invest incrementally in its already stretched plants, which could be done by adding additional shifts and working hours (Jie & Horie, 2014).
Over time, managers will choose capital investments with different horizons depending on their goals. In making these decisions, managers do not always select investments based on their own merits, but on the pressures experienced by and priorities of the firm (Ocasio, 1997). Prioritizing short-term goals and objectives can result in managers favoring exploitative investments with faster payoffs (March, 1991). Souder and Shaver (2010), for instance, argue that managers who have more exercisable stock options will try to boost their company’s share price in the short term by investing less in long-term capital. In this paper, I explore how pressures created in a company’s environment, namely from analysts facilitating investor’s short-term trading, affect companies’ investments in short- and long-term capital.

The Role of Financial Analysts

Managers care about maintaining elevated stock prices and engage in activities to enhance stock value. First, managers are rewarded with stock options that tie their personal compensation to their companies’ stock price, so lower (higher) stock prices decrease (increase) managers’ compensation (Finkelstein, Hambrick, & Cannella, 2009; Puffer & Weintrop, 1991). Second, managers face less risk of being fired when stock prices rise since higher stock prices decrease the likelihood of hostile takeovers and increase the satisfaction of investors and board members. Accordingly, managers’ job security is closely tied to stock prices (Farrell & Whidbee, 2003).

Signals that convey weak short-term performance adversely affect companies’ stock prices. Investors have imperfect information about managerial capabilities, so they rely heavily on analysts’ reports and recommendations to infer these capabilities. As a result, receiving stock downgrades from analysts and missing a single quarterly earnings target can signal incompetent management and declining competitiveness, causing investors to flee and stock prices to drop.
(Bartov, Givoly, & Hayn, 2002; Kasznik & McNichols, 2002). In support of this view, it is well documented that investors often overreact to short-term news about a company’s financial performance (Chopra, Lakonishok, & Ritter, 1992; De Bondt & Thaler, 1985).

The emphasis that markets and managers place on short-term performance signals highlights the importance of effectively managing them in ways that maintain a positive image. Hence, managers work hard to send positive signals to shareholders about their company’s outlook.

Analysts play a key role in formulating and transmitting signals about a company’s financial performance. Analysts act as information intermediaries between companies and investors by providing investors with novel information on a company’s operations and future prospects (Brennan & Subrahmanyam, 1995; Kelly & Ljungqvist, 2012). Through their direct access to managers, analysts have privileged access to company information that investors typically do not. Using this information, analysts act as advisors for investors, highlighting the best stocks with “Buy” recommendations and demoting others with “Hold” and “Sell” recommendations. Analysts’ opinions are so highly valued by investors that analysts have attracted the moniker 'prophets' (e.g., Barber, Lehavy, McNichols, & Trueman, 2001) and can singlehandedly drastically affect a company’s stock price through the information they distribute (Jegadeesh, Kim, Krische, & Lee, 2004; Loh & Stulz, 2011; Womack, 1996). As a result, 36 percent of managers believe analysts are the most important economic agents in shaping the stock price of their firm (Graham et al., 2005). The power analysts relish as information gatekeepers highlights the pressure managers face in maintaining a favorable image in the eyes of this group.
Greater analyst coverage positively affects firm publicity and reduces information asymmetry between investors and managers, ultimately intensifying the pressures managers face to satisfy analysts and investors. Analyst coverage refers to the number of analysts that evaluate a company’s performance and publish their opinions about the firm through research reports to investors. First, each analyst expands the number of investors who follow a firm. For example, Morgan Stanley clients might only pay attention to a firm that is covered by a Morgan Stanley analyst. Investors who lack such critical information are less likely to follow and invest in its stock. Some investors rely so much on analysts’ opinions that they generally only invest in stocks that are covered by analysts (O'Brien & Bhushan, 1990). Second, each analyst expands the media coverage a firm receives. Specifically, analysts are regularly quoted in the media, which can cause stock prices to respond within seconds following public pronouncements from analysts (Busse & Clifton Green, 2002). In sum, analysts draw greater attention to the companies they cover and allow more investors to trade stocks based on the companies’ short-term performance, so the pressures companies experience to satisfy analysts intensify with greater analyst coverage.

**The Impact of Analyst Coverage on Capital Investment Horizons**

The flexibility managers feel in selecting capital investments increases when they are less pressured to sustain high levels of performance. One way managers balance short- and long-term performance is through the selection of capital investments with varying horizons (Stein, 1989). In particular, managers can temporarily increase (decrease) their company’s financial performance by selecting capital investments with shorter (longer) horizons. Managers have flexibility over capital investments (Bromiley, 1986) because they can either continue operating longer with current equipment and facilities (i.e., delaying replacement), purchase new
equipment that is less substantial (i.e., make incremental investments), or forgo new capital purchases altogether. For example, an airline that is considering replacing its fleet could temporarily reduce its expenditures and increase its short-term performance by delaying or forgoing the purchase of new aircraft, leasing new aircraft, or refurbishing its existing aircraft.

Relieving earnings pressure from investors by reducing analyst coverage encourages managers to invest more in longer-term capital. The attention of the market decreases and investors become less responsive to the company’s immediate financial performance when analysts stop covering a firm. This release of pressure grants managers more freedom to accept larger expenditures in the short term and slower revenues that come from investment in longer-term capital. For example, Aggarwal and Hsu (2013) find that a public ownership structure, relative to a private structure, dampens firm innovation. Exploring analysts as the source of concern, He and Tian (2013) find that companies that lose coverage from analysts become more innovative by generating more patents and patents with greater impact. He and Tian (2013: 856) reason that, “analysts exert too much pressure on managers to meet short-term goals, impeding companies’ investment in long-term innovative projects.” I extend this theory: overall, reducing analyst coverage will decrease the market’s scrutiny of and responsiveness to information about a company’s short-term financial performance, providing companies with more leeway to invest in longer-term capital.

Hypothesis 1. An exogenous decrease in analyst coverage causes companies to invest more in capital with longer horizons.

Capital Investment Horizons and Industry Clockspeed

Speed of industry change affects the intensity of performance pressures. Fast clockspeed industries are characterized by rapid changes in products, processes, and competitors’ strategic actions, which makes building sustainable competitive advantages difficult (Fine, 1998).
Companies in these industries must keep up with rapidly changing products and process technologies (Nerkar & Roberts, 2004), as well as frequent strategic and organizational changes (Eisenhardt & Martin, 2000). In comparison, slow clockspeed industries permit companies to build competitive advantages by making slow and persistent investments in existing core competencies (Fine, 1998). Extant research shows that industry clockspeed is an important factor in assessing company management strategies (Nadkarni & Narayanan, 2007).

In comparison to companies in fast clockspeed industries, companies in slow clockspeed industries experience less pressure to maintain elevated short-term performance levels, and so are less responsive to changes in analyst coverage. First, companies are often well-established in slow moving industries and have high levels of efficiency that make building competitive advantages through capital investments difficult. Short-term capital often does not provide the efficiencies required to compete in these environments and overcome barriers to entry so managers feel less pressure to make these shorter-term investments. Second, in slow moving industries, premature investments can erode a company’s existing competitive advantages (Ferrier, 2001) and produce smaller returns overall. For instance, technological and competitive changes are rare in these industries, so smaller, more frequent investments can shorten the lifespan of existing capital. Third, slow moving industries may not always provide companies with short-term opportunities to exploit (Garg, Walters, & Priem, 2003). Instead, the slow moving environment encourages companies to focus on building stability and isolating mechanisms that protect their existing investments (Eisenhardt & Martin, 2000). As industry experts, analysts recognize the necessity of these longer-term investments and reflect their value in recommendations to investors. Accordingly, managers feel less pressure to make shorter-term capital investments despite changes in analyst coverage.
In contrast, the turbulent environment of a fast clockspeed industry magnifies the pressure companies experience to meet analysts’ expectations. In fast clockspeed industries, companies benefit from investing in both short- and long-term capital. On one hand, companies in these industries must invest in short-term capital to keep up with frequent changes in products and process technologies (Nerkar & Roberts, 2004). On the other hand, investments in long-term capital can produce sustainable competitive advantages that set companies apart in the long run (March, 1991). However, analysts will more easily recognize, and discount, companies that fail to keep up with ongoing environmental changes. Analysts cover similar companies in an industry category and apply similar metrics and heuristics for valuing the stocks within the category (Zuckerman, 1999). Direct peer comparisons make it clear when companies in fast clockspeed industries fail to make the short-term investments necessary to keep up with frequent changes in products and process technologies. Consequently, pressures to keep up with these ongoing environmental changes moderate the already present performance pressures so that:

_Hypothesis 2. The positive impact of a decrease in analyst coverage on companies’ investment horizons is greater in fast clockspeed industries than in slow clockspeed industries._

**Capital Investment Horizons and Corporate Governance**

How capital is allocated is central to the conflict between managers and shareholders (Jensen, 1986). The agency view purports that information asymmetry permits self-interested managers to use capital in ways that do not align with the interests of investors.

Corporate governance provisions mitigate the agency problem by forcing managers to invest capital in ways that align with investors’ interests. Specifically, strong corporate governance policies mitigate the agency problem by redistributing greater rights and responsibilities to investors, granting them power to make decisions in corporate affairs and reward or punish managers for any undesirable behaviours. Thus, building on the main reasoning...
in this paper, managers who fail to maximize a company’s short-term performance by investing in more costly long-term capital will be more severely punished in companies with strong corporate governance (i.e., when companies have no or few shareholder rights-decreasing provisions). The greater threat of punishment (in addition to stock sell-offs) creates an even stronger pressure on managers to receive favorable recommendations from analysts and protect themselves from short-term discipline by investors. In this sense, analysts act as the monitoring mechanism that initially enables investors to punish managers and corporate governance provisions further intensify the severity of this punishment. With stronger corporate governance, investors may not only sell their shares, but also vote to replace managers when they fail to maximize short-term performance. In contrast, in companies where investors can less easily penalize managers for making long-term investments, managers will feel less short-term performance pressures and invest in capital they believe will maximize value in the long run, regardless of changes in analyst coverage. Collectively, the effects of changes in analyst coverage on capital investment horizons will be stronger for companies with stronger corporate governance.

Hypothesis 3. The positive impact of a decrease in analyst coverage on companies’ investment horizons is greater for companies with stronger corporate governance than for companies with weaker corporate governance.

METHODS

Empirical Strategy and Context: Brokerage Closures and Brokerage Mergers

To overcome endogeneity concerns, I consider a series of unexpected shocks that cause analysts to stop covering companies. Specifically, over the past several decades, many investment brokerage houses have been forced to retire their coverage of companies due to two events: brokerage closures and brokerage mergers. Brokerage closures occur because of adverse
changes in business (e.g., lower investment banking activity). Each closure results in the letting go of its analysts so that companies that were previously covered by those analysts experience lower analyst coverage. For brokerage mergers, when two brokerages that cover the same firm merge, the new entity is left with two analysts covering that firm. To eliminate duplicate coverage, the new brokerage removes one analyst from the coverage universe so that companies that were previously covered by those analysts experience lower analyst coverage.

Both brokerage mergers and closures are methodologically desirable for two reasons. First, existing literature provides extensive support that the loss of analysts due to both forms of brokerage disappearances is exogenous to the policies and decisions of the companies they follow (Derrien & Kecskés, 2013; Hong & Kacperczyk, 2010; Kelly & Ljungqvist, 2012). That is, the coverage termination is not the choice of the analyst. Second, brokerage disappearances affect many companies from various industries over many years. These features of brokerage disappearances help alleviate the concern that time-series events that coincide with brokerage disappearances (e.g., economic recessions) drive the results. My empirical strategy uses these brokerage disappearances as exogenous treatments in a difference-in-differences methodology.

The difference-in-difference methodology I employ works by computing the difference between the average change in companies’ capital investment horizon from before the loss of an analyst to after the loss of an analyst for treated companies that experienced the shock (the treatment difference) and for control companies that did not (the control difference). This approach accounts for differences between the two groups as well as time series trends that could bias the results.
Data and Sample

I identify a sample of treated companies that experienced a decrease in analyst coverage due to a brokerage closure or brokerage merger between 1994 and 2008. I limit my sample to this 15-year timeframe because: a) the majority of brokerage disappearances identified in the past several decades fall within this window; b) I require five years of data before the first treatment and after the last treatment; and c) my supplementary analysis requires firm 10-K filings, which are electronically available through EDGAR beginning in 1994. To construct my sample, I identify all brokerage disappearances that occurred in the 1994-2008 time frame, compile a list of treated companies that experienced a reduction in analyst coverage from one of the brokerage disappearances, collect data on these companies, and match each treated firm to one control firm. I explain this process in more detail following the next section. My final sample consists of 2,462 U.S.-based companies.

Variables

Capital Investment Horizon

To capture the horizons of companies’ new capital investments each year (i.e., the expected life of only newly purchased capital), I follow Souder and Bromiley (2012) to compute Asset durability:

\[ \text{Asset durability}_{it} = \frac{\text{CAPEX}_{it}}{[\text{Depreciation expense}_{it} - (\text{Gross PP&E}_{it} - \text{CAPEX}_{it}) \times \text{Depreciation rate}_{it-1}]} \]

Gross PP&E represents the total value of all property, plant, and equipment a company owns without any accumulated depreciation. Capital expenditures (CAPEX) represents the funds a company uses each year for new additions to gross PP&E, excluding amounts arising from acquisitions (e.g., fixed assets of purchased companies). Depreciation rates and expenses are determined by managers who estimate the useful lives of capital assets (in years) under the oversight and approval of auditors (Keating & Zimmerman, 1999). In the U.S., the IRS sets
permitted useful life policies for different asset classes, which, in conjunction with auditors and accounting authorities, limit the ability of managers to manipulate depreciation expenses. Higher depreciation rates and expenses and lower capital expenditures decrease asset durability. A lower value for asset durability signals that a firm is making fewer investments in long-term capital. Similar to Souder and Bromiley (2012), I include only companies that apply straight-line depreciation, which is by far the most common policy, and restrict values of asset durability to one to 40 years.

*Industry Clockspeed*

Industry clockspeed refers to the rate of change in products, processes, and organizational actions. I use Fine’s (1998) classification to identify fast and slow clockspeed industries for two reasons. First, Fine’s classification is theoretically consistent with my definition of industry clockspeed. Second, as noted by Nadkarni and Narayanan (2007), recent research has established the convergent, discriminant, and nomological validity of Fine’s (1998) measures (Mendelson & Pillai, 1999). Consequently, recent studies have adopted this classification as a measure of industry clockspeed. Fine classifies industries as having fast- or slow-clockspeed based on nine items along three dimensions: product clockspeed, process clockspeed, and organizational clockspeed. His measure captures the aggregate actions of all incumbent companies in an industry rather than the actions of any single firm.

In addition to Fine’s (1998) classification, I also require that an industry has been classified as fast or slow by other research. In terms of a fast clockspeed industry, Brown and Eisenhardt (1997: 2) remark that the computer industry is characterized by an “extraordinary rate

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7 Fine’s (1998) three categories include: *product clockspeed* (changes in product models, changes in design of dominant product model, and changes in optional product features); *Process clockspeed* (change in dominant processes, change in organizational paradigms i.e. from using lean production to using mass production, and purchases of new equipment and/or production plants); *Organizational clockspeed* (frequency of CEO transitions, frequency of ownership changes, and frequency of organizational restructurings).
of change” that has gone on for years. In terms of a slow clockspeed industry, Slawinski and Bansal (2015) comment that the oil and gas industry is marked predominantly by slow changes and long-term investments that can reach upwards of 50 years. Finally, the National Academy of Engineering (1992) classifies the computer industry and the oil and gas industry, respectively, as having fast- and slow-clockspeed.

Following this research, I classify companies that have a two-digit SIC code of 35 (“Computer Equipment”) as incumbent companies in a fast clockspeed industry, and companies that have a two-digit SIC code of 13 (“Oil and Gas”) as incumbent companies in a slow clockspeed industry. In the computer equipment industry, new product technologies are typically introduced at least every 6 months, process technologies change every 2-4 years, and the sector tends to undergo a period of major organizational restructuring every 2-4 years. Respectively, in the oil and gas industry, the corresponding speeds are 10-20 years, 20–40 years, and 20–40 years (Fine, 1998).

Corporate Governance

I measure corporate governance using data from the Governance Legacy dataset provided by ISS (formerly RiskMetrics and IRRC) from 1990-2006. The methodology changed in 2007 and the data is provided every three years. I compute G-Index as the number of shareholder rights-decreasing provisions a firm has in the most recent year the data is available (Gompers, Ishii, & Metrick, 2003). The measure ranges from 0 (strong corporate governance indicated by zero shareholder-rights decreasing provisions) to 24 (weak corporate governance).

Constructing the Treatment and Control Groups

To identify the treated companies (i.e., companies that experienced a single drop in analyst coverage due to a brokerage disappearance) I begin with tables provided by Hong and
Kacperczyk (2010) and Kelly and Ljungqvist (2012) that outline brokerage closures and mergers over the past several decades. I complement these two lists of brokerage disappearances in two ways. First, I search for information on additional brokerage disappearances using press releases, Factiva, news archives, and other internet sources. As well, I search for information on additional brokerage mergers using Thomson’s SDC Platinum database and the Yearbooks published by the Securities Industry Association. I identify 52 brokerage disappearances in total.

