HIGH-RISK STOCK TRADING: INVESTMENT OR GAMBLING?

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Overview

- Perceived differences between investing and gambling

- Public perception of which activities are gambling

- Formal definitions of gambling, investing, and speculation

- How investing and gambling are theoretically related

- A brief review of the literature on the relationship between investing and gambling

- Our study

- Future directions for research

PHOTO: ART STREIBER

"If You Think Investing is Gambling, You're Doing it Wrong!"

Warren Buffet

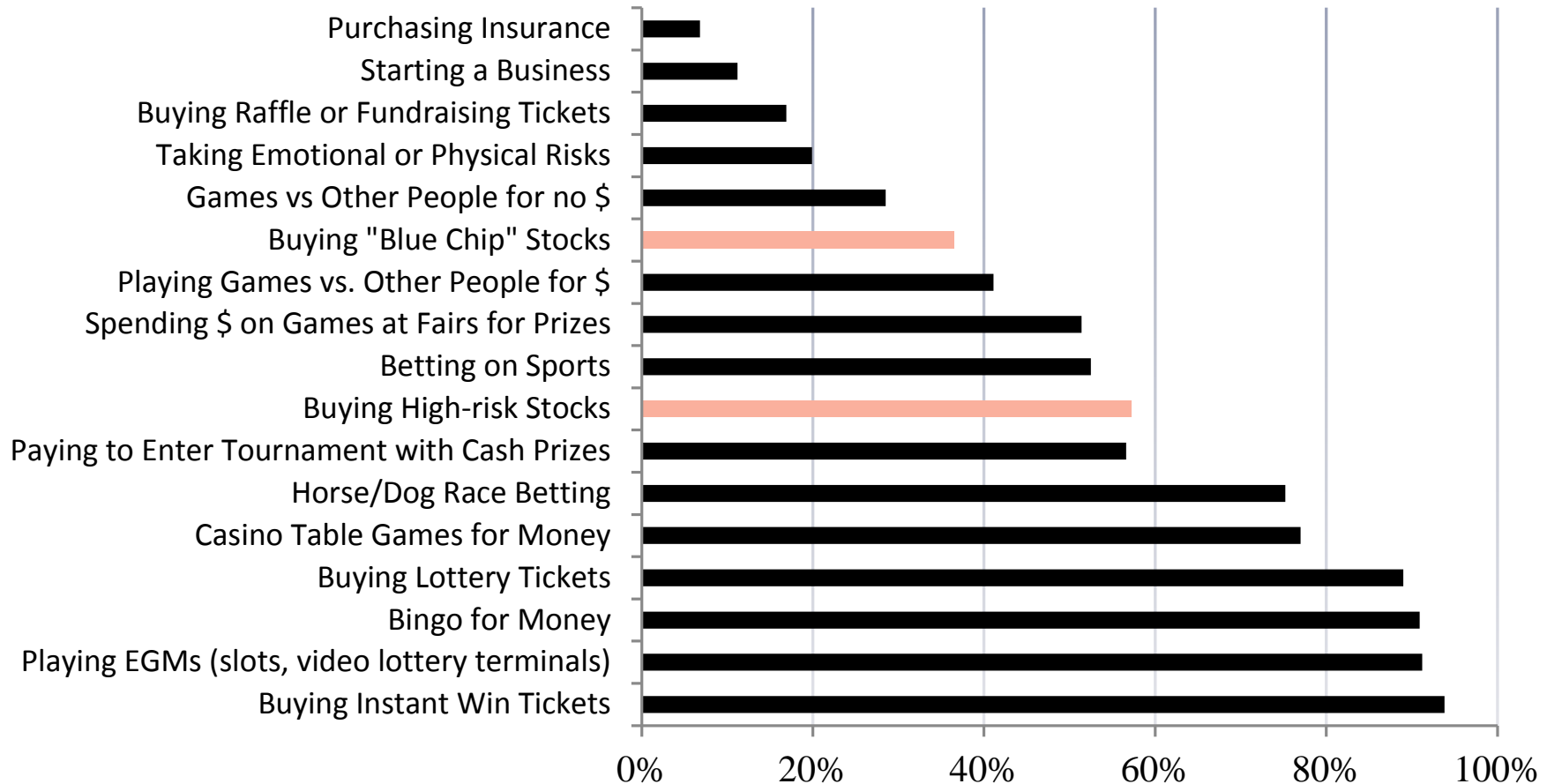# Common Perceptions of Investing versus Gambling

- Investing has economic utility; gambling does not.

