

Sensation Seeking and Hedge Funds

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汇报人：卫飞扬
山西财经大学金融工程



STEPHEN BROWN



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Stephen joined the **Monash Business School** on 1 January 2016. Appointed on a 0.4 basis, he will spend four months each year at the Monash Business School while **New York University Stern School of Business**.

Journal Articles:

Upside potential of hedge funds as a predictor of future performance

Bali, T. G., Brown, S. J. & Caglayan, M. O., Jan 2019, In : Journal of Banking and Finance. 98, p. 212-229 18 p.

Sensation seeking and hedge funds

Brown, S., Lu, Y., Ray, S. & Teo, M., Dec 2018, In : Journal of Finance. 73, 6, p. 2871-2914 44 p.

Starting on the wrong foot: Seasonality in mutual fund performance

Brown, S. J., Sotes-Paladino, J., Wang, JG. & Yao, Y., 1 Sep 2017, In : Journal of Banking and Finance. 82, p. 133-150 18 p.

Why hedge funds?

Brown, S. J., 1 Nov 2016, In : Financial Analysts Journal. 72, 6, p. 5-7 3 p.

high quality journals, including **Econometrica**, **Financial Economics**, **the Journal of Financial and Financial Studies**, and **the Journal of Business**.

editorial boards, Stephen was a founding editor of **Journal of Applied and Quantitative Analysis (A*)**.

YAN LU



Dr. Lu is an Assistant Professor of Finance in the College of Business at the University of Central Florida.

Journal Articles:

- **Under One Roof: An Analysis of Simultaneously Managed Hedge Funds and Fund of Funds**, (with Vikas Agarwal and Sugata Ray) *Management Science*, 2016, 62(3),722-740
- **Limited Attention, Marital Events and Hedge Funds**, (with Sugata Ray and Melvyn Teo), *Journal of Financial Economics*, 2016, 122(3), 607-624
- **How Do Personal Assets Affect Professional Asset Management? Evidence from Hedge Fund Managers' Real Estate Transactions**, (with David Ling and Sugata Ray), *Real Estate Economics*, forthcoming
- **Sensation Seeking, Sports Cars, and Hedge Funds** (With Stephen Brown, Sugata Ray and Melvyn Teo), *Journal of Finance*

Ph.D. degree from the **University of Florida** and Master of Science in Real Estate degree from **Tong ji University**. She also holds a Master of Science in Real Estate degree from the **University of Florida**.

Research interests : alternative investments, behavioral finance.

SUGATA RAY



School : Culverhouse College of Business , University of Alabama
Department: Economics, Finance, Legal Studies
Title: Assistant Professor
Focus and Current Research : Asset Management Market , Microstructure

Journal Articles:

- “Limited Attention, Marital Events, and Hedge Funds.”** (With Y. Lu and M. Teo.)
Journal of Financial Economics. December 2016.
- “Under One Roof: A Study of Simultaneously Managed Hedge Funds and Funds of Hedge Funds.”** (With V. Agarwal and Y. Lu.) Management Science. March 2016.
- “Sensation Seeking and Hedge Funds.”** (With S. Brown, Y. Lu, and M. Teo.)
Journal of Finance.

MELVYN TEO



School : Singapore Management University
Full-time Faculty, Lee Kong Chian School of Business
Lee Kong Chian Professor of Finance Deputy Dean

Journal Articles:

"Hedge Fund Franchises," by William FUNG, David HSIEH, Narayan NAIK, and Melvyn TEO, Management Science, forthcoming.

"Public Hedge Funds," by Lin SUN and Melvyn TEO, 2019, 131, Journal of Financial Economics, 44–60.

"Limited Attention, Marital Events, and Hedge Funds," by Yan LU, Sugata RAY, and Melvyn TEO, 2016, 122, Journal of Financial Economics, 607–624.

"The Liquidity Risk of Liquid Hedge Funds," by Melvyn TEO, 2011, 100, Journal of Financial Economics, 24–44.

"Hedge Funds, Managerial Skill, and Macroeconomic Variables," by Doron AVRAMOV, Robert KOSOWSKI, Narayan NAIK, and Melvyn TEO, 2011, 99, Journal of Financial Economics, 672–692.

"Geography of Hedge Funds," by Melvyn TEO, 2009, 22, Review of Financial Studies, 3531–3561.

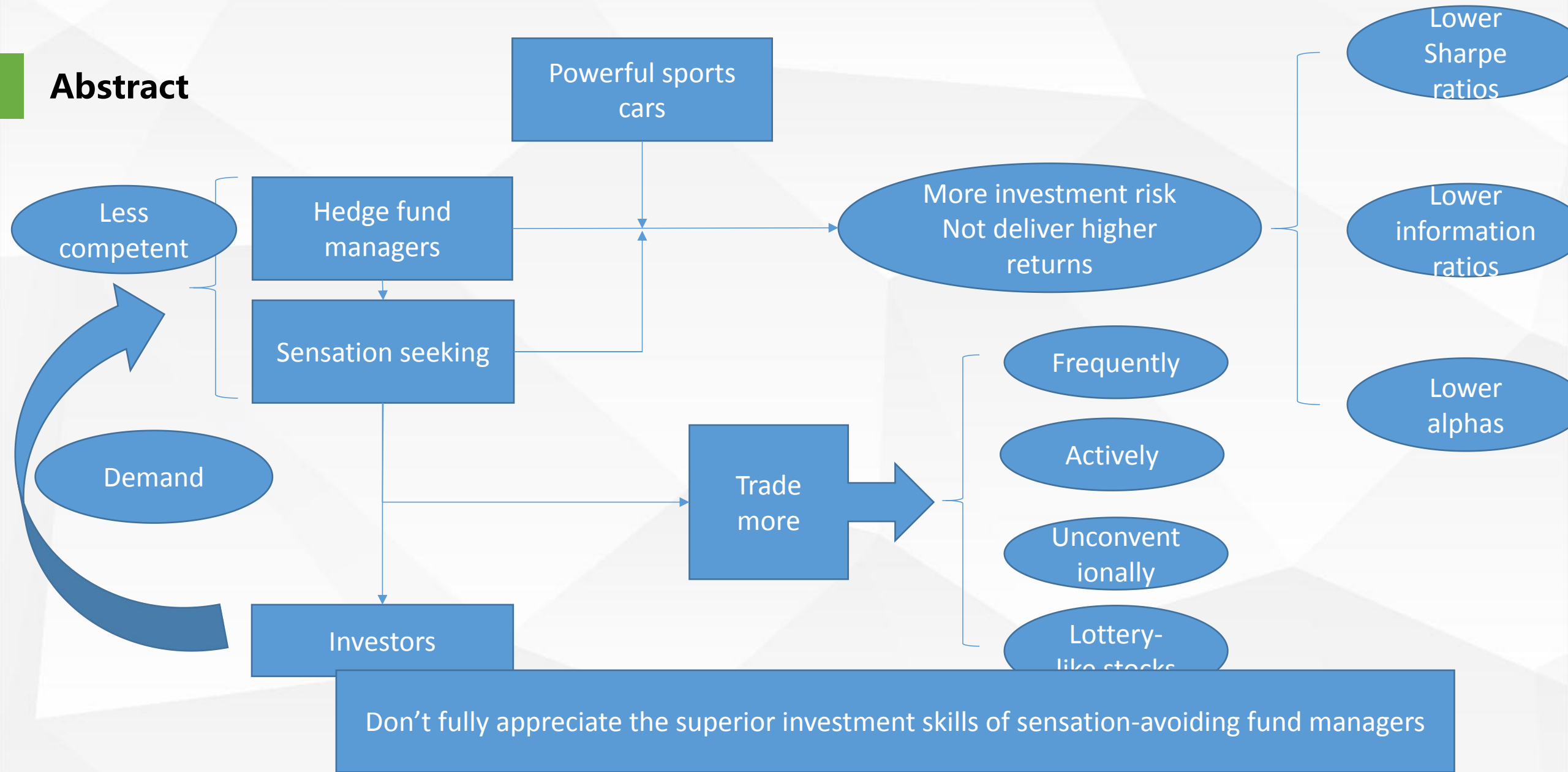
Education:

Economics, Harvard University
Economics, Harvard University
Mathematics (cum laude), Cornell University

Research Interests:

Empirical Asset Pricing
• Hedge Funds
Institutional Investors
Behavioral Finance

Abstract



Abstract

“The emerging manager who goes out and buys a fancy sports car right off the bat is someone you probably want to avoid.”

