Internet Appendix for

Searching for Gambles:
Gambling Sentiment and Stock Market Outcomes

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TABLE A1
Gambling Sentiment

This table reports the correlations between ASVI and variables that are likely to affect investors' propensity to gamble, all measured at monthly frequency. The first set of variables include five macroeconomic variables: U.S. monthly unemployment rate (UNEMP), unexpected inflation (UEI, i.e., current month inflation minus the average of the past 12 realizations), monthly growth in industrial production (MP), monthly default risk premium (RP, i.e., difference between Moody's Baa rated and Aaa rated corporate bond yields), or term spread (TS, i.e., difference between the yields of a constant maturity 10 year Treasury bond and 3 month Treasury bill). SENT is the Baker and Wurgler (2007) investor sentiment index. The jackpot dummy variable equals to one in months with attention-grabbing jackpots, or zero otherwise. Attention-grabbing jackpots are defined as those that break the national record or become the second largest jackpot at the time, or the largest jackpot over the past 24 months. Details of these jackpots are reported in Table A2 in the appendix. The sample period is from June 2004 to December 2018.

	ASVI	UNEMP	UEI	MP	RP	TS	JACKPOT
UNEMP	0.01						
UEI	0.02	0.04					
MP	0.01	0.03	0.05				
RP	0.03	0.35	-0.23	-0.49			
TS	0.00	0.71	0.00	-0.04	0.24		
JACKPOT	0.55	0.01	0.04	0.08	-0.03	-0.06	
SENT	0.00	-0.51	0.08	0.12	-0.48	-0.65	0.06

TABLE A2
Attention-Grabbing Jackpots

This table provides details about the twelve attention-grabbing jackpots in our sample. ID corresponds to data points shown in Panel A of Figure 1. Date is the final drawing day of the jackpot. *Value* is the prize of winning the jackpot in million dollars. Game is the corresponding lotto game of a jackpot. Type indicates whether the jackpot is record breaking or near record. Record-breaking jackpots are the jackpots that break the national record at the time. They include the $1,586 million jackpot announced on January 13, 2016, and three other jackpots announced on February 18, 2006, March 6, 2007, and March 30, 2012. Near-record jackpots include eight jackpots that are either the second largest jackpot at the time or the largest jackpot over the past 24 months. Source: Mega Millions, Powerball.

ID	Date	Value ($ million)	Game	Type
A	19/10/2005	340	Powerball	Near-record
B	18/02/2006	365	Powerball	Record-breaking
C	06/03/2007	390	Mega Millions	Record-breaking
D	28/08/2009	336	Mega Millions	Near-record
E	04/01/2011	380	Mega Millions	Near-record
F	30/03/2012	656	Mega Millions	Record-breaking
G	28/11/2012	587.5	Powerball	Near-record
H	18/05/2013	590.5	Powerball	Near-record
I	17/12/2013	648	Mega Millions	Near-record
J	13/01/2016	1586	Powerball	Record-breaking
K	23/08/2017	758.7	Powerball	Near-record
L	23/10/2018	1537	Mega Millions	Near-record

TABLE A3
Stock Performance among U.S. States Sorted by Gambling Sentiment: Robustness

This table reports the performance of a value-weighted portfolio of lottery or non-lottery stocks. Abnormal return is measured as the intercept of monthly return regressions by using the Daniel, Hirshleifer, and Sun (2019) three-factor risk and behavioral model (BF3, in Panel A) and the Stambaugh and Yuan (2016) four-factor mispricing model (M4, in Panel B) as benchmarks. Full Sample reports the abnormal portfolio returns for all stocks in our sample. Strong (Weak) Sentiment reports the abnormal portfolio returns of stocks headquartered in U.S. states with strong (weak) gambling sentiment. Strong – Weak measures the abnormal return difference between stocks located in states with strong and weak gambling sentiment. Strong (Weak) gambling sentiment state group includes states above (below) median search volume intensity for the topic "Lottery" in the previous year. Gambling sentiment sorted state groups are updated in January of each year. Long Short is a portfolio strategy that goes long in the lottery stock portfolio and goes short in the non-lottery stock portfolio. The sample period is from 2005 to 2018 in Panel A and from 2005 to 2016 in Panel B. *N* reports the number of months. The *t*-statistics computed using Newey and West (1987) adjusted standard errors are reported in parentheses below the estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: BF3

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Full Sample	-0.332	0.004	-0.336
	(-1.424)	(0.109)	(-1.296)
Strong Sentiment	-0.494*	-0.004	-0.490*
	(-1.932)	(-0.082)	(-1.741)
Weak Sentiment	-0.162	0.011	-0.173
	(-0.539)	(0.158)	(-0.542)
Strong – Weak	-0.332	-0.015	-0.317
	(-1.146)	(-0.154)	(-1.091)
N	168	168	168

