Appendix A. New CEO Strategic Focus Measures.

We use the following prompt with ChatGPT 4.0 to classify each new CEO's first earnings call transcript along three strategic dimensions: innovation, market growth, and cost efficiency.

You are the top McKinsey Analyst in area CEO transcript analysis. Given a list of quotes from an earnings call transcript, evaluate the relative focus of the CEO speaker on the following criteria from 0 to 1 (1 means this criteria is the dominant focus, 0 means not at all) (Note: CEOs can have multiple focuses):

1. Innovation, purpose, long-term and non-financial objectives
2. Cost, margin, and other quantitative objects focused on efficiency, cost reduction, and profitability.
3. Market growth with a focus on quantitative metrics including but not limited to growth rates, new market entry, capital and IT investments, and customer growth; exclude cost-related metrics

return only these scores as comma separated values. do not give them a label.

Notes: Effective input prompts are critical to generating relevant and accurate responses from LLM-based AI chatbots, so we tested multiple input prompts on a subset of earnings call transcripts.

Each transcript receives a score on all three dimensions, which we standardize using z-scores to generate the *Innovation, Market Growth,* and *Cost Efficiency* scores. Appendix Table A9 presents summary statistics for these standardized scores.

We classify the new CEO as innovation-focused, market-growth-focused, and cost-efficiency-focused if their score on the corresponding dimension is above the sample median. If a CEO scores above the median on more than one dimension or does not exceed the median on any dimension, we assign them to the category in which they received the highest standardized score.

To illustrate, below are sample quotes from new CEOs with different strategic emphases:

- Innovation focus: "As I've told our employees, our industry does not respect tradition; it only respects innovation. This applies to us and everyone else."
- Cost efficiency focus: "We're working to become a geographically focused and cost-efficient company with an improving credit profile. By paying a consistent quarterly dividend and growing our established business platforms, we believe we will be positioned to deliver compelling total shareholder returns."
- Market growth focus: "We had a strong fourth quarter, led by record activity levels, new infrastructure coming online… is supporting our growth …"

Appendix Table A10 shows the distribution of firms and sample across these three categories.

Appendix B. Complex Problem-Solving and Collaboration Measures.

We create complex problem-solving and collaboration measures based on Hay Group's nine job evaluation components. Hay Group's nine job components are grouped into knowledge (technical/practical, managerial, and communication), problem solving (thinking environment, thinking challenge), and accountability (freedom to act, impact, scope, and non-quantifiable).

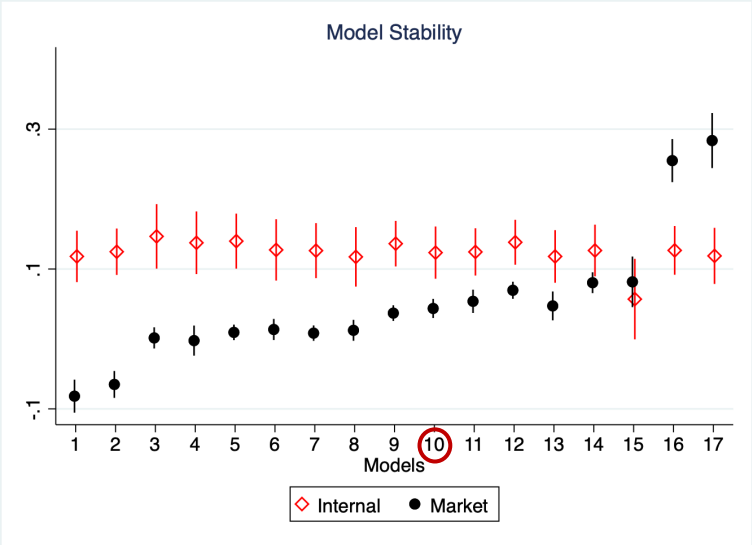
Our data includes job-level information on *Occupation*, *Skill Level*, and *Job Title*. Using this information, we ask ChatGPT 4.0 to assign scores for nine components for each job on a 1-8 scale, using the Hay Group's definition and the nature of job based on *Occupation* and *Job Title*. Next, we adjust these scores using *Skill Level* and by identifying managerial jobs (we use keywords such as "manager," "director," "vp," "chief," "executive," or "head" in *Job Title*). Following adjustments, we standardize each component into z-scores.

The Complex Problem-Solving Index is the average sum of the z-scores for three relevant components: (i) practical/technical know-how, (ii) problem-solving thinking environment, and (iii) problem-solving thinking challenge. The Collaboration Index is the average sum of the z-scores for four components: (i) communicating know-how, (ii) planning know-how, (iii) account freedom, and (iv) account area.

If the occupation is coded as "Unclassified" or "General/Other," we assign missing values for all components and indexes.

Appendix Figures and Tables.

Figure A1: Pay-benchmark sensitivity across various model specifications.

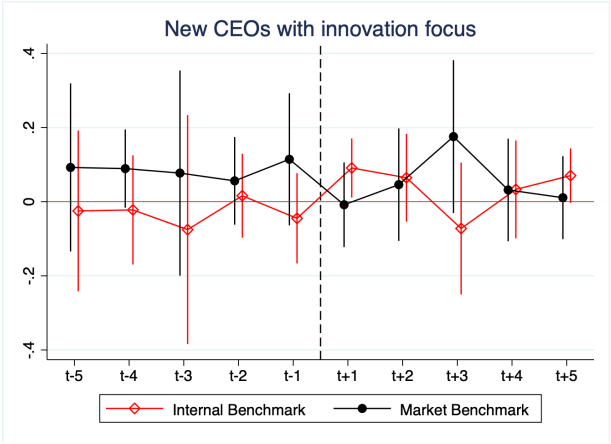


Estimated coefficients across various specifications:

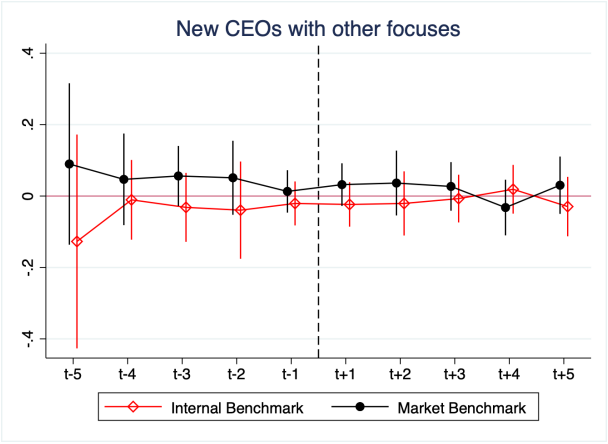
1. Main specification but with year fixed effect, firm fixed effect, and skill-occupation-region three-way fixed effect
2. Main specification but with year fixed effect, firm fixed effect, and skill-occupation-region three-way fixed effect, and no weight
3. Main specification but first-differenced dependent and explanatory variables, and no weight
4. Main specification but first-differenced dependent and explanatory variables
5. Main specification but first-differenced dependent and explanatory variables, with year fixed effect, and no weight
6. Main specification but first-differenced dependent and explanatory variables, with year fixed effect
7. Main specification but first-differenced dependent and explanatory variables, with year fixed effect and firm fixed effect, and no weight
8. Main specification but first-differenced dependent and explanatory variables, with year fixed effect and firm fixed effect
9. Main specification but with no weight
10. **Main specification**
11. Main specification but with year fixed effect, firm fixed effect, and skill-occupation two-way fixed effect, and no weight
12. Main specification but with year fixed effect and firm-skill-occupation three-way fixed effect, and no weight
13. Main specification but with year fixed effect, firm fixed effect, and skill-occupation two-way fixed effect
14. Main specification but with year fixed effect and firm-skill-occupation three-way fixed effect
15. Main specification but weighted by number of observations in "firm-year-skill-occupation-region"
16. Main specification but with year fixed effect, firm fixed effect, skill fixed effect, and occupation fixed effect, and no weight
17. Main specification but with year fixed effect, firm fixed effect, skill fixed effect, and occupation fixed effect

Figure A2. Event study of CEO change and shift in pay-benchmark sensitivity.

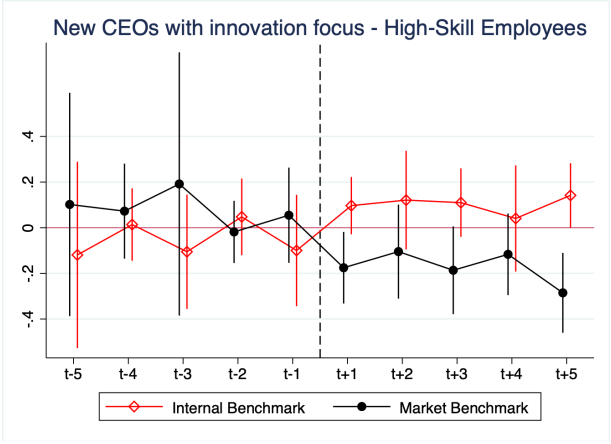
Panel A. New CEOs with innovation focus.



