

Internet Appendix

Table IA-1: Compensation Benchmark Peer Selection: Alternative Matching Approaches

This table contains additional results from our compensation benchmark peer selection analysis using an alternative matching procedure. In Panel A, we run the logistic regression based on a randomly matched sample in which we randomly select 50 firms for each firm i -firm j pair of an actual compensation benchmarking pair. In Panel B, we repeat the logistic regression based on a year/industry/size-matched sample (see Section II.B for details). We define COMPENSATION_PEER_DUMMY, which equals one if firm j is an actual compensation benchmarking peer, and zero otherwise. For each firm-by-firm pair, we also measure TECH_SIMILARITY, defined as the Jaffe (1986) similarity measure of patent portfolios between firm i and firm j . The same set of control variables used in Table 2 is also included. We estimate the logistic regression model with various fixed effects, including year (columns 2 and 6), year and industry (columns 3 and 7), and peer group fixed effects (columns 4 and 8), where the peer group is defined as a cluster of pairs grouped by firm i -year. t -statistics based on standard errors double clustered by firms i and j are reported in parentheses, except for the group fixed effects models in which the standard errors are clustered at the firm i level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Panel A. Industry/Size-Matched Sample

	Dependent Variable: COMPENSATION_PEER_DUMMY							
	1	2	3	4	5	6	7	8
TECH_SIMILARITY	17.838*** (14.11)	15.019*** (12.88)	21.834*** (14.69)	31.089*** (17.72)	22.978*** (14.76)	16.164*** (12.22)	20.776*** (13.61)	26.632*** (15.70)
PROD_MARKET_SIM						1.551*** (3.02)	2.060*** (4.74)	3.194*** (7.95)
SAME_INDUSTRY		0.944 (-0.52)	1.586*** (4.18)	2.361*** (8.88)		0.849 (-1.15)	1.203 (1.37)	1.550*** (3.93)
WITHIN60MI		1.760*** (5.48)	2.344*** (7.73)	2.969*** (11.04)		1.705*** (4.65)	2.139*** (6.47)	2.655*** (9.65)
STOCK_RETURN_CORR		3.606*** (6.30)	4.537*** (8.27)	6.264*** (8.81)		4.017*** (6.32)	4.377*** (7.41)	6.222*** (9.28)
BETA_DIFF		1.126 (1.04)	1.289** (2.10)	1.433*** (2.68)		1.145 (1.18)	1.228* (1.69)	1.384** (2.35)
VOLATILITY_DIFF		1000.399 (1.44)	353.516 (1.38)	472768.216** (2.07)		1163.898 (1.43)	394.229 (1.36)	19640.488* (1.76)
HHI_DIFF		0.168 (-1.22)	0.000*** (-12.56)	0.000*** (-3.68)		0.144 (-1.21)	0.000*** (-11.32)	0.000*** (-24.43)
THREE_YEAR_RETURN_DIFF		1.126*** (3.74)	1.128*** (3.80)	1.260*** (5.60)		1.149*** (3.96)	1.148*** (3.55)	1.273*** (6.01)
SIZE_DIFF		1.020 (0.49)	0.993 (-0.15)	0.962 (-1.28)		1.007 (0.16)	0.999 (-0.02)	0.962 (-1.15)
LEVERAGE_DIFF		1.059 (0.27)	0.933 (-0.35)	1.402* (1.86)		1.091 (0.40)	0.889 (-0.60)	1.247 (0.99)
MB_DIFF		0.868*** (-4.16)	0.853*** (-4.22)	0.766*** (-7.52)		0.874*** (-3.82)	0.867*** (-3.62)	0.789*** (-6.48)
CASH_RATIO_DIFF		0.739 (-1.34)	1.117 (0.50)	1.838** (2.51)		0.770 (-1.09)	1.097 (0.40)	1.676* (1.91)
COMPENSATION_DIFF		1.000 (-1.14)	1.000 (-0.61)	1.000 (-0.63)		1.000 (-0.87)	1.000 (-0.43)	1.000 (-0.24)
Year FE	No	Yes	Yes	No	No	Yes	Yes	No
Industry FE	No	No	Yes	No	No	No	Yes	No
Peer Group FE	No	No	No	Yes	No	No	No	Yes
N	57,306	57,306	57,306	57,306	42,770	42,770	4,2770	42,770
Pseudo-R ²	0.054	0.080	0.174	0.198	0.067	0.098	0.171	0.205

