

Rationality, Behavior, Experiment The effect of (over)confidence and gambling risk propensity on trading behavior

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Stock market players or investors?

Łukasz Markiewicz
Polish Academy of Sciences

Elke U. Weber,
Columbia University

Acknowledgements:
Tadeusz Tyszka
Elżbieta Kubińska

Moscow, 1st September 2010

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Excessive trading – theory & facts

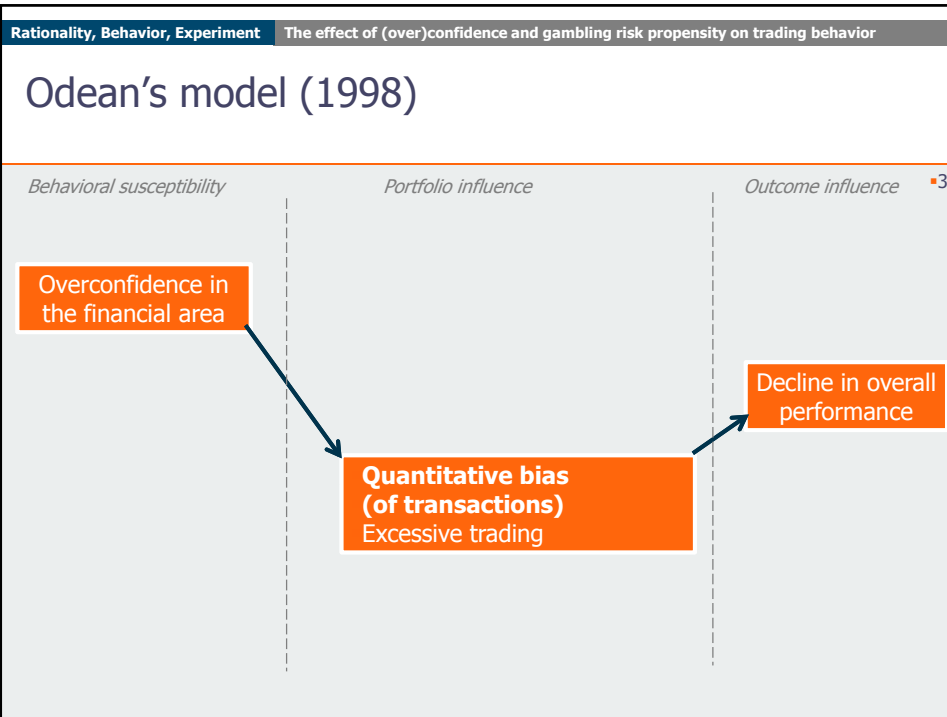
normative approach

- efficient market hypothesis (Fama, 1970)
- no trade theorem (Milgrom & Stokey, 1982)