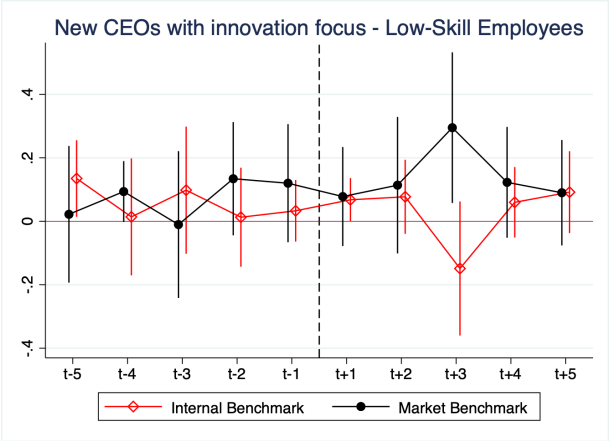
Panel B. New CEOs with non-innovation focus.



Panel C. Innovation focus – Above-median skill level.



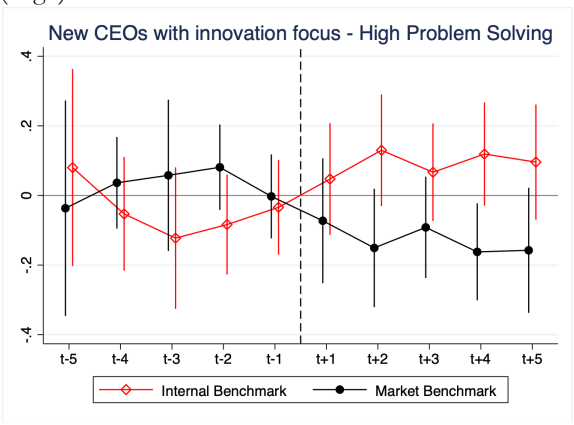
Panel D. Innovation focus – Below-median skill level.



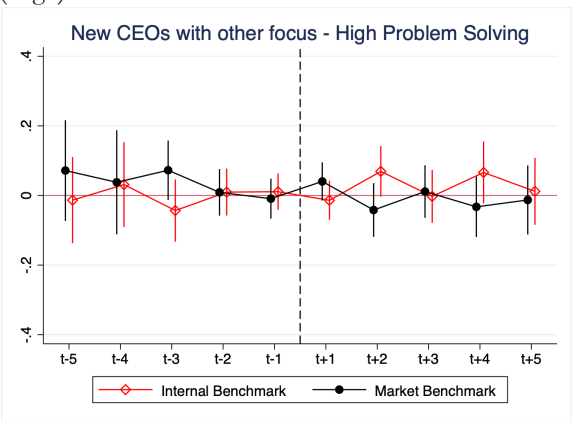
Notes: Each marker represents a coefficient estimate from the stacked difference-in-differences event study model, indicating the marginal change of internal and market pay sensitivities for employees at treated firms (firms with new CEOs) in each year relative to the baseline year t-1 (one year before the CEO change).
In Panels A, C, and D, while the post-event internal pay sensitivity estimates are individually imprecise but consistently positive (except for *t+3* in Panels A and D). In Panel C, the post-event market pay sensitivities are imprecise in some periods but consistently negative. In Panels A and D, the post-event market pay sensitivities are individually imprecise, although consistently positive. None of the panels show evidence of pre-trends. Overall, these point estimates are somewhat noisier, likely reflecting reduced precision, but they move in the same direction as the regression estimates in Table 3, indicating that internal pay sensitivity increases for high-skilled workers following an innovation-focused CEO change.

Figure A3. Event study of CEO change and shift in pay-benchmark sensitivity by job type.

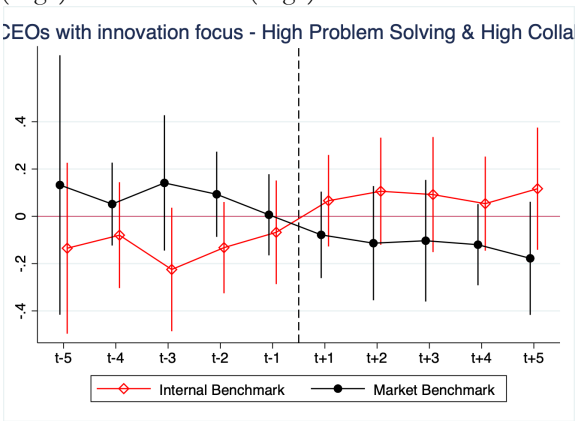
Panel A. Innovation Focus: Complex Problem Solving (High)



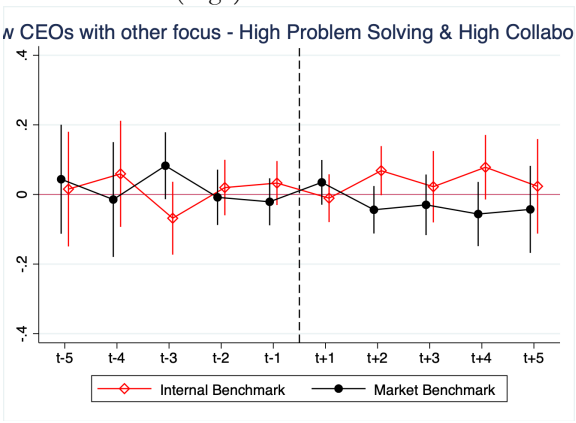
Panel B. Other Focus: Complex Problem Solving (High)



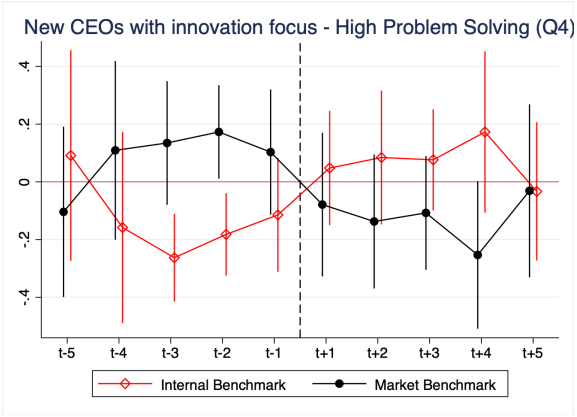
Panel C. Innovation Focus: Complex Problem Solving (High) & Collaboration (High)



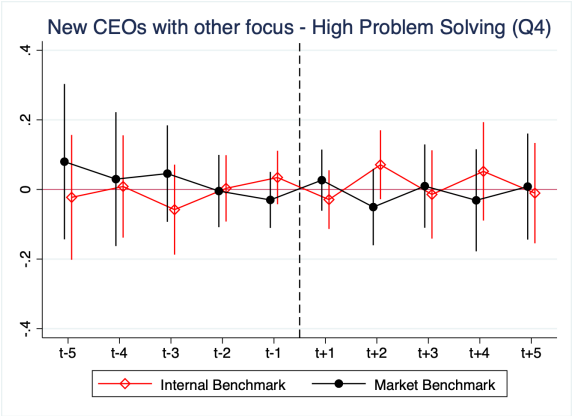
Panel D. Other Focus: Complex Problem Solving (High) & Collaboration (High)



Panel E. Innovation Focus: Complex Problem Solving (Highest, Q4)

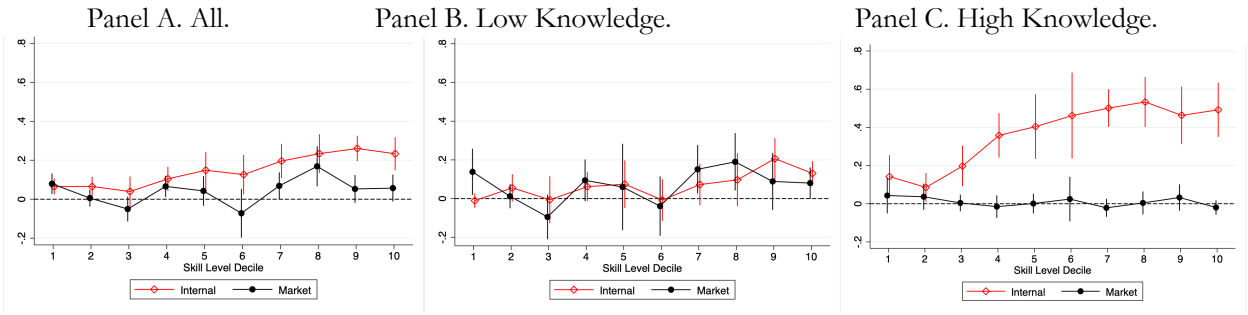


Panel F. Other Focus: Complex Problem Solving (Highest, Q4)



