

INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Overview of the Performance of Individual Investors



HOW DO INDIVIDUALS TRADE STOCKS ON THEIR OWN?

STUDIES OF INDIVIDUAL INVESTORS

Barber and Odean (and others) wrote several papers about the performance and composition of individual investors stock portfolios

Had access to a broad sample of brokerage accounts from a large discount brokerage from 1991-96 (discount brokerage = no advice given)

Sample of over 66,000 households spread throughout the U.S.

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION

I

What are the advantages and disadvantages of trading stocks on your own?

DISCUSSION OF QUESTION

I

What are the advantages and disadvantages of trading stocks on your own?

TRANSACTION COSTS

When buying and selling stocks as a small investor, you incur two types of transaction costs:

Commissions/fees for trading paid to the brokerage

Bid-ask spread (when buying a stock, pay the “ask”; when selling a stock, pay the “bid”)

WHO DOES BETTER?



Source: O'Halloran (1963)

WHO DOES BETTER?



Source: Pixabay (2016)

PORTFOLIO TURNOVER

Measure of how much an investor trades

Can calculate both “buy turnover” and “sell turnover”

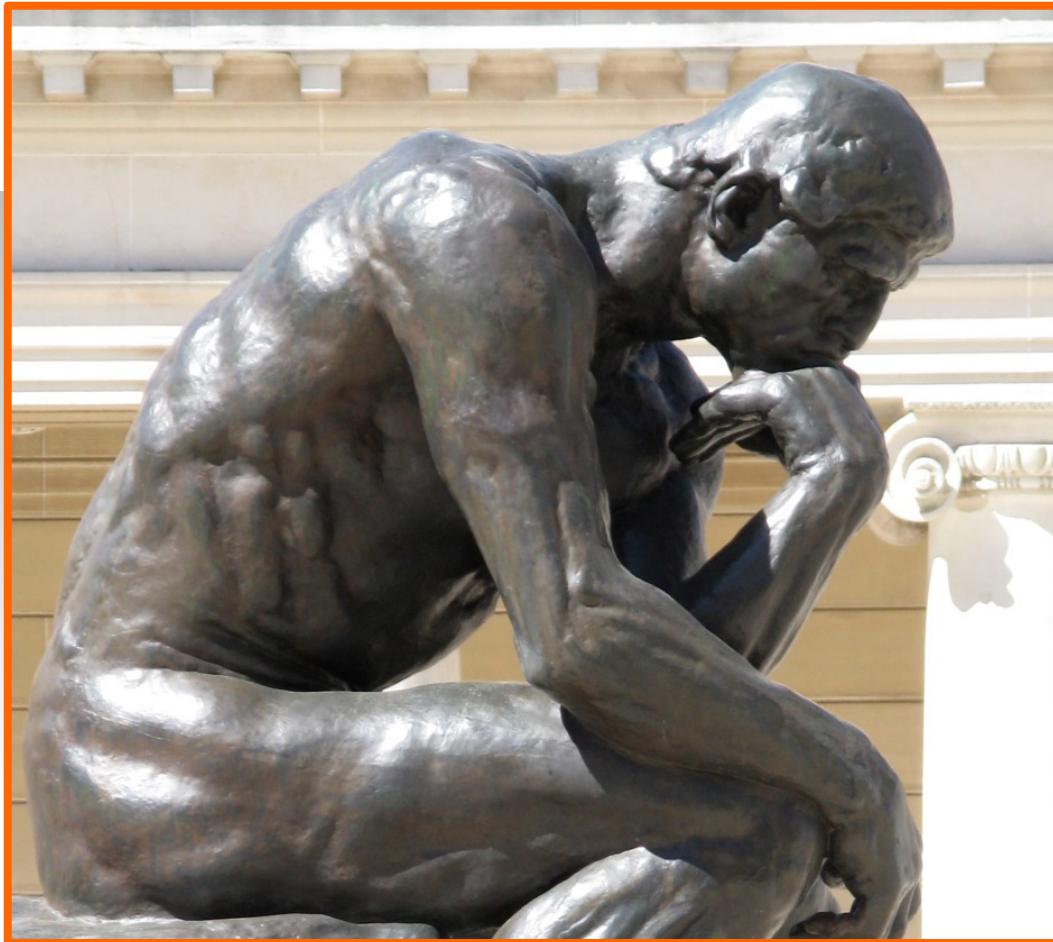
PORTFOLIO TURNOVER

Buy (sell) turnover is the \$ value of buys (sales) divided by beginning of period \$ value of portfolio