- Investing has positive expected returns; gambling has negative.

- Gambling can be addictive and destructive, investing is healthy.

- Investors are risk-averse; gamblers are risk-seekers.

- Investing is long-term process; gambling focuses on immediate outcomes.

- Investing is based on skill and knowledge; whereas gambling is based on luck and emotions.

Public Perception

% of North American Adults Indicating whether they consider the Activity to be 'Gambling' (n = 12,843)

Activity	%
Purchasing Insurance	
Starting a Business	
Buying Raffle or Fundraising Tickets	
Taking Emotional or Physical Risks	
Games vs Other People for no $	
Buying "Blue Chip" Stocks	
Playing Games vs. Other People for $	
Spending $ on Games at Fairs for Prizes	
Betting on Sports	
Buying High-risk Stocks	
Paying to Enter Tournament with Cash Prizes	
Horse/Dog Race Betting	
Casino Table Games for Money	
Buying Lottery Tickets	
Bingo for Money	
Playing EGMs (slots, video lottery terminals)	
Buying Instant Win Tickets	

Reproduced with permission from Williams, Stevens, &Nixon (2011)

Formal Definitions

Investing – Putting money into an asset with the expectation of capital appreciation, dividends, and/or interest earning. Most forms of investment involve some risk.

Gambling – Staking money or material goods on an event with an uncertain outcome in the hope of winning additional money or material goods.

- *Three elements: Stake, Prize, and Chance*

The Intersection of Gambling and Investing?

Speculation: Engaging in risky financial transactions in an attempt to profit from fluctuations in the market value of a tradable good such as a financial instrument, rather than attempting to profit from the underlying financial attributes embodied in the instrument such as capital gains, interest, or dividends.

- Lottery-Type/Penny Stocks
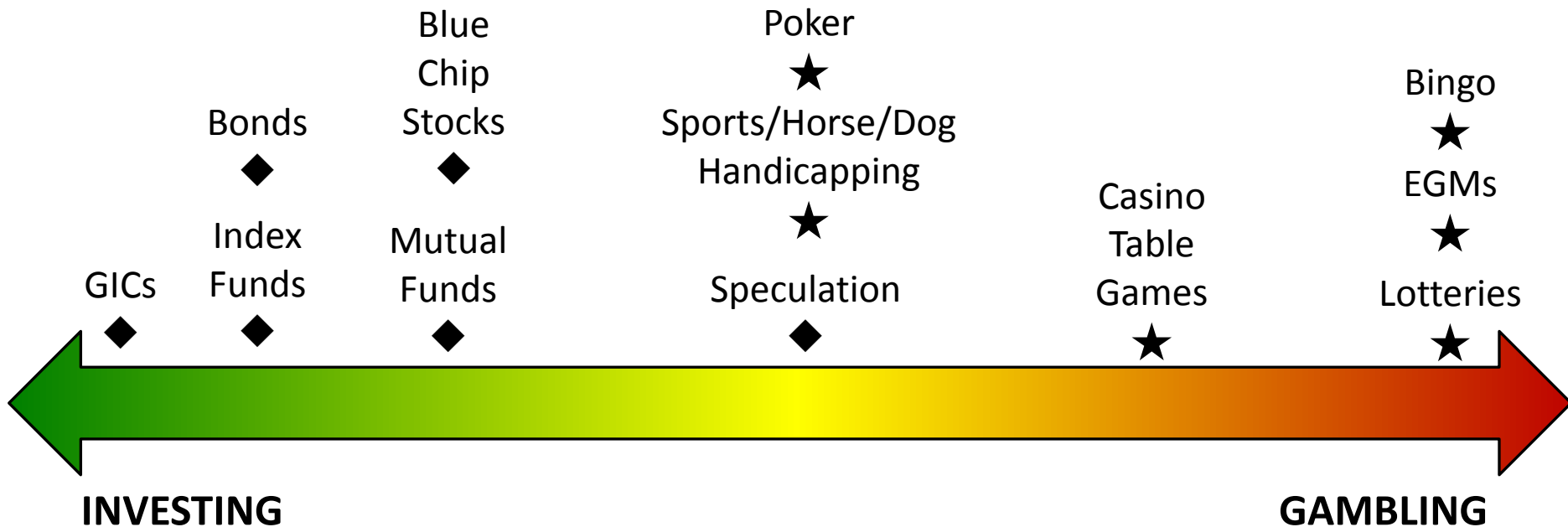- Day Trading
- Derivatives