Panel B: M4

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Full Sample	-0.039	-0.009	-0.030
	(-0.213)	(-0.266)	(-0.150)
Strong Sentiment	-0.229	0.005	-0.234
	(-1.155)	(0.126)	(-1.076)
Weak Sentiment	0.227	-0.025	0.252
	(0.724)	(-0.331)	(0.751)
Strong – Weak	-0.456	0.030	-0.486
	(-1.387)	(0.319)	(-1.407)
N	144	144	144

TABLE A4
Performance of Stocks Headquartered in U.S. States with Strong Gambling Sentiment: Robustness

This table reports the performance of a value-weighted portfolio of stocks located in U.S. states with strong gambling sentiment. Abnormal return is measured as the intercept of monthly return regressions by using the Daniel, Hirshleifer, and Sun (2019) three-factor risk and behavioral model (BF3, in Panels A and C) or the Stambaugh and Yuan (2016) four-factor mispricing model (M4, in Panels B and D) as the benchmark. Panels A and B report the long-term performance of stocks with different levels of institutional ownership (IO). Low (High) IO is the abnormal return of a value-weighted portfolio of lottery or non-lottery stocks with less (more) than ten percent institutional ownership. Panels C and D report the long-term performance of firms headquartered in U.S. states with different levels of local bias (LB). Strong LB (Weak LB) is the abnormal return of stocks headquartered in the top (bottom) 17 states sorted by local bias. Low – High (Strong – Weak) reports the abnormal return difference between the same types of stocks with different levels of institutional ownership (local bias). Long Short reports the abnormal return earned by a portfolio strategy that goes long in lottery stocks and goes short in non-lottery stocks. The sample period is from 2005 to 2018 in Panels A and C, and from 2005 to 2016 in Panels B and D. *N* reports the number of months. The *t*-statistics computed using Newey and West (1987) adjusted standard errors are reported in parentheses below the estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Stocks Sorted by Institutional Ownership (BF3)

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Low IO	-1.665***	-0.029	-1.636***
	(-4.896)	(-0.125)	(-3.941)
High IO	-0.378	-0.002	-0.376
	(-1.385)	(-0.038)	(-1.262)
Low – High	-1.287***	-0.027	-1.260***
	(-3.645)	(-0.113)	(-3.094)
N	168	168	168

Panel B: Stocks Sorted by Institutional Ownership (M4)

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Low IO	-1.573***	0.124	-1.697***
	(-4.297)	(0.500)	(-3.596)
High IO	-0.071	0.007	-0.078
	(-0.323)	(0.158)	(-0.326)
Low – High	-1.502***	0.118	-1.620***
	(-3.738)	(0.461)	(-3.225)
N	144	144	144

TABLE A4 (Cont'd)

Panel C: Stocks Sorted by Local Bias (BF3)

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Strong LB	-0.444	0.093	-0.537
	(-1.300)	(0.970)	(-1.503)
Weak LB	0.572	-0.261*	0.834*
	(1.405)	(-1.895)	(1.786)
Strong – Weak	-1.017***	0.354**	-1.371***
	(-2.828)	(1.987)	(-3.302)
N	168	168	168

Panel D: Stocks Sorted by Local Bias (M4)

	(1) Lottery Stocks	(2) Non-Lottery Stocks	(3) Long Short
Strong LB	0.024	0.060	-0.036
	(0.095)	(0.753)	(-0.135)
Weak LB	0.878*	-0.165	1.043*
	(1.805)	(-1.173)	(1.972)
Strong – Weak	-0.854**	0.225	-1.079**
	(-2.119)	(1.315)	(-2.391)
N	144	144	144

TABLE A5
Gambling Sentiment and Stock Splits: Logit Model

This table reports the results of our probit estimate. We run the following regressions:

$$\text{Logit}\,(SPLIT_{i,t}) = \alpha + \beta_1 D_{ASVIt-1} + \beta_2 D_{Pi,t-1} + \beta_3 D_{ASVIt-1} \times D_{Pi,t-1} + \beta 4 RETURN_{i,t} + \beta_5 RETURN_{t-1} + \beta_6 SIZE_{t-1} + \beta_7 BM_{t-1} + \beta_8 SPLITTER_{i,t-12} + \epsilon_t.$$