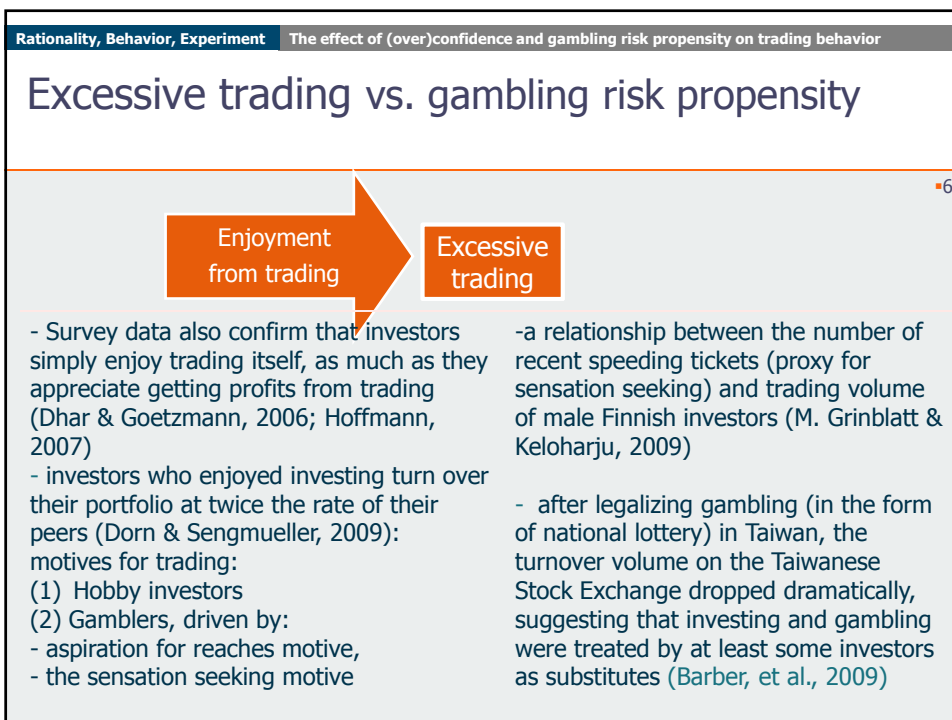
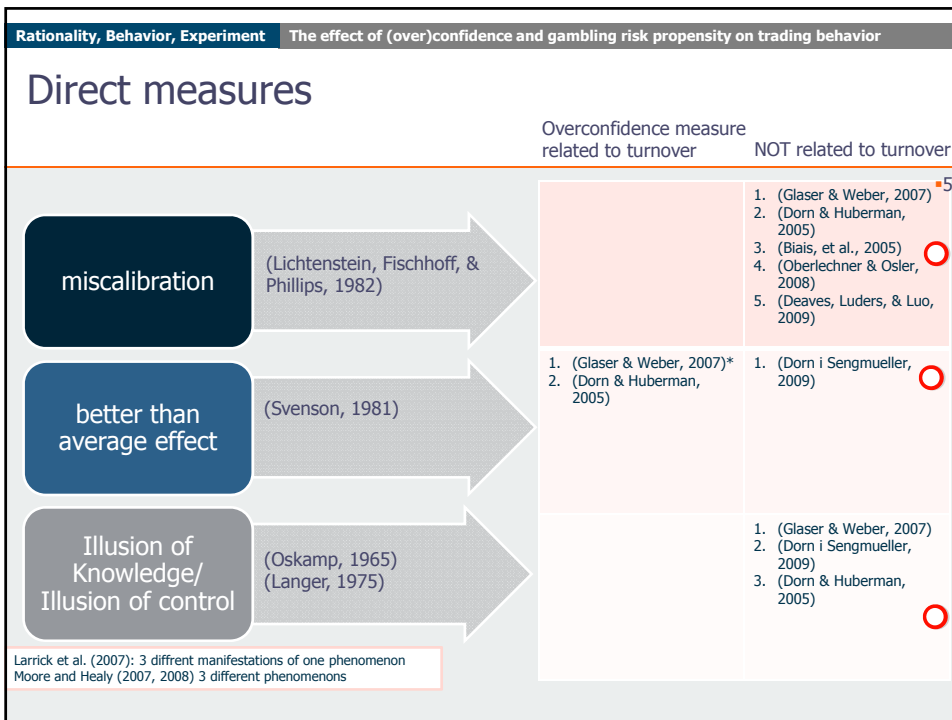
behavioral finance

- status quo
- endowment effect (Thaler, 1980)

Country	Time frames	turnover	Source:
USA	1990s	75%	Barber, Lee, Liu, & Odean, 2009; Barber & Odean, 2000; Szyszka, 2009
	2000s	169%	
Germany	1990s	200%	Dom & Huberman, 2005 Glaser & Weber, 2007
	2000s	400%	
Sweden	2000s	660%	Anderson, 2008
China	2000s	600%	Barber, Lee, Liu, & Odean, 2009
Netherlands	2000s	Some.. 1100% per year	Bauer, Cosemans, & Eichholtz, 2007



- Rationality, Behavior, Experiment The effect of (over)confidence and gambling risk propensity on trading behavior
- ## Odean (1999,2000) – indirect measures of overconfidence
- The following phenomenons have been attributed this to overconfidence: ▪4
 - 1) investors who switched from phone-based to online trading traded more (Barber & Odean, 2002)
 - 2) having nonrealistic expectancies investors are lacking of ability to asses if the profits can cover transaction costs (of selling certain stocks and buying another) (Barber & Odean, 2000; Odean, 1999)
 - 3) overconfidence increased among successful investors, resulting in more active trading (Gervais and Odean, 2001)
 - 4) proxying overconfidence with a gender, Barber and Odean (2001) demonstrated that men, considered to be more confident (especially in the financial domain), were more active traders than women
-> however gender determine also risk propensity, not only overconfidence (Weber, 2002; Charness & Gneezy, 2007)



Excessive trading vs. gambling risk propensity

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Excessive trading

Risk propensity

-Those who declared themselves as risk seekers ... Traded more extensively (Dorn & Huberman, 2002)

-Propensity towards risk is not a one-dimensional construct but risk propensity depends on domain (Tyszka & Domurat, 2002; Weber, Blais, & Betz, 2002, Weber and Johnson, 2008).

