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Workplace Wellbeing and Firm Performance*

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Abstract

We use novel large-scale data crowdsourced by *Indeed*, a major jobs website, to assess the relationship between workplace wellbeing and firm performance. Our measures of employee wellbeing include self-reported job satisfaction, purpose, happiness, and stress, which we aggregate to 1,782 publicly listed companies in the United States using data from around 1 million employee surveys across these organizations. Using company-level employee wellbeing measures to predict firm performance, we show that wellbeing is associated with firm profitability and firm value. We find that an investment portfolio of companies with high levels of workplace wellbeing also outperforms standard benchmarks in the stock market. Overall, these descriptive results show a strong positive relationship between employee wellbeing and firm performance. We discuss how these analyses contribute to this growing area of research, highlight a number of limitations, and point to future directions for further research.

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1 Introduction

What shapes firm performance? Standard answers to this question typically emphasize factors such as the importance of brand identities, economies of scale, innovation, and diversification, among others. In business schools around the world, aspiring entrepreneurs read case studies of Apple's powerful messaging and Amazon's vertical integration. There is good reason for this, given that sound financials and strong value propositions are surely essential components of organizational success. Yet behind every branding decision, strategic acquisition, and creative innovation lies an even more fundamental driver of performance: people.

It is no secret that successful businesses are built by the people behind them. Firms spend an immense amount of time, energy, and money seeking out qualified candidates. Yet, hiring talented workers is not enough. Businesses have to create conditions conducive to their success. Long-running literatures across organizational science, psychology, economics, and others, have investigated the dynamics and determinants of job performance. These endeavors have at various points highlighted the importance of management styles (Liden et al., 2014; Rowold et al., 2014), organizational structures (Sethibe and Steyn, 2016), pay schemes (Prendergast, 1999), benefit packages (Carr and Tang, 2005; Hong et al., 1995), and on-the-job training (De Grip and Sauermann, 2013).

What about happiness? The idea that employee wellbeing can promote business success is not new. Researchers have long been interested in the link between the two, and we trace this history in greater detail in the next section. But, in recent years, in both popular and academic discussions, the power and potential of employee wellbeing to promote business success has reached something of a high-water mark. Major outlets including Forbes (Malcolm, 2021), the Wall Street Journal (Smith, 2021), the Financial Times (Hill, 2019), CNN (Achor, 2012), and the Harvard Business Review (Seppälä and Cameron, 2015), as well as high-powered consulting agencies including McKinsey (Segel, 2021) and Deloitte (Hampson and Jacob, 2020), have all begun focusing on the importance wellbeing at work. This trend was already gaining traction before the COVID-19 pandemic, but has only gained momentum since.

All these developments have combined to shine an even brighter light on employee wellbeing than ever before. Workplace wellbeing is being touted as a new frontier in the global competition for talent and a key ingredient to business success. But what do we really know about this relationship? Is all of this attention founded on hard evidence? Do investments in employee wellbeing really pay off? Would managers and executives be justified in dedicating time and energy into measuring, monitoring, and promoting the happiness of their

employees? Or are the costs likely to outweigh the benefits? Ultimately: is there a business case for happiness?

There are two perspectives worth considering in this regard. First, we can inquire about the relationship between employee wellbeing and job performance at the individual level – what we refer to as the "micro" level of performance. The basic question here is relatively straight-forward – are happier workers better at their jobs? As we document in Section 6, the best evidence on this question does indeed indicate positive and mutually reinforcing links between employee wellbeing and performance at the individual level. Happier workers are not only more productive, but also less likely to leave their jobs, miss workdays for health reasons, or work while sick. They tend to be more collaborative, creative, committed to their organizations, and motivated at work. These findings are supported by an array of correlational, longitudinal, and experimental evidence. At least on an individual level, happier workers do appear to be higher performers.

However, from an organizational perspective, the practical relevance of this body of work is potentially limited. Whatever we can say about the relationship between wellbeing and performance on an individual level may not necessarily tell us anything about its effects on an organizational level – i.e., whether there is a business case. Once we take this "macro" level perspective, the relationship between wellbeing and performance can be complicated by a number of factors. For one, even the strongest evidence emanating from controlled laboratory settings may not translate to real-world contexts. Even if workers demonstrate higher capacities for productivity and collaboration in experimental research, they may not be able to sustain such high levels of wellbeing or performance in their typical workplace settings. On the other hand, even if it were possible for companies to keep their employees happy at work, it may simply be unaffordable (relative to the potential benefits). Developing practical, sustainable, and cost-effective policies and programs to support high levels of employee wellbeing on a continuous basis may not be feasible. In fact, some research has demonstrated that many of the most popular organizational initiatives to promote wellbeing are largely ineffective, or even potentially counterproductive (Lieberman, 2019).

All of this seems to have contributed to somewhat of an impasse where employee wellbeing is increasingly being seen as fundamental to company success, and yet simultaneously under-invested in. In a recent survey of 1,073 executives and managers in the United States, 87 percent agreed that improving workplace wellbeing can give their companies a competitive advantage (HBR Analytical Services, 2020). Even higher percentages believed that creating happier places to work would make it easier to attract and retain talent, while 8 out of 10 agreed that unhappiness harms productivity. Nevertheless, positive attitudes do not necessarily translate into concrete action. In the same survey, only about a third of managers

and executives reported that wellbeing was a strategic priority for their organizations. And only half of those respondents noted that a strategy was in place to effectively improve workplace wellbeing.

One possible way to interpret this disconnect is that, despite paying lip service to the benefits of wellbeing at work, business leaders may still be unconvinced of its potential benefits for productivity and performance. If so, their reluctance would be understandable. Even the most progressive managers and executives require strong evidence upon which to base decision-making. Despite the increased media attention on the subject, conclusively establishing causation can be enormously challenging. For example, it seems perfectly reasonable to imagine that successful companies make happy employees, and not the other around. Or perhaps even more likely, that both are interdependent and mutually reinforcing.

In this light, we seek to make three main contributions. First, we review the existing academic evidence on the links between wellbeing and performance on an organizational level. Overall, we document strongly suggestive evidence that employee wellbeing is in fact positively related to business success. Companies with positive workplace cultures are more likely than their competitors to experience subsequent sales growth, stronger earnings-to-asset ratios, greater profitability, higher market valuations, and more frequent earnings surprises.

However, we note two key limitations of this body of work. One is that most existing studies only consider a small selection of highly performing firms. Analyzing the effects of employee wellbeing in already successful firms can be instructive, but may also be an unreliable guide to understanding the link between wellbeing and performance in the wider economy. This is an especially important omission, since a large body of evidence has demonstrated that low levels of wellbeing and negative experiences can have even more important effects on subsequent behavior and attitudes than high levels of wellbeing (Baumeister et al., 2001).

The second is that almost all existing studies rely heavily on indirect indicators of – or proxies for – employee wellbeing such as "Best Places to Work" lists and/or generic star ratings on the jobs website *Glassdoor*. While these can provide broad indications of positive company culture, they may be relatively uninformative guides to understanding the direct effects of *employee wellbeing*. Employee reviews and third-party ratings are likely reflective of a broad range of company policies and practices that may not necessarily be directly related to wellbeing. Along similar lines, these metrics are also unable to distinguish between different forms of wellbeing at work, including happiness, job satisfaction, purpose, and (lack of) stress.

As a result, in Section 4 we present the results of a series of novel empirical investigations

into employee wellbeing and firm performance using crowd-sourced data from *Indeed*. Our main analysis includes 1,782 publicly listed companies. We measure employee wellbeing using the *Indeed* Work Wellbeing Score, which is an index combining survey responses on levels of work happiness, purpose, job satisfaction, and (reverse-coded) stress. We also consider these four dimensions of subjective wellbeing in the workplace separately. Our primary analyses focus on employee happiness, as this is the variable for which we have the most data.

Our results reveal positive and significant relationships between employee wellbeing and firm performance. Companies with higher average levels of wellbeing are more profitable – they report report higher gross profits and, more importantly, have greater returns on assets. Building on this, we find that company wellbeing levels are not only predictive of contemporaneous firm performance, but also of future firm performance. Finally, we not only look at firm accounting data in order to measure associations with financial performance, but also at firm value. We first show that, accounting for a range of observable factors, company wellbeing is related to contemporaneous and future firm value (as measured by the q ratio). To contextualize this, in Section 5, we run a simple portfolio simulation where we find that an investment strategy based on investing in firms with the highest levels of wellbeing outperforms stock market benchmarks such as the S&P 500, Nasdaq Composite, and Russell 3000.

In Section 6, we then turn back to the academic literature and evaluate potential explanations for our findings. The existing empirical literature provides several important potential channels through which employee wellbeing can improve performance. We focus on six channels in particular: (1) productivity, (2) relationships, (3) creativity, (4) health, (5) recruitment, and (6) retention. Drawing on a wealth of research in economics and psychology, we comment on the most compelling correlational, longitudinal, and experimental evidence pertaining to each one of these channels. While we find there to be strongly persuasive studies on each one, the link between happiness and productivity is the most extensively researched and strongly supported in the literature. We conclude with a discussion of limitations of potential future research directions in Section 7.

2 Background and related literature

Despite the recent increase in interest in workplace wellbeing, academic research on the topic stretches back by almost a century. In the 1930s, the sociologist George Elton Mayo gave psychological models of motivation and attitudes a central role to play in organizational research. His efforts eventually gave birth to the "human relations movement" and led to the first scientific experiments on worker wellbeing and productivity at the Hawthorne

plant of the Western Electric Company in the 1930s (Muldoon, 2012). Supervised by Mayo himself, the experiments sought to examine the productivity effects of improving physical working conditions, such as softer lighting. The apparent success and early notoriety of these studies – spurred on by the endorsements and related initiatives of powerful business magnates including Henry Ford, George F. Johnson, and Henry Bradford Endicott – led to an expansion of so-called "welfare capitalism" throughout the mid-twentieth century. The idea that companies and managers ought to pay attention to, support, and promote employee wellbeing not only as a matter of principle, but also as a matter of good business, began to take root.

However, early reviews of the academic literature produced mixed results (Brayfield and Crockett, 1955; Iaffaldano and Muchinsky, 1985), and academic study of the relationship between wellbeing, productivity, and performance largely fell out of fashion. But in the 1990s, happiness began to step back into the spotlight. Novel sources of large-scale wellbeing data, alongside the arrival of more sophisticated statistical techniques, meta-analytic procedures, and more powerful computing software, ignited a new wage of empirical wellbeing research. In organizational science, several prominent researchers began to re-evaluate previously held assumptions about the relationship between employee wellbeing and job performance. In a reassessment of the evidence, Judge et al. (2001) improved and expanded on the methodology of previous reviews of the link between job satisfaction and job performance by looking at 254 studies, comprising 312 unique samples with more than 54,000 unique observations. The authors also controlled for background characteristics and considered job satisfaction as an independent construct separate from other indicators of employee wellbeing. Their analysis revealed a positive and significantly significant correlation between job satisfaction and job performance.