The dependent variable is equal to one if a company splits its shares in a given month. Independent variables include a dummy variable of the abnormal search volume intensity for the topic" lottery" ($D_{ASVIt-1}$), a dummy variable of stock prices ($Dp_{i,t-1}$), and their interaction term ($D_{ASVIt-1} \times Dp_{i,t-1}$). $D_{ASVIt-1}$ is equal to one if $ASVI_{t-1}$ is above the 70th percentile of all previous observations. D_{pt-1} is equal to one if a firms' price is above the 70th percentile of all stock in the CRSP universe in a given month. Control variables include contemporaneous and lagged monthly returns ($RETURN_{i,t}$ and $RETURN_{i,t-1}$). We also include size ($SIZE_{i,t-1}$) and book to market ratio ($BM_{i,t-1}$) at the beginning of the month. $SIZE_{i,t-1}$ is the natural logarithm of the market capitalization of stock *i* in month *t-1* while $BM_{i,t-1}$ is defined as the book value of the firm over its market value. $SPLITTER_{i,t-12}$ is equal to one if a firm splits its share in the previous twelve months. Columns 1 to 5 report the results using baseline ASVI while Column 6 reports the results using jackpot adjusted ASVI. The sample period is from June 2004 to December 2018. *N* reports the number of firm month observations. The *t*-statistics computed using standard errors clustered by firm and by time are reported in parentheses below the estimates. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
$D_{ASVIt-1} \times D_{Pt-1}$	1.307**	1.392*	1.385*	1.356**	1.358**	1.468*
	(2.082)	(1.876)	(1.876)	(1.975)	(1.979)	(1.727)
$D_{ASVIt-1}$	-0.942	-1.035	-1.030	-1.008	-1.007	-1.238
	(-1.465)	(-1.357)	(-1.357)	(-1.443)	(-1.442)	(-1.455)
D_{Pt-1}	3.698***	3.799***	3.923***	3.724***	3.728***	3.774***
	(17.686)	(16.565)	(16.647)	(15.937)	(15.947)	(16.673)
$RETURN_t$		0.005***	0.005***	0.007***	0.007***	0.008***
		(7.228)	(7.092)	(7.913)	(7.880)	(8.295)
$RETURN_{t-1}$		0.009***	0.009***	0.007***	0.007***	0.007***
		(5.494)	(5.655)	(6.351)	(6.332)	(6.410)
$SIZE_{t-1}$			-0.047*	-0.124***	-0.122***	-0.123***
			(-1.842)	(-4.344)	(-4.221)	(-4.268)
BM_{t-1}				-2.335***	-2.359***	-2.356***
				(-12.561)	(-12.551)	(-12.494)
$SPLITTER_{t-12}$					-0.571*	-0.565*
					(-1.734)	(-1.713)
CONSTANT	-9.488***	-9.608***	-9.355***	-7.680***	-7.678***	-7.669***
	(-40.134)	(-37.265)	(-30.521)	(-23.979)	(-23.905)	(-24.532)
N	663,619	657,578	654,778	654,778	654,778	654,778
Pseudo R^2	0.130	0.134	0.134	0.154	0.155	0.154

FIGURE A1
Search Volume Intensity for "Lottery"

This figure plots the time-series of the search volume intensity (SVI) for the topic "Lottery" in the U.S. region from 2004 to 2018. Points A to L correspond to the twelve attention-grabbing jackpots. We define attention-grabbing jackpots as those that break the national record or become the second largest jackpot at the time, or the largest jackpot over the past 24 months. The prize and date of the twelve jackpots are reported in Appendix Table A2. Source: Google Trends.

Panel A: National Level Search Volume Intensity for "Lottery"

