



CEO Trustworthiness and Corporate Innovation: The Face Value of CEOs

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AEA

Motivation

- Trust is a **key factor of production** – comparable to labor, capital and technology

"...the prevailing paradigm of financial economics requires a critical addition [of trust]."

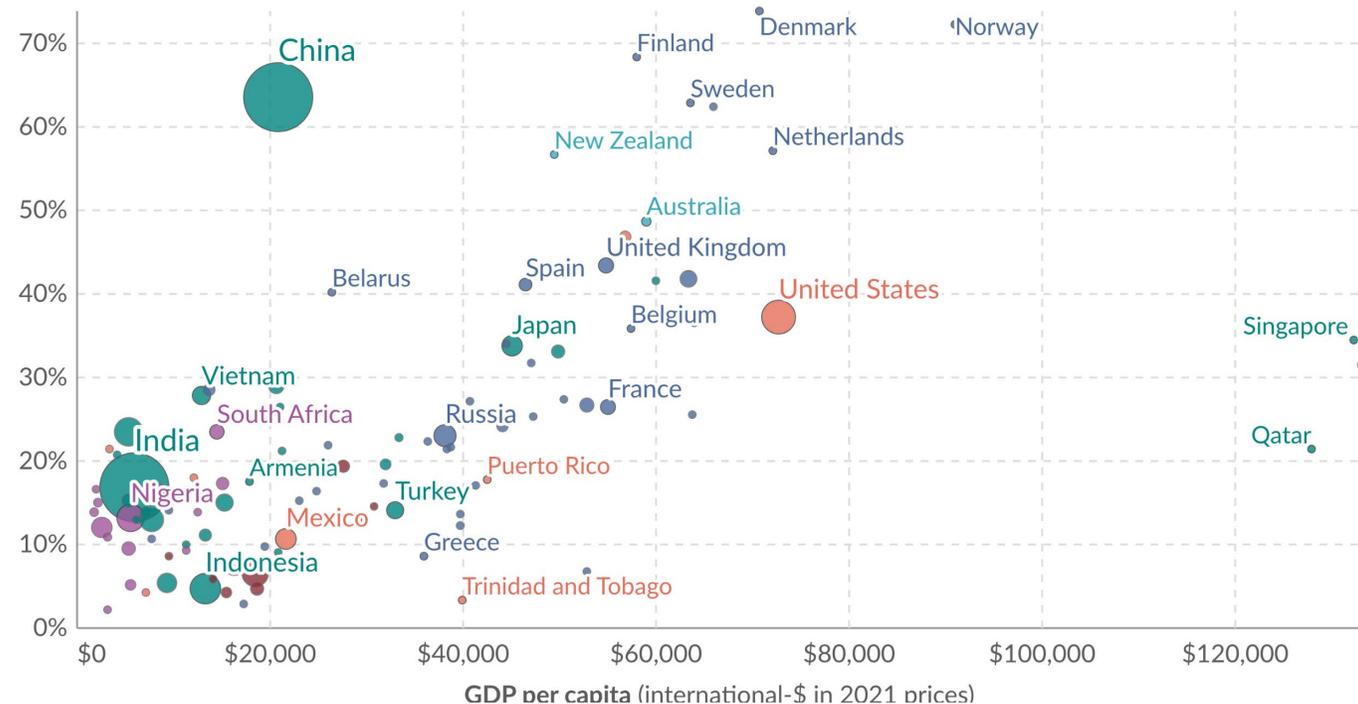
- Putting Integrity Into Finance (Erhard and Jensen 2015)

**High
economic
growth**

**Countries/
regions with
high social trust**

*(Jane 1997; Barro and McCleary 2003;
Guiso, Sapienza, and Zingales 2006)*

Share agreeing "Most people can be trusted"