More recent studies have come to similar conclusions (see, e.g., Bellet et al., 2023; Böckerman and Ilmakunnas, 2012; Oswald et al., 2015; Rothbard and Wilk, 2011, as well as further discussion in Section 6). In one of the largest correlational studies to date, Krekel et al. (2019) analyzed Gallup data collected from 339 independent research studies in 230 organizations across 49 industries in 73 countries around the world, containing observations on the wellbeing and performance of 1,882,131 employees and 82,248 business units. Job satisfaction was found to be positively and significantly associated with customer satisfaction, employee productivity, and profitability, and negatively associated with staff turnover. In further specifications, these results proved to be consistent across four separate industries – finance, manufacturing, services, and retail – as well as for U.S. and non-U.S. companies.

Other analyses have considered the longitudinal relationship between employee wellbeing and firm performance by looking at star ratings and company reviews. One of the first

studies to do so was conducted by Edmans (2011, 2012). The author examined the long-run stock market performance of *Fortune* magazine's "100 Best Companies to Work for in America", finding them to have 2.3% to 3.8% higher annual stock returns than peers.[1] In a later study using an expanded sample of companies featured on "Best Places to Work" lists in 14 other countries, Edmans et al. (2023) found mostly similar dynamics, particularly in countries with flexible labor markets. In a pair of related studies, Chamberlain (2015) and Chamberlain and Munyikwa (2020) examined the stock returns of American companies selected to *Glassdoor*'s "Best Places to Work" lists. In this case, the ranking was based entirely on employee reviews. The authors found that highly rated companies outperformed the market by 115.6% from 2009 to 2014 (Chamberlain, 2015), and by 57% from 2009 to 2019 (Chamberlain and Munyikwa, 2020). To put these figures into context, an investment of $1,000 in highly rated companies in 2009 would have grown to $6,529 by 2019, representing a total return of 553%. The same investment in an S&P index fund for would have grown to $3,580.[2] Chamberlain (2015) also noted that companies' stock value appeared to increase by 0.75% in the ten days after being named to the "Best Places to Work" list itself. This result echoed an earlier study that identified a 1.03% stock market bump for companies selected to *Fortune* magazine's list in the days following the announcement (Faleye and Trahan, 2011).

Other studies have considered a broader set of financial indicators. Huang et al. (2015), for example, looked at the financial performance of 993 large American firms and 100,000 employee surveys collected between 2008 and 2012. Across four distinct empirical specifications, the authors found that improvements in company ratings on *Glassdoor* predict subsequent improvements in Tobin's q (market valuation relative to assets) and return on assets (net income to assets) ratios in the following quarter (see also Symitsi et al., 2018). More recent analyses by Moniz (2017), Symitsi et al. (2018), and Green et al. (2019) came to similar conclusions using *Glassdoor* ratings as a proxy for employee wellbeing. In general, all studies continued to find positive and significant relationships between company ratings and firm value (Tobin's q ratios), sales growth, profitability, and earnings announcements.

There are several key takeaways from the results presented thus far. For one, at the very least, employee wellbeing does not appear to be at odds with organizational performance. This suggests that whatever investments are necessary to raise employee wellbeing do not detract from firms' bottom line. In macro-levels studies, these costs are factored into the equation. The fact that we do not see negative returns for companies that are more sup-

[1] These results were also replicated in another analysis by Faleye and Trahan (2011).

[2] However, effects were not consistent across sectors. Chamberlain and Munyikwa (2020) noted that while retail companies' stock experienced a 40.5% annual return on investment, returns dwindled to 4.4% and 3.9% for insurance companies and energy companies, respectively. The relationship even turned slightly negative (-1.4%) among firms in construction, repair, and maintenance.

portive of wellbeing suggests that investing in employee wellbeing may be both prudent and sustainable. In fact, far from being antithetical to business success, the results of this section suggest that employee wellbeing directly contributes to it. Even after controlling for a wide variety of firm characteristics, industry benchmarks, and other fixed effects, companies with higher levels of employee wellbeing have higher valuations, stock market returns, greater sales growth, stronger earnings to asset ratios, and more frequent earnings surprises.

Employee wellbeing also appears to be undervalued by the market. The fact that highly rated companies are more likely to report earnings surprises and outperform analyst expectations underscores the untapped potential of investing in employee wellbeing to promote business success. In a highly efficient market, we would expect information contained within employee reviews to be quickly factored into stock prices and investment decision-making. Instead, the evidence suggests that the market does not sufficiently (or at least expeditiously) account for the financial value of employee wellbeing. This may begin to change as more information on firm-level wellbeing becomes available to investors in the future.

However, there are also important limitations to this body of work. Studies based on the highest rated companies may be unreliable since they do not study a representative set of firms. These high performing firms are likely to have a number of advantages that contribute both to employee wellbeing as well as financial success, complicating any assessment of the causal relationships between them. Information technology companies, for example, tend to be highly overrepresented in "Best Places to Work" lists. To better understand the dynamics of wellbeing and firm performance, it is worth considering a broader cross-section of organizations.

Perhaps even more importantly, almost all existing studies use rough and potentially unreliable proxies for the key concept that they purport to be studying, namely employee wellbeing. Company rankings, ratings, and reviews are likely to be an amalgamative representation of all forms of positive organizational culture and behavior. As a result, even with the inclusion of control variables, it can be difficult to isolate the strength and significance of specific causal pathways from evaluative, affective, and eudemonic wellbeing to financial return.[3] Using more direct measurements of wellbeing can help paint a more nuanced and complete picture of the relationship between employee wellbeing and firm performance. In this light, in the next section we present the results of several novel analyses leveraging large-scale data collected by *Indeed* on employee wellbeing. By matching this data – which contains direct measurements of employee wellbeing for a wide variety of publicly listed companies – with contemporaneous and longitudinal data on firm performance, we are able to qualify and extend the results of the studies discussed in this section.

[3]These terms are explained in greater detail in the next section.

3 Data and Methods

Subjective wellbeing data. Since October 2019, *Indeed* has been collecting self-reported data on employee wellbeing. Users of the platform have been invited to provide information about their wellbeing at the companies they currently or previously worked for. For the purposes of this investigation, we are primarily interested in the following four items that make up what Indeed displays publicly as the Work Wellbeing Score:

- *I am happy at work most of the time.*
- *My work has a clear sense of purpose.*
- *Overall, I am completely satisfied with my job.*
- *I feel stressed at work most of the time.*

These are the first four questions users are presented with when directed to review their current or past employer. Reviewers are asked to report the extent to which they agree or disagree with each item on 5-point scale from "strongly disagree" to "strongly agree." In addition to the four main wellbeing items laid out above, there is also a wellbeing score, which is the mean of the four (with stress reverse-coded). Once a company has received 10 or more surveys from current or former employees, company averages are displayed publicly on the platform.

These four questions are our primary focus as they map closely onto (and were, in fact, explicitly based on) prevailing theoretical understandings and empirical measurements of subjective wellbeing in the academic literature (see De Neve and Ward, 2023, for a broader discussion). Researchers today generally use subjective wellbeing as an umbrella term to refer to positive subjective attitudes and experiences.[4] It is common to distinguish between three distinct dimensions of wellbeing: (1) evaluation, (2) affect, and (3) eudaimonia (OECD, 2013). Evaluation refers to an overall global assessment of life circumstances as a whole. Affect refers to the ongoing experience of positive or negative emotions. Eudaimonia refers to a felt sense of purpose or meaning (e.g., in life or at work). The first four wellbeing questions on *Indeed* can be grouped neatly along these lines – happiness and stress as positive and negative affect, job satisfaction as evaluation, and purpose as eudaimonia. These questions also closely resemble items used to measure national wellbeing by the Office of National

[4]Happiness is also often used as a synonym for wellbeing in this context. However, following best practices and recommendations in the academic literature, here we consider happiness specifically as a type of positive affect.

Statistics in the United Kingdom and other official agencies around the world including the Centers for Disease Control in the United States, and New Zealand Treasury.[5]

Since data collection began, *Indeed* has amassed upwards of 20 million individual surveys on employee wellbeing, with most of the data collection having taken place in the United States. For the purposes of this analysis, we limit this sample in several ways. First, we keep all observations from October 2019 (when data collection began) through to the end of December 2023.[6] Second, to arrive at more precise measurements of time-varying employee wellbeing, we drop responses from workers who are not currently employed at the companies they are reviewing. Third, we keep only companies that we are able to link to a stock ticker that is listed, during the study period, on one of the NASDAQ or New York stock exchanges. Finally, we drop companies with fewer than 10 employee ratings in a given time period (usually the company-year). Summary statistics for our primary sample are presented in Table 1. We are able to study around 4,800 company-years in the sample, and the mean number of underlying individual-level surveys per observation is around 206, though this depends on the wellbeing measure being studied. Overall, this suggests that the analysis is based on roughly 1 million individual-level surveys from Indeed users who are currently employed within a firm listed on the NYSE or NASDAQ exchanges.

Firm performance data. We match employers on Indeed to stock tickers and link them to data from Compustat's North America Annual Fundamentals database. Following prior literature (e.g., Huang et al., 2015; Moniz, 2017; Symitsi et al., 2018), we rely on two primary indicators of firm performance: Tobin's q as a measure of firm value and return on assets (ROA) as a measure of profitability. We winsorized our main outcome variables at the 1st and 99th percentiles in order to reduce the influence of outliers

ROA is measured as earnings before extraordinary items divided by assets (ib/at in Compustat). It is a measure of profitability. It is measured by taking the ratio of a company's net income divided by the value of its (lagged) assets. It is therefore indicative of a company's ability to effectively capitalize on the assets it has. In further analyses, we also show results using the more easily interpretable measure of annual gross profits (in U.S. dollars) as an outcome (gp in Compustat), though we recognize that this is a somewhat imperfect measure of performance and thus prefer measures of profitability such as ROA.

To measure firm value, we use Tobin's q, also known as the Q ratio – the market value of a company divided by the replacement cost of its assets (Kaldor, 1966). This is calculated by taking the book value of total assets (at in Compustat), subtracting the book value of

[5]For more information on these and other initiatives to measure wellbeing around the world, see: (Birkjær et al., 2021; Powdthavee, 2015).