Portfolio turnover is often defined as the average of the buy and sell turnover

Can be measured over various horizons such as monthly or annually

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION

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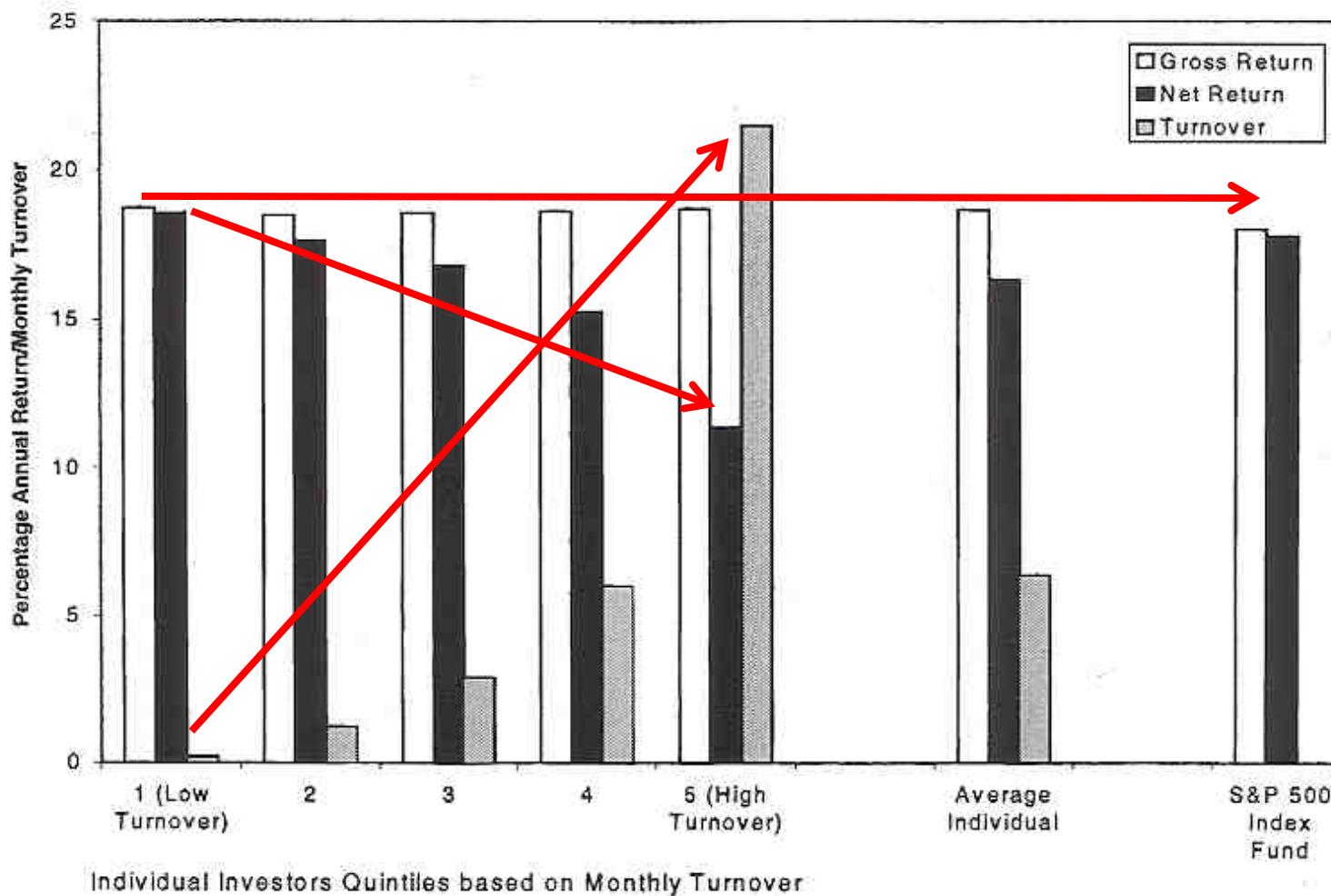
What is the turnover of a S&P 500 stock index fund?

DISCUSSION OF QUESTION

I

What is the turnover of a S&P 500 stock index fund?

BARBER AND ODEAN (2000): “TRADING IS HAZARDOUS TO YOUR WEALTH”



Source: Barber & Odean (2000, Figure 1)

GROSS PERFORMANCE OF PORTFOLIO

	Excess Return	Coefficient Estimate on:			Adjusted R^2
		$(R_{mt} - R_{ft})$	HML_t	SMB_t	
Panel A: Gross Percentage Monthly Returns in Aggregate					
Own-benchmark abnormal return	-0.049** (0.013)				
Market-adjusted return	0.038 (0.723)				
CAPM	-0.067 (0.543)	1.100*** (0.007)			92.9
Fama–French three-factor	-0.076 (0.357)	1.082*** (0.005)	-0.035 (0.324)	0.231*** (0.000)	96.3
Panel B: Gross Percentage Monthly Returns for the Average Household					
Own-benchmark abnormal return	-0.048** (0.010)				
Market-adjusted return	0.078 (0.672)				
CAPM	-0.014 (0.944)	1.087 (0.177)			80.3
Fama–French three-factor	-0.154 (0.205)	1.120*** (0.005)	0.140*** (0.008)	0.516*** (0.000)	93.0

***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (two-tailed). The null hypothesis for beta (the coefficient estimate on the market excess return) is $H_0: \beta = 1$.

Source: Barber & Odean (2000, Table 2)

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PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTIONS

How does the average household stock portfolio perform relative to its CAPM-benchmark in gross returns (i.e., returns before transaction costs)?

Is your answer consistent with the notion of efficient markets?

Does the average household have a strong tilt towards high-beta (high sensitivity to the market) or low-beta (low sensitive to the market) stocks?