Potential Expected Return in Investing and Gambling

Positive Expected Return Over Time

Negative Expected Return Over Time

Blue Chip Stocks ◆

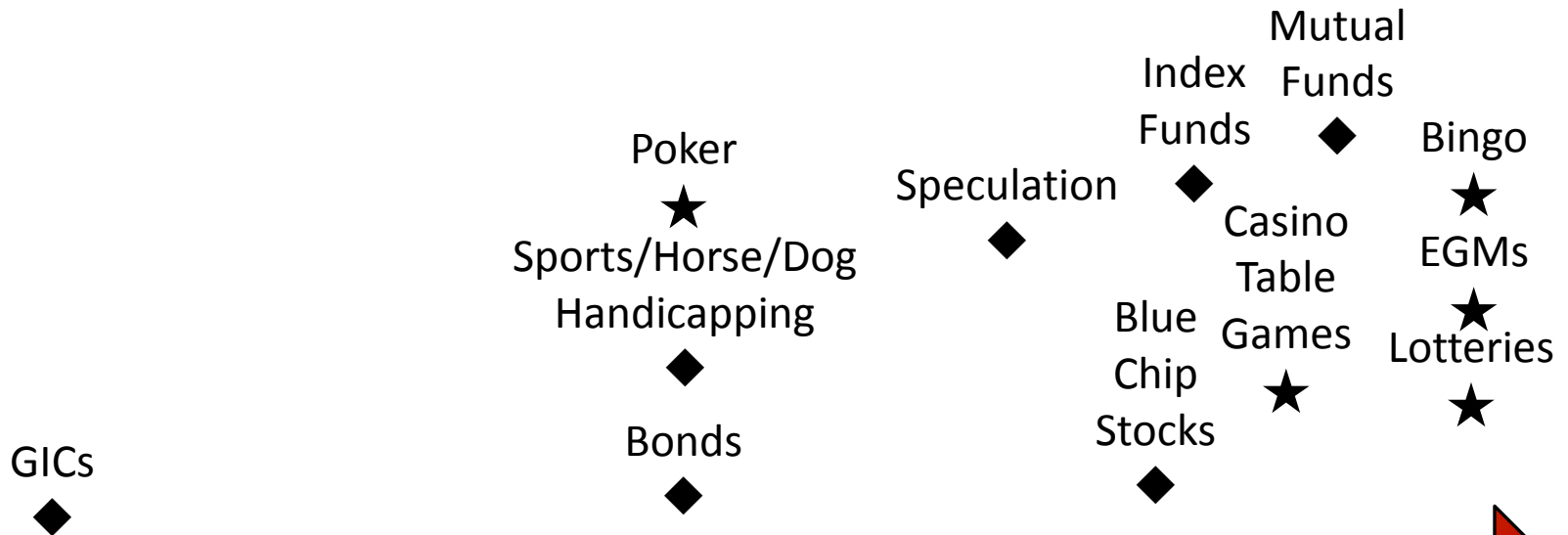Poker ★

Bingo ★

Bonds ◆

Sports/Horse/Dog Handicapping ★

EGMs ★

Index Funds ◆

Mutual Funds ◆

Casino Table Games ★

GICs ◆

Speculation ◆

Lotteries ★

INVESTING

GAMBLING

Randomness in Investment and Gambling Event Outcomes

Non-Random

Random

Mutual
Funds

Index
Funds ◆

Poker ★

Speculation ◆

Bingo

★

Sports/Horse/Dog
Handicapping ◆

Casino
Table
Games

EGMs

★

Blue
Chip
Stocks ◆

★

Lotteries

★

Bonds ◆

GICs ◆

Skill versus Chance in Investing and Gambling

Skill

Chance

Speculation ◆

Poker ★

Sports/Horse/Dog Handicapping ★

Blue Chip Stocks ◆

Bonds ◆

Mutual Funds ◆
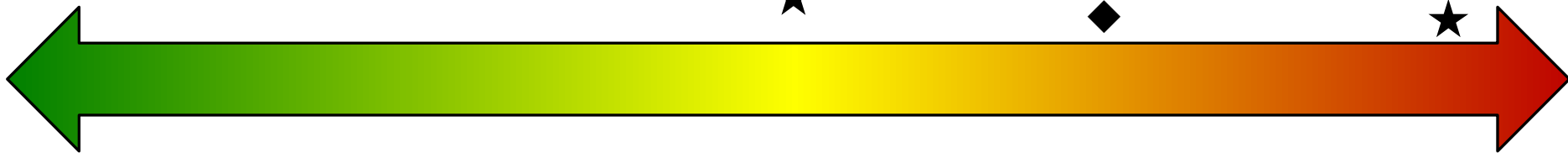
Casino Table Games ★

Bingo ★

EGMs ★

Lotteries ★

Literature on the Relationship between Investing and Gambling

- Barber et al., (2009) - Taiwan introduced the national lottery, stock turnover on the Taiwanese Stock Exchange dropped substantially, the author's proposed that this drop in trading activity could be, at least in part, due to some people choosing to play the lottery instead of trading stock