Panel B. Industry/Size/BTM-Matched Sample

	Dependent Variable: COMPENSATION PEER DUMMY							
	1	2	3	4	5	6	7	8
TECH_SIMILARITY	2.710*** (9.88)	2.579*** (10.16)	2.933*** (10.47)	3.802*** (15.41)	2.843*** (10.01)	2.503*** (9.24)	2.700*** (9.24)	3.477*** (12.78)
PROD_MARKET _SIM						0.190 (0.77)	0.537** (2.43)	1.090*** (5.36)
SAME_INDUSTRY		-0.091 (-0.64)	0.428*** (3.04)	0.988*** (8.01)		0.000 (0.00)	0.309* (1.76)	0.661*** (5.14)
WITHIN60MI		0.659*** (4.54)	0.958*** (6.16)	1.304*** (8.45)		0.627*** (3.83)	0.868*** (5.13)	1.174*** (7.05)
STOCK_RETURN _CORR		0.920*** (3.81)	1.251*** (5.69)	1.604*** (6.22)		1.162*** (4.51)	1.330*** (5.50)	1.690*** (7.37)
BETA_DIFF		0.255 (1.40)	0.394** (2.10)	0.645*** (4.25)		0.279 (1.44)	0.358* (1.79)	0.683*** (4.13)
VOLATILITY _DIFF		6.367 (0.91)	3.737 (0.56)	8.512 (0.98)		4.280 (0.58)	1.924 (0.26)	0.526 (0.08)
HHI_DIFF		-0.821 (-0.96)	-23.858*** (-8.65)	-25.042* (-1.80)		-0.772 (-0.79)	-24.610*** (-7.68)	-26.652*** (-19.79)
THREE_YEAR _RETURN_DIFF		0.200*** (3.53)	0.195*** (2.81)	0.298*** (6.63)		0.213*** (3.58)	0.219*** (2.83)	0.321*** (7.34)
SIZE_DIFF		0.053 (0.90)	0.008 (0.10)	0.012 (0.26)		0.013 (0.22)	-0.013 (-0.16)	-0.015 (-0.31)
LEVERAGE_DIFF		0.060 (0.19)	-0.054 (-0.18)	0.279 (1.21)		0.108 (0.33)	-0.012 (-0.04)	0.377 (1.41)
MB_DIFF		-0.068 (-1.37)	-0.097* (-1.83)	-0.115*** (-2.67)		-0.062 (-1.25)	-0.078 (-1.39)	-0.105*** (-2.60)
CASH_RATIO_DIFF		0.232 (0.63)	0.579 (1.60)	1.082*** (3.48)		0.360 (0.93)	0.621 (1.63)	1.322*** (3.96)
COMPENSATION _DIFF		-9.825 (-1.30)	-9.404 (-1.16)	-11.879** (-2.13)		-6.455 (-0.80)	-7.277 (-0.86)	-7.765 (-1.23)
Year FE	No	Yes	Yes	No	No	Yes	Yes	No
Industry FE	No	No	Yes	No	No	No	Yes	No
Peer Group FE	No	No	No	Yes	No	No	No	Yes
N	17,581	17,581	17,581	17,581	12,936	12,936	12,936	12,936
Pseudo-R ²	0.043	0.070	0.152	0.208	0.050	0.081	0.152	0.221

Table IA-2: Compensation Peer Group: TNIC Industry

This table reports the estimates of the logistic regression model of the compensation benchmarking peer firm selection from equation (2) using an alternative definition of industry based on Hoberg and Phillip's (2010, 2016) text-based network industry classification (TNIC). The sample consists of firm-by-firm (firm i and firm j) pair-level observations of U.S. public firms from 2006 to 2010. The dependent variable is COMPENSATION_PEER_DUMMY, which equals one if firm j is used in benchmarking compensation for firm i , and zero otherwise. Our main independent variable is TECH_SIMILARITY, defined as the Jaffe (1986) similarity measure of patent portfolios between the i and j firm pair. All other explanatory variables are defined in Table 2, but instead of the SAME_INDUSTRY dummy variable, we include SAME_TNIC_INDUSTRY, equal to one if firm i and firm j are from the same TNIC industry. Columns 1–3 report the estimates using the full sample using a univariate model, year fixed effects model, and peer group fixed effects model, respectively. Columns 4–6 report the estimates from the restricted sample of peers in the same TNIC industry, with a univariate model, year fixed effects model, and peer group fixed effects model, respectively. A peer group is defined as a cluster of pairs grouped by firm i -year. t -statistics based on standard errors double clustered by firms i and j are reported in parentheses, except for the group fixed effects models in which the standard errors are clustered at the firm i level. $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