Even within financial domain risk taking propensity is not a one dimensional concept :

-Investment risk taking vs. gambling risk taking (Weber, et al., 2002)

-Stimulating risk taking vs. instrumental risk taking (Zaleśkiewicz, 2001)

Excessive trading vs. gambling risk propensity

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Enjoyment from trading

Excessive trading

Risk propensity

Hypothesis 1: Trading activity is positively related to investors' gambling risk propensity

(2) Inadequate portfolio diversification

- risk reduction due to choosing imperfectly correlated stocks (Markowitz, 1952)
 - Decision makers neglect covariance (Kroll, Levy, and Rapaport, 1988)
 - prevalence of naïve diversification - intuitive propensity to allocate resources between all available options, its looking for a variety, not a small correlation of portfolio assets (Hedesström, 2006; Hedesström, Svedsäter, & Gärling, 2006; Hedesström, Svedsäter, & Gärling, 2009)
 - *1/n heuristic* - equally between all available options (Benartzi & Thaler, 2001; Huberman & Jiang, 2006)
 - Under-diversification is costly to most investors (W. N. Goetzmann & Kumar, 2008)
 - In an investment context, naïve diversification may be better than no diversification (Hedesström, 2006)
- Portfolio breadth:
 - Recommended
 - 10-30: Bloomfield et al.(1977)
 - 30-40: Statman (1987)
 - Observed:
 - Blume & Friend (1975): 3.4 stocks
 - Barber & Odean (2000): 4.3 stocks
 - Polkovnichenko (2005): 80% <5 stocks
 - Anderson (2007): 3.30; 18% =1 stock

