

Internet Appendix for

**“Do Hedge Funds Possess Private Information about IPO Stocks?
Evidence from Post-IPO Holdings”**

Internet Appendix A1. Descriptive statistics of connected and nonconnected hedge fund holdings

For each quarter from 1994 to 2010, we report the number of connected hedge fund-IPO pairs (Connected Pair) and the number of nonconnected hedge fund-IPO pairs (Nonconnected Pair). A hedge fund's holding in a particular IPO stock is a hedge fund-IPO pair. A hedge fund-IPO pair is defined as "connected" if at least one of the hedge fund's prime brokers is among the lead underwriters for the IPO. Otherwise, a hedge fund-IPO pair is classified as "nonconnected".

Time	Whole sample		Excluding pre-IPO ownership	
	Connected pair	Nonconnected pair	Connected pair	Nonconnected pair
1994Q1	9	193	9	193
1994Q2	18	262	18	262
1994Q3	20	287	20	287
1994Q4	25	411	25	410
1995Q1	36	523	36	522
1995Q2	66	683	66	680
1995Q3	72	882	72	879
1995Q4	116	1,248	116	1,245
1996Q1	113	1,304	113	1,301
1996Q2	122	1,261	122	1,256
1996Q3	112	1,380	112	1,375
1996Q4	127	1,479	127	1,475
1997Q1	115	1,493	115	1,490
1997Q2	133	1,571	133	1,568
1997Q3	157	1,839	157	1,837
1997Q4	144	1,691	144	1,688
1998Q1	180	1,835	180	1,829
1998Q2	160	1,543	160	1,538
1998Q3	131	1,104	131	1,099
1998Q4	118	1,121	118	1,118
1999Q1	149	1,202	149	1,200
1999Q2	180	1,122	180	1,120
1999Q3	214	1,520	212	1,513
1999Q4	352	2,127	348	2,113
2000Q1	336	1,910	329	1,890
2000Q2	311	1,748	303	1,722
2000Q3	305	2,004	294	1,975
2000Q4	284	1,996	274	1,966
2001Q1	283	1,702	278	1,680
2001Q2	241	1,611	236	1,591
2001Q3	185	1,223	180	1,205
2001Q4	195	1,235	191	1,219
2002Q1	169	1,106	165	1,096
2002Q2	139	920	137	913
2002Q3	128	699	128	695
2002Q4	105	624	105	621
2003Q1	88	593	88	591
2003Q2	88	574	88	572
2003Q3	92	604	92	602
2003Q4	92	581	92	581
2004Q1	118	689	118	688
2004Q2	121	625	121	621

2004Q3	136	740	136	735
2004Q4	203	989	203	984
2005Q1	247	1,142	247	1,137
2005Q2	264	1,247	263	1,241
2005Q3	302	1,424	302	1,417
2005Q4	305	1,436	305	1,431
2006Q1	322	1,545	322	1,540
2006Q2	338	1,414	338	1,408
2006Q3	309	1,340	309	1,335
2006Q4	360	1,369	360	1,366
2007Q1	345	1,450	345	1,446
2007Q2	452	1,609	452	1,601
2007Q3	435	1,428	435	1,421
2007Q4	426	1,469	426	1,460
2008Q1	368	1,322	368	1,314
2008Q2	310	1,268	310	1,261
2008Q3	258	1,030	258	1,023
2008Q4	193	843	193	837
2009Q1	190	770	190	765
2009Q2	153	588	153	588
2009Q3	122	467	122	467
2009Q4	101	256	101	256
2010Q1	88	199	88	199
2010Q2	88	220	87	220
2010Q3	112	279	111	278
2010Q4	189	396	188	394
Total	4,983	29,950	4,968	29,867

Internet Appendix B1. Summary statistics for the hedge fund and IPO samples, 1994 to 2010 (Excluding pre-IPO ownership)

The hedge fund sample consists of 1,003 hedge fund management companies with Form 13F filings, of which 690 are obtained from Bloomberg and 537 from Hedge Fund Research (HFR), with 224 contained in both databases. The IPO sample consists of 4,165 stocks. Columns (1)–(3) present the year-by-year number of hedge funds. Column (4) reports the year-by-year number of IPOs. Column (5) reports the percentage of IPO stocks held by all hedge funds at the first report date. Column (6) reports the percentage of IPO stocks held by the 113 funds that are included in the database from the beginning of the sample period (year 1994). Columns (7) and (8) present the percentage of shares held by hedge funds (*HFP*) and the number of hedge funds investing in each stock (*HFN*). For each quarter t and each stock i , *HFP* and *HFN* are calculated by aggregating across hedge fund j :

$$HFP_{t,i} = \frac{\sum_{j=1}^N \text{Number of shares held}_{t,i,j}}{\text{Total shares outstanding}_{t,i}} \text{ and } HFN_{t,i} = \sum_{j=1}^N HFD_{t,i,j}, \text{ where } HFD_{t,i,j} = 1 \text{ if } \text{Number of shares held}_{t,i,j} > 0, \text{ and } 0 \text{ otherwise.}$$

We exclude holdings by pre-IPO owners. At the end of each quarter, cross-sectional averages of *HFP* and *HFN* for IPO stocks are calculated. Then yearly averages are taken over the four quarters within a year.