	Dependent Variable: COMPENSATION_PEER_DUMMY					
	Total Sample			Within-TNIC Industry		
	1	2	3	4	5	6
TECH_SIMILARITY	5.003*** (36.55)	3.683*** (26.24)	3.842*** (27.02)	2.037*** (10.54)	1.980*** (10.11)	2.218*** (11.65)
SAME_TNIC_INDUSTRY		1.347*** (13.18)	2.001*** (19.08)			
WITHIN60MI		0.592*** (5.99)	0.919*** (11.04)		0.095 (0.78)	0.524*** (4.79)
STOCK_RETURN_CORR		2.508*** (13.42)	2.683*** (16.85)		2.371*** (8.89)	2.730*** (12.11)
BETA_DIFF		-0.092 (-1.05)	0.052 (0.55)		-0.278** (-2.37)	0.088 (0.72)
VOLATILITY_DIFF		14.724*** (3.66)	22.989*** (6.49)		12.845*** (2.62)	14.452*** (2.79)
HHI_DIFF		2.758*** (3.52)	2.086*** (4.67)		3.874 (1.30)	-0.105 (-0.07)
THREE_YEAR_RETURN_DIFF		0.076*** (2.65)	0.156*** (5.99)		0.122*** (3.01)	0.103** (2.23)
SIZE_DIFF		-0.185*** (-6.34)	-0.406*** (-11.68)		-0.237*** (-4.63)	-0.309*** (-6.44)
LEVERAGE_DIFF		-0.373** (-1.96)	-0.167 (-1.00)		-0.425 (-1.51)	-0.459 (-1.63)
MB_DIFF		-0.132*** (-4.37)	-0.230*** (-10.59)		-0.092** (-2.36)	-0.187*** (-4.77)
CASH_RATIO_DIFF		-0.045 (-0.23)	0.877*** (4.41)		-0.031 (-0.14)	0.551** (2.35)
COMPENSATION_DIFF		-2.462 (-0.46)	3.483 (1.09)		-4.759 (-0.80)	0.516 (0.07)
Year FE	No	Yes	No	No	Yes	No
Industry FE	No	No	No	No	No	No
Peer Group FE	No	No	Yes	No	No	Yes
N	609,322	609,322	609,322	17,428	17,428	16,721
Pseudo-R ²	0.105	0.181	0.256	0.040	0.123	0.180

Table IA-3: Peer Firm Selection and Managerial Entrenchment

This table reports whether the relation between TECH_SIMILARITY and compensation peer firm selection varies with managerial entrenchment, using the Entrenchment Index from Bebchuk et al. (2009). We define observations as HIGH_E_INDEX for firm-years with above-median values of the E_INDEX. The sample is the peers-of-peer-matched sample from Table 2, Panel B. The dependent variable is COMPENSATION_PEER_DUMMY, which equals one if firm j is an actual compensation benchmarking peer, and zero otherwise. The main independent variable is TECH_SIMILARITY, defined as the Jaffe (1986) similarity measure of patent portfolios between the firm pair i - j . The same set of control variables used in Table 2 are also included. We estimate the logistic regression model with various fixed effects, including year (columns 1 and 4), year and industry (columns 2 and 5, and peer group fixed effects (columns 3 and 6), where peer group is defined as a cluster of pairs grouped by firm i -year. t -statistics based on standard errors double clustered by firms i and j are reported in parentheses, except for the group fixed effects models in which the standard errors are clustered at the firm i level. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

	Dependent Variable: COMPENSATION_PEER_DUMMY					
	1	2	3	4	5	6
TECH_SIMILARITY	2.118*** (16.43)	2.255*** (17.06)	2.698*** (17.22)	2.117*** (14.70)	2.194*** (14.92)	2.564*** (14.38)
TECH_SIMILARITY × HIGH_E_INDEX	0.204 (1.04)	0.069 (0.36)	0.222 (1.07)	0.178 (0.79)	0.091 (0.41)	0.352 (1.53)
HIGH_E_INDEX	0.014 (0.16)	0.042 (0.47)		0.107 (1.05)	0.076 (0.71)	
Product Market Similarity Control	No	No	No	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	Yes	No	Yes	Yes
Peer Group FE	No	No	Yes	No	No	Yes
N	55,755	55,755	55,755	39,990	39,990	39,990
Pseudo- R^2	0.073	0.084	0.099	0.080	0.090	0.109