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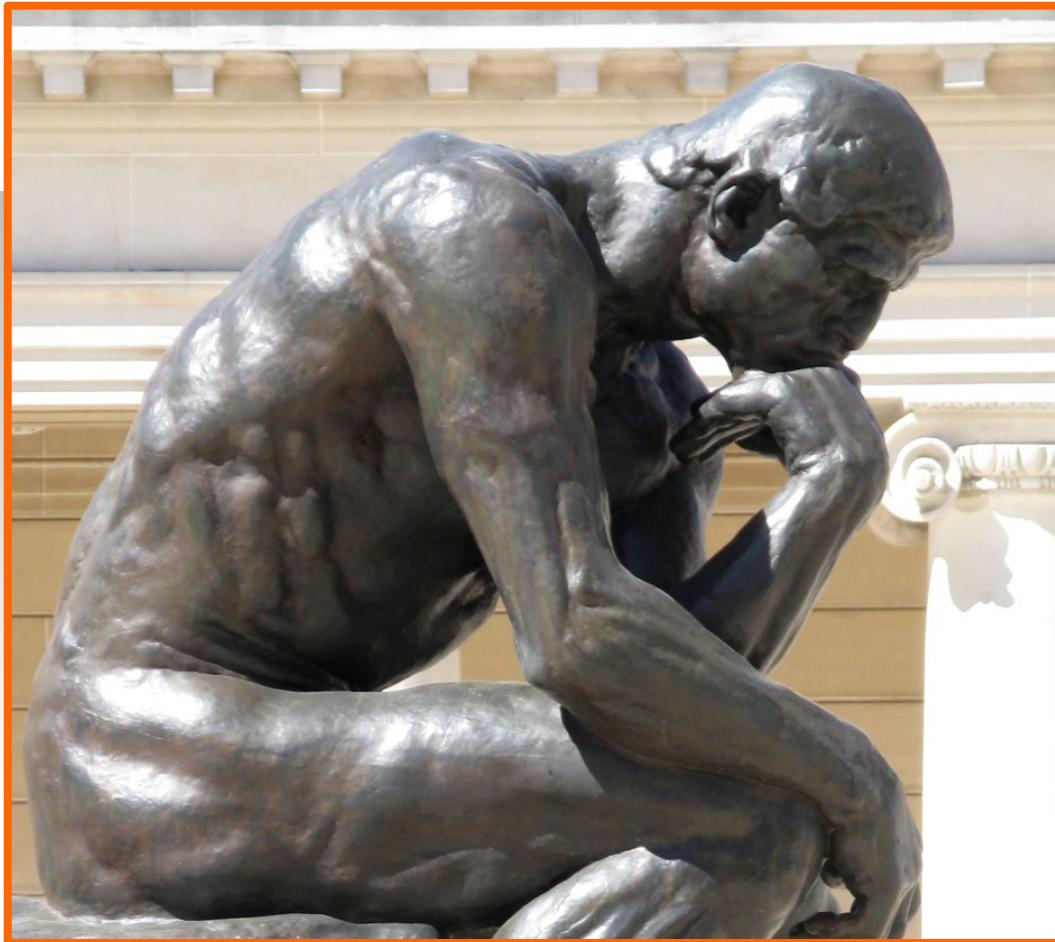
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PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

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Does the average household have a tilt towards value stocks or growth stocks?

Does the average household have a tilt towards small stocks or large stocks?

How does the average household stock portfolio perform relative to its 3-Factor model benchmark in gross returns (i.e., returns before transaction costs)?

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Source: Barber & Odean (2000, Table 2)

NET PERFORMANCE OF PORTFOLIO GIVEN RISK

	Excess Return	Coefficient Estimate on:			Adjusted R^2
		$(R_{mt} - R_{ft})$	HML_t	SMB_t	
Panel C: Net Percentage Monthly Returns in Aggregate					
Own-benchmark abnormal return	-0.155*** (0.000)				
Market-adjusted return	-0.073 (0.496)				
CAPM	-0.175 (0.113)	1.096*** (0.009)			93.0
Fama–French three-factor	-0.180** (0.031)	1.077*** (0.009)	-0.040 (0.251)	0.225*** (0.000)	96.3
Panel D: Net Percentage Monthly Returns for the Average Household					
Own-benchmark abnormal return	-0.194*** (0.000)				
Market-adjusted return	-0.030 (0.621)				
CAPM	-0.177 (0.360)	1.082 (0.194)			80.7
Fama–French three-factor	-0.311** (0.011)	1.113*** (0.008)	0.131** (0.012)	0.506*** (0.000)	93.0

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Source: Barber & Odean (2000, Table 2)

PERFORMANCE OF PORTFOLIO GIVEN TURNOVER

	Quintile					
	1 (Low)	2	3	4	5 (High)	Difference: High – Low
Panel A: Descriptive Statistics						
Mean monthly turnover (%)	0.19	1.24	2.89	5.98	21.49	N.A.
Mean beginning position value	34,169	26,046	22,945	19,102	21,560	-12,609*** (0.000)
Coefficient estimate on $(R_{mt} - R_{ft})$	1.03 (0.199)	1.06* (0.090)	1.11** (0.015)	1.18*** (0.002)	1.29*** (0.000)	0.26*** (0.000)
HML_t	0.20*** (0.000)	0.10*** (0.012)	0.13** (0.020)	0.13* (0.065)	0.12 (0.195)	-0.08 (0.333)
SMB_t	0.24*** (0.000)	0.29*** (0.000)	0.51*** (0.000)	0.72*** (0.000)	1.02*** (0.000)	0.78*** (0.000)
Adjusted R^2	96.1	94.7	92.2	90.4	87.6	71.8

