

Disruption, Firm Risk, and CEO Risk Tolerance*

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Abstract

We study whether disruptive events increase board demand for risk-tolerant CEOs. We argue that disruption increases project risk and thus the benefit of matching with risk-tolerant CEOs, who select projects more aligned with shareholder preferences relative to risk-averse CEOs. Empirically, we measure risk tolerance using outsider perceptions of executives' personal risk-taking and exploit the COVID-19 pandemic and the 2008 financial crisis as shocks disrupting firm operations. We find that firms more exposed to these shocks are more likely to match with risk-tolerant CEOs, in the years of and after each shock. Among firms most exposed to the pandemic, those with risk-tolerant CEOs invest more in R&D and less in physical assets. We also show that risk-tolerant CEOs are more likely to be external hires with prior ties to the firm. Collectively, our findings suggest that disruption makes risk tolerance an attractive CEO trait for a broader set of firms than in normal times.

Keywords: risk tolerance, executive risk-taking, CEO–firm matching, disruption

JEL Classification: G32, G34, M12

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1 Introduction

In recent years, disruptions to companies’ operations and business models have become more common and have exposed firms to new sources of uncertainty. Consistent with this trend, CEOs and directors report increased risk exposure across industries, as documented by the executive search firm Korn Ferry.¹ As an example of a disruptive event, the COVID-19 pandemic and the associated social distancing measures interrupted the supply of goods and services by firms whose production required physical proximity of workers, and reduced demand for firms whose products or services were not needed by customers staying at home [Baqaee and Farhi, 2022]. As another example, the trade war with China during the first Trump administration resulted in substantial increases in tariffs on imported goods that were fully passed through to prices, with direct effects for companies relying on imports for production [Fajgelbaum and Khandelwal, 2022]. Both the pandemic and the trade war were largely unanticipated events that left firms with little choice but to adapt to rapidly changing circumstances. We refer to events like these as disruptive events and study whether they affect CEO–firm matching, with the prediction that they make matches between firms and risk-tolerant CEOs more likely.

Our prediction reflects a basic trade-off. Any strategic choice a CEO makes (e.g., allocating resources, competing in product markets, or managing supply chains) involves some risk since payoffs are uncertain. Due to this risk, risk-averse CEOs underinvest relative to the preferences of risk-neutral shareholders. Risk-tolerant (or less risk-averse) CEOs underinvest less, which raises their attractiveness in the executive labor market. However, more risk-tolerant CEOs may also engage in excessive or inappropriate risk-taking [e.g., Cline, Walkling and Yore, 2018; Davidson, Dey and Smith, 2015, 2020], which reduces their attractiveness. In equilibrium, boards must balance these costs and benefits when matching with a CEO.

Disruptive events raise the relative benefit of CEO risk tolerance in that they change economic conditions unexpectedly and often magnify the risks associated with the strategic choices a CEO faces. Diversified shareholders still prefer profit-maximizing choices. Yet, elevated risk levels increase executives’ hesitancy to undertake or implement projects, and more so for risk-averse CEOs than for risk-tolerant CEOs. Rational boards should then prefer more risk-tolerant CEOs, who will select high-potential but risky projects and enable an active response of the firm to outside disruption. Shocks like the COVID-19 pandemic, in particular, may draw boards’

¹In its report, Korn Ferry also notes that, despite an overall increase in perceived risk, directors are less certain than CEOs about their firms’ ability to address risk [Korn Ferry (2025), ‘*Risky Business*’, CEO & Board Survey]. For the press release announcing the report, see: <https://www.kornferry.com/about-us/press/sentiment-of-ceos-and-board-directors-reveals-rising-risks-and-falling-confidence>.

attention to the sides of risk tolerance that can help navigate disruption successfully—taking on strategic risks in a calculated and informed way—and away from the costs that can arise from excessive risk-taking. These shocks also highlight a possible benefit of risk tolerance that applies, in principle, across firms and is not limited to specific industries (such as industries with sufficient patenting activity in [Sunder, Sunder and Zhang \[2017\]](#)).

We illustrate the underlying mechanism with a simple simulation. In general, risk-tolerant CEOs are less likely to forgo projects with positive net present value (NPV) that more risk-averse executives may reject. In the simulation, we show that this benefit of CEO risk tolerance, relative to risk aversion, increases markedly if firms’ operating environments are disrupted, with disruption modeled as an increase in project risk. The increase in risk widens the gap between the projects risk-tolerant and risk-averse CEOs select, which makes risk-tolerant CEOs, absent other changes, more attractive. Accordingly, we expect disruption to increase board demand for CEO risk tolerance and, in equilibrium, the likelihood of matching with risk-tolerant CEOs.

As a proxy for risk tolerance, we use evidence on personal risk-taking of CEOs. Using personal as opposed to general risk-taking allows us to measure intrinsic risk preferences with activities in executives’ private lives, and therefore, to avoid risk-taking with direct links to contractual incentives from the corporate roles they have within the firm [[Cain and McKeon, 2016](#); [Davidson et al., 2015](#)]. To capture risk preferences broadly, we collect data on a range of activities that may be informative about the willingness to take on risky but value-enhancing projects: extreme and endurance sports, indications of norm violations (e.g., affairs or conflicts of interest), substance misuse, and personal misconduct [e.g., [Brown, Lu, Ray and Teo, 2018](#); [Grieser, Kapadia, Li and Simonov, 2016](#); [Grinblatt and Keloharju, 2009](#)]. We collect the underlying data from media reports and other online sources, which helps address our research question in two respects. First, our proxy should keep the number of false positives low in that it singles out the subset of risk-taking that includes the more extreme and salient cases [[Hirshleifer, Low and Teoh, 2012](#)]. Second, it reflects outsider assessments. Specifically, our data indicate whether the CEO is publicly perceived as a risk-taker, which should have signaling value in itself and could inform the board’s assessment of match quality.

Our proxy covers CEOs of S&P 500 firms for fiscal years 2006–2024. In any given year, it identifies 7% of CEOs as risk-tolerant, with 4.5% engaging in extreme or endurance sports and lower levels for the other activities. Over the entire period, raw percentages show little variation, consistent with changes in media coverage and data availability not being a primary concern. Accounting for potential determinants suggests that firms match with risk-tolerant CEOs when they are going through periods of adjustment. In the cross-section, a firm is more likely to have

a risk-tolerant CEO if it is subject to an SEC investigation. Within firms, the likelihood of a risk-tolerant CEO increases as competitive threats increase. Both across and within firms, investment explains firm matches with risk-tolerant CEOs. Capital expenditure is especially high in the years prior to appointments of risk-tolerant CEOs, relative to other appointments at reweighted control firms. Thus, firms that match with risk-tolerant CEOs appear to face external threats and to invest in their internal capacity. While this pattern is consistent with boards demanding risk tolerance when firm fundamentals are changing, it arises endogenously and largely reflects firm choices.

In the main analysis, we make use of external disruptions that are outside a firm’s control. In particular, we exploit two of the most disruptive events during our sample period: the COVID-19 pandemic that began in 2020 and the financial crisis of 2008. Both resulted in economy-wide losses and moved a substantial number of firms closer to bankruptcy [e.g., [Acharya and Steffen, 2020](#); [Campello, Graham and Harvey, 2010](#)]. Likewise, both were unanticipated in the sense that they were preceded by volatile build-up periods during which the extent and consequences of the subsequent crisis were difficult to predict [e.g., [Brunnermeier, 2009](#); [Ramelli and Wagner, 2020](#)]. In our analysis, we use these features for identification. We consider the underlying events as shocks to the board’s demand for CEO characteristics and expect demand to shift toward risk tolerance, as firm risk and the need to choose among riskier alternatives increase.

In the analysis of the COVID-19 pandemic, we measure shock exposure with the industry share of jobs that can be done at home [[Dingel and Neiman, 2020](#); [Fahlenbrach, Rageth and Stulz, 2021](#)]. Firms at the lower end of the distribution of the work-from-home share have fewer options to continue operating in a remote context and are more affected by social distancing rules, one of the policy instruments regulators used to respond to the pandemic. Accordingly, we test whether they are more likely to have a risk-tolerant CEO in the years of and after the pandemic, relative to a control group of firms at the higher end of the distribution of the work-from-home share. The results are economically meaningful, with the probability of matching with risk-tolerant CEOs increasing by 3.4–5.3 percentage points for treated firms, and allow for a five-year window following the shock during which firms can complete potentially lengthy CEO transition processes. The results are also similar across a range of alternative research design choices such as entropy balancing and variations in model specification. For example, in our most demanding specification, we incorporate firm (and year) fixed effects and control variables that account for firm, board, and CEO characteristics, including CEO visibility to address the concern that our proxy captures media attention rather than risk tolerance.

In the analysis of the financial crisis, we measure shock exposure with industry affiliation.

Firms in the financial sector were at the core of the crisis and hit hardest, and serve as our treatment group. Non-financial firms were affected differently; they experienced primarily credit and liquidity constraints, which were often binding and limited their ability to pursue strategic adjustments [e.g., Almeida, Campello, Laranjeira and Weisbenner, 2012; Campello et al., 2010]. Hence, we use non-financial firms as controls but follow Duchin, Ozbas and Sensoy [2010] in adding pre-crisis cash holdings as a proxy for their exposure to financing constraints in some specifications. We rely on otherwise similar research design choices as in the COVID-19 analysis and obtain results with similar implications: for financial firms, the group of firms most affected by the crisis, the probability of matching with risk-tolerant CEOs increases by 3.3–4.4 percentage points in the years of and after the crisis. In this analysis, however, the results are more surprising, given the discussions surrounding the financial crisis. Financial firms were widely viewed as playing a central role in the crisis and accused of excessive risk-taking in the years preceding it, both in the press and parts of the academic literature.² Yet, our findings imply that financial firms were not less, but rather more likely to match with risk-tolerant CEOs to navigate the crisis and its aftermath, suggesting that boards perceived benefits from doing so that outweighed the potential costs of negative publicity.

We then study the consequences of matching with risk-tolerant CEOs following disruptive events. We find that, within the group of firms most exposed to the COVID-19 pandemic, those that match with risk-tolerant CEOs decrease capital expenditure and increase R&D investment, in line with risk-tolerant CEOs selecting higher-variance (and higher-payoff) projects that risk-averse CEOs would reject. Such a reallocation of funds supports the pattern of project selection predicted by our simulation and obtains after accounting for risk-taking incentives from compensation contracts. Specifically, our models control for portfolio delta and vega, including differential effects by shock exposure, and in this manner attempt to distinguish intrinsic risk tolerance from the alternative, contractual mechanism through which boards may induce risk-taking.

In our final analysis, we examine whether risk-tolerant CEOs are more likely to be external appointments. External appointments can serve as a signal of strategic change [e.g., Huson,

²For examples from the press, see: “Agency’s ’04 Rule Let Banks Pile Up New Debt,” New York Times, October 2, 2008 (<https://www.nytimes.com/2008/10/03/business/03sec.html>); “Mr. Rajan Was Unpopular (But Prescient) at Greenspan Party,” Wall Street Journal, January 2, 2009 (<https://www.wsj.com/articles/SB123-086154114948151>); or “Survey Finds Banks Aware of Pay Flaws,” Wall Street Journal, March 30, 2009 (<https://www.wsj.com/articles/SB123837870249668339>). The academic literature provides a more nuanced view, with some studies generally supporting claims of excessive risk-taking [e.g., Bebchuk and Spamann, 2010; Fahlenbrach, Prilmeier and Stulz, 2012], and others less so [e.g., Cziraki, Laux and Lóránth, 2024; Fahlenbrach and Stulz, 2011].

Malatesta and Parrino, 2004; Parrino, 1997], which may be especially valuable in periods characterized by uncertainty and disruption. Consistent with boards taking the signaling value into account, we find that risk-tolerant CEOs tend to be appointed as a specific type of external candidate—not as an outsider who is completely new to the firm but as an ‘external insider’ who is already familiar to the board through former director or executive roles. Appointing an external insider can reduce the costs of recruiting externally by lowering the initial investment in firm-specific human capital as well as the likelihood of a mismatch between the firm and CEO [Cziraki and Jenter, 2022]. At the same time, it can preserve much of the signaling value of appointing an external CEO.

While we study CEO appointments in the final analysis, our paper is about matching between firms and CEOs, which involves not only appointing a new CEO but also retaining an incumbent whose level of risk tolerance is aligned with changing circumstances. Our main analyses do not distinguish between these channels; instead, they examine board demand for CEO characteristics as reflected in equilibrium matching outcomes. In doing so, they are agnostic as to the possible impact of disruptive events on the frequency of CEO appointments and related turnover, for which the assignment framework of Eisfeldt and Kuhnen [2013] offers a natural starting point. Finally, our paper is about board demand for CEO characteristics in a situation in which intrinsic traits should be particularly valuable, although we acknowledge that compensation may provide an alternative mechanism for inducing desired risk-taking.

In studying CEO–firm matching, we differ from extant work on risk-tolerant executives that focuses on the consequences of risk tolerance once executives have been appointed [e.g., Cain and McKeon, 2016; Sunder et al., 2017]. In measuring risk tolerance with personal risk-taking, on the other hand, we directly build on extant work. Studies often exploit that risk preferences are, in principle, transferable across domains [Dohmen, Falk, Huffman, Sunde, Schupp and Wagner, 2011], but existing measures typically focus on a single domain. Grinblatt and Keloharju [2009], for example, use speeding tickets; Cline et al. [2018] personal indiscretions such as substance abuse and sexual misadventures; and Brown et al. [2018] high-performance sports cars or attributes of owned vehicles more generally. By combining evidence on risk-taking across domains, our proxy emphasizes that risk tolerance is a broader construct than some of the traits studied previously. For instance, the literature on sensation seeking underlines the pursuit of novel and intense experiences, which may result from risk tolerance but is not its only possible manifestation [e.g., Brown et al., 2018; Grinblatt and Keloharju, 2009; Sunder et al., 2017]. The literature on executives’ misdeeds, in turn, highlights the negative consequences of a potential lack of integrity, whereas risk tolerance itself describes the willingness to accept

greater variation in payoffs, which includes potential gains as well as losses [e.g., [Cline et al., 2018](#); [Davidson et al., 2015](#); [Grieser et al., 2016](#)].

2 Economic Intuition

Our core argument is that periods of disruption amplify the underinvestment problem created by CEO risk aversion and increase board demand for CEO risk tolerance. Underinvestment arises because risk-averse, underdiversified CEOs typically forgo some projects that have positive NPV from a risk-neutral shareholder perspective. In contrast, more risk-tolerant (or less risk-averse) CEOs forgo fewer projects favored by shareholders, making them attractive hires for growth or innovation-oriented firms in normal times [[Graham, Harvey and Puri, 2013](#); [Sunder et al., 2017](#)]. In times of disruption, the relative benefit of CEO risk tolerance changes. Shocks to firms' operations are likely to, on average, increase the risk of available projects to which a risk-averse CEO responds with more investment reluctance than a risk-tolerant CEO, widening the gap in project selection between the two. As a result, the relative benefit of CEO risk tolerance rises, making firms, in general, more likely to match with risk-tolerant CEOs.