Table IA-4. The Effect of IDD Rejection on Compensation Benchmarking Peer Firm Selection

This table examines the effect of the rejection of the Inevitable Disclosure Doctrine (IDD) on compensation benchmarking peer firm selection using logistic regressions. The dependent variable is the COMPENSATION_PEER_DUMMY, which equals one if firm j is used in benchmarking compensation for firm i , and zero otherwise. Our main independent variable is IDD, defined as an indicator variable that equals one if a pair of firms in a given year is in states that have rejected the IDD, and zero otherwise. Other control variables are defined as in Table 2. Each difference between two firms is defined as the value for firm i minus the value for firm j . t -statistics based on standard errors clustered by both firms i and j are reported in parentheses. $*p < 0.1$; $**p < 0.05$; $***p < 0.01$.

	Dependent Variable: COMPENSATION_PEER_DUMMY		
	1	2	3
IDD	0.758*** (9.04)	1.048*** (7.23)	0.732*** (4.03)
SAME_INDUSTRY		1.872*** (10.26)	1.995*** (11.18)
PROD_MARKET_SIM		1.052*** (5.57)	1.401*** (6.28)
WITHIN60MI		0.616*** (4.20)	0.787*** (5.08)
STOCK_RETURN_CORR		2.908*** (10.78)	3.160*** (11.98)
BETA_DIFF		-0.097 (-0.71)	0.119 (0.77)
VOLATILITY_DIFF		9.738* (1.96)	7.950 (1.50)
HHI_DIFF		1.409* (1.77)	0.412 (0.38)
THREE_YEAR_RETURN_DIFF		0.110** (2.34)	0.103* (1.94)
SIZE_DIFF		-0.240*** (-5.21)	-0.283*** (-4.62)
LEVERAGE_DIFF		0.220 (0.85)	0.054 (0.21)
MB_DIFF		-0.147*** (-3.24)	-0.163*** (-2.90)
CASH_RATIO_DIFF		-0.118 (-0.48)	0.137 (0.50)
COMPENSATION_DIFF		-0.000 (-0.62)	-0.000 (-0.79)
Year FE	No	Yes	Yes
Industry FE	No	No	Yes
Observations	247,319	128,298	126,198
Pseudo-R ²	0.00879	0.192	0.224

Table IA-5: Additional Cross-Sectional Variations

This table examines whether the relation between TECH_SIMILARITY and compensation peer firm selection varies depending on a subsample of firms divided by firm size and the level of patent output. Firms are grouped into SMALL versus LARGE based on the median level of sales each year, and into LOW_PATENT versus HIGH_PATENT based on the median level of total patent output each year. Columns 1 and 2 report the estimates from the logistic regression with year and industry fixed effects and with peer group fixed effects, respectively, for SMALL firms. We repeat the regression for LARGE firms in columns 3 and 4, the LOW_PATENT group in columns 5 and 6, and the HIGH_PATENT group in columns 7 and 8. Control variables from Table 2 are also included, but not reported, to conserve space. *t*-statistics based on standard errors clustered by both firms *i* and *j* are reported in parentheses. **p* < 0.1; ***p* < 0.05; ****p* < 0.01.

	Dependent Variable: COMPENSATION_PEER_DUMMY							
	SMALL		LARGE		LOW PATENT		HIGH PATENT	
	1	2	3	4	5	6	7	8
TECH_SIMILARITY	3.255*** (12.89)	3.731*** (17.03)	4.129*** (16.38)	3.863*** (16.40)	3.102*** (13.55)	3.408*** (14.19)	4.097*** (18.39)	3.780*** (18.05)
Additional Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No	Yes	No	Yes	No
Industry FE	Yes	No	Yes	No	Yes	No	Yes	No
Peer Group FE	No	Yes	No	Yes	No	Yes	No	Yes
N	207,433	207,433	223,853	223,853	209,187	209,187	222,099	222,099
Pseudo- <i>R</i> ²	0.233	0.281	0.290	0.352	0.194	0.223	0.258	0.331