-Business Insider , February 2016

目录 content

01

Data and Methodology

02

Empirical Results

03

Hedge Fund Investors and Sensation Seeking

04

Alternative Explanations and Robustness Tests

05

Conclusion



01

Data and Methodology

Vehicle data sources

VIN Place

New vehicle purchase records from 2006 to 2012. Including make, model, year, and vehicle identification number(VIN).

Autocheck

Car details such as trim levels and body style.

cars.com
and cars-data

Car details such as horsepower, maximum torque, passenger volume, and price.

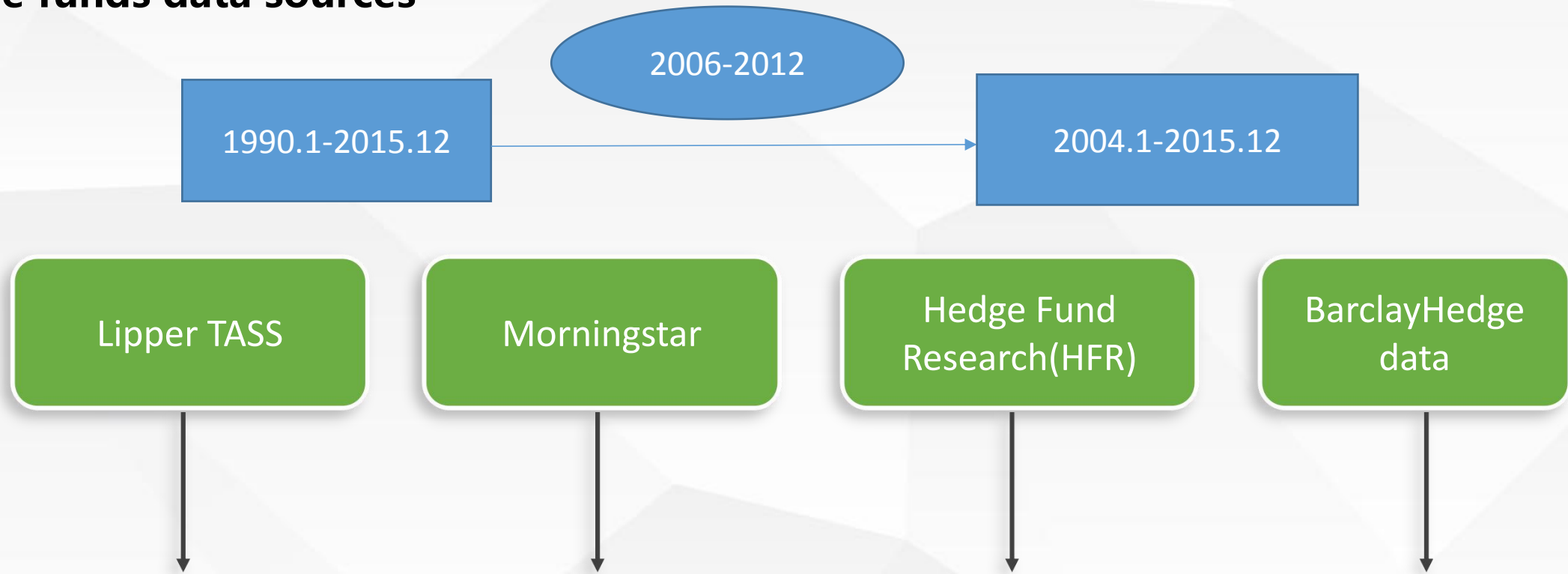
IIHS

Car's Insurance Institute for Highway Safety(IIHS) average safety rating.

Summary Statistics

Vehicle Attribute	Number of Observations (1)	Mean (2)	Median (3)	Standard Deviation (4)	Minimum (5)	Maximum (6)
Sports car (indicator variable)	1,774	0.09	0.00	0.29	0.00	1.00
Maximum horsepower (bhp)	1,759	266.21	264.50	82.27	70.00	620.00
Maximum torque (pound-feet)	1,756	267.32	254.00	85.68	68.00	663.00
Minivan (indicator variable)	1,774	0.06	0.00	0.23	0.00	1.00
Passenger volume (cubic feet)	1,386	113.36	102.00	28.08	45.00	211.00
IIHS average safety rating	1,171	3.44	3.50	0.58	1.50	4.00
Price (US\$)	1,761	39,621.47	33,300.00	25,650.53	9,990.00	386,500.00

Hedge funds data sources



Using monthly **net-of-fee returns** and **assets under management(AUM)** data for live and dead hedge funds to evaluate **the impact of sensation seeking on hedge funds.**

Four broad investment styles

Agarwal , Daniel , and Naik (2009)

Security Selection

Taking long and short positions in undervalued and overvalued securities, respectively.

Multiprocess

Taking advantage of significant events,

Directional Trader

Beting on the direction of market prices of currencies, commodities, equities, and bonds in the futures and cash markets.

Relative Value

Taking positions on spread relations between prices of financial assets and seek to minimize market exposure.

Seven-factor model

Fund and Hsieh(2004)

Risk of hedge funds

(5) The excess returns on portfolios of lookback straddle options on currencies

(6) The excess returns on portfolios of lookback straddle options on commodities

(7) The excess returns on portfolios of lookback straddle options on bonds

(1) The excess return on the Standard and Poor's 500 index

(2) A small minus big factor constructed as the difference between the Russell 2000 and S&P 500 stock indexes

(3) The yield spread of the U.S. 10-year Treasury bond over the three-month Treasury bill

(4) The change in the credit spread of Moody's BAA bonds over the 10-year Treasury bond

For diversified hedge fund portfolios, the seven ABS style factors explain up to 90% of monthly return variations.



02

Empirical Results

Financial Risk and Performance

Grouping hedge funds by the prosensation automobile attributes to explore the impact of sensation seeking on fund risk-taking behavior.