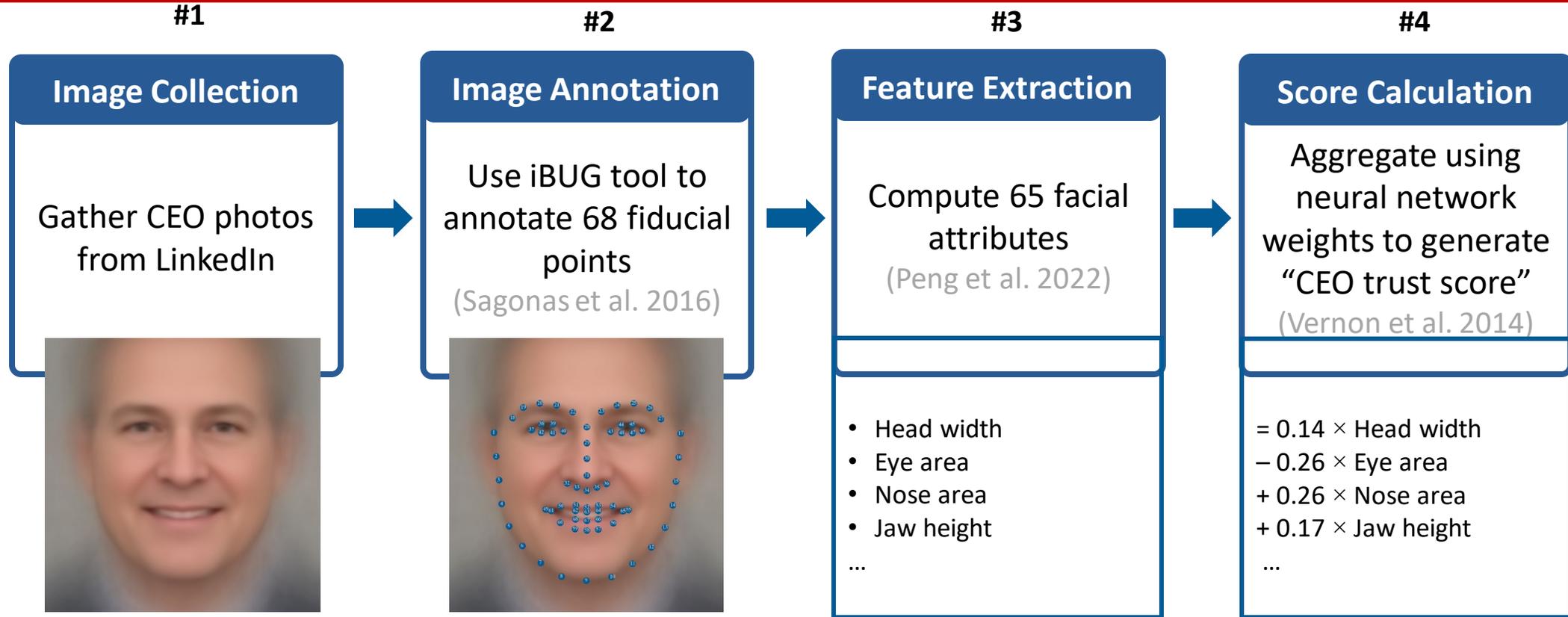


Data source: Integrated Values Surveys (2022)

Main hypothesis and empirical designs

- **Hypothesis: Trustworthy CEOs *lead to* better innovation performance**
 - **Innovation is risky by nature**
 - Featured with uncertainty, low information transparency, and high agency issues
 - Difficult to contract ex ante (Aghion and Tirole 1994a, 1994b)
 - **CEO trustworthiness mitigates information problems** (Manso 2011)
 - **For employees/inventors:** trust that the CEO will “keep his word” (e.g., commit resources and tolerate short-term failures), which motivates them to engage in innovation activities
 - **For shareholders:** trust CEOs’ decisions, provide sufficient support for optimal investment in innovation
- **Empirical design:**
 - **Perceived trustworthiness of CEOs:** An **ML algorithm** applied to the facial features to measure CEOs’ trustworthiness (Vernon et al. 2018; Peng et al. 2022)
 - **Validation:** employee surveys, stock analysts, and institutional investors’ voting
 - **Corporate innovation:** patent-based indicators