[6]In our primary specifications, we group 2019 and 2020 responses.

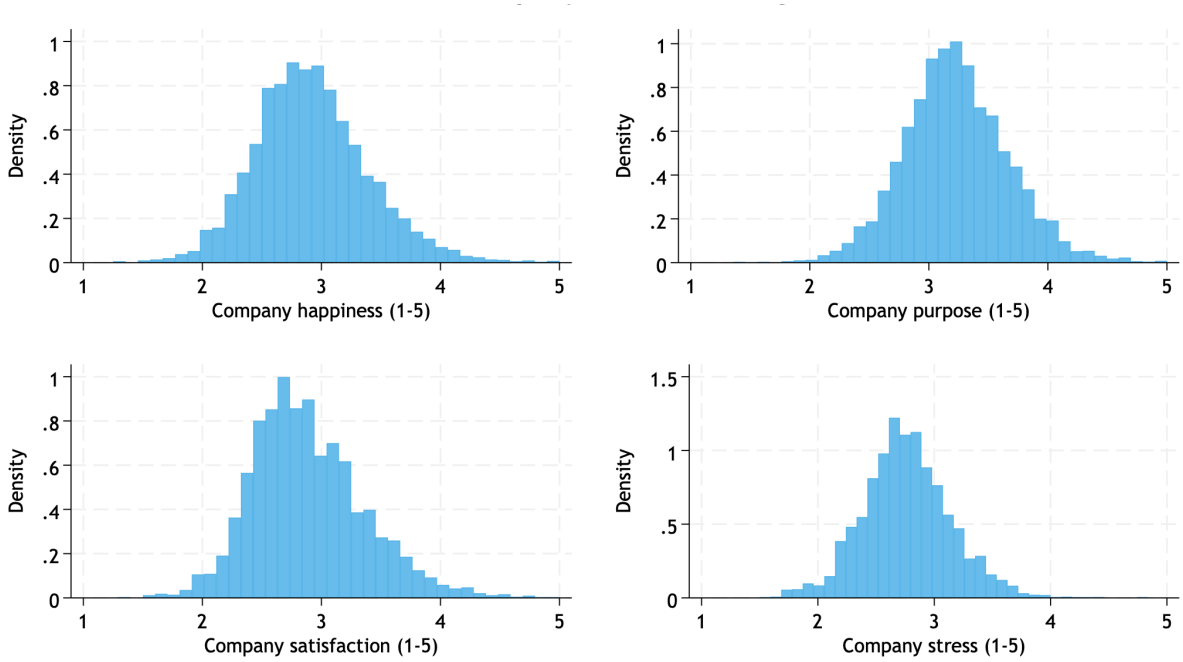
common equity (ceq), adding the market value of common equity (which is determined by multiplying the number of common shares outstanding ($csho$) by the stock price ($prcc_f$)), and then dividing this result by the book value of total assets (at). It is a measure of the market's expectation of a firm's growth potential, and can be thus understood as a forward-looking measure of intangible capabilities.

Empirical strategy. To investigate the relationship between wellbeing and performance at the firm level, we begin by presenting the results of pooled cross-section regression analyses, such that:

$$Y_{jt} = \beta \text{SWB}_{jt} + X'_{jt} + \delta_{jt} + \theta_t + \epsilon_{jt}, \tag{1}$$

where Y_{jt} is the performance of company j in year t and SWB_{jt} is the mean level of employee subjective wellbeing for company j in year t. The latter is measured variously as happiness, purpose, job satisfaction, and stress (or as an index of the four, with stress being first reverse-coded). X'_{jt} is a vector of time-varying controls such as the number of data points making up the annual average, the firm's number of employees, lagged assets, and capital intensity. We include industry fixed effects δ_j using 2-digit industry (SIC) codes and year fixed effects θ_t. ϵ_{jt} is an error term that is adjusted for clustering at the company level.

Figure 1: Distribution of employee wellbeing on Indeed



Notes: Histograms reported, where each observation is a company-year mean answer to the wellbeing question on Indeed, as answered by current employees.

Table 1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Happiness	4816	2.915	0.476	1.25	5
Purpose	4784	3.229	0.439	1.357	5
Job Satisfaction	4126	2.886	0.472	1.294	5
Company stress	4102	3.239	0.38	1.167	4.5
Company wellbeing index	4094	2.939	0.389	1.601	4.84
N Happiness Surveys	4816	206.462	830.905	10	27529
N Purpose Surveys	4784	206.518	844.143	10	28818
N Satisfaction Surveys	4126	204.048	1010.437	10	36736
N Stress Surveys	4102	165.485	727.536	10	25873
Tobin's Q	4767	2.069	1.592	0.744	9.892
Return on Assets	4815	0.031	0.098	-0.646	0.266
Profits (billion USD)	4815	4.42	8.384	-0.041	42.221
Assets (ln)	4816	8.874	1.834	2.591	15.17
Employees (thousands)	4816	35.785	98.101	0.023	2300
Capital intensity (%)	4803	0.032	0.034	-0.186	0.478

Notes: Summary statistics reported at the company-year level. Data from 1,782 unique companies.

4 Results

Initial Results using Happiness Data. Our initial results are presented in Table 2. Here we begin the analysis using average responses to the happiness item as our main predictor, given that this is the question for which we have the most data.[7] We identify strong correlational relationships between average levels of company happiness and all three indicators of firm performance. The regression results show a significant positive association of employee happiness with all three of our main firm performance measures. Specifically, a one-point increase in the average employee happiness score (on the 1-to-5 response scale) is associated with an increase of 0.30 to 0.34 in Tobin's Q, an increase of 1 to 1.2 percentage points in ROA, and an increase of approximately 1.39 to 2.29 billion USD in profits, depending on the model specification.[8]

To contextualize these findings, consider the mean and standard deviation of the key variables. The average happiness score is 2.915 with a standard deviation of 0.476. Tobin's Q has a mean of 2.069 and a standard deviation of 1.592. ROA has a mean of 0.031 (3.1%) and a standard deviation of 0.098 (9.8 percentage points). Profits average 4.4 billion USD

[7]While the stress and satisfaction items were introduced to the online survey in mid-2020, data collection on workplace happiness began in late 2019.

[8]The point estimate for the gross profits regression is particularly sensitive to the inclusion of the control lagged assets, suggesting that part of the basic association can be accounted for by firm size.

across company-year observations, with a standard deviation of around 8 billion, suggesting a large spread that is to be expected from a measure of raw gross profits. Using our most conservative models, a one standard deviation increase in company happiness predicts an increase in Tobin's Q by approximately 0.1629, in ROA by 0.45 percentage points, and in profits by 0.6591 billion USD. These changes translate to roughly 0.1 standard deviations of Tobin's Q, 0.05 standard deviations of ROA, and 0.08 standard deviations of profits.

Further analyses and robustness. In the analyses presented thus far, we dropped companies from the sample with fewer than 10 employee reviews in any given period. In Table A1, we re-run our analyses on alternative samples using different cut-offs. When doing so, we find consistent relationships of company happiness with Tobin's q, ROA, and gross profits.

In Table A2, we also present the results of regressions where we instead code the wellbeing data by creating an ordinal variable based on quintiles of the happiness score. Further research with more data may continue to investigate the extent to which there may be diminishing marginal returns to investments in employee wellbeing or, to the contrary, there may be increasingly positive relationships with firm performance. If the latter is the case, then it may not be sufficient for companies to simply prevent suffering, but rather to promote wellbeing.

As a final test, we also plot the relationship broken down by industry in Figure A2. In this case, because we have to further subdivide the companies in our sample by industry, our estimates are less precise than in our primary specifications – and should be treated with caution, as an exploratory initial analysis. With this important caveat in mind, some interesting dynamics nevertheless emerge. One takeaway from this analysis is that company happiness scores prove to be especially predictive of firm performance for service sector firms. One possible interpretation of this result is that employee wellbeing may be especially important for business success in consumer-facing industries. As we discuss in much more detail later on, a variety of studies conducted at the individual level find that happier service sector employees report higher sales, higher levels of customer satisfaction, and more repeat business than counterparts (see Section 6). As a result, there may be a particularly strong business case for investing in employee wellbeing in these industries.[9]

[9]Nevertheless, there is a positive and statistically well-defined relationship in manufacturing. More broadly, it is important to note that each of these relationships are estimated on relatively small samples of companies in each industry, since the data is now split into smaller categories than in the main analysis. The large confidence intervals and null effects we observe for each industry may therefore be more reflective of imprecise estimates due to data limitations than they are of actual underlying effects. Future analyses using larger samples of companies across industries will help to refine and contextualize these results.

Table 2: The relationship between employee happiness and firm performance measures

	(1)	(2)	(3)	(4)	(5)
Panel A: Tobin's Q					
Happiness	0.2961***	0.3021***	0.3053***	0.3296***	0.3418***
	(0.0819)	(0.0819)	(0.0816)	(0.0814)	(0.0813)
Number of reviews		0.0137***	0.0162**	0.0158**	0.0155**
		(0.0051)	(0.0070)	(0.0071)	(0.0071)
Employees (thousands)			-0.0003	0.0003	0.0001
			(0.0005)	(0.0006)	(0.0005)
Lagged Assests (ln)				-0.0768***	-0.0629**
				(0.0279)	(0.0270)
Capital intensity (%)					8.7192***
					(1.6280)
Observations	4765	4765	4765	4740	4727
R-squared	0.1544	0.1588	0.1590	0.1641	0.1870
Panel B: Return on Assets (%)					
Happiness	0.0114***	0.0117***	0.0108***	0.0092**	0.0095**
	(0.0041)	(0.0041)	(0.0041)	(0.0040)	(0.0040)
Number of reviews		0.0008**	0.0001	0.0001	0.0001
		(0.0003)	(0.0003)	(0.0003)	(0.0003)
Employees (thousands)			0.0001**	0.0001	0.0001
			(0.0005)	(0.0001)	(0.0006)
Lagged Assests (ln)				0.0068***	0.0071***
				(0.0015)	(0.0015)
Capital intensity (%)					0.1877***
					(0.0723)
Observations	4814	4814	4814	4787	4775
R-squared	0.1332	0.1367	0.1400	0.1498	0.1527
Panel C: Profits (billion USD)					
Happiness	2.2897***	2.4258***	1.9126***	1.3382***	1.3855***
	(0.3866)	(0.3743)	(0.3315)	(0.2467)	(0.2487)
Number of reviews		0.3215***	-0.0718**	-0.0579**	-0.0578**
		(0.0549)	(0.0354)	(0.0263)	(0.0261)
Employees (thousands)			0.0488***	0.0297***	0.0294***
			(0.0119)	(0.0074)	(0.0074)
Lagged Assests (ln)				2.6134***	2.6353***
				(0.1942)	(0.1949)
Capital intensity (%)					11.8511**
					(5.0305)
Observations	4814	4814	4814	4787	4775
R-squared	0.1828	0.2697	0.4314	0.6111	0.6132

*Notes: *** p<.01, ** p<.05, * p<.10. Standard errors are in parentheses, clustered at the company level. All regressions control for industry and year fixed effects. Pooled cross-sectional annual data, 2020-2023. More than 10 happiness responses in the period required per company to be included in the estimation sample.*

Further results using an index of wellbeing items. In this section, we consider the link between firm performance and employee wellbeing, this time using the composite Work Wellbeing Score as our main predictor. Although we began by analyzing happiness, since this is the measure for which we have most data, we can also explore the association between firm performance and the three further aspects of wellbeing—stress, satisfaction, and purpose—both separately as well as together as an index of work wellbeing.