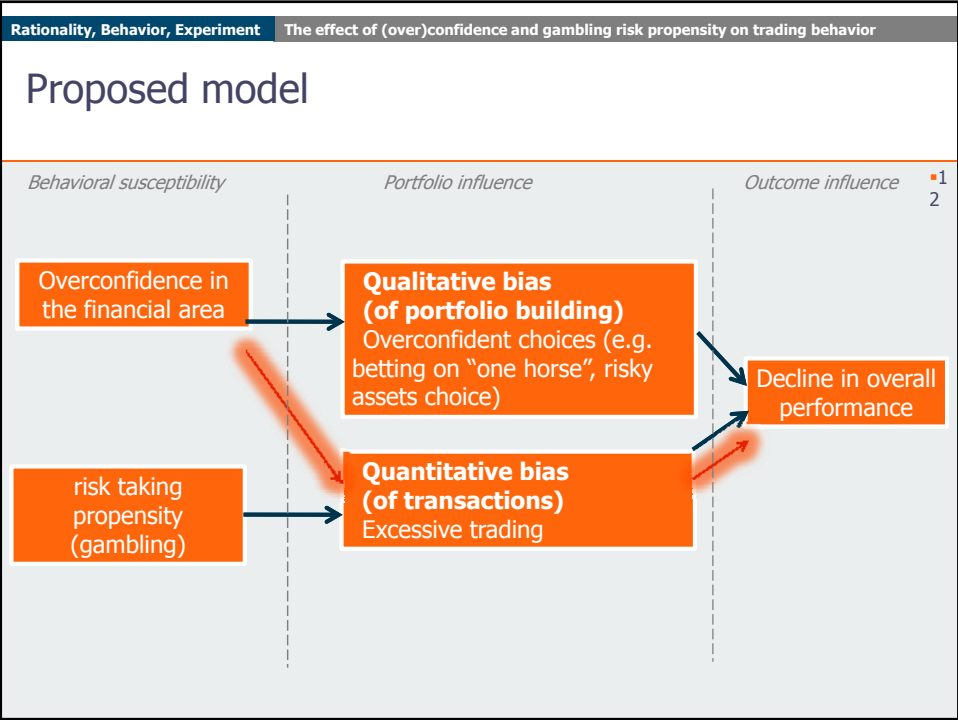
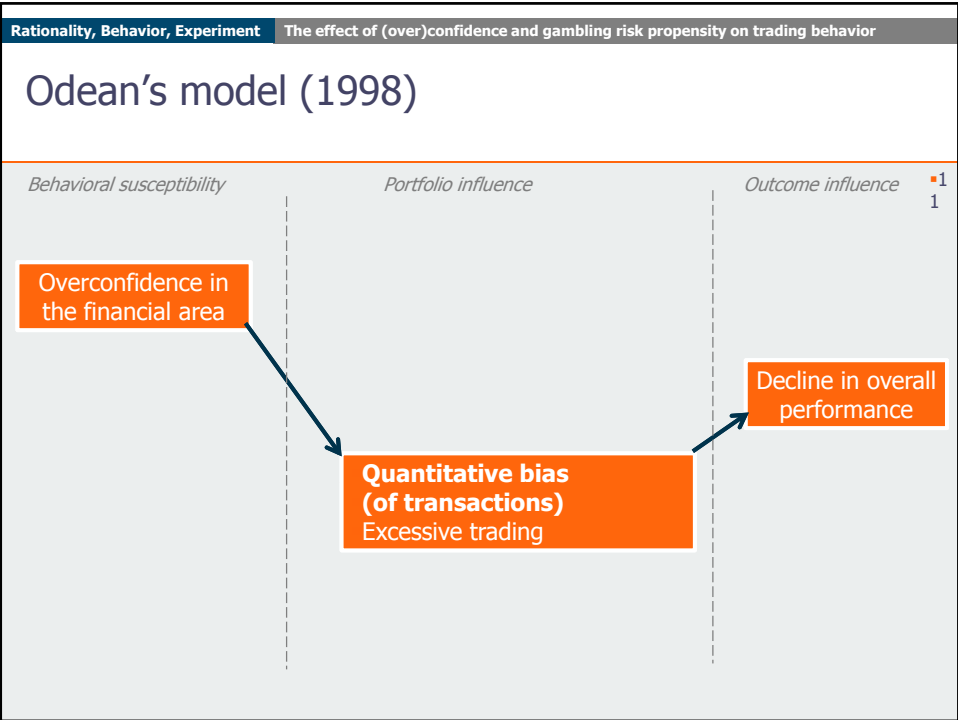
Hipoteza 2: Investors diversification propensity is negatively related to their overconfidence

overconfidence and diversification

- Goetzmann i Kumar (2008):
 - **hypothesis:** investors might choose not to diversify on purpose because they are so sure about their choices; **why bet on multiple horses, if the one they so skillfully selected will give them the highest profits?**
 - **finding:** over confidence (investors who are in the highest portfolio turnover quintile and lowest performance quintile) goes in pairs with poor portfolio diversification

Information availability influence

- Oskamp (1965): overconfidence grows with amount of information about events, even if such information is not diagnostic (and doesn't increase the decision accuracy)
- Barber & Odean (2002): easy access to large amounts of data make the investors more overconfident



Conducted study details

records of decisions made in the financial investment simulation

- organized by PARKIET (Polish business press publisher)
- 3'870 participants
- 40 working days, November to January 2007
- Participants were allowed to invest their initial capital (100k PLN, c.a. 34k \$) in 20 blue chips only (creating WIG20 index).
- Full realism provided
 - online transaction platform was designed for the simulation
 - It was possible to place orders at any time, but they were executed only in the time frame of the WSE operations (8:30 am to 4:30 pm), with the price for a particular stock at the time in the stock exchange quotations.
- participants did not interact with each other but, instead, with the Warsaw Stock Exchange.
- transaction commission was .5% of the transaction value for both buying and selling

survey data

- 633 respondents (16% respond rate)
- 10.01.2007 do 22.01.2007
- CAWI (Computer Assisted Web Interviewing)
- Questionnaires:
 - Stimulating risk taking vs. instrumental risk taking (Zaleśkiewicz, 2001)
 - A Domain-Specific Risk-Taking (DOSPERT) scale (E. U. Weber, et al., 2002);
 - Self constructed (over)confidence in financial domain inventory