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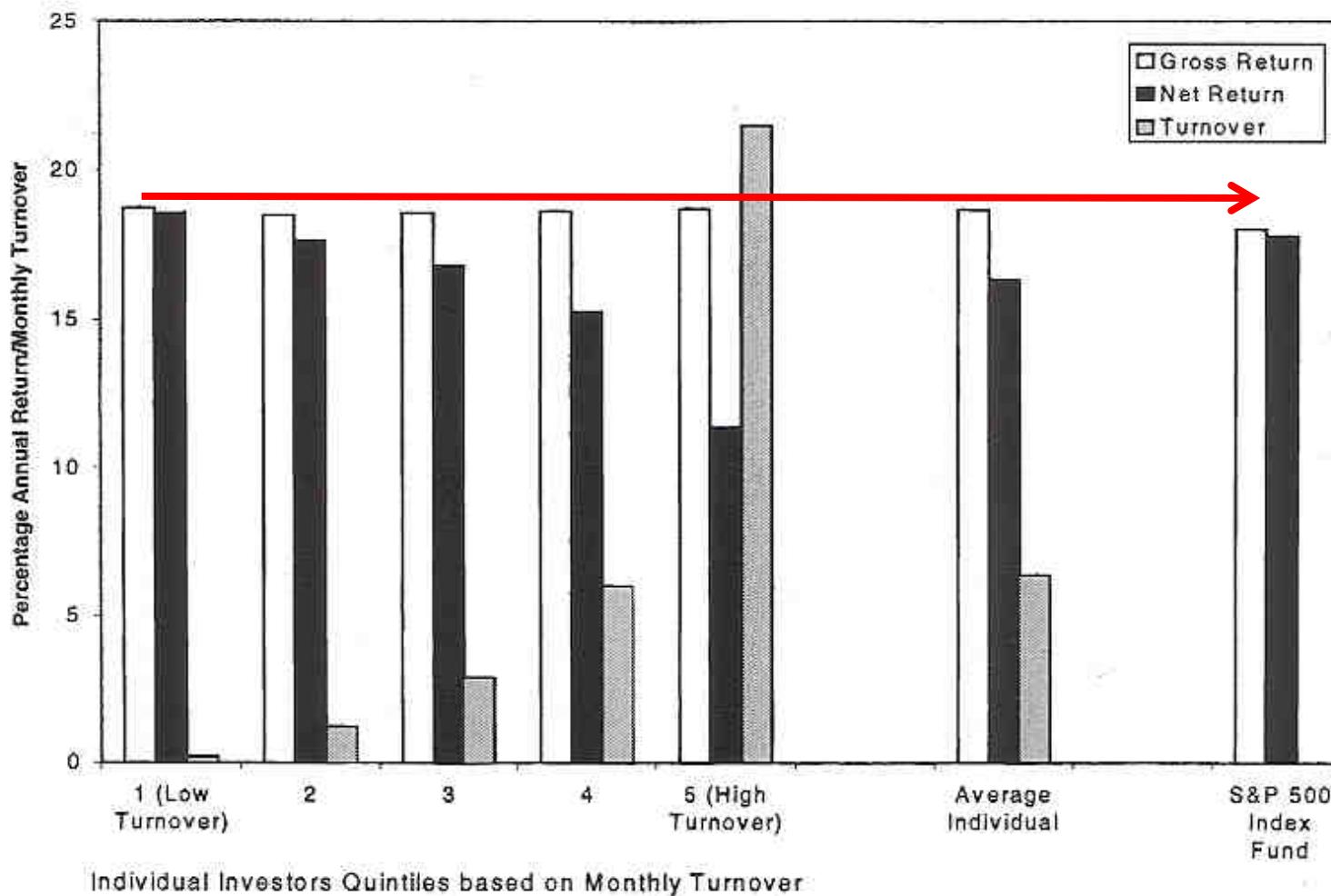
PERFORMANCE OF PORTFOLIO GIVEN TURNOVER



	Quintile					Difference: High – Low
	1 (Low)	2	3	4	5 (High)	
Panel B: Gross Average Household Percentage Monthly Return						
Raw return	1.483	1.472	1.489	1.511	1.548	0.065
Own-benchmark abnormal return	-0.009 (0.156)	-0.026* (0.064)	-0.052** (0.014)	-0.079*** (0.007)	-0.096* (0.093)	-0.087 (0.116)
Market-adjusted return	0.063 (0.534)	0.052 (0.660)	0.069 (0.710)	0.091 (0.726)	0.128 (0.728)	0.065 (0.832)
CAPM intercept	0.090 (0.409)	0.022 (0.865)	-0.015 (0.936)	-0.078 (0.774)	-0.167 (0.663)	-0.257 (0.407)
Fama–French intercept	-0.048 (0.526)	-0.072 (0.448)	-0.149 (0.242)	-0.237 (0.143)	-0.359 (0.104)	-0.311* (0.086)

***, **, and * indicate significance at the 1, 5, and 10 percent levels, respectively (two-tailed). The null hypothesis for beta (the coefficient estimate on the market excess return) is $H_0: \beta = 1$ except in the difference column, where the null hypothesis is $H_0: \beta = 0$.

BARBER AND ODEAN (2000): “TRADING IS HAZARDOUS TO YOUR WEALTH”



Source: Barber & Odean (2000, Figure 1)

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NET PERFORMANCE GIVEN TURNOVER

	Quintile					Difference: High – Low
	1 (Low)	2	3	4	5 (High)	
Panel C: Net Average Household Percentage Monthly Return						
Raw return	1.470	1.411	1.361	1.267	1.009	-0.460
Own-benchmark abnormal return	-0.021*** (0.000)	-0.079*** (0.000)	-0.167*** (0.000)	-0.300*** (0.000)	-0.587*** (0.000)	-0.566*** (0.000)
Market-adjusted return	0.050 (0.625)	-0.009 (0.937)	-0.059 (0.749)	-0.153 (0.547)	-0.411 (0.253)	-0.460 (0.124)
CAPM intercept	0.077 (0.480)	-0.038 (0.764)	-0.140 (0.474)	-0.314 (0.242)	-0.692* (0.066)	-0.768** (0.012)
Fama–French intercept	-0.061 (0.422)	-0.130 (0.172)	-0.269** (0.037)	-0.464*** (0.005)	-0.864*** (0.000)	-0.803*** (0.000)

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STAY TUNED TO MODULE 4



UPCOMING ATTRACTI0NS!