In Table 3, we re-run our main analyses using the four-item index as the key independent variable of interest. Here, we find largely consistent results. The wellbeing index proves to be strongly predictive of firm value, return on assets, and profits. Our main results using the wellbeing index are represented graphically as binned-scatterplots in Figure 2. In this case, regression-adjusted wellbeing levels are grouped into deciles and average levels of firm performance are plotted for each decile. More technically, each figure plots the binned residuals of two separate regressions where company wellbeing and firm performance indicators are regressed on the same suite of controls. Thus, the scatter plots presented in Figure 2 reflect the statistical relationship between happiness and financial outcomes after controlling for the number of surveys, firm size, lagged assets, capital intensity, as well as industry and year fixed effects. These figures again demonstrate a strong positive relationship between employee wellbeing and firm performance.

In addition to looking at the Work Wellbeing Score as a whole, we can consider each wellbeing variable separately. We began along these lines in our initial analysis, which considered happiness by itself. However, we can continue in this vein and also look at satisfaction, stress, and purpose. Results of these analyses are presented in Table 4.

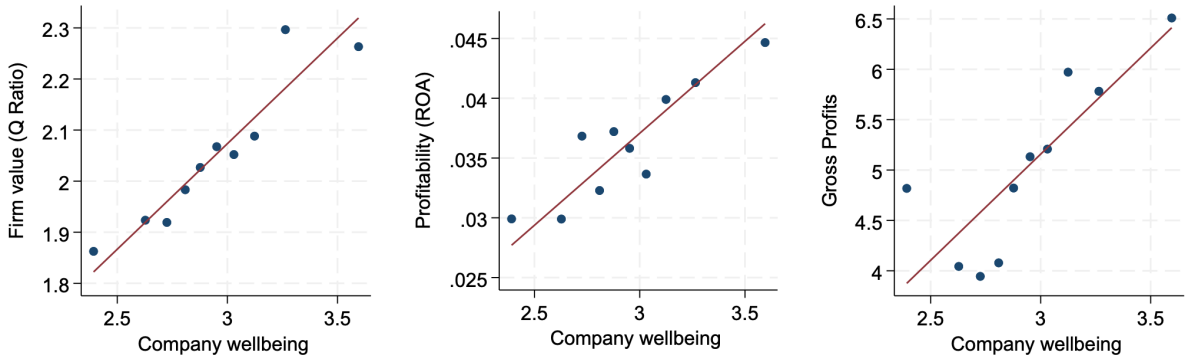
Overall, we continue to find a positive relationship between wellbeing and firm performance. Purpose and job satisfaction are positively associated with performance, while stress is negatively correlated with it. However, it is worth noting that stress is less significantly related to performance than either happiness, satisfaction, or purpose. We do find a generally negative association – suggesting that excessive stress is detrimental to organizational performance – but the association is only significant at the 10% level for gross profits. One possible interpretation of this result is that stress may have both positive and negative effects on firm performance. There is evidence for this dynamic in the literature. For example, organizational scholars often distinguish between "good" and "bad" stressors at work. While hostile working relationships likely belong in the latter category, high levels of responsibility, sufficiently challenging work, and even time pressure may belong in the former. These so-called "challenge" stressors can even be positively related to job satisfaction and job performance in certain contexts (Cavanaugh et al., 2000; González-Morales and Neves, 2015; LePine et al., 2005; Widmer et al., 2012).

Table 3: The relationship between workplace wellbeing and firm performance measures

	(1)	(2)	(3)	(4)	(5)
Panel A: Tobin's Q					
Work Wellbeing Score	0.3706***	0.382***	0.3816***	0.4018***	0.411***
	(0.1025)	(0.1024)	(0.1023)	(0.1023)	(0.1020)
Number of reviews		0.0159***	0.0156**	0.0153**	0.0148*
		(0.0061)	(0.0076)	(0.0077)	(0.0078)
Employees (thousands)			0	0.0005	0.0004
			(0.0004)	(0.0005)	(0.0005)
Lagged Assests (ln)				-0.0736**	-0.0608**
				(0.0304)	(0.0294)
Capital intensity (%)					7.8569***
					(1.6286)
Observations	4064	4064	4064	4043	4035
R-squared	0.1562	0.1611	0.1611	0.1659	0.1861
Panel B: Return on Assets (%)					
Work Wellbeing Score	0.0156***	0.0162***	0.0152***	0.0142***	0.0143***
	(0.0055)	(0.0055)	(0.0055)	(0.0054)	(0.0054)
Number of reviews		0.0008**	0.0002	0.0002	0.0002
		(0.0004)	(0.0003)	(0.0003)	(0.0003)
Employees (thousands)			0.0001**	0.0001	0.0000
			(0.0001)	(0.0004)	(0.0003)
Lagged Assests (ln)				0.0066***	0.0068***
				(0.0017)	(0.0017)
Capital intensity (%)					0.1462**
					(0.0740)
Observations	4091	4091	4091	4070	4063
R-squared	0.1319	0.1354	0.1394	0.1485	0.1503
Panel C: Profits (billion USD)					
Work Wellbeing Score	2.5118***	2.754***	2.1239***	1.6286***	1.6929***
	(0.5128)	(0.4969)	(0.4324)	(0.3328)	(0.3332)
Number of reviews		0.3389***	-0.0611*	-0.049*	-0.0495**
		(0.0623)	(0.0352)	(0.0253)	(0.0252)
Employees (thousands)			0.0463***	0.0267***	0.0263***
			(0.0117)	(0.0069)	(0.0068)
Lagged Assests (ln)				2.9116***	2.9361***
				(0.2127)	(0.2126)
Capital intensity (%)					14.5949**
					(5.7555)
Observations	4091	4091	4091	4070	4063
R-squared	0.1918	0.2596	0.4342	0.6233	0.6260

*Notes: *** p<.01, ** p<.05, * p<.10. Standard errors are in parentheses, adjusted for clustering on companies. All regressions control for industry and year fixed effects. Pooled cross-sectional annual data. Wellbeing index computed as the average of employee happiness, purpose, job satisfaction, and (reverse-coded) stress. More than 10 responses in the period required per company to be included in the estimation sample.*

Figure 2: Company wellbeing and firm performance



Notes: Binned scatterplots shown using pooled cross-sectional annual data. All regressions control for the number of company reviews, firm size, lagged assets, capital intensity, year fixed effects, and industry fixed effects.

Longitudinal analyses. So far, we have documented positive associations between measures of employee wellbeing and firm performance. These results are robust to a variety of specifications and the inclusion of a host of control variables. Nevertheless, the analyses presented thus far are still only capable of reflecting cross-sectional contemporaneous relationships. In most of our analyses, empirical relationships are estimated within a one-year period. This suggests that, even within the same industry, companies more supportive of employee wellbeing generally outperform their competitors. However, while the results presented thus far are consistent with an interpretation that suggests employee wellbeing leads to gains in firm performance, they are also consistent with the reverse interpretation. Firm performance may itself lead to higher levels of employee wellbeing.

As a result, we also estimate the association of company happiness in one period and firm performance in the next. Specifically, we consider the predictive power of pre-Covid happiness on post-Covid performance. These results are presented in Table 5. First, we take average happiness levels for all companies in our sample from October 2019 to February 2020 inclusive – the "pre-Covid" period. We then use these averages to predict firm performance in the "post-Covid" period up to the end of 2020. We also look at financial performance in 2021, again using the pre-Covid wellbeing as a predictor, as a further test. Overall, we find positive relationships between pre-Covid happiness levels and post-Covid performance for all three indicators of performance under consideration. We show the relationship for the 2020 outcomes in Figure 3. These results indicate that company happiness levels are at least as predictive of future firm performance as they are of contemporaneous firm performance.

Table 4: The relationship between firm performance and purpose, satisfaction, and stress

	(1)	(2)	(3)
Panel A: Employee Purpose			
	Tobin's Q	**ROA (%)**	**Profits (bn)**
Purpose	0.4079***	0.0161***	1.4312***
	(0.0822)	(0.0043)	(0.2560)
Number of reviews	0.0148**	0.0001	-0.0588**
	(0.0069)	(0.0003)	(0.0256)
Employees (thousands)	0.0003	0.0000	0.0298***
	(0.0006)	(0.0001)	(0.0075)
Lagged Assests (ln)	-0.0714**	0.0067***	2.6244***
	(0.0278)	(0.0015)	(0.1962)
Observations	4750	4795	4795
R-squared	0.1651	0.1519	0.6111
Panel B: Job Satisfaction			
	Tobin's Q	**ROA (%)**	**Profits (bn)**
Job Satisfaction	0.4045***	0.0157***	1.4469***
	(0.0853)	(0.0042)	(0.2772)
Number of reviews	0.0091*	0.0001	-0.0302*
	(0.0049)	(0.0002)	(0.0157)
Employees (thousands)	0.0006	0.0001	0.0264***
	(0.0005)	(0.0003)	(0.0068)
Lagged Assests (ln)	-0.0744**	0.0068***	2.8657***
	(0.0290)	(0.0016)	(0.2075)
Observations	4189	4216	4216
R-squared	0.1696	0.1484	0.6186
Panel C: Company Stress			
	Tobin's Q	**ROA (%)**	**Profits (bn)**
Company stress	-0.0786	0.0028	-0.4606*
	(0.0808)	(0.0048)	(0.2602)
Number of reviews	0.0138*	0.0001	-0.0558**
	(0.0074)	(0.0003)	(0.0265)
Employees (thousands)	0.0006	0.0001	0.0271***
	(0.0005)	(0.0002)	(0.0070)
Lagged Assests (ln)	-0.0667**	0.0067***	2.9334***
	(0.0308)	(0.0017)	(0.2165)
Observations	4068	4095	4095
R-squared	0.1588	0.1458	0.6199