A sports car or nonsports car



A high or low horsepower car



A high or low torque car

Financial Risk and Performance

Panel A: Prosentation Vehicle Attribute

	Sports Car (1)	Nonsports Car (2)	Spread (3)	High Horse power (4)	Low Horsepower (5)	Spread (6)	High Torque (7)	Low Torque (8)	Spread (9)
Number of funds	163	1,611		981	793		901	873	
Return (%)	0.50	0.50	0.00	0.50	0.51	-0.01	0.51	0.49	0.02
Alpha (%)	0.20	0.20	0.00	0.19	0.20	-0.01	0.20	0.19	0.01
Flow (%)	0.54	0.50	0.04	0.39	0.64	-0.25	0.43	0.57	-0.14
Total risk (%)	3.65	3.13	0.52**	3.32	2.99	0.33**	3.35	2.99	0.36**
Idiosyncratic risk (%)	2.39	2.04	0.35**	2.16	1.99	0.17**	2.19	1.96	0.23**
Management fee (%)	1.38	1.42							
Performance fee (%)	16.64	17.08							
High-water mark (dummy)	0.79	0.84							
Fraction of funds with lock-ups	0.44	0.51							
Lock-up period (days)	275.03	244.85							
Redemption period (days)	88.22	84.25							
Leveraged (dummy)	0.68	0.64	0.04	0.63	0.67	-0.04*	0.63	0.67	-0.04
Fund age (years)	7.91	8.02	-0.11	7.89	7.88	0.01	7.94	7.89	0.05
Assets under management (US\$m)	515.24	818.37	-303.13	388.15	1,289.13	-900.98**	360.48	1,235.01	-874.53*

Hedge fund managers who purchase performance cars take on more risk than do other hedge fund managers.

Fund size may explain why we find that performance car owners take on more risk

Panel B: Antisensatio

	Minivan (1)	Nonminivan (2)	Spread (3)	High Passenger Volume (4)	Low Passenger Volume (5)	Spread (6)	High Safety Rating (7)	Low Safety Rating (8)	Spread (9)
Number of funds	101	1,673		1,105	669		676	495	
Return (%)	0.56	0.50	0.06	0.51	0.48	0.03	0.46	0.51	-0.05
Alpha (%)	0.37	0.17	0.20**	0.19	0.17	0.02	0.16	0.24	-0.08
Flow (%)	0.98	0.47	0.51	0.41	0.65	-0.24	0.45	0.75	-0.30
Total risk (%)	2.78	3.15	-0.37	2.87	3.33	-0.46**	2.81	3.09	-0.28**
Idiosyncratic risk (%)	1.8	2.07	-0.27	1.88	2.20	-0.32**	1.88	2.09	-0.21**
Management fee (%)	1.55	1.41	0.14*	1.44	1.38	0.06	1.42	1.42	0.00
Performance fee (%)	17.2	17.03	0.17	17.11	16.93	0.18	17.02	17.70	-0.68
High-water mark (dummy)	0.86	0.84	0.02	0.85	0.82	0.03	0.85	0.84	0.01
Fraction of funds with lock-ups	0.42	0.51	-0.09	0.48	0.53	-0.05	0.49	0.52	-0.02
Lock-up period (days)	232.02	248.05	-16.03	248.15	246.01	2.14	229.10	256.31	-27.21
Redemption period (days)	61.29	86.03	-24.74**	84.90	84.16	0.74	83.26	81.97	1.29
Leveraged (dummy)	0.67	0.65	0.02	0.65	0.64	0.01	0.64	0.66	-0.02
Fund age (years)	6.95	8.11	-1.16**	8.14	7.60	0.54	8.13	7.91	0.22
Assets under management (US\$m)	1,945.31	720.97	1,224.34	643.44	1,029.58	-386.14	502.82	1,564.75	-1,061.93

Financial Risk and Performance

$$\begin{aligned} RISK_{im+23,m} = & \alpha + \beta_1 PROSENSATION_{im-1} + \beta_2 RETURN_{m-1,m-24} \\ & + \beta_3 MGT FEE_i + \beta_4 PERFFEE_i + \beta_5 LOCKUP_i + \beta_6 LEVERAGE_i \\ & + \beta_7 AGE_{im-1} + \beta_8 REDEMPTION_i + \beta_9 \log(FUNDSIZE_{im-1}) \\ & + \sum_k \beta_{10}^k STRATEGYDUM_i^k + \sum_l \beta_{11}^l YEARDUM_m^l + \epsilon_{im}, \end{aligned}$$

RISK

Idiosyncratic
risk

SPORT

POWER

TORQUE

Financial Risk and Performance

Dependent Variable

Independent Variable	RISK						IDIORISK					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SPORT	0.663** (2.81)						0.348* (2.38)					
POWER		0.450** (5.66)						0.269** (4.88)				
TORQUE			0.382** (4.77)						0.233** (4.16)			
MINIMUM				-0.551** (-2.75)						-0.490** (-3.19)		
					-1.067** (-4.75)						-0.696** (-4.42)	
						-0.394** (-2.73)						-0.230* (-2.47)

Hedge fund managers who purchase performance cars take on more risk than do other fund managers.

RETURN _{m-1,m-24}	0.071 (1.04)	0.077 (1.14)	0.076 (1.15)	0.070 (0.95)	0.076 (0.97)	0.077 (0.88)						
ALPHA _{m-1,m-24}							-0.011 (-0.22)	-0.008 (-0.15)	-0.007 (-0.13)	-0.005 (-0.09)	-0.011 (-0.18)	0.005 (0.08)
MGT FEE	0.328 (1.76)	0.332 (1.77)	0.315 (1.72)	0.330 (1.49)	0.341 (1.43)	0.332 (1.55)	0.338* (2.56)	0.340* (2.55)	0.330* (2.52)	0.355* (2.25)	0.360* (2.15)	0.391* (2.54)
PERF FEE	-0.003 (-0.17)	-0.008 (-0.47)	-0.006 (-0.36)	-0.010 (-0.50)	-0.000 (-0.01)	-0.000 (-0.01)	0.011 (0.78)	0.007 (0.54)	0.009 (0.62)	0.007 (0.46)	0.013 (0.70)	0.010 (0.54)
LOCKUP	0.222 (1.24)	0.271 (1.53)	0.247 (1.40)	0.327 (1.74)	0.369 (1.86)	0.371 (1.74)	0.173 (1.49)	0.201 (1.73)	0.189 (1.63)	0.250* (2.00)	0.291* (2.17)	0.306* (2.11)
LEVERAGE	0.215 (1.10)	0.269 (1.42)	0.227 (1.20)	0.350 (1.68)	0.306 (1.48)	0.391 (1.88)	0.333** (2.88)	0.365** (2.85)	0.341** (2.75)	0.440** (2.98)	0.427** (2.88)	0.509** (2.98)
AGE	0.016 (0.85)	0.018 (0.99)	0.019 (1.01)	0.025 (1.18)								
REDEMPTION	0.015 (0.37)	0.009 (0.22)	0.006 (0.14)	-0.006 (-0.13)	-0.006 (-0.35)	-0.006 (0.55)	-0.113** (-2.77)	-0.126** (-3.05)	-0.128** (-3.10)	-0.155** (-3.41)	-0.159** (-3.38)	-0.158** (-3.27)
log(FUNDSIZE)	-0.108 (-1.96)	-0.130* (-2.34)	-0.131* (-2.40)	-0.165** (-2.72)	-0.145* (-2.33)	-0.155* (-2.35)						
Strategy Fixed Effects	Yes	Yes	Yes	Yes								
Year Fixed Effects	Yes	Yes	Yes	Yes								
R ²	0.213	0.230	0.227	0.238	0.261	0.244	0.214	0.228	0.226	0.242	0.261	0.252
N	2,457	2,437	2,428	2,457	1,955	1,627	2,457	2,437	2,428	2,457	1,955	1,627

Funds that charge higher management fees and use greater leverage tend to take on greater idiosyncratic risk.

Smaller funds take on more risk.