Next, I use the Institutional Brokers' Estimate System (I/B/E/S)\(^8\) Broker Translation File (BRAN) and the I/B/E/S Detail History File to identify the analysts working for the closed and merged brokerages and the companies covered by these analysts prior to the brokerage disappearance. I download all analyst estimates for every firm in I/B/E/S for the year before and after each brokerage disappearance date and manually check to see whether companies were covered by an analyst working for one of the brokerages that disappears. Similar to other studies, I record that an analyst covers a firm if there is at least one earnings estimate in I/B/E/S by the analyst for that firm during the twelve months before the brokerage disappearance date, and I record that an analyst disappears if there is no earnings estimate by the analyst in I/B/E/S during the twelve months after the brokerage disappearance date.

I take several steps to ensure that the event of losing a covering analyst is due to a brokerage disappearance. First, I check to make sure the estimate is not stopped in I/B/E/S before the brokerage disappearance date.\(^9\) Next, for brokerage closures and similar to Derrien and Kecskés (2013), I keep only the companies for which the analyst disappears from I/B/E/S during the year after the brokerage disappearance date to ensure that analysts who relocate to other

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\(^8\) I/B/E/S provides historical data on analyst coverage, analyst earnings estimates, and analyst recommendations.  
\(^9\) A faster way to compile these data involves using the I/B/E/S stop file, which identifies companies that lost analyst coverage and the date that coverage was stopped. However, analysts are not required to inform I/B/E/S when coverage is dropped so manually searching analysts’ filings provides a more accurate measure of analyst coverage.
brokerages do not continue coverage of those companies at those brokerages. For brokerage mergers, I record companies that were covered by both the target and acquirer brokerage prior to the merger and keep only the companies that lose one covering analyst following the merger. My treatment group is comprised of the companies that lose an analyst due to either form of brokerage disappearance.

I retain publicly listed U.S. companies that are not financials (two-digit SIC code 60-69) or utilities (two-digit SIC code 49), which is standard practice, because companies in these industries are highly idiosyncratic. For example, a high degree of leverage in a financial firm does not necessarily indicate financial distress, which is the case for non-financial companies (Fama & French, 1992). I require that companies use straight-line depreciation, have the necessary data to calculate asset durability for the years preceding and following the brokerage disappearance, and have data for each matching variable in the year preceding the brokerage disappearance. In total, 1,231 treated companies are included in the sample and each is matched to one control firm.

**Matching Process for Control Group**

A valid control group will satisfy two conditions. First, the treatment and control companies will share similarities across multiple dimensions before the treatment occurs. This mitigates the concern that other firm characteristics drive the results. Second, there should not be a difference in the trend of asset durability between treated and control companies before the treatment occurs. I now explain how I construct a sample that satisfies both of these conditions.

I match treated companies with control companies following a similar process as Flammer (2014). My potential control group constitutes all companies in Compustat over the sample period that are not affected by a brokerage disappearance during the sample window.
(about 195,000 firm-year observations). I use a nearest neighbour Mahalanobis Distance Matching procedure on the basis of industry code and six firm-level characteristics, five of which are expected to affect asset durability as well as asset durability itself. Matching is done on the year prior to the treatment.

Beginning the matching process, I require matched companies to have the same two-digit SIC code as their treated counterpart. Companies were matched on all firm-level characteristics simultaneously (i.e., the matching process finds the optimal matched pair by simultaneously calculating the minimal distance between each treated firm and all control firms on all five matching characteristics, rather than matching on one characteristic first, followed by the second, and so forth). I match on return-on-assets (ROA) to reduce the concern that differences in companies’ asset durability are the result of differences in profitability. Less profitable companies, for instance, may not make long horizon investments because they do not have the necessary resources (Souder & Shaver, 2010). A company’s size may affect its asset durability. For example, larger companies may employ more technical capital budgeting tools that cause them to favor shorter- or longer-term capital. Companies with greater access to capital, in the form of financial slack (cash holding) or debt capacity (financial leverage), may find it easier to invest in longer-term capital, so matching on these characteristics lessens the possibility that these differences drive my findings. Matching on asset turnover mitigates the concern that operating speed affects companies’ capital investments. I also match on asset durability to ensure the treated and control companies have similar capital investment horizons prior to the reduction in analyst coverage.

To find the most similar control firm for each treated firm, I calculate the Mahalanobis distance between each treated firm with all companies in the control pool using the matching
characteristics. I utilize a one-to-one matching scheme without replacement and select each pair with the lowest value, forming an evenly split sample of 2,462 companies (1,231 in each group).

Next I test the effectiveness of the matching process and provide the results in Table 9. First, the descriptive statistics in Panel A reveal that the matching process performed as expected and the treated and control companies are very similar in terms of the six matching characteristics. Results from equality of means tests reveal that any differences between the two groups are not statistically significant (p>0.05). Second, results in Panel B show that there is no statistically significant difference in the trend of asset durability between the treated and control companies in the three year period preceding a brokerage disappearance (p=0.788). Having conducted a tight matching process, I can now proceed with confidence that the results will be attributable to the exogenous reduction in analyst coverage and not some other factor or trend.

**Estimation Model**

I observe the change in asset durability over four-, six-, and eight-year windows because capital investments are likely to be somewhat sticky and require some time to adjust. Further, having various observation windows allows me to more fully observe how asset durability evolves over time following reductions in analyst coverage. To do this, I estimate the following regression:

\[
\Delta \text{Asset durability}_{it} = \alpha_i + \alpha_t + \beta \times \text{Brokerage disappearance}_{it} + \gamma X_{it} + \epsilon_{it},
\]

where \(\Delta \text{Asset durability}_{it}\) is the dependent variable and equals the difference in each company’s average \(\text{Asset durability}\) following the brokerage disappearance minus the company’s average
### Table 9: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs.</th>
<th>Mean</th>
<th>25th percentile</th>
<th>50th percentile</th>
<th>75th percentile</th>
<th>p-value (equality of means)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Treated</td>
<td>Control</td>
<td>Treated</td>
<td>Control</td>
<td>Treated</td>
</tr>
<tr>
<td><strong>Panel A: Matching characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset durability</td>
<td>2,462</td>
<td>8.961</td>
<td>9.404</td>
<td>2.800</td>
<td>2.761</td>
<td>6.560</td>
</tr>
<tr>
<td>Log(assets)</td>
<td>2,462</td>
<td>3.731</td>
<td>3.730</td>
<td>3.193</td>
<td>3.206</td>
<td>3.695</td>
</tr>
<tr>
<td>ROA</td>
<td>2,462</td>
<td>0.082</td>
<td>0.081</td>
<td>0.042</td>
<td>0.062</td>
<td>0.111</td>
</tr>
<tr>
<td>Cash</td>
<td>2,462</td>
<td>0.192</td>
<td>0.195</td>
<td>0.006</td>
<td>0.021</td>
<td>0.092</td>
</tr>
<tr>
<td>Leverage</td>
<td>2,462</td>
<td>0.177</td>
<td>0.190</td>
<td>0.002</td>
<td>0.007</td>
<td>0.127</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>2,462</td>
<td>0.991</td>
<td>1.025</td>
<td>0.479</td>
<td>0.516</td>
<td>0.833</td>
</tr>
</tbody>
</table>

**Panel B: Parallel trend assumption**

| ΔAsset durability | 2,462| -1.346 | -1.208 | - | - | - | - | - | - | 0.788 |

**Table notes:** All matching is done in the year immediately preceding the brokerage disappearance (t-1). The parallel trend assumption is tested by comparing the change in asset durability between t-3 and t-1 for the treatment and control group. Figure 6 provides further support for this assumption.
Asset durability preceding the brokerage disappearance,\(^{10}\) \(\alpha_i\) are firm fixed effects, \(\alpha_t\) are year fixed effects, Brokerage disappearance\(_i\) is a dummy variable that equals one if the observation corresponds to a treated firm in the years after the brokerage disappearance and zero otherwise (i.e., zero for treated companies before the brokerage disappearance and for control companies in all years during the sample window), the vector \(X\) controls for the matching characteristics used previously save asset durability, and \(\epsilon\) is the error term. I am interested in the coefficient estimate on Brokerage disappearance, which captures the effect of losing one analyst on ΔAsset durability.

**RESULTS**

I first validate the relevance of the natural experiment, namely that treated companies lose analyst coverage relative to control companies following a brokerage disappearance. I compute Analyst coverage as the total number of analysts covering a firm in year \(i\). I replace ΔAsset durability with ΔAnalyst coverage in equation (1) and observe the change in analyst coverage between the year preceding the brokerage disappearance (\(t-1\)) and the year after (\(t+1\)). Results from this analysis show that the coefficient on ΔAnalyst coverage is -1.02 and significant at the 1 percent level, which indicates that the experiment is setup properly (treated companies lost one analyst).

**Main Results**

Columns 1 through 6 in Table 10 report the main results of the difference-in-differences estimations. Two models are reported for each of the three observation windows (\(t+2\), \(t+3\), and \(t+4\)). In each case, the first model includes firm and year effects and the second model adds the

---

\(^{10}\) I use the last full calendar year preceding the disappearance to calculate all variables in year \(t-1\) and the first full calendar year following the disappearance to calculate all variables in year \(t+1\). For example, for a treated firm affected by a brokerage disappearance on March 11, 2002, the variables for \(t-1\) are set to the year ending December 31, 2001 and the variables for \(t+1\) are set to the year ending December 31, 2003. Hence, the actual treatment year when the analyst disappears (\(t=0\)) is dropped from the analysis, allowing for a cleaner difference-in-differences test.
five control variables. Because the matching process controls for potentially confounding variables in the design phase, it is not necessary to include these control variables in the regression models. Indeed, in each case, the results are extremely similar regardless of whether control variables are included. In each model, the coefficient of interest is on the brokerage disappearance dummy, which is expected to be positive and statistically significant.

The coefficient on the brokerage disappearance dummy is 1.12 (1.14 with no controls), 1.42, and 1.39, respectively, for a four-, six- and, eight-year observation window and statistically significant in all cases. For the four-year observation window, the results reveal that the average asset durability prior to a brokerage disappearance for the entire sample is 9.18 years, these results imply roughly

Table 10: The Effect of Lower Analyst Coverage on Asset Durability

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokers disappearance</td>
<td>1.142*</td>
<td>1.120*</td>
<td>1.424***</td>
<td>1.418***</td>
<td>1.391***</td>
<td>1.392***</td>
</tr>
<tr>
<td>(t+2)</td>
<td>(0.485)</td>
<td>(0.482)</td>
<td>(0.394)</td>
<td>(0.392)</td>
<td>(0.351)</td>
<td>(0.350)</td>
</tr>
<tr>
<td>Controls</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>8,344</td>
<td>8,344</td>
<td>11,886</td>
<td>11,886</td>
<td>14,952</td>
<td>14,952</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.498</td>
<td>0.501</td>
<td>0.422</td>
<td>0.425</td>
<td>0.379</td>
<td>0.384</td>
</tr>
</tbody>
</table>

Table notes: The matching process ensures that the changes in the dependent variable are caused by changes in analyst coverage, eliminating the need to control for cross-sectional effects (i.e., include control variables) in the analysis. Nevertheless, I also report models with the control variables included, but exclude the coefficient estimates and standard errors for brevity. Standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05

capital investment horizon of treated companies is just over 13 months longer than it would have been had those companies not lost an analyst. This figure increases to roughly 17 months for the six-year observation window and levels off after that. Given that the average asset durability prior to a brokerage disappearance for the entire sample is 9.18 years, these results imply roughly

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a 12 to 16 percent increase in companies’ capital investment horizons following the loss of an analyst.

Figure 6 provides further insight into the longer-term effects of lower analyst coverage on asset durability. The downward trend in asset durability prior to a brokerage disappearance (t<0) is interesting but not overly surprising since -- as reflected in the opening of this paper -- regulators, practitioners, and academics have been observing companies making shorter-term capital investments for some time. My results confirm this anecdotal evidence. The parallel slopes between the treatment and control group in the five years preceding a brokerage disappearance lends further support that the results are not driven by different trends in asset durability. Most telling, and in line with the results reported above, the two curves diverge following the brokerage disappearance. Specifically, the downward trend in asset durability continues for the control group, whereas it reverses and begins an upward trend for the treatment group before leveling off after the three year mark. The upward trend that begins only for the treated group in the year immediately following the loss of an analyst demonstrates that the significant results are not driven solely by changes in asset durability in the control group. Statistically and graphically, Hypothesis 1 is supported.

Cross Sectional Analysis: What Companies Respond More Strongly?

I now test the remaining hypotheses using a triple differencing approach: I compute the mean difference-in-differences for several sub-groups of companies using a six-year (t-3 to t+3) observation window and compare the results between these groups. More specifically, I run separate analyses for companies in fast and slow clockspeed industries and compare the Brokerage disappearance coefficient to test Hypothesis 2. For Hypothesis 3, I split companies into two groups based on the median value of G-Index in the year preceding the treatment (t-1). I
use this stratified analysis approach, which is common for difference-in-differences models, instead of including a second interaction term in the regression models to make interpretation of the results easier. Results for these additional hypotheses are presented in Table 11.

Hypothesis 2 stated that the positive impact of a decrease in analyst coverage on capital investment horizons is greater for companies in fast-moving industries than in slow-moving industries. Referencing Column 1 of Table 11, the coefficient on the Brokerage disappearance term for the computer equipment industry is 3.09 and significant at the 5 percent level. In contrast, the equivalent coefficient is not statistically significant for the oil and gas industry. Taken together, these results imply that analyst pressures affect capital investment horizons most severely in fast-moving industries and have little or no effect in slow-moving industries. These results hold with other fast and slow clockspeed industries, which I explain with the other robustness checks.
Table 11: What Companies Respond More Strongly to Lower Analyst Coverage?

<table>
<thead>
<tr>
<th>Variable</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brokerage disappearance</td>
<td>3.086*</td>
<td>1.199</td>
<td>1.844**</td>
<td>1.552</td>
</tr>
<tr>
<td>Controls</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm FE</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>788</td>
<td>521</td>
<td>3,560</td>
<td>2,696</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.386</td>
<td>0.365</td>
<td>0.432</td>
<td>0.402</td>
</tr>
</tbody>
</table>

Table notes: All specifications use a six-year (t-3 to t+3) observation window. The number of observations differs between the bottom and top groups because companies are divided based on the median value of the conditioning variable (G-Index) in the year preceding the treatment (t-1) and some companies are missing values for other years in the observation window. Standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05.

Hypothesis 3 predicted that companies with stronger corporate governance would be more strongly affected by reductions in analyst coverage than companies with weaker corporate governance. Column 3 shows that the average capital investment horizon of treated companies with strong corporate governance (G-Index below the median) is 1.84 years higher than it would have been had those companies not lost an analyst, and this change is statistically significant at the 1 percent level. In contrast, any difference in the capital investment horizon of treated companies with weak corporate governance is not statistically significant. These results support the prediction that managers are more likely to respond to reductions in analyst pressure when they are more likely to be disciplined by investors for investing in incremental capital.
Supplementary Analysis: Testing Time Horizon as a Mechanism

I have argued and showed that the pressures analysts exert on companies to perform in the short term cause companies to invest in shorter-term capital. Here, I aim to provide empirical evidence for the mechanism that underlies this relationship.

The same analyst pressures that cause companies to invest in shorter-term capital will also shorten companies’ time horizons. Time horizon, or temporal depth, refers to “the temporal distances into the past and future that individuals and collectivities typically consider when contemplating events that have happened, may have happened, or may happen” (Bluedorn, 2002: 114). Managers will focus their attention more on matters in the near future when they experience more pressures from analyst coverage. In doing so, they are more likely to ignore the distant future. Thus, a decrease in analyst coverage will lengthen a company’s time horizon.

To test this prediction, I conduct textual analysis of the Management Discussion and Analysis (MD&A) section of companies’ 10-K filings (i.e., annual reports). The MD&A section is where managers discuss the company’s performance in ways that are designed to bring the market’s expectations in line with the management’s superior information (Kothari, Li, & Short, 2009). As such, it is an appropriate source to analyze time horizons, and has been used extensively in previous textual analysis research (Loughran & McDonald, 2011). I collect all available 10-K filings from the SEC website for treated and control companies in my sample for the five years preceding and following the treatment. Due to missing filings, I collect 10,515 10-Ks in total. Next, I separate out the MD&A section of each 10-K filing. Since not all 10-K filings had MD&A sections, I am left with 4,005 documents to analyze.

I search the MD&A section of each 10-K filing for keywords pertaining to time horizons. I use the same dictionary developed in Essay #1 to measure of time horizon. See Appendix A for
a complete list of keywords. I use the software program Python to assess the number of occurrences (“bag of words”) of each keyword in the MD&A sections of the 10-K filings. I use the output from Python to calculate Time horizon for each firm-year as:

\[
Time\ horizon = \frac{\text{# of long time horizon words}}{\text{# of short time horizon words} + \text{# of long time horizon words}}
\]

Using this new variable, I modify equation (1) with a six-year observation window by interchanging ∆Asset durability as the dependent variable with ∆Time horizon.