- Kumar, Page, & Splat (2014) - Lottery-like stocks co-move strongly with one another and the sale of lottery tickets. This co-movement is strongest among lottery stocks located in regions where investors have a greater propensity to gamble

- Gao & Lin (2015) – Increased jackpot size is associated with decreased trading volume

Literature on the Relationship between Investing and Gambling

- Dorn & Sengmueller (2009) - People who report that they trade stock because they gain enjoyment from the further suggest that there are three different forms of enjoyment people derive from trading stock: 1) leisure, 2) aspirations of high payoffs, and 3) sensation seeking, with the latter two types of enjoyment being categorized as "gambling motives".

- Markiewicz & Weber (2013) - higher scores in the 'gambling' domain of the DOSPERT, a domain specific self-report of risk-accepting attitudes, are correlated with excessive stock trading and excessive gambling (Mishra, Lalumière, & Williams, 2010)

Research Questions

1. To what extent do traditional gamblers engage in high-risk stock trading and vice versa?

2. In general, how well do different forms of gambling correlate with high-risk stock trading?

3. What are the socio-demographic characteristics of high-risk stock traders?

Hypothesis and Predictions

1. Gamblers should be more likely to engage in high-risk stock trading than non-gamblers

2. High-risk stock traders will have higher rates of involvement in all types of gambling

3. Problem gambling is likely to be more prevalent among high-risk stock traders than 'traditional' gamblers (as heavy gambling is a characteristic of problem gambling)

4. High-risk stock traders will have a preference for skill-based gambling formats

5. High-risk stock traders will have the same socio-demographic characteristics as individuals that have a preference for skill-based forms of gambling

Samples

- 2 large scale Canadian datasets which asked questions about both gambling and high-risk stock market purchase:

1. *Canadian Telephone Survey (CTS) of Gambling and Problem Gambling*
    - 8498 Canadian adults (telephone interview)
    - Response Rate 46.6%
    - Last major prevalence study of gambling in Canada

2. *Quinte Longitudinal Study of Problem Gambling (QLS)*
    - 3065 adult residents of Ontario (self-administered questionnaire)
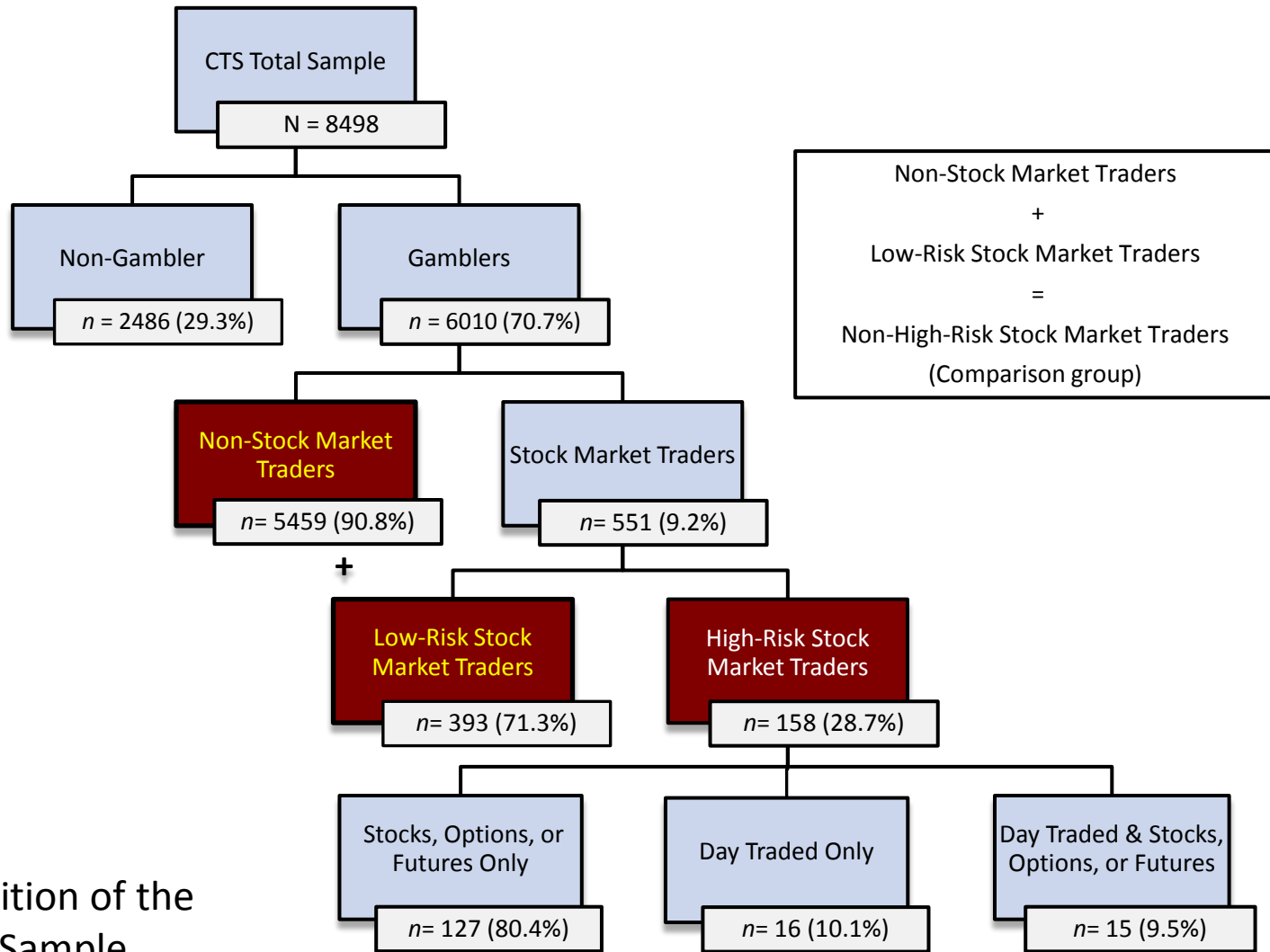   - Response Rate 21.3%