We run a simple simulation to illustrate this argument. We simulate project selection by two CEOs with different levels of risk aversion. Both CEOs face the same set of 100 projects, indexed by j . Each project has a risk-neutral NPV, drawn from a uniform distribution with strictly positive values:

$$\mu_j \sim U(0, 1)$$

Thus, all projects have positive NPV and should be selected from a shareholder perspective. Projects differ in risk, captured by the standard deviation of project payoffs:

$$\sigma_j = |x_j|, \text{ with } x_j \sim N(0.3, 0.15^2)$$

We assume constant absolute risk aversion (CARA) utility, so CEO c evaluates each project using the certainty equivalent:

$$CE_{cj} = \mu_j - \frac{\gamma_c}{2} \sigma_j^2$$

A CEO accepts a project if $CE_{cj} > 0$. We compare a risk-tolerant CEO with $\gamma = 1.5$ to a risk-averse CEO with $\gamma = 4.0$.

We model disruption as a mean-preserving increase in project risk. Specifically, the disruptive shock leaves each project's NPV unchanged but increases the standard deviation of payoffs:

$$\sigma_j^{disruption} = k \sigma_j, \text{ with } k > 1$$

In the main simulation, we set $k = 1.75$ to isolate the mechanism we want to illustrate: disruption does not change project value from a shareholder perspective, but it lowers the certainty equivalent of every project, and more so for the risk-averse CEO. In this way, the risk-tolerant CEO, while also rejecting more projects, becomes relatively more attractive to a board seeking to maximize shareholder value.

We do not consider changes in the relative costs of CEO risk tolerance in the simulation because we do not expect them to offset the increase in benefits. Prior literature suggests that greater CEO risk tolerance can impose costs through insider trading, accounting fraud and similar irregularities, and losses in firm value and operating performance [e.g., [Cline et al., 2018](#); [Davidson et al., 2015, 2020](#)]. Periods of disruption are unlikely to strengthen these channels to the same extent; if anything, heightened scrutiny and uncertainty may reduce incentives to engage in some of the activities. However, disruption directly affects firms' operating environments, which shifts emphasis to investment decisions and the costs of underinvestment, the core of our argument. Thus, even if risk-tolerant CEOs engage in more costly activities, to change our prediction, the increase in these costs would have to outweigh the increase in the relative benefit, which we believe is unlikely.

Likewise, we do not consider compensation arrangements such as stock options. Compensation incentives provide an alternative mechanism through which boards can influence CEO risk-taking, but they come with their own costs and constraints and are the subject of an extensive literature [e.g., [Bergstresser and Philippon, 2006](#); [Coles, Daniel and Naveen, 2006](#); [Hall and Murphy, 2002](#); [Kuhnen and Niessen, 2012](#)]. Our focus is on situations in which the board prefers a CEO whose intrinsic risk preferences, as opposed to contractual incentives, are more closely aligned with firm strategy.

We run the simulation 1,000 times and report summary statistics for the NPV and number of projects selected in Panels A and B of Table 1. Both panels distinguish between normal and disruptive times and between risk-tolerant and risk-averse CEOs; for ease of comparison, we also report the difference between the two CEOs. Consistent with our argument, the risk-tolerant CEO selects more projects and achieves a higher total NPV than the risk-averse CEO, with differences increasing substantially during periods of disruption. Figure 1 illustrates these differences by depicting project selection for a single random draw. In normal times, the risk-tolerant CEO selects more projects than the risk-averse CEO (blue circles and orange diamonds). In times of disruption, the risk-tolerant CEO drops fewer projects (orange diamonds), leading to a higher NPV overall.

In Panel C, we vary the multiplier applied to project risk from 1.1 to 2.0 to demonstrate the

impact of differential exposure to disruption, and report differences in mean NPV and mean number of selected projects between the two CEOs. Larger disruption multipliers lead to larger differences, implying a greater relative benefit of CEO risk tolerance. Our empirical analyses exploit this cross-sectional variation by identifying treated firms based on their exposure to disruptive events, with the prediction that risk-tolerant CEOs will be relatively more attractive to more exposed firms.

3 Data

3.1 Personal Risk-Taking

We proxy for CEO risk tolerance using evidence of personal risk-taking, which we hand-collect from media reports and other online sources. We focus on personal risk-taking, i.e., risky activities primarily related to the private sphere, to obtain a proxy for intrinsic risk preferences of the executive that is not driven by incentives arising from the contracts they have with the firm [Cain and McKeon, 2016; Davidson et al., 2015]. We allow for overlap between private and professional spheres if the activities are outside the executive’s formal role within the firm (such as workplace affairs or other personal interactions with individuals associated with the firm).

In classifying activities as risk-taking, we rely on executives’ behavior and the risks they intentionally take, not on outcomes. For example, we do not record a risk-taking activity for the former CEO of Lululemon, Calvin McDonald, because of the accident he had in 2022; but we record an activity for the fact that he was participating in a triathlon in 2022 and for similar activities in the years before.

To capture risk preferences, we collect data on a range of activities that extant research associates with risk tolerance and related traits [e.g., Cain and McKeon, 2016; Grieser et al., 2016; Grinblatt and Keloharju, 2009; Pittman, Stein and Valentine, 2023].³ Activities pertain to extreme or endurance sports (based on sports) or norm violations, personal misconduct, and substance misuse (other risk-taking). We classify evidence as sports if it involves meaningful exposure to physical risk or sustained physical challenge that suggests tolerance for substantial physical downside. This includes, for example, participation in triathlons or marathons but excludes low-intensity physical activity such as jogging, even if done routinely. We classify evidence

³This research often builds on the literature in psychology and criminology to establish the link between an individual’s risk tolerance and specific activities. Ehrlich [1973], for example, shows analytically that risk-tolerant individuals (risk preferrers in the paper’s terminology) are more likely to participate in criminal activities. Zuckerman [1983] finds that, empirically, sensation seeking—a related but narrower trait than risk tolerance—appears to predict participation in high-risk or dangerous sports but not in low-risk activity such as running.

as other risk-taking if it involves voluntary exposure to social, legal, reputational, or interpersonal risk. The former Google CEO Eric Schmidt, for example, had several extramarital affairs over multiple years. In doing so, he demonstrated a willingness to accept social disapproval that could harm his reputation and affect private and professional relationships. We therefore code his behavior as other risk-taking. We also code the behavior of Leslie Moonves, the former CEO of CBS, as other risk-taking, since he was repeatedly accused of sexual harassment and similar forms of misconduct that exposed him to legal and other risks.

In the main analysis, we treat risk tolerance as a stable trait and code it as time-invariant within CEO [similar to, e.g., the *Longholder* measure for overconfidence in [Malmendier and Tate, 2005, 2008](#)]. For sensitivity analyses, we collect the date of the risk-taking activity or its start date, where possible.⁴ For Leslie Moonves, for example, the earliest evidence of misconduct dates to the 1980s, which we treat as the start date.

Evidence on risk-taking activities comes from media reports and other publicly available online sources, and reflects outsider assessments. For our research question, this is useful in two respects: first, it should single out the most extreme and salient cases, and keep the likelihood of false positives low [[Hirshleifer et al., 2012](#)]. Second, it incorporates the public perception of the CEO into our measure of risk tolerance, which can have signaling value for the firm as a whole. To ensure a comparable level of public scrutiny across executives, we restrict the sample to the CEOs of firms included in the S&P 500 at any point during fiscal years 2006–2024.⁵ Appendix [A.2](#) contains further details on how we collect the data on personal risk-taking.

Across all years, we have data for 1,703 CEOs working at 696 firms, and find evidence of personal risk-taking for 104 (6.1%) of them. In any given year, 7% of firms employ a CEO who is classified as risk-tolerant by our proxy, with 4.1% engaging in extreme or endurance sports only, 2.5% in other risk-taking only, and 0.4% engaging in both.⁶ These percentages are in line with prior studies that rely on media-based measures of risk tolerance and related traits. For example, [Hirshleifer et al. \[2012, Table 1\]](#) report 8.1% of firm-years with CEOs who are overconfident according to their press-based proxy; [Cline et al. \[2018\]](#) identify personal indiscretions for 195 individuals in a sample that extends beyond CEOs to other executives and

⁴We collect the full date if available, and otherwise the month and year or the year. We assign activities for which only the month and year are available to the first day of the month, and activities for which only the year is available to January 1 of that year. We code activities that took place before the start of our sample period (fiscal year 2006) as well as activities without any information on their date as occurring before 2006.

⁵In defining fiscal years, we assign fiscal years ending in January through May to the previous calendar year and fiscal years ending in June through December to the calendar year in which they end.

⁶See Panel A of Table [3](#) for summary statistics of any personal risk-taking [*risk_taking_{it}*], risk-taking based on sports, and other risk-taking, when sports and other risk-taking are not mutually exclusive.

directors.

3.2 Other Data

We obtain firm characteristics from Compustat and supplement them with data from prior work. For undisclosed SEC investigations, we work with data from [Blackburne, Kepler, Quinn and Taylor \[2020\]](#), and for product market fluidity, with data from [Hoberg, Phillips and Prabhala \[2014\]](#). For exposure to the social distancing rules during the COVID-19 pandemic, we create variables based on the industry share of jobs that can be done at home from [Dingel and Neiman \[2020\]](#). [Dingel and Neiman](#) construct the work-from-home share from occupational survey data collected before the pandemic and make it available at the three-digit NAICS industry level. For exposure to the financial crisis, we use pre-crisis SIC codes from Compustat. For the definition of industry fixed effects, we turn to the coarser 48 Fama–French industry classification. Historical information on the state of a company’s headquarters is from the dataset of 10-K (or similar) header information provided by Tim Loughran and Bill McDonald.⁷

We obtain board characteristics and CEO characteristics other than risk tolerance from BoardEx and ExecuComp. To account for CEO visibility, we use data from Wikipedia.⁸ To identify founder CEOs, we use the dataset from [Heitzman, Jagolinzer and Kröcher \[2026\]](#). To capture risk-taking incentives, we rely on estimates of the sensitivity of the CEO’s equity portfolio to changes in stock price (delta) and stock return volatility (vega) covering the years through 2023 from [Coles, Daniel and Naveen \[2013\]](#).⁹ To classify CEO appointment type similar to [Cziraki and Jenter \[2022\]](#), we work with the executive’s employment history, including board ties, from BoardEx.

For all samples, we exclude observations with fiscal years of less than twelve months and singletons. We also exclude firm-years with missing information on any of the variables required for the analysis, with two exceptions. Data on SEC investigations are only available for investigations that were closed until 2017; we replace missing values with zero to account for incomplete coverage until 2017 and no coverage after. Second, for different reasons, data on R&D expenditure are often missing; we set missing values to zero and include (but do not tabulate) an indicator variable for missing R&D in all of our regression models [[Koh and Reeb,](#)

⁷See: <https://sraf.nd.edu/sec-edgar-data/10-x-header-data>.

⁸The data are available through the Wikimedia Analytics API; see, e.g.: <https://doc.wikimedia.org/generated-data-platform/aqs/analytics-api>.

⁹They estimate delta and vega based on the methodology in [Core and Guay \[2002\]](#) and [Coles et al. \[2006\]](#), and make the dataset available at: <https://sites.temple.edu/lnaveen/data/>.

2015]. We convert monetary values into 2020 dollars¹⁰ and winsorize continuous variables at the 1st and 99th percentiles.

We begin the analysis with a sample of 10,732 observations for 696 firms and fiscal years 2006–2024 to document general patterns in the matching between firms and risk-tolerant CEOs. We then construct subsamples for our main analyses based on research design, available data, and the relevant period and unit of observation.

3.3 Descriptives

Table 2 presents the share of firms employing a risk-tolerant CEO in each of the years 2006–2024. Throughout the paper, we focus on the share of overall personal risk-taking (all) but provide some information on the different categories—extreme and endurance sports (based on sports) and other risk-taking—to facilitate comparison with prior literature, which typically uses data belonging to only one category.

Across years, the share of overall personal risk-taking varies only mildly around its sample mean of 7%, with a maximum of 8.2% in 2014 and the lowest values in the final years. The latter is driven by other risk-taking and might well reflect the longer time it takes to reveal the behavior that we classify as other risk-taking; norm violations, personal misconduct, and substance misuse usually involve behavior executives do not disclose voluntarily. In any case, the slight decline toward the end of the sample period does not point at changes in media coverage introducing systematic bias in our measure of risk tolerance. If anything, breadth and depth of media coverage should have improved over the years.

The changes in the share of executives engaging in extreme and endurance sports are suggestive of the broader pattern we expect to observe in the data. The share increases in the years following the financial crisis from 3.9% in 2008 to 4.8% in 2012, and reaches its maximum following the COVID-19 pandemic, with 5.5% in 2021.

Panel A of Table 3 displays summary statistics for the variables that are part of the analysis. Firm and board characteristics are reflective of the nature of the sample, comprising large, S&P 500 firms, and are defined in Appendix A.1. Executive characteristics help validate our proxy for CEO risk tolerance, $risk_taking_{it}$, and we include both summary statistics in Panel A and correlation coefficients for the sample of CEO appointments in Panel B. Panel B shows that $risk_taking_{it}$ is positively correlated with military experience [$military_{it}$], a CEO characteristic

¹⁰We use the Consumer Price Index for All Urban Consumers (CPI-U) from the Bureau of Labor Statistics, available at: <https://www.bls.gov/cpi/data.htm>.

that some studies link to managerial risk-taking and risk tolerance more widely [Cain and McKeon, 2016; Malmendier, Tate and Yan, 2011]. We do not use military experience in our main analyses since Benmelech and Frydman [2015] note that its relation with risk-taking is theoretically ambiguous. In addition, despite the positive correlation, overlap with our proxy for risk tolerance is low empirically.¹¹ Panel B also shows that risk tolerance is less frequent in female CEOs [$female_{it}$], but the correlation coefficient is insignificant. Risk tolerance is negatively correlated with age [$\ln(age)_{it}$]. As we treat risk tolerance as a persistent trait, this correlation likely captures when risk-tolerant individuals are employed as CEOs, rather than how risk tolerance changes with age.

Finally, Panel B displays a positive correlation between our measure of risk tolerance and $wikipedia_{it}$, denoting the existence of a Wikipedia page for the executive. With this variable, we aim to address a concern related to the data sources for our measure of risk tolerance. While risk-taking discussed in the media should reveal tendencies to engage in risky behavior, it also indicates the extent of media attention and scrutiny. To distinguish risk tolerance from media attention, we control for Wikipedia coverage, a proxy for CEO visibility in online media and the public in general, in all of our analyses [Heitzman et al., 2026; Lovelace, Bundy, Pollock and Hambrick, 2022].

4 Main Analyses

4.1 CEO–Firm Matching and CEO Risk Tolerance

We begin the analysis by examining which firms are more likely to match with risk-tolerant CEOs and under what circumstances. Prior literature suggests that risk-tolerant CEOs work at firms with riskier corporate policies and corporate conduct, with high-growth firms representing a specific example [e.g., Bernile, Bhagwat and Rau, 2017; Davidson et al., 2015; Graham et al., 2013]. In Figure 2, we examine investment as a common characteristic of growth firms and an outcome of corporate decision-making that is informative of strategic choices within the firm and less subject to the influence of outside factors than more direct measures of growth. The figure depicts capital expenditure around appointments of risk-tolerant CEOs (solid line) and a control sample (appointments of other CEOs, dashed lines) for the three years preceding and following appointment (year 0). For this figure, we limit the sample to firms with no other CEO appointment in any of the years displayed and nonmissing data for all years. We scale capital

¹¹Specifically, in the sample of CEO appointments, we have in total 22 CEOs with a military background only, 48 with evidence of personal risk-taking only, and six with both.

expenditure by its year -3 value and report the mean by year. To facilitate comparability, we report for the control sample both an unweighted and a weighted mean, where we derive weights by balancing firms on a range of firm and board characteristics measured in year -3 .¹²

Resulting values show that, relative to year -3 , capital expenditure increases at firms appointing risk-tolerant CEOs in the years leading to appointment, and remains at slightly elevated levels after appointment. Investment at control firms, on the other hand, changes substantially less, with mean values remaining below those of firms appointing risk-tolerant CEOs, regardless of whether we weight observations. That risk-tolerant CEOs, or CEOs with related traits, invest more post-appointment is consistent with extant work [e.g., [Cain and McKeon, 2016](#); [Hutton, Jiang and Kumar, 2014](#); [Malmendier and Tate, 2005](#)]; that firms appointing these types of CEOs experience increases in investment already pre-appointment, however, is usually not the focus of extant work and in line with our prediction that firms are more likely to match with risk-tolerant CEOs when firm fundamentals are changing more broadly.