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Hipoteza 2: *Investors diversification propensity is negatively related to their overconfidence*

(over) confidence scale Crombach's Alpha = .816

- I try to be up-to-date with announcements concerning the company's situation of the stocks I own or consider to buy.
- I have wide knowledge concerning the current situation of stock-trading companies of whom I own shares in my portfolio (going beyond current quotations and its history).
- I try to be up-to-date by consulting internet forums, web pages or/and press and TV programs dedicated to investing.
- Companies' announcements influence my investment decision.
- I have extensive knowledge concerning the stock market as well the rules influencing the market

Confidence as a good overconfidence proxy

- Overconfidence is the claim that $P(\text{Stated Confidence/ preceived performance}) > A(\text{actual performance})$ Larrick et al. 2007, Moore and Healy 2008).
- Confidence proxies for, or is correlated with, an actual measure of overconfidence (Klayman et al. 1999, Larrick et al. 2007)
- Even imperfect (over)confidence scale is better overconfidence proxy than gender, or profit used by Odean

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Rationality, Behavior, Experiment			The effect of (over)confidence and gambling risk propensity on trading behavior	
	(A)			
	Ln(turnover into PLN)			
	Beta	t-test		
(const.)			30,238**	
DEMOGRAPHIC				
Gender dummy	-,102		-2,556*	
Age	-,126		-3,334**	
RISK TAKING (DOSPRET)				
Investment risk propensity	-,024		-,645	
Gambling risk propensity	,107		2,563*	
Health / safety risk propensity	-,030		-,671	
Recreational risk propensity	-,012		-,265	
Ethical risk propensity	-,015		-,334	
Social risk propensity	-,027		-,663	
(OVER)CONFIDENCE				
confidence in investing domain	-,034		-1,356	
SOPHISTICATION				
Short sell dummy	,326		8,568**	
FINANCIAL OUTCOME				
Profit	,099		2,564*	
Number of investors:			633	
R ²			14,35%	
Anova			9,462**	

** (*) -coefficient estimates significantly different from zero at the 1% (5%) level

Gender dummy is set to one (zero) if the trader is female (male)

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<h2>Employed portfolio diversification measures</h2>			
<ul style="list-style-type: none"> NV - investor's normalized portfolio variance (NV): Goetzmann and Kumar (2008), obtained by dividing the portfolio variance by the average variance of stocks in the portfolio (the higher NV - the smaller diversification level) 	$NV = \frac{\sigma_p^2}{\bar{\sigma}^2}$		
<ul style="list-style-type: none"> SSPW - the sum of squared portfolio weights the deviation from the market portfolio, Blume and Friend (1975) (market portfolio understood as Polish blue chip index called "WIG20") (the higher SSPW - the smaller diversification level) 	$SSPW = \sum_{i=1}^N (\omega_i - \omega_m)^2$		
<ul style="list-style-type: none"> "naïve" diversification skill (average portfolio breadth) (the higher Avg.No - the higher diversification level) 	$Avg.No. = \bar{N}$		
r(633) = 0.36 to 0.40 (p < .01)			

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	Goetzmann & Kumar, 2008		Blume & Friend, 1975		Hedesström, 2006	
Portfolio diversification:	NV	$AVG = \frac{AVG}{\sqrt{N}}$	LN(SSPW)	$AVG = \frac{AVG}{\sqrt{N}}$	LN(Avg. No.)	$AVG.No. = \sqrt{N}$
	Beta	t-test	Beta	t-test	Beta	t-test
(const.)		5,901**		-3,210*		-,603
DEMOGRAPHIC						
Gender dummy	-,124	-3,279*	-,010	-,251	,046	1,124
Age	,068	1,891	,167	4,446**	-,047	-1,209
RISK TAKING (DOSPRET)						
Investment risk propensity	-,114	-3,193*	-,120	-3,227*	,119	3,095*
Gambling risk propensity	,006	,149	,005	,129	,032	,762
Health / safety risk propensity	-,055	-1,300	,038	,866	-,028	-,617
Recreational risk propensity	,061	1,469	,012	,274	-,042	-,935
Ethical risk propensity	,070	1,681	,024	,545	-,067	-1,503
Social risk propensity	-,009	-,242	-,012	-,300	,051	1,204
(OVER)CONFIDENCE						
confidence in investing domain	,144	3,830**	,084	2,150*	-,080	-1,986*
SOPHISTICATION						
Short sell dummy	-,098	-2,706*	-,196	-5,181**	,061	1,554
FINANCIAL OUTCOME						
Profit	-,332	-9,078**	-,244	-6,387**	,244	6,187**
Number of investors		633		633		623
(**) coefficient estimates significantly different from zero at the 1%/5% level		R ² 22,67%		15,71%		11,38%
Anova		16,548**		10,522**		7,134**