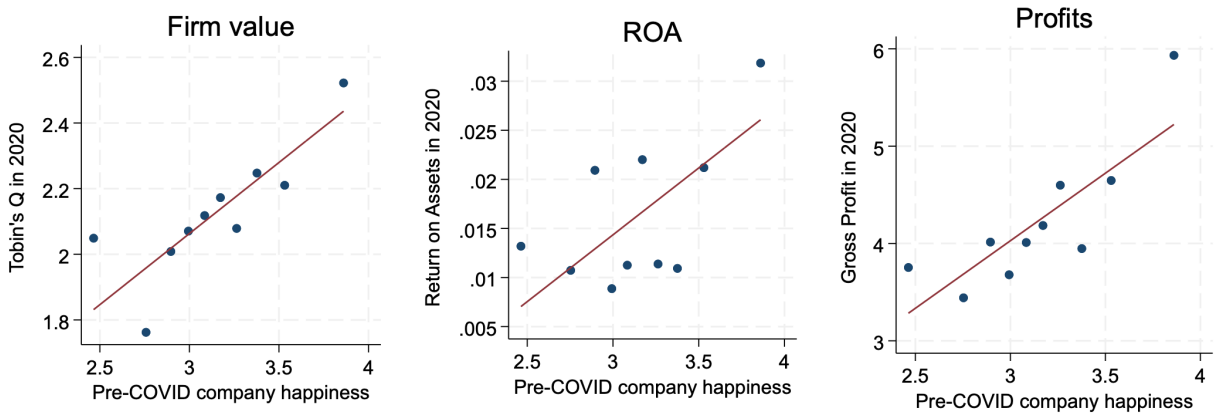
*Notes: *** p<.01, ** p<.05, * p<.10. Standard errors are in parentheses, adjusted for clustering at the company level. All regressions include industry and year fixed effects.*

Table 5: Pre-Covid company happiness and post-Covid performance

	Panel A: 2020			**Panel B: 2021**		
	(1)	(2)	(3)	(1)	(2)	(3)
	Tobin's Q	**ROA**	**Profits**	**Tobin's Q**	**ROA**	**Profits**
Happiness (pre-Covid)	0.4331***	0.0136*	1.3876***	0.2546*	0.0201***	1.6556***
	(0.1527)	(0.0071)	(0.3713)	(0.1412)	(0.0060)	(0.3795)
No. of reviews	0.096***	0.0012	-0.0765	0.0888***	0.0018*	-0.0358
	(0.0214)	(0.0010)	(0.1134)	(0.0243)	(0.0009)	(0.1064)
No. of employees (2019)	-0.0027***	0	0.0319***	-0.0024**	-0.0001	0.0293***
	(0.0010)	(0.0003)	(0.0107)	(0.0011)	(0.0003)	(0.0106)
Assets (ln) (2019)	-0.0893**	0.0044*	2.4286***	-0.0551	0.0031	2.8229***
	(0.0395)	(0.0025)	(0.2527)	(0.0413)	(0.0021)	(0.2593)
Observations	1155	1162	1162	1150	1150	1150
R-squared	0.1879	0.2567	0.5899	0.1878	0.1963	0.6195
	Panel C: 2022			**Panel D: 2023**		
	(1)	(2)	(3)	(1)	(2)	(3)
	Tobin's Q	**ROA**	**Profits**	**Tobin's Q**	**ROA**	**Profits**
Happiness (pre-Covid)	0.2211**	0.0112	1.7477***	0.3581***	0.0123*	2.0093***
	(0.1090)	(0.0082)	(0.3939)	(0.1117)	(0.0072)	(0.4235)
No. of reviews	0.0694***	0.0018	-0.0123	0.0824***	0.0023**	-0.0772
	(0.0226)	(0.0011)	(0.1071)	(0.0211)	(0.0010)	(0.1113)
No. of employees (2019)	-0.0019**	-0.0001	0.027***	-0.0024***	-0.0001*	0.0298***
	(0.0009)	(0.0003)	(0.0100)	(0.0009)	(0.0003)	(0.0106)
Assets (ln) (2019)	0.0002	0.0062**	2.9356***	0.0066	0.0093***	3.1113***
	(0.0299)	(0.0028)	(0.2532)	(0.0348)	(0.0028)	(0.2778)
Observations	1131	1132	1132	1062	1063	1062
R-squared	0.1678	0.1685	0.6157	0.1786	0.1614	0.6223

*Notes: *** p<.01, ** p<.05, * p<.10. Standard errors are in parentheses, adjusted for clustering at the company level. All regressions include industry and year fixed effects.*

Figure 3: Pre-Covid company happiness and post-Covid performance



Notes: Binned scatterplots reported in which outcomes are 2020 financial performance, which are predicted by pre-Covid levels of subjective workplace wellbeing. See columns (1) to (3) of Table Table 5 for full reporting of these regressions.

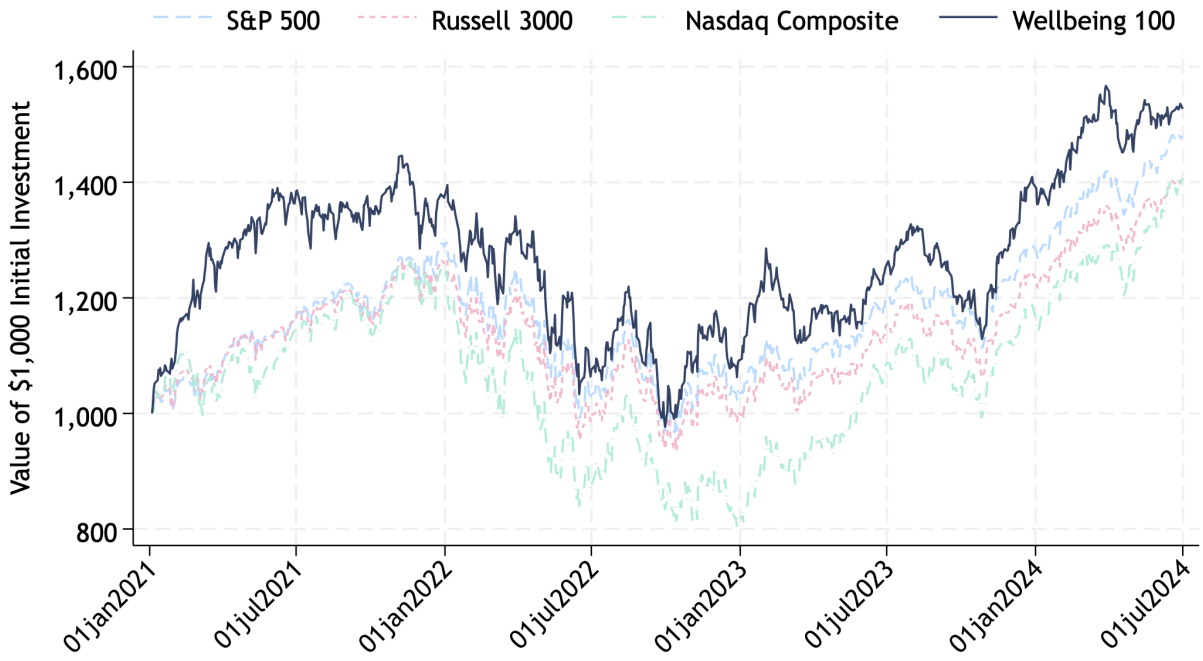
5 Stock Price Analysis

Thus far, we have considered listed companies' publicly available annual accounting and stock data to study the relationship of wellbeing with both profitability and firm value. To build upon our analyses on firm value using the q ratio above, and give them more intuitive context, we can also simulate how an investor might use information about worker happiness. To so do we create lists on an annual basis and rank order these publicly traded companies, based on the composite Work Wellbeing Score survey crowdsourced via the *Indeed* website. We create a 2020 list (which uses all of the data collected up to December 31st 2020) as well as 2021, 2022, and 2023 lists using data collected within those respective calendar years.

In order for the company scores to be considered there need to be 100 or more surveys completed by current or former employees during the year. We choose to focus on both former and current employees (rather than just current, as in the above analyses) since this more accurately simulates what aggregated information is publicly shown on the Indeed platform and what an investor might see in practice. Using firm's self-reported sector on Indeed, we exclude from the analysis any staffing or HR companies.

Within each year, we take the top 100 companies based on their overall levels of subjective workplace wellbeing. We track stocks from the first trading day of the year until the final trading day, before re-balancing the portfolio. Specifically, we take the top 100 organizations from the 2020 list of companies rank-ordered in terms of their crowdsourced workplace wellbeing score, invest in an equally-weighted portfolio of those companies on the first trading day of 2021, and keep the holding until the final day of the trading year. We then use the

Figure 4: Highest wellbeing workplaces and stock performance



Notes: Simulated wellbeing-based investment strategy, starting with $1,000 in January 2021. Wellbeing Top 100 lists (based on the 4-item work wellbeing score) are created on an annual basis. At the end of each year, we simulate investing in an equally-weighted portfolio of these companies and holding those stocks over the subsequent year, before re-balancing the portfolio using the next year's Wellbeing Top 100 list.