Table 12 reports the results. Model 11 includes firm and year effects and Model 12 adds the five control variables. The coefficient on the brokerage disappearance dummy is highly statistically significant and ranges from 0.087 to 0.09, implying that companies use roughly 9 percent more words pertaining to the long term after losing an analyst. Figure 7 illustrates the effect of losing an analyst on firm time horizons by plotting the time horizon of treated (black solid line) and control companies (gray dashed line) in the five year period preceding and following a brokerage disappearance. As the graph shows, companies begin to extend their attention towards the distant future almost immediately following the loss of an analyst, and this effect remains fairly steady in the following years. In conjunction with Figure 7, these results imply that cognitively companies adapt fairly quickly to reductions in analyst coverage, but it takes more time for these adjustments to become apparent in their physical operations (i.e., capital investments).

Robustness Checks

I conduct several checks to ensure that my findings are robust. First, I find that my results are similar if I consider brokerage closures and mergers separately. Second, in my original models I account for serial correlation of the error term by clustering standard errors at the firm
Table 12: Results from Supplementary Analysis

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 11</th>
<th>Model 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ Time horizon</td>
<td>0.090**</td>
<td>0.087**</td>
</tr>
<tr>
<td></td>
<td>(0.036)</td>
<td>(0.036)</td>
</tr>
<tr>
<td>Brokerage disappearance</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Controls</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Year FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Firm FE</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Observations</td>
<td>4,005</td>
<td>4,005</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.59</td>
<td>0.59</td>
</tr>
</tbody>
</table>

**Table notes:** Standard errors clustered at the firm level are reported in parentheses. *** p<0.001; ** p < 0.01; * p < 0.05

Figure 7: Change in Time Horizon in Treated and Control Companies

level. However, I obtain similar results if instead I cluster standard errors at the industry level, the year level, or if I use heteroskedasticity-robust standard errors. I also find no material differences in the results when industry and brokerage fixed effects are included in the models.
Third, I rerun each model using a ten-year window and find the results do not substantially change; however, I do not find significant results using a two-year window, which, as noted earlier, is expected given that companies’ capital investments take time to adjust. Fourth, following Souder and Bromiley (2012), I rerun the models for manufacturing companies only (two-digit SIC code: 20-39) and find the results hold. Fifth, it is likely that a company’s total analyst coverage changes over the observation window for reasons not related to brokerage disappearances (e.g., a new analyst may decide to initiate coverage). I rerun my analyses controlling for changes in analyst coverage and find the results do not change in any meaningful way.

I also use additional industries to test Hypothesis 2. In particular, the NAE categorizes retail (two-digit SIC: 52-60) as a fast clockspeed industry and communications (two-digit SIC: 48) as a slow clockspeed industry. Interchanging companies from these industries in the estimation model, I find further support for Hypothesis 2: the brokerage disappearance coefficient for retail companies is 2.99 and significant at the 5 percent level and not significant for communications companies.

**DISCUSSION**

This paper examined whether changes in analyst coverage affect the horizons of companies’ capital investments. Extending existing theory on financial markets and corporate decision making, I argued that lower analyst coverage relieves pressure on managers to perform in the short term, which encourages them to invest more in capital with longer horizons. I argued that such pressure is created by investors, supported by the nature of equity markets, and facilitated by analysts who encourage and enable more accurate short-term trading. To empirically test this prediction, I exploited 52 quasi-natural experiments provided by brokerage
closures and mergers that occurred between 1994 and 2008. Using a matched difference-in-differences empirical strategy, I found that companies affected by brokerage disappearances significantly lengthened the horizons of their capital investments following the loss of an analyst. I also found that this effect was stronger for companies in fast-moving industries and for companies with stronger corporate governance. Lastly, I conducted textual analysis of the MD&A sections of companies’ 10-K filings and found evidence that time horizons mediated the relationship between analyst coverage and investment horizons. These results were robust under numerous conditions and are consistent with the view that analyst coverage encourages corporate short-termism.

This study contributes to theory and research at the intersection of strategy, finance, and time horizons. First, the findings contribute to work in management and finance that examines the effects of analyst coverage on organizational outcomes (Benner, 2010; Benner & Ranganathan, 2012; Derrien & Kecskés, 2013; Gentry & Shen, 2013; He & Tian, 2013). Previous research has found that analysts are an important source of institutional pressure that shapes organizations’ behaviours, including their R&D spending (Gentry & Shen, 2013), innovativeness (He & Tian, 2013), and adoption of new technologies (Benner & Ranganathan, 2012, 2013). Throughout this literature, time is not applied as a theoretical mechanism to explain the relationship between analyst coverage and these outcomes. Arguably, however, investing in new capital, technologies, and innovation all require managers to balance short- and long-term outcomes. My findings help connect these studies through a unifying theory that analysts affect the horizons (temporality) of companies’ strategies and actions.

My results also shed light on the unclear relationship between pressures arising from financial markets and corporate short-termism (Laverty, 1996; Marginson & McAulay, 2008).
The reasons why managers make short-term decisions has remained “controversial” (Marginson & McAulay, 2008: 275) and filled with “much debate” (Kochhar & David, 1996: 73). Some researchers argue financial markets discourage short-term investments, whereas others argue that markets force managers to be short-termist (Bushee, 1998; David, Hitt, & Gimeno, 2001; Porter, 1992). Reflected in the popular press, successful money manager and CEO of Blackrock Inc., Larry Fink, directs managers to “start focusing on what is right in the long run,” (Erman, 2014), whereas Paul Polman, CEO of Unilever, argues that many investors “are not people who are there in the long-term interests of the company” (Ahmed, 2011). Using a difference-in-differences approach, I was able to show that analyst coverage encourages corporate short-termism by supporting the short-term trading behaviours of investors. Under lower analyst coverage, information asymmetry between managers and markets increases, making those trades more difficult and less attractive to investors.

The results from testing industry differences contribute to literature on industry clockspeed and strategic action (Bourgeois III & Eisenhardt, 1988; Brown & Eisenhardt, 1997; D'Aveni, 1994; Eisenhardt, 1989). Previous studies suggest that companies’ strategic actions in fast clockspeed industries differ from those in slow clockspeed industries, but a limited number of studies explore or explain these differences (Nadkarni & Narayanan, 2007; Souza, Bayus, & Wagner, 2004). In particular, some research suggests that companies in fast clockspeed industries benefit from having strategic flexibility (Eisenhardt, 1989; Nadkarni & Narayanan, 2007), but the potential consequences of this flexibility remain underexplored. Souza et al. (2004) observe one consequence, finding that companies in fast-paced industries benefit by frequently introducing new, incrementally improved products, but, for reasons that have not yet been fully uncovered, profits in these industries are lower than those in slow-paced industries.
My findings suggest that incremental investments and lower profitability may result from the more severe analyst pressures that companies in fast clockspeed industries experience.

Next, the findings in this paper also have more general implications for firm value creation. Though I do not examine financial performance directly, my findings imply that companies could be failing to maximize value by making overly short-term oriented investments in the face of greater analyst coverage. Souder et al. (2015) recently found that most companies are investing too much in short-term capital in ways that lower their financial performance. My study provides one potential reason why this bias towards short-term capital, despite its negative effects on firm value, exists and persists.

Lastly, the supplementary textual analysis I conducted contributes to the cognition literature on temporal perceptions and organizational outcomes (Ancona, Okhuysen, & Perlow, 2001; Bluedorn, 2002). Previous organizational theorists have suggested that external pressures evoke temporal biases within managers, affecting the way companies allocate resources (Amit & Schoemaker, 1993). Yet, temporal processes are difficult to observe so little is understood about how perceptions of time manifest inside organizations (Mosakowski & Earley, 2000). To overcome measurement hurdles, I applied textual analysis of the MD&A sections of 10-K filings to show how pressures caused by analyst coverage redirects companies’ attention towards the present, shortening their time horizons and leading them to favor shorter-term investments.

My findings have several managerial implications. First, the fact that companies respond to analyst coverage by decreasing their investments in long horizon capital suggests that analyst coverage could hinder the competitiveness of companies. Hence, in a world where analysts are highly revered, managers should reconsider whether attracting greater analyst coverage is truly advantageous. Second, my findings suggest that investment horizons are more malleable to
external pressures than often thought. Accordingly, managers could benefit from integrating strict policies and decision metrics into their existing capital budgeting processes to increase the likelihood that investments with optimal horizons are selected, regardless of earnings pressures.

Finally, finding that market pressures impede long-term investments has potentially important policy implications. In the past several decades arguments have surfaced that the rising propensity of corporate managers to neglect long-term investments is crippling the competitiveness of economies and the general welfare of society (Hayes & Abernathy, 1980; Porter, 1992). Capital investments, employee development, and CSR are just a few areas that benefit companies and society, but require long-term thinking and investment horizons. At the opening of this paper, I reflected on Jeff Bezos belief that, “If we think long term, we can accomplish things that we couldn’t otherwise accomplish.” If Bezos is right, and focusing on the long term is indeed beneficial, then considering the real effects of financial markets on corporate strategy demands further attention.
REFERENCES


CHAPTER FOUR – BOUNCING BACK: ORGANIZATIONAL RESILIENCE IN THE CONTEXT OF THE 2008 GLOBAL FINANCIAL CRISIS

Abstract

Prior research has tended to blur the immediate benefits of corporate social responsibility or sustainability with those that are more latent and long term. Most researchers assume that the benefits are associated with financial performance or risk management and ignore the latent benefits of resilience. I address this oversight, by positing that social and environmental practices (SEPs) build organizational resilience, which helps companies recover from global or general crises. I further argue that strategic SEPs are more strongly associated with organizational resilience than tactical SEPs. However, measuring the outcomes of latent variables with long-term benefits is challenging. I overcome this challenge by investigating how SEPs affected the severity of the shock on companies and the time to recovery of companies in the five years following the onset of the 2008 global financial crisis. I test my theory with 963 U.S.-based companies and find evidence that suggests that strategic, not tactical, SEPs contribute to organizational resilience.

Keywords: organizational resilience; social and environmental practices; strategic and tactical practices; global financial crisis; survival analysis
Corporate social responsibility (CSR) and sustainability researchers argue that social and environmental practices (SEPs) improve financial performance and reduce firm-specific risks (e.g., Bansal & Clelland, 2004; Margolis, Elfenbein, & Walsh, 2007). CSR leads to these positive outcomes because it builds stronger stakeholder relationships, improves reputations, and stimulates breakthrough innovations (e.g., Flammer & Kacperczyk, 2015; Godfrey, Merrill, & Hansen, 2009; Waddock & Graves, 1997). Researchers assume the impact of CSR on firm performance is direct, causal, and relatively quick.

This causal logic, however, may inadvertently lead to a pragmatic and instrumental orientation among companies. Companies may engage in SEPs for the perceived profits, which may lead them to superficially garner favor with stakeholders, rather than strategically and seriously address social and environmental issues. Bansal and Clelland (2004) found that companies can mitigate firm-specific risks as a result of environmental crises by merely managing impressions, rather than making substantive changes. Similarly, Muller and Kräussl (2011) found that, following disasters, companies with the worst reputations were the most likely to make charitable donations, primarily in an effort to repair their reputational damage. However, SEPs, particularly those with a strategic orientation, may offer not just direct and immediate benefits but also long-term, latent benefits. These latter benefits can build organizational resilience, which is the capacity of organizations to recover from and adapt to environmental changes without changing their core functions (Markman & Venzin, 2014; Ortiz-de-Mandojana & Bansal, forthcoming).

In this paper, I argue that some forms of SEPs have a short-term, tactical orientation, whereas others have a more strategic orientation and take longer to implement. Strategic SEPs (SSEPs) stem from embedded routines and processes, whereas tactical SEPs (TSEPs) are more
limited and temporary. Based on these differences, I predict that SSEPs will contribute more to organizational resilience, and that organizations that pursue SSEPs will experience less severe losses and recover faster from crises than those relying on TSEPs. I tested these hypotheses using a sample of 963 U.S.-based, publicly listed companies and found good support for my hypotheses.

My research responds to Aguilera and colleagues’ (2007) call to unpack the theoretical differences between different types of socially responsible practices and the challenge by Godfrey, Merrill, and Hansen (2009: 442) to investigate “how the distinction between [CSR] activities play a role in an economy-wide crisis.” By discriminating between strategic and tactical SEPs, I provide incentives for organizations to engage in SEPs beyond the pragmatic, instrumental, and immediate benefits related to financial performance and risk management that are often the focus of research in this domain. My research points to the value of SSEPs for benefits that may not be immediate or measurable, and helps relieve the short-term, causal orientation of much research on CSR and sustainability.

This research also responds to Van Der Vegt and colleagues’ (2015: 971) call “to take up the ‘grand challenge’ of studying the role and functioning of organizations during adverse natural or social events” by studying resilience. They encourage scholars to shift the conversation from definable risks to capabilities and capacities that help companies cope with adverse, unpredictable, and general disturbances. I take up this challenge by deepening the small, but growing research on organizational resilience, and by operationalizing two measures that help detect general and latent resilience capacity—the severity of loss and the time to recovery.
ORGANIZATIONAL RESILIENCE AND RECOVERY FROM CRISSES

Resilience is a concept that transcends disciplinary boundaries. It has been applied in many disciplines, including psychology (the ability of people to recuperate from the effects of environmental stressors; e.g., Rutter, 1987), economics (the ability of markets to recover from a liquidity shock; e.g., Kyle, 1985), engineering (the ability of structures to withstand significant environmental perturbations, such as earthquakes, floods, or accidents; e.g., Hollnagel, Woods, & Leveson, 2007), and socioecology (the response of ecosystems, organizations and societies to respond to changes in the natural environment, such as the accumulation of pollutants in water ways and budworms in forests; e.g., Holling, 2001; Walker, Holling, Carpenter, & Kinzig, 2004). In all cases, resilience refers to the capacity and systems conditions that enable individuals, structures, organizations, and ecosystems to absorb and/or respond to environmental disturbances.

Although the concept of resilience has been applied broadly across disciplines, it has not (yet) gained wide traction in management studies. Linnenluecke’s (2015) systematic review of the business and management resilience literature uncovered 339 pertinent journal articles, books, and book chapters from 1977 to 2014. By 2014, only 38 of these sources had garnered five or more citations from the other articles in the dataset and 116 were not cited at all in the Web of Science. Linnenluecke’s review suggests that a cohesive core has not yet been built around the concept of resilience in business and management; however, research in other disciplines offers a good foundation on which to build management theory.

Much of the management research in resilience is directed to the individual level of analysis, drawing from positive psychology. This body of work often contributes to organizational scholarship by identifying the antecedents and outcomes of employees’ resilience.
For example, researchers have found that employees’ resilience contributed to organizational commitment, work happiness, job satisfaction (Youssef & Luthans, 2007), and commitment to change (Shin, Taylor, & Seo, 2012).

There is relatively little research on resilience at the organizational level of analysis (Linnenluecke, 2015). Organizational resilience is defined as “the incremental capacity of an organization to anticipate and adjust to the environment” (Ortiz-de-Mandojana & Bansal, forthcoming: 11). Resilient organizations are able to preserve their core functions and recover from adversity (Sutcliffe & Vogus, 2003), which helps them survive general environmental disturbances better than their less resilient peers (Gunderson & Pritchard, 2002).

Organizational-level studies typically identify the attributes that build resilience capacity in organizations and help organizations survive exogenous disturbances, such as financial crises, social movements, natural disasters, or supply chain disruptions (e.g., Gittell, Cameron, Lim, & Rivas, 2006; Linnenluecke, Griffiths, & Winn, 2012; Markman & Venzin, 2014; Wicker, Filo, & Cuskelley, 2013). For example, Gittell et al. (2006) found that Southwest Airlines recovered more quickly than its competitors after 9/11, which they attributed to the airline’s long-term employee relationships or relational reserves. They argued that Southwest Airline’s relational reserves helped to build financial reserves over time, minimizing the need for layoffs during a crisis. Other researchers have identified organizational processes that contribute to organizational resilience, such as SEPs (Ortiz-de-Mandojana & Bansal, forthcoming), good governance and balanced growth (Carmeli & Markman, 2011), and learning from prior disasters (Crichton, Ramsay, & Kelly, 2009).

Organizational resilience should not to be confused with risk management. Both resilience and risk management acknowledge that environmental disturbances inflicts stress on
organizations, but there are several differences between how each approach handles these stressors.

A resilience approach takes a systems perspective (Van Der Vegt et al., 2015), whereby the environment comprises numerous interconnected elements that form a limited set of configurations. A resilience perspective assumes that environments and organizations can change rapidly and radically, as the systems shift to new configurations (Plowman et al., 2007). The shifts are generalized, uncertain, stochastic, and unpredictable.

A risk management perspective makes no such assumptions about systems disruptions and views each risk in isolation. Risk hazards can be modeled and the limits of their impact estimated. Therefore, organizations can manage risks by buying insurance, building financial buffers, or creating slack in organizational processes. While creating buffers and slack are also important in building resilience, resilience is a more general organizational capability that helps companies respond and adapt to the environment, not merely buffer them from the impacts. In fact, Markman and Venzin (2014: 1101) show that larger companies are less resilient than smaller companies, even though “size is a shock-absorber that shields companies against unexpected competitive forces and market turbulence.”