Financial Risk and Performance

Panel A: Prosentation Vehicle Attribute

	Sports Car (1)	Nonsports Car (2)	Spread (3)	High Horsepower (4)	Low Horsepower (5)	Spread (6)	High Torque (7)	Low Torque (8)	Spread (9)
Number of funds	163	1,611		981	793		901	873	
Return (%)	0.50	0.50	0.00	0.50	0.51	-0.01	0.51	0.49	0.02
Alpha (%)	0.20	0.20	0.00	0.19	0.20	-0.01	0.20	0.19	0.01
Flow (%)	0.54	0.50	0.04	0.39	0.64	-0.25	0.43	0.57	-0.14
Total risk (%)	3.65	3.13	0.52**	3.32	2.99	0.33**	3.35	2.99	0.36**
Idiosyncratic risk (%)	2.39	2.04	0.35**	2.16	1.99	0.17**	2.19	1.96	0.23**
Management fee (%)	1.38	1.42	-0.04	1.41	1.43	-0.02	1.40	1.43	-0.03
Performance fee (%)	16.64	17.08	-0.44	17.10	16.97	0.13	17.11	16.98	0.13
High-water mark (dummy)	0.79	0.84	-0.05	0.84	0.84	0.00	0.84	0.84	0.00
Fraction of funds with lock-ups	0.44	0.51	-0.06	0.49	0.52	-0.03	0.49	0.51	-0.02
Lock-up period (days)	275.03	244.85	30.18	244.13	250.95	-6.82	247.21	247.38	-0.17
Redemption period (days)	88.22	84.25	3.97	86.61	82.15	4.46	86.50	82.67	3.83
Leveraged (dummy)	0.68	0.64	0.04	0.63	0.67	-0.04*	0.63	0.67	-0.04
Fund age (years)	7.91	8.02	-0.11	7.89	7.88	0.01	7.94	7.89	0.05
Assets under management (US\$m)	515.24	818.37	-303.13	388.15	1,289.13	-900.98**	360.48	1,235.01	-874.53*

Panel B: Antisentation Vehicle Attribute

	Minivan (1)	Nonminivan (2)	Spread (3)	High Passenger Volume (4)	Low Passenger Volume (5)	Spread (6)	High Safety Rating (7)	Low Safety Rating (8)	Spread (9)
Number of funds	101	1,673		1,105	669		676	495	
Return (%)	0.56	0.50	0.06	0.51	0.48	0.03	0.46	0.51	-0.05
Alpha (%)	0.37	0.17	0.20**	0.19	0.17	0.02	0.16	0.24	-0.08
Flow (%)	0.98	0.47	0.51	0.41	0.65	-0.24	0.45	0.75	-0.30
Total risk (%)	2.78	3.15	-0.37	2.87	3.33	-0.46**	2.81	3.09	-0.28**
Idiosyncratic risk (%)	1.8	2.07	-0.27	1.88	2.20	-0.32**	1.88	2.09	-0.21**
Management fee (%)	1.55	1.41	0.14	1.44	1.88	-0.44	1.48	1.48	0.00
Performance fee (%)	17.2	17.03	0.17	17.11	16.97	0.14	17.11	16.98	0.13
High-water mark (dummy)	0.86	0.84	0.02	0.84	0.84	0.00	0.84	0.84	0.00
Fraction of funds with lock-ups	0.42	0.51	-0.09	0.49	0.52	-0.03	0.49	0.51	-0.02
Lock-up period (days)	232.02	248.05	16.03	244.13	250.95	-6.82	247.21	247.38	-0.17
Redemption period (days)	61.29	86.03	24.74	86.61	82.15	4.46	86.50	82.67	3.83
Leveraged (dummy)	0.67	0.65	0.02	0.63	0.67	-0.04	0.63	0.67	-0.04
Fund age (years)	6.95	8.11	-1.16**	8.14	7.60	0.54	8.13	7.91	0.22
Assets under management (US\$m)	1,945.31	720.97	1,224.34	643.44	1,029.58	-386.14	502.82	1,564.75	-1,061.93

Managers who acquire practical but unexciting cars take on lower investment risk.

Financial Risk and Performance

ANTISENSATION

$$\begin{aligned} RISK_{im+23,m} = & \alpha + \beta_1 \text{PROSENSATION}_{im-1} + \beta_2 \text{RETURN}_{m-1,m-24} \\ & + \beta_3 \text{MGTFEE}_i + \beta_4 \text{PERFFEE}_i + \beta_5 \text{LOCKUP}_i + \beta_6 \text{LEVERAGE}_i \\ & + \beta_7 \text{AGE}_{im-1} + \beta_8 \text{REDEMPTION}_i + \beta_9 \log(\text{FUNDSIZE}_{im-1}) \\ & + \sum_k \beta_{10}^k \text{STRATEGYDUM}_i^k + \sum_l \beta_{11}^l \text{YEARDUM}_m^l + \epsilon_{im}, \end{aligned}$$

RISK

Idiosyncratic
risk

MINIVAN

SPACE

SAFETY

Financial Risk And Performance

Independent Variable	Dependent Variable											
	RISK						IDIORISK					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SPORT	0.663** (2.81)						0.348* (2.38)					
POWER		0.450** (5.66)						0.269** (4.88)				
TORQUE			0.382** (4.77)						0.233** (4.16)			
MINIVAN												
SPACE				-0.551** (-2.75)							-0.490** (-3.19)	
SAFETY					-1.067** (-4.75)							-0.696** (-4.42)
RETURN _{m-1,m-24}	0.071 (1.04)	0.077 (1.14)	0.076 (1.15)									
ALPHA _{m-1,m-24}												
MGT FEE	0.328 (1.76)	0.332 (1.77)	0.315 (1.72)									
PERF FEE	-0.003 (-0.17)	-0.008 (-0.47)	-0.006 (-0.36)	-0.010 (-0.50)	-0.000 (-0.01)	-0.000 (-0.01)	0.011 (0.78)	0.007 (0.54)	0.009 (0.62)	0.007 (0.46)	0.013 (0.70)	0.010 (0.54)
LOCKUP	0.222 (1.24)	0.271 (1.53)	0.247 (1.40)	0.327 (1.74)	0.369 (1.86)	0.371 (1.74)	0.173 (1.49)	0.201 (1.73)	0.189 (1.63)	0.250* (2.00)	0.291* (2.17)	0.306* (2.11)
LEVERAGE	0.215 (1.10)	0.269 (1.42)	0.227 (1.20)	0.350 (1.68)	0.306 (1.40)	0.391 (1.66)	0.333** (2.62)	0.365** (2.95)	0.341** (2.75)	0.440** (3.22)	0.427** (2.96)	0.509** (3.23)
AGE	0.016 (0.85)	0.018 (0.99)	0.019 (1.01)	0.025 (1.18)	0.039 (1.72)	0.028 (1.25)	0.001 (0.09)	0.003 (0.21)	0.003 (0.22)	0.008 (0.55)	0.021 (1.28)	0.011 (0.75)
REDEMPTION	0.015 (0.37)	0.009 (0.22)	0.006 (0.14)	-0.006 (-0.13)	-0.017 (-0.35)	0.027 (0.55)	-0.014 (-0.73)	-0.018 (-0.92)	-0.020 (-1.00)	-0.029 (-1.25)	-0.031 (-1.16)	-0.005 (-0.17)
log(FUNDSIZE)	-0.108 (-1.96)	-0.130* (-2.34)	-0.131* (-2.40)	-0.165** (-2.72)	-0.145* (-2.33)	-0.155* (-2.35)	-0.113** (-2.77)	-0.126** (-3.05)	-0.128** (-3.10)	-0.155** (-3.41)	-0.159** (-3.36)	-0.158** (-3.27)
Strategy Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.213	0.230	0.227	0.238	0.261	0.244	0.214	0.228	0.226	0.242	0.261	0.252
N	2,457	2,437	2,428	2,457	1,955	1,627	2,457	2,437	2,428	2,457	1,955	1,627

Managers who acquire practical but unexciting cars take on lower investment risk.