Independent Variables

- Age
- Gender
- Ethnic Background
- Marital Status
- Income
- Debt

- Health
- Mental Health
- Substance Use
- Gambling Frequency
- Gambling Formats
- Problem Gambling

Results

Composition of the CTS Sample

CTS Total Sample

N = 8498

Non-Gambler
n = 2486 (29.3%)

Gamblers
n = 6010 (70.7%)

Non-Stock Market Traders
+
Low-Risk Stock Market Traders
=
Non-High-Risk Stock Market Traders
(Comparison group)

Non-Stock Market Traders
n= 5459 (90.8%)

Stock Market Traders
n= 551 (9.2%)

+

Low-Risk Stock Market Traders
n= 393 (71.3%)

High-Risk Stock Market Traders
n= 158 (28.7%)

Stocks, Options, or Futures Only
n= 127 (80.4%)

Day Traded Only
n= 16 (10.1%)

Day Traded & Stocks, Options, or Futures
n= 15 (9.5%)

Results
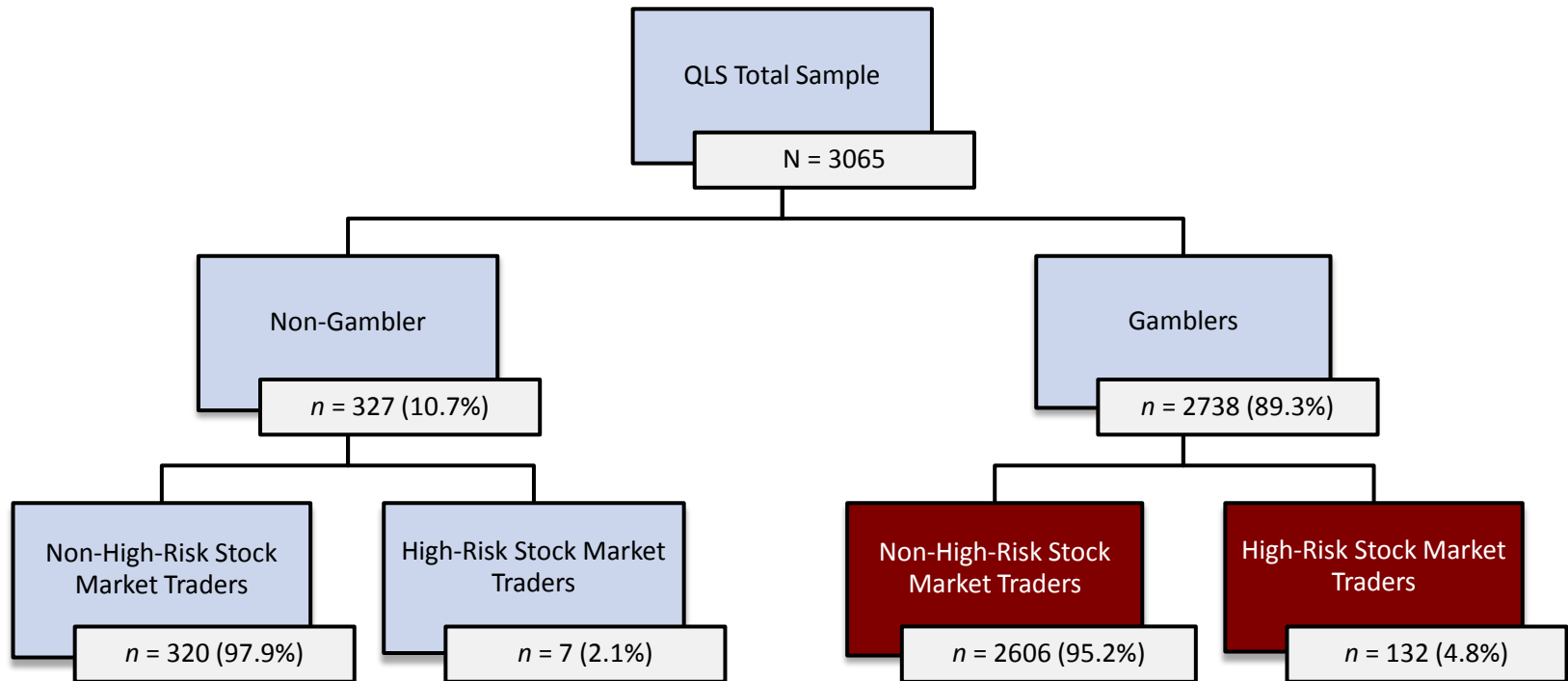
Composition of the QLS Sample

Demographics

		CTS		QLS	
		Non-High-Risk Stock Market Traders *n* = 5852	**High-Risk Stock Market Traders** *n* = 158	**Non-High Risk Stock Market Traders** *n* = 2606	**High-Risk Stock Market Traders** *n* = 132
Gender	Male %	43.39	77.85	45.63	73.48
Age (Years old)	*M* (SD) Range	48.52 (15.84) 18 - 94	46.87 (12.74) 21 - 79	45.99 (13.97) 17 - 90	49.26 (13.67) 19 - 88
Ethnicity	Aboriginal, Inuit, or Metis % European % Asian % Other %	1.79 91.08 3.76 3.37	0.00 89.24 8.86 1.90	4.07 87.38 0.65 7.90	3.03 87.12 1.52 8.34
Marital Status	Never been Married % Married or Common Law % Divorced, Separated, or Widowed %	17.63 60.44 21.92	21.52 67.72 10.76	11.86 71.64 16.50	11.36 70.45 18.18