Year	(1) No. of hedge funds in Bloomberg	(2) No. of hedge funds in HFR	(3) Total no. of hedge funds	(4) Total no. of IPOs	(5) % IPO stocks held by hedge funds	(6) % IPO stocks held by the 113 hedge funds that filed Form 13F in 1994	(7) <i>HFP</i>	(8) <i>HFN</i>
1994	58	90	113	407	65.60	65.60	2.41	1.52
1995	72	108	137	456	73.90	72.15	2.53	2.25
1996	77	113	146	681	72.25	69.46	2.34	1.93
1997	107	140	187	465	71.18	67.31	2.96	2.32
1998	122	159	215	287	68.64	63.41	2.67	2.52
1999	139	179	245	457	87.09	80.53	2.62	4.11
2000	164	196	278	342	90.35	85.09	3.11	4.71
2001	167	200	283	72	94.44	83.33	4.98	7.01
2002	219	223	342	66	89.39	83.33	8.21	7.97
2003	268	248	398	67	92.54	82.09	6.87	6.92
2004	326	287	473	169	95.27	84.62	7.25	7.33
2005	404	320	561	162	89.51	73.46	9.29	8.49
2006	487	357	657	161	90.68	82.61	6.51	8.19
2007	562	384	746	198	87.37	69.70	9.75	9.07
2008	575	387	760	29	79.31	65.52	7.99	10.72
2009	605	350	747	45	66.67	55.56	4.77	8.08
2010	669	318	770	101	86.14	63.37	7.48	7.47
1994-2010	690	537	1,003	4,165	78.87	72.85	5.40	5.92

Internet Appendix B2. Characteristics of IPO stocks with versus without hedge funds at the first report date (Excluding pre-IPO ownership)

The sample consists of 4,165 IPOs. We exclude holdings by pre-IPO owners. Deal characteristics include *Offer size* as the total amount of capital raised by the issuer, *Offer price revision* as the percentage difference between the offer price and the midpoint of the initial filing range, *Underwriter rank* as a number ranging from zero to nine, with higher ranks representing higher quality, and *VC-backed dummy* as an indicator variable that equals one if the IPO firm is backed by venture capitalists. Firm characteristics consist of *Firm age* as the number of years from the founding date of the firm to the IPO offer date, *Asset liquidity* as the ratio of working capital over total assets, *Profitability dummy* as an indicator variable that equals one if EBIT is larger than zero, *Asset turnover* as the ratio of sales over total assets, *Leverage* as the ratio of total debt over total assets, *High-tech dummy* as an indicator variable that equals one if the IPO firm comes from a high-tech industry as defined in SDC, and *R&D intensity* as the ratio of R&D expenses over sales (if R&D is missing, we set it to zero). We collect deal characteristics at the time of the offering and accounting variables from the last fiscal quarter before the IPO offer date. Continuous accounting variables are winsorized at 0.5% and 99.5%. Two-sided *t*-tests and Wilcoxon tests are conducted to compare the difference between the two groups. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	With hedge funds				Without hedge funds				Test of difference	
	N	Mean	Median	SD	N	Mean	Median	SD	t-stat	z-stat
<u>Deal characteristics</u>										
Offer size (million \$)	3,285	133.11	55.70	529.11	880	35.83	15.00	86.55	10.05***	30.15***
Offer price revision (%)	3,271	3.85	0.00	26.30	873	-5.19	0.00	21.37	10.54***	11.69***
Underwriter rank (0-9)	3,239	7.86	8.00	1.56	871	5.06	5.00	2.73	29.06***	27.23***
VC-backed dummy	3,284	0.46	0.00	0.50	880	0.24	0.00	0.43	13.20***	11.85***
<u>Firm characteristics</u>										
Firm age	3,210	15.34	8.00	21.89	824	11.85	6.00	16.74	4.99***	5.70***
Asset liquidity	2,941	0.15	0.17	0.44	759	-0.09	0.05	0.70	9.12***	9.99***
Profitability dummy	3,227	0.54	1.00	0.50	830	0.46	0.00	0.50	3.90***	3.89***
Asset turnover	3,186	0.37	0.30	0.36	806	0.40	0.30	0.43	-1.68*	0.10***
Leverage	3,207	0.24	0.09	0.33	828	0.25	0.09	0.38	-0.15	1.86***
High-tech dummy	3,285	0.57	1.00	0.49	880	0.41	0.00	0.49	8.56***	8.46***
R&D intensity	3,060	0.82	0.00	4.89	732	0.58	0.00	3.58	1.55	5.80***