Maximizing resilience can also reduce a firm’s risk exposure in the long run. Modelling all risk exposures is impossible for managers given the high level of uncertainty and complexity that arises in situations with long-term outcomes. Environmental changes can quickly alter a firm’s operating environment and upset even the most carefully planned risk management strategy. For example, few, if any, firms could have accurately forecasted the impact that the 2008-09 global financial crisis had on their operations. By building resilience, firms can manage their exposure to risk in ways that are otherwise impossible.
Resilience also reflects two seemingly opposing properties of an organization—stability and flexibility (or the ability to change)—whereas risk management focuses predominantly on maintaining stability and is silent about flexibility. Stable organizations maintain their core organizational attributes, such as function and identity, amid dynamic environments (Weick, Sutcliffe, & Obstfeld, 2008). Unlike the traditional approaches of risk management, resilience provides companies with capacities to absorb disturbances, “while transforming their structures and means for functioning in the face of long-term stresses, change, and uncertainty” (Van Der Vegt et al., 2015: 972). Flexibility allows companies “to dynamically reinvent business models and strategies as circumstances change” (Hamel & Valikangas, 2003: 53).

Organizational resilience is a latent, multidimensional, and path-dependent construct (Linnenluecke et al., 2012; Ortiz-de-Mandojana & Bansal, forthcoming). Latent constructs cannot be observed and assessed directly, but are inferred by changes in the constructs they affect (Law, Wong, & Mobley, 1998). An organization’s resilience can be inferred only after the organization has been exposed to an environmental disturbance, by analyzing the organization’s ability to recover and absorb the impact (Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Linnenluecke et al., 2012).

These outcomes can be measured in two ways. One approach is to investigate organizational outcomes over a long period of time. Markman and Venzin (2014) developed a measure that they called VOLARE, which is the standard deviation of each company’s long-term return on equity (ROE) relative to that of its industry peers over the long term. Organizational resilience, then, is reflected in superior long-term financial performance and low volatility. Ortiz-de-Mandojana and Bansal (forthcoming) argued that companies that anticipate and adjust to
environmental disturbances will, over the long term, experience low financial volatility, high growth, and high survival rates.

A second approach is to investigate organizational outcomes of general environmental shocks. For instance, Gittell et al. (2006) investigated the recovery of companies to a single economy-wide disturbance. Specifically, they investigated the time it took for airline companies to recover from the terrorist attacks on September 11, 2001. They argued that, compared with less resilient companies, the stock prices of more resilient companies returned more quickly to what their values had been on September 10, 2001.

I take the second approach and assess organizational resilience through two outcomes. Specifically, I analyze organizations’ responses to environmental disturbances by measuring the severity of their losses and their time to recovery. The severity of loss reflects the magnitude of financial losses experienced by the firm as measured by the percentage drop in its stock price from the closing price preceding the crisis (i.e., on September 16, 2008) to the lowest point of the stock price within one year after the crisis. The time to recovery is measured by the time it takes for the company’s stock price to return to its pre-crisis level. Resilient organizations experience less severe losses because of their capability to maintain stable functions, and they recover faster following generalized disturbances because of their flexibility. My approach is consistent with previous conceptualizations and operationalizations of resilience as “persistent superior performance” (Markman & Venzin, 2014) by capturing “both the ability of a system to persist despite disruptions and the ability to regenerate and maintain existing organization” (Gunderson & Pritchard, 2002: 6).

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11 I recognize that stock prices are driven by the perceptions and judgments of individual investors in the market and so may not precisely represent a firm’s value, and therefore its resiliency, at all times. I use weekly average stock prices in my models to account for this potential error while also allowing for enough specificity in the calculations. For example, daily stock prices may allow for too much error (fluctuate too widely) and monthly stock prices may provide too coarse of an estimate of recovery.
THE ROLE OF SOCIAL AND ENVIRONMENTAL PRACTICES IN ORGANIZATIONAL RESILIENCE

Social and environmental practices (SEPs) are voluntary organizational actions that improve social or environmental conditions (McWilliams & Siegel, 2001). They can include charitable giving, community involvement programs, strong corporate governance systems, supportive employment relations, and proactive environmental policies. These practices must go beyond the legal requirements of the firm and may not contribute to organizations’ financial performance in the short run.

Discussions of SEPs often fall under the rubric of corporate social responsibility (CSR) and business sustainability. CSR research tends to assume a normative position -- that business has an obligation to society, over and above what may be profitable at least in the short run (Bansal & DesJardine, 2014). Business sustainability research, on the other hand, assumes a systems perspective, that includes profits in the mix of social and environmental performance. Since I am agnostic to the normative positioning and to financial performance, I favor Ortiz-de-Mandojana and Bansal’s (forthcoming) label “social and environmental practices” (SEPs) over CSR or sustainability. SEPs are not insular to the organization, but improve the organization's ties to system elements (e.g., stakeholders and the natural environment).

In this paper, I argue that SEPs contribute to organizational resilience, which reduces both the severity of loss and the time to recovery following a general environmental disturbance. I then argue, however, that SSEPs and TSEPs have a differential effect on resilience. I discuss each in greater detail below.
Strategic and Tactical Social and Environmental Practices

SEPs can be strategic or tactical. Strategic SEPs (SSEPs) are “corporate social activities that require long time horizons, large resource commitments, and significant adjustments to organizational structures” (Bansal, Jiang, & Jung, 2015: 70). These activities can include supporting indigenous sovereignty, land, and culture; improving human and labor rights among suppliers; increasing employee diversity; ensuring product safety; and applying sound corporate governance.

Tactical SEPs (TSEPs) are corporate social activities that are oriented toward improving stakeholder relationships in the short term (Bansal et al., 2015). The most widely recognized TSEP is philanthropy because most organizations can adjust their charitable donations to complement the organization’s short-term priorities (Patten, 2008; Zhang, Rezaee, & Zhu, 2010). For example, Crampton and Patten (2008) found that 216 Fortune 500 companies in the United States donated $203 million after the terrorist attacks in September 2001, and Gan (2006) found that companies give more donations following periods of high scrutiny. Bansal, Jiang, and Jung (2015) also found that TSEPs, relative to SSEPs, were more likely to be withdrawn during the 2008 global financial crisis. Other types of TSEPs include support for housing, education, and community programs. Relative to SSEPs, TSEPs require fewer resources, can be executed relatively more quickly, and can be reversed.

I argue that both SSEPs and TSEPs build resilience, which is reflected in smaller losses and faster recovery times during periods of environmental upheaval. The mechanism through which SSEPs and TSEPs operate is by improving organizational stability and flexibility. SSEPs and TSEPs improve stability by building strong relationships with key external organizational stakeholders (Ortiz-de-Mandojana & Bansal, forthcoming). Strong relationships
with diverse stakeholders provide stability through the external support they extend in times of adversity (Godfrey, 2005). For instance, customers may give preferential treatment to select companies by continuing to purchase their products or services in an effort to support the organization. As well, strong relationships with suppliers and lenders help unlock financial capital (Uzzi, 1999), which is often scarce during crises. Similarly, positive labor relations improve employee commitment and are recognized as an intangible resource contributing to firm performance (Carmeli & Tishler, 2004). Employees are likely to remain loyal to employers that they believe are loyal to them (Turban & Greening, 1997). On the other hand, stakeholders that have weak relationships with companies may transact elsewhere and withdraw from further dealings (Jonsson, Greve, & Fujiwara-Greve, 2009), thus threatening the company’s legitimacy and survival (Suchman, 1995). These relationships are seen as critical to building organizational resilience (Gittell et al., 2006). Hillman and Keim (2001: 128) note that “Because of the relational aspects that underlie these activities, the time dimension will constitute an important, intangible, path dependent quality of the relationship with that stakeholder group.”

Second, SSEPs and TSEPs also reflect organizational conformity to pressures exerted by institutions, such as environmental legislation, industrial and professional associations, and competitors’ actions (Bansal & Clelland, 2004). Such institutional conformity confers organizational legitimacy, which reduces scrutiny and unsystematic market risk and contributes to the stability and persistence of organizational actions (Bansal & Clelland, 2004; Suchman, 1995; Zucker, 1977).

I argue the capability to maintain stability during crises can buffer companies from negative disturbances, thereby ensuring that companies experience less severe losses. Thus, I hypothesize that:
Hypothesis 1a. The greater a company’s SSEPs, the less the severity of loss following a negative disturbance.

Hypothesis 1b. The greater a company’s TSEPs, the less the severity of loss following a negative disturbance.

SSEPs and TSEPs enhance not only a company’s stability but also its flexibility—that is, its ability to adapt and recover more quickly from crises—for two primary reasons. First, investments in SSEPs and TSEPs help organizations to sense changes in their environment (Ortiz-de-Mandojana & Bansal, forthcoming). Strong relationships with suppliers, customers, and activists, for instance, can build trust, which can embolden these stakeholders to reveal information that the firm may not otherwise notice (Slawinski & Bansal, 2015). Companies that invest in SSEPs and TSEPs, therefore, expand their capabilities to sense and prepare for disturbances. Their increased awareness allows companies to prepare for environmental changes and adjust more quickly when disturbances occur.

Second, SSEPs and TSEPs can stimulate creativity in organizations. For example, preventing pollution does not merely require less physical resource use in production, but also new ways of operating that involve training, innovation, and novel resource configurations (Shrivastava, 1995). Likewise, employee diversity and stakeholder consultations introduce a variety of perspectives to decision making, which in the short term can lead to interpersonal conflicts, but in the long term can enhance creativity and organizational innovation (Yang & Konrad, 2011). Creativity and innovation are essential for companies’ ability to improvise and to adapt to unexpected disturbances. In summary, I hypothesize that:

Hypothesis 2a. The greater a company’s SSEPs, the shorter the time to recovery following a negative disturbance, controlling for the severity of loss.

Hypothesis 2b. The greater a company’s TSEPs, the shorter the time to recovery following a negative disturbance, controlling for the severity of loss.
The Relative Effects of SSEPs and TSEPs

Although both strategic and tactical SEPs can reduce losses and shorten recovery times, these practices play different roles in addressing social and environmental issues: SSEPs tackle the underlying causes of the issues over time, whereas TSEPs address the symptoms of the issues by responding quickly to urgent needs. These differences are reflected in the relative impact of these two forms of SEPs on organizational resilience. Overall, SSEPs have a stronger effect on resilience than TSEPs.

First, SSEPs address a wide range of issues and respond to a variety of stakeholders’ needs, thereby sending a coherent message regarding a company’s commitment to social and environmental issues, and leading stakeholders to assess the company’s activities as genuine. In contrast, TSEPs respond to a more limited range of issues and with less influence. Stakeholders may be skeptical of TSEPs, such as purely philanthropic donations, especially when they are unaccompanied by evidence of broader CSR commitments (Muller & Kräussl, 2011). An overuse of TSEPs without commensurate substantial commitments can lead to public rejection (La Cour & Kromann, 2011) and to accusations of commercialism or impression management (Bansal & Clelland, 2004).

Second, SSEPs are more responsive, than TSEPs, to the institutions in which they are embedded. SSEPs require more resource commitments by companies, including long-term investments and ongoing stakeholder interactions, which mitigate the concern that their adoption is for symbolic reasons or “window dressing.” Bansal, Jiang, and Jung (2015) show that companies did not reduce their SSEPs, but did reduce their TSEPs, during the 2008-2009 recession. TSEPs require fewer resources than SSEPs, can be executed relatively quickly, and are often reversible. Companies will adjust their TSEPs (e.g., their philanthropic donations) to
gain quick reputational and financial benefits following disturbances (Muller & Kräussl, 2011). Prior research has argued that resilience is unstable or unsustainable when the tactics used are not fully adopted or implemented (Carmeli & Markman, 2011).

Third, SSEPs are often deeply embedded in organizational routines, structures, and operations, where they can help companies to better sense environmental disturbances and innovate (Bansal et al., 2015). For example, SSEPs expand a company’s decision-making scope from merely financial performance to considering aspects of the natural environment, product safety, employee diversity, and labor rights. The increased decision complexity motivates the top management team to systematically collect and process additional information, thereby helping to reduce uncertainty, improve decision-making quality, and enhance the top management team’s capacity for resilience (Carmeli, Friedman, & Tishler, 2013). The routinization of SSEPs in decision-making processes broadens information search and utilization, which enhances companies’ capability to sense environmental changes. The routinization of SSEPs in production and operations allows companies to engage in comprehensive and holistic innovations that require support from technology, employees, and stakeholders. Research has argued that compared with isolated adoption, a comprehensive implementation of resilience practices has the strongest effect on resilience (Carmeli & Markman, 2011).

By contrast, the routines associated with TSEPs tend to be less complex than SSEPs and weakly tied to core operations. As a result, companies facing disturbances can quickly reallocate resources from TSEPs to other core activities (Falck & Heblich, 2007; Mahoney & Thorne, 2005). TSEPs have limited effects in terms of helping companies to sense changes; however, they are often used as a marketing tool that can be timed to fit with certain events, such as product offerings and promotions (Becker-Olsen, Cudmore, & Hill, 2006), economic cycles, or
natural disasters (Muller & Kräussl, 2011). The benefits from TSEPs can accrue quickly (Bansal, Gao, & Qureshi, 2014), but can facilitate only small and fragmented innovations, therefore exerting less impactful effects on resilience. In summary, I argue that:

*Hypothesis 3. SSEPs have a stronger effect on the severity of loss than TSEPs.*

*Hypothesis 4. SSEPs have a stronger effect on the time to recovery than TSEPs.*

I summarize the mechanisms by which SSEPs and TSEPs contribute to organizational resilience in Figure 8.

*Figure 8: How SSEPs and TSEPs Contribute to Organizational Resilience*

<table>
<thead>
<tr>
<th><strong>SSEPs</strong></th>
<th><strong>TSEPs</strong></th>
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<tbody>
<tr>
<td><strong>Stability</strong></td>
<td><strong>Stability</strong></td>
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<tr>
<td>- Build stronger stakeholder relationships that increase external support</td>
<td>- Build stronger stakeholder relationships that increase external support</td>
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<tr>
<td>- Increase legitimacy to enhance institutional conformity</td>
<td>- Have a limited effect on legitimacy and institutional conformity</td>
</tr>
<tr>
<td><strong>Flexibility</strong></td>
<td><strong>Flexibility</strong></td>
</tr>
<tr>
<td>- Heighten the capacity to sense changes to prepare for disturbance(s)</td>
<td>- Have a limited effect on sensing changes and preparation</td>
</tr>
<tr>
<td>- Improve innovation to stimulate creativity</td>
<td>- Have a limited effect on innovation and creativity</td>
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</table>

**METHODS**

**Research Sample and Time Frame**

To test the hypotheses derived from my theoretical model, I examined the SEPs and stock prices of 963 U.S.-based, publicly listed companies from 2008 to 2013. I focused on public
companies to permit the analysis of stock prices in response to the 2008 global financial crisis (GFC).

The GFC has been classified as the most severe crisis since the Great Depression (Brunnermeier, 2008), as a result of global equity markets falling by 59% ($37 trillion) in roughly 18 months (Anand, Irvine, Puckett, & Venkataraman, 2013). Although the events triggering the GFC originated in the United States, they affected stock markets, housing markets, and companies across the globe. Significant corporate losses were incurred as a result of reduced investor confidence, less disposal income, and lower consumer spending. For these reasons, the GFC offers a unique natural setting in which to explore organizational resilience. Companies of all sizes and across all industries were impacted severely, resulting in varying degrees of failure and recovery.

I collected data from 2008 to 2013. I treated the starting date of the GFC as September 17, 2008—the date that U.S. stock markets were closed, following both the Lehman Brothers’ bankruptcy filing on September 15 and the U.S. Federal Reserve’s bailout of AIG at midnight on September 16, 2008 (Dwyer & Tkac, 2009). I ended my data collection period in 2013, which I determined to be a sufficiently long period over which to observe the full recovery trajectories of most companies in my sample (~75%) while also mitigating potential concerns that other events were driving my results. I also applied various observation windows, ranging between one and five years following the start of the crisis, and found that my results held.

I gathered data from companies listed in the KLD STATS (Statistical Tool for Analyzing Trends in Social and Environmental Performance) database between 2008 and 2013 to assess companies’ SEPs. KLD STATS is used prominently in the CSR and sustainability literature (e.g., Ioannou & Serafeim, 2014) as it provides environment, social, and governance ratings for
publicly traded companies. Based on public disclosures, expert assessment, company surveys, and other sources (e.g., media), KLD rates corporations’ “strengths” and “concerns” in the following sub-domains: Community, Environment, Diversity, Employee Relations, Human Rights, Product Quality and Safety, and Corporate Governance. KLD uses a binary system, wherein '1' indicates the presence of a strength or concern in a particular area and '0' indicates its absence. For example, a corporation’s strength in the Environment sub-domain is the sum of its strengths in the areas of Climate Change, Natural Resource Use, Waste Management, and Environmental Opportunities.