Financial Risk and Performance

Panel A: Prosentation Vehicle Attribute

	Sports Car (1)	Nonsports Car (2)	Spread (3)	High Horsepower (4)	Low Horsepower (5)	Spread (6)	High Torque (7)	Low Torque (8)	Spread (9)
		1,611		981	793		901	873	
		50	0.00	0.50	0.51	-0.01	0.51	0.49	0.02
			0.00	0.19	0.20	-0.01	0.20	0.19	0.01
			0.04	0.39	0.64	-0.25	0.43	0.57	-0.14
		3.13	0.52**	3.32	2.99	0.33**	3.35	2.99	0.36**
Management fee (%)	1.38	1.42							
Performance fee (%)	16.64	17.08							
High-water mark (dummy)	0.79	0.84							
Fraction of funds with lock-ups	0.44	0.51							
Lock-up period (days)	275.03	244.85							
Redemption period (days)	88.22	84.25	3.97	86.61	82.15	4.46	86.50	82.67	3.83
Leveraged (dummy)	0.68	0.64	0.04	0.63	0.67	-0.04*	0.63	0.67	-0.04
Fund age (years)	7.91	8.02	-0.11	7.89	7.88	0.01	7.94	7.89	0.05
Assets under management (US\$m)	515.24	818.37	-303.13	388.15	1,289.13	-900.98**	360.48	1,235.01	-874.53*

The incremental risk-taking by performance car buyers does not translate into higher returns.

Hedge fund managers who purchase performance cars take on more risk than do other hedge fund managers.

Fund size may explain why we find that performance car owners take on more risk

Whether the heightened risk of performance car buyers results in lower Sharpe and information ratios?

Panel B: Antisensitization

	Nonperformance (1)	Performance (2)	Spread (3)	High Passenger Volume (4)	Low Passenger Volume (5)	Spread (6)	High Safety Rating (7)	Low Safety Rating (8)	Spread (9)
				1,105	669		676	495	
		0.50	0.06	0.51	0.48	0.03	0.46	0.51	-0.05
		0.37	0.20**	0.19	0.17	0.02	0.16	0.24	-0.08
Flow (%)	0.98	0.47	0.51	0.41	0.65	-0.24	0.45	0.75	-0.30
Total risk (%)	2.78	3.15	-0.37	2.87	3.33	-0.46**	2.81	3.09	-0.28**
Idiosyncratic risk (%)	1.8	2.07	-0.27	1.88	2.20	-0.32**	1.88	2.09	-0.21**
Management fee (%)	1.55	1.41	0.14*	1.44	1.38	0.06	1.42	1.42	0.00
Performance fee (%)	17.2	17.03	0.17	17.11	16.93	0.18	17.02	17.70	-0.68
High-water mark (dummy)	0.86	0.84	0.02	0.85	0.82	0.03	0.85	0.84	0.01
Fraction of funds with lock-ups	0.42	0.51	-0.09	0.48	0.53	-0.05	0.49	0.52	-0.02
Lock-up period (days)	232.02	248.05	-16.03	248.15	246.01	2.14	229.10	256.31	-27.21
Redemption period (days)	61.29	86.03	-24.74**	84.90	84.16	0.74	83.26	81.97	1.29
Leveraged (dummy)	0.67	0.65	0.02	0.65	0.64	0.01	0.64	0.66	-0.02
Fund age (years)	6.95	8.11	-1.16**	8.14	7.60	0.54	8.13	7.91	0.22
Assets under management (US\$m)	1,945.31	720.97	1,224.34	643.44	1,029.58	-386.14	502.82	1,564.75	-1,061.93

Financial Risk and Performance

$$SHARPE = \frac{\text{Average fund excess return}}{\text{The standard deviation of fund return}}$$

$$INFORMATION = \frac{\text{Fund information ratio(Average monthly abnormal return)}}{\text{The standard deviation of fund residuals}}$$

Monthly fund alpha : the monthly fund abnormal return

Financial Risk and Performance

Managers who purchase vehicles with prosensation attributes deliver lower Sharpe , information ratios , and lower alpha.

SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)
--------------	--------------	---------------	----------------	--------------	---------------

Panel A: Multivariate OLS Regressions on **SHARPE**

-0.110** (-3.72)	-0.047** (-2.69)	-0.045** (-2.84)	0.156** (3.29)	0.187** (5.63)	0.070** (4.90)
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Panel B: Multivariate OLS Regressions on **INFORMATION**

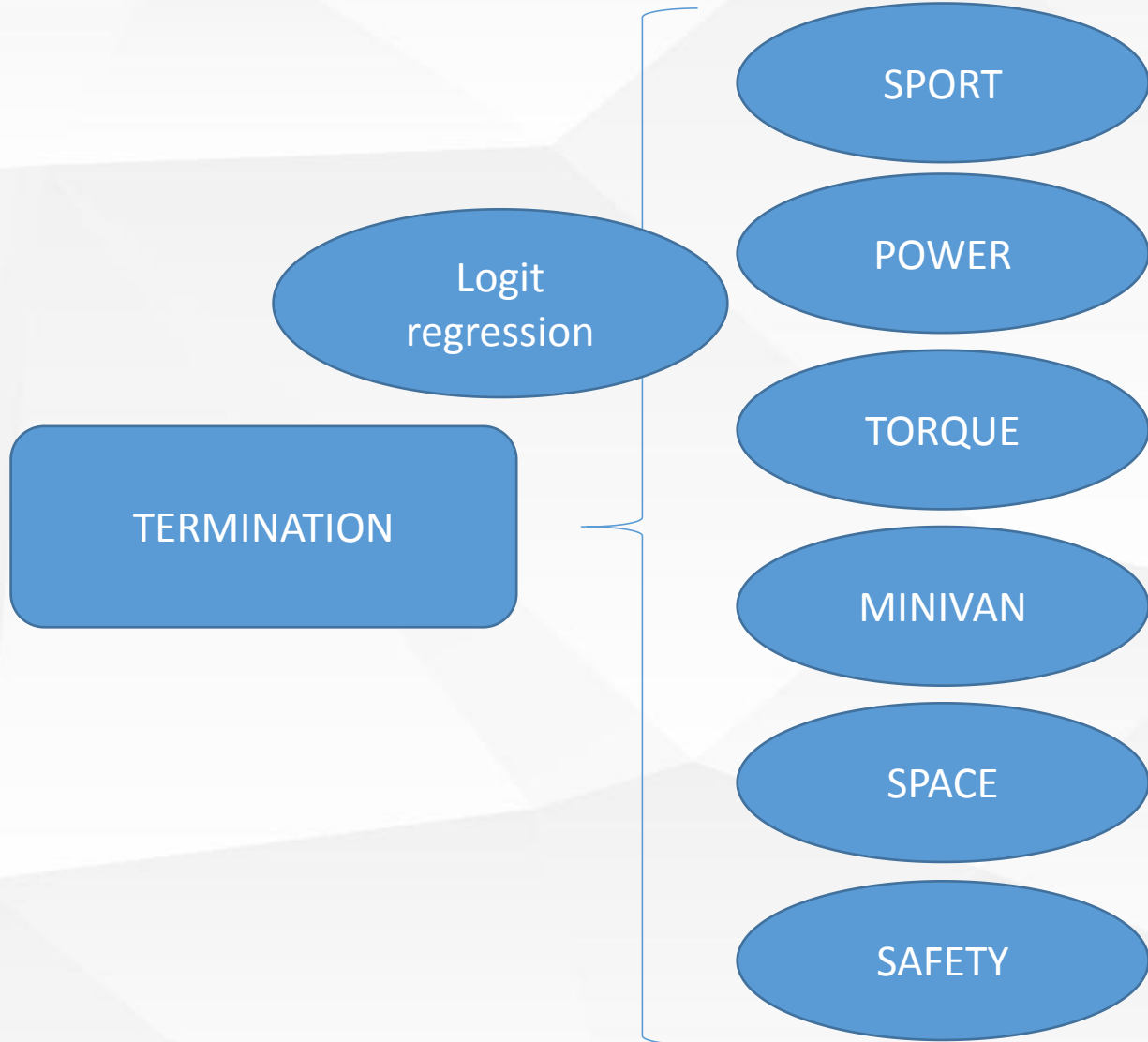
-0.096** (-2.69)	-0.063** (-2.76)	-0.056** (-2.71)	0.115 (1.47)	0.155** (3.38)	0.041* (2.09)
---------------------	---------------------	---------------------	-----------------	-------------------	------------------