Internet Appendix B3. Determinants of hedge fund ownership at the first report date (Excluding pre-IPO ownership)

This table presents the results of probit, Tobit, and negative binomial regressions of hedge fund ownership at the first report date after the IPO. We exclude holdings by pre-IPO owners. Models (1)–(3) are probit regressions of an indicator variable that equals one if the IPO stock is held by hedge funds. Models (4)–(6) are Tobit regressions of the percentage of shares held by hedge funds (*HFP*). Models (7)–(9) are negative binomial regressions of the number of hedge funds investing in each IPO stock (*HFN*). The explanatory variables consist of the deal characteristics and the firm characteristics variables defined in Internet Appendix B2 and *Underwriter rank dummy*, which is an indicator variable that equals one if underwriter rank is greater than or equal to eight. Year dummies are also included in the analyses, but the coefficient estimates are not reported for brevity. The sample consists of 3,381 IPOs with all variables available. Heteroscedasticity-adjusted standard errors are provided in parentheses. For the negative binomial model, we also report the p-value of the likelihood ratio test for overdispersion in the dependent variable (null being no overdispersion). ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Probit regressions			Tobit regressions			Negative binomial regressions		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	-4.943*** (0.591)	0.068*** (0.014)	-4.829*** (0.592)	-6.185*** (0.502)	-1.355*** (0.454)	-6.650*** (0.581)	-1.456*** (-19.73)	0.079 (0.980)	-1.588*** (-18.58)
Log(Offer size)	2.002*** (0.241)		1.910*** (0.233)	2.359*** (0.160)		2.223*** (0.164)	0.515*** (32.07)		0.526*** (30.71)
Offer price revision (%)	0.011*** (0.003)		0.011*** (0.003)	-0.004 (0.005)		-0.002 (0.005)	0.007*** (15.43)		0.007*** (14.36)
Underwriter rank dummy	0.351** (0.167)		0.288* (0.162)	0.676** (0.273)		0.676** (0.274)	0.231*** (6.74)		0.219*** (6.37)
VC-backed dummy	0.537*** (0.137)		0.407*** (0.143)	0.464** (0.221)		0.592** (0.242)	0.171*** (6.34)		0.136*** (4.60)
Log(1+Firm age)		0.001 (0.002)	-0.073 (0.068)		0.548*** (0.126)	0.260** (0.122)		0.106*** (5.96)	0.016 (1.08)
Asset liquidity		0.021*** (0.007)	0.323** (0.134)		1.209*** (0.248)	0.279 (0.243)		0.268*** (6.41)	0.097*** (2.83)
Profitability dummy		-0.011** (0.005)	0.200 (0.141)		1.026*** (0.249)	0.499** (0.241)		0.193*** (5.07)	0.047 (1.55)
Asset turnover		0.018*** (0.007)	0.178 (0.161)		-0.732** (0.301)	-0.167 (0.287)		-0.181*** (-3.74)	0.048 (1.24)
Leverage		-0.013** (0.006)	-0.363* (0.189)		0.900*** (0.340)	-0.013 (0.333)		0.032 (0.65)	-0.108*** (-2.77)
High-tech dummy		0.015*** (0.006)	0.282** (0.135)		0.538** (0.239)	-0.068 (0.239)		0.108*** (2.94)	0.083*** (2.78)
R&D intensity		0.001 (0.001)	0.014 (0.013)		-0.012 (0.021)	0.001 (0.020)		-0.008** (-2.41)	0.003 (1.34)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,381	3,381	3,381	3,381	3,381	3,381	3,381	3,381	3,381
Diagnostics									
LR test of overdispersion (<i>p</i> -value)				0.0584	0.0390	0.0591	<.001	<.001	<.001
Pseudo R ²	0.3171	0.2150	0.3246				0.1856	0.0827	0.1877

Internet Appendix B4. Risk-adjusted performance of IPO stocks with versus without hedge funds (Excluding pre-IPO ownership)