We extend the analysis by estimating the following regression model, with our proxy for CEO risk tolerance as the dependent variable:

$$\begin{aligned} risk_tolerant_{it} = & \beta_1 capex_{i(t-1)} + \beta_2 r\&d_{i(t-1)} + \beta_3 sales_growth_{i(t-1)} + \beta_4 btm_{i(t-1)} \quad (1) \\ & + \beta_5 roa_{i(t-1)} + \beta_6 sec_inv_{i(t-1)} + \beta_7 fluidity_{i(t-1)} + \beta_8 cash_{i(t-1)} \\ & + \beta_9 lev_{i(t-1)} + \beta_{10} \ln(assets)_{i(t-1)} + EXECUTIVE + BOARD + FE + \epsilon_{it} \end{aligned}$$

where we include a range of firm characteristics to capture investment, growth, performance, as well as internal and external pressures. In this and subsequent models, we also include a core set of control variables for executive [EXECUTIVE] and board characteristics [BOARD]: variables for CEO gender, age, and Wikipedia coverage, and for board size, independence, and busyness. To absorb other variation, we estimate specifications with either industry, state, and fiscal year fixed effects, or firm and year fixed effects. We lag independent variables by one year unless they refer to the executive, and cluster standard errors by firm. Table 4 presents the results, for the full model in columns 3 and 4.

Consistent with the pattern documented in Figure 2, lagged investment is positively associated with risk-tolerant CEOs. While $r\&d_{i(t-1)}$ loses explanatory power in the full model, $capex_{i(t-1)}$ retains it throughout, with stronger findings within firms. As a more direct mea-

¹²Firm characteristics correspond to the variables displayed in Equation 1 with the exception of capital expenditures [$capex_{i(t-1)}$]; board characteristics correspond to the variables subsumed under BOARD: board size, independence, and busyness. We use entropy balancing to reweight control observations such that weighted variable means match those of firms appointing risk-tolerant CEOs.

sure of growth, $sales_growth_{i(t-1)}$ likewise appears to explain risk tolerance; its coefficient is positive in all specifications, albeit weakly statistically significant. Firm performance seems to be, if at all, negatively associated with risk-tolerant CEOs; return on assets $[roa_{i(t-1)}]$ has a (weakly) negative coefficient in the specifications with firm fixed effects.

By contrast, proxies for internal issues and external pressures are more strongly related. In the cross-section, it is firms subject to an SEC investigation $[sec_inv_{i(t-1)}]$ that match more frequently with risk-tolerant CEOs, irrespective of whether we estimate the model in the full sample or limit it to years with better coverage of SEC investigations (Table IA.1 in the Internet Appendix).¹³ Within firms, increases in competitive threats, captured by the similarity of firms' business descriptions in the 10-K $[fluidity_{i(t-1)}]$, are associated with a greater likelihood of appointing a risk-tolerant CEO. Coefficients also imply meaningful changes in the probability of observing a match with a risk-tolerant CEO. For example, this probability is higher by 3.7 percentage points for firms under SEC investigation (coefficient of 0.037 with $p < 0.01$ in column 3 of Table 4). Within firms, the probability increases by 0.67 percentage points for a one-standard-deviation increase in fluidity (coefficient of 0.434 with $p < 0.05$ in column 4),¹⁴ which represents almost 10% of the sample mean probability (7%).

We find little evidence for significant associations with total assets as a proxy for firm size $[ln(assets)_{i(t-1)}]$ and cash resources $[cash_{i(t-1)}]$, and we find no evidence at all for leverage $[lev_{i(t-1)}]$ and the book-to-market ratio $[btm_{i(t-1)}]$.

4.2 COVID-19 Pandemic

The findings in the preceding section suggest that matching between firms and risk-tolerant CEOs is more likely when core firm policies and, with them, firm fundamentals are changing. In this section, we focus on changes in firm fundamentals induced by plausibly exogenous variation, and in particular, the COVID-19 pandemic as a shock to firms' operating environments. For many firms, the pandemic meant a halt or, at a minimum, a slowdown of operations [Baqae and Farhi, 2022]. Uncertainty about the implications of the disease and changing social distancing rules had direct effects on production by, for example, preventing employees from working on-site and in physical proximity. More indirectly, they increased the risk associated with firms'

¹³The dataset on SEC investigations is compiled based on when investigations are closed, which makes it difficult to pin down a period of relatively complete coverage. In Table IA.1 in the Internet Appendix, we end the sample in fiscal year 2013 since the data comprise investigations that were closed until August 2, 2017, and have a mean duration of 3.23 years [Blackburne et al., 2020, Panel A of Table 1].

¹⁴We use the within-fixed effects standard deviation to assess economic magnitude [Breuer and deHaan, 2024], which is 0.015 for product market fluidity in the specification with firm fixed effects.

available project choices, such as expanding into new markets, setting prices, and renewing or terminating customer and supplier relationships. The increase in project risk then amplifies the underinvestment problem created by managerial risk aversion, since risk-averse CEOs become more likely than risk-tolerant CEOs to reject projects that remain attractive from a shareholder perspective. We thus expect boards to place relatively greater value on CEO risk tolerance during the pandemic.

We test our prediction using a difference-in-differences design that builds on the baseline model from the previous section:

$$\begin{aligned} risk_tolerant_{it} = & \beta_1 q1_wfh_i \times post_t [+ \beta_2 q2_wfh_i \times post_t + \beta_3 q3_wfh_i \times post_t] \quad (2) \\ & + \beta_4 q1_wfh_i [+ \beta_5 q2_wfh_i + \beta_6 q3_wfh_i] \\ & + FIRM + EXECUTIVE + BOARD + FE + \epsilon_{it} \end{aligned}$$

where we identify firms that are most exposed to the pandemic based on the pre-pandemic industry share of jobs that can be done at home [Dingel and Neiman, 2020]. $q1_wfh_i$ is an indicator variable for firms whose work-from-home share lies in the bottom quartile of the distribution, where operations are most strongly disrupted by social distancing rules and similar measures. In our sample, 141 firms from 35 NAICS industries fall into this category, with no more than 22.6% of jobs that can be performed at home [wfh_i in Panel A of Table 3]. In some specifications, we also include variables for firms whose work-from-home share lies in the middle quartiles of the distribution [$q2_wfh_i$ and $q3_wfh_i$], although we do not formulate predictions for them. Disruption may have a nonlinear impact, possibly allowing more moderately affected firms to delay their response until uncertainty begins to resolve. In all specifications, we rely on firms with a work-from-home share in the top quartile as control group, as they have the greatest flexibility to move existing work to the remote setting.

$post_t$ is equal to one for fiscal year 2020 and after, and denotes the years during which we expect the pandemic to have an impact on the matching between firms and CEOs. Ramelli and Wagner [2020] show that investor responses to the outbreak of COVID-19 materialize first in the early months of 2020 for internationally oriented firms and become widespread by March. Such a short run-up period and the fact that CEO changes take time—either because of the time it takes for turnover to unfold naturally or because of the mere time involved in an executive search process—imply that fiscal year 2020 is the earliest point at which we could plausibly observe a board response to the pandemic.¹⁵ The coefficient for the interaction of $post_t$ and

¹⁵Note that fiscal year 2020, in our data, corresponds to fiscal years ending between June 2020 and May 2021

$q1_wfh_i$ then captures this potential matching response.

We control for the firm characteristics displayed in Equation 1 [FIRM] with the exception of SEC investigations given their incomplete coverage, as well as the executive and board characteristics, and follow the same research design otherwise. We restrict the sample to fiscal years 2015–2024 to ensure that the pre-period is of the same length as the post-period, which ends with 2024 as the final year for which we have data. For a firm to be included in the sample, we require at least one observation in the pre-period and one observation in the post-period. Table 5 presents the results, comparing only firms from the bottom and top quartiles of the work-from-home share in columns 1–4 and firms from all quartiles in columns 5–8.

The results suggest that firms more exposed to the pandemic match more frequently with risk-tolerant CEOs. The coefficient on the interaction between $q1_wfh_i$ and $post_t$ is positive and of comparable magnitude, regardless of whether we extend the sample, include the full set of control variables, or vary the fixed effects structure. Even in the most stringent specification, it still reflects an increase of 3.4 percentage points in the probability of observing a match with a risk-tolerant CEO (coefficient of 0.034 with $p < 0.10$ in column 8), or approximately 55% of the pre-pandemic mean for exposed firms (6.2%, untabulated). When we allow for differential associations for firms in the middle quartiles, we find positive and weakly significant associations for firms with a work-from-home share above the median but nothing for those below.

The results also hold across a range of alternative research design choices. In the main analysis, we follow [Fahlenbrach et al. \[2021\]](#) and classify firms in the bottom quartile of the work-from-home share as most affected by the pandemic. In Panel A of Table [IA.2](#) in the Internet Appendix, we replace the indicator variable for the bottom quartile with a continuous variable for the share of jobs that cannot be done at home [non_wfh_i , one minus the work-from-home share]. The results generally support an increase in the probability of matching with risk-tolerant CEOs after the outbreak of COVID-19 but are weak, consistent with the nonlinear relationship documented above. In Panel B, we replace the indicator variable for the post-period with indicator variables for the individual years, and find some evidence for positive associations in every year. In Panel C, we use entropy balancing to make treatment and control groups more comparable [[Hainmueller, 2012](#)], and show that associations are overall similar.¹⁶ In Panel D,

(see Footnote 5).

¹⁶We balance treatment and control groups on the first and second moments of the firm and board characteristics measured in the last year of the pre-period. Since the resulting sample is relatively small (555 firms), we use firms in all quartiles of the work-from-home share except the bottom quartile as controls to estimate weights; firms in the bottom quartile continue to serve as the treatment group. We use the estimated weights to reweight control observations in the regressions.

we cluster standard errors at the same level at which we assign treatment (industry). Again, results are similar.

4.3 Financial Crisis

As a second setting to test our prediction, we examine the financial crisis of 2008. Unlike the COVID-19 pandemic, which disrupted firms' operating environments across a broad range of industries, the financial crisis had more heterogeneous effects on firms. Non-financial firms were affected primarily through tighter financing conditions, limiting the feasibility of otherwise attractive projects without necessarily increasing project risk [e.g., [Duchin et al., 2010](#); [Campello et al., 2010](#)]. [Campello et al. \[2010\]](#), for example, report that financing constraints prevent non-financial firms from investing during the crisis, and that more than 80% of firms subject to severe financing constraints forgo or delay attractive investments because of the lack of external funds. Financial firms, on the other hand, experienced a more direct shock to their operations. As the crisis spread, the risk profile of financial assets changed, prompting firms in the financial sector to reassess their lending, trading, investment, and funding decisions. Many of the assets and positions underlying these decisions became riskier, which widened the gap in underinvestment between a risk-tolerant and a risk-averse CEO and made the risk-tolerant CEO the more attractive executive to boards. Thus, in line with the analysis of the pandemic, we expect board demand for CEO risk tolerance to increase during the financial crisis, and we test our prediction with the following model:

$$\begin{aligned} risk_tolerant_{it} = & \beta_1 finance_i \times post_t [+ \beta_2 cash_i \times post_t] + \beta_3 finance_i [+ \beta_4 cash_i] \quad (3) \\ & + FIRM + EXECUTIVE + BOARD + FE + \epsilon_{it} \end{aligned}$$

where we identify financial firms with the indicator variable $finance_i$, equal to one for firms with SIC codes in the range 6000–6999 in fiscal year 2006 or earlier. In our sample, 104 firms fall into this category, making up 17.6% of the observations (Panel A of Table 3). For the remaining firms, we include pre-crisis cash holdings [$cash_i$, zero for financial firms] in some specifications to capture variation in their likely but distinct exposure to the crisis [[Duchin et al., 2010](#)]. When pre-crisis cash holdings are part of the model, we exclude cash holdings from the set of firm controls.

$post_t$ is equal to one for fiscal year 2008 and after. By beginning the post-period in 2008, we omit firm-years with fiscal years ending before June 2008 that are exposed to the credit crisis in August 2007, which is often viewed as the initial phase of the financial crisis, especially for firms in the financial sector [[Brunnermeier, 2009](#)]. We proceed in this manner because of the nature

of the CEO transition process and a lack of available data. We have data for fiscal year 2006 and after and, by starting the post-period only in 2008, obtain two full years for the pre-period. More importantly, we do not believe that this definition materially affects our ability to identify matching outcomes in response to the crisis. CEO transitions are usually lengthy processes in which the board, as well as executive search firms, are closely involved and highly invested. Boards, in particular, may first wait to assess how the incumbent CEO responds to the crisis, consistent with empirical evidence for a lag of up to two years between poor firm performance and management turnover [Warner, Watts and Wruck, 1988]. If the decision to replace the incumbent CEO is made, the appointment of a successor still goes through several stages that many firms begin years in advance, even in normal times [Naveen, 2006]. Since we do not face similar data constraints for the post-period, we use the five years until 2012 in our estimation. In line with the analysis of the pandemic, we require at least one observation in the pre-period and one observation in the post-period for each firm.

Table 6 presents the results, with pre-crisis cash holdings and their interaction included in columns 5–8. Across all columns, the results suggest that financial firms are more likely to match with risk-tolerant CEOs throughout the financial crisis and beyond, and provide further support for our more general argument that it is disruption, and not a specific event, that makes boards more inclined to demand risk tolerance. The coefficient on the interaction between $finance_i$ and $post_t$ is positive, fairly stable across specifications, and if anything, appears to increase in magnitude once we control for variation in non-financial firms’ exposure to the crisis. It ranges from 0.033 (column 4) to 0.044 (column 7, both with $p < 0.05$), and implies an increase of 4.0 percentage points in the probability of matching with risk-tolerant CEOs in the specification with the full set of control variables and firm fixed effects (coefficient of 0.040 with $p < 0.05$ in column 8). By contrast, we find no evidence that pre-crisis cash holdings explain matching with risk-tolerant CEOs, or changes in matching, among non-financial firms.

In Panel A of Table IA.3 in the Internet Appendix, we show that effects are concentrated in the later years, alleviating concerns about the delayed start of the post-period to some extent. Coefficients for the interaction terms with $finance_i$ are consistently positive and significant from 2010 onwards. In Panel B, we show that associations are overall robust to balancing treatment and control groups on common characteristics,¹⁷ and in Panel C, we show robustness

¹⁷We apply entropy balancing in a way similar to the analysis of the pandemic but adjust the set of firm characteristics for matching. Specifically, we still balance treatment and control firms on the firm and board characteristics measured pre-crisis but we exclude investment in physical assets and R&D, since neither carries much meaning for firms in the financial sector.

to standard error clustering at the industry level.