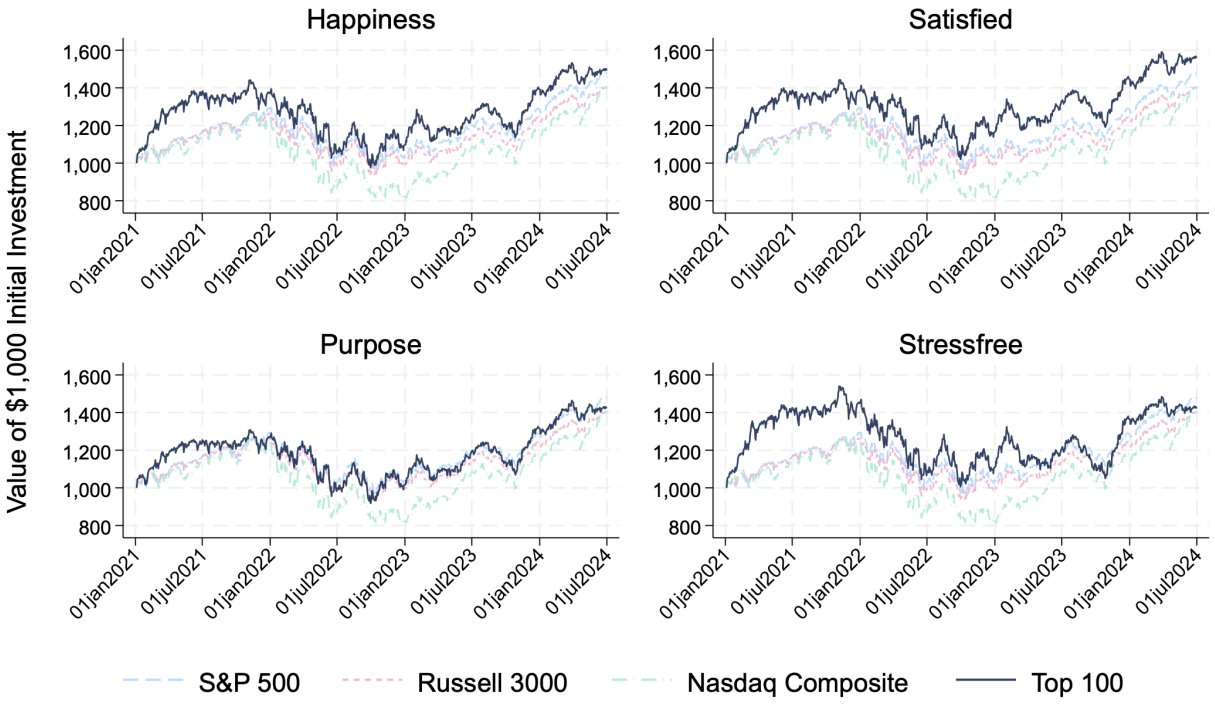
2021 list to reinvest the money on the first trading day of 2022 in the new top 100 highest workplace wellbeing companies, and so on, on a yearly basis.

For returns, we simulated a hypothetical investor buying an equally weighted portfolio of each year's top 100 organizations in terms of workplace wellbeing scores. This means investing an equal dollar amount in each stock and holding it for one year. We calculate, daily, the mean percentage return of the stock portfolio representing the "Wellbeing Top 100", using closing prices. Our returns are based only on price changes – that is, to keep things simple, we ignore dividends and taxes. As a benchmark, we compare these stock returns to the S&P 500 index, the Nasdaq Composite and the Russell 3000, all of which are widely recognized proxies for overall market performance.[10]

We find evidence, summarized in Figure 4, that companies with high wellbeing ratings perform strongly in the stock market. The data suggests that a portfolio of high-wellbeing companies outperforms standard benchmarks. The wellbeing-based portfolio exhibited an

[10]Since these are indices rather than a "total return", this makes them good comparators since they too ignore the impact of dividends as we do in this study.

Figure 5: Highest wellbeing workplaces and stock performance



Notes: Simulated investment strategy, starting with $1,000 in January 2021. Wellbeing Top 100 lists are created on an annual basis, separately using data on each of the four wellbeing items. At the end of each year, we simulate investing in an equally-weighted portfolio of these companies, and holding them over the subsequent year. See text for more details.

average daily return of 0.000549, which the S&P 500's average daily return was slightly lower at 0.000485. Over the 3.5 year period we study, the annualized return for the wellbeing portfolio was 0.148362 (14.84%), compared to 0.130035 (13.00%) for the S&P 500.

Taking the period as a whole, using our main aggregated measure of subjective workplace wellbeing—which combines happiness, stress, satisfaction, and purpose—we find that investing $1,000 using this strategy in January 2021 would leave an investor with around $1,533 by the start of July 2024, compared with roughly $1,479, $1,408, and $1,401 had they invested instead in the S&P 500, Nasdaq Composite, or Russell 3000, respectively.

We also break down the analysis by wellbeing measure in Figure 5. The portfolios in each case have a large amount of overlap, given that the four measures of wellbeing are strongly correlated with each other across companies. While we find broadly similar patterns of results regardless of the measure used to create the list, it is also clear that each measure contributes to the Work Wellbeing Score index in its own particular way.

The time period for this exercise is somewhat short and appropriate caution should be given to any interpretation. Moreover, this simulation exercise is not adjusted for risk or

other potentially extraneous factors such as firm size, industry, and so on. Nevertheless, the findings align well with the more systematic analysis above, using the q ratio as our main outcome variable representing firm value, in which we control for a range of observables as well as industry and time fixed effects. The simulation provides a more intuitive picture of what it would look like to use such information in an investment strategy, though any such chart is necessarily going to depend somewhat on the time period studied, the starting point, the comparator indexes chosen, and so on. It will be important to continue to track all of these results as time goes on, and more and more data is collected, such that we can gain a more solid longer-term view of any such wellbeing-based investment strategy.

6 Potential pathways from wellbeing to performance

In the previous sections, we documented the results of a series of novel empirical analyses showing strong links between employee wellbeing and firm performance. But how can we explain these high-level relationships? To help answer this question, in this section, we review some of the most compelling evidence on potential pathways from wellbeing to performance. In doing so, we mostly focus on the "micro" level of wellbeing and individual performance. The literature largely indicates six broad, possible pathways from the latter to the former: (1) productivity, (2) relationships, (3) creativity, (4) health, (5) recruitment, and (6) retention. In what follows, we discuss six pathways in greater detail. This model is, of course, somewhat over-simplified. Different pathways may by mutually reinforcing, or exist in a positive feedback loop with performance outcomes (e.g. happiness improves performance, which improves happiness, which improves performance). The evidence pertaining to them is also not equally strong in each case, and some pathways are likely to be stronger than others.

The studies contained within this body of work generally take one of three forms: (1) correlational, (2) longitudinal, or (3) experimental. Each design has its own unique benefits and limitations and, as such, we will consider each approach separately. Nevertheless, regardless of the approach employed, most studies tend to point in the same direction. Across contexts, wellbeing generally predicts improvements in job performance on an individual level.

Productivity. The relationship between employee wellbeing and productivity is one of the most extensively studied pathways in the academic literature. Across a wide variety of contexts, researchers generally find strongly positive and mutually reinforcing links between wellbeing and productivity. These dynamics have been confirmed by observational, longitu-

dinal, and experimental studies. In one influential meta-analysis already mentioned earlier, Judge et al. (2001) estimated the overall correlation between job satisfaction and productivity to be 0.3 and statistically significant. Another meta-analysis by Riketta (2008) found similar results looking at longitudinal studies on job satisfaction and productivity using a variety of self-reports, peer-reports, supervisor reports, and objective indicators.

In a longitudinal analysis, Rothbard and Wilk (2011) surveyed call center workers' happiness and other indicators of positive affect at the start of each workday, and then tracked subsequent differences in productivity and performance throughout the day. Employees who were in better moods handled calls more efficiently – measured in terms of independently resolving issues without a supervisor and having more time available to customers – than less happy colleagues. Another study found that technical and support staff at a Fortune 500 company handled calls more efficiently when they were in better moods (Miner and Glomb, 2010). In Finland, an analysis of manufacturing workers from 1996 to 2001 found that a one (within-plant) standard deviation increase in job satisfaction improves productivity levels by around by 7% (Böckerman and Ilmakunnas, 2012). This study also measured productivity at the establishment-level, making it even more indicative of a positive link between employee wellbeing and macro-level firm performance.

Bellet et al. (2023) studied the relationship between happiness and productivity in a sample of British Telecom employees, the largest internet and telephone provider in the United Kingdom. Call centers in general have become particularly popular sites for academic research, given the relative ease and reliability of measuring the productivity of call center workers. In this case, the researchers collected weekly happiness reports from employees in 11 call centers over six months, and matched these reports with productivity data – measured in terms of calls converted to sales, adherence to daily schedules, and number of calls made per hour. In a confirmation of earlier longitudinal studies, the authors first noted that employees who reported higher levels of happiness were more productive over time. Developing a quasi-experimental research design, exploiting differences in weather conditions combined with window coverage across all 11 call centers (which ranged from glass buildings to warehouses), the authors also find result suggestive of there being a causal effect of happiness on performance in a field setting.

A separate stream of research has looked at the effect of happiness on productivity in laboratory experiments. Building on the pioneering work of the late psychologist Alice Isen, who put together a series of laboratory studies on affective states and individual behavior (for example, see: Erez and Isen, 2002; Isen, 1993; Isen and Reeve, 2005), one of the most widely cited pieces of evidence comes from a team of economists, Oswald et al. (2015). In a series of three experiments, participants were exposed to happiness-inducing treatments

(including watching ten-minute comedy videos or receiving free food). Control groups were shown placebo clips of neutral footage or nothing at all. Both groups then were asked to perform moderately complex tasks like adding up five two-digit numbers under time pressure, and paid at an incentivized piece rate. In treatment groups, the authors found that comedy videos increased happiness, which then led to subsequent increases in productivity. The happier people became, the more productive they were. On the other hand, participants in control groups did not become happier or more productive. Increases in happiness were associated with a sizeable and significant 12% increase in productivity, demonstrating a causal effect of positive mood on performance.

Finally, several large-scale field experiments have also found relationships between well-being and productivity. In two field experiments, Grant (2008) found evidence for an effect of eudemonic wellbeing (or purpose) on performance. This work shows that fundraising callers who read stories about how their efforts benefited scholarship recipients subsequently more than doubled the amount of money they raised in the following month relative to controls. The author explained the effects in terms of the motivational impact of eudaimonia at work. Callers who came to view their work as more meaningful and purposeful also subsequently became more productive. In two other laboratory experiments, Ariely et al. (2008) found that, even when performing menial tasks, study participants worked harder and were willing to work for less money if their efforts were positively acknowledged by experimenters. Bloom et al. (2015) also found that randomly assigning Chinese call center employees to work from home led to a 13% increase in productivity, as well as higher levels of job satisfaction and positive affect. Interestingly, workers who were able to choose where they continued to work after the experimental period ended continued to see even greater subsequent gains in productivity and performance. However, these workers were also less likely to be promoted later on, suggesting a possible trade-off between flexibility and advancement opportunities. Nevertheless, taken together, the results of the literature discussed in this section suggests a sizeable and significant relationship between wellbeing and productivity.

Social relationships. Wellbeing can also promote performance by improving relationships and expanding social capabilities. A large literature outside of organizational contexts has identified positive feedback loops between wellbeing and social relationships (Kansky and Diener, 2017). People with higher affective and evaluative wellbeing tend to have more friends, engage more frequently in social activities, and spend more time talking to others than counterparts (Diener and Seligman, 2002; Mehl et al., 2010). In longitudinal studies, higher levels of positive affect and life satisfaction have also predicted closer subsequent relationships with friends and partners, controlling for other factors (Kansky et al., 2016;

Moore and Diener, 2019; Oishi et al., 2009). The experimental evidence is also broadly supportive of these dynamics (Kansky and Diener, 2017). In one analysis, researchers found that study participants exposed to film clips to induce positive moods demonstrated stronger preferences for social situations than controls (Whelan and Zelenski, 2012).