For each month from April 1994 to December 2010, IPO stocks that went public in the last quarter are grouped into two portfolios based on hedge fund ownership at the first report date after the IPO. We exclude holdings by pre-IPO owners. We purge percentage ownership of both offer size and year effects using a fractional logit model. *With-HF* contains IPO stocks with positive residual ownership conditional on positive percentage ownership, and *Without-HF* contains IPO stocks with negative residual ownership conditional on zero percentage ownership. In addition, we construct a zero-investment portfolio (*With – Without*) consisting of a long position in *With-HF* portfolio and a short position in *Without-HF* portfolio. The portfolios are rebalanced every quarter. Over the sample period, 1,312 IPO stocks are classified in the group of *With-HF* and 880 IPO stocks are classified in the group of *Without-HF*. The portfolio returns are regressed on the Fama-French-Carhart four factors. Each regression contains 201 monthly portfolio returns. A weighted least squares method is employed to correct for heteroscedasticity, with the weight being the number of stocks in the portfolio. Parameter estimates are shown in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Alpha	RMRF	SMB	HML	MOM	Adj. R ²
Without-HF	-1.215*** (0.451)	1.140*** (0.115)	0.871*** (0.138)	0.003 (0.181)	-0.174 (0.125)	0.5340
With-HF	0.926** (0.468)	1.237*** (0.125)	0.465*** (0.127)	-1.060*** (0.171)	0.318*** (0.104)	0.7369
With – Without	2.415*** (0.626)	0.035 (0.164)	-0.207 (0.176)	-0.998*** (0.237)	0.562*** (0.149)	0.2413

Internet Appendix B5. Risk-adjusted performance of IPO stocks with unexplained hedge fund ownership (Excluding pre-IPO ownership)

In this table, we first calculate the predicted percentage holding (count) of hedge fund ownership at the first report date after the IPO from the Tobit (negative binomial) regressions and then use the residuals as proxies for hedge funds' information that is not explained by those deal and firm characteristics. For each month from April 1994 to December 2010, we construct three portfolios with those IPO stocks that went public in the last quarter: (1) *Without-HF* consists of 880 IPO stocks like in Internet Appendix B4, (2) *Positive unexplained HF holding* consists of 1,251 IPO stocks with positive residuals from the Tobit regression in Model 6 of Internet Appendix B3, and (3) *Positive unexplained HF count* consists of 1,452 IPO stocks with positive residuals from the negative binomial regression in Model 9 of Internet Appendix B3. The portfolios are rebalanced every quarter so that only IPOs in the previous quarter are included in the portfolios at each point in time. In addition, we construct two zero-investment portfolios consisting of a long position in Portfolio (2) or (3) and a short position in Portfolio (1). The portfolio returns are then regressed on the Fama-French-Carhart four factors. Each regression contains 201 monthly portfolio returns. A weighted least squares method is employed to correct for heteroscedasticity, with the weight being the number of stocks in the portfolio. Parameter estimates are shown in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Alpha	Rm - Rf	SMB	HML	MOM	Adj. R ²
(1) Without-HF	-1.215*** (0.451)	1.140*** (0.115)	0.871*** (0.138)	0.003 (0.181)	-0.174 (0.125)	0.5340
(2) Positive unexplained HF holding	1.249** (0.556)	1.259*** (0.148)	0.628*** (0.149)	-1.200*** (0.204)	0.228* (0.127)	0.7226
(3) Positive unexplained HF count	0.965* (0.553)	1.292*** (0.142)	0.554*** (0.143)	-1.242*** (0.196)	0.332** (0.128)	0.7222
(2) - (1)	2.821*** (0.659)	0.064 (0.172)	-0.019 (0.184)	-1.090*** (0.250)	0.498*** (0.160)	0.2799
(3) - (1)	2.668*** (0.685)	0.127 (0.175)	-0.068 (0.186)	-1.172*** (0.253)	0.510*** (0.167)	0.2932

Internet Appendix B6. Allocations and the risk-adjusted performance of IPO stocks with hedge fund ownership (Excluding pre-IPO ownership)