5 Additional Analyses

5.1 Consequences

We study several questions related to our core prediction on matching, and begin with an analysis of the investment consequences of having a risk-tolerant CEO following a disruptive event. Our simulation predicts that disruptive events increase project risk and that risk-tolerant CEOs become relatively more attractive in the presence of elevated risk because they reject fewer high-variance and high-payoff projects. For our analysis, this implies that risk-tolerant CEOs should invest more in R&D than in physical assets compared to risk-averse CEOs. While disruption increases risk for all projects, R&D typically involves less tangible, longer-horizon, and more uncertain projects that are more likely to belong to the set of projects a risk-averse CEO rejects but a risk-tolerant CEO still chooses (blue circles in Figure 1a but orange diamonds in Figure 1b). Prior literature supports this pattern in general in that the evidence for a link between risk tolerance and innovation-related activities such as R&D is more extensive than for the link with less risky investment such as capital expenditure [e.g., Cain and McKeon, 2016; Grieser et al., 2016; Sunder et al., 2017]. Our paper makes the impact of disruption explicit and examines whether, in response to it, firms with risk-tolerant CEOs increase R&D and decrease capital expenditure relative to other firms.

Table 7 presents the results for the setting of the COVID-19 pandemic, where investments in physical and intangible assets are meaningful outcomes for both treated and control firms. We estimate models that allow the association between pandemic exposure and investment to differ with CEO risk tolerance, and report capital expenditure [$capex_{i(t+1)}$] in columns 1–4 and R&D investment [$r\&d_{i(t+1)}$] in columns 5–8. The models incorporate a comprehensive set of alternative investment drivers, including the firm, executive, and board characteristics from the main analysis, as well as CEO tenure and risk-taking incentives, all measured in the year prior to investment. Since risk-taking incentives are likely to affect investment outcomes directly, we also control for the interactions between delta [$\ln(delta)_{it}$] and vega [$\ln(vega)_{it}$] and pandemic exposure [$q1_wfh_i \times post_t$]. We estimate the models in subsamples of observations that meet the data requirements for this analysis, and otherwise follow the same research design choices as in the analysis of the pandemic.

Throughout, the coefficient for the interaction between CEO risk tolerance and pandemic exposure is negative for capital expenditure and positive for R&D, albeit weaker statistically for

R&D. It suggests that, within the group of firms most exposed to the pandemic, those led by risk-tolerant CEOs in the years of and after its outbreak increase investment in R&D and decrease capital expenditure. For example, the coefficient of 0.017 in column 7 translates into an increase of 1.7 percentage points in the share of R&D expenses ($p < 0.05$), and the coefficient of -0.025 in column 3 into a decrease of 2.5 percentage points in the share of capital expenditure ($p < 0.05$), relative to exposed firms without a risk-tolerant CEO. Although largely driven by cross-sectional variation, the documented pattern is consistent with risk-tolerant CEOs reallocating funds from physical assets toward riskier projects, or cutting more aggressively low-NPV projects, which the firm may have accumulated in the years before (Figure 2).

5.2 CEO Appointment Type

In our main analysis, we study matching between firms and CEOs, regardless of whether the match results from retaining an incumbent or appointing a new CEO. In this analysis, we focus on CEO appointments as a setting in which we can examine one mechanism underlying our findings more directly. Apart from changing the individual leading the firm, CEO appointments can signal changes in firm policies or firm strategy, especially if the incoming CEO is an external hire [e.g., [Huson et al., 2004](#); [Parrino, 1997](#)]. Unlike internal promotions, which may carry the notion of continuity, appointments of external candidates provide firms with managerial experience acquired outside the organization and represent a more visible break from existing leadership. In times of disruption, signaling such a break may be particularly valuable to mitigate information asymmetries with outside stakeholders. In addition, signaling a shift toward more risk tolerance may help stakeholders understand how the firm intends to navigate the disruption. We thus expect boards to appoint risk-tolerant CEOs more frequently through external hires, and we test this prediction by assessing the relationship between CEO risk tolerance and external appointments.

Despite sending a strong signal, external appointments are also costly. Compared to internal promotions, external hires involve greater uncertainty about match quality and require greater investment in firm-specific human capital [[Cziraki and Jenter, 2022](#)]. We therefore follow [Cziraki and Jenter \[2022\]](#) in distinguishing not only between internal and external appointments, but also between external insiders and outsiders as two types of external appointments. External insiders are current or former directors of the firm or former employees, except those working for the firm in the year before appointment (internal promotions). External outsiders are neither internal promotions nor external insiders; in other words, they have no prior ties to the firm. Our proxy for CEO risk tolerance, on the other hand, does not require refinements. The underlying

data on risk-taking reflect outsider assessments and, in doing so, the public perception of the executive that would be communicated through any signal the board may send.

Table 8 presents the results from estimating linear probability models for the association between CEO risk tolerance and appointment type; when we distinguish between internal promotions and external appointments in general in columns 1–3 [*external_{it}*] and between external insiders and outsiders in columns 4–6 [*external__insider_{it}*]. We restrict the sample to firm-years with CEO appointments and available data on additional CEO characteristics, including military experience, founder status, and a measure of leadership experience based on the number of years since the executive’s first employment record in BoardEx. Columns 1–3 report results for this sample and columns 4–6 for the subset of external appointments. Given the nature of the sample, we do not estimate models with firm fixed effects but rely instead on entropy balancing to improve comparability between appointments of risk-tolerant CEOs and those of others (EB in columns 3 and 6).¹⁸

We find limited evidence that risk-tolerant CEOs are, in general, more likely to be appointed externally. The coefficient on CEO risk tolerance is weakly positive in column 1 (coefficient of 0.132 with $p < 0.10$), but becomes smaller and insignificant once we estimate a more demanding specification in columns 2 and 3. However, external appointments as a whole appear to mask heterogeneity that the distinction between external insiders and outsiders reveals. Across columns 4–6, the coefficient on CEO risk tolerance is positive and increases in both magnitude and significance in the more demanding specifications (coefficients of 0.234 and 0.263 with $p < 0.05$ and $p < 0.01$ in columns 5 and 6). In Table IA.4 in the Internet Appendix, we also document a positive association between risk tolerance and external insiders in a multinomial logit model that jointly considers the three appointment types (internal promotion, external insider, and outsider). Thus, risk-tolerant CEOs are more often appointed as external candidates with prior ties to the firm, which is in line with boards using external appointments to communicate strategic change while reducing the uncertainty associated with hiring an unfamiliar executive.

5.3 Sports versus Other Risk-Taking

We measure CEO risk tolerance with a range of risk-taking activities to capture voluntary exposure to different types of risk and, in this way, the willingness to take on risk in other contexts. In contrast, prior literature tends to focus on risk-taking in a single domain. For comparability with this literature, we tabulate results separately for extreme and endurance

¹⁸For each sample, we balance appointments of risk-tolerant CEOs with those of other CEOs with respect to the first moments of the firm and board characteristics.

sports and other forms of risk-taking in Table IA.5 in the Internet Appendix; results for the analysis of the COVID-19 pandemic are displayed in Panel A, the financial crisis in Panel B, investment consequences in Panel C, and CEO appointment type in Panel D. Overall, coefficients are stronger when we measure risk tolerance based on sports in the main analyses and for investment consequences, whereas other risk-taking seems to drive the positive association with external hires. The latter pattern is consistent with greater signaling benefits from costlier forms of risk-taking, but we caution against placing much emphasis on these findings. Statistically, coefficients are rather weak and do not differ between sports and other risk-taking (untabulated). If anything, the findings reinforce our approach of measuring CEO risk tolerance using a broad set of risk-taking activities.

5.4 Sensitivity

We treat risk tolerance as a stable trait and classify CEOs as risk-tolerant if they engage in risky activities before, during, or after a given fiscal year. To address the reverse causality concern that it may be the match with the firm, or the associated compensation package, that prompts the CEO to take on more risk, we construct an alternative proxy for risk tolerance that relies solely on evidence of personal risk-taking occurring before the fiscal year (pre-existing risk-taking) and hence varies within CEO. We present the results for the analyses of the COVID-19 pandemic, the financial crisis, and the investment consequences with this proxy in Panels A, B, and C of Table IA.6 in the Internet Appendix and find, overall, consistent associations. In Panel D, we revisit the analysis of CEO appointment type and include, in addition, a measure based on evidence of personal risk-taking occurring during or after the fiscal year (subsequent risk-taking) [similar to the split of the *Longholder* measure into pre- and post-components in Malmendier and Tate, 2008].¹⁹ The estimates of interest, the coefficients on the proxy based on pre-existing risk-taking, remain positive, large, and statistically significant in the subsample of external appointments. In sum, the results in Table IA.6 do not suggest that the timing of personal risk-taking in our data explains our findings.

In untabulated tests, we assess the robustness of our results to excluding firm-years with negative equity and, with the exception of the analysis of the financial crisis, excluding financial firms and utilities (SIC codes 6000–6999 and 4900–4949). Our inferences do not change.

¹⁹Most risk-taking in our data predates the sample years. In the sample for the analysis of CEO appointment type, for example, only 18.5% of observations with any personal risk-taking are based on subsequent risk-taking. In the analysis of the investment consequences, we have no observations with subsequent risk-taking in the treatment group (and therefore cannot estimate the association of interest for a proxy based on only subsequent risk-taking).

6 Conclusion

In this paper, we study whether disruptive events increase board demand for CEO risk tolerance and, in equilibrium, shift CEO–firm matching toward risk-tolerant CEOs. We argue that disruption increases the relative benefit of risk tolerance by increasing project risk associated with firms’ available investment opportunities and, therefore, the cost of managerial risk aversion. As a result, boards should place greater value on risk-tolerant CEOs when firms face fundamental changes to their operating environments.

Consistent with this prediction, we find that firms more exposed to the social distancing rules during the COVID-19 pandemic and firms in the financial sector during the 2008 financial crisis are more likely to match with risk-tolerant CEOs in the years of and after each disruption. The results are robust across alternative research design choices, including entropy balancing and a more conservative measure of risk tolerance based on evidence of pre-existing personal risk-taking. The results also have real implications: following the pandemic, firms matching with risk-tolerant CEOs increase investment in R&D and lower it in physical assets, in line with a reallocation of funds into riskier projects that risk-averse CEOs would otherwise forgo. Finally, we document that risk-tolerant CEOs are more likely to be external hires with prior ties to the firm, in line with boards balancing the benefits of signaling executive risk-taking against the costs of hiring externally. Taken together, our findings support that disruption shifts board demand toward CEO risk tolerance and extends the set of firms for which risk tolerance is an attractive CEO trait.

Appendix

A.1 Variable Definitions

Variable	Description
PERSONAL RISK-TAKING	
<i>risk_taking_{it}</i>	Indicator variable equal to one if we have evidence of personal risk-taking of the CEO.
FIRM CHARACTERISTICS	
<i>capex_{i(t-1)}</i>	Capital expenditures divided by lagged total assets.
<i>r&d_{i(t-1)}</i>	R&D expenses divided by lagged total assets. If we include <i>r&d_{i(t-1)}</i> in a model, we also include an indicator variable that is equal to one if R&D expenses are missing but we do not tabulate it.
<i>sales_growth_{i(t-1)}</i>	Change in sales from the previous year, expressed as a fraction.
<i>btm_{i(t-1)}</i>	Book value of equity divided by market value of equity.
<i>roa_{i(t-1)}</i>	Return on assets, computed as income before extraordinary items divided by lagged total assets.
<i>sec_inv_{i(t-1)}</i>	Indicator variable equal to one if the firm is subject to at least one opened, closed, or ongoing SEC investigation. We use the data on investigations closed until 2017 from Blackburne et al. [2020] . We set the variable to zero for all observations for which no investigation(s) are reported, including the years after 2017.
<i>fluidity_{i(t-1)}</i>	Product market fluidity provided by Hoberg et al. [2014] and rescaled to lie between zero and one.
<i>cash_{i(t-1)}</i>	Cash and short-term investments divided by total assets.
<i>lev_{i(t-1)}</i>	The sum of debt in current liabilities and long-term debt divided by total assets.
<i>ln(assets)_{i(t-1)}</i>	Natural logarithm of total assets. In millions and 2020 dollars.
<i>q_star_wfh_i</i>	Indicator variable equal to one if the pre-pandemic share of jobs that can be done at home [<i>wfh_i</i>] is in the first ($\star = 1$), second (2), or third (3) quartile of the distribution. The share of jobs that can be done at home is from Dingel and Neiman [2020] and defined at the three-digit NAICS industry level.
<i>finance_i</i>	Indicator variable equal to one if the firm has a SIC code in the range 6000–6999 in fiscal year 2006 or, if missing, in fiscal year 2005 or 2004.
EXECUTIVE CHARACTERISTICS	
<i>external_{it}</i>	Indicator variable equal to one if the CEO is an external insider or outsider at appointment, and equal to zero if the CEO was an employee of the firm in the year before appointment (internal promotion). External insiders are former employees who did not work for the firm in the year before appointment, or current or former directors of the firm. Outsiders are neither internally promoted nor external insiders.
<i>external_insider_{it}</i>	Indicator variable equal to one if the CEO is an external insider at appointment.
<i>military_{it}</i>	Indicator variable equal to one if the CEO served in the armed forces.
<i>founder_{it}</i>	Indicator variable equal to one if the CEO is the founder of the company or a member of the founding family.

Continued on next page

Variable	Description
$\ln(\text{boardex_exp})_{it}$	Natural logarithm of the number of years since the start of the CEO's first employment role recorded in BoardEx.
female_{it}	Indicator variable equal to one if the CEO is female.
$\ln(\text{age})_{it}$	Natural logarithm of the CEO's age.
wikipedia_{it}	Indicator variable equal to one if the CEO has a Wikipedia page.
$\ln(\text{tenure})_{it}$	Natural logarithm of the number of years the CEO has been in office, based on the date the CEO assumed office [<i>BECAMECEO</i> in ExecuComp] if available, and the CEO's first appearance in ExecuComp else.
$\ln(\text{delta})_{it}$	Natural logarithm of one plus the dollar change in wealth associated with a 1% change in the firm's stock price. In thousands and 2020 dollars.
$\ln(\text{vega})_{it}$	Natural logarithm of one plus the dollar change in wealth associated with a 0.01 change in the standard deviation of the firm's return. In thousands and 2020 dollars. For delta and vega, we use the dataset provided by Coles et al. [2013] .
BOARD CHARACTERISTICS	
$\ln(\text{boardsize})_{i(t-1)}$	Natural logarithm of the number of directors.
$\text{independent}_{i(t-1)}$	Share of independent directors.
$\text{boardseats}_{i(t-1)}$	The average number of boards on which directors serve.
<i>Notes:</i> i denotes firm and t fiscal year. In defining fiscal years, we assign fiscal years ending in January through May to the previous calendar year and fiscal years ending in June through December to the calendar year in which they end. We winsorize continuous variables at the 1st and 99th percentiles.	

A.2 Further Details on the Risk-Taking Data

We collect the data on personal risk-taking manually from media reports and other publicly available online sources. We begin with a sample of CEOs of firms included in the S&P 500 at any point during fiscal years 2006–2024 for which we can access data from ExecuComp and Compustat. For each CEO, we search online for evidence of personal risk-taking.