Panel C: Multivariate OLS Regressions on **ALPHA**

-0.243** (-3.15)	-0.093** (-3.82)	-0.078** (-3.57)	0.268** (3.19)	0.192** (2.72)	-0.017 (-0.47)
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Operational Risk

$$TERMINATION = \begin{cases} 1, & \text{a fund stops reporting returns for that month} \\ 0, & \text{otherwise} \end{cases}$$



Operational Risk

Performance car buyers are more likely to terminate their funds.
Fund managers who own practical but unexciting cars are less likely to terminate their funds.

Independent Variable					
SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)
Panel A: Multivariate Logit Regressions on TERMINATION					
0.789**	0.398**	0.335**	-1.641**	-0.733**	-0.694**
(3.16)	(5.19)	(4.81)	(-3.10)	(-3.73)	(-4.61)
[0.004]	[0.002]	[0.001]	[-0.004]	[-0.003]	[-0.013]

Operational Risk



Operational Risk

Hedge fund managers who purchase performance cars are also more likely to report on their Form ADVs that they have been associated with past regulatory, civil, and criminal violations.

Independent Variable

SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)
--------------	--------------	---------------	----------------	--------------	---------------

Panel C: Multivariate Logit Regressions on VIOLATION

0.831** (2.97)	0.651** (5.01)	0.497** (4.19)	-1.459** (-2.91)	-0.325 (-0.77)	0.051 (0.25)
			[-0.186]	[-0.056]	[0.009]

Brown et al.(2009)一个源自于基金的业绩、波动、年龄、规模、费用结构和其他特征的一个操作风险指标

Panel D: Multivariate OLS Regressions on OMEGA

0.083* (2.06)	0.058** (5.22)	0.042** (4.14)	-0.253** (-2.97)	-0.172** (-2.83)	-0.075* (-2.05)
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Sensation seekers exhibit greater operational risk.

Trading Behavior



TURNOVER

Annualized turnover of a hedge fund manager's stock portfolio,



NRSQUARED

One minus the R² from the regression of fund excess returns



LOTTERY

The maximum daily stock return over the past month (or MAX)



NONSPRATIO

The ratio of the number of non-S&P 500 index stocks bought in a quarter to the total number of new positions in the quarter,



DISTINCTIVENESS

One minus the sample correlation of a fund's return with the average return of all funds belonging to the same investment style



ACTIVESHARE

Active Share or the fraction of fund portfolio holdings that differ from the S&P 500



EXCESSIVETRADING

The difference between the return that quarter of the portfolio of stocks held by the fund at the end of the prior year and the return that same quarter of the actual portfolio of stocks held by the fund.

Trading Behavior

Owners of cars with prosensation qualities trade more often, purchase more nonindex stocks, increase their Active Share vis-à-vis the S&P 500, exhibit lower R2s relative to the Fung and Hsieh (2004) seven-factor model, and engage in more distinctive strategies.

	Sport (1)	Nonsport (2)	Spread (3)	High Horse- power (4)	Low Horse- power (5)	Spread (6)	High Torque (7)	Low Torque (8)	Spread (9)
TURNOVER	0.232	0.171	0.061*	0.242	0.173	0.069*	0.233	0.180	0.053
NONSPRATIO	0.716	0.672	0.044*	0.741	0.662	0.079**	0.724	0.678	0.046**
ACTIVESHARE	0.588	0.538	0.050**	0.596	0.540	0.056**	0.589	0.545	0.044**
NRSQUARED	0.682	0.617	0.065**	0.650	0.597	0.053**	0.637	0.607	0.030**
DISTINCTIVENESS	0.715	0.703	0.012	0.726	0.683	0.043**	0.716	0.692	0.024*
EXCESSIVETRADING	0.069	0.044	0.025*	0.059	0.035	0.024**	0.048	0.046	0.002
LOTTERY	0.073	0.049	0.024**	0.082	0.052	0.030**	0.078	0.055	0.023**

Sensation seekers are more likely to trade excessively and are drawn to lottery-like stocks.

	Minivan (1)	Nonmi- nivan (2)	Spread (3)	ger Volume (4)	ger Volume (5)	Spread (6)	High Safety Rating (7)	Low Safety Rating (8)	Spread (9)
TURNOVER	0.085	0.212	-0.127**	0.151	0.191	-0.040*	0.177	0.175	0.002
NONSPRATIO	0.612	0.705	-0.093**	0.643	0.705	-0.062**	0.679	0.682	-0.003
ACTIVESHARE	0.421	0.551	-0.130**	0.460	0.568	-0.108**	0.506	0.537	-0.031**
NRSQUARED	0.586	0.653	-0.067**	0.625	0.676	-0.051*	0.649	0.659	-0.010
DISTINCTIVENESS	0.685	0.723	-0.038*	0.722	0.727	-0.005	0.715	0.735	-0.020*
EXCESSIVETRADING	0.045	0.066	-0.022	0.053	0.077	-0.024**	0.061	0.072	-0.011
LOTTERY	0.036	0.068	-0.032**	0.045	0.068	-0.023**	0.052	0.062	-0.010**



03

Hedge Fund Investors
and Sensation Seeking

Demand for Sensation-Seeking Hedge Funds

Fund of Hedge Funds (FoF) Portfolio						
Hedge Fund Portfolio	Sensation-Seeking Portfolio (SS) (1)	Sensation-Neutral Portfolio (SN) (2)	Sensation-Avoiding Portfolio (SA) (3)	Spread 1 (SS-SA) (4)	Spread 2 (SS-SN) (5)	Spread 3 (SA-SN) (6)
Panel A: Without Controlling for Co-variation with the Fung and Hsieh (2004) Factors						
Sensation-seeking portfolio (SS)	0.412** (2.64)	0.014 (0.19)	-0.270* (-2.54)	0.681** (5.47)	0.397** (3.30)	-0.284** (-2.92)
Sensation-neutral portfolio (SN)						0.025 (0.16)
Sensation-avoiding portfolio (SA)	-0.334 (-1.36)	-0.146 (-1.33)	0.010 (0.07)	-0.344 (-1.65)	-0.188 (-0.91)	0.156 (1.07)
R^2						
N	105	105	105	105	105	105

Sensation seeking drives investor preference for sensation-seeking hedge funds

sensation avoidance does not fuel investor demand for sensation-avoiding hedge funds.

Fund Flow- Performance Relationship

Dependent Variable = FLOW

Flows to sensation-seeking hedge funds are indeed more sensitive to performance than are flows to sensation-avoiding hedge funds.