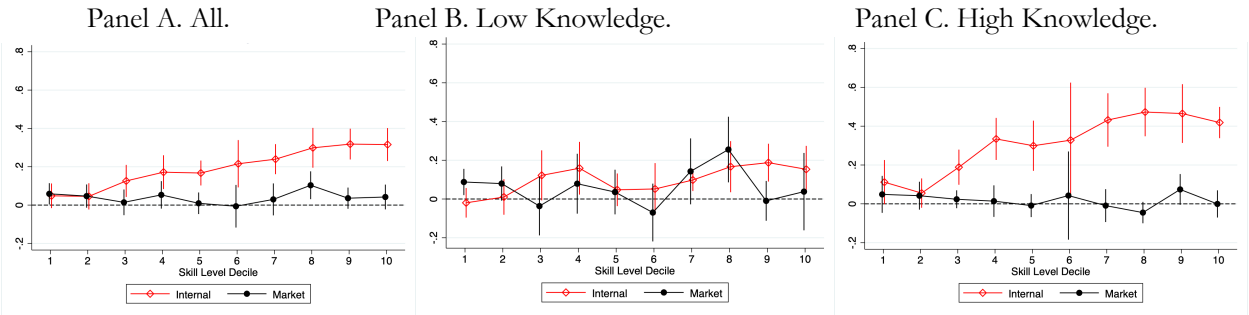
Notes: Each marker represents a coefficient estimate from the stacked difference-in-differences event study model, indicating the marginal change of internal and market pay sensitivities for employees in specific job types (e.g., complex problem-solving and high-collaborative jobs) at treated firms (firms with new CEOs) in each year relative to the baseline year t-1 (one year before the CEO change).

Figure A4. Pay-benchmark sensitivity by employee skill level and firm knowledge intensity, excluding high-ROA firms.



Notes: This figure reproduces Figure 2, excluding firms with the highest ROA, defined as those above the 90th percentile of ROA in each year.

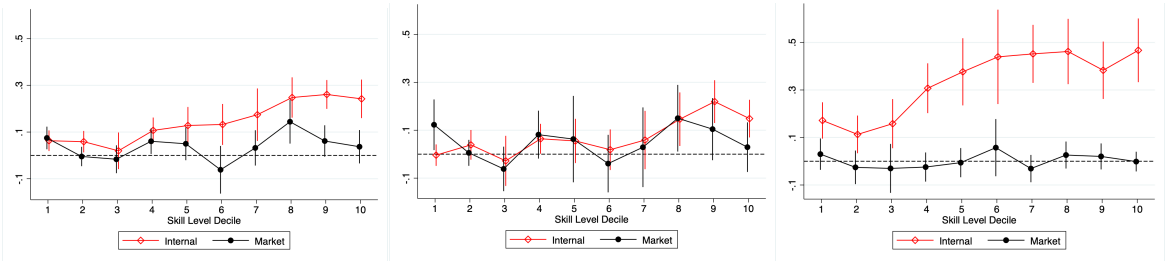
Figure A5. Pay-benchmark sensitivity by employee skill level and firm knowledge intensity, excluding large firms.



Notes: This figure reproduces Figure 2, excluding large firms, defined as those with more than 25,000 employees.

Figure A6. Pay-benchmark sensitivity by employee skill level and firm knowledge intensity, using region-agnostic market benchmark.

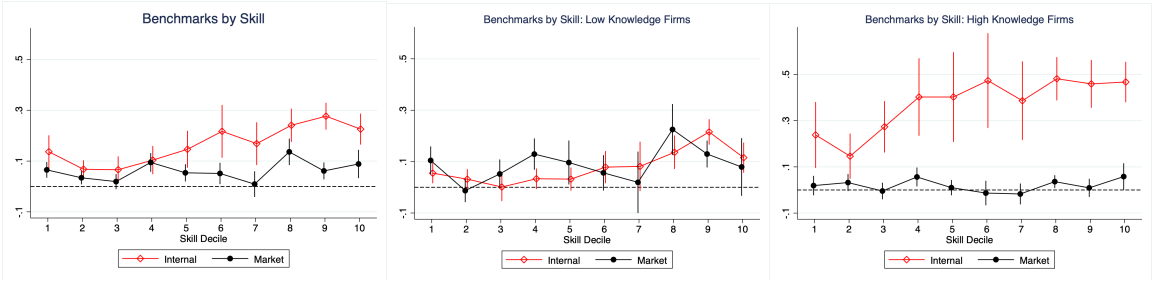
Panel A. All. Panel B. Low knowledge. Panel C. High Knowledge



Notes: This figure reproduces Figure 2, using region-agnostic market benchmark.

Figure A7. Pay-benchmark sensitivity by employee skill level and firm knowledge intensity, using same-industry (instead of same-region) market benchmark.

Panel A. All. Panel B. Low knowledge. Panel C. High Knowledge



Notes: This figure reproduces Figure 2, using region-agnostic, same-industry market benchmark.

Table A1. Representative occupations per skill level and knowledge intensity.

Skill Decile	Low Knowledge	High Knowledge
1 (lowest)	Retail Operations Sales Staff, Retail Operations Store Operations, Support Service, Warehousing/Material Management, Stores Loss Prevention	Production, Distribution/Transportation, Warehousing/Material Management, Territory Sales, Production-Maintenance/Skilled Manual
5 (median)	Retail Operations Store Management, Warehousing/Material Management, Merchandise Operations-Buying, Territory Sales, Design	General Engineers, Production, Territory Sales, Research and Development, Information Technology-Application Development
10 (top)	Retail Operations Store Management, Retail Operations Regional Management, Merchandise Operations-Buying, Professional Lawyers, Financial Planning and Analysis	General Engineers, Production, Research and Development, Professional Lawyers, Key Account Sales, General Finance and Accounting

Table A2. Examples of functions and nested occupations.

Function	Occupation
Retail Operations	Retail Operations Sales Staff Retail Operations Store Operations Supervision and Sales Staff Retail Operations Pharmacy Retail Operations-Regional Management Retail Operations-Store Management
Administrative/Support/Service	Clerical Services Document Production Secretarial Support Services
Finance and Accounting	Accounting Audit Controller Financial Planning and Analysis Taxation Treasury
Analytics and Data Science	Actuarial Services Analytics and Data Science Economic Research
Information Technology	Blockchain Business and Systems Analysis Cyber Security Enterprise Information Architecture IT Management/Operations and End User Support Application Development Data Management IT Consultancy Infrastructure Development Internet-Based Services and Support Service Level and Process Management Software Engineering Technical Operations and End User Support Infrastructure Software Development and Implementation Software/Application Development and Implementation
Marketing	Brand/Product Management Digital Marketing / Digital Campaigns E-Commerce Market Research Promotions and Advertising Search Engine Optimization Social Media Trade Marketing User Experience Design Web Content Public Relations and Promotions
Merchandise Operations	Allocation Inventory Planning Buying Merchandising / Range and Space Planning Sourcing

Table A3. Relationship between total compensation and internal and market pay benchmarks.

	Dependent variable: Total compensation			
	(1)	(2)	(3)	(4)
Internal Pay	0.132***		0.132***	0.132***
	(0.019)		(0.019)	(0.018)
Market Pay		0.045***	0.045***	0.045***
		(0.007)	(0.007)	(0.007)
ROA				-0.012
				(0.049)
Log Sale				0.005
				(0.006)
Constant	9.685***	10.669***	9.186***	9.138***
	(0.209)	(0.083)	(0.210)	(0.221)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	177,540	177,540	177,540	177,540
Adjusted R-squared	0.964	0.964	0.964	0.964

Notes: Significant at ***1%, **5%, and *10%.
Total compensation is a sum of cash compensation (base salary plus bonus) and long-term incentives.

Table A4. Relationship between total compensation and internal and market pay benchmarks by employee type.

	Dependent variable: Total compensation					
			Complex Problem Solving (High)			
Job Type	Complex Problem Solving (Low)	Complex Problem Solving (High)	Low Collab.	High Collab.	Medium-High (Q3)	Highest (Q4)
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.104***	0.200***	0.135***	0.225***	0.187***	0.217***
	(0.019)	(0.023)	(0.023)	(0.025)	(0.022)	(0.032)
Market Pay	0.048***	0.032***	0.013	0.042***	-0.001	0.062***
	(0.009)	(0.010)	(0.013)	(0.014)	(0.010)	(0.015)
ROA	-0.063	0.151***	0.175**	0.140***	0.103*	0.205***
	(0.057)	(0.053)	(0.072)	(0.052)	(0.057)	(0.073)
Log Sale	0.005	0.005	0.010	0.003	0.003	0.009
	(0.007)	(0.008)	(0.010)	(0.008)	(0.009)	(0.011)
Constant	9.300***	8.779***	9.498***	8.467***	9.292***	8.232***
	(0.246)	(0.238)	(0.281)	(0.266)	(0.261)	(0.343)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	117,370	55,432	16,489	38,943	29,405	26,027
Adjusted R-squared	0.957	0.953	0.942	0.943	0.950	0.956

Notes: Significant at ***1%, **5%, and *10%.
Total compensation is a sum of cash compensation (base salary plus bonus) and long-term incentives.