These dynamics can also have a number of positive implications in organizational contexts. Happier employees have been shown to (a) develop more supportive relationships with colleagues and supervisors (Barsade et al., 2000; Iverson et al., 1998; Staw et al., 1994), (b) demonstrate higher capacities for cooperation and collaboration (Doucet et al., 2012; Van Doorn et al., 2012; Whelan and Zelenski, 2012), (c) have more satisfied and loyal customers (George, 1991; Grandey et al., 2005; Krekel et al., 2019), and (d) even prove to be better negotiators (Carnevale, 2008; Carnevale and Isen, 1986). This evidence again cuts across correlational, longitudinal, and experimental contexts. Alongside correlational evidence that happier employees receive more supportive performance reviews from colleagues (Iverson et al., 1998), longitudinal analyses have also implied that employees who report feeling frequent positive emotions at work are more likely to receive praise of good work and personal interest from supervisors over a year later (Staw et al., 1994). In the customer service sector, several studies have found that customers of happier employees are more likely to become happy themselves, provide more favorable reviews of service quality, and express greater intentions to return for repeat business (Barger and Grandey, 2006; Pugh, 2001; Tsai and Huang, 2002). Experimental studies have also revealed that participants induced to experience positive moods were more likely to reach compromises with counterparts considered to be mutually beneficial (Carnevale, 2008; Carnevale and Isen, 1986). Even just perceiving positive emotions in others can promote cooperative behavior. In one experiment, participants exposed to happy faces generally considered social situations to be more cooperative, whereas angry faces promoted feelings of competition (Van Doorn et al., 2012).

Creativity. A wide body of research has also demonstrated the important role that wellbeing can play in promoting creativity – generally defined as the production of novel and useful ideas. Theoretical accounts of positive emotions suggest that happier people have greater mental flexibility and broader awareness, thereby enabling them to make sparse connections and generate original ideas (Fredrickson, 2001, 2004). These theories have been put to the test in a number of contexts, with broadly confirmatory results (Baas et al., 2008).

In a carefully designed longitudinal analysis, Amabile et al. (2005) monitored the positive affect of 222 employees working in seven different companies across three industries over the course of several months. The authors also asked colleagues and supervisors to evaluate their creative output. After analyzing a resulting dataset of 11,471 daily reports, the researchers

were able to significantly predict subsequent increases in creativity depending on happiness levels up to two days earlier. In laboratory settings, a wide array of experiments have also found that inducing positive mood enhances creativity (Davis, 2009; Isen, 1999; Johnson et al., 2010; Rowe et al., 2007). In a handful of early studies conducted by Alice Isen and colleagues, research participants who were made to feel happier were subsequently more creative on various problem-solving tasks, including word associations and grouping exercises (Isen and Daubman, 1984; Isen et al., 1987, 1985). In a recent meta-analysis, Davis (2009) looked at the results of 62 experimental studies, and found broadly significant effects of positive affect on creative performance, although the size and strength of the relationship varied depending on the task participants were asked to perform. One experiment even found that groups of participants randomly assigned to positive mood inducing treatments were more creative than controls, suggesting that happiness can enhance group creativity as well as individual creativity (Grawitch et al., 2003).

Health. The relationship between health and wellbeing is one of strongest and most robust associations documented in the literature. Life satisfaction, positive affect, negative affect, and eudaimonia have all been linked to an array of health indicators and behaviors, and the relationship is generally found to be reciprocal. It may be unsurprising that people are happier when they are in better health, but the causal arrow cuts in both directions. Happier people tend to live longer, experience less pain, have better cardiovascular health, lower blood pressure, lower body mass index, and improved immune functioning (for extensive reviews, see: Diener and Chan, 2011; Kansky and Diener, 2017). Wellbeing is predictive of lower rates of smoking, lower rates of drinking, higher rates of exercise, better diet, and better sleep (Ibid.). At the same time, almost by definition, wellbeing is also inversely related to a variety of indicators of poor mental health, including lower levels of burnout, depression, distress, and anxiety (Beutel et al., 2010; Koivumaa-Honkanen et al., 2004; Sonnentag, 2015).

All of these dynamics can have profoundly important implications in workplace settings. Poor physical and mental health have been linked to reduced work performance (Ford et al., 2011). Two important pathways are absenteeism (missed days of work) and presenteeism (working while sick). In the former case, employees with low job satisfaction have been found to be more likely to leave work early, arrive at work late, and miss days of work entirely (for a review of relevant evidence, see: Crede et al., 2007). All of these dynamics can have substantial effects on individual- and organizational-level performance. One analysis of a large high-tech manufacturing firm found that low evaluative wellbeing at work accounted for 11% of voluntary absenteeism at the company, amounting to an annual loss of $92 million (Avey et al., 2006). Longitudinal studies have also found that employees with low wellbeing

are more likely to be subsequently absent from work (Gil et al., 2004; Pelled and Xin, 1999).

Recent scholarship has also paid increased attention to presenteeism (Hemp, 2004). In 2010, the European Working Conditions Survey found that 4 out of 10 respondents reported having worked while sick for at least one day during the previous year. Prevalence rates of presenteeism ranged from 23% in Italy to 50% in Montenegro (Kinman, 2019). Some research has even suggested that the economic costs of presenteeism exceed those associated with absenteeism (Kigozi et al., 2017). Presenteeism has also been linked to a host of wellbeing indicators, including low levels of positive affect, poor wellbeing at work, and increased negative affect (Miraglia and Johns, 2016). One analysis of 2,264 employees in large American firm found that feelings of stress and low emotional fulfilment were the leading predictors of productivity loss due to presenteeism (Boles et al., 2004). However, the relationship between presenteeism and wellbeing is not necessarily straightforward. Other studies have found that high rates of job satisfaction, motivation, and self-efficacy can actually lead to over-commitment and therefore increase rates of presenteeism (Miraglia and Johns, 2016). One recent study of 6,874 academics in the United Kingdom found that almost 9 out of 10 reported occasionally working while sick. Within this group, those with higher levels of work engagement, dedication, and vigour reported the highest rates of presenteeism overall (Kinman and Wray, 2018).

Recruitment. Another important mechanism through which wellbeing can promote organizational performance is by improving firms' abilities to attract talented workers. A long literature has demonstrated that employees are attracted to jobs for more than just income (Jencks et al., 1988; Rosen, 1986). Correlational, longitudinal, and experimental evidence has found that workers are often willing to trade some level of financial compensation for a variety of work amenities including autonomy, job security, flexibility, and organizational purpose (Burbano, 2016; Maestas et al., 2018; Mas and Pallais, 2017; Stern, 2004). In two field experiments of online job marketplaces, Burbano (2016) found that randomly exposing job seekers to information about firm commitments to social responsibility reduced their proposed wage requirements. Among high performing candidates, job seekers were willing to entirely give up the wage premium they would have otherwise demanded relative to less desirable candidates. These dynamics could suggest that eudemonic wellbeing is a driver of job search behavior. Alternatively, job seekers may view corporate social responsibility (CRS) commitments as a signal that firms are more likely to treat their workers well, and thus job seekers may imagine themselves being happier there.

In a more recent analysis, Ward (2022) examined the effects of randomly exposing job seekers to information about company happiness levels on *Indeed*. The experiment involved

more than 23 million job seekers in the United States, United Kingdom, and Canada, and found that treated job seekers responded behaviorally to this information, by redirecting their applications away from low happiness companies to happier ones. Much of this effect was driven by job seekers "screening out" low happiness firms from their job search. In follow-up analyses, the study found that by improving their score, companies can attract more applications from people viewing the company on the platform. The analysis provides evidence that employee wellbeing can influence firms' abilities to attract talented workers, with implications for the incentives faced by organizations to foster happier workplaces in the labor market.

Retention. An even larger body of research has examined the extent to which happier and more satisfied workers remain at their jobs. In this case, converging evidence suggests that employee wellbeing predicts lower rates of turnover. Early reviews of correlational and longitudinal studies found sizeable and significant negative effects of happiness and job satisfaction on both intentions to leave work, as well as objective data on job quits (Griffeth et al., 2000; Porter et al., 1974; Tett and Meyer, 1993). Two separate longitudinal studies of German data covering the period 1985 to 2003 found that workers who reported high levels of job satisfaction were significantly less likely to quit than less satisfied counterparts (see also Clark et al., 1998; Kaiser and Oswald, 2022; Lévy-Garboua et al., 2007). In a related analysis of Gallup data covering more than 140,000 respondents, Harter et al. (2010) found that positive evaluations of work predicted higher levels of employee retention in the following year, while Green (2010) identified significant links between feelings of depression, anxiety, and job satisfaction on subsequent quit behavior in a sample of British adults. Job satisfaction proved to have the most significant effects on quit behavior overall. Another longitudinal study of managers at a large American company found that workers reporting high levels job satisfaction in an initial assessment were less likely to leave the company over the next two years (Wright and Bonett, 2007). One recent study of *Fortune* magazine's "Best Companies to Work For" list also noted that employees of highly rated companies (particularly those with group incentive pay schemes) were less likely to express intentions to leave than counterparts (Blasi et al., 2016).

An array of experimental evidence also suggests strong links between employee wellbeing and turnover. Several studies have shown that introducing workplace interventions to encourage family-supportive behaviors and manager support decreased turnover intentions and objective quit rates, while increasing various measures of employee wellbeing (Hammer et al., 2013; Kelly et al., 2014, 2011; Moen et al., 2016; Odle-Dusseau et al., 2016). Other studies have shown that providing employees with opportunities to give organizational feed-

back and receive management support can improve wellbeing, lower turnover intentions, and reduce quit rates (Adhvaryu et al., 2019; Wu and Liu, 2021). All of these dynamics can have profoundly important implications for firm performance. Estimates of organizational costs associated with turnover from the United States Department of Labor have ranged from one half to five times of the workers' original annual salary. In other words, if a firm with 1,000 employees loses one quarter of its workforce each year, and the average salary is $35,000, the costs to replace employees can reach up to $10 million (U.S. Department of Labor, 2008).

7 Limitations and future directions

The analyses presented in this paper suggest that firms that are successful in promoting and supporting the wellbeing of their employees are more successful overall. Nevertheless, the findings have a number of limitations. The main caveat is that our analyses are correlational. Such descriptive work can be very useful but should be treated with caution. We are not able to establish any causal relationships. Future research should look to leverage natural experiments in order to try to better understand the causal nature of the relationships we observe in the data. As data collection on *Indeed* continues, it will also be worth revisiting these analyses with a longer time-series of data and additional employee reviews to identify more precise longitudinal links between wellbeing and performance.