Education (continuous variable in statistical analysis)	No more than Elementary School % No more than High School % Some Tech/College/Uni % Completed Tech/College/Uni % Profession Degree, Masters, or PhD %	2.24 36.43 12.97 38.86 7.52	2.53 20.25 8.86 52.53 15.82	1.04 29.36 22.45 43.40 3.76	0.76 12.88 28.03 48.48 9.85

Employment, Income, & Debt

		CTS		QLS	
		Non-High-Risk Stock Market Traders *n* = 5852	**High-Risk Stock Market Traders** *n* = 158	**Non-High-Risk Stock Market Traders** *n* = 5852	**High-Risk Stock Market Traders** *n* = 158
Employment Status	Full-time Job %	49.69	55.06	52.42	58.33
	Part-time Job %	7.50	2.53	12.20	12.12
	Self- employed %	10.51	27.85	-	-
	Retired %	20.52	10.76	-	-
	Homemaker %	4.32	0.63	-	-
	Student (includes working PT) %	3.76	2.53	-	-
	Retired, Homemaker, or FT Student %	-	-	24.60	26.52
	Sick/Maternity Leave, or Disability %	1.52	0.00	5.60	0.76
	Unemployed %	2.17	0.63	5.18	2.27
Household Income (continuous variable in statistical analysis)	Less than $20,000 %	8.13	1.27	9.79	4.55
	$20,000 - $39,999 %	18.01	6.33	24.14	18.19
	$40,000 - $59,999 %	17.36	13.92	22.10	21.21
	$60,000 - $79,999 %	13.5	13.29	17.04	19.70
	$80,000 - $99,999 %	8.85	8.86	11.90	15.91
	$100,000 - $119,999 %	6.48	12.03	6.45	8.33
	$120,000 - $149,999 %	4.92	8.23	3.80	4.55
	More than $150,000 %	5.74	27.85	2.23	6.82
	"Don't Know"/"Unsure"/"Refused"	17.00	8.22	2.57	0.76
Household Debt (1000s of dollars)	*M*	54.60	81.92	72.89	76.98
	(SD)	(88.44)	(107.49)	(77.47)	(76.11)