	Sensation- Seeking	Sensation- Avoiding	Sensation- Neutral	Sensation- Seeking	Sensation- Avoiding	Sensation- Neutral	Sensation- Seeking HF's (7)	Sensation- Avoiding HF's (8)	Sensation- Neutral HF's (9)
RANK	7.703** (3.81)	1.214 (0.57)	3.423** (6.41)						
RANK_CAPM				3.733* (2.54)	-0.343 (-0.24)	0.761* (2.02)			
RANK_FH							3.724* (2.59)	-0.897 (-0.69)	1.691** (3.39)
RISK	14.305 (1.08)	-8.505 (-0.30)	-8.712 (-1.28)	18.936 (0.89)	-21.215 (-0.59)	0.464 (0.06)	20.703 (1.05)	-19.503 (-0.57)	0.808 (0.12)
MGT_FEE	0.170 (0.22)	1.134 (1.19)	-0.271* (-2.36)	-0.512 (-0.42)	0.349 (0.32)	-0.247 (-1.28)	-0.283 (-0.24)	0.375 (0.35)	-0.198 (-1.06)
PERF_FEE	-0.079 (-1.56)	-0.131 (-1.02)	-0.026 (-1.17)	-0.146 (-1.92)	-0.076 (-0.55)	-0.038 (-1.69)	-0.117 (-1.76)	-0.069 (-0.51)	-0.057* (-2.42)
LOCKUP	0.409 (0.82)	0.278 (0.64)	0.320 (1.70)	0.282 (0.46)	0.006 (0.01)	0.302 (1.41)	0.252 (0.42)	-0.015 (-0.03)	0.325 (1.50)
LEVERAGE	0.220 (0.34)	0.631 (0.60)	-0.135 (-0.73)	0.060 (0.07)	1.603 (1.61)	-0.174 (-0.85)	0.097 (0.12)	1.569 (1.61)	-0.217 (-1.10)
AGE	-0.169** (-3.15)	-0.057 (-0.69)	-0.095** (-5.61)	-0.152* (-2.32)	-0.027 (-0.33)	-0.082** (-4.05)	-0.151* (-2.32)	-0.034 (-0.41)	-0.093** (-4.86)
REDEMPTION	-0.102 (-0.46)	-0.115 (-0.26)	0.011 (0.26)	-0.339 (-1.29)	0.048 (0.11)	0.053 (1.21)	-0.209 (-0.91)	0.057 (0.14)	0.054 (1.24)
log(FUNDSIZE)	-0.108 (-0.36)	-0.987** (-3.21)	-0.319** (-4.66)	0.286 (0.90)	-0.874** (-2.93)	-0.181** (-2.68)	0.367 (1.16)	-0.870** (-2.93)	-0.240** (-3.35)
Strategy Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.271	0.371	0.130	0.164	0.275	0.067	0.156	0.278	0.091
N	199	110	1,753	199	110	1,753	199	110	1,753

Alignment with Investors

Dependent Variable = RISK				Dependent Variable = IDIORISK							
SPORT (1)	POWER (2)	TORQUE (3)	MD								FETY (12)
Panel A: Manager Does Not Coinvest Personal Capital											
1.492*	0.453*	0.436*	-0.796	-1.240**	-0.601*	0.846*	0.266*	0.257*	-0.736*	-0.694*	-0.311
(2.59)	(2.48)	(2.43)	(-1.63)	(-2.80)	(-2.15)	(2.56)	(2.25)	(2.14)	(-2.49)	(-2.39)	(-1.72)
Panel B: Manager Coinvests Personal Capital											
-0.339	-0.001	-0.082	-0.737	-1.962**	-0.536	0.051	-0.034	-0.076	-0.959**	-1.596**	-0.241
(0.21)	(-0.23)	(-0.67)	(-2.84)	(-4.29)	(-1.10)						
Panel C: Funds with Low Manager Total Deltas											
1.597**	1.049**	0.827**	0.738	-0.370	-0.001	0.001	0.001	0.001	0.001	0.001	0.001
(3.57)	(3.67)	(3.30)	(1.87)	(-0.89)	(-0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Panel D: Funds with High Manager Total Deltas											
-0.038	0.019	0.026	-0.735*	-1.362**	-0.880**	0.018	0.005	0.016	-0.558**	-1.099**	-0.575**
(-0.12)	(0.27)	(0.37)	(-2.59)	(-4.45)	(-4.49)	(0.11)	(0.11)	(0.32)	(-2.64)	(-5.88)	(-4.59)

Sharp differences in sensation-seeking activity between funds sorted on manager personal capital.

Fund managers are less likely to indulge in sensation seeking when their incentives are more aligned with those of their investors.

Striking differences in sensation-seeking activity between funds sorted on manager total delta.

Investor Perceptions

Sensation-avoiding managers are indeed more capable than sensation-seeking managers.

Independent Variable					
SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)
Panel C: Multivariate OLS Regressions on ALPHA					
-0.243** (-3.15)	-0.093** (-3.82)	-0.078** (-3.57)	0.268** (3.19)	0.192** (2.72)	-0.017 (-0.47)

Investor Perceptions

Panel A: Sensation Seeking Vehicle Attribute

Sports Car

Investors correctly perceive sensation seeking managers to be less competent.

(1) (2) (3) (4) (5) (6) (7) (8) (9)

Alpha (%) 0.20 0.20 0.00 0.19 0.20 -0.01 0.20 0.19 0.01

Panel B: Antisensation Vehicle Attribute

Minivan
(1)

Nonmi-
nivan
(2)

Spread
(3)

High
Passenger
Volume
(4)

Low
Passenger
Volume
(5)

Spread
(6)

High
Safety
Rating
(7)

Low
Safety
Rating
(8)

Spread
(9)

Alpha (%) 0.37 0.17 0.20** 0.19 0.17 0.02 0.16 0.24 -0.08

Investors do not fully appreciate the superior investment skills of sensation-avoiding managers.



04

Alternative Explanations
and Robustness Tests

Reverse causality

The act of buying or driving a performance car, rather than telegraphing a manager's innate preference for sensation seeking, actually begins to increase her tolerance for risk.

Dependent Variable = RISK						Dependent Variable = IDIORISK					
SPORT (1)	POWER (2)	TORQUE (3)	ACCELERATION (4)	TOP SPEED (5)	TYRE WEAR (6)	SPORT (7)	POWER (8)	TORQUE (9)	ACCELERATION (10)	TOP SPEED (11)	TYRE WEAR (12)
0.452*	0.228**	0.194**	-0.750**	-0.478**	-0.183	0.435**	0.180**	0.148**	-0.718**	-0.478**	-0.163
(2.39)	(3.49)	(2.92)	(-5.05)	(-2.92)	(-1.65)	(2.74)	(3.27)	(2.63)	(-4.45)	(-3.03)	(-1.56)

Consistent with the view that sensation seeking is a durable personality trait, our sensation-seeking proxies based on vehicle attributes also explain past fund risk.

Panel E: Dependent Variable = Risk Measured over the Two-Year Period Prior to Car Purchase

Gender

Barber and Odean (2001) show that female investors take on less risk than their male counterparts

(<https://genderize.io/>) to determine gender using a manager's first name.