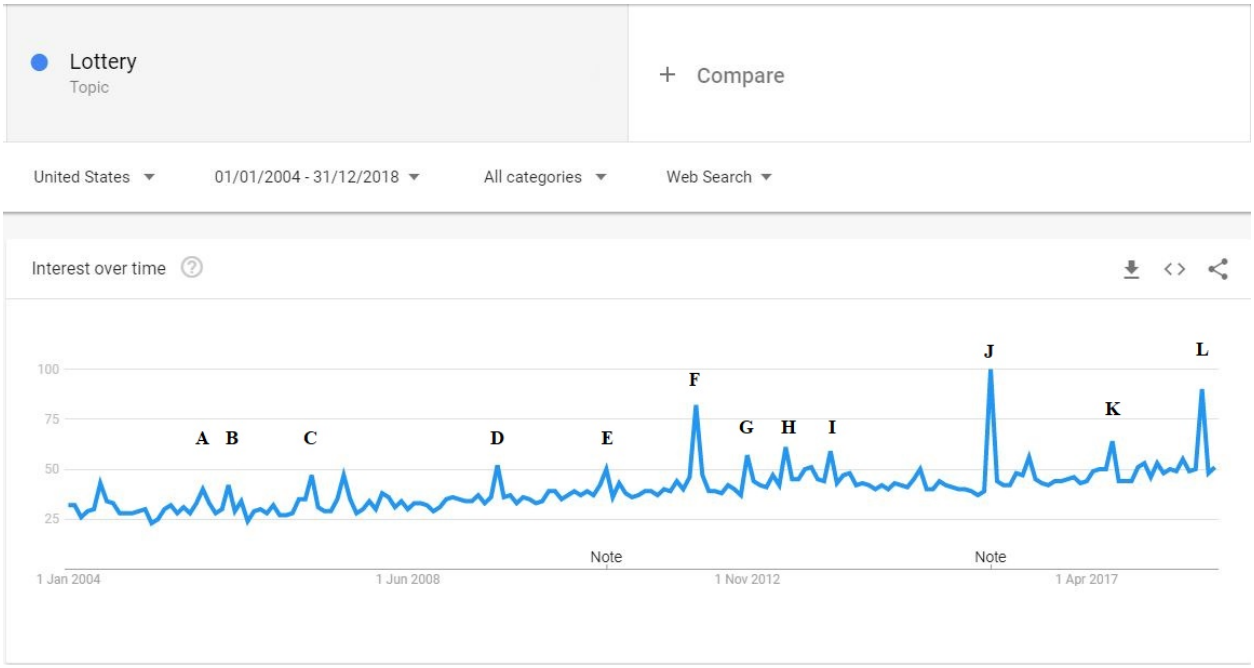

FIGURE A1 (Cont'd)

This panel plots the time-series of the search volume intensity (SVI) for the topic "Lottery" in the U.S. region from 2009 to 2014. Two Mega Million jackpots of similar sizes are labeled on the time-series: a $336 million jackpot in August 2009, and a $326 million jackpot in November 2014. Source: Google Trends, Mega Millions.

Panel B: Search Volume Intensity for "Lottery" of Jackpots with Similar Sizes

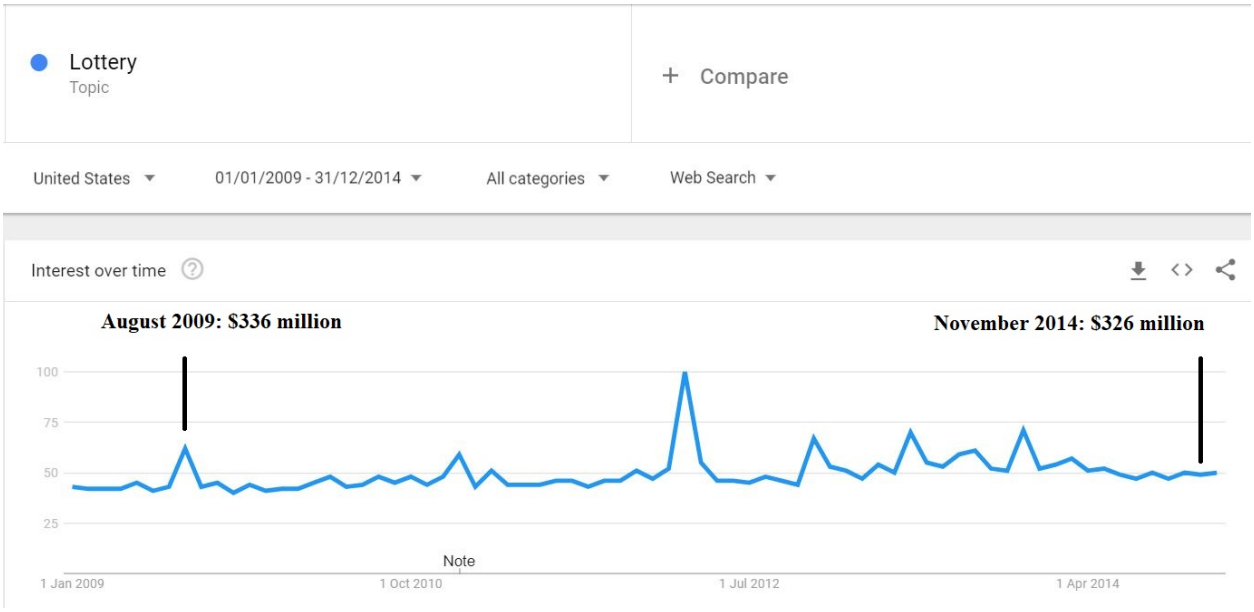

FIGURE A1 (Cont'd)

This panel shows the geographical distribution of the search volume intensity (SVI) for the topic "Lottery". Darker color indicates stronger search volume intensity. The intensity is calculated based on the average *SVI* during the 2004 to 2018 period. Source: Google Trends.

Panel C: Geographical Distribution of Search Volume Intensity for "Lottery"