Table A5. Correlation matrix.

Panel A. Between-unit correlations.

	1	2	3	4	5
1. Employee Pay	1.000				
2. Internal Pay	0.896	1.000			
3. Market Pay	0.896	0.879	1.000		
4. ROA	0.014	0.016	0.011	1.000	
5. Sales	0.002	0.000	-0.007	0.013	1.000

Panel B. Within-unit correlations.

	1	2	3	4	5
1. Employee Pay	1.000				
2. Internal Pay	0.359	1.000			
3. Market Pay	0.145	0.150	1.000		
4. ROA	-0.041	-0.047	-0.052	1.000	
5. Sales	0.073	0.151	0.087	0.045	1.000

Panel C. Correlations of other variables.

	1	2	3	4	5
1. Skill Level	1.000				
2. Knowledge Intensity	0.126	1.000			
3. Firm Size	0.043	0.044	1.000		
4. Complex Problem Solving	0.371	0.181	0.040	1.000	
5. Complex Problem Solving & Collaboration	0.443	0.157	0.007	0.785	1.000

Table Notes: Panel A presents between-unit correlations, calculated across "firm-Occupation-Skill Level-Region" means. Panel B presents within-unit correlations, calculated after demeaning each variable by its "firm-Occupation-Skill Level-Region" mean. They remove persistent unit-level differences and instead capture co-movement over time within the same unit, which reflects the identifying variation in our empirical design. Panel C presents other variables used for subsample analyses.

Table A6. Distribution by industry and knowledge intensity.

	A. Distribution by Industry				
Industry	Number of Firms	Number of Units	Number of Employees	Knowledge Intensity	Knowledge Industry Type
Life Sciences	16	2,675	32,491	0.320	High
High Technology incl. Aerospace & Defense	14	2,751	88,152	0.122	High
Diversified Industrials	6	5,427	168,438	0.140	High
Heavy Manufacturing	22	17,009	607,612	0.114	High
Chemicals	54	24,932	310,797	0.043	High
Light Manufacturing	19	3,853	55,398	0.042	High
Fast Moving Consumer Goods	73	16,399	611,926	0.033	Moderate
Construction & Materials	10	3,316	32,838	0.017	Moderate
Oil & Gas	23	3,311	48,764	0.014	Moderate
Business/Professional Services	14	5,718	164,328	0.012	Moderate
Metals/Mining	4	809	11,068	0.011	Moderate
Insurance	36	19,228	595,058	0.007	Moderate
Retailers	123	60,284	15,412,530	0.006	Low
Financial Services	18	1,680	82,829	0.000	Low
Healthcare	9	2,101	489,701	0.000	Low
Restaurants	15	468	31,506	0.000	Low
Transportation	4	2,530	154,371	0.000	Low
Utilities	19	5,039	76,960	0.000	Low

	B. Distribution by Knowledge Industry Type					
Knowledge Industry Type	Number of Firms	% of Firms	Number of Units	% of Units	Number of Employees	% of Employees
High	131	27.35	56,657	31.91	1,262,888	6.66
Moderate	160	33.40	48,781	27.48	1,463,982	7.72
Low	188	39.25	72,102	40.61	16,247,897	85.63

Table A7. Relative strength of internal-versus-market benchmark by firm knowledge intensity.

Industry Type	*Dependent variable: Employee pay*			
	All	Low Knowledge	Moderate Knowledge	High Knowledge
	(1)	(2)	(3)	(4)
Internal Pay	0.123***	0.054***	0.162***	0.360***
	(0.019)	(0.018)	(0.037)	(0.043)
Market Pay	0.044***	0.050***	0.038***	0.014*
	(0.007)	(0.012)	(0.012)	(0.007)
ROA	-0.019	-0.104*	0.132	0.103
	(0.047)	(0.054)	(0.107)	(0.064)
Log Sale	0.005	0.006	0.006	0.006
	(0.006)	(0.009)	(0.012)	(0.008)
Constant	9.241***	9.807***	8.859***	7.087***
	(0.226)	(0.264)	(0.421)	(0.485)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	177,540	72,102	48,781	56,657
Adjusted R-squared	0.965	0.960	0.963	0.965

Notes: Significant at ***1%, **5%, and *10%.

Table A8. Relative strength of internal-versus-market benchmark by employee skill level.

	Dependent variable: Employee pay									
Employee skill decile	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Internal Pay	0.054***	0.061***	0.027	0.085***	0.126***	0.135***	0.169***	0.246***	0.260***	0.242***
	(0.021)	(0.021)	(0.040)	(0.025)	(0.038)	(0.041)	(0.055)	(0.039)	(0.031)	(0.038)
Market Pay	0.038**	0.004	-0.003	0.039**	0.025	-0.005	0.016	0.088***	0.048***	0.021
	(0.015)	(0.015)	(0.022)	(0.017)	(0.022)	(0.023)	(0.016)	(0.030)	(0.017)	(0.030)
ROA	-0.007	.092*	-0.046	0.120	-0.082	0.071	0.140**	0.092	0.135**	0.117
	(0.048)	(0.053)	(0.169)	(0.088)	(0.141)	(0.142)	(0.070)	(0.084)	(0.064)	(0.081)
Log Sale	0.004	0.010**	0.004	0.004	0.017*	-0.002	-0.018*	0.002	-0.011	-0.001
	(0.005)	(0.004)	(0.008)	(0.007)	(0.009)	(0.016)	(0.010)	(0.008)	(0.009)	(0.014)
Constant	9.492***	9.951***	10.645***	9.657***	9.377***	9.912***	9.547***	7.719***	8.245***	8.843***
	(0.294)	(0.300)	(0.555)	(0.333)	(0.373)	(0.610)	(0.695)	(0.467)	(0.397)	(0.428)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	21,063	14,234	18,124	14,979	18,633	10,231	19,489	17,350	15,367	10,205
Adjusted R-squared	0.943	0.937	0.864	0.889	0.878	0.855	0.832	0.836	0.846	0.849

Notes: Significant at ***1%, **5%, and *10%.

Table A9. Relative strength of internal-versus-market benchmark by employee skill level in low knowledge industries.

	Dependent variable: Employee pay									
Employee skill decile	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Internal Pay	-0.009	0.041	-0.015	0.038	0.064	0.038	0.048	0.145***	0.190***	0.151***
	(0.022)	(0.027)	(0.053)	(0.028)	(0.047)	(0.042)	(0.058)	(0.045)	(0.039)	(0.039)
Market Pay	0.058*	0.022	-0.017	0.059**	0.036	-0.005	0.020	0.111**	0.071***	0.016
	(0.034)	(0.021)	(0.026)	(0.030)	(0.046)	(0.038)	(0.029)	(0.049)	(0.026)	(0.046)
ROA	-0.050	0.059	-0.173	0.063	-0.190	0.075	0.058	0.020	0.088	0.001
	(0.061)	(0.070)	(0.202)	(0.123)	(0.206)	(0.181)	(0.092)	(0.113)	(0.078)	(0.129)
Log Sale	0.010**	0.002	-0.005	0.013	0.018	0.002	-0.035*	-0.006	-0.011	0.036
	(0.005)	(0.007)	(0.014)	(0.013)	(0.016)	(0.025)	(0.020)	(0.015)	(0.015)	(0.024)
Constant	9.804***	9.943***	11.257***	9.778***	9.883***	10.916***	10.987***	8.667***	8.721***	9.635***
	(0.493)	(0.406)	(0.744)	(0.476)	(0.510)	(0.724)	(0.912)	(0.678)	(0.608)	(0.533)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,480	6,536	7,941	6,044	7,041	4,349	6,393	6,363	5,566	4,104
Adjusted R-squared	0.930	0.925	0.814	0.865	0.839	0.841	0.794	0.777	0.816	0.796

Notes: Significant at ***1%, **5%, and *10%.

Table A10. Relative strength of internal-versus-market benchmark by employee skill level in high knowledge industries.