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Limitations

- schema: correlation study
- sample: students only
- game design:
 - not a real money game
 - the winner takes the all (in fact 10 winners)

Thank you

(1) Excessive trading – theory & facts

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- two-thirds of the realized turnover cannot be justified by such rational motives (Barber and Odean 2002, Dorn and Sengmueller 2009) such as: portfolio risk-rebalancing needs, or tax or liquidity reasons
- investors seem to be hurt by this intensive trading activity (Odean 1999, Barber and Odean 2000). Barber and Odean: frequent traders paid a huge penalty for active trading, earning 7.1% less than infrequent traders, mostly due to the high commission costs associated with intensive trading.

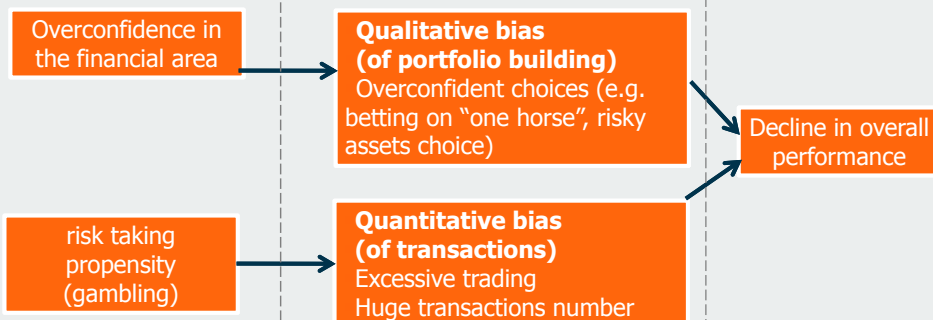
Test modelu

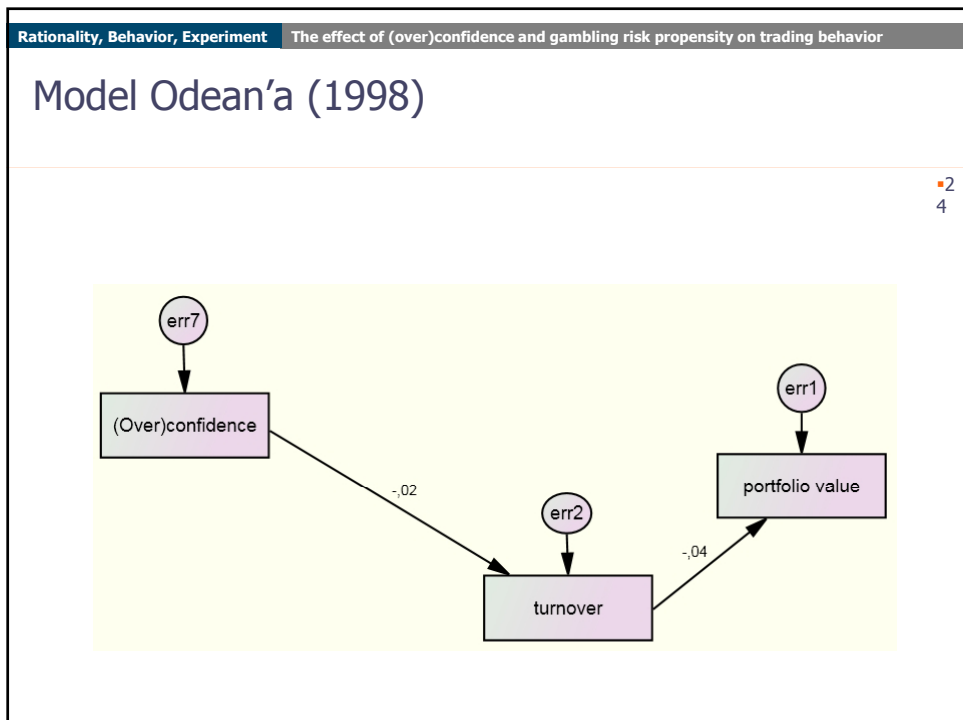
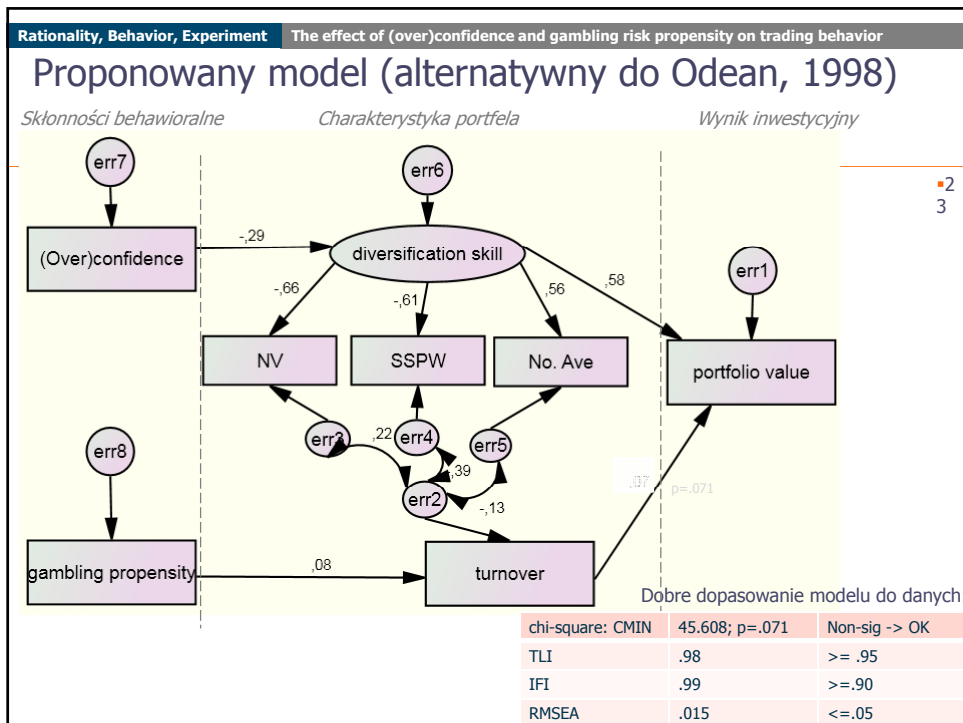
Sklonności behawioralne