Analysis of Performance of Mutual Funds

MODULE 4

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

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Performance of Individual Investors

Overconfidence



OVERCONFIDENCE AND INVESTMENTS

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION

Is there a group of investors that one can identify as more likely to be overconfident *a priori*?

HOW TO IDENTIFY OVERCONFIDENCE?



Source: Norther (1828-1876)

PROXIES FOR (OVER)CONFIDENCE

Gender (male)

Barber and Odean (2001)

Height (tall)???

Addoum, Korniotis, and Kumar (2016)

Don't have data on *performance* of portfolio,
so hard to assess "overconfidence"

HAS ONE OF THE TWO PREDICTORS!



Source: Northen (1828-1876)

MAY SEEM SILLY, BUT ...



Source: Trumbull (1817)

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The author Malcolm Gladwell (2016)
notes that:

"In the U.S. population, about 14.5 percent
of all men are six feet or over. Among
CEOs of Fortune 500 companies, that
number is 58 percent."

(<http://gladwell.com/blink/why-do-we-love-tall-men/>)

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“BOYS WILL BE BOYS”

	Average Monthly Turnover of Portfolio	Monthly Abnormal GROSS Return (2-Factor Model)	Monthly Abnormal NET Return (2-Factor Model)
Single Women			
Married Women			
Married Men			
Single Men			

Source: Barber & Odean (2001, Table 2 and 4)

“BOYS WILL BE BOYS”

	Average Monthly Turnover of Portfolio	Monthly Abnormal GROSS Return (2-Factor Model)	Monthly Abnormal NET Return (2-Factor Model)
Single Women	4.22%		
Married Women	4.41%		
Married Men	6.11%		
Single Men	7.05%		

Source: Barber & Odean (2001, Table 2 and 4)

“BOYS WILL BE BOYS”

	Average Monthly Turnover of Portfolio	Monthly Abnormal GROSS Return (2-Factor Model)	Monthly Abnormal NET Return (2-Factor Model)
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Single Men	7.05%	-0.099%	

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Single Women	4.22%	-0.036%	-0.142%
Married Women	4.41%	-0.051%	-0.171%
Married Men	6.11%	-0.082%	-0.245%
Single Men	7.05%	-0.099%	-0.285%

Source: Barber & Odean (2001, Table 2 and 4)

OVERCONFIDENCE FROM PEER EFFECTS?

Not surprisingly, word-of-mouth or peer effects have a strong influence on household portfolio decisions

My own work shows that neighbors have a big influence on a given household's decision of whether to own stocks and what type of stocks to own (see reference list)

For perspective, the effect of neighbors is about the same as the effect of your parents on whether you own equity!

“CENSORED GOSSIP”

I



Sources:

Left: Kennison (1989); Upper right: Parham (2008); Lower right: Alias (2011)

CENSORED MEMORIES AND GOSSIP

There is a bias that we likely forget the bad performers (in part because they disappear!)

“That others have made a lot of money appears to many people as the most persuasive ... evidence that outweighs even the most carefully reasoned argument ...”

Robert Shiller, 2013 Nobel Prize in Economics winner, from his book *Irrational Exuberance* (2000)

CENSORED MEMORIES AND GOSSIP

Kaustia and Knüpfer (2012) relate the number of new investors in an area to the past performance of existing investors in that area

Examine monthly zip-code level data in Finland over 1995-2002 (There are 2649 zip codes!)

Key to the analysis is examining whether potential new investors respond to both positive and negative returns earned last month by their neighbors

NEIGHBORS DO WELL, YOU START TO INVEST IN STOCKS!

Panel C: regressions

Variable	Entry rate (bps)	
	(1)	(2)
Neighborhood return	1.056 (4.38)*** [2.03]**	1.042 (4.29)*** [1.98]**
Participation rate		–1.522 (–3.24)*** [–3.14]***
Month-province fixed effects	Yes	Yes
Zip code fixed effects	Yes	Yes
Number of zip codes	2,648	2,648
Number of observations	246,174	246,174
Overall R ²	0.119	0.125

Source: Kaustia & Knüpfer (2012, Table 2 Panel C)

PEOPLE SHARE GOOD EXPERIENCES, NOT BAD!

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Overall R^2	0.119	0.125

Source: Kaustia & Knüpfer (2012, Table 2 Panel C & Table 3 Panel B)

Panel B: Regressions employing a change in the slope at zero

P	Variable	Entry rate (bps)
		(1)
	Max (Neighborhood return, 0)	1.434 (4.65)*** [2.44]**
	Min (Neighborhood return, 0)	0.302 (0.69) [0.29]
	Participation rate	–1.634 (–3.32)*** [–3.28]***
	Province-month fixed effects	Yes
	Zip code fixed effects	Yes
	Number of zip codes	2,648
	Number of observations	246,174
	Overall R^2	0.131

OVERCONFIDENCE FROM PEER EFFECTS AND CENSORED GOSSIP/MEMORIES?