	Dependent variable: Employee pay									
Employee skill decile	Decile 1	Decile 2	Decile 3	Decile 4	Decile 5	Decile 6	Decile 7	Decile 8	Decile 9	Decile 10
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Internal Pay	0.104**	0.102***	0.194***	0.362***	0.436***	0.541***	0.557***	0.561***	0.477***	0.496***
	(0.044)	(0.033)	(0.047)	(0.057)	(0.074)	(0.089)	(0.053)	(0.057)	(0.076)	(0.065)
Market Pay	0.030	0.005	0.040**	0.025	0.001	0.026	0.002	0.003	0.004	-0.021
	(0.025)	(0.019)	(0.018)	(0.022)	(0.015)	(0.020)	(0.017)	(0.016)	(0.015)	(0.014)
ROA	0.122	0.130*	0.230*	0.151***	0.025	-0.161	0.104	0.145**	0.130	0.212***
	(0.077)	(0.072)	(0.136)	(0.054)	(0.095)	(0.223)	(0.082)	(0.069)	(0.098)	(0.059)
Log Sale	0.010	0.019*	-0.015	0.005	-0.001	0.018	-0.009	-0.006	0.002	-0.017
	(0.009)	(0.011)	(0.010)	(0.007)	(0.008)	(0.018)	(0.009)	(0.007)	(0.012)	(0.014)
Constant	9.232***	9.621***	8.625***	6.803***	6.398***	4.817***	5.180***	5.172***	6.127***	6.482***
	(0.415)	(0.441)	(0.585)	(0.635)	(0.829)	(1.132)	(0.646)	(0.714)	(0.877)	(0.761)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,793	3,666	5,145	4,564	6,322	3,352	7,535	6,132	5,790	4,111
Adjusted R-squared	0.897	0.899	0.868	0.868	0.855	0.801	0.829	0.854	0.837	0.851

Notes: Significant at ***1%, **5%, and *10%.

Table A11. Summary statistics of new CEO strategic focus scores.

Score	Mean	SD	25th	50th	75th
Innovation	0.00	1.00	-0.31	0.32	0.32
Market Growth	0.00	1.00	-1.15	0.54	1.01
Cost Efficiency	0.00	1.00	-0.88	-0.43	0.94

Table A12. Summary statistics of firms with new CEOs.

Firm type	Number of firms	Number of "firm-year-skill-occupation-region" units	Number of employees
All firms	479	177,540	18,974,767
Public firm	257	122,590	16,865,144
Public firm with new CEO	113	54,925	10,421,227
New CEO's focus: Innovation	20	11,243	2,329,520
New CEO's focus: Market growth	47	22,606	4,295,812
New CEO's focus: Cost efficiency	46	21,076	3,795,895

Table A13. Relationship between employee pay, benchmarks, and occupation co-location.

	Dependent variable: Employee pay				
Sample type	All	Occupation Co-Location Below Median	Occupation Co-Location Above Median	All	All
	(1)	(2)	(3)	(4)	(5)
Internal Pay	0.123***	0.083***	0.173***	0.089***	0.075***
	(0.019)	(0.020)	(0.025)	(0.018)	(0.020)
Market Pay	0.044***	0.042***	0.031***	0.043***	0.064***
	(0.007)	(0.012)	(0.007)	(0.007)	(0.015)
Internal Pay				0.053***	0.077***
× Occupation Co-Location				(0.013)	(0.024)
Market Pay					-0.031
× Occupation Co-Location					(0.020)
Occupation Co-Location				-0.595***	-0.515***
				(0.145)	(0.131)
ROA	-0.019	-0.087	0.046	-0.021	-0.021
	(0.047)	(0.068)	(0.051)	(0.047)	(0.047)
Log Sale	0.005	0.009	0.005	0.006	0.006
	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)
Constant	9.241***	9.512***	8.97***	9.625***	9.547***
	(0.226)	(0.277)	(0.272)	(0.219)	(0.224)
Firm-Skill Level-Occupation-Region FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	177,540	726,20	90,513	177,540	177,540
Adjusted R-squared	0.965	0.966	0.959	0.965	0.965

Notes: Significant at ***1%, **5%, and *10%.

Table A14. Relationship between employee pay, benchmarks, complex problem-solving/collaboration, and occupation concentration.

	Dependent variable: Employee pay					
			Complex Problem Solving (High)			
Job Type	Complex Problem Solving (Low)	Complex Problem Solving (High)	Low Collab.	High Collab.	Medium-High (Q3)	Highest (Q4)
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.070***	0.069**	0.052	0.072**	0.080*	0.060*
	(0.021)	(0.028)	(0.049)	(0.033)	(0.047)	(0.033)
Market Pay	0.041***	0.166***	0.105**	0.207***	0.107**	0.222***
	(0.016)	(0.031)	(0.049)	(0.036)	(0.045)	(0.042)
Internal Pay	0.043*	0.160***	0.088	0.198***	0.115**	0.215***
× Occupation Co-Location	(0.023)	(0.038)	(0.058)	(0.047)	(0.055)	(0.044)
Market Pay	0.007	-0.165***	-0.109*	-0.203***	-0.133**	-0.197***
× Occupation Co-Location	(0.020)	(0.037)	(0.059)	(0.042)	(0.052)	(0.049)
Occupation Co-Location	-0.549***	0.052	0.232	0.062	0.188	-0.201
	(0.163)	(0.275)	(0.684)	(0.402)	(0.353)	(0.334)
ROA	-0.072	0.138***	0.148**	0.132***	0.092*	0.190***
	(0.055)	(0.051)	(0.068)	(0.049)	(0.053)	(0.070)
Log Sale	0.006	0.007	0.011	0.004	0.005	0.010
	(0.007)	(0.007)	(0.009)	(0.007)	(0.008)	(0.010)
Constant	9.756***	8.722***	9.382***	8.316***	9.265***	8.179***
	(0.246)	(0.313)	(0.593)	(0.390)	(0.367)	(0.426)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	117,370	55,432	16,489	38,943	29,405	26,027
Adjusted R-squared	0.958	0.954	0.944	0.944	0.951	0.957

Notes: Significant at ***1%, **5%, and *10%.

Table A15. Summary statistics of pay sensitivities and innovation measures.

Variable	Count	Mean	St. Dev.	25th	50th	75th
Company characteristics						
Knowledge capital intensity	338	0.10	0.12	0.02	0.07	0.14
Revenues (in million $)	338	18,867.49	30,867.99	3,023.19	7,943.21	19,884.00
Leverage	338	0.29	0.14	0.20	0.27	0.39
Summary statistics						
Number of patents	338	126.14	288.69	2.00	17.50	81.00
Stock of patents	338	653.85	1328.41	19.29	113.37	485.00
Highest forward citations	338	13.88	33.24	0.00	2.00	11.00
Most breakthrough innovation	229	0.48	0.45	0.04	0.33	1.00
Number of publications	338	42.95	164.22	0.00	5.00	16.00
Stock of publications	338	306.75	1,056.45	5.51	47.32	129.52
Internal pay sensitivity	338	0.32	0.25	0.19	0.35	0.50
Market pay sensitivity	338	-0.39	0.26	-0.58	-0.42	-0.23

Notes: Unit of analysis is "firm-year."

Table A16. Internal pay sensitivity and individual innovation measures.

	Dependent variable					
	Number of Patents (logged) $_t$	*Stock of Patents (logged)* $_t$	*Highest Forward Citations (logged)* $_t$	*Most Breakthrough Innovation (logged)* $_t$	*Number of Publications (logged)* $_t$	*Stock of Publications (logged)* $_t$
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All workers						
Internal Pay Sensitivity $_{t-1}$	0.559***	0.600***	0.404***	0.024***	0.241	0.428**
	(0.177)	(0.223)	(0.138)	(0.009)	(0.154)	(0.192)
Knowledge Intensity $_{t-1}$	6.260***	6.349***	2.591**	0.209***	6.189***	6.768***
	(1.576)	(1.723)	(0.994)	(0.050)	(0.933)	(1.132)
Revenues (logged) $_{t-1}$	0.850***	0.857***	0.425***	0.032***	0.744***	0.927***
	(0.098)	(0.114)	(0.068)	(0.004)	(0.102)	(0.120)
Leverage $_{t-1}$	-1.919**	-1.953*	-0.435	-0.072*	-0.672	-0.695
	(0.932)	(1.044)	(0.724)	(0.041)	(0.816)	(0.975)
Observations	338	338	338	229	338	338
Adjusted R-squared	0.581	0.559	0.340	0.466	0.637	0.642
Panel B: Complex Problem Solving (Low)						
Internal Pay Sensitivity $_{t-1}$	0.489**	0.519**	0.342**	0.017*	0.153	0.297
	(0.207)	(0.250)	(0.155)	(0.010)	(0.185)	(0.236)
Knowledge Intensity $_{t-1}$	6.467***	6.560***	2.718***	0.219***	6.250***	6.882***
	(1.536)	(1.668)	(0.963)	(0.045)	(0.909)	(1.081)
Revenues (logged) $_{t-1}$	0.842***	0.850***	0.422***	0.032***	0.741***	0.923***
	(0.101)	(0.116)	(0.069)	(0.004)	(0.102)	(0.120)
Leverage $_{t-1}$	-1.850**	-1.880*	-0.387	-0.063	-0.612	-0.605