We examine the impact of favorable IPO allocations on abnormal returns of the zero-investment portfolios in the calendar-time portfolio regressions like in Internet Appendix B4 and B5. We exclude holdings by pre-IPO owners. (1) To alleviate the effects of allocated shares, we exclude IPOs that take place in the last month of each quarter. (2) To remove all allocated shares from our analysis, we exclude all holdings by those hedge funds that already have shares at the first report date to ensure that all shares at the second report date are newly purchased on the secondary market between the first and second report dates. We then construct the portfolios based on the “allocation-free” holdings at the *second* report date after the IPO. For brevity purpose, we only report the coefficient estimates of the intercepts (alphas) with the corresponding standard errors in the parentheses. The number of IPOs in each zero-investment portfolio is included in the brackets. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	(1) Exclude IPOs in the last month of each quarter	(2) Second report date and exclude allocated shares
With – Without	2.009*** (0.695) [988, 550]	1.144** (0.556) [954, 1,829]
Positive unexplained HF holding – Without	2.567*** (0.747) [924, 550]	1.335*** (0.492) [1,322, 1,829]
Positive unexplained HF count – Without	2.485*** (0.752) [974, 550]	1.165** (0.532) [1,194, 1,829]

Internet Appendix B7. Hedge funds' connected holdings versus nonconnected holdings in IPO stocks (Excluding pre-IPO ownership)

For each calendar quarter from 1994:Q1 to 2010:Q3, we separate each hedge fund's 13F holdings of stocks that were taken public within the last eight quarters into two groups: connected holdings and nonconnected holdings. A hedge fund's holding in a particular IPO stock is defined as "connected" if at least one of the hedge fund's prime brokers is among the lead underwriters for the IPO. Otherwise, the holding is classified as "nonconnected." For the connected and nonconnected portfolios, respectively, we first calculate each hedge fund's monthly return in the following quarter across stocks weighted by the dollar holdings in each stock and then we compute the average monthly returns across funds weighted by the dollar holdings of each hedge fund. Portfolios are rebalanced every quarter. "Connected – Nonconnected" is the difference between the connected portfolio and the nonconnected portfolio. The portfolio returns are then regressed on the Fama-French-Carhart four factors. A weighted least squares method is employed to correct for heteroscedasticity, with the weight being the sum of holdings in each portfolio. Parameter estimates are shown in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Alpha	RMRF	SMB	HML	MOM	Adj. R ²
Connected holdings	1.124** (0.439)	1.549*** (0.095)	0.531*** (0.103)	-1.055*** (0.122)	0.473*** (0.072)	0.8339
Nonconnected holdings	-0.267 (0.271)	1.445*** (0.064)	0.501*** (0.066)	-0.878*** (0.081)	0.277*** (0.046)	0.8991
Connected – Nonconnected	1.027*** (0.330)	0.071 (0.076)	0.097 (0.080)	-0.127 (0.097)	0.173*** (0.055)	0.1229

Internet Appendix B8. Hedge funds' connected holdings versus nonconnected holdings in IPO stocks: Information asymmetry (Excluding pre-IPO ownership)

This table reports the risk-adjusted returns of hedge funds' connected and nonconnected holdings in IPO stocks based on two information asymmetry measures: offer size and analyst forecast dispersion. We exclude holdings by pre-IPO owners. Offer size is IPO proceeds. Analyst forecast dispersion is the standard deviation of analyst forecasts from I/B/E/S. For each stock, we compute the average analyst forecast dispersion over 48 months (two years) following the IPO. For each calendar year from 1994 to 2010, we separate the stocks that went IPO in a particular year into two groups based on the median value of either offer size or average analyst forecast dispersion. The large group has higher offer sizes or analyst forecast dispersion. The small group has lower offer sizes or analyst forecast dispersion. Within each group, we repeat the analysis on connected versus nonconnected holdings as shown in Internet Appendix B7. Alphas from the regressions as specified in Internet Appendix B7 are reported in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Offer size		Analyst forecast dispersion	
	Large	Small	Large	Small
Connected holdings	0.738*	4.864***	1.939***	0.219
	(0.424)	(0.904)	(0.610)	(0.349)
Nonconnected holdings	-0.288	-0.021	0.051	-0.711***
	(0.268)	(0.432)	(0.354)	(0.258)
Connected – Nonconnected	0.695**	2.806***	1.184**	0.684**
	(0.294)	(0.784)	(0.462)	(0.338)

Internet Appendix B9. Hedge funds’ connected holdings versus nonconnected holdings in IPO stocks: Hedge fund characteristics (Excluding pre-IPO ownership)