Measuring CEO perceived trustworthiness



- **Trustworthiness Scores**

- **CEO Trust** is a score in the range $[-1, +1]$
- **CEO Trust_{RESIDUAL}** is the residuals from regressing **CEO Trust** on all CEO characteristics (age, gender, tenure, education) and compensation (salary, bonus, equity holding, options, and sensitivity)

Prior literature and positioning

- We contribute two streams of literature: **Trust** and **Innovation**
- **Country level trust: trust and economic growth**
 - Knack and Keefer (1997), Zak and Knack (2001), Barro and McCleary (2003), Beugelsdijk, de Groot, and van Schaik (2004), Guiso, Sapienza, and Zingales (2006), Xie et al. (2022), Nguyen (2025)
- **Corporate level trust: trust as culture**
 - **Identify trust-related words:** in corporate earnings conference calls (Larcker and Zakolyukina 2012; Hope and Wang 2018) or MD&A of 10-K filings (Audi, Loughran, and McDonald 2016; Breuer, Knetsch, and Salzmann 2020; Cho, Krishnan, and Cho 2023)
- **Individual level trust: trustworthiness using face**
 - Facial impressions are instantaneous and subconscious, developed in evolutionary history as a survival trait (Willis and Todorov 2006; Todorov et al. 2009; Todorov 2017)
- **Determinants of corporate innovation**
 - Ederer and Manso (2011), He and Tian (2018)
- **CEOs and executives on corporate innovation**
 - Barker and Mueller (2002), Manso (2011), Hirshleifer, Low, and Teoh (2012), Nguyen (2025)

Validation tests

- To validate our *CEO Trust* (and *CEO Trust_{RESIDUAL}*), we examine its explanatory power for many variables related to others' trust in CEO
 - We regress the following variables on perceived trustworthiness, with controlling for firm/CEO characteristics, and fixed effects for firms and years
- **Employee surveys** (Glassdoor and Fortune)
 - Glassdoor: Higher “overall rating”, higher in “senior leadership”,
 - Fortune: being listed in “best 100 companies to work for”
- **Institutional investors** (ISS Voting Analytics)
 - More “for” votes, less “against” votes
 - CEOs are less likely fired when having bad performance
- **Stock analysts** (IBES)
 - Faster earnings forecast revisions after corporate earnings conference calls
- Thus, our *CEO Trust* reasonably captures how trustworthy a CEO is

Baseline results and underlying mechanisms

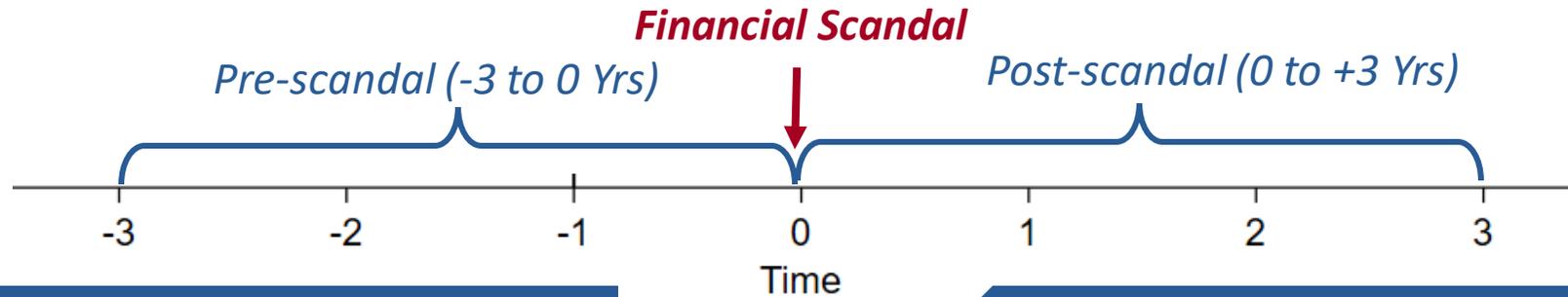
Baseline results

- Does CEO perceived trustworthiness lead to better corporate innovation?
 - $\ln(PATENTS)_{i,t+1} = \beta \cdot CEO\ TRUST_{i,t} + Controls_{i,t} + Firm\ FE + Year\ FE + \varepsilon_{i,t}$ (1)
- **CEO TRUST is positive and significant, regardless of control variables**
 - A one st.d. increase in *CEO TRUST* → **11.7%** more patents (i.e., **2** more patents)
 - We consider Poisson regressions as well
 - We also find consistent results in forward citations per patent, patent value, and originality