	(0.920)	(1.035)	(0.718)	(0.042)	(0.803)	(0.968)
Observations	337	337	337	229	337	337
Adjusted R-squared	0.571	0.549	0.329	0.450	0.633	0.634
Panel C: Complex Problem Solving (High)						
Internal Pay Sensitivity $_{t-1}$	0.511***	0.520**	0.365***	0.019*	0.065	0.160
	(0.164)	(0.201)	(0.116)	(0.011)	(0.135)	(0.171)
Knowledge Intensity $_{t-1}$	5.895***	5.872***	2.043**	0.213***	6.306***	6.823***
	(1.671)	(1.797)	(0.907)	(0.053)	(1.011)	(1.247)
Revenues (logged) $_{t-1}$	0.800***	0.805***	0.369***	0.029***	0.735***	0.907***
	(0.110)	(0.129)	(0.077)	(0.005)	(0.106)	(0.128)
Leverage $_{t-1}$	-1.855*	-1.851*	-0.141	-0.071	-0.656	-0.733
	(0.967)	(1.084)	(0.747)	(0.044)	(0.852)	(1.038)
Observations	316	316	316	219	316	316
Adjusted R-squared	0.588	0.569	0.347	0.457	0.636	0.636
Panel D: Complex Problem Solving (High) & Collaboration (Low)						
Internal Pay Sensitivity $_{t-1}$	1.084	1.502	0.970	0.104**	1.416**	1.905**
	(0.852)	(0.902)	(0.592)	(0.047)	(0.674)	(0.835)
Knowledge Intensity $_{t-1}$	8.086***	8.106***	2.778**	0.234***	6.607***	7.317***
	(2.125)	(2.125)	(1.261)	(0.065)	(1.235)	(1.487)
Revenues (logged) $_{t-1}$	0.808***	0.844***	0.380***	0.032***	0.777***	0.988***
	(0.125)	(0.140)	(0.088)	(0.004)	(0.115)	(0.140)
Leverage $_{t-1}$	-2.081**	-2.312**	-0.039	-0.064	-1.165	-1.357
	(1.004)	(1.153)	(0.872)	(0.049)	(0.953)	(1.136)
Observations	278	278	278	194	278	278
Adjusted R-squared	0.566	0.547	0.309	0.453	0.637	0.636
Panel E: Complex Problem Solving (High) & Collaboration (High)						
Internal Pay Sensitivity $_{t-1}$	1.096***	1.050**	0.810***	0.050**	0.047	0.276
	(0.356)	(0.428)	(0.267)	(0.021)	(0.295)	(0.390)
Knowledge Intensity $_{t-1}$	5.889***	5.874***	1.993**	0.219***	6.308***	6.822***
	(1.650)	(1.778)	(0.893)	(0.053)	(1.002)	(1.242)
Revenues (logged) $_{t-1}$	0.780***	0.787***	0.352***	0.028***	0.737***	0.903***
	(0.106)	(0.124)	(0.072)	(0.004)	(0.106)	(0.127)
Leverage $_{t-1}$	-1.620*	-1.571	-0.021	-0.075*	-0.644	-0.690
	(0.918)	(1.056)	(0.744)	(0.041)	(0.863)	(1.058)
Observations	309	309	309	214	309	309
Adjusted R-squared	0.598	0.575	0.347	0.473	0.633	0.633
Panel F: Complex Problem Solving (High) (Medium-High, Q3)						
Internal Pay Sensitivity $_{t-1}$	0.676***	0.638**	0.464***	0.021*	0.029	0.062
	(0.208)	(0.252)	(0.155)	(0.011)	(0.169)	(0.209)
Knowledge Intensity $_{t-1}$	5.806***	5.788***	1.946**	0.215***	6.310***	6.831***
	(1.681)	(1.801)	(0.921)	(0.052)	(0.999)	(1.235)
Revenues (logged) $_{t-1}$	0.794***	0.801***	0.367***	0.030***	0.737***	0.912***
	(0.109)	(0.127)	(0.075)	(0.004)	(0.106)	(0.127)
Leverage $_{t-1}$	-1.736*	-1.711	0.019	-0.063	-0.638	-0.661
	(0.930)	(1.050)	(0.727)	(0.042)	(0.834)	(1.029)
Observations	309	309	309	214	309	309
Adjusted R-squared	0.557	0.536	0.320	0.432	0.614	0.615

Panel G: Complex Problem Solving (High) (Highest, Q4)

Internal Pay Sensitivity $_{t-1}$	0.854	1.199	0.676	0.046	0.354	0.762
	(0.658)	(0.733)	(0.477)	(0.036)	(0.479)	(0.619)
Knowledge Intensity $_{t-1}$	7.925***	8.062***	2.826**	0.231***	6.747***	7.519***
	(1.945)	(1.927)	(1.200)	(0.065)	(1.189)	(1.438)
Revenues (logged) $_{t-1}$	0.817***	0.841***	0.385***	0.032***	0.754***	0.945***
	(0.110)	(0.126)	(0.077)	(0.004)	(0.105)	(0.128)
Leverage $_{t-1}$	-2.324**	-2.510**	-0.194	-0.060	-1.059	-1.241
	(0.984)	(1.133)	(0.801)	(0.050)	(0.867)	(1.079)
Observations	294	294	294	206	294	294
Adjusted R-squared	0.575	0.565	0.322	0.440	0.630	0.633
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry* FE	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Significant at ***1%, **5%, and *10%.
Unit of analysis is "firm-year."
*Industry is classified according to the SIC one-digit industry classification.

Table A17. Market pay sensitivity and innovation outcome.

	Dependent variable: Innovation outcome						
				Complex Problem Solving (High)			
Job Type	All	Complex Problem Solving (Low)	Complex Problem Solving (High)	Low Collab.	High Collab.	Medium-High (Q3)	Highest (Q4)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Market Pay	-0.150**	-0.073	-0.107	-0.155	-0.286**	-0.129*	-0.274
Sensitivity $_{t-1}$	(0.061)	(0.070)	(0.065)	(0.113)	(0.138)	(0.077)	(0.228)
Knowledge	2.184***	2.217***	2.060***	2.590***	2.055***	2.087***	2.456***
Intensity $_{t-1}$	(0.443)	(0.437)	(0.475)	(0.635)	(0.473)	(0.487)	(0.608)
Revenues (logged) $_{t-1}$	0.328***	0.328***	0.311***	0.321***	0.305***	0.320***	0.331***
	(0.036)	(0.037)	(0.041)	(0.043)	(0.040)	(0.040)	(0.040)
Leverage $_{t-1}$	-0.578	-0.496	-0.582	-0.763*	-0.560	-0.539	-0.701
	(0.353)	(0.365)	(0.365)	(0.410)	(0.353)	(0.366)	(0.429)
Constant	-2.848***	-2.862***	-2.663***	-2.735***	-2.631***	-2.751***	-2.805***
	(0.297)	(0.302)	(0.350)	(0.350)	(0.333)	(0.330)	(0.348)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry* FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	229	229	219	202	214	214	206
Adjusted R-squared	0.674	0.663	0.669	0.662	0.675	0.637	0.679

Notes: Significant at ***1%, **5%, and *10%.

Unit of analysis is "firm-year." The dependent variable is the sum of z-scored innovation measures (number and stock of patents and publications, forward citations by the most cited patent, and the breakthrough index of most breakthrough innovation). The independent variable, *Market Pay Sensitivity*, is also z-scored for interpretability.

*Industry is classified according to the SIC one-digit industry classification.

Table A18. Relationship between employee pay and internal and market pay benchmarks by pay premium/discount.

	Dependent variable: Employee pay					
Sample Type	Pay Discount (Year-Skill Level)	Pay Premium (Year-Skill Level)	All (Year-Skill Level)	Pay Discount (Year-Skill Level-Occupation-Region)	Pay Premium (Year-Skill Level-Occupation-Region)	All (Year-Skill Level-Occupation-Region)
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.043***	0.132***	0.037***	0.063***	0.099***	0.029***
	(0.014)	(0.019)	(0.007)	(0.013)	(0.016)	(0.006)
Market Pay	0.036***	0.025***	0.027***	0.113***	0.126***	0.305***
	(0.007)	(0.007)	(0.003)	(0.010)	(0.014)	(0.008)
Internal Pay			0.073*			0.146***
× Pay Difference			(0.041)			(0.029)
Market Pay			-0.056			-0.116***
× Pay Difference			(0.038)			(0.026)
Pay Difference			0.626*			0.472
			(0.322)			(0.311)
ROA	-0.042	0.077	-0.028	0.008	0.000	-0.027*
	(0.044)	(0.050)	(0.018)	(0.028)	(0.046)	(0.016)
Log Sale	0.006	0.002	0.001	0.001	0.002	0.000
	(0.006)	(0.006)	(0.003)	(0.005)	(0.006)	(0.002)
Constant	10.032***	9.645***	10.462***	9.020***	8.813***	7.434***
	(0.193)	(0.231)	(0.099)	(0.168)	(0.223)	(0.082)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	90,787	67,288	177,540	81,975	69,185	177,540
Adjusted R-squared	0.975	0.977	0.994	0.980	0.979	0.990

Notes: Significant at ***1%, **5%, and *10%.