To construct the sample, I identified the companies listed in the KLD STATS database in all years between 2008 and 2013. I then excluded companies missing stock price data in The Center for Research in Security Prices (CRSP) databases, missing control data in Compustat, or missing analyst data in Institutional Brokers’ Estimate System (I/B/E/S). Next, I excluded companies from my sample that posted significant events that could have influenced their stock prices, including lawsuits, new product announcements, mergers, significant management changes, and other major events (see Schnieit & Epstein, 2005). I identified these events by analyzing news reports in Factiva and LexisNexis within my observation window, which I confirmed by manually scanning company news releases. Forty companies were removed from the sample due to a confounding event announcement during this event interval. I combined variables from the KLD, CRSP, Compustat, and I/B/E/S datasets using unique Committee on Uniform Security Identification Procedures (CUSIP) identifiers assigned to each company.

**Dependent Variables**

A description of each of my variables and their data sources are outlined in Table 13.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Description</th>
<th>Source</th>
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<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
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</tbody>
</table>
| Severity of loss | Absolute percentage loss in stock price in the 12 months following the start of the crisis: \[
\frac{(\text{minimum stock price between September 16, 2008, and September 16, 2009} - \text{closing stock price on September 16, 2008})}{\text{closing stock price on September 16, 2008}} - 1
\] | CRSP |
| Time to recovery | Time until stock price reached pre-GFC level (i.e., the closing price on September 16, 2008) | CRSP |
| **Independent Variables** | | |
| SSEP | Sum of strengths in the domains of Environment, Diversity, Employee Relations, Human Rights, Product Quality and Safety, and Corporate Governance | KLD STATS |
| TSEP | Sum of strengths in the domain of Community Development | KLD STATS |
| **Instrumental Variables** | | |
| Analyst coverage | Number of financial analysts issuing research reports and earnings recommendations and targets | I/B/E/S |
| Number of employees | Number of company workers as reported to shareholders; denoted in thousands | Compustat |
| R&D expense | Total expenditures reported for all costs that relate to the development of new products or services; denoted in billions | Compustat |
| **Control Variables** | | |
| Size | One plus natural logarithm of the book value of total assets | Compustat |
| Age | Number of years from 2014 since the firm was first covered by Compustat | Compustat |
| Intangible assets | Natural logarithm of market-to-book; ratio of the market value per share of common to the book value per share of common | Compustat |
| Operational efficiency | Asset turnover; sales deflated by book value of total assets | Compustat |
| Industry | Dummy variable for each industry division using two-digit SIC code | Compustat |
| Profitability | ROA; ratio of operating income before depreciation and amortization (EBITDA) to the book value of total assets | Compustat |
| Financial leverage | Debt-to-equity; sum of long-term debt divided by the book value of total assets | Compustat |
| Liquidity | Current ratio; ratio of current assets to current liabilities | Compustat |
| Capital intensity | Capital expenditures / total assets | Compustat |
| Proximity to bankruptcy | **Altman Z-Score = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E**, where: \[
A = \frac{\text{Working Capital}}{\text{Total Assets}};
B = \frac{\text{Retained Earnings}}{\text{Total Asset}};
C = \frac{\text{Earnings Before Interest & Tax}}{\text{Total Assets}};
D = \frac{\text{Market Value of Equity}}{\text{Total Liabilities}};
E = \frac{\text{Sales}}{\text{Total Assets}}
\] | Compustat |

**Table notes:** SSEP = strategic social and environmental practice; TSEP = tactical social and environmental practice; R&D = research and development; GFC = global financial crisis; CRSP = Center for Research in Security Prices database; KLD STATS = KLD Statistical Tool for Analyzing Trends in Social and Environmental Performance database; I/B/E/S = Institutional Brokers’ Estimate System
My dependent variable measures two outcomes of organizational resilience based on stock price data: the severity of loss and the time to recovery. The idea that stock prices respond to new information about a firm and its actions (Peterson, 1989) is broadly accepted, even by critics of the efficient market hypothesis.

**Severity of Loss**

I calculated the severity of loss as the absolute percentage change in each company’s stock price between the closing price preceding the crisis (i.e., on September 16, 2008) and the lowest point the stock price reached in the 12-month period following September 16, 2008.¹² A higher value indicates a greater stock price loss. I bounded this window to one year to reduce the possibility that fluctuations in stock prices became attributable to other events. As a robustness check, I reran my analyses using additional windows (18-, 24-, and 36-month) and found no significant differences in my results.

**Time to Recovery**

The time to recovery is the amount of time a firm took to fully recover following the GFC, which I calculated as the time it took for the company’s monthly stock price to reach its pre-crisis level (i.e., the closing price on September 16, 2008).

**Independent Variables**

For determining SSEPs and TSEPs, I followed the methodology of Bansal et al. (2015) for coding strategic corporate social responsibility and tactical corporate social responsibility, respectively. Specifically, I coded SSEP as the sum of each company’s strengths in the six subdomains of Environment, Diversity, Employee Relations, Human Rights, Product Quality and Safety, and Corporate Governance. Examples of activities captured in these six domains include

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CEO and gender/minority diversity, emissions and hazardous waste management, use of alternative fuels, and family and pension benefit programs. I coded TSEP as the sum of each company’s strengths in the Community domain, which focuses primarily on corporate philanthropic contributions. Philanthropic contributions are reflective of TSEPs since they can be “quickly adjusted if necessary and they rarely require companies to adjust organizational structures or build long-term relationships with stakeholders” (Bansal et al., 2015: 73). Indicators used in the community domain include charitable giving strength, innovative giving, non-U.S. charitable giving, support for housing, support for education, volunteer programs, and other strength. All of these indicators capture short-term response tactics available to companies. For instance, charitable giving and support programs can all be quickly adjusted following crises, as Muller and Kräussl (2011) illustrated in the aftermath of Hurricane Katrina.

The range of the scale of sub-domains was typically from zero to 8, which is the maximum number of strengths a firm can be assigned. Companies with no strengths in any of the sub-domains during the entire observation period were included in my initial sample, but I checked the robustness of my results by excluding these companies from the analysis and found no change in my results.

My results also held when I subtracted the number of concerns from the number of strengths for each domain. However, I used strengths only for my main analysis because KLD strengths and concerns lack convergent validity, making a net measure methodologically questionable (Mattingly & Berman, 2006). I standardized SSEPs and TSEPs to allow for effect size comparisons between the two variables.
Control Variables

I incorporated the following 11 controls into my study: firm size, age, intangible assets, operational efficiency, capital intensity, profitability, financial leverage, liquidity, proximity to bankruptcy, industry, and the month of the maximum loss. Size is the natural logarithm of one plus the book value of total assets. Markman and Venzin (2014) found that smaller banks were more resilient than larger ones. Age is the age of the firm, which I calculated as the natural logarithm of one plus the number of years to 2014 that the company was first listed by Compustat (e.g., for a company first listed on Compustat in 2001, Age = log[1 + (2014 – 2001)] = 1.146). Older companies might be more likely to acquire other resources that were not of interest that help them manage negative events (e.g., human capital).

Intangible assets is calculated as the market value of assets divided by the book value of total assets. The market-to-book ratio has a strong correlation with Tobin’s q, the theoretical standard for measuring intangible assets (Villalonga, 2004), and a higher ratio indicates a greater proportion of a company’s asset base is in intangible form. According to Hall (1993), corporate reputation is one key intangible asset captured in the ratio of the market value to the book value of the firm. Hence, including this control mitigates the concern that companies’ reputation is driving recovery. For example, Jones, Jones, and Little (2000) found that companies with higher ratings in Fortune magazine’s annual survey of the “Most Admired Companies in America” endured smaller losses in the 1989 stock market plunge, than did companies with lower ratings.

Operational efficiency is measured as a company’s asset turnover: sales deflated by the book value of total assets. Companies that are more efficient with their capital may fare better through crises as disappointed investors tend to seek out more attractive investments. Alternatively, less efficient companies may fare better because they have more assets at their
disposal that can be liquidated, turning capital into better use. *Capital intensity* equals a company’s total capital expenditures deflated by total assets. Gittell et al. (2006) found that, following the terrorist attacks on September 11, 2001, airlines that were more capital-intensive recovered more slowly than companies with less capital.

I also included three covariates to control for differences in financial criteria. *Profitability* is the ratio of operating income before depreciation and amortization (EBITDA) to the book value of total assets. Companies that are more profitable are more likely to garner investor support in times of crises. *Financial leverage* is the sum of long-term debt divided by the book value of total assets. Lower leverage ratios indicate a smaller proportion of financing from debt. In crises, investors tend to flock to safer companies that have lower leverage ratios, which support companies’ recovery. *Liquidity* is the ratio of current assets to current liabilities. Companies with more liquidity have more options to invest in strategies that will help them fare through crises, leading to smaller losses and faster recoveries. *Proximity to bankruptcy* captures a company’s distance from bankruptcy using Altman Z-score, calculated using five financial ratios (see Table 13 for full calculation). A higher value indicates a lower risk of bankruptcy.

I created dummy variables using companies’ two-digit Standard Industrial Classification (SIC) codes to control for *Industry*. Industry categories vary in terms of cyclicality because investors tend to shift toward defensive stocks (e.g., utilities) during adverse economic environments. Moreover, previous research shows stakeholders punish companies that exercise unethical labor practices in so-called dirty industries more greatly, relative to their cleaner peers (Schnietz & Epstein, 2005). I also controlled for the month each company experienced its maximum loss (the severity of loss) by including time dummies in each model.
As a robustness check, I used the natural logarithm of sales for Size and total cash flow for Profitability with no meaningful impact on my findings. Market capitalization was not used to control for size as this metric uses stock prices, which is also used in my measure of the dependent variables.

Data Analysis

Severity of Loss

I applied ordinary least squares (OLS) and two-stage least squares (2SLS) with instrumental variables to test for the severity of loss. A potential concern with OLS is the assumption that current SEPs are independent of past recovery—a reflection of endogeneity. For example, a firm that recovered from past crises may be more likely to engage in either form of SEPs in the future as a result of its superior financial standing. A second concern is that an omitted confounding variable can lead to changes in both SEPs and the severity of loss. For example, it is conceivable that companies that possess superior management capabilities are more likely to both engage in SEPs and recover from crises.

To address endogeneity, I applied 2SLS using instrumental variables. I broadly follow Garcia-Castro, Ariño, and Canela (2010) in implementing this estimation procedure in a social and environmental performance context. A valid instrument satisfies two conditions: 1) it is not correlated with the error term in the main severity of loss regression (i.e., changes in the instrument do not directly lead to changes in the severity of loss); and 2) it is correlated with the endogenous variable of interest in my models, either SSEPs or TSEPs.

For my models, I selected three instruments that help to capture visibility and innovation. Visible companies are more likely to engage in SSEPs and TSEPs (Adams & Hardwick, 1998; Garcia-Castro et al., 2010; Udayasankar, 2008), but visibility is unlikely to help companies
recover from crises. I proxied visibility in two ways. First, I used *analyst coverage*, which equals the number of financial equity (i.e., “sell-side”) analysts covering a company each year, using data from the I/B/E/S. Analysts act as information intermediaries between companies and investors (Brennan & Subrahmanyam, 1995; Kelly & Ljungqvist, 2012), are widely trusted as financial experts, and are regularly quoted in the media (Busse & Clifton Green, 2002). Second, I used *number of employees* to reflect visibility, which equals the number of company workers as reported to shareholders (denoted in thousands). I collected these data from Compustat.

I also included an instrument for innovation. Evidence from prior studies show a positive relationship between firm innovation and corporate social responsibility (Flammer & Kacperczyk, 2015; McWilliams & Siegel, 2001). I measured innovation as a company’s annual research and development (R&D) expense, as reported in Compustat. Data for R&D expenses are sparse, so including this instrument limited the sample in my instrumental variables models to 425 companies. R&D spending is denoted in billions.

*Time to Recovery*

Measuring recovery times posed two empirical challenges. First, my data were right censored since not all companies recovered from the GFC during my observation window, but dropping these observations from the sample would bias my results. Second, the distribution of the survival data used in this study skew to the right because the recovery rate of companies declined over the observed years. To circumvent these concerns, I tested the time to recovery using survival analysis, which is designed to model the effects of predictor variables on the timing of specific events.

Survival analysis is superior to traditional research designs because it can handle both right censoring and asymmetrical distribution challenges. Accordingly, I applied a Cox
regression model with time-varying covariates (Cox & Oakes, 1984). The Cox model has the advantage of not making any assumptions about the distribution of the survival function, which makes it more flexible and robust for cases in which it is difficult to specify a particular distribution for the recovery times (Blossfeld & Rohwer, 2001). The dependent variable in a continuous-time event history model is the hazard rate, expressed as the instantaneous probability of an event (recovery in this study) occurring at time \( t \) within the period at risk (Allison, 1984; Yamaguchi, 1991). The hazard rate (probability of recovery) at time \( t \) can be specified as:

\[
h(t) = \lim_{\Delta t \to 0} \left( \frac{P(t, t + \Delta t)}{\Delta t} \right)
\]

where \( P(t, t + \Delta t) \) is the probability of recovery in the period running from \( t \) (the beginning of the period at risk) to \( t + \Delta t \). The time between the start of the crisis and the company’s recovery date was divided into monthly spells (observations), which corresponds to \( \Delta t \). A dependent variable was dummy-coded so that it indicated whether recovery had occurred or not for each firm at the last date of each monthly spell. A positive coefficient (equivalent to a hazard rate greater than 1) indicates that the covariate increases the speed of recovery, which is what I predict for SSEPs and TSEPs.

The origin (first spell) in my model is September 2008. Observations were monthly and continued until the firm exited or the stock price of a firm fully recovered. My model reports the results for an observation period ending September 2011 (i.e., a 36-month window), but I find very similar results when I shorten or lengthen this window within a five-year period. All data are divided into monthly spells so I could more accurately calculate recovery times than if I had used annual data.
**Testing for Endogeneity**

I conduct a Durbin-Wu-Hausman test for each SSEPs and TSEPs to check for the existence of endogeneity in my model. The null hypothesis is that SSEPs and TSEPs are exogenous. Results from the tests for SSEPs refuted the null hypothesis, indicating that endogeneity is a concern for SSEPs (F-statistic = 4.45; p < .05) as well as TSEPs (F-statistic = 7.05; p < .01). Hence, using instrumental variables is warranted.

**RESULTS**

In this section, I first present summary statistics of my data. Next, I present the results from my OLS and survival models using the severity of loss and the time to recovery as the respective dependent variables. Third, I present results from my instrumental variables 2SLS models that help mitigate concerns of endogeneity before concluding with several diagnostic checks and robustness tests.

**Summary Statistics**

Table 14 provides descriptive statistics and the correlation matrix for each variable described in Table 13. Stock prices dropped an average of 49% from their pre-crisis level in the 12 months following the crisis (the severity of loss). Roughly 27% (260 companies) of the 963 companies in my sample recovered within 12 months after the crisis, 56% (544 companies) within 24 months, and 74% (716 companies) within 36 months.