Health & Substance Use

	CTS		QLS	
	Non-High-Risk Stock Market Traders *n* = 5852	**High-Risk Stock Market Traders** *n* = 158	**Non-High-Risk Stock Market Traders** *n* = 2606	**High-Risk Stock Market Traders** *n* = 132
Have a physical disability %	13.81	6.33	14.50	10.61
Mental health problem in the past year %	7.66	5.06	18.73	21.97
Have used tobacco in the past month %	28.84	25.32	40.21	29.55
Have used alcohol in the past month %	70.75	86.08	77.24	85.61
Have used drugs in the past month %	5.38	6.96	6.68	4.55

Gambling and Problem Gambling

		CTS		QLS	
		Non-High-Risk Stock Market Traders $n = 5852$	**High-Risk Stock Market Traders** $n = 158$	**Non-High Risk-Stock Market Traders** $n = 2606$	**High-Risk Stock Market Traders** $n = 132$
Typical Month Gambling Frequency (days per month)	Instant Win Tickets	1.43 (2.94)	1.07 (2.39)	1.73 (2.87)	1.54 (2.21)
	Lottery Tickets	2.73 (3.57)	2.76 (3.55)	3.30 (3.62)	3.52 (3.53)
	Bingo	0.24 (1.34)	0.28 (1.94)	0.27 (1.11)	0.12 (0.45)
	EGMs	0.38 (1.60)	0.57 (2.12)	0.52 (1.08)	0.57 (1.04)
	Casino Table Games	0.06 (0.65)	0.31 (1.23)	0.08 (0.55)	0.18 (0.47)
	Games of Skill for $	0.34 (1.73)	1.04 (3.22)	0.49 (1.89)	1.06 (3.32)
	Sports Betting	0.19 (1.31)	0.53 (2.10)	0.34 (1.70)	0.75 (2.69)
	Horse or Dog Racing	0.06 (0.57)	0.22 (1.61)	0.13 (0.96)	0.14 (0.50)
Total # of days gambled in typical month	M (SD)	–	–	6.74 (6.43)	9.40 (7.58)
# of formats engaged in the past 12 months	M (SD)	2.24 (1.16)	2.84 (1.72)	2.90 (1.43)	3.36 (1.81)
Problem Gambling	CPGI 5+ %	2.1	5.7	3.30	7.58
	CPGI Total Score M (SD)	0.36 (1.53)	0.63 (1.69)	0.77 (1.74)	1.15 (2.02)

Multivariate Analyses

Binary logistic regressions differentiating:

- Gamblers who engage in High-Risk Stock Trading compared to those who do not.

Stepwise entry

- IVs: age, gender, ethnicity, marital status, education, employment status, household income, household debt, physical disability, mental health (past year), past month tobacco use, past month alcohol use, past month drug use, # gambling formats gambled on, frequency of play on each format, CPGI scores

Canadian Telephone Survey

Variables Predictive of Gamblers who Engage in High-Risk Stock Trading Compared to Gamblers who do not

Variable	Regression Coefficients (B)	Wald Statistics	Odds Ratios
Income	0.26	463.10**	1.29
Gender	1.04	218.80**	2.83
Ethnicity		137.76**	
Asian	1.40	85.70**	4.04
Other Ethnicity	-0.54	35.32**	0.58
Problem Gambling Status	1.43	80.84**	0.24
Employment Status		72.96**	
Retired	0.30	3.91*	1.35
Employed Full-Time	0.90	57.81**	2.46
Past Month Alcohol Use	0.65	55.43**	1.92
Marital Status		40.37**	
Married/Common Law	0.00	0.00	1.00
Never Married	0.58	22.18**	1.78
Casino Table Game Frequency	0.61	57.73**	1.85
EGM Frequency	-0.33	46.85**	0.72
Instant Win Frequency	-0.15	28.27**	0.86
Horse/Dog Racing Frequency	0.36	23.10**	1.44
Household Debt	-3.18	45.27**	23.98
Age	0.02	39.57**	1.02
Total Number of Gambling Formats	0.18	25.02**	1.20
Education	0.17	24.87**	1.18
Past Month Tobacco Use	-0.33	17.48**	0.72
Physical Disability	-0.38	9.66**	0.69
Constant	-4.34	213.77	0.01