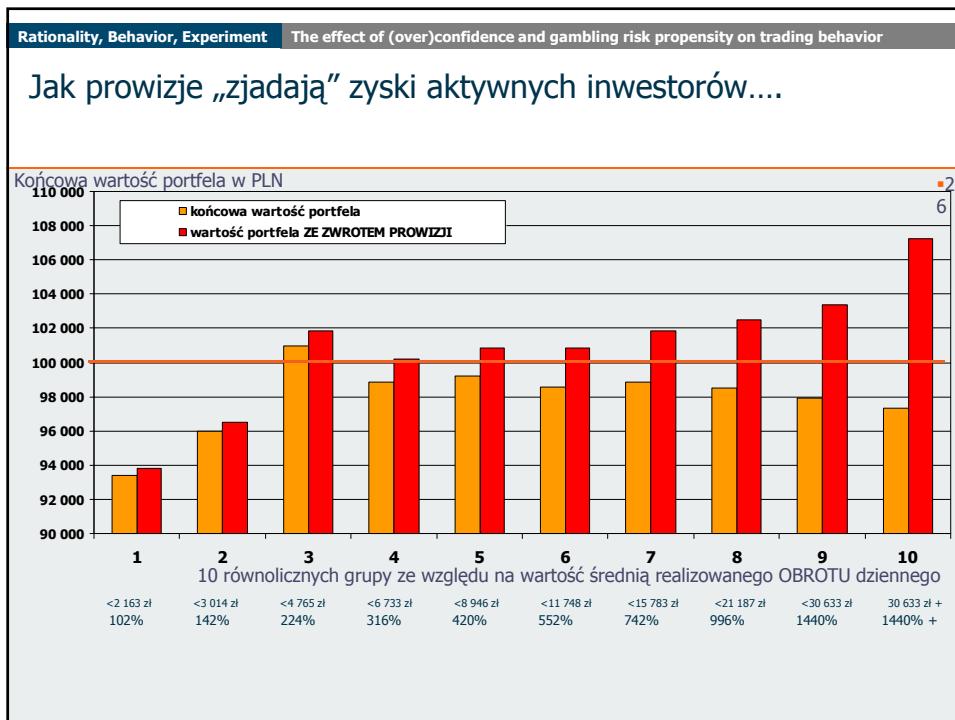
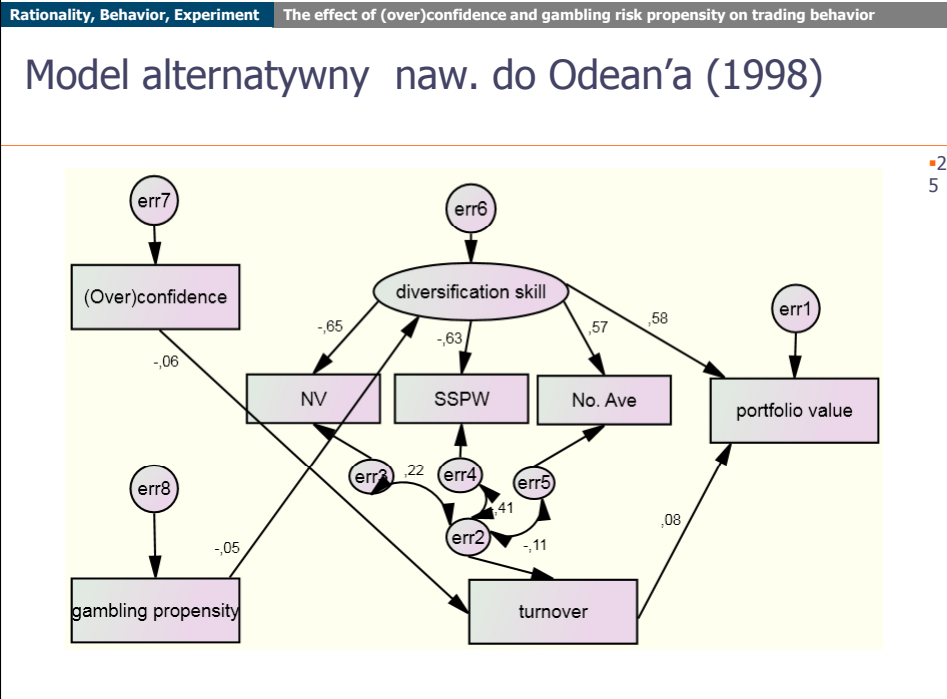
Charakterystyka portfela

Wynik inwestycyjny

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Direct measures

		Overconfidence measure related to turnover	NOT related to turnover
<p>miscalibration</p> <p>(Lichtenstein, Fischhoff, & Phillips, 1982)</p>	→		<ol style="list-style-type: none"> 1. (Glaser & Weber, 2007)² 2. (Dorn & Huberman, 2005) 3. (Bias, et al., 2005) ○ 4. (Oberlechner & Osler, 2008) 5. (Deaves, Luders, & Luo, 2009)
<p>better than average effect</p> <p>(Svenson, 1981)</p>	→	<ol style="list-style-type: none"> 1. (Glaser & Weber, 2007)* 2. (Dorn & Huberman, 2005) 3. (Oberlechner & Osler, 2008) 4. (Deaves, Luders, & Luo, 2009) 5. (Graham, Harvey, Huang, 2009) 	<ol style="list-style-type: none"> 1. (Dorn i Sengmueller, 2009) ○
<p>Illusion of Knowledge/ Illusion of control</p> <p>(Oskamp, 1965) (Langer, 1975)</p>	→		<ol style="list-style-type: none"> 1. (Glaser & Weber, 2007) 2. (Dorn i Sengmueller, 2009) 3. (Dorn & Huberman, 2005) ○

Larrick et al. (2007): 3 different manifestations of one phenomenon
 Moore and Healy (2007, 2008) 3 different phenomenons