Regarding other variables, SSEPs ranged from 0 to 17 (–0.69 to 6.95 standardized) and from 0 and 4 for TSEPs (–0.32 to 8.32 standardized) over the years 2008 to 2012. In terms of controls, the companies had, on average, total assets of $2.1 billion (Size = 3.32), a market-to-book ratio of 2.66 (Intangible assets), an asset turnover of 10% (Operational efficiency), return on assets of 13% (Profitability), a debt-to-equity ratio of 18% (Financial leverage), a current
<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
<th>7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Severity of loss</td>
<td>0.49</td>
<td>0.19</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SSEP</td>
<td>1.79</td>
<td>2.63</td>
<td>0.19*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. TSEP</td>
<td>0.19</td>
<td>0.52</td>
<td>0.16*</td>
<td>0.57*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Size</td>
<td>3.32</td>
<td>0.64</td>
<td>0.09*</td>
<td>0.57*</td>
<td>0.42*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Age</td>
<td>29.89</td>
<td>17.49</td>
<td>0.15</td>
<td>0.38*</td>
<td>0.29*</td>
<td>0.54*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Intangible assets</td>
<td>2.66</td>
<td>2.25</td>
<td>0.05*</td>
<td>0.05*</td>
<td>0.02</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Operational efficiency</td>
<td>0.10</td>
<td>0.07</td>
<td>0.01</td>
<td>0.04</td>
<td>0.02</td>
<td>0.19*</td>
<td>0.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Profitability</td>
<td>0.13</td>
<td>0.08</td>
<td>0.16*</td>
<td>0.13*</td>
<td>0.27*</td>
<td>0.19*</td>
<td>0.04</td>
<td>0.37*</td>
<td></td>
</tr>
<tr>
<td>9. Financial leverage</td>
<td>0.18</td>
<td>0.16</td>
<td>0.17*</td>
<td>0.06*</td>
<td>0.26*</td>
<td>0.14*</td>
<td>0.01</td>
<td>0.36*</td>
<td>0.00</td>
</tr>
<tr>
<td>10. Liquidity</td>
<td>2.41</td>
<td>1.59</td>
<td>0.04*</td>
<td>0.20*</td>
<td>0.16*</td>
<td>0.37*</td>
<td>0.27*</td>
<td>0.02</td>
<td>0.33*</td>
</tr>
<tr>
<td>11. Capital intensity</td>
<td>0.05</td>
<td>0.06</td>
<td>0.03</td>
<td>0.04*</td>
<td>0.05*</td>
<td>0.02</td>
<td>0.00</td>
<td>0.2*</td>
<td></td>
</tr>
<tr>
<td>12. Proximity to bankruptcy</td>
<td>6.15</td>
<td>7.54</td>
<td>0.19*</td>
<td>0.11*</td>
<td>0.32*</td>
<td>0.26*</td>
<td>0.03</td>
<td>0.12*</td>
<td></td>
</tr>
<tr>
<td>13. Analyst coverage</td>
<td>9.44</td>
<td>5.82</td>
<td>0.18*</td>
<td>0.46*</td>
<td>0.29*</td>
<td>0.53*</td>
<td>0.10*</td>
<td>0.05*</td>
<td>0.13*</td>
</tr>
<tr>
<td>14. # of employees</td>
<td>18.48</td>
<td>47.25</td>
<td>0.10*</td>
<td>0.48*</td>
<td>0.36*</td>
<td>0.59*</td>
<td>0.33*</td>
<td>0.12*</td>
<td></td>
</tr>
<tr>
<td>15. R&amp;D expense</td>
<td>203.73</td>
<td>607.10</td>
<td>0.15*</td>
<td>0.47*</td>
<td>0.35*</td>
<td>0.48*</td>
<td>0.19*</td>
<td>0.02</td>
<td>0.12*</td>
</tr>
</tbody>
</table>

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</tr>
</thead>
<tbody>
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<td>0.16</td>
<td>0.05*</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td>1.59</td>
<td>0.19*</td>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Capital intensity</td>
<td>0.05</td>
<td>0.06</td>
<td>0.23*</td>
<td>0.03</td>
<td>0.12*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Proximity to bankruptcy</td>
<td>6.15</td>
<td>7.54</td>
<td>0.15*</td>
<td>0.41</td>
<td>0.60*</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Analyst coverage</td>
<td>9.44</td>
<td>5.82</td>
<td>0.14*</td>
<td>0.01</td>
<td>0.09*</td>
<td>0.07*</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. # of employees</td>
<td>18.48</td>
<td>47.25</td>
<td>0.13*</td>
<td>0.10</td>
<td>0.23*</td>
<td>0.10*</td>
<td>0.14*</td>
<td>0.40*</td>
<td></td>
</tr>
<tr>
<td>15. R&amp;D expense</td>
<td>203.73</td>
<td>607.10</td>
<td>0.07*</td>
<td>0.00</td>
<td>0.08*</td>
<td>0.06*</td>
<td>0.04</td>
<td>0.40*</td>
<td>0.36*</td>
</tr>
</tbody>
</table>

**Table notes:** Unstandardized figures for SSEP and TSEP are reported to make the mean and standard deviation more meaningful. For variable units: # of employees is denoted in thousands; R&D expense is denoted in billions.* p < .01
ratio of 2.41 (Liquidity), a ratio of capital expenditures (CAPEX) over total assets of 5% (Capital intensity), and an Altman Z-Score of 6.15 (Proximity to bankruptcy). The average age for companies in my sample was 29 years. For my instrumental variables, analyst coverage ranged from 1 to 30, with companies being covered by an average of slightly more than nine analysts. On average, companies employed 18,480 workers and spent approximately $204 million on R&D.

Table 15 reports how my sample was distributed across SIC industry divisions and shows the average stock losses for each industry. Companies were distributed across nine major industry divisions, with the largest two divisions encompassing 471 companies (48.9%) in Manufacturing and 155 companies (16.1%) in Services. On average, companies in the mining industry incurred the most severe losses, losing roughly 65% of their stock’s value in the 12 months following the crisis.

**MAIN RESULTS: OLS AND SURVIVAL ANALYSIS**

I used OLS to test my hypotheses on the severity of loss, and used survival analysis to test my hypotheses pertaining to the time to recovery. I report results from my OLS models (and the second stage of my instrumental variables approach, which I comment on below) in Table 16 and from my survival analysis in Table 17. In each survival model, I report the coefficients rather than the hazard ratios, which are calculated by exponentiating the coefficients. Hazard ratios are interpreted as the change in the probability of recovery occurring over the observation period when the corresponding variable increases by one unit. A coefficient (and higher hazard ratio) signifies a higher likelihood of recovery. I correct standard errors for heteroscedasticity and non-independence across observations at the firm level.
I tested all my hypotheses by including both SSEPs and TSEPs in models where the severity of loss and the time to recovery were the dependent variables. This approach allowed me to isolate the effects of one type of SEP. First, for the severity of loss, results from my OLS estimation in Column 2 of Table 16 indicate a one standard deviation increase in SSEPs decreases the total stock losses of companies by roughly 20% (Beta = –.02 | p < .01). Therefore, Hypothesis 1a was strongly supported. Conversely, Hypothesis 1b was not supported: the non-significant coefficient for TSEPs in Column 2 shows that TSEPs did not help companies mitigate their losses following the crisis.

Next, I ran a Wald Test following this model to test Hypothesis 3, whether SSEPs and TSEPs had significantly different effects on the severity of loss. The Wald Test examines whether two variables have equal effects. The F-statistic in the Wald Test is significant at the 10% level (F = 3.23; p < .10), providing moderate support that SSEPs had significantly stronger effects on the severity of loss than TSEPs. Overall, these results supported Hypothesis 3.

For the rest of my hypotheses, results in Column 2 of Table 17 provide strong support for Hypothesis 2a (Beta = .11 | p < .01): companies with a greater number of SSEPs were more likely to recover faster than companies with fewer SSEPs. Specifically, the coefficient from the event history analysis (rounded to .11) indicates that a one standard deviation increase in SSEPs increased the probability of recovery by 11.6% (= [exp(coefficient) – 1 × 100%]). In contrast, Hypothesis 2b was not supported: the non-significant coefficient in this same model indicates that TSEPs did not increase the probability that companies would recover faster following the crisis. Results from a post-estimation Wald Test indicate that SSEPs and TSEPs did have statistically significantly different effects on the time to recovery (F = 5.44; p < .05); hence, Hypothesis 4 was supported.
Table 15: Distribution of Companies across Industry Divisions

<table>
<thead>
<tr>
<th>Industry Division</th>
<th>Two-Digit SIC Code</th>
<th>Frequency</th>
<th>Percent of Sample</th>
<th>M - Severity of Loss</th>
<th>SD - Severity of Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>10-14</td>
<td>53</td>
<td>5.50</td>
<td>0.65</td>
<td>0.18</td>
</tr>
<tr>
<td>Construction</td>
<td>15-17</td>
<td>8</td>
<td>0.83</td>
<td>0.49</td>
<td>0.13</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>20-39</td>
<td>471</td>
<td>48.91</td>
<td>0.52</td>
<td>0.18</td>
</tr>
<tr>
<td>Transportation, Communications, Electric, Gas, and Sanitary Services</td>
<td>40-49</td>
<td>116</td>
<td>12.05</td>
<td>0.41</td>
<td>0.21</td>
</tr>
<tr>
<td>Wholesale Trade</td>
<td>50-51</td>
<td>36</td>
<td>3.74</td>
<td>0.48</td>
<td>0.15</td>
</tr>
<tr>
<td>Retail Trade</td>
<td>52-59</td>
<td>92</td>
<td>9.55</td>
<td>0.47</td>
<td>0.18</td>
</tr>
<tr>
<td>Finance, Insurance, and Real Estate</td>
<td>60-69</td>
<td>31</td>
<td>3.22</td>
<td>0.51</td>
<td>0.21</td>
</tr>
<tr>
<td>Services</td>
<td>70-89</td>
<td>155</td>
<td>16.10</td>
<td>0.47</td>
<td>0.18</td>
</tr>
<tr>
<td>Public Administration</td>
<td>99</td>
<td>1</td>
<td>0.10</td>
<td>0.41</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>963</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td></td>
<td>-</td>
<td>-</td>
<td><strong>0.49</strong></td>
<td><strong>0.19</strong></td>
</tr>
</tbody>
</table>

**Table notes:** SIC = Standard Industrial Classification; Severity of loss is presented in decimal form (e.g., 0.65 = 65%).

In summary, I found strong support that SSEPs helped companies mitigate their losses and quicken their recovery times following the GFC, whereas TSEPs did not. I discuss these findings in detail in the Discussion and Conclusion section.

I ran collinearity diagnostics to check for potential multicollinearity in my results. Condition numbers were below the threshold of 30, which indicates that collinearity was not likely a significant problem (Belsley, Kuh, & Welsch, 2004). Moreover, variance inflation factors for each independent variable were less than 2, which confirm the absence of collinearity.

Finally, I also provide results in Column 1 of Table 16 and Table 17 for my OLS and survival models that include control variables only. In terms of my control variables, I find that more profitable companies or companies with less debt experienced less severe losses than other companies. More capital intensive companies also experienced smaller losses from the crisis, indicating that a physical capital base provided additional stability. In terms of recovery speeds,
companies that were more profitable, less overvalued (i.e., had lower intangible assets), more efficient, or more liquid recovered faster than other companies. As well, companies that were farther from bankruptcy (i.e., had a higher Z-Score) recovered faster than companies closer to bankruptcy.

I found that older companies experienced smaller losses than younger companies. This correlation is particularly interesting since some researchers argue that resilience is a path-dependent quality: those companies that experienced prior adversity become more capable of managing adversity over time. My findings align with this theory: older organizations have likely experienced more economic crises over their history, and are therefore more resilient than younger organizations. Overall, the results for my control variables are in the direction I expected.

**Validity of Instrumental Variables**

I first checked whether my instruments—*analyst coverage, number of employees, and R&D expense*—passed several commonly used instrumental variables validity tests. I present results for these tests from the first stage of my analysis in Table 18. I tested for instrument exogeneity using the Sargan’s test. The null hypothesis under the Sargan’s test is that the instruments are uncorrelated with the error term in the main regression. The low Sargan’s statistic for SSEPs (Chi$^2 = .41; p = .82$) and TSEPs (Chi$^2 = .47; p = .50$) signals a non-rejection of the null hypothesis, meaning my instruments are not directly correlated with the severity of loss.

I examined the strength of my instruments by testing the magnitude of the correlation between each SSEP and TSEP. I report Shea’s partial $R^2$ (Shea, 1997), Anderson’s canonical correlation statistics, and the Cragg-Donald weak identification test statistics in Table 18, for
Table 16: Severity of Loss – OLS and Instrumental Variables 2SLS

<table>
<thead>
<tr>
<th>Variables</th>
<th>Controls only (OLS)</th>
<th>SSEPs &amp; TSEPs instrumented (OLS)</th>
<th>SSEPs instrumented TSEPs instrumented</th>
<th>TSEPs instrumented</th>
<th>SSEPs &amp; TSEPs instrumented</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSEP</td>
<td>-0.07** (0.01)</td>
<td>-0.11** (0.04)</td>
<td>-0.02 (0.06)</td>
<td>-0.14* (0.06)</td>
<td></td>
</tr>
<tr>
<td>TSEPs</td>
<td>-0.00 (0.01)</td>
<td>0.02 (0.03)</td>
<td>-0.00 (0.08)</td>
<td>0.07</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.02 (0.01)</td>
<td>0.00 (0.04)</td>
<td>0.09* (0.02)</td>
<td>-0.00 (0.02)</td>
<td>0.09* (0.04)</td>
</tr>
<tr>
<td>Age</td>
<td>-0.15*** (0.04)</td>
<td>-0.14*** (0.06)</td>
<td>-0.07 (0.07)</td>
<td>-0.11 (0.07)</td>
<td></td>
</tr>
<tr>
<td>Intangible assets</td>
<td>-0.32* (0.14)</td>
<td>-0.25 (0.21)</td>
<td>-0.19 (0.18)</td>
<td>-0.43* (0.18)</td>
<td>-0.20 (0.23)</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>-0.04 (0.09)</td>
<td>-0.03 (0.25)</td>
<td>0.57* (0.23)</td>
<td>0.60** (0.23)</td>
<td>0.58* (0.27)</td>
</tr>
<tr>
<td>Profitability</td>
<td>-0.23** (0.07)</td>
<td>-0.23** (0.09)</td>
<td>-0.37*** (0.09)</td>
<td>-0.36*** (0.08)</td>
<td>-0.38*** (0.10)</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>0.08* (0.04)</td>
<td>0.07 (0.06)</td>
<td>0.06 (0.05)</td>
<td>0.12* (0.05)</td>
<td>0.05 (0.07)</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-0.00 (0.00)</td>
<td>-0.00 (0.00)</td>
<td>-0.01* (0.00)</td>
<td>-0.01* (0.00)</td>
<td>-0.01 (0.01)</td>
</tr>
<tr>
<td>Capital intensity</td>
<td>0.26** (0.09)</td>
<td>0.24** (0.28)</td>
<td>0.42 (0.28)</td>
<td>0.37 (0.28)</td>
<td>0.50 (0.33)</td>
</tr>
<tr>
<td>Proximity to bankruptcy</td>
<td>-0.01 (0.00)</td>
<td>-0.01 (0.00)</td>
<td>0.01 (0.00)</td>
<td>0.01 (0.00)</td>
<td>0.01 (0.00)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.55*** (0.04)</td>
<td>0.49*** (0.05)</td>
<td>0.12 (0.20)</td>
<td>0.35* (0.17)</td>
<td>0.10 (0.22)</td>
</tr>
<tr>
<td>Month dummies</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Industry dummies</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Observations</td>
<td>963</td>
<td>963</td>
<td>425</td>
<td>425</td>
<td>425</td>
</tr>
<tr>
<td>Wald Chi²</td>
<td>–</td>
<td>184.46***</td>
<td>210.44***</td>
<td>160.53***</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.14</td>
<td>0.20</td>
<td>0.20</td>
<td>0.22</td>
<td>0.09</td>
</tr>
</tbody>
</table>

**Table notes:** OLS = ordinary least squares; 2SLS = two-stage least squares; SSEPs = strategic social and environmental practices; TSEPs = tactical social and environmental practices. SSEPs and TSEPs are normalized to make the coefficients comparable. Raw values for Age and Intangible assets are scaled (divided) by 100 to make the coefficients interpretable. The number of observations (companies) in the 2SLS models is lower than the OLS and survival models because not all companies had data needed for instrumental variables. Robust standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05
Table 17: Time to Recovery (Cox Survival Analysis)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Controls only</th>
<th>SSEPs and TSEPs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>SSEP</td>
<td>0.11**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>TSEP</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.03</td>
<td>-0.14†</td>
</tr>
<tr>
<td></td>
<td>(0.08)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>Age</td>
<td>0.20</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(0.27)</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>-0.03***</td>
<td>-0.03***</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>1.54**</td>
<td>1.49**</td>
</tr>
<tr>
<td></td>
<td>(0.56)</td>
<td>(0.57)</td>
</tr>
<tr>
<td>Profitability</td>
<td>1.22*</td>
<td>1.09*</td>
</tr>
<tr>
<td></td>
<td>(0.48)</td>
<td>(0.46)</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>-0.09</td>
<td>-0.05</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.23)</td>
</tr>
<tr>
<td>Liquidity</td>
<td>-0.06*</td>
<td>-0.06*</td>
</tr>
<tr>
<td></td>
<td>(0.03)</td>
<td>(0.03)</td>
</tr>
<tr>
<td>Capital intensity</td>
<td>-1.33</td>
<td>-1.12</td>
</tr>
<tr>
<td></td>
<td>(0.91)</td>
<td>(0.92)</td>
</tr>
<tr>
<td>Proximity to bankruptcy</td>
<td>0.04***</td>
<td>0.04***</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Month dummies</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Industry dummies</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td># of companies</td>
<td>963</td>
<td>963</td>
</tr>
<tr>
<td># of companies recovered</td>
<td>714</td>
<td>714</td>
</tr>
<tr>
<td>Wald chi²</td>
<td>561.53***</td>
<td>583.61***</td>
</tr>
<tr>
<td>Observations</td>
<td>20,599</td>
<td>20,599</td>
</tr>
</tbody>
</table>

Table notes: SSEPs = strategic social and environmental practices; TSEPs = tactical social and environmental practices. Positive coefficients indicate that increases in the values of social and environmental practices (SEPs) and control variables increase the probability of recovery, and vice versa. SSEPs and TSEPs are normalized to make the coefficients comparable. Raw values for Age and Intangible assets are scaled (divided) by 100 to make the coefficients interpretable. Robust standard errors clustered at the firm level are reported in parentheses. *** p < .001; ** p < .01; * p < .05
both SSEPs and TSEPs. The null hypothesis of the Anderson and Cragg-Donald tests is that the equation is weakly identified (i.e., the instruments are weak predictors of SEPs).

For SSEPs, the Cragg-Donald statistic ($F$-statistic = 12.28; $p < .001$) exceeded the Stock-Yogo critical values at the 30% (5.39), 20% (6.46), and 10% (9.08) maximal instrumental variable (IV) relative bias levels, and nearly exceeded the 5% level (13.91) with about 15% maximal IV size (12.83) (Stock & Yogo, 2005). The Anderson test statistic ($\chi^2 = 38.49; p < .001$) was significant at the 1% level. Moreover, the relatively high value of Shea’s partial $R^2$ (SSEPs = .09) and the corresponding $F$-value, significant at the .01 level, suggest strong predictive power of the three instruments. Overall, I can conclude that my three instruments were valid predictors of SSEPs.