Table A19. Sample representativeness.

	A. Firm Characteristics			
	Compustat		Sample	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
Number of employees (000's)	7.77	41.69	60.34	181.34
Revenues (millions)	2778.01	13,206.16	20326.86	45137.19
Assets (millions)	8,472.24	79,386.06	28,282.57	85,883.81
Market capitalization (millions)	4291.72	20121.26	27,092.77	59,936.27
Return on assets	-2.29	42.95	0.13	0.08

	B. Distribution by Firm Size			
	Compustat		Sample	
Firm Size	Number of Firms	% of Firms	Number of Firms	% of Firms
25001 or More Employees	322	6.22	74	44.85
10001 – 25000 Employees	399	7.70	34	20.61
5001 - 10000 Employees	429	8.28	26	15.76
2501 - 5000 Employees	492	9.50	15	9.09
1001 - 2500 Employees	620	11.97	11	6.67
501 - 1000 Employees	462	8.92	2	1.21
251 - 500 Employees	479	9.25	3	1.82
1 - 250 Employees	1,967	38.18	0	0.00

Table A20. Sample Representativeness by industry (1-digit SIC).

	A. Firm Distribution by Industry (1-digit SIC)			
	Compustat		Sample	
Industry	Number of Firms	% of Sample	Number of Firms	% of Sample
Agriculture, Forestry and Fishing (0)	18	0.30	0	0.00
Mining and Construction (1)	436	7.19	8	4.85
Food and Light Manufacturing (2)	1,034	17.06	59	35.76
Heavy and High-Tech Manufacturing (3)	1,110	18.31	20	12.12
Transportation, Communications, Electric, Gas, and Sanitary Services (4)	541	8.92	9	5.45
Wholesale and Retail Trade (5)	446	7.36	49	29.70
Finance, Insurance, and Real Estate (6)	1,446	23.85	11	6.67
Hospitality and Consumer Services (7)	760	12.54	2	1.21
Professional Services (8)	195	3.22	5	3.03
Public Administration (9)	76	1.25	2	1.21

	B. Employee Distribution by Industry (1-digit SIC)			
	Compustat		Sample	
Industry	Number of Employees	% of Employees	Number of Employees	% of Employees
Agriculture, Forestry and Fishing (0)	51,247	0.12	0	0.00
Mining and Construction (1)	1,047,696	2.48	128,300	1.30
Food and Light Manufacturing (2)	4,192,462	9.92	1,661,438	16.79
Heavy and High-Tech Manufacturing (3)	7,605,971	18.00	490,258	4.95
Transportation, Communications, Electric, Gas, and Sanitary Services (4)	5,164,396	12.22	390,500	3.95
Wholesale and Retail Trade (5)	11,825,805	27.99	6,049,896	61.14
Finance, Insurance, and Real Estate (6)	3,906,636	9.25	387,553	3.92
Hospitality and Consumer Services (7)	5,673,450	13.43	52,200	0.53
Professional Services (8)	2,164,250	5.12	518,100	5.24
Public Administration (9)	614,565	1.45	216,800	2.19

Table A21. Relationship between employee pay, benchmarks, and occupation-year-level unemployment rate.

	Dependent variable: Employee pay				
Employee skill level	All	Below median	Above median	Bottom Quartile	Top Quartile
	(1)	(2)	(3)	(4)	(5)
Internal Pay	0.001	0.004	-0.004	0.003	0.000
× Unemployment rate	(0.002)	(0.003)	(0.004)	(0.003)	(0.005)
Market Pay	-0.005**	-0.006**	-0.006	-0.005	-0.005
× Unemployment rate	(0.002)	(0.003)	(0.004)	(0.003)	(0.004)
Internal Pay	0.112***	0.050**	0.226***	0.056**	0.241***
	(0.021)	(0.024)	(0.029)	(0.022)	(0.030)
Market Pay	0.071***	0.070***	0.080***	0.064***	0.072***
	(0.015)	(0.019)	(0.024)	(0.019)	(0.024)
Unemployment rate	0.041***	0.014	0.122**	0.018	0.052
	(0.014)	(0.023)	(0.050)	(0.032)	(0.060)
ROA	-0.022	-0.068	0.100*	0.000	0.088
	(0.047)	(0.056)	(0.055)	(0.050)	(0.064)
Log Sale	0.006	0.010*	-0.007	0.008*	-0.005
	(0.006)	(0.006)	(0.008)	(0.005)	(0.008)
Constant	9.070***	9.474***	8.132***	9.350***	8.161***
	(0.238)	(0.245)	(0.377)	(0.241)	(0.375)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	172,742	96,986	72,382	54,023	34,853
Adjusted R-squared	0.965	0.940	0.899	0.930	0.873

Notes: Significant at ***1%, **5%, and *10%.
Since unemployment rates are provided at either occupation or region level (but not at combined level), we conduct the analyses separately.
For each occupation-year, we compute the unemployment rate using BLS data on employment and unemployment. Table 17 and Table 32, respectively, from https://www.bls.gov/cps/tables.htm.
We follow the BLS definition of unemployment rate from https://www.bls.gov/cps/cps_htgm.htm#nilf.

Table A22. Relationship between employee pay, benchmarks, and region-year-level unemployment rate.

	Dependent variable: Employee pay				
Employee skill level	All	Below median	Above median	Bottom Quartile	Top Quartile
	(1)	(2)	(3)	(4)	(5)
Internal Pay	0.000	0.000	0.000	0.000	-0.002***
× Unemployment rate	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Market Pay	0.000	0.000	0.000	0.001***	0.001
× Unemployment rate	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
Internal Pay	0.120***	0.072***	0.202***	0.067***	0.256***
	(0.019)	(0.019)	(0.029)	(0.018)	(0.027)
Market Pay	0.046***	0.036***	0.052***	0.031***	0.044***
	(0.009)	(0.010)	(0.014)	(0.011)	(0.016)
Unemployment rate	0.002	-0.005**	0.007*	-0.013***	0.015*
	(0.002)	(0.002)	(0.004)	(0.003)	(0.008)
ROA	-0.023	-0.075	0.112*	-0.010	0.100
	(0.049)	(0.059)	(0.061)	(0.053)	(0.069)
Log Sale	0.006	0.009	-0.007	0.007	-0.004
	(0.007)	(0.006)	(0.008)	(0.005)	(0.009)
Constant	9.217***	9.571***	8.705***	9.534***	8.255***
	(0.235)	(0.231)	(0.316)	(0.206)	(0.330)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	150,346	85,176	62,889	48,285	30,921
Adjusted R-squared	0.965	0.939	0.897	0.927	0.872

Notes: Significant at ***1%, **5%, and *10%.
BLS tracks unemployment and employment data at a county level (see "Annual Average Data" at "County" level on https://www.bls.gov/lau/tables.htm). We aggregate this data to our region level.

Table A23. Relationship between employee pay, benchmarks, and labor market concentration.

	Dependent variable: Employee pay		
	(1)	(2)	(3)
Internal Pay	0.389**	0.142	0.029
× Labor Market HHI	(0.156)	(0.140)	(0.103)
Market Pay	-0.353**	-0.265*	
× Labor Market HHI	(0.139)	(0.153)	
Internal Pay		0.761***	0.630***
× Knowledge Intensity		(0.178)	(0.179)
Market Pay		-0.283***	
× Knowledge Intensity		(0.077)	
Internal Pay	-0.053	0.021	0.080
	(0.073)	(0.076)	(0.059)
Market Pay	0.202***	0.187**	0.037**
	(0.072)	(0.083)	(0.016)
Knowledge Intensity		-5.596***	-7.313***
		(1.739)	(2.055)
Labor Market HHI	-0.643	1.156	-0.524
	(1.160)	(1.228)	(1.122)
ROA	-0.001	0.023	0.032
	(0.063)	(0.090)	(0.091)
Log Sale	0.000	-0.002	-0.002
	(0.010)	(0.014)	(0.015)
Constant	9.606***	8.947***	9.944***
	(0.614)	(0.749)	(0.688)
Firm-Skill Level-Occupation-Region FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	60,880	98,778	48,341
Adjusted R-squared	0.967	0.966	0.968

Notes: Significant at ***1%, **5%, and *10%.

Table A24. Relationship between employee pay, pay benchmarks, and employee tenure.