We always start by checking for a Wikipedia page of the individual. If there is no Wikipedia page, we try to find online profiles from the companies with which they are or were affiliated as executives or directors. If there is also no corporate profile, we begin directly with a standardized keyword search combining the CEO’s full name with each of the following keywords, entered one at a time: risky activities, hobby, sport, accident, incident, scandal, controversy, attack, danger, violence, harassment, alcohol misuse, drug misuse. If we can identify a Wikipedia page or corporate profile in the first place, we extend the list of keywords on a case-by-case basis, depending on the information obtained. For example, when a Wikipedia page mentions drug use, we may add terms such as addiction, drunk, marijuana, cocaine, or overdose; when a page speaks of an extramarital affair, we may add terms such as affair, inappropriate behavior, misconduct, and lawsuit. If we can identify risky activities, we refine the search based on the information obtained and attempt to verify information from potentially unreliable sources (e.g., blogs, discussion forums, tabloid press) through articles from more established news media (e.g., Wall Street Journal or New York Times). We do not, however, require information to come from a particular type of source. We record a risk-taking activity if we consider the underlying information sufficiently credible (e.g., because there are no contradictory reports or because the activity is reported by several independent sources).

To ensure consistency in the search, we rely on a single research assistant to compile a preliminary dataset of risky activities based on the above steps. One of the coauthors then manually reviews this dataset and reclassifies or drops entries that do not meet our classification criteria. The table below shows examples of risky activities from the final dataset.

Table A.2: **Examples of Personal Risk-Taking**

CEO (Company)	Description	Source
SPORTS		
Calvin McDonald (Lululemon)	Completed two Ironman triathlons, shorter-distance triathlons, and marathons.	“How training for Ironman informs Lululemon CEO Calvin McDonald’s leadership style: ‘I’m an A-type who likes to win’ ” <i>Fortune</i> (May 27, 2022)
Eric Schmidt (Google)	Jet pilot.	“My other interview with Google CEO Eric Schmidt” <i>WIRED</i> (Apr 9, 2007)
Mark Zuckerberg (Meta Platforms)	Practices martial arts, including jiu-jitsu.	“Meta CEO Mark Zuckerberg reportedly training to get pilot’s license” <i>New York Post</i> (Jul 18, 2023)

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CEO (Company)	Description	Source
OTHER RISK-TAKING		
Eric Schmidt (Google)	Had multiple extramarital affairs over several years while remaining married.	“The end of the affair? Not for Eric Schmidt.” <i>New York Times</i> (Jul 12, 2024)
Leslie Moonves (CBS)	Repeatedly accused of sexual harassment and similar forms of misconduct.	“The year of reckoning at CBS: Sexual harassment allegations and attempts to cover them up” <i>New York Times</i> (Dec 14, 2018)
Mark Hurd (HP, Oracle)	Had an inappropriate relationship with a company consultant.	“Boss’s stumble may also trip Hewlett-Packard” <i>New York Times</i> (Aug 8, 2010)

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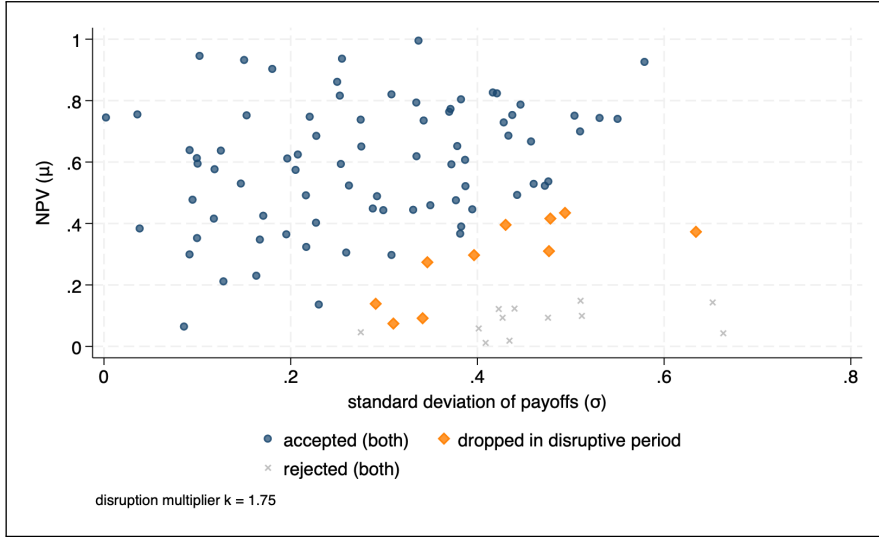
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Figures

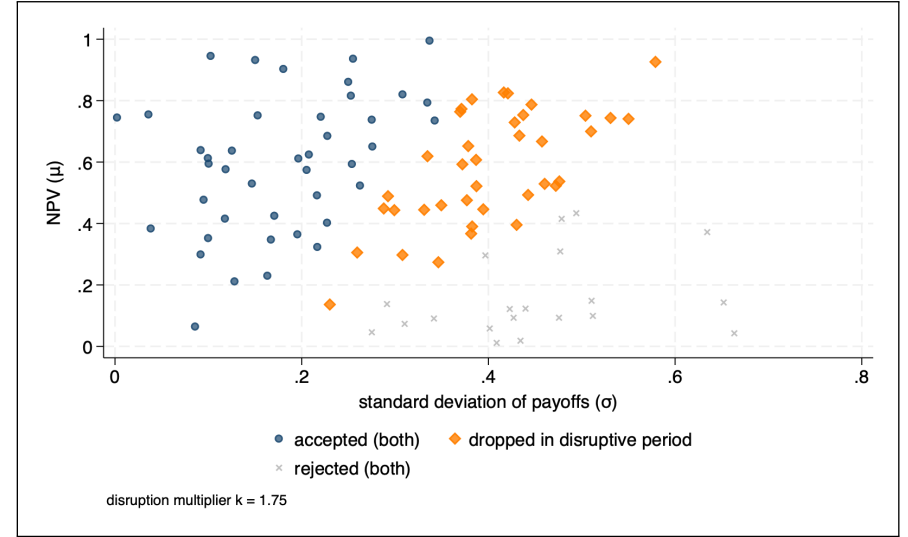
Figure 1: **Simulation**

Normal Times vs. Disruptive Periods

(a) **Risk-Tolerant CEO**
 $\gamma = 1.5$



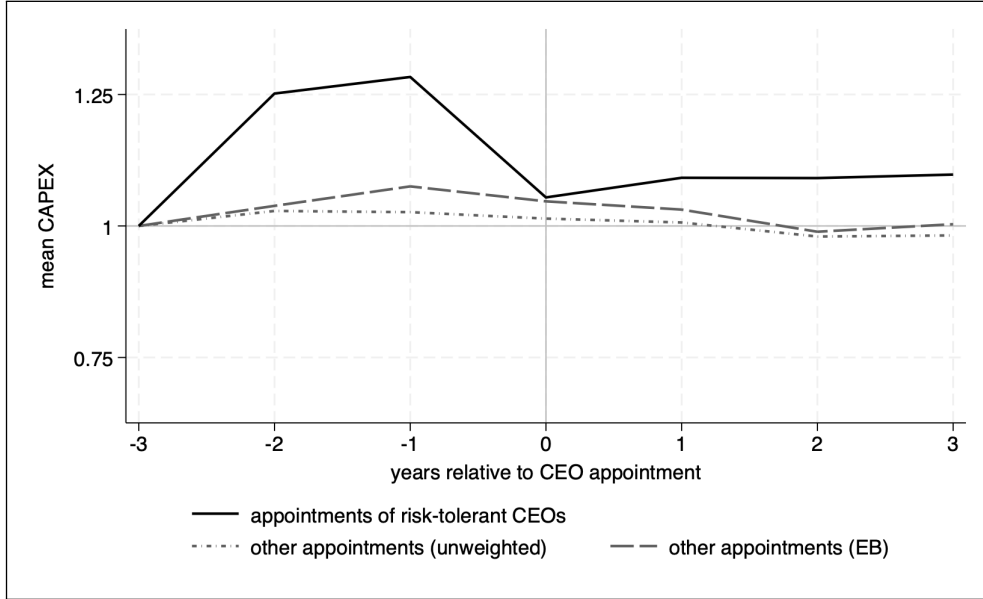
(b) **Risk-Averse CEO**
 $\gamma = 4.0$



Notes: The figure displays project selection by a risk-tolerant CEO in Panel (a) and a risk-averse CEO in Panel (b). Each panel displays the same 100 projects, characterized by their net present value (NPV) [μ] and standard deviation of payoffs [σ]. A CEO selects a project if its certainty equivalent $\mu - (\gamma/2)\sigma^2$ is positive, where γ denotes the CEO's coefficient of absolute risk aversion. We set $\gamma = 1.5$ for the risk-tolerant CEO and $\gamma = 4.0$ for the risk-averse CEO, and model disruption as an increase in project risk by multiplying each project's standard deviation by 1.75, without changing its NPV. The panels show the projects that are selected in both normal times and the disruptive period [accepted (both)], dropped in the disruptive period, and rejected in both periods [rejected (both)]. Project characteristics represent one draw from the simulation described in Section 2.

Figure 2: **Investment around CEO Appointments**

Capital Expenditures



Notes: The figure displays the annual mean of capital expenditures (CAPEX) around CEO appointments (year 0). It shows CAPEX separately for appointments of CEOs who are risk-tolerant according to our evidence on personal risk-taking (solid line) and other appointments. For other appointments, we report unweighted values (dash-dot line) and weighted values using entropy balancing (EB) on the first moments of the firm (FIRM, with the exception of CAPEX [$capex_{it}$]) and board characteristics (BOARD), measured in year -3 (dashed line). We include only firms with available data and no other CEO appointment occurring in any of the years displayed. We divide capital expenditures by lagged total assets and scale by the year -3 value. The figure is based on 28 appointments of risk-tolerant CEOs at 25 firms and 496 other appointments at 379 firms. FIRM refers to the firm characteristics displayed in Table 4. BOARD refers to board characteristics: the natural logarithm of board size [$\ln(boardsize)_{it}$], the share of independent directors [$independent_{it}$], and the average number of directors' board seats [$boardseats_{it}$]. Detailed variable definitions are provided in Appendix A.1.

Tables

Table 1: **Simulation**

Normal Times versus Disruptive Periods

Panel A: NPV of Selected Projects

$k = 1.75$	risk-tolerant CEO		risk-averse CEO		difference	
	normal times	disruption	normal times	disruption	normal times	disruption
N	1,000	1,000	1,000	1,000	1,000	1,000
mean	49.368	44.378	45.683	28.063	3.685	16.314
SD	2.934	3.310	3.208	3.632	1.097	2.878
1 st pc	42.456	36.657	37.775	19.833	1.372	10.276
25 th pc	47.461	42.182	43.588	25.477	2.891	14.325
median	49.362	44.463	45.661	28.158	3.611	16.163
75 th pc	51.423	46.603	47.808	30.496	4.368	18.163
99 th pc	55.659	51.903	52.818	36.651	6.499	23.344

Panel B: Number of Selected Projects

$k = 1.75$	risk-tolerant CEO		risk-averse CEO		difference	
	normal times	disruption	normal times	disruption	normal times	disruption
N	1,000	1,000	1,000	1,000	1,000	1,000
mean	91.549	74.355	77.635	43.913	13.914	30.442
SD	2.866	4.290	4.041	5.126	3.357	4.730
1 st pc	84.000	64.000	67.000	31.500	6.500	20.000
25 th pc	90.000	72.000	75.000	40.500	12.000	27.000
median	92.000	74.000	78.000	44.000	14.000	31.000
75 th pc	94.000	77.000	80.000	48.000	16.000	34.000
99 th pc	97.000	84.000	86.000	55.000	22.000	42.000

Panel C: Differential Exposure

disruption multiplier k	difference in mean (NPV)		difference in mean (number)	
	normal times	disruption	normal times	disruption
1.10	3.685	5.266	13.914	16.724
1.25	3.685	8.022	13.914	20.951
1.50	3.685	12.837	13.914	27.057
1.75	3.685	16.314	13.914	30.442
2.00	3.685	18.033	13.914	31.225

Notes: The table displays results from the simulation described in Section 2. CEOs differ only in their degree of risk tolerance and select projects based on their certainty equivalents. Disruption is modeled as a mean-preserving increase in project risk with the disruption multiplier k . Panels A and B report the results from 1,000 simulation runs for the net present value (NPV) and number of projects that CEOs select in normal times and disruptive periods. Each panel includes summary statistics for both CEO types as well as differences between risk-tolerant and risk-averse CEOs. Panel C reports differences in the mean NPV and mean number of selected projects for alternative levels of the disruption multiplier.

Table 2: Share of CEOs with Personal Risk-Taking

Year	N	<i>risk_taking_{it}</i>		
		all	based on sports	other risk-taking
2006	516	0.064	0.039	0.031
2007	577	0.071	0.040	0.036
2008	588	0.068	0.039	0.032
2009	590	0.071	0.041	0.034
2010	587	0.078	0.044	0.037
2011	592	0.074	0.046	0.032
2012	588	0.075	0.048	0.031
2013	591	0.078	0.047	0.034
2014	600	0.082	0.048	0.038
2015	591	0.078	0.044	0.041
2016	578	0.073	0.047	0.033
2017	576	0.073	0.045	0.035
2018	567	0.067	0.046	0.028
2019	560	0.062	0.048	0.021
2020	553	0.063	0.049	0.020
2021	549	0.069	0.055	0.020
2022	546	0.064	0.049	0.016
2023	542	0.059	0.046	0.015
2024	441	0.052	0.041	0.014
All years	10,732	0.070	0.045	0.029

Notes: The table displays the share of CEOs with evidence of personal risk-taking by fiscal year. Across all years, the sample includes 696 firms. i denotes firm and t fiscal year. $risk_taking_{it}$ is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO, and we report it separately for all risk-taking (all), risk-taking based on extreme and endurance sports (based on sports), and other forms of risk-taking (other risk-taking).