In this table, we divide the sample based on three measures: size, age, and strategy. First, size is measured using the total value of hedge fund holdings from 13F filings at a given quarter. Large funds have a value greater than the median, and small funds have a value smaller than the median at a given quarter. Second, age is the time since the hedge fund first filed its 13F. Old funds have an age older than the median age, and young funds have an age younger than the median age at a given quarter. Third, we divide funds into two groups based on their self-reported investment strategy: If a hedge fund management company has a hedge fund using equity-hedge or event-driven as its main strategy, the hedge fund management company is labeled “IPO related.” All other hedge funds are labeled “Others.” We exclude holdings by pre-IPO owners. Alphas from the regressions as specified in Internet Appendix B7 are reported in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Fund size		Fund age		Fund strategy	
	Large	Small	Old	Young	IPO related	Others
Connected holdings	1.425*** (0.489)	0.018 (0.377)	1.661*** (0.548)	0.872** (0.409)	1.162** (0.447)	0.202 (0.529)
Nonconnected holdings	-0.279 (0.276)	-0.226 (0.299)	-0.093 (0.338)	-0.367 (0.261)	-0.272 (0.271)	-0.246 (0.446)
Connected – Nonconnected	1.160*** (0.388)	0.270 (0.333)	1.229*** (0.422)	0.938*** (0.342)	1.015*** (0.333)	0.535 (0.722)

Internet Appendix B10. Hedge funds' connected holdings versus nonconnected holdings in IPO stocks: Time-series patterns (Excluding pre-IPO ownership)

This table reports the risk-adjusted returns of hedge funds' connected and nonconnected holdings in IPO stocks in subperiods. We divide the sample into three subperiods, 1994-1998 (pre-Internet bubble), 1999-2001 (Internet bubble), and 2002-2010 (post-Internet bubble). We exclude holdings by pre-IPO owners. Alphas from the regressions as specified in Internet Appendix B7 are reported in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	Pre-Internet bubble (1994-1998)	Internet bubble (1999-2001)	Post-Internet bubble (2002-2010)
Connected holdings	0.341 (0.705)	2.534* (1.395)	0.673* (0.376)
Nonconnected holdings	0.251 (0.387)	-0.705 (0.834)	-0.054 (0.239)
Connected – Nonconnected	0.148 (0.614)	2.693** (1.072)	0.699** (0.282)

Internet Appendix B11. Hedge fund activism and the risk-adjusted performance of IPO stocks with hedge fund ownership

We examine the impact of hedge fund activism on abnormal returns of the zero-investment portfolios in the calendar-time portfolio regressions as in Tables 4 and 5 of the paper and Internet Appendix B4 and B5. (1) We remove all shares by hedge funds holding more than 5% of a stock at least once within eight quarters after the IPO. (2) We remove all shares by hedge funds holding more than 1% of a stock for four consecutive quarters within eight quarters after the IPO. For brevity purpose, we only report the coefficient estimates of the intercepts (alphas) with the corresponding standard errors in the parentheses. The number of IPOs in each zero-investment portfolio is included in the brackets. In Panel A, we include all hedge fund holdings. In Panel B, we exclude holdings by pre-IPO owners. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

A. Whole sample

	(1) Exclude >5% holdings	(2) Exclude >1% holdings for 4 quarters
With – Without	2.367*** (0.612) [1,563, 954]	1.844*** (0.671) [1,348, 971]
Positive unexplained HF holding – Without	2.368*** (0.642) [1,381, 954]	1.699** (0.655) [1,293, 971]
Positive unexplained HF count – Without	2.311*** (0.681) [1,434, 954]	2.141*** (0.701) [1,439, 971]