*$p < .05$

**$p < .01$

NAGELKERKE R SQUARED = 43.9%

OVERALL PREDICTION SUCCESS = 77.9%

Quinte Longitudinal Study

Variables Predictive of Gamblers who Engage in High-Risk Stock Trading Compared to Gamblers who do not

Variable	Regression Coefficients (B)	Wald Statistics	Odds Ratios
Gender	1.32	170.35**	3.75
Number of Gambling Formats	0.41	114.65**	1.51
Age	0.03	81.08**	1.03
Education	0.41	62.81**	1.51
Mental Health Problem	0.79	43.00**	2.21
Marital Status		25.84**	
Married/Common Law	-0.48	9.67**	0.62
Never Married	0.12	0.44	1.12
Income	0.25	23.06**	1.28
Past Month Tobacco Use	-0.48	22.88**	0.62
Ethnicity		17.63**	
Aboriginal	-0.20	0.64	0.82
Other Ethnicity	0.65	16.56**	1.92
Problem Gambling Status	1.65	17.51**	0.19
Bingo Frequency	-0.41	17.44**	0.67
Instant Win Frequency	-0.07	11.99**	0.93
EGM Frequency	-0.12	6.59**	0.88
Horse/Dog Racing Frequency	-0.19	6.21*	0.82
Past Month Alcohol Use	0.45	14.23**	1.57
Past Month Drug Use	-0.58	8.49**	0.56
Constant	-4.88	161.89**	161.89

*$p < .05$

**$p < .01$

NAGELKERKE R SQUARED = 29.0%

OVERALL PREDICTION SUCCESS = 70.7%

Conclusions

High-risk stock trading and gambling **are related** to some extent:

- High-risk stock traders are overwhelmingly people who also engage in traditional gambling

- However, the reverse relationship is not as strong - most gamblers do not engage in high-risk stock trading

Gambling Patterns

Compared to traditional gamblers, high-risk stock traders:

- engage in a significantly **wider** range of gambling activities and gamble more frequently than traditional gamblers

- have significantly **higher** rates of problem gambling

- have a **preference** for participation in **skill-based** games (casino table games, games of skill for money, sports betting, and horse/dog race betting)

- have a **lower** frequency of playing **chance-based** games such as instant win tickets, bingo, EGMs

Socio-Demographic Characteristics

Compared to traditional gamblers, high-risk stock traders are more likely to be:

- male
- have a higher income
- be better educated
- and to be of Asian or "other" descent
- not be divorced, widowed, or separated
- self-employed or employed full-time

Limitations and Future Directions

- Data is exclusively Canadian

- Datasets are several years old

- Examining the relationship between stock market trading and gambling was not the primary purpose of these studies
  - unknown context/motivation for trading
  - unknown contribution to problem gambling

- More focused examination of high-risk stock traders needed:
  - motivation for trading
  - problematic trading
  - individual differences
  - decision-making processes and cognitive errors/fallacies
  - financial market knowledge

Thank you for your attention!

Stock Market Questions (QLS)

- In the past 12 months, have you purchased any **high-risk stocks, options, futures or day traded**?

- About **how often do you check the value** of these investments in a typical MONTH?

- What do you estimate is your net **loss *or gain*** in a typical month from high-risk stocks, options, futures or day trading?

Stock Market Questions (CTS)

- Do you yourself buy and sell on the stock market?
- In the past 12 months, have you purchased any **high-risk stocks, options, or futures**?
- Roughly **how much money** do you put into high-risk stocks, options, or futures in a typical year?
- About **how often do you check the value** of these investments in a typical MONTH?
- What do you estimate is your net **loss *or gain*** in the **past 12 months** from high-risk stocks, options, or futures?
- In your **lifetime**, what do you estimate is your net **loss *or gain*** from investing in high-risk stocks, options or futures?
- In the past 12 months, have you done any '**day trading**' on the stock market, where you buy and sell stocks several times on the same day?
- **How often do you day trade** in atypical MONTH?
- What do you estimate is your net **loss (or gain)** in the past **12 months** from day trading?
- In your **lifetime**, what do you estimate is your **net loss (or gain)** from day trading?