Table 3: **Descriptives**Panel A: **Summary Statistics**

	N	mean	SD	1 st pc	25 th pc	median	75 th pc	99 th pc
PERSONAL RISK-TAKING								
<i>risk_taking_{it}</i>	10,732	0.070						
based on sports	10,732	0.045						
other risk-taking	10,732	0.029						
FIRM CHARACTERISTICS								
<i>capex_{i(t-1)}</i>	10,732	0.044	0.048	0.000	0.012	0.029	0.059	0.270
<i>r&d_{i(t-1)}</i>	10,732	0.027	0.052	0.000	0.000	0.000	0.028	0.288
<i>sales_growth_{i(t-1)}</i>	10,732	0.091	0.202	-0.437	-0.001	0.067	0.151	0.989
<i>btm_{i(t-1)}</i>	10,732	0.401	0.341	-0.203	0.177	0.323	0.542	1.873
<i>roa_{i(t-1)}</i>	10,732	0.066	0.083	-0.232	0.022	0.057	0.106	0.335
<i>sec_inv_{i(t-1)}</i>	10,732	0.162						
<i>fluidity_{i(t-1)}</i>	10,732	0.061	0.033	0.011	0.036	0.054	0.080	0.161
<i>cash_{i(t-1)}</i>	10,732	0.137	0.146	0.001	0.031	0.085	0.190	0.649
<i>lev_{i(t-1)}</i>	10,732	0.285	0.195	0.000	0.134	0.267	0.407	0.929
<i>assets_{i(t-1)}</i>	10,732	46,786.227	120,712.560	381.356	4,854.327	12,158.473	34,171.348	917,047.125
<i>ln(assets)_{i(t-1)}</i>	10,732	9.507	1.491	5.944	8.488	9.406	10.439	13.729
<i>wfh_i</i>	5,233	0.447	0.264	0.065	0.226	0.415	0.584	0.954
<i>finance_i</i>	3,883	0.176						
EXECUTIVE CHARACTERISTICS								
<i>external_{it}</i>	920	0.414						
<i>external_insider_{it}</i>	371	0.582						
<i>military_{it}</i>	920	0.030						
<i>founder_{it}</i>	920	0.037						
<i>boardexp_{it}</i>	920	26.731	6.951	11.502	21.995	26.995	31.584	41.993
<i>ln(boardexp_{it})</i>	920	3.248	0.283	2.442	3.091	3.296	3.453	3.738
<i>female_{it}</i>	10,732	0.044						
<i>age_{it}</i>	10,732	57.009	6.444	41.000	53.000	57.000	61.000	75.000
<i>ln(age)_{it}</i>	10,732	4.037	0.114	3.714	3.970	4.043	4.111	4.317
<i>wikipedia_{it}</i>	10,732	0.355						
<i>delta_{it}</i>	3,774	1,744.731	4,691.101	11.861	200.839	523.319	1,304.892	37,413.457
<i>ln(delta)_{it}</i>	3,774	6.258	1.482	2.554	5.307	6.262	7.175	10.530
<i>vega_{it}</i>	3,774	243.224	365.349	0.000	0.000	97.267	331.502	2,023.424
<i>ln(vega)_{it}</i>	3,774	3.600	2.646	0.000	0.000	4.588	5.807	7.613
<i>tenure_{it}</i>	3,774	7.211	6.133	0.507	2.678	5.500	9.752	28.999
<i>ln(tenure)_{it}</i>	3,774	1.599	0.932	-0.680	0.985	1.705	2.277	3.367
BOARD CHARACTERISTICS								
<i>boardsize_{i(t-1)}</i>	10,732	10.572	2.166	6.000	9.000	11.000	12.000	17.000
<i>ln(boardsize)_{i(t-1)}</i>	10,732	2.337	0.208	1.792	2.197	2.398	2.485	2.833
<i>independent_{i(t-1)}</i>	10,732	0.868	0.068	0.615	0.846	0.889	0.909	1.000
<i>boardseats_{i(t-1)}</i>	10,732	3.256	0.925	1.429	2.615	3.167	3.769	6.286

Panel B: Correlations

N = 920	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) <i>external_{it}</i>	1.000							
(2) <i>risk_taking_{it}</i>	0.090***	1.000						
(3) <i>military_{it}</i>	0.031	0.117***	1.000					
(4) <i>founder_{it}</i>	0.186***	0.123***	-0.035	1.000				
(5) <i>ln(boardex_exp)_{it}</i>	0.106***	-0.010	0.004	0.014	1.000			
(6) <i>female_{it}</i>	0.016	-0.018	-0.050	-0.011	0.067**	1.000		
(7) <i>ln(age)_{it}</i>	0.230***	-0.055*	0.055*	0.011	0.502***	-0.042	1.000	
(8) <i>wikipedia_{it}</i>	0.133***	0.181***	0.017	0.130***	0.103***	0.139***	0.118***	1.000

Notes: The table displays summary statistics in Panel A and Pearson correlations for the sample of CEO appointments in Panel B. *i* denotes firm and *t* fiscal year. Variable definitions are provided in Appendix A.1. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table 4: **CEO–Firm Matching and CEO Risk Tolerance***Firm Characteristics*

	<i>risk_taking_{it}</i>			
<i>capex_{i(t-1)}</i>	0.345*	0.311**	0.296*	0.301**
	(0.185)	(0.143)	(0.177)	(0.137)
<i>r&d_{i(t-1)}</i>	0.540*	−0.153	0.426	−0.144
	(0.299)	(0.175)	(0.289)	(0.175)
<i>sales_growth_{i(t-1)}</i>	0.037*	0.024*	0.033*	0.024*
	(0.020)	(0.013)	(0.019)	(0.013)
<i>btm_{i(t-1)}</i>	−0.008	0.005	0.006	0.006
	(0.021)	(0.014)	(0.021)	(0.014)
<i>roa_{i(t-1)}</i>	−0.040	−0.075*	−0.035	−0.080*
	(0.073)	(0.043)	(0.071)	(0.042)
<i>sec_inv_{i(t-1)}</i>	0.034**	0.015	0.037***	0.016
	(0.014)	(0.011)	(0.013)	(0.011)
<i>fluidity_{i(t-1)}</i>	−0.098	0.429**	−0.096	0.434**
	(0.242)	(0.172)	(0.236)	(0.172)
<i>cash_{i(t-1)}</i>	0.114**	0.006	0.062	0.004
	(0.056)	(0.044)	(0.055)	(0.044)
<i>lev_{i(t-1)}</i>	0.023	−0.002	0.045	0.003
	(0.041)	(0.040)	(0.041)	(0.039)
<i>ln(assets)_{i(t-1)}</i>	0.017**	−0.004	−0.004	−0.006
	(0.008)	(0.010)	(0.009)	(0.010)
EXECUTIVE	no	no	yes	yes
BOARD	no	no	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.100	0.630	0.132	0.633
adj. within- R^2	0.020	0.005	0.055	0.012
N	10,732	10,732	10,732	10,732

Notes: The table displays the regression results for the analysis of CEO risk tolerance and firm characteristics. The sample includes 696 firms and fiscal years 2006–2024. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO's age [*ln(age)_{it}*], and an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{i(t-1)}*], the share of independent directors [*independent_{i(t-1)}*], and the average number of directors' board seats [*boardseats_{i(t-1)}*]. Throughout, we also include, but do not tabulate, an indicator variable that is equal to one if R&D expenses [*r&d_{i(t-1)}*] are missing. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table 5: Shock to the Firm's Operating Environment

COVID-19 Pandemic

	<i>risk_taking_{it}</i>							
<i>q1_wfh_i × post_t</i>	0.044** (0.022)	0.043** (0.021)	0.053** (0.022)	0.041** (0.020)	0.047** (0.022)	0.043** (0.021)	0.047** (0.021)	0.034* (0.020)
<i>q2_wfh_i × post_t</i>					0.028 (0.019)	0.025 (0.019)	0.028 (0.020)	0.022 (0.018)
<i>q3_wfh_i × post_t</i>					0.040* (0.020)	0.038* (0.020)	0.036* (0.021)	0.035* (0.019)
<i>q1_wfh_i</i>	0.142 (0.170)		−0.005 (0.178)		−0.096 (0.061)		−0.072 (0.059)	
<i>q2_wfh_i</i>					−0.127*** (0.045)		−0.100** (0.044)	
<i>q3_wfh_i</i>					−0.083 (0.058)		−0.069 (0.058)	
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.132	0.761	0.192	0.774	0.110	0.760	0.148	0.765
adj. within- R^2	0.002	0.006	0.071	0.058	0.008	0.004	0.050	0.023
N	2,457	2,457	2,457	2,457	5,233	5,233	5,233	5,233

Notes: The table displays the regression results for the analysis of CEO risk tolerance and the COVID-19 pandemic as a shock to the firm's operating environment. We consider firms as treated if their pre-pandemic share of jobs that can be done at home is in the bottom quartile of the distribution. In columns 5–8, we also consider firms in the middle quartiles of the distribution of the share of jobs that can be done at home. Throughout, firms in the top quartile serve as the control group. The share of jobs that can be done at home is defined at the three-digit NAICS industry level. In columns 1–4, the sample includes 262 firms, and in columns 5–8, 555 firms; both samples include only firms with at least one observation in the pre-period (2015–2019) and one observation in the post-period (2020–2024). Overall, samples cover fiscal years 2015–2024. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. $q \star_wfh_i$ is an indicator variable equal to one if the pre-pandemic share of jobs that can be done at home is in the first ($\star = 1$), second (2), or third (3) quartile of the distribution. *post_t* is an indicator variable equal to one for fiscal year 2020 and after. FIRM subsumes the firm characteristics displayed in Table 4 with the exception of SEC investigations [*sec_inv_{i(t-1)}*]. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO's age [*ln(age)_{it}*], and an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{i(t-1)}*], the share of independent directors [*independent_{i(t-1)}*], and the average number of directors' board seats [*boardseats_{i(t-1)}*]. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table 6: **Shock to the Financial Sector***Financial Crisis*

	<i>risk_taking_{it}</i>							
<i>finance_i × post_t</i>	0.038** (0.016)	0.035** (0.016)	0.040** (0.019)	0.033** (0.015)	0.040** (0.017)	0.039** (0.016)	0.044** (0.019)	0.040** (0.016)
<i>cash_i × post_t</i>					0.007 (0.051)	0.032 (0.051)	0.021 (0.052)	0.052 (0.049)
<i>finance_i</i>	-0.161 (0.137)		-0.131 (0.105)		-0.149 (0.133)		-0.124 (0.108)	
<i>cash_i</i>					0.175 (0.109)		0.109 (0.119)	
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.129	0.820	0.180	0.824	0.134	0.820	0.179	0.824
adj. within- R^2	0.000	0.003	0.058	0.022	0.006	0.003	0.057	0.022
N	3,883	3,883	3,883	3,883	3,883	3,883	3,883	3,883

Notes: The table displays the regression results for the analysis of CEO risk tolerance and the financial crisis as a shock to firms in the financial sector. We consider firms with pre-crisis SIC codes 6000–6999 as treated. We control for effects on non-financial firms using pre-crisis cash holdings in columns 5–8. Overall, the sample includes 583 firms and fiscal years 2006–2012. For a firm to be included in the sample, we require at least one observation in the pre-period (2006–2007) and one observation in the post-period (2008–2012). i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. *finance_i* is an indicator variable equal to one if the firm has a SIC code in the range 6000–6999 in fiscal year 2006 or, if missing, earlier. *cash_i* is, for non-financial firms, cash and short-term investments divided by total assets in fiscal year 2006 or, if missing, earlier; it is zero for financial firms. *post_t* is an indicator variable equal to one for fiscal year 2008 and after. FIRM subsumes the firm characteristics displayed in Table 4 with the exception of lagged cash holdings [*cash_{i(t-1)}*] in columns 5–8. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO’s age [*ln(age)_{it}*], and an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{i(t-1)}*], the share of independent directors [*independent_{i(t-1)}*], and the average number of directors’ board seats [*boardseats_{i(t-1)}*]. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table 7: **Consequences**
Capital Expenditures and R&D Investment

	<i>capex_{i(t+1)}</i>				<i>r&d_{i(t+1)}</i>			
<i>risk_taking_{it} × q1_wfh_i × post_t</i>	−0.022** (0.011)	−0.018** (0.008)	−0.025** (0.011)	−0.020** (0.008)	0.018* (0.010)	0.002 (0.002)	0.017** (0.008)	0.006* (0.003)
<i>risk_taking_{it}</i>	−0.002 (0.005)	0.003 (0.005)	−0.002 (0.003)	0.000 (0.004)	0.010 (0.012)	0.012 (0.009)	0.009 (0.010)	0.002 (0.005)
<i>q1_wfh_i × post_t</i>	0.009 (0.010)	0.014* (0.007)	0.004 (0.010)	0.012* (0.007)	0.013 (0.012)	0.000 (0.007)	−0.009 (0.009)	−0.002 (0.005)
<i>q1_wfh_i</i>	0.047*** (0.013)		−0.016 (0.012)		−0.013 (0.018)		−0.006 (0.013)	
MAIN EFFECTS AND INTERACTIONS								
<i>q2_wfh_i and q3_wfh_i</i>	no	no	yes	yes	no	no	yes	yes
<i>ln(delta)_{it} and ln(vega)_{it}</i>	yes	yes	yes	yes	yes	yes	yes	yes
FIRM	yes	yes	yes	yes	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes	yes	yes	yes	yes
BOARD	yes	yes	yes	yes	yes	yes	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.610	0.824	0.539	0.832	0.578	0.959	0.628	0.949
adj. within- R^2	0.168	0.159	0.123	0.147	0.083	0.063	0.157	0.141
N	1,847	1,847	3,774	3,774	1,847	1,847	3,774	3,774

Notes: The table displays the regression results for the analysis of the investment consequences of matching with a risk-tolerant CEO in the years of and after the COVID-19 pandemic. We study capital expenditures in columns 1–4 and R&D investment in columns 5–8. We rely on the same treatment and control groups and use the same interactions to capture pandemic exposure as in Table 5. To estimate the effect of risk tolerance, we interact pandemic exposure with our proxy for CEO risk tolerance [*risk_taking_{it} × q1_wfh_i × post_t*]. To distinguish CEO risk tolerance from compensation incentives, we also interact pandemic exposure with risk-taking incentives [*ln(delta)_{it} × q1_wfh_i × post_t* and *ln(vega)_{it} × q1_wfh_i × post_t*]. We include, but do not always tabulate, all lower-order interactions and main effects that are implied by the interaction terms in the model. The sample includes 247 firms in columns 1–2 and 5–6, and 501 firms in columns 3–4 and 7–8; both samples cover fiscal years 2015–2022. *i* denotes firm and *t* fiscal year. *capex_{i(t+1)}* is capital expenditures divided by lagged total assets. *r&d_{i(t+1)}* is R&D expenses divided by lagged total assets. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. FIRM subsumes the firm characteristics that are displayed in Table 4 measured in year *t* with the exception of SEC investigations [*sec_inv_{it}*] and the equivalent of the dependent variable [*capex_{it}* or *r&d_{it}*]. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO’s age [*ln(age)_{it}*], an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*], and CEO tenure [*ln(tenure)_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{it}*], the share of independent directors [*independent_{it}*], and the average number of directors’ board seats [*boardseats_{it}*]. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table 8: CEO Risk Tolerance and Appointment Type

External Appointments

	<i>external_{it}</i>			<i>external_insider_{it}</i>		
Sample	all CEO appointments			external CEO appointments		
Model	OLS	OLS	EB	OLS	OLS	EB
<i>risk_taking_{it}</i>	0.132* (0.072)	0.092 (0.062)	−0.010 (0.051)	0.208** (0.106)	0.234** (0.090)	0.263*** (0.069)
<i>military_{it}</i>		−0.004 (0.099)	0.185** (0.090)		−0.319* (0.168)	−0.439** (0.185)
<i>founder_{it}</i>		0.332*** (0.070)	0.396*** (0.095)		0.238*** (0.084)	0.296*** (0.094)
<i>ln(boardex_exp)_{it}</i>		−0.021 (0.074)	0.164 (0.101)		0.060 (0.150)	−0.048 (0.156)
<i>female_{it}</i>		0.000 (0.064)	0.054 (0.093)		0.023 (0.101)	0.013 (0.088)
<i>ln(age)_{it}</i>		1.221*** (0.162)	1.085*** (0.211)		1.103*** (0.247)	1.132*** (0.268)
<i>wikipedia_{it}</i>		0.187*** (0.043)	0.215*** (0.055)		0.023 (0.079)	0.041 (0.073)
FIRM	no	yes	yes	no	yes	yes
BOARD	no	yes	yes	no	yes	yes
FIXED EFFECTS						
Fiscal year	yes	yes	yes	yes	yes	yes
Industry and state	yes	yes	yes	yes	yes	yes
adj. R^2	0.035	0.190	0.473	0.028	0.183	0.500
adj. within- R^2	0.003	0.163	0.265	0.008	0.166	0.241
N	920	920	920	371	371	371