Mechanisms: risk-taking and efficiency

- Trustworthy CEOs are allowed to take riskier projects; or, they are trustworthy because they are efficient in converting R&D to patents
- **Riskiness** = the standard deviation of forward citations across patents
- **Efficiency** = Patents / R&D expenses
- A one st.d. increase in *CEO TRUST* → **15.5%** greater riskiness and **23.8%** greater innovation efficiency

Identification: The quasi-exogenous shock of financial scandals



Treated

A firm is treated if it is:

- 1) in the CBSA where another firm commit scandal, 2) has no supply chain relation with the scandal firm, 3) does not have a scandal itself

Control

A firm is not treated if it is:

- in a CBSA with no financial scandal throughout the sample

Identification validity:

- increases the importance of the focal firm's CEO perceived trustworthiness (*relevance criteria*)
- is less likely to influence the focal firm's corporate innovation (*exclusion restriction*)
- **Data source:** Accounting and Auditing Enforcement Releases (AAER)

Identification (cont.)

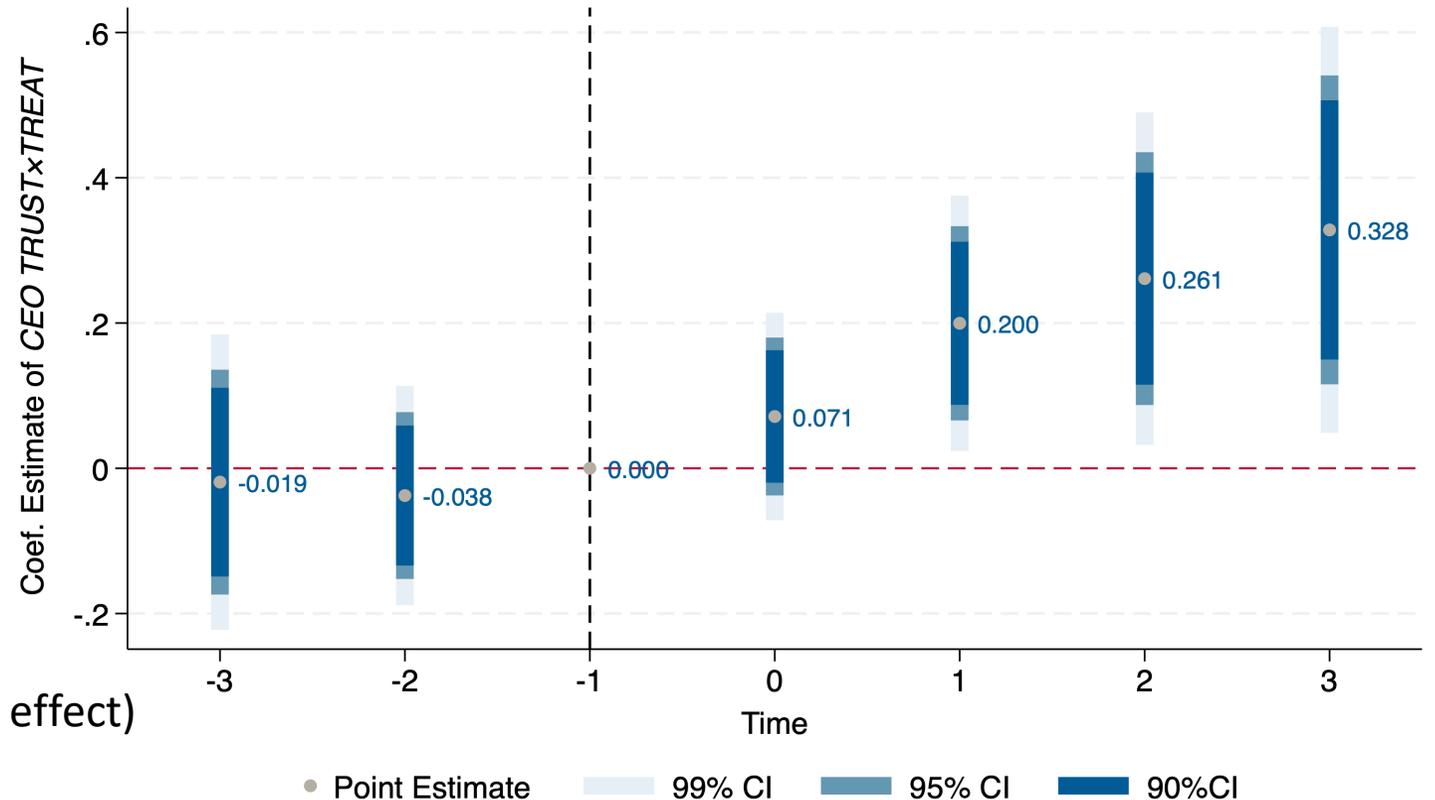
- **Empirical design:** stacked difference-in-differences-in-differences (Barrios 2022; Baker et al. 2022)