For TSEPs, while the Anderson statistic offered some support for the use of the instruments ($\chi^2 = 7.89; p < .05$), the Cragg-Donald statistic ($F = 2.33; p < .05$), which fell below the Stock-Yogo critical values, and the low value for Shea’s partial $R^2$ (TSEPs = .02) evidence fairly weak instruments. Overall, it appears my instruments are better suited for regressing SSEPs than TSEPs on the severity of loss. Accordingly, I present results for both SSEPs and TSEPs, but comment only on those results relating to SSEPs. Moreover, since my OLS estimates, which are more efficient than estimates from 2SLS models, found that TSEPs had a non-significant effect on the severity of loss, it would be rare to find predicted values of TSEPs (using the three instruments) provide stronger or more reliable results.

**Instrumental Estimation Results**

Table 18 presents the results of the first-stage regression that allows me to predict SSEPs in a firm. The resulting model accounts for 53% of the variance found in SSEPs. Analyst coverage ($B = .02; p < .01$), number of employees ($B = .01; p < .001$), and R&D expense
Table 18: Instrumental Variables – First Stage Regression of SSEPs and TSEPs

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analyst coverage</td>
<td>0.02*</td>
<td>−0.01</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Number of employees</td>
<td>0.01***</td>
<td>−0.00</td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td>(0.00)</td>
</tr>
<tr>
<td>R&amp;D expense</td>
<td>0.23***</td>
<td>0.22**</td>
</tr>
<tr>
<td></td>
<td>(0.06)</td>
<td>(0.09)</td>
</tr>
<tr>
<td>SSEP</td>
<td></td>
<td>0.39***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.07)</td>
</tr>
<tr>
<td>TSEP</td>
<td>0.21***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.04)</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>0.44***</td>
<td>−0.01</td>
</tr>
<tr>
<td></td>
<td>(0.10)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>Age</td>
<td>0.15</td>
<td>0.86**</td>
</tr>
<tr>
<td></td>
<td>(0.24)</td>
<td>(0.33)</td>
</tr>
<tr>
<td>Intangible assets</td>
<td>1.98**</td>
<td>0.64</td>
</tr>
<tr>
<td></td>
<td>(0.75)</td>
<td>(1.03)</td>
</tr>
<tr>
<td>Operational efficiency</td>
<td>−0.49</td>
<td>0.11</td>
</tr>
<tr>
<td></td>
<td>(1.01)</td>
<td>(1.38)</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>(0.36)</td>
<td>(0.48)</td>
</tr>
<tr>
<td>Financial leverage</td>
<td>−0.50*</td>
<td>0.06</td>
</tr>
<tr>
<td></td>
<td>(0.22)</td>
<td>(0.30)</td>
</tr>
<tr>
<td>Liquidity</td>
<td>0.14</td>
<td>−0.03</td>
</tr>
<tr>
<td></td>
<td>(0.02)</td>
<td>(0.02)</td>
</tr>
<tr>
<td>Capital intensity</td>
<td>−0.21</td>
<td>−1.73</td>
</tr>
<tr>
<td></td>
<td>(1.14)</td>
<td>(1.54)</td>
</tr>
<tr>
<td>Proximity to bankruptcy</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Constant</td>
<td>−2.60**</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>(0.97)</td>
<td>(1.33)</td>
</tr>
<tr>
<td>Month dummies</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Industry dummies</td>
<td>Included</td>
<td>Included</td>
</tr>
<tr>
<td>Observations</td>
<td>425</td>
<td>425</td>
</tr>
<tr>
<td>Sargan Chi²</td>
<td>0.41</td>
<td>0.47</td>
</tr>
<tr>
<td>Cragg-Donald F-statistic</td>
<td>12.28***</td>
<td>2.33*</td>
</tr>
<tr>
<td>Anderson statistic Chi²</td>
<td>38.49***</td>
<td>7.89*</td>
</tr>
<tr>
<td>Shea’s Partial R²</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.53</td>
<td>0.30</td>
</tr>
<tr>
<td>F-statistic</td>
<td>9.88***</td>
<td>4.27***</td>
</tr>
</tbody>
</table>

Table notes: *** p < .001; ** p < .01; * p < .05
were all highly statistically significant predictors of companies’ SSEPs. In Table 16, I include the results from the second-stage of the 2SLS estimation where SSEPs have been instrumented from the first stage. The results in Column 3 of Table 16 align with results from my OLS models, supporting Hypothesis 1a: controlling for TSEPs, the greater a firm’s SSEPs, the less the severity of loss following a disturbance ($B = -0.11; p < .01$). These results held when we instrumented both SSEPs and TSEPs using our three instruments (see Column 5).

Since my instruments are not well suited for TSEPs, I must treat the interpretation of the 2SLS analysis as tests of Hypothesis 1b with caution (TSEPs-severity of loss). Nevertheless, I report these results in Table 16, where the model in Column 4 includes the instrumented TSEP (controlling for SSEPs) and in Column 5, the instrumented SSEP and TSEP. In both cases, the coefficient for TSEPs remains non-significant, suggesting that, in line with my OLS findings, TSEPs do not help companies mitigate losses following crises.

**Survival Analysis—Tests of the Proportional Hazards Assumption**

A key assumption of the Cox proportional hazards model is that the effect of each predictor variable is constant (i.e., is proportional) over time. If the proportionality assumption holds, then I can be more certain that the relationship between SSEPs and TSEPs and the time to recovery is not a function of the time at which different events occur over the observation window (e.g., government bailouts). I followed three procedures to test this assumption for both SSEPs and TSEPs since no single conclusive testing approach is currently available.

First, I test for Schoenfeld residuals using the “estat phtest” command in Stata. Results from these tests indicate the effect of SSEPs on recovery times is proportional for both SSEPs and TSEPs ($p > .05$). Second, I plotted the Schoenfeld residuals for each predictor against the natural logarithm of time and found no visual evidence that the proportional hazards assumption
was violated (i.e., the residuals did not trend in a particular direction). Third, I extended my original Cox model to include time-varying effects for SSEPs and TSEPs. Specifically, I estimated models with various forms of time interactions (linear, log-linear, and different Heaviside functions) and evaluated the significance of the interaction terms using the Wald test. None of the interactions was found to be significant, indicating that little concern exists for any time-dependent effects for either SSEPs or TSEPs. I conclude that the assumption of proportional hazards holds for my results.

Robustness Checks

To test the robustness of my analysis, I specified several alternative models and variables. First, the KLD database suffers from zero-inflated count variables where companies have no strengths in any of the domains. Bansal et al. (2015: 73) note that, “It is possible that the rating system failed to uncover the social performance of these companies, so the value may represent missing rather than zero.” Consequently, I tested my models excluding companies with no strengths (i.e., those having a value of “0”) for SSEPs and TSEPs and found no significant change in my results.

Second, I tested all of my hypotheses using various observation windows. For the severity of loss, I calculated the maximum loss within 18-, 24-, 30-, and 36-month windows and found the findings remained the same in each case. For the time to recovery, I tested my models using 24-, 36-, 48-, and 60-month observation windows. No material changes were found in the results for any model.

Third, I reran my analyses using numerous parametric hazard models, including exponential, Gompertz, and Weibull models, and found the results were very similar to the result obtained from the Cox model. Fourth, I clustered standard errors at the industry-level (as well as
the firm-level in my reported results) and specified robust standard errors to control for potential heteroscedasticity, which provided a more conservative test of my hypotheses (White, 1980). My findings did not change in either case.

Fifth, I controlled for corporate reputation in my main results using intangible assets (Hall, 1993). However, given the importance of reputation, I further mitigated the concern that reputation is the mechanism by which SEPs build organizational resiliency, by testing the model with a different measure of reputation. Specifically, I calculated a dichotomous variable that equals one if a firm is listed on Fortune magazine’s annual survey of the “Most Admired Companies in America” and zero otherwise (e.g., Pfarrer, Pollock, & Rindova, 2010). Fortune ranks companies listed on the Fortune 1000—the 1,000 largest U.S. companies by revenue—and those listed on Fortune’s Global 500—the 500 largest U.S. and non-U.S. companies by revenue—with annual revenue exceeding $10 billion. Fortune surveys executives, directors, and analysts to rate companies on nine reputation-based criteria (e.g., investment value). A company’s score must rank in the top half of its industry survey to be listed. My results did not change in any significant way after rerunning my models with this additional reputation control variable.

**DISCUSSION AND CONCLUSION**

In this article, I aimed to answer the following research question: Do social and environmental practices help companies recover from crises by reducing their losses and quickening their recovery times? Unlike prior studies that primarily focus on the impact of SEPs on financial performance (Orlitzky, Schmidt, & Rynes, 2003) and risk (Bansal & Clelland, 2004), I posited that SEPs also help to build companies’ resilience, which helps companies to recover from general environmental crises. Prior research has tended to blur benefits that are
immediate, such as financial performance, with those that are more latent and long term, such as those related to organizational resilience (Ortiz-de-Mandojana & Bansal, forthcoming).

Despite little prior research on organizational resilience, some research has addressed companies’ ability to recover from shocks, which is measured by abnormal returns (Godfrey et al., 2009; Muller & Kräussl, 2011; Schnietz & Epstein, 2005). Drawing on literature from a range of disciplines, I argued that resilience is a two-dimensional construct that cannot be measured by abnormal returns alone.

Resilience applies a systems view of organizations, which is appropriate in the study of SEPs because these practices tie organizations to their macro environment. Resilient organizations and other systems can absorb disturbances by maintaining their core qualities, while also changing to adapt to a potentially new environment (Markman & Venzin, 2014). Resilient organizations, therefore, balance stability and flexibility.

Given that organizational resilience is a latent variable and cannot be observed directly, I detected its presence through its effect on the severity of loss and the time to recovery in an economy-wide crisis—the GFC. Most companies experienced the most severe losses just weeks or months following the crisis, whereas it took years to recover from those initial losses. By computing two measures of organizational resilience, I was able to capture companies’ stability (through the severity of loss) and flexibility (through the time to recovery) during the crisis. The most resilient companies not only engage in actions that offer stability and smaller initial losses but also react to crises quickly, leading them to also experience more timely recoveries. By including two dependent variables with multiple methodological approaches, OLS or 2SLS and survival analysis, my study was able to more finely map the benefits of SEPs onto two distinct dimensions of organizational resilience.
I also distinguished between two forms of SEPs, strategic and tactical, arguing that SSEPs are more potent in building resilience than TSEPs because the latter (e.g., philanthropic contributions) have a short-term orientation, require limited resources, can be executed relatively quickly, and are often reversible. Conversely, SSEPs (e.g., increasing employee diversity) have a long-term orientation, require significant resource commitments, and are embedded in organizational routines, structures, and operations.

My findings support these expectations. SSEPs build stability, as demonstrated by the lower severity of loss, and flexibility, as demonstrated by the faster recovery times. Much recent work in the fields of dynamic capabilities and hypercompetition suggests that the best response to turbulence is to change more quickly (D'aveni, 2010; Eisenhardt & Martin, 2000), and stability often evokes negative biases of rigidity and inertia (Miller & Friesen, 1980). I contend that stability must be balanced with flexibility, by using SSEPs in this case, to survive and thrive through disturbances.

My study demonstrates the necessity of understanding the implications of different types of SEPs (Aguilera et al., 2007). Overall, organizations that invested in SSEPs experienced less severe losses and recovered more quickly following a disturbance, whereas organizations that invested in TSEPs did not. The transient nature and limited scope and impact of TSEPs caused these activities to have minimal or no benefits. SSEPs, I argued, exert a stronger effect on resilience because they go beyond impression management, often require organizational change, and respond to a wider variety of stakeholder concerns than TSEPs. They have stronger effects in terms of improving companies’ stakeholder relationships, projecting legitimacy, sensing changes, and engaging with innovation, which all contribute to stability and flexibility. In essence, SSEPs enable companies to address the underlying causes of issues over time, whereas
TSEPs are limited to addressing the *symptoms* of those issues, which may be lost altogether during a major economic crisis. Thus, my findings suggest that TSEPs are beneficial to a firm, but not as beneficial as SSEPs in building organizational resilience.

The different associations between SSEPs and TSEPs and organizational resilience contribute to research that examines the use of philanthropic contributions to manage crises. Chen, Patten, and Roberts (2008) found that corporate philanthropic contributions can quickly remedy negative business images, but did not examine the longer-term effects of those contributions or compare their effects relative to other social and environmental practices that organizations may be able to access. In line with this research, Muller and Kräussl (2011) find evidence that companies with reputations for social *irresponsibility* are more likely to use philanthropic contributions in times of crisis. My findings add to these previous studies by showing that the benefits of philanthropic contributions and community support initiatives (or TSEPs), if any at all, are often fleeting and more limited than other forms of SEPs. Organizations may fare better in the aftermath of crises by leveraging forms of SEPs that are more impactful than philanthropy.

**Future Research**

I tested the consequences of resilience to reactions of stock prices; yet, stock prices are not direct indicators of organizational resilience. Although stock prices are among the best measures available to assess resilience in general crises, capital markets are highly sensitive to firm-specific factors that can confound potential results. I encourage future researchers to identify new ways of testing organizational resilience, such as qualitative, process research that allows researchers to assess resiliency dynamics over time.
Resiliency theorists claim that the path-dependent qualities of resilience mean that it improves over time. For instance, psychologists find that individuals who persevere through negative events grow stronger with each success, thus making them more resilient to future disturbances (Bonanno, 2004). I accounted for this path dependency by controlling for firm age; however, a more precise measure of past disturbances could be gleaned in future research. Where this study captured the length of time companies took to fully recover, it would also be helpful to understand how the effects of these disturbances surfaced while recovery was underway. Future studies could also expand the window of observation to identify the characteristics of companies that experience numerous disturbances over a much longer horizon. While using the GFC as a natural experiment in this context was appropriate, researchers could likely find fruitful opportunities for studying resilience by considering a range of disturbances (e.g., Godfrey et al., 2009).

**Concluding Note**

CSR and sustainability have long been directly associated with a company’s financial performance and risk. This causal logic may have inadvertently created a pragmatic and instrumental orientation among companies to pursue quick wins through short-term, tactical SEPs. However, many social and environmental issues are pressing and require substantive action. In this paper, I point to the benefits of more strategic commitments by the firm that not only contribute financially and lower risk, but can also build resilience. By taking a broader look at the outcomes of CSR and sustainability, I help companies push beyond the quick wins in ways that will not only help them realize larger benefits for themselves but also create more meaningful change along the way.
REFERENCES


CHAPTER FIVE – GENERAL CONCLUSIONS

Sustainable companies -- those that will last for centuries to come -- must balance intergenerational equity in ways that allow them to meet their present needs without compromising their ability to meet future needs as well. In this sense, sustainable business is more about intertemporal decision making and balancing the short and long terms than social and environmental performance (Bansal & DesJardine, 2014). At the heart of this thesis is the idea that overly short-term thinking hinders effective management and undermines business sustainability. Many practitioners and academics are voicing their concerns that short-termism is preventing companies from maximizing value for business and society. With this problem in mind, I developed three essays that collectively answered the question: *What are the causes and consequences of corporate short-termism?* Each study offered a unique contribution to a greater understanding of the important role that short-termism plays in today’s business environment.

**Summary of Contributions**

This research makes three primary contributions related to the topic of corporate short-termism. First, it contributes to the conversation on the intertemporal tensions that underlie the relationship between financial markets and corporate managers. On one hand, some believe that markets systematically over-value short-term payoffs and, on the other hand, some attest that markets favor long-term value but are thwarted by myopic managers (Bushee, 1998; David, Hitt, & Gimeno, 2001; Porter, 1992). Accordingly, the roots of corporate short-termism remain “controversial” (Marginson & McAulay, 2008: 275) and filled with “much debate” (Kochhar & David, 1996: 73). My findings cast light on this debate by showing that it is both parties who are contributing to corporate short-termism. Findings from Essay #1 show that managers shorten their time horizons when underperforming the expectations of financial analysts and investors
(i.e., receiving a downgrade or missing a quarterly earnings target), but do not change their time horizons when missing internal performance benchmarks. Yet, the expectations of financial analysts and investors are subjective indicators of how the market expects companies should perform and are often overly optimistic and too high for companies to realistically achieve in the short run (Hong & Kubik, 2003). Hence, by prioritizing these outsiders’ expectations (Beatty, Ke, & Petroni, 2002; Fuller & Jensen, 2002), managers make the implicit choice to allow the market to shape their time horizon and corporate strategic decisions (Bebchuk & Stole, 1993; Thakor, 1990). Findings from Essay #2 add to this discussion by showing how the number of analysts covering a company negatively affects organizational time horizons and capital investment horizons. These findings provide new insights in the unsettled debate on how financial markets affect organizational time horizons and corporate short-termism. Overall, it is evident that managers perceive pressure to meet the market’s performance expectations.