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Loss Aversion



LOSS AVERSION

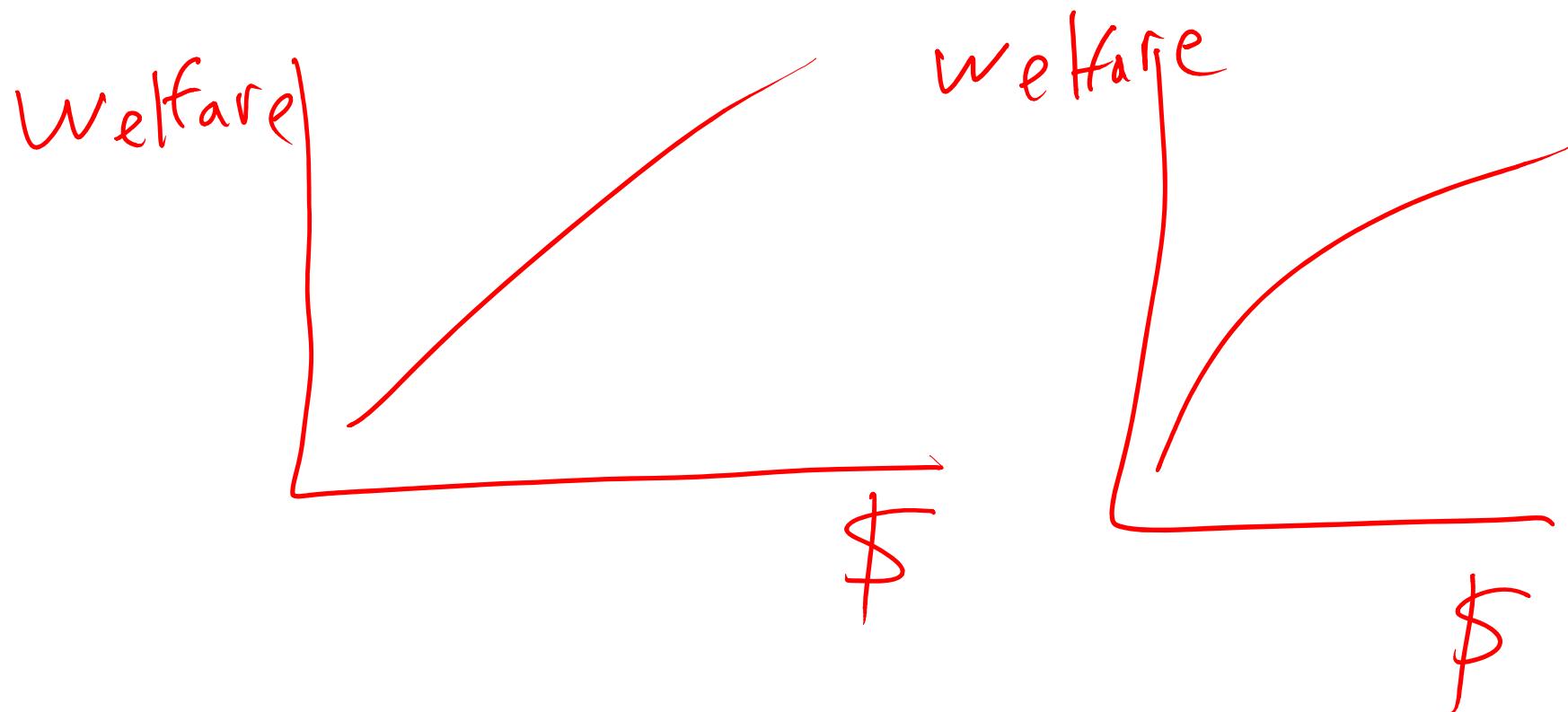
Idea is that losses hurt more than gains
make you feel good

Prediction is people will be risk-loving when
dealing with losses and risk-averse when
dealing with gains