$$\begin{aligned} & \ln(PATENTS)_{c,i,t+1} \\ &= \beta_1 \cdot CEO\ TRUST_{c,i,t} \times TREAT_{c,i} \times POST_{c,t} + \beta_2 \cdot CEO\ TRUST_{c,i,t} \times POST_{c,t} + \beta_3 \cdot CEO\ TRUST_{c,i,t} \\ & \times TREAT_{c,i} + \beta_4 \cdot TREAT_{c,i} \times POST_{c,t} + \beta_5 \cdot CEO\ TRUST_{c,i,t} + Cohort\ FE \times Controls_{c,i,t} + Cohort\ FE \\ & \times FES + \varepsilon_{c,i,t} \end{aligned}$$

	(1)
	<i>Ln(PATENTS)</i>
<i>CEO TRUST</i> × <i>TREAT</i> × <i>POST</i>	0.212*** (3.25)
<i>CEO TRUST</i>	0.059 (1.44)
<i>CEO TRUST</i> × <i>POST</i>	YES
<i>CEO TRUST</i> × <i>TREAT</i>	YES
Cohort × (Controls, FEs)	YES
Adjusted R ²	0.924
N	37,436

A one s.d. increase in *CEO TRUST* →
10.0% more patents (**1.3x** more of the base effect)

FES: firm FEs and year times CBSA FEs



• Point Estimate 99% CI 95% CI 90% CI

Incentives and heterogeneous effects

Incentives of **Employees/Inventors**

- Rank-and-file employees trust more on compensation promised by trustworthy CEOs
→ The effect of *CEO Trust* increases with rank-and-file employees' options

Incentives of **Institutional Investors**

- Institutional investors are more willing to support trustworthy CEOs' R&D investment
→ Both dedicated and transient institutional investors lead to more corporate R&D

Incentives of **Stock Analysts**

- Stock analysts are more able to believe trust-looking CEOs' disclosure and deliver consistent forecasts
→ *CEO Trust* leads to lower analysts' forecast dispersion

Heterogeneous effects

- The effect of CEO Trust is stronger for externally-hired CEOs
- The effect of CEO Trust is stronger for CEOs of a shorter tenure

Conclusion and contributions

- **Extends prior research on the role of **social trust** in economic growth**
 - Most studies examine trust at the country or regional level
 - **This paper:** offers individual-level evidence at the CEO level
- **Contributes to the literature on CEOs' role in **corporate innovation****
 - CEO age, gender, tenure, compensation structure, background, early experiences, overconfidence are associated with innovation performance
 - **This paper:** CEO perceived trustworthiness as key factor driving corporate innovation
- **Adds to the literature on CEO characteristics in **corporate governance****
 - Prior studies use indirect observable proxies of executive background
 - **This paper:** trustworthiness reduces information asymmetries for investors and employees
- ***Key takeaway: CEO trustworthiness, inferred from facial cues, enhances corporate Innovation performance***



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