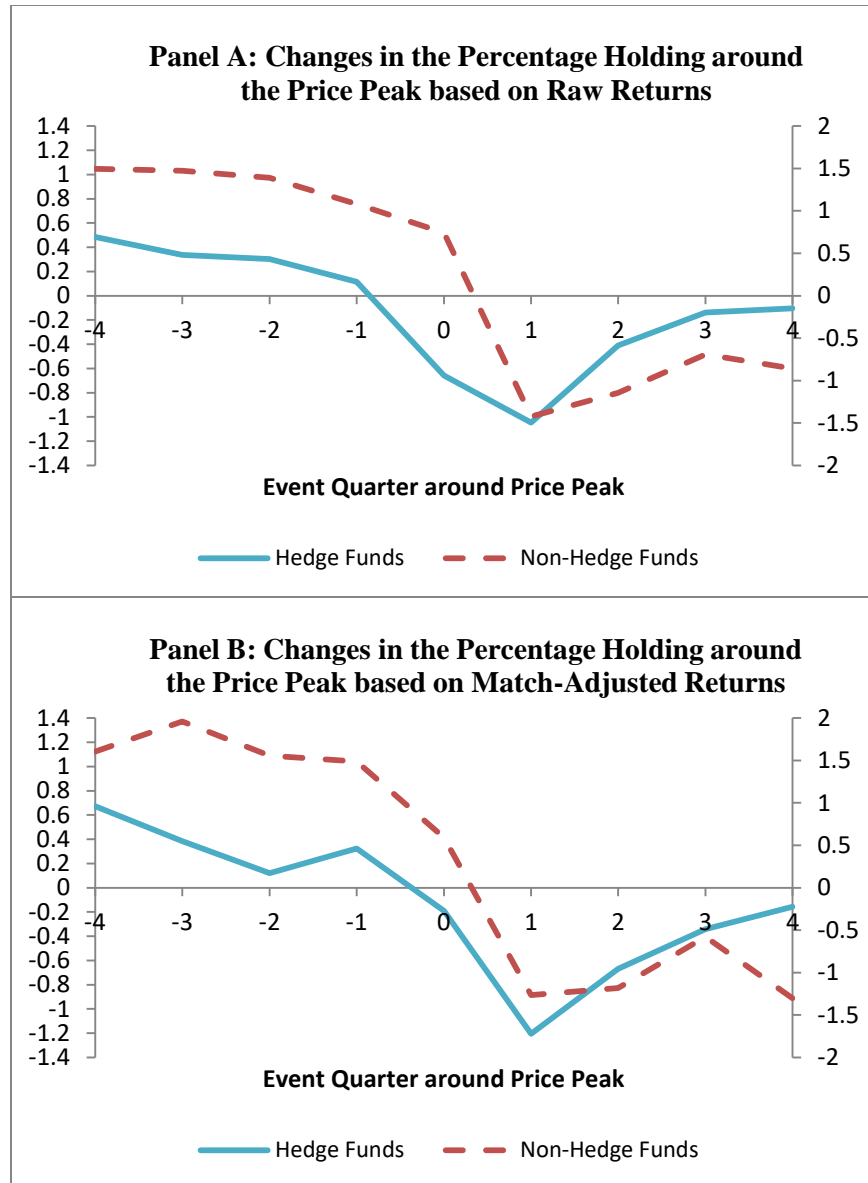
B. Exclude pre-IPO ownership

	(1) Exclude >5% holdings	(2) Exclude >1% holdings for 4 quarters
With – Without	2.398*** (0.610) [1,560, 959]	1.911*** (0.671) [1,343, 978]
Positive unexplained HF holding – Without	2.480*** (0.642) [1,372, 959]	1.774** (0.659) [1,295, 978]
Positive unexplained HF count – Without	2.381*** (0.672) [1,432, 959]	2.199*** (0.692) [1,442, 978]

Internet Appendix B12. Hedge funds' connected holdings versus nonconnected holdings in SEO stocks