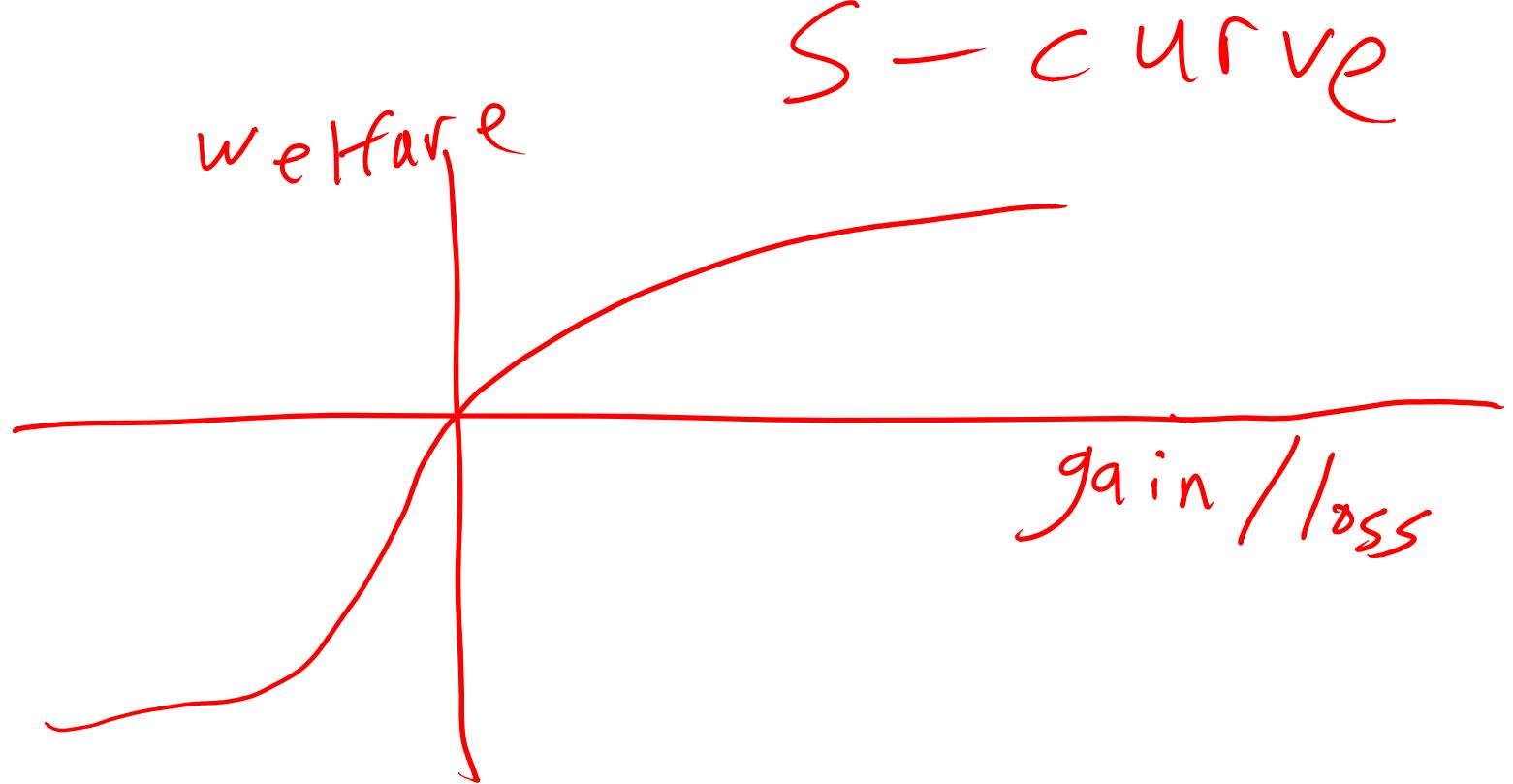
Benchmark around which you measure
losses and gains very important

Based on *prospect theory* of Kahneman &
Tversky (1979) and Tversky & Kahneman
(1986)

LET'S DRAW A GRAPH OF WELFARE!



LET'S DRAW A GRAPH OF
WELFARE!