Second, my research offers a replicable method for measuring organizational time horizons using publicly available archival data. Research on time horizons, and temporal concepts in general, has been challenged by the difficulties associated with measuring time-related constructs (Laverty, 1996; Reilly, Souder, & Ranucci, forthcoming; Souder & Bromiley, 2012). Textual analysis is well suited for capturing the subconscious cognitive processes of managers (e.g., how they think about time) that are otherwise difficult to measure (Barr, 1998; Li, 2010; Nadkarni & Chen, 2014). In fact, Nadkarni and Chen (2014: 1827) suggest that to better understand temporal issues in management research, future research can use textual and linguistic analysis of archival data to “develop valid measures of other important temporal constructs.” Measuring the psychological attributes of managers using textual analysis allows researchers to answer questions that have been otherwise impossible to study (Peterson, Smith,
Martorana, & Owens, 2003). By offering a new method to measure organizational time horizons using textual analysis, and showing how this method can be applied to different types of documents (e.g., conference call transcripts or 10-K filings), my research offers future researchers an improved way to study time in organizations.

Third, the findings from this work contribute to the literature on corporate short-termism and sustainability by showing how temporal trade-offs can undermine the long-term performance of companies (Bansal & DesJardine, 2014; Slawinski & Bansal, Forthcoming). Time is explicit in the definition of sustainable development, which includes development that “meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development, 1987: 43). Sustainable businesses do not “borrow” from the future to secure gains in the present. Yet, it is only recently that scholars have begun to consider the role of time in sustainability, and much prior research in CSR and sustainability has focused on the direct, causal, and short-term benefits of social and environmental practices without considering the longer-term implications (e.g., Bansal & Clelland, 2004; Margolis, Elfenbein, & Walsh, 2007). My work begins to look at the longer-term benefits of social and environmental practices and the pressures that impede or prevent companies from securing these benefits. Specifically, I find evidence that greater analyst coverage increases pressures on managers to perform in the short term in ways that divert them away from making longer-term investments (Essay #2), and that overly short-term investments undermine the resiliency of companies (Essay #3). Whereas long-term, social and environmental practices help build organizational resilience, short-term, tactical social and environmental practices do not. Collectively, these findings suggest that companies that focus too heavily on
meeting the market’s expectations and performing in the short term will underinvest in long-term strategies in ways that compromise their long-term resilience.

**Implications for Managers and Policy-Makers**

Findings from my first essay demonstrate that corporate short-termism manifests partially from the pressure managers feel to meet the external performance expectations of analysts and investors. Since analysts are believed to set too high of benchmarks for companies to realistically achieve, at least in the short run (Hong & Kubik, 2003), managers might benefit by ignoring these earnings benchmarks altogether. Shortly after Paul Polman became the CEO of Unilever he did just this, deciding that the company would stop reporting earnings on a quarterly basis in order to “remove the temptation to work only toward the next set of numbers.” His aim was “to make it very clear internally that [Unilever] was focused on the long term, on sustainable growth.”

Findings from my research suggest that Polman’s tactics are well-suited for helping managers focus on the longer term and that other companies could benefit by following suit.

Policy-makers should also consider extending the time between when companies must report their earnings. By slowing the frequency of reporting, from quarterly to semi-annually, for instance, policy-makers could help promote longer-term thinking among managers, analysts, and investors. The U.K eliminated mandatory quarterly earnings reports with the goal of lengthening organizational time horizons shortly before this thesis was published. While the results of this policy change were yet to be determined at the time of publication, evidence from my work suggests that this change should achieve its intended purpose.

In the past several decades arguments have surfaced that the rising propensity of managers to neglect long-term investments is crippling the competitiveness of economies and

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compromising the general welfare of society and the environment (Hayes & Abernathy, 1980; Porter, 1992). Capital investments, employee development, and social and environmental practices are just a few areas that benefit companies and society, but require long time horizons and investment horizons. The primary findings from Essay #2, that companies respond to analyst coverage by shortening their capital investment horizons, suggest that analyst coverage could hinder the competitiveness of companies, which is particularly concerning given that: 1) in 2014, the average age of industrial equipment in the U.S. was at its highest level since 1938 (Hagerty, 2014); and 2) analysts are so highly revered that many managers go to great lengths to obtain coverage (e.g., paying for analyst coverage). My findings suggest that, before catering to analysts’ interests and seeking their publicity, managers should closely consider how the pressures that come along with analyst coverage might hinder a long-term corporate strategy.

Another takeaway is for stakeholders who desire companies to invest more in the long term. Environmental activists, community stakeholders, and regulators often push companies head on to invest in particular areas that benefit society and the environment (e.g., pollution mitigation or employee diversity). Findings from my research suggest that stakeholders who desire companies to invest in these areas might find more success by helping analysts encourage managers to make more long-term investments, for instance, by helping the stock market more accurately value these investments (Brennan & Subrahmanym, 1995; Hong, Lim, & Stein, 2000; Yu, 2008). That is, stakeholders interested in the long term would benefit by attenuating the pressures that managers perceive to perform in the short term.

In resource scarce environments, such as recessions (Sharma, 2000), managers may be even more tempted to focus on the needs of financial stakeholders and reduce expenditures on non-core business activities (Audia & Greve, 2006). Bansal, Gao, and Qureshi (2014), for
example, found that companies reduced spending on CSR activities following the 2008 global financial crisis. Findings from my third essay suggest that reducing spending in these areas during hard times may be a counterproductive strategy: companies can reduce their losses and quicken their recovery periods by maintaining their investments in long-term social and environmental practices. As disturbances grow in frequency and magnitude, managers will find value in developing and implementing strategies that leverage long-term investments rather than those that focus predominantly on securing short-term gains. The long term should not be abandoned in the wake of short-term pressures.

Limitations and Future Research

The contributions of this research should be considered in light of the limitations associated with the work. These limitations also present opportunities for future research. First, the data collection process for conference call transcripts was fairly arduous, which restricted my analysis of these documents to a limited set of companies comprising a single industry. Furthermore, the sample for all studies was restricted to large, public corporations. These sample size limitations constrain the generalizability of my findings across industries and types of companies. For example, it is plausible that industry heterogeneity, such as industry velocity (Nadkarni, Chen & Chen, 2015), could moderate the relationships found in my work or that the findings would be different for small, privately listed companies. Testing these hypotheses using a broader sample of companies across many industries would further enhance our overall understanding of the causes and consequences of corporate short-termism.

Second, the text of quarterly earnings conference call transcripts and 10-K filings was analyzed to measure organizational time horizons. One limitation in terms of using conference calls was that all executives’ speech during those calls was aggregated to form a single measure.
Yet, executives carry different weight in their strategic decision-making power and their individual time horizons may depend on their personal characteristics or career type. For example, Chief Financial Officers (CFO) may be more likely to focus on the near future, whereas Chief Executive Officers (CEO) may focus more on the distant future. If this is the case then companies whose conference calls are dominated by their CFO will display shorter time horizons. Future research could study how personal characteristics and career types influence organizational time horizons by measuring managers’ speech separately. Such findings would help explain how organizational time horizons are shaped by individual heterogeneity. A criticism of 10-K filings is that they are prepared by trained communications and investor and public relations personnel to manage impressions. Future research should measure organizational time horizons using other sources of corporate documents, such as letters to shareholders (Nadkarni and Barr, 2008) or press releases, to see whether my findings hold in less prepared and scripted documents. Even more robust research could triangulate findings across different types of documents to test these hypotheses (e.g., Nadkarni, Chen & Chen, 2015).

Third, using the 2008 global financial crisis as a single external event to study the resiliency of companies limits the generalizability of the conclusions drawn in my third essay. These conclusions may not stand in the context of other types of disturbances, such as company-specific crises (e.g., factory closures). For example, because social and environmental practices build resilience partially through managing relations with outside stakeholders (by increasing organizational legitimacy), it is possible that such practices will not build resilience to internal or more localized crises. Future research should re-examine the relationship between social and environmental practices and organizational resilience using other types of negative events.

Without doubt there are other limitations to this work that are not mentioned here. Yet,
despite these limitations, I hope that this work has heightened our understanding of corporate short-termism and encourages other scholars to conduct more research on this topic for many years to come.

**Concluding Remarks**

*The qualities most useful to ourselves are, first of all, superior reason and understanding, by which we are capable of discerning the remote consequences of all our actions; and, secondly, self-command, by which we are enabled to abstain from present pleasure or to endure present pain in order to obtain a greater pleasure in some future time.*

-- Adam Smith in *The Theory of Moral Sentiments* (1759)

I began this dissertation with this same quote from Adam Smith, who remarked over two and a half centuries years ago on the complexity of intertemporal choice. Smith continued on to explain that any individual’s decision to sacrifice the future for the sake of the present appears absurd from an outsider’s perspective -- when greater rewards await, he questioned, why settle for less today? Yet, this trade-off of intertemporal choice is exactly what managers confront every day as they strive to maximize short-term profits without undermining their company’s long-term performance. As it did in Smith’s time, the struggle of short-termism survives and thrives today.

A growing concern in recent times relates to the rising costs of short-termism. Paul Polman, CEO of Unilever, warns that, “increasingly the issues that we are facing -- climate change, unemployment, social cohesion, food security -- are issues of global proportions. We are often trapped in [a cycle] short-termism” (Ruddick, 2016). Today, companies and countries are facing intense pressures to grow, and to do so quickly. Economic growth brings the benefits of a higher standard of living into light, but those benefits often come at delayed costs that are obscured or quickly overlooked. For countries, burning down rainforests to increase agricultural land, overfishing to feed growing populations, and filling landfills to dispose of waste are all
actions that produce short-term benefits with long-term costs. For companies, decreasing R&D spending to reduce costs, manipulating accounting numbers to meet earnings targets, and curtailing capital investments to boost short-term profits do the same. Business sustainability demands that countries and companies balance intergenerational equity by meeting their present needs without compromising their ability to meet future needs.

Fortunately, more leaders are beginning to speak out about the perils of short-termism, including regulators, politicians, corporate executives, investors, and academics. At the time this dissertation was published, the 2016 U.S. presidential race was well underway, and both Democrats and Republicans were weighing in on the issue. Daniel Gallagher, a Republican with the Securities and Exchange Commission, warned that there is “a predominance of short-term thinking at the expense of long-term investing,” and Hilary Clinton, as part of her presidential platform, proposed new changes to capital-gains taxes and holding periods to encourage longer-term investments. Many corporate executives and investors from around the world were on the same page. Reflecting their concerns, Bansal and DesJardine (2014) observed that short-termism had become the bane of sustainability.

Addressing short-termism will benefit both business and society. Jeff Bezos, in his annual letter to shareholders, highlights Amazon’s competitive advantage of long term thinking:

If everything you do needs to work on a three-year time horizon, then you’re competing against a lot of people … Just by lengthening the time horizon, you can engage in endeavors that you could never otherwise pursue (Levy, 2011)

Other executives emphasize the benefits of overcoming short-termism that span beyond corporate walls. Paul Polman, for instance, has taken an active stance against short-term oriented

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investors and analysts by not updating the stock market on Unilever’s performance every quarter and shifting the company’s shareholder base away from myopic hedge fund managers. Polman believes that short-term performance pressures from financial markets are hampering managers from operating companies in ways that are best for society and the environment:

The worse thing would be to do what is probably right for the long-term benefit of society and being forced out of that because you don't get the short-term results. That is where the biggest pressures are, there is no doubt about it (Ahmed, 2011)

Overall, it is becoming increasingly clear that the rise of corporate short-termism has undermined effective management and sustainable business. As once prosperous businesses fail, natural resources disappear, and healthy communities dwindle, the effects of succumbing to present pleasure at the cost of the future are now far-reaching and overwhelming. Far-sighted firms are not only more competitive in the long term, but they enhance the welfare of our society, environment, and economy. By more closely considering the causes and consequences of corporate short-termism, management scholars can help ensure our businesses not only survive, but thrive well into the future. Today more than ever, corporate short-termism demands our attention; it is time we take a more long-term view on what is no longer a short-term problem.
“Yes, the planet got destroyed. But for a beautiful moment in time we created a lot of value for shareholders.”
REFERENCES


## APPENDIX A: DICTIONARY OF KEYWORDS USED TO MEASURE ORGANIZATIONAL TIME HORIZONS

<table>
<thead>
<tr>
<th>Words that signal a short organizational time horizon</th>
<th>Words that signal a long organizational time horizon</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURRENT</td>
<td>AND_BEYOND</td>
</tr>
<tr>
<td>CURRENTLY</td>
<td>CENTURIES</td>
</tr>
<tr>
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<td>CENTURY</td>
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<td>COMMIT</td>
</tr>
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<td>COMMITMENT</td>
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<td>MONTH</td>
<td>ENDLESS</td>
</tr>
<tr>
<td>MONTHLY</td>
<td>ENDLESSLY</td>
</tr>
<tr>
<td>MONTHS</td>
<td>ENDLESSNESS</td>
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<td>FOREVER</td>
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<td>QUARTER</td>
<td>HISTORY</td>
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<td>LASTING</td>
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<td>MAINTAIN</td>
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<td>TEMPORARILY</td>
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<td>WEEKS</td>
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<td>YEAR</td>
<td>REMAIN</td>
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</table>
APPENDIX B: STOCK PRICE OUTCOME MEASURES OF ORGANIZATIONAL RESILIENCE

Halliburton Company

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Explanation</th>
<th>Formula</th>
</tr>
</thead>
</table>
| Severity of Loss             | The percentage drop in a company’s stock price from the closing price preceding the global financial crisis (i.e., on September 16, 2008) to the lowest point of the stock price. In my case, I used a 12-month window in my main analysis and included additional windows in my robustness checks. | \[
\text{Severity of Loss} = \frac{\text{minimum stock price during observation window} - \text{closing stock price at start of disturbance}}{\text{closing stock price at start of disturbance}} - 1
\]  |
| Time to Recovery             | The total time it takes for a company’s stock price to return to its level immediately preceding the start of the disturbance event.                                                                        | Dummy variable that equals 1 if a firm recovered in the observation window and 0 otherwise. I strongly suggest survival models for this variable to help with issues of right censoring and asymmetrical distribution in event data. |
CURRICULUM VITAE: MARK R. DESJARDINE

EDUCATION

**Ph.D., Strategy**
Ivey Business School, Western University – London, ON, Canada
Advisor: Dr. Tima Bansal, Canada Research Chair in Business Sustainability

**Chartered Financial Analyst (CFA) designation**
CFA Institute – Charlottesville, VA, USA

**Bachelor of Business Administration with Honours**
FC Manning School of Business, Acadia University – Wolfville, NS, Canada
Advisor: Dr. Terrance Weatherbee, Professor of Management

PUBLICATIONS

- Awarded the Sumantra Ghoshal Research and Practice Award, BPS Division

- *Most Read Article* (or Top 5) every month since publication
- Media coverage: *Huffington Post*


RESEARCH INTERESTS

- Corporate short-termism and financial market pressures
- Decision-making
- Business sustainability and corporate social responsibility
- Organizational resilience
DISSERTATION

Title: “The Causes and Consequences of Corporate Short-Termism” (abstracts at end of CV)
My doctoral research examines how pressures from financial analysts and investors affect the temporal perceptions and strategic decisions of managers, specifically how the latter allocate capital and whether they make socially responsible investments. Preliminary evidence reveals that escalating pressures to perform in the short term are causing managers to think more about the immediate future and invest less in long-term projects. These findings illuminate the trade-offs between the short-term financial success and the long-term welfare of business and society.

- Essay #3: Bouncing Back: Organizational Resilience in the Context of the 2008 Global Financial Crisis

UNDER REVIEW / WORK IN PROGRESS


DesJardine, M. “Investing in the Future: Organizational Time Horizons and Corporate Sustainability”

TEACHING EXPERIENCE

Lecturer, Strategy & Sustainability, Ivey Business School 2014 & 2015
- Masters of Science in Management (case-based)
- 2015 evaluations: 6.8/7.0
- 2014 evaluations: 6.0/7.0 (co-teaching)
CONFERENCE PRESENTATIONS

     - Sumantra Ghoshal Research and Practice Award, BPS Division
     - People’s Choice Award


     - Best Paper Award
   - *Strategic Management Society*, Atlanta, GA (2013)
     - Nominated for Best Paper Award
   - *Academy of Management Conference*, Orlando, FL (2013)

OTHER PUBLICATIONS


# RESEARCH GRANTS, HONORS, AND AWARDS

## Doctoral Research Grants, Scholarships, and Fellowships

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## Honors and Awards

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## Other Accolades

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<td>2009</td>
<td>Frank H. Sobeys Award for Excellence in Business Studies</td>
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<td>Personal Entrepreneurship and Leadership (1st place)</td>
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<td>2009</td>
<td>Wes Nicol Business Plan Competition (finalist)</td>
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CASE STUDIES AND TEACHING NOTES


ACADEMIC SERVICE

- Ad Hoc Reviewer for *Journal of Business Research, Organization & Environment*
- Ad Hoc Reviewer for *Academy of Management Conference (BPS and ONE), Alliance for Research on Corporate Sustainability*
- Interim President and Treasurer (2011-2015), Ivey PhD Association

PROFESSIONAL EXPERIENCE

2010-2011 Investor Relations Analyst, Agrium Inc.
2008-2009 Strategy Consultant, Acadia Centre for Social and Business Entrepreneurship

ACADEMIC AFFILIATIONS

- Academy of Management
- Strategic Management Society
- Alliance for Research on Corporate Sustainability