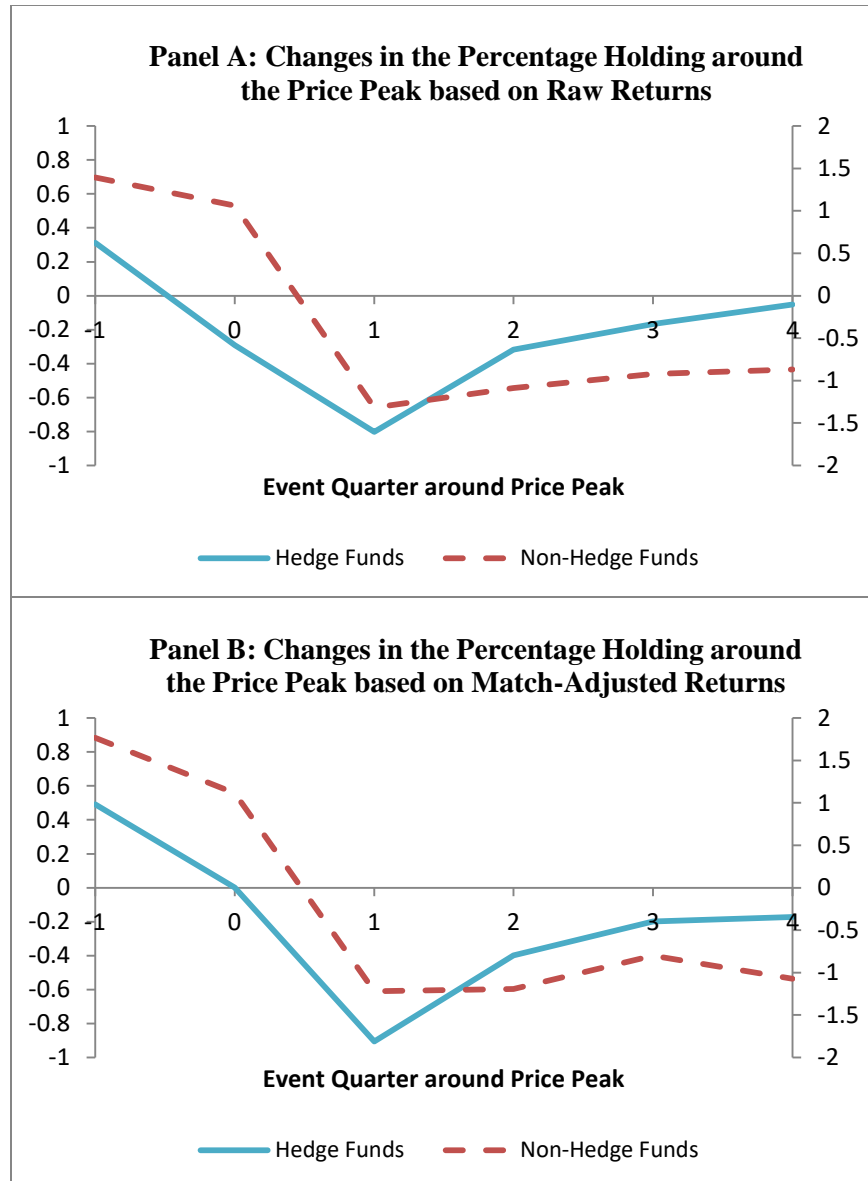
This table reports the risk-adjusted returns of hedge funds' connected and nonconnected holdings in SEO stocks. We obtain 3,846 SEOs from 1994-2010 (2,312 primary offerings and 1,534 combined offerings) from SDC database. If we exclude multiple SEOs conducted within 8 quarters, we have 3,513 SEOs (2,093 primary offerings and 1,420 combined offerings). For each calendar quarter from 1994:Q1 to 2010:Q3, we separate each hedge fund's 13F holdings of stocks that conducted SEOs within the last eight quarters into two groups: connected holdings and nonconnected holdings. A hedge fund's holding in a particular SEO stock is defined as "connected" if at least one of the hedge fund's prime brokers is among the lead underwriters for the stock's SEO. Otherwise, the holding is classified as "nonconnected." The calculation of the holding-based portfolio returns are described in the notes in Internet Appendix B7. There are a total of 201 monthly portfolio returns. The portfolio returns are then regressed on the Fama-French-Carhart four factors. Alphas from the calendar-time regressions are reported in the table with the corresponding standard errors in parentheses. ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	All SEOs		Exclude multiple SEOs within 8 quarters	
	All	Primary offerings	All	Primary offerings
Connected SEO holdings	-0.258 (0.277)	-0.298 (0.311)	-0.150 (0.281)	-0.345 (0.319)
Nonconnected SEO holdings	-0.569** (0.232)	-0.536** (0.247)	-0.470** (0.229)	-0.504** (0.247)
Connected – Nonconnected	0.030 (0.216)	-0.025 (0.247)	0.062 (0.231)	-0.041 (0.273)



Internet Appendix C1. Changes in the percentage holding around the price peak of IPO stocks that experienced price peaks in Q5 or later (Excluding pre-IPO ownership)

For the subsample of IPO stocks that experienced price peaks in Q5 or later, we first align them according to their price peak event quarters; that is, we assign event quarter zero to the quarter when the return index of an IPO stock reaches its highest point. We then examine the change in the percentage holding of hedge funds (ΔHFP) and the change in the percentage holding of nonhedge funds ($\Delta NonHFP$) around the price peak quarter, from quarters -4 to $+4$. For both hedge fund holdings and nonhedge fund holdings, we exclude holdings by pre-IPO owners. Horizontal axis is the number of quarters relative to the price peak quarter. The change in the percentage holding of hedge funds is displayed on the left vertical axis and the change in the percentage holding of nonhedge funds is displayed on the right vertical axis.



Internet Appendix C2. Changes in the percentage holding around the price peak of IPO stocks that experienced price peaks in Q3 or later (Excluding pre-IPO ownership)

For the subsample of IPO stocks that experienced price peaks in Q3 or later, we first align them according to their price peak event quarters; that is, we assign event quarter zero to the quarter when the return index of an IPO stock reaches its highest point. We then examine the change in the percentage holding of hedge funds (ΔHFP) and the change in the percentage holding of nonhedge funds ($\Delta NonHFP$) around the price peak quarter, from quarters -1 to $+4$. For both hedge fund holdings and nonhedge fund holdings, we exclude holdings by pre-IPO owners. Horizontal axis is the number of quarters relative to the price peak quarter. The change in the percentage holding of hedge funds is displayed on the left vertical axis and the change in the percentage holding of nonhedge funds is displayed on the right vertical axis.