NOW LET'S FOCUS ON LOSSES

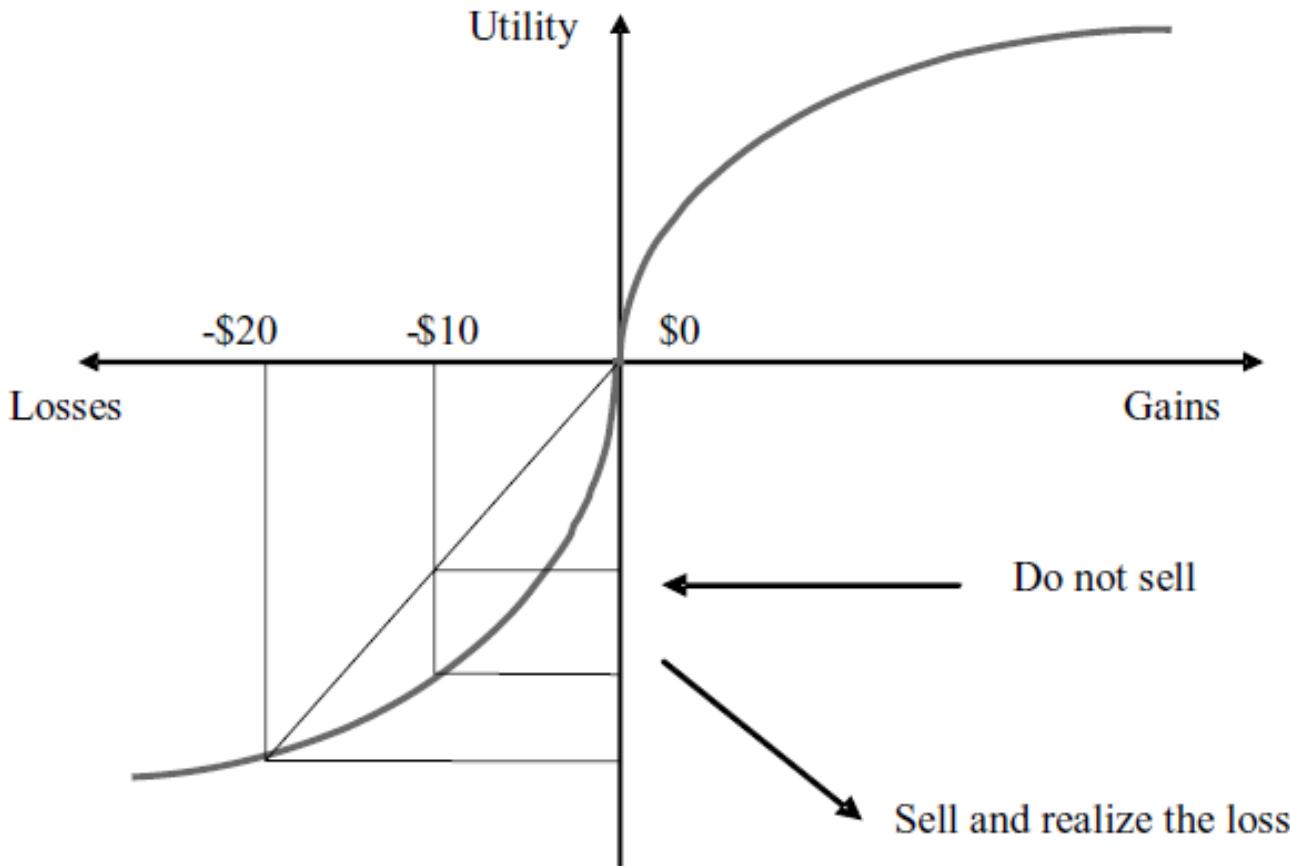
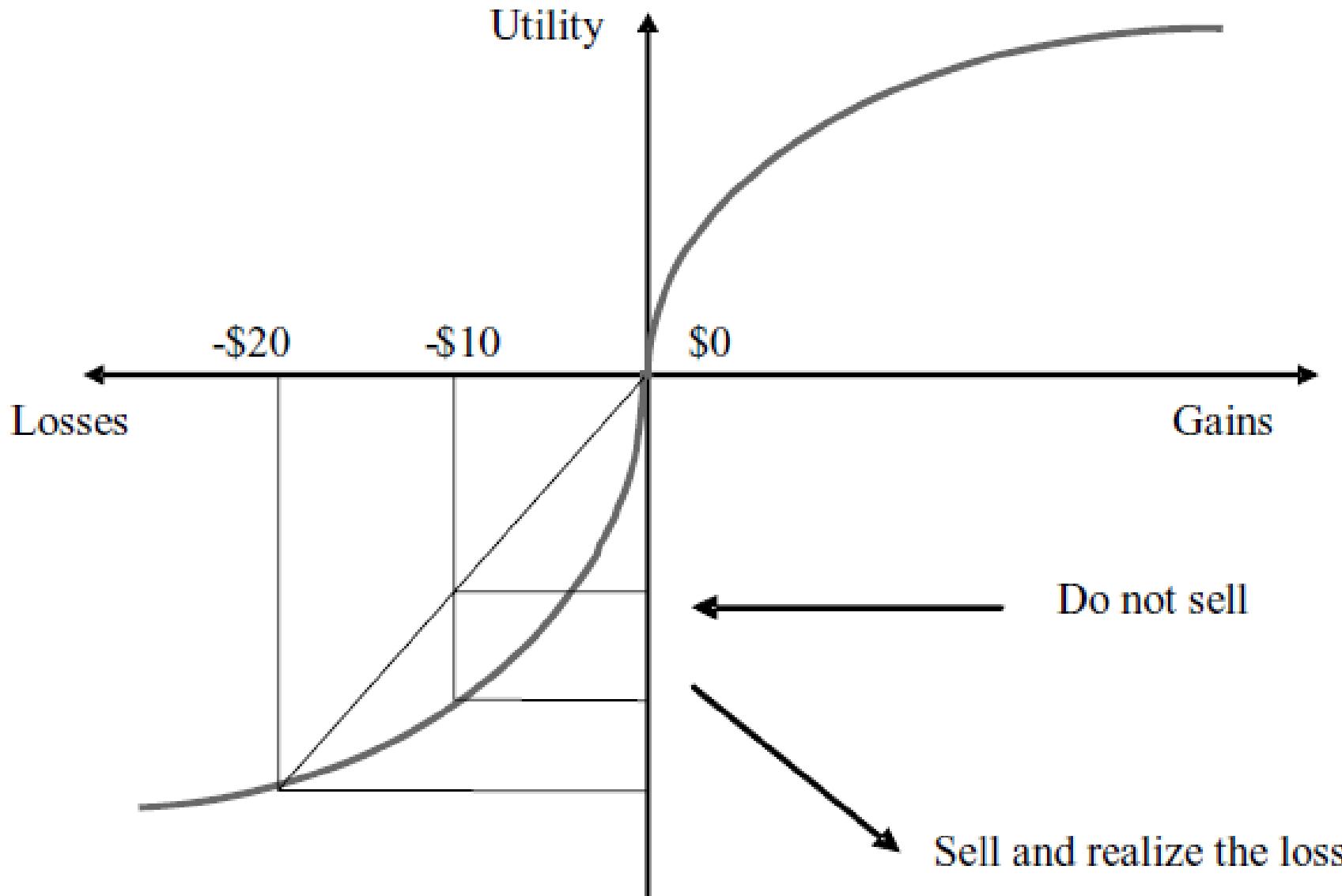


Figure 1. Prospect theory, mental accounting, and the disposition effect: Realize a loss.

Assume that an investor purchased one share at \$50 and the price is now \$40. Suppose that in the next month, the price could go either up \$10 or down \$10 (with equal probability). The investor must choose between selling the stock now and realizing a paper loss of \$10, or keeping the stock in his portfolio. This figure shows the utility gain (loss) of the two alternatives.

Source: Frazzini (2006, Figure 1)

NOW LET'S FOCUS ON LOSSES



Source: Frazzini (2006, Figure 1)

NOW LET'S FOCUS ON LOSSES

Greater expected welfare from holding a losing investment than selling it!

The opportunity for the loss to reverse and get back to your benchmark is so psychologically important that you don't really care about the possibility of further losses

Risk-loving over loss region

NOW LET'S FOCUS ON GAINS