Dependent Variable = RISK			Dependent Variable = IDIORISK						
SPORT (1)	POWER (2)	TORQUE (3)	Gender does not drive our results.						SAFETY (12)

Panel F: Controlling for Gender

0.688**	0.352**	0.321**	-0.643**	-1.190**	-0.486**	0.393**	0.212**	0.192**	-0.573**	-0.767**	-0.257**
(3.38)	(5.02)	(4.84)	(-3.42)	(-5.30)	(-3.28)	(3.17)	(4.33)	(4.01)	(-4.42)	(-4.96)	(-2.78)

Social status or wealth

Piff et al. (2012), upper-class individuals, driven in part by greed, exhibit greater unethical tendencies. Greed among high-status drivers may motivate them to take on more investment risk

Dependent Variable = RISK						Dependent Variable = IDIORISK					
SPORT	POWER	TORQUE	MINIVAN	SPACE	SAFETY	SPORT	Inferences remain unchanged				ITY
(1)	(2)	(3)	(4)	(5)	(6)	(7)					

Control for vehicle price

Panel G: Controlling for Vehicle Price

1.017**	0.376**	0.333**	-0.642**	-1.188**	-0.487**	0.603**	0.226**	0.199**	-0.573**	-0.766**	-0.257**
(4.61)	(5.20)	(4.93)	(-3.41)	(-5.29)	(-3.28)	(4.49)	(4.52)	(4.10)	(-4.41)	(-4.95)	(-2.78)

Cull data on fund manager home prices

H: Controlling for the Purchase Price of the Manager's House

1.758*	0.477**	0.346*	-1.516*	-1.117*	-1.813**	0.932*	0.279*	0.206*	-1.123	-0.879*	-0.852*
(2.30)	(2.69)	(2.39)	(-2.09)	(-2.08)	(-4.07)	(2.20)	(2.33)	(2.10)	(-1.73)	(-2.45)	(-2.37)

Biological age

Manager biological age may also drive our results.

To account for manager biological age, we cull data on fund manager date of birth from Peoplewise (www.peoplewise.com)

Dependent Variable = RISK						Dependent Variable = IDIORISK					
SPORT	POWER	TORQUE	MINVAN	SPACE	SAFETY	SPORT	POWER	TORQUE	MINVAN	SPACE	SAFETY
(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
0.754**	0.310**	0.289**	-0.329	-1.058**	-0.400**	0.440**	0.189**	0.181**	-0.354*	-0.674**	-0.216*
(3.62)	(4.15)	(3.86)	(-1.67)	(-4.56)	(-2.90)	(3.39)	(3.61)	(3.33)	(-2.54)	(-4.26)	(-2.49)

Panel J: Controlling for Manager Biological Age

Our inferences remain unchanged with this adjustment.

Other risk-seeking motives

Performance car purchases may be driven by risk-seeking motives that are unrelated to sensation seeking.

we control for past fund risk or idiosyncratic risk estimated over the last 24 months and reestimate our baseline regressions

Dependent Variable = RISK						Dependent Variable = IDIORISK				
SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)	SPORT (7)	Inferences remain unchanged			ETY (2)

Panel L: Controlling for Past Risk Seeking

0.624**	0.425**	0.352**	-0.532**	-0.858**	-0.258**	0.298**	0.263**	0.224**	-0.383**	-0.519**	-0.132*
(4.13)	(8.60)	(7.75)	(-5.05)	(-7.00)	(-3.24)	(2.97)	(7.18)	(6.56)	(-3.89)	(-5.24)	(-2.28)

Skewness or excessively trade

Performance vehicle purchases could proxy for either skewness preference or a propensity to trade excessively.

We control for past fund **return skewness** estimated over the last 24 months as well as **EXCESSIVETRAIDING** estimated over the last eight quarters and reestimate our baseline risk regressions.

Dependent Variable = RISK

SPORT (1)	POWER (2)	TORQUE (3)	MINIVAN (4)	SPACE (5)	SAFETY (6)
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Neither past skewness preference nor past excessive trading drives our findings.

Panel M: Controlling for Past Skewness and Excessive Trading

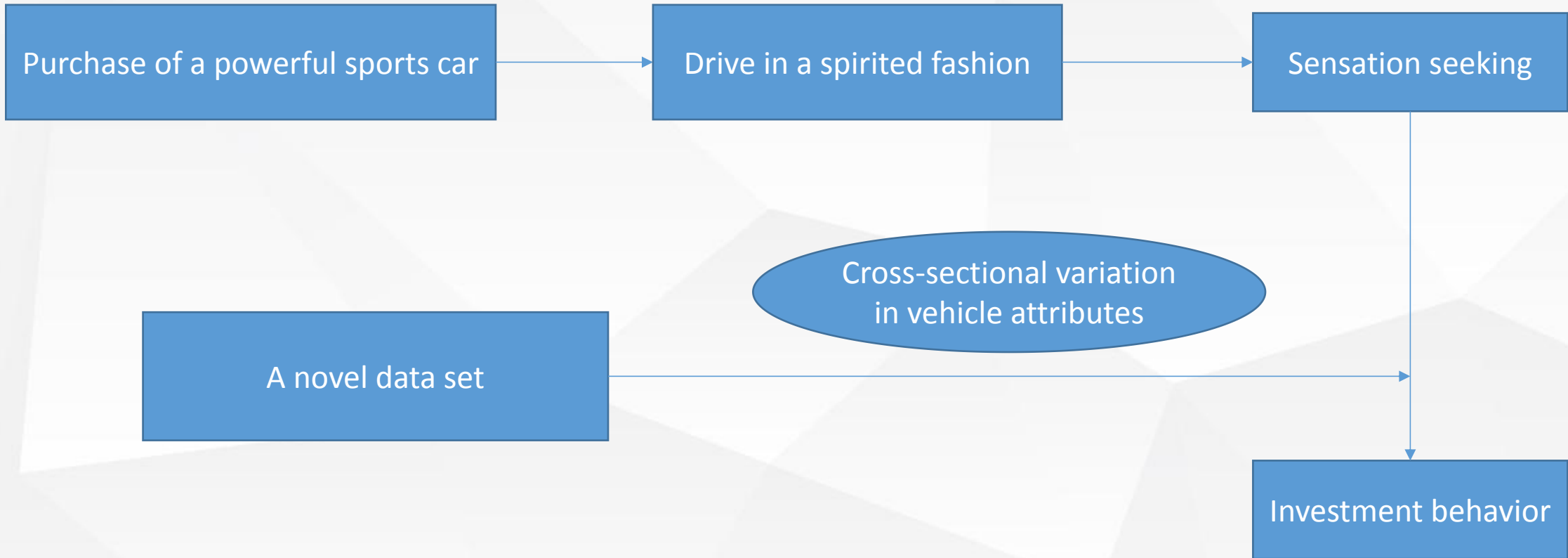
0.801*	0.334**	0.240*	-0.560	-1.290**	-0.817**	0.496**	0.170*	0.116	-0.605**	-0.940**	-0.480**
(2.12)	(2.90)	(2.25)	(-1.76)	(-3.26)	(-2.93)	(2.89)	(2.57)	(1.83)	(-2.61)	(-4.08)	(-2.88)



05

Conclusion

Foundation



Conclusion1

(1) Taking on more investment risk without being compensated with higher returns.

(2) Terminating their funds, disclose violations on their Form ADVs, and exhibit greater operational risk.

(3) Trading more frequently, actively, and unconventionally, they also gravitate toward lottery-like stocks.,

(4) Trading hurts the performance of sensation seekers more

Validate the advice given by some hedge fund allocators to avoid managers who drive fancy sports cars.

Conclusion2

(1) Some investors are themselves susceptible to sensation seeking

(2) Sensation-seeking investors fuel the demand for sensation seeking managers

While investors understand that sensation-seeking managers are less competent, they do not fully appreciate the superior investment skills of sensation-avoiding managers.



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