Notes: The table displays the regression results for the analysis of CEO risk tolerance and appointment type when we estimate linear probability models in samples of all CEO appointments and external CEO appointments. We distinguish between external appointments and internal promotions in columns 1–3; and within external appointments, between external insiders (former employees or directors) and external outsiders (CEOs without a history with the firm) in columns 4–6. In columns 3 and 6, we weight observations using entropy balancing (EB) on the first moments of the firm (FIRM) and board characteristics (BOARD), with appointments of risk-tolerant CEOs as the treatment group. The sample includes 524 firms in columns 1–3, and 262 firms in columns 4–6; both samples cover fiscal years 2006–2024. i denotes firm and t fiscal year. *external_{it}* is an indicator variable equal to one if the CEO is an external insider or outsider at appointment. *external_insider_{it}* is an indicator variable equal to one if the CEO is an external insider. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. FIRM subsumes the firm characteristics displayed in Table 4. BOARD subsumes board characteristics: the natural logarithm of board size [$\ln(\text{boardsize})_{i(t-1)}$], the share of independent directors [$\text{independent}_{i(t-1)}$], and the average number of directors' board seats [$\text{boardseats}_{i(t-1)}$]. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Internet Appendix

Disruption, Firm Risk, and CEO Risk Tolerance

Sarah Kröcher and Andrea Pawliczek

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Table IA.6 Evidence of Pre-Existing Personal Risk-Taking

Table IA.1: **CEO–Firm Matching and CEO Risk Tolerance***SEC Investigations (Sample Period 2006–2013)*

	<i>risk_taking_{it}</i>	
<i>capex_{i(t-1)}</i>	−0.014 (0.224)	0.113 (0.123)
<i>r&d_{i(t-1)}</i>	0.406 (0.325)	0.232* (0.132)
<i>sales__growth_{i(t-1)}</i>	0.047* (0.026)	0.032*** (0.012)
<i>btm_{i(t-1)}</i>	0.038 (0.027)	0.031 (0.020)
<i>roa_{i(t-1)}</i>	0.020 (0.092)	0.020 (0.046)
<i>sec__inv_{i(t-1)}</i>	0.034** (0.016)	−0.006 (0.010)
<i>fluidity_{i(t-1)}</i>	−0.095 (0.280)	0.307** (0.153)
<i>cash_{i(t-1)}</i>	0.087 (0.073)	−0.080 (0.055)
<i>lev_{i(t-1)}</i>	0.079 (0.056)	−0.016 (0.031)
<i>ln(assets)_{i(t-1)}</i>	−0.004 (0.011)	−0.014 (0.015)
EXECUTIVE	yes	yes
BOARD	yes	yes
FIXED EFFECTS		
Fiscal year	yes	yes
Industry and state	yes	no
Firm	no	yes
adj. R^2	0.175	0.802
adj. within- R^2	0.066	0.022
N	4,615	4,615

Notes: The table displays the regression results for the analysis of CEO risk tolerance and firm characteristics when we limit the sample period to the years with more complete coverage of SEC investigations. The sample includes 629 firms and fiscal years 2006–2013. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. *sec__inv_{i(t-1)}* is an indicator variable equal to one if the firm is subject to at least one opened, closed, or ongoing SEC investigation. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO's age [*ln(age)_{it}*], and an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{i(t-1)}*], the share of independent directors [*independent_{i(t-1)}*], and the average number of directors' board seats [*boardseats_{i(t-1)}*]. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table IA.2: Shock to the Firm's Operating Environment

Alternative Research Design Choices

Panel A: Continuous Treatment

	<i>risk_taking_{it}</i>			
<i>non_wfh_i</i> × <i>post_t</i>	0.049*	0.041	0.050*	0.032
	(0.026)	(0.025)	(0.026)	(0.024)
<i>non_wfh_i</i>	−0.210***		−0.170**	
	(0.078)		(0.073)	
FIRM	no	no	yes	yes
EXECUTIVE	no	no	yes	yes
BOARD	no	no	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.112	0.760	0.148	0.764
adj. within- R^2	0.010	0.002	0.051	0.021
N	5,233	5,233	5,233	5,233

Panel B: Treatment Effects by Year

	<i>risk_taking_{it}</i>			
$q1_wfh_i \times post(2020)_t$	0.040* (0.021)	0.040* (0.020)	0.046** (0.022)	0.037* (0.021)
$q1_wfh_i \times post(2021)_t$	0.032 (0.022)	0.032 (0.021)	0.048** (0.023)	0.036* (0.019)
$q1_wfh_i \times post(2022)_t$	0.038 (0.025)	0.042* (0.024)	0.052* (0.028)	0.044* (0.023)
$q1_wfh_i \times post(2023)_t$	0.052* (0.027)	0.049* (0.025)	0.055** (0.027)	0.040 (0.025)
$q1_wfh_i \times post(2024)_t$	0.064* (0.034)	0.058* (0.031)	0.069** (0.032)	0.052* (0.028)
$q1_wfh_i$	0.143 (0.170)		-0.004 (0.178)	
FIRM	no	no	yes	yes
EXECUTIVE	no	no	yes	yes
BOARD	no	no	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.130	0.761	0.191	0.773
adj. within- R^2	0.001	0.005	0.070	0.056
N	2,457	2,457	2,457	2,457

Panel C: **Entropy Balancing**

	<i>risk_taking_{it}</i>			
$q1_wfh_i \times post_t$	0.072** (0.036)	0.059* (0.033)	0.078** (0.036)	0.065* (0.033)
$q1_wfh_i$	0.026 (0.060)		0.042 (0.061)	
MAIN EFFECTS AND INTERACTIONS				
$q2_wfh_i$ and $q3_wfh_i$	yes	yes	yes	yes
FIRM	no	no	yes	yes
EXECUTIVE	no	no	yes	yes
BOARD	no	no	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.329	0.739	0.371	0.746
adj. within- R^2	0.005	0.004	0.067	0.031
N	5,233	5,233	5,233	5,233

Panel D: Standard Errors Clustered by Industry

	<i>risk_taking_{it}</i>							
<i>q1_wfh_i × post_t</i>	0.044*	0.043**	0.053**	0.041**	0.047**	0.043**	0.047**	0.034*
	(0.024)	(0.020)	(0.023)	(0.018)	(0.022)	(0.020)	(0.022)	(0.018)
<i>q2_wfh_i × post_t</i>					0.028	0.025	0.028	0.022
					(0.021)	(0.020)	(0.021)	(0.019)
<i>q3_wfh_i × post_t</i>					0.040	0.038	0.036	0.035
					(0.024)	(0.025)	(0.025)	(0.024)
<i>q1_wfh_i</i>	0.142		−0.005		−0.096		−0.072	
	(0.167)		(0.180)		(0.066)		(0.060)	
<i>q2_wfh_i</i>					−0.127**		−0.100**	
					(0.048)		(0.041)	
<i>q3_wfh_i</i>					−0.083		−0.069	
					(0.063)		(0.056)	
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. <i>R</i> ²	0.131	0.761	0.191	0.774	0.110	0.760	0.148	0.765
adj. within- <i>R</i> ²	0.002	0.006	0.071	0.058	0.008	0.004	0.050	0.023
N	2,457	2,457	2,457	2,457	5,233	5,233	5,233	5,233

Notes: The table displays the regression results for the analysis of CEO risk tolerance and the COVID-19 pandemic using alternative research design choices: a continuous treatment variable in Panel A, treatment effects by year of the post-period in Panel B, observations reweighted via entropy balancing in Panel C, and standard errors clustered by industry in Panel D. In Panels B and D, we consider firms as treated if their pre-pandemic share of jobs that can be done at home is in the bottom quartile of the distribution and use firms in the top quartile as the control group. In Panel D, we also consider firms in the middle quartiles. In Panel C, we weight observations using entropy balancing on the first and second moments of the firm (FIRM) and board characteristics (BOARD) measured in the last year of the pre-period, with firms in the bottom quartile of the distribution of work-from-home share as the treatment group and firms in all other quartiles as controls. In the tabulated regression models, we include variables and interactions for firms in the middle quartiles but do not tabulate estimated coefficients. The samples are identical to the samples used in Table 5. *i* denotes firm and *t* fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. *non_wfh_i* is one minus the pre-pandemic share of jobs that can be done at home. *q*_wfh_i* is an indicator variable equal to one if the pre-pandemic share of jobs that can be done at home is in the first (*** = 1), second (2), or third (3) quartile of the distribution. *post_t* is an indicator variable equal to one for fiscal year 2020 and after. *post(*)_t* is an indicator variable equal to one for fiscal year ***. FIRM subsumes the firm characteristics displayed in Table 4 with the exception of SEC investigations [*sec_inv_{i(t-1)}*]. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [*female_{it}*], the natural logarithm of the CEO's age [*ln(age)_{it}*], and an indicator variable for CEOs with a Wikipedia page [*wikipedia_{it}*]. BOARD subsumes board characteristics: the natural logarithm of board size [*ln(boardsize)_{i(t-1)}*], the share of independent directors [*independent_{i(t-1)}*], and the average number of directors' board seats [*boardseats_{i(t-1)}*]. Detailed variable definitions are provided in Appendix A.1. Except for Panel D, standard errors are clustered by firm; throughout, we report them below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table IA.3: Shock to the Financial Sector

Alternative Research Design Choices

Panel A: Treatment Effects by Year

<i>risk_taking_{it}</i>								
<i>finance_i</i> × <i>post</i> (2008) _{<i>t</i>}	0.008 (0.007)	0.001 (0.005)	0.006 (0.010)	0.004 (0.006)	0.009 (0.008)	0.006 (0.006)	0.006 (0.010)	0.009 (0.007)
<i>finance_i</i> × <i>post</i> (2009) _{<i>t</i>}	0.018 (0.013)	0.011 (0.013)	0.025 (0.018)	0.015 (0.014)	0.023 (0.014)	0.018 (0.013)	0.033* (0.018)	0.023 (0.015)
<i>finance_i</i> × <i>post</i> (2010) _{<i>t</i>}	0.046** (0.023)	0.043* (0.022)	0.044* (0.025)	0.038* (0.020)	0.049** (0.023)	0.050** (0.022)	0.050** (0.025)	0.048** (0.022)
<i>finance_i</i> × <i>post</i> (2011) _{<i>t</i>}	0.061** (0.025)	0.060** (0.025)	0.069** (0.028)	0.059** (0.023)	0.058** (0.026)	0.058** (0.025)	0.067** (0.028)	0.061** (0.025)
<i>finance_i</i> × <i>post</i> (2012) _{<i>t</i>}	0.060** (0.026)	0.060** (0.025)	0.063** (0.029)	0.061** (0.025)	0.062** (0.028)	0.065** (0.027)	0.068** (0.030)	0.071** (0.028)
<i>finance_i</i>	−0.171 (0.142)		−0.140 (0.108)		−0.160 (0.138)		−0.135 (0.111)	
MAIN EFFECT AND INTERACTIONS								
<i>cash_i</i>	no	no	no	no	yes	yes	yes	yes
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.129	0.821	0.180	0.824	0.133	0.821	0.178	0.824
adj. within- R^2	0.000	0.008	0.058	0.026	0.005	0.007	0.057	0.025
N	3,883	3,883	3,883	3,883	3,883	3,883	3,883	3,883

Panel B: **Entropy Balancing**

	<i>risk_taking_{it}</i>							
<i>finance_i</i> × <i>post_t</i>	0.063*** (0.022)	0.055*** (0.020)	0.061*** (0.021)	0.033* (0.017)	0.057*** (0.020)	0.048*** (0.018)	0.057*** (0.021)	0.030 (0.019)
<i>finance_i</i>	-0.820*** (0.149)		-0.614*** (0.147)		-0.787*** (0.150)		-0.596*** (0.149)	
MAIN EFFECT AND INTERACTIONS								
<i>cash_i</i>	no	no	no	no	yes	yes	yes	yes
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.481	0.831	0.527	0.851	0.486	0.831	0.531	0.851
adj. within- R^2	0.013	0.011	0.101	0.127	0.023	0.011	0.108	0.126
N	3,883	3,883	3,883	3,883	3,883	3,883	3,883	3,883

Panel C: Standard Errors Clustered by Industry

	<i>risk_taking_{it}</i>							
<i>finance_i</i> × <i>post_t</i>	0.038*	0.035*	0.040**	0.033**	0.040*	0.039*	0.044***	0.040**
	(0.019)	(0.020)	(0.016)	(0.016)	(0.020)	(0.020)	(0.016)	(0.017)
<i>cash_i</i> × <i>post_t</i>					0.007	0.032	0.021	0.052
					(0.029)	(0.031)	(0.037)	(0.034)
<i>finance_i</i>	−0.161		−0.131		−0.149		−0.124	
	(0.162)		(0.115)		(0.158)		(0.119)	
<i>cash_i</i>					0.175		0.109	
					(0.112)		(0.100)	
FIRM	no	no	yes	yes	no	no	yes	yes
EXECUTIVE	no	no	yes	yes	no	no	yes	yes
BOARD	no	no	yes	yes	no	no	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.129	0.820	0.180	0.824	0.134	0.820	0.179	0.824
adj. within- R^2	0.000	0.003	0.058	0.022	0.006	0.003	0.057	0.022
N	3,883	3,883	3,883	3,883	3,883	3,883	3,883	3,883

Notes: The table displays the regression results for the analysis of CEO risk tolerance and the financial crisis using alternative research design choices: treatment effects by year of the post-period in Panel A, observations reweighted via entropy balancing in Panel B, and standard errors clustered by industry in Panel C. Throughout, we consider firms with pre-crisis SIC codes 6000–6999 as treated. We control for effects on non-financial firms using their pre-crisis cash holdings in some specifications. When we include pre-crisis cash holdings in Panels A and B, we also include the corresponding interaction(s), but we do not tabulate estimated coefficients for either. In Panel B, we weight observations using entropy balancing on the first and second moments of the firm (FIRM) and board characteristics (BOARD) measured in the last year of the pre-period. The sample is identical to the sample used in Table 6. i denotes firm and t fiscal year. $risk_taking_{it}$ is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. $finance_i$ is an indicator variable equal to one if the firm has a SIC code in the range 6000–6999 in fiscal year 2006 or, if missing, earlier. $cash_i$ is, for non-financial firms, cash and short-term investments divided by total assets in fiscal year 2006 or, if missing, earlier; it is zero for financial firms. $post_t$ is an indicator variable equal to one for fiscal year 2008 and after. $post(\star)_t$ is an indicator variable equal to one for fiscal year $\star$. FIRM subsumes the firm characteristics displayed in Table 4, where we exclude lagged cash holdings [$cash_{i(t-1)}$] when pre-crisis cash holdings are included, and investment [$capex_{i(t-1)}$ and $r\&d_{i(t-1)}$] when entropy balancing weights are derived. EXECUTIVE subsumes CEO characteristics: an indicator variable for female CEOs [$female_{it}$], the natural logarithm of the CEO's age [$ln(age)_{it}$], and an indicator variable for CEOs with a Wikipedia page [$wikipedia_{it}$]. BOARD subsumes board characteristics: the natural logarithm of board size [$ln(boardsize)_{i(t-1)}$], the share of independent directors [$independent_{i(t-1)}$], and the average number of directors' board seats [$boardseats_{i(t-1)}$]. Detailed variable definitions are provided in Appendix A.1. Except for Panel C, standard errors are clustered by firm; throughout, we report them below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table IA.4: **CEO Risk Tolerance and Appointment Type***Multinomial Logit*

	internal promotion	external insider	outsider	internal promotion	external insider	outsider
<i>risk_taking_{it}</i>	-0.113 (0.069)	0.129** (0.053)	-0.016 (0.056)	-0.075 (0.069)	0.118** (0.051)	-0.043 (0.057)
FIRM	no	no	no	yes	yes	yes
EXECUTIVE	no	no	no	yes	yes	yes
BOARD	no	no	no	yes	yes	yes
FIXED EFFECTS						
Fiscal year	yes	yes	yes	yes	yes	yes
Industry and state	yes	yes	yes	yes	yes	yes
pseudo R^2		0.146			0.310	
N		920			920	