Moreover, there are long-standing concerns related to the use of crowd-sourced data. Unsupervised responses submitted by unrepresentative samples of respondents can be subject to numerous biases (on an individual level and as a result of data collection) and may therefore be unreliable. In this study, we attempted to overcome these potential sources of error in a number of ways – for instance, by limiting our sample to current employees only, aggregating as many employee reviews as possible per period, and accounting for a range of control variables. Nevertheless, it is impossible to eliminate all noise from the data. In future research, it may be useful to establish the validity of the *Indeed* data by comparing employee reviews on the site to other potentially more reliable sources of employee wellbeing data – e.g., internal company surveys.

Another way to improve the validity and reliability of the data is to simply collect more of it. Despite the vast size of the wellbeing data accumulated by *Indeed*, we are forced to remove much of the broader sample for the purposes of this investigation. As our key variables of interest in this case are not at the individual level, but rather at the firm level, we must first aggregate and average employee responses by company. At the same time, we are also only able to consider the relationship between employee wellbeing and firm performance for companies in which we can access publicly available financial records, limiting our sample

size to public organizations listed on major stock exchanges.

Establishing the comparative predictive power of company wellbeing levels relative to existing indicators of company culture may also prove to be a fruitful area of research. As we discuss in this paper, studies have identified strong links between company reviews on *Glassdoor* and indicators of firm performance. It may be worthwhile to see whether more direct measures of employee wellbeing, like those collected by *Indeed*, prove to be stronger or weaker predictors of firm performance now and in the future. It may also be worth analyzing the extent to which whether aggregating both sources of data together improves their predictive power and precision.

Finally, the current analysis covers employees of firms in the United States. Further analyses should look to evaluate the extent to which the findings replicate in different contexts, cultures, and countries.

8 Conclusion

In recent years, increased attention has been paid to the relationship between employee wellbeing and organizational success. While there does not necessarily need to be a "business case" to treat workers well, the reality is that many employers have not always prioritized the wellbeing of their employees. Investing in wellbeing is often seen as a trade-off with other organizational goals. However, contrary to this assumption, the firm-level evidence presented here suggests that there may be strong business-related reasons to invest in employee wellbeing.

Our main contribution in this paper is a series of novel analyses considering the relationship between company wellbeing and firm performance using crowd-sourced data from *Indeed*. Company wellbeing proves to be a significant predictor of firm performance across a wide variety of indicators. We find that higher levels of wellbeing generally predict higher firm valuations, higher return on assets, higher gross profits, and better stock market performance.

These results can help shed new light on one of the oldest questions in organizational research – the relationship between wellbeing and performance. Across industries, between companies, and over time, wellbeing is proving to be an ever more important predictor of company performance. Organizations seeking to be successful in the new world of work would be wise to take note.

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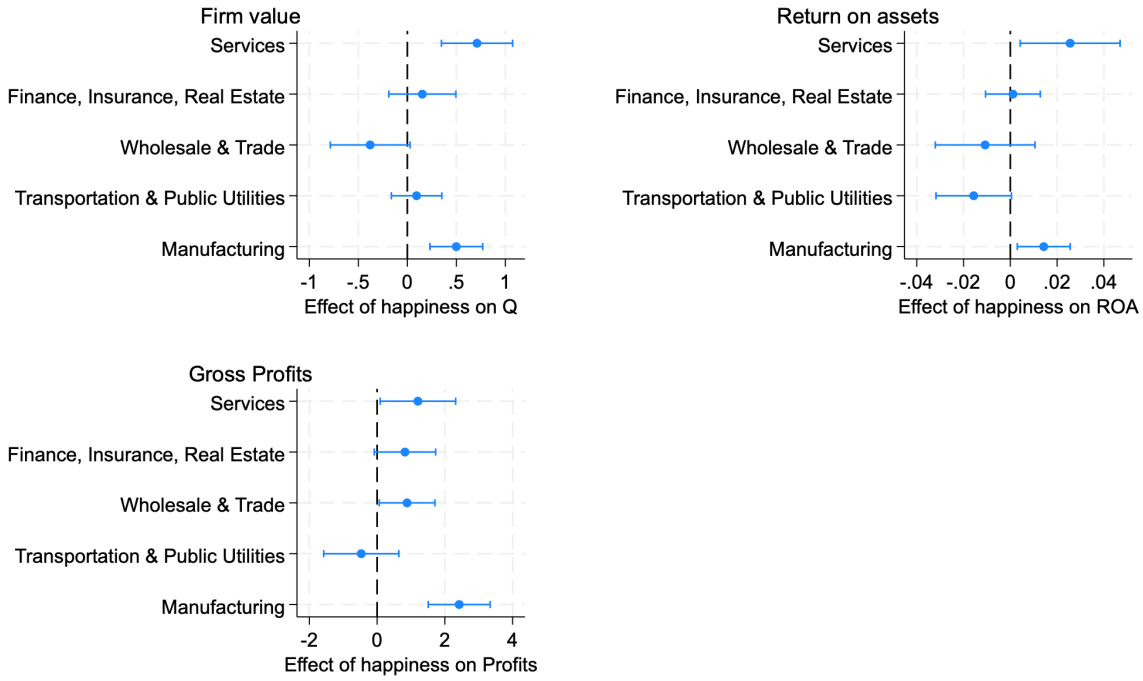
Appendix

Figure A1: Company happiness and firm performance by industry



Note: Marginal effects plotted for companies belonging to each industry. Controls added for the number of company reviews, firm size, lagged assets, and year fixed effects. Agriculture, mining, and construction sector firms dropped due to limited observations. 95% confidence intervals displayed.

Table A1: Sensitivity analyses using different company review thresholds

	(1) # Surveys ≥ 5	(2) # Surveys ≥ 10	(3) # Surveys ≥ 20	(4) # Surveys ≥ 30	(5) # Surveys ≥ 50
Panel A: Tobin's Q					
Company Happiness	0.2774***	0.3418***	0.3992***	0.4712***	0.4598***
	(0.0661)	(0.0813)	(0.1028)	(0.1234)	(0.1607)
No. of reviews	0.0153**	0.0155**	0.0163**	0.0171**	0.0170**
	(0.0070)	(0.0071)	(0.0073)	(0.0075)	(0.0076)
Employees (thousands)	0.0001	0.0001	0	0	-0.0001
	(0.0005)	(0.0005)	(0.0005)	(0.0006)	(0.0006)
Lagged Assets (ln)	-0.0621**	-0.0629**	-0.066**	-0.0881**	-0.0692
	(0.0260)	(0.0270)	(0.0311)	(0.0378)	(0.0461)
Capital intensity (%)	8.5814***	8.7192***	7.9892***	8.0308***	8.2426***
	(1.5046)	(1.6280)	(1.7193)	(1.9778)	(2.3135)
Observations	5501	4727	3622	2933	2173
R-squared	0.1839	0.1870	0.1874	0.1970	0.1982
Panel B: Return on Assets (%)					
Company Happiness	0.0071**	0.0095**	0.0089*	0.0135**	0.0135*
	(0.0034)	(0.0040)	(0.0051)	(0.0063)	(0.0076)
No. of reviews	0.0001	0.0001	0	0.0001	0.0002
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Employees (thousands)	0.0001	0.0001	0.0001	0.0001	0.0001
	(0.0002)	(0.0003)	(0.0002)	(0.0002)	(0.0002)
Lagged Assets (ln)	0.0077***	0.0071***	0.0054***	0.0035*	0.0042*
	(0.0015)	(0.0015)	(0.0017)	(0.0019)	(0.0022)
Capital intensity (%)	0.1399*	0.1877***	0.2063***	0.2283***	0.2483**
	(0.0772)	(0.0723)	(0.0779)	(0.0816)	(0.0966)
Observations	5553	4775	3658	2959	2193
R-squared	0.1417	0.1527	0.1609	0.1760	0.1990
Panel C: Gross Profits (billion)					
Company Happiness	1.086***	1.3855***	1.9011***	2.0386***	2.4593***
	(0.1997)	(0.2487)	(0.3532)	(0.4411)	(0.5840)
No. of reviews	-0.0649**	-0.0578**	-0.0493*	-0.0391	-0.0296
	(0.0268)	(0.0261)	(0.0252)	(0.0240)	(0.0222)
Employees (thousands)	0.0311***	0.0294***	0.027***	0.0246***	0.0217***
	(0.0077)	(0.0074)	(0.0069)	(0.0064)	(0.0056)
Lagged Assets (ln)	2.4734***	2.6353***	2.9153***	3.1742***	3.4524***
	(0.1845)	(0.1949)	(0.2204)	(0.2443)	(0.2826)
Capital intensity (%)	9.6688**	11.8511**	13.6901**	14.7701**	19.195**
	(4.6626)	(5.0305)	(6.1257)	(6.9210)	(8.7119)
Observations	5553	4775	3658	2959	2193
R-squared	0.5960	0.6132	0.6280	0.6455	0.6649

*** p<.01, ** p<.05, * p<.10. Standard errors are in parentheses, clustered on companies. Industry and year fixed effects included in all regressions. Threshold refers to the number of surveys a company has to have completed by former or current employees in order to be included in the estimation sample.

Table A2: Company happiness and firm performance split by quintiles

	(1)	(2)	(3)
	Tobin'sQ	**Return on Assets (%)**	**Profits (billion)**
Company happiness - lowest	-0.1078	-0.0069	-0.3910
	(0.0716)	(0.0047)	(0.2563)
Company happiness - lower middle	-0.1028*	-0.0025	-0.4532**
	(0.0574)	(0.0038)	(0.2062)
Company happiness - middle (reference)			
Company happiness - upper middle	0.0641	0.0032	0.5667**
	(0.0678)	(0.0040)	(0.2354)
Company happiness - highest	0.2966***	0.0035	1.2625***
	(0.0935)	(0.0050)	(0.3240)
Number of reviews	0.0151**	0.0001	-0.0586**
	(0.0071)	(0.0003)	(0.0263)
Employees (thousands)	0.0001	0.0001	0.0295***
	(0.0005)	(0.0005)	(0.0074)
Lagged Assets (ln)	-0.061**	0.007***	2.6374***
	(0.0272)	(0.0015)	(0.1946)
Capital intensity (%)	8.7822***	0.1861**	12.1094**
	(1.6269)	(0.0724)	(5.0105)
Observations	4727	4775	4775
R-squared	0.1855	0.1522	0.6130