	Dependent variable: Employee pay		
Tenure type	Firm-Year-Skill Level	Firm-Year-Occupation-Skill Level	Firm-Year-Occupation-Skill Level-Region Level
	(1)	(2)	(3)
Internal Pay	0.009	0.002	0.004
× Above-Median Tenure	(0.010)	(0.009)	(0.008)
Market Pay	-0.022	-0.019	-0.022*
× Above-Median Tenure	(0.019)	(0.016)	(0.012)
Internal Pay	0.100*	0.100*	0.093*
	(0.053)	(0.052)	(0.053)
Market Pay	0.113***	0.114***	0.115***
	(0.037)	(0.039)	(0.039)
Above Median Tenure	0.205	0.250**	0.245**
	(0.142)	(0.108)	(0.098)
Constant	8.635***	8.642***	8.702***
	(0.588)	(0.562)	(0.581)
Firm FE, Occupation FE, Skill Level FE, Region FE*	Yes	Yes	Yes
Observations	21,815	22,366	21,651
Adjusted R-squared	0.908	0.908	0.907

Notes: Significant at ***1%, **5%, and *10%.
Unit of analysis is "firm-year-skill-occupation-region-FSHC."
The company collected tenure data only in the last year (2020) of our sample, which we have for 73% of the records from that year. So, an important caveat is that this analysis covers a small portion of our data. That said, this subsample exhibits the same broad patterns as our main sample does, so it appears to be representative of our full dataset. To conduct this test, we cannot apply the main model with four-way interacted fixed effects (firm-skill-occupation-region) and year fixed effects. Instead, we use firm fixed effects, skill level fixed effects, occupation fixed effects, and region fixed effects.
We split this subsample into two groups based on the median employee tenure. We try this split this in three ways: by firm-year-level in Column 1; by firm-year-occupation-level in Column 2; and by firm-year-occupation-skill level-region level in Column 3).

Table A25. Relationship between employee pay and internal and market pay benchmarks, internal pay benchmark moderated by surplus.

Dependent variable	*Cash compensation*	*Base salary*	*Bonus*
	(1)	(2)	(3)
Internal Pay × ROA	-0.085	-0.102*	-0.346
	(0.056)	(0.059)	(0.370)
Internal Pay	0.127***	0.076***	0.558***
	(0.022)	(0.018)	(0.053)
Market Pay	0.044***	0.041***	0.035**
	(0.009)	(0.008)	(0.017)
ROA	0.952	1.067	3.403
	(0.631)	(0.648)	(2.673)
Log Sale	0.000	0.001	-0.015
	(0.008)	(0.006)	(0.228)
Constant	9.241***	9.793***	1.135
	(0.270)	(0.213)	(2.152)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	120,880	120,880	120,880
Adjusted R-squared	0.967	0.969	0.752

Notes: Significant at ***1%, **5%, and *10%.
The benchmarks correspond to their respective pay component. For example, in Column 2, *Internal Pay* and *Market Pay* are calculated using base salaries.
The number of observations is less than 177,540 because ROA is available for public firms only.

Table A26. Relationship between employee pay and internal and market pay benchmarks, moderated by surplus and knowledge intensity.

Dependent variable	*Cash compensation*	*Cash compensation*	*Base salary*	*Base salary*	*Bonus*	*Bonus*
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.611***	0.615***	0.268***	0.273***	0.645***	0.644***
× Knowledge Intensity	(0.156)	(0.154)	(0.074)	(0.074)	(0.159)	(0.157)
Internal Pay		-0.092		-0.079		-0.256
× ROA		(0.085)		(0.063)		(0.469)
Internal Pay	0.090***	0.102***	0.045***	0.055***	0.507***	0.535***
	(0.020)	(0.021)	(0.016)	(0.017)	(0.047)	(0.063)
Market Pay	0.046***	0.046***	0.045***	0.045***	0.035**	0.033**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.017)	(0.017)
Knowledge Intensity	-7.076***	-7.116***	-3.076***	-3.128***	-7.628***	-7.619***
	(1.779)	(1.762)	(0.831)	(0.837)	(2.109)	(2.115)
ROA	0.030	1.063	-0.062	0.821	2.122*	3.848
	(0.062)	(0.969)	(0.05)	(0.702)	(1.131)	(3.481)
Log Sale	0.001	0.001	0.000	0.001	-0.250	-0.256
	(0.011)	(0.011)	(0.007)	(0.007)	(0.214)	(0.211)
Constant	9.624***	9.483***	10.089***	9.976***	3.928*	3.802*
	(0.283)	(0.282)	(0.203)	(0.211)	(2.129)	(2.141)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	98,778	98,778	98,778	98,778	98,778	98,778
Adjusted R-squared	0.966	0.966	0.969	0.969	0.768	0.768

Notes: Significant at ***1%, **5%, and *10%.
The number of observations is smaller in Column 2 because *Knowledge Intensity* is available for a subset of public firms only.

Table A27. Relationship between employee pay and internal and market pay benchmarks, market pay benchmark moderated by ROA.

	Dependent variable: Employee pay			
ROA split type	Below-Median ROA (Year Level)	Above-Median ROA (Year Level)	Below-Median ROA (Year-Industry Level)	Above-Median ROA (Year-Industry Level)
	(1)	(2)	(3)	(4)
Internal Pay	0.124***	0.100***	0.133***	0.076***
	(0.030)	(0.032)	(0.035)	(0.025)
Market Pay	0.033***	0.044***	0.038***	0.048***
	(0.010)	(0.014)	(0.011)	(0.014)
ROA	0.041	-0.126*	0.075	-0.111
	(0.074)	(0.070)	(0.087)	(0.072)
Log Sale	0.001	-0.005	0.005	0.002
	(0.007)	(0.021)	(0.009)	(0.015)
Constant	9.39***	9.611***	9.189***	9.769***
	(0.311)	(0.497)	(0.360)	(0.428)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	59,481	46,460	58,034	47,232
Adjusted R-squared	0.975	0.961	0.974	0.963

Notes: Significant at ***1%, **5%, and *10%.

Table A28. Relationship between employee pay and internal and market pay benchmarks by employee type in **low-knowledge** firms.

			Dependent variable: Employee pay			
			Complex Problem Solving (High)			
Job Type	Complex Problem Solving (Low)	Complex Problem Solving (High)	Low Collab.	High Collab.	High-Highest (Q3)	Highest (Q4)
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.046**	0.083***	0.068***	0.095***	0.094***	0.073***
	(0.020)	(0.014)	(0.019)	(0.015)	(0.014)	(0.024)
Market Pay	0.044***	0.080***	0.019	0.122***	0.002	0.150***
	(0.014)	(0.018)	(0.027)	(0.023)	(0.016)	(0.027)
ROA	-0.149**	0.088	0.111	0.074	0.058	0.141*
	(0.063)	(0.060)	(0.077)	(0.057)	(0.067)	(0.079)
Log Sale	0.007	0.006	0.009	0.004	-0.002	0.025
	(0.010)	(0.009)	(0.009)	(0.012)	(0.008)	(0.018)
Constant	9.877***	9.511***	10.157***	9.008***	10.302***	8.744***
	(0.309)	(0.215)	(0.349)	(0.306)	(0.216)	(0.396)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	53,053	17,305	5,752	11,553	10,908	6,397
Adjusted R-squared	0.953	0.949	0.938	0.939	0.951	0.939

Notes: Significant at ***1%, **5%, and *10%.

Table A29. Relationship between employee pay and internal and market pay benchmarks by employee type in **high-knowledge** firms.

			Dependent variable: Employee pay			
			Complex Problem Solving (High)			
Job Type	Complex Problem Solving (Low)	Complex Problem Solving (High)	Low Collab.	High Collab.	High-Highest (Q3)	Highest (Q4)
	(1)	(2)	(3)	(4)	(5)	(6)
Internal Pay	0.296***	0.427***	0.287***	0.471***	0.521***	0.389***
	(0.042)	(0.050)	(0.060)	(0.051)	(0.052)	(0.056)
Market Pay	0.020***	0.003	0.014	-0.001	-0.004	0.010
	(0.007)	(0.013)	(0.015)	(0.016)	(0.020)	(0.015)
ROA	0.108	0.107	0.000	0.138**	0.171**	0.080
	(0.068)	(0.072)	(0.110)	(0.062)	(0.071)	(0.099)
Log Sale	0.002	0.012	0.022	0.006	0.002	0.014
	(0.008)	(0.010)	(0.016)	(0.008)	(0.010)	(0.012)
Constant	7.687***	6.463***	7.690***	6.101***	5.551***	6.797***
	(0.473)	(0.589)	(0.686)	(0.617)	(0.679)	(0.657)
Firm-Occupation-Skill Level-Region FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	30,511	24,028	6,533	17,495	9,955	14,073
Adjusted R-squared	0.961	0.957	0.943	0.947	0.948	0.963

Notes: Significant at ***1%, **5%, and *10%.