Notes: The table displays marginal effects for the analysis of CEO risk tolerance and appointment type when we estimate multinomial logit models in the sample of all CEO appointments used in Table 8. The models allow for the three appointment types of internal promotion (employees of the firm in the prior year), external insider (other former employees or directors), and external outsider (CEOs without a history with the firm). We report average marginal effects and their standard errors for a model with our proxy for risk tolerance and fixed effects in columns 1–3, and a model that adds the full set of control variables in columns 4–6. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO. FIRM subsumes the firm characteristics displayed in Table 4. EXECUTIVE subsumes the full set of CEO characteristics displayed in Table 8. BOARD subsumes board characteristics: the natural logarithm of board size [$\ln(boardsize)_{i(t-1)}$], the share of independent directors [$independent_{i(t-1)}$], and the average number of directors' board seats [$boardseats_{i(t-1)}$]. Detailed variable definitions are provided in Appendix A.1. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table IA.5: **Sports versus Other Risk-Taking**Panel A: **Shock to the Firm's Operating Environment**

	<i>risk_taking_{it}</i>							
	based on sports				other risk-taking			
$q1_wfh_i \times post_t$	0.028 (0.018)	0.030* (0.017)	0.029* (0.017)	0.023 (0.017)	0.022 (0.015)	0.011 (0.013)	0.019 (0.015)	0.009 (0.013)
$q2_wfh_i \times post_t$			0.007 (0.015)	0.006 (0.014)			0.021 (0.013)	0.016 (0.012)
$q3_wfh_i \times post_t$			0.011 (0.016)	0.013 (0.014)			0.011 (0.015)	0.007 (0.015)
$q1_wfh_i$	0.113 (0.137)		0.007 (0.048)		-0.117 (0.080)		-0.083* (0.044)	
$q2_wfh_i$			-0.037 (0.038)				-0.062** (0.027)	
$q3_wfh_i$			0.020 (0.050)				-0.050 (0.038)	
FIRM	yes	yes	yes	yes	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes	yes	yes	yes	yes
BOARD	yes	yes	yes	yes	yes	yes	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.184	0.775	0.145	0.784	0.165	0.757	0.116	0.702
adj. within- R^2	0.076	0.022	0.050	0.012	0.057	0.059	0.036	0.025
N	2,457	2,457	5,233	5,233	2,457	2,457	5,233	5,233

Panel B: Shock to the Financial Sector

	<i>risk_taking_{it}</i>							
	based on sports				other risk-taking			
<i>finance_i × post_t</i>	0.032** (0.016)	0.022* (0.013)	0.032** (0.016)	0.025* (0.014)	0.012 (0.010)	0.014* (0.008)	0.013 (0.011)	0.018* (0.009)
<i>cash_i × post_t</i>			−0.001 (0.040)	0.018 (0.039)			0.004 (0.039)	0.026 (0.035)
<i>finance_i</i>	−0.093 (0.114)		−0.091 (0.116)		−0.030 (0.042)		−0.019 (0.041)	
<i>cash_i</i>			0.028 (0.093)				0.149 (0.094)	
FIRM	yes	yes	yes	yes	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes	yes	yes	yes	yes
BOARD	yes	yes	yes	yes	yes	yes	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. R^2	0.153	0.830	0.152	0.830	0.172	0.820	0.175	0.820
adj. within- R^2	0.051	0.019	0.049	0.018	0.035	0.023	0.039	0.023
N	3,883	3,883	3,883	3,883	3,883	3,883	3,883	3,883

Panel C: **Consequences**

	<i>capex</i> _{<i>i</i>(<i>t</i>+1)}				<i>r</i> & <i>d</i> _{<i>i</i>(<i>t</i>+1)}			
<i>risk_taking</i> _{<i>it</i>} × <i>q1_wfh</i> _{<i>i</i>} × <i>post</i> _{<i>t</i>}								
based on sports	−0.012 (0.013)	−0.012 (0.009)	−0.018 (0.013)	−0.014 (0.009)	0.027** (0.013)	0.000 (0.003)	0.021** (0.011)	0.005 (0.003)
other risk-taking	−0.018 (0.018)	−0.004 (0.015)	−0.016 (0.021)	−0.014 (0.016)	0.004 (0.013)	0.000 (0.004)	0.010 (0.010)	0.002 (0.006)
<i>risk_taking</i> _{<i>it</i>}								
based on sports	0.001 (0.005)	0.008 (0.007)	−0.002 (0.003)	0.005 (0.006)	0.025 (0.015)	0.024 (0.016)	0.019 (0.012)	0.009 (0.009)
other risk-taking	−0.008 (0.010)	−0.002 (0.006)	0.000 (0.007)	−0.003 (0.004)	−0.020* (0.010)	−0.001 (0.002)	−0.019*** (0.007)	−0.008*** (0.002)
<i>q1_wfh</i> _{<i>i</i>} × <i>post</i> _{<i>t</i>}	0.007 (0.010)	0.011 (0.007)	0.002 (0.010)	0.010 (0.007)	0.011 (0.012)	0.000 (0.007)	−0.009 (0.009)	−0.002 (0.005)
<i>q1_wfh</i> _{<i>i</i>}	0.051*** (0.013)		−0.013 (0.012)		−0.013 (0.018)		−0.008 (0.013)	
MAIN EFFECTS AND INTERACTIONS								
<i>q2_wfh</i> _{<i>i</i>} and <i>q3_wfh</i> _{<i>i</i>}	no	no	yes	yes	no	no	yes	yes
<i>ln(delta)</i> _{<i>it</i>} and <i>ln(vega)</i> _{<i>it</i>}	yes	yes	yes	yes	yes	yes	yes	yes
FIRM	yes	yes	yes	yes	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes	yes	yes	yes	yes
BOARD	yes	yes	yes	yes	yes	yes	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. <i>R</i> ²	0.614	0.823	0.539	0.832	0.587	0.960	0.633	0.949
adj. within- <i>R</i> ²	0.177	0.156	0.123	0.146	0.102	0.078	0.166	0.144
N	1,847	1,847	3,774	3,774	1,847	1,847	3,774	3,774

Panel D: CEO Risk Tolerance and Appointment Type

	<i>external_{it}</i>		<i>external_insider_{it}</i>	
Sample	all CEO appointments		external CEO appointments	
Model	OLS	EB	OLS	EB
<i>risk_taking_{it}</i>				
based on sports	0.090 (0.086)	−0.067 (0.069)	0.216 (0.138)	0.189* (0.107)
other risk-taking	0.095 (0.094)	0.052 (0.080)	0.251** (0.100)	0.312*** (0.084)
FIRM	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes
BOARD	yes	yes	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	yes	yes	yes
adj. R^2	0.189	0.475	0.180	0.500
adj. within- R^2	0.162	0.268	0.163	0.241
N	920	920	371	371

Notes: The table displays the regression results when we distinguish between risk tolerance based on extreme and endurance sports and other risk-taking in the analysis of CEO risk tolerance and the COVID-19 pandemic in Panel A, the analysis of CEO risk tolerance and the financial crisis in Panel B, the analysis of the investment consequences of matching with a risk-tolerant CEO in the years of and after the pandemic in Panel C, and the analysis of CEO risk tolerance and appointment type in Panel D. Unless explicitly mentioned, we use the same samples and follow the same research design as specified for each analysis in its main table. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking of the CEO, where we distinguish between evidence based on sports and evidence of other risk-taking. $q \star_wfh_i$ is an indicator variable equal to one if the pre-pandemic share of jobs that can be done at home is in the first ($\star = 1$), second (2), or third (3) quartile of the distribution. *finance_i* is an indicator variable equal to one if the firm has a SIC code in the range 6000–6999 in fiscal year 2006 or, if missing, earlier. *cash_i* is, for non-financial firms, cash and short-term investments divided by total assets in fiscal year 2006 or, if missing, earlier; it is zero for financial firms. *capex_{i(t+1)}* is capital expenditures divided by lagged total assets. *r&d_{i(t+1)}* is R&D expenses divided by lagged total assets. *post_t* is an indicator variable equal to one for fiscal year 2020 and after in Panels A and C, and an indicator variable equal to one for fiscal year 2008 and after in Panel B. *external_{it}* is an indicator variable equal to one if the CEO is an external insider (former employee or director unless internally promoted) or external outsider (CEO without a history with the firm) at appointment. *external_insider_{it}* is an indicator variable equal to one if the CEO is an external insider. FIRM, EXECUTIVE, and BOARD subsume firm, executive, and board characteristics, respectively, and are further specified for each analysis in its main table. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.

Table IA.6: Evidence of Pre-Existing Personal Risk-Taking

Panel A: Shock to the Firm's Operating Environment

	<i>risk_taking_{it}</i> based on pre-existing risk-taking			
$q1_wfh_i \times post_t$	0.049** (0.021)	0.038* (0.020)	0.042** (0.021)	0.029 (0.021)
$q2_wfh_i \times post_t$			0.029 (0.020)	0.022 (0.019)
$q3_wfh_i \times post_t$			0.030 (0.021)	0.029 (0.019)
$q1_wfh_i$	0.007 (0.187)		-0.061 (0.058)	
$q2_wfh_i$			-0.096** (0.044)	
$q3_wfh_i$			-0.060 (0.058)	
FIRM	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes
BOARD	yes	yes	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.192	0.750	0.146	0.742
adj. within- R^2	0.061	0.057	0.047	0.021
N	2,457	2,457	5,233	5,233

Panel B: Shock to the Financial Sector

	<i>risk_taking_{it}</i> based on pre-existing risk-taking			
<i>finance_i</i> × <i>post_t</i>	0.033** (0.016)	0.025** (0.013)	0.035** (0.017)	0.028** (0.014)
<i>cash_i</i> × <i>post_t</i>			0.017 (0.047)	0.027 (0.045)
<i>finance_i</i>	0.007 (0.054)		0.011 (0.056)	
<i>cash_i</i>			0.076 (0.108)	
FIRM	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes
BOARD	yes	yes	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	no	yes	no
Firm	no	yes	no	yes
adj. R^2	0.168	0.786	0.168	0.786
adj. within- R^2	0.052	0.019	0.052	0.017
N	3,883	3,883	3,883	3,883

Panel C: **Consequences**

	<i>capex_{i(t+1)}</i>				<i>r&d_{i(t+1)}</i>			
<i>risk_taking_{it} × q1_wfh_i × post_t</i>								
based on pre-existing risk-taking	−0.022** (0.011)	−0.017* (0.008)	−0.025** (0.011)	−0.020** (0.008)	0.017 (0.010)	0.002 (0.003)	0.017** (0.009)	0.006* (0.004)
<i>risk_taking_{it}</i>								
based on pre-existing risk-taking	−0.002 (0.005)	0.005 (0.005)	−0.002 (0.003)	0.001 (0.004)	0.011 (0.013)	0.013 (0.010)	0.010 (0.010)	0.002 (0.005)
<i>q1_wfh_i × post_t</i>	0.009 (0.010)	0.014* (0.007)	0.004 (0.010)	0.012* (0.007)	0.013 (0.012)	0.000 (0.007)	−0.009 (0.009)	−0.002 (0.005)
<i>q1_wfh_i</i>	0.047*** (0.013)		−0.016 (0.012)		−0.013 (0.018)		−0.007 (0.013)	
MAIN EFFECTS AND INTERACTIONS								
<i>q2_wfh_i and q3_wfh_i</i>	no	no	yes	yes	no	no	yes	yes
<i>ln(delta)_{it} and ln(vega)_{it}</i>	yes	yes	yes	yes	yes	yes	yes	yes
FIRM	yes	yes	yes	yes	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes	yes	yes	yes	yes
BOARD	yes	yes	yes	yes	yes	yes	yes	yes
FIXED EFFECTS								
Fiscal year	yes	yes	yes	yes	yes	yes	yes	yes
Industry and state	yes	no	yes	no	yes	no	yes	no
Firm	no	yes	no	yes	no	yes	no	yes
adj. <i>R</i> ²	0.610	0.824	0.538	0.832	0.578	0.959	0.629	0.949
adj. within- <i>R</i> ²	0.168	0.159	0.123	0.147	0.083	0.066	0.158	0.141
N	1,847	1,847	3,774	3,774	1,847	1,847	3,774	3,774

Panel D: CEO Risk Tolerance and Appointment Type

	<i>external_{it}</i>		<i>external_insider_{it}</i>	
Sample	all CEO appointments		external CEO appointments	
Model	OLS	EB	OLS	EB
<i>risk_taking_{it}</i>				
based on pre-existing risk-taking	0.103 (0.067)	0.000 (0.044)	0.256** (0.104)	0.272*** (0.085)
based on subsequent risk-taking	0.050 (0.155)	−0.162 (0.169)	0.161 (0.168)	0.411** (0.197)
FIRM	yes	yes	yes	yes
EXECUTIVE	yes	yes	yes	yes
BOARD	yes	yes	yes	yes
FIXED EFFECTS				
Fiscal year	yes	yes	yes	yes
Industry and state	yes	yes	yes	yes
adj. R^2	0.189	0.533	0.181	0.526
adj. within- R^2	0.162	0.306	0.163	0.215
N	920	920	371	371

Notes: The table displays the regression results when we measure risk tolerance based on evidence of pre-existing personal risk-taking in the analysis of CEO risk tolerance and the COVID-19 pandemic in Panel A, the analysis of CEO risk tolerance and the financial crisis in Panel B, the analysis of the investment consequences of matching with a risk-tolerant CEO in the years of and after the pandemic in Panel C, and the analysis of CEO risk tolerance and appointment type in Panel D. In Panel D, we also include a proxy for risk tolerance based on evidence of subsequent personal risk-taking but use the proxy based on pre-existing risk-taking to derive entropy balancing weights. Otherwise, we use the same samples and follow the same research design as specified for each analysis in its main table. i denotes firm and t fiscal year. *risk_taking_{it}* is an indicator variable equal to one if we have evidence of personal risk-taking that occurred before fiscal year t (based on pre-existing risk-taking), or an indicator variable equal to one if we have evidence of personal risk-taking that occurred during or after year t (based on subsequent risk-taking). $q \star_wfh_i$ is an indicator variable equal to one if the pre-pandemic share of jobs that can be done at home is in the first ($\star = 1$), second (2), or third (3) quartile of the distribution. *finance_i* is an indicator variable equal to one if the firm has a SIC code in the range 6000–6999 in fiscal year 2006 or, if missing, earlier. *cash_i* is, for non-financial firms, cash and short-term investments divided by total assets in fiscal year 2006 or, if missing, earlier; it is zero for financial firms. *capex_{i(t+1)}* is capital expenditures divided by lagged total assets. *r&d_{i(t+1)}* is R&D expenses divided by lagged total assets. *post_t* is an indicator variable equal to one for fiscal year 2020 and after in Panels A and C, and an indicator variable equal to one for fiscal year 2008 and after in Panel B. *external_{it}* is an indicator variable equal to one if the CEO is an external insider (former employee or director unless internally promoted) or external outsider (CEO without a history with the firm) at appointment. *external_insider_{it}* is an indicator variable equal to one if the CEO is an external insider. FIRM, EXECUTIVE, and BOARD subsume firm, executive, and board characteristics, respectively, and are further specified for each analysis in its main table. Detailed variable definitions are provided in Appendix A.1. Standard errors are clustered by firm and denoted below the coefficients in parentheses. *, **, and *** indicate significance at the 0.1, 0.05, and 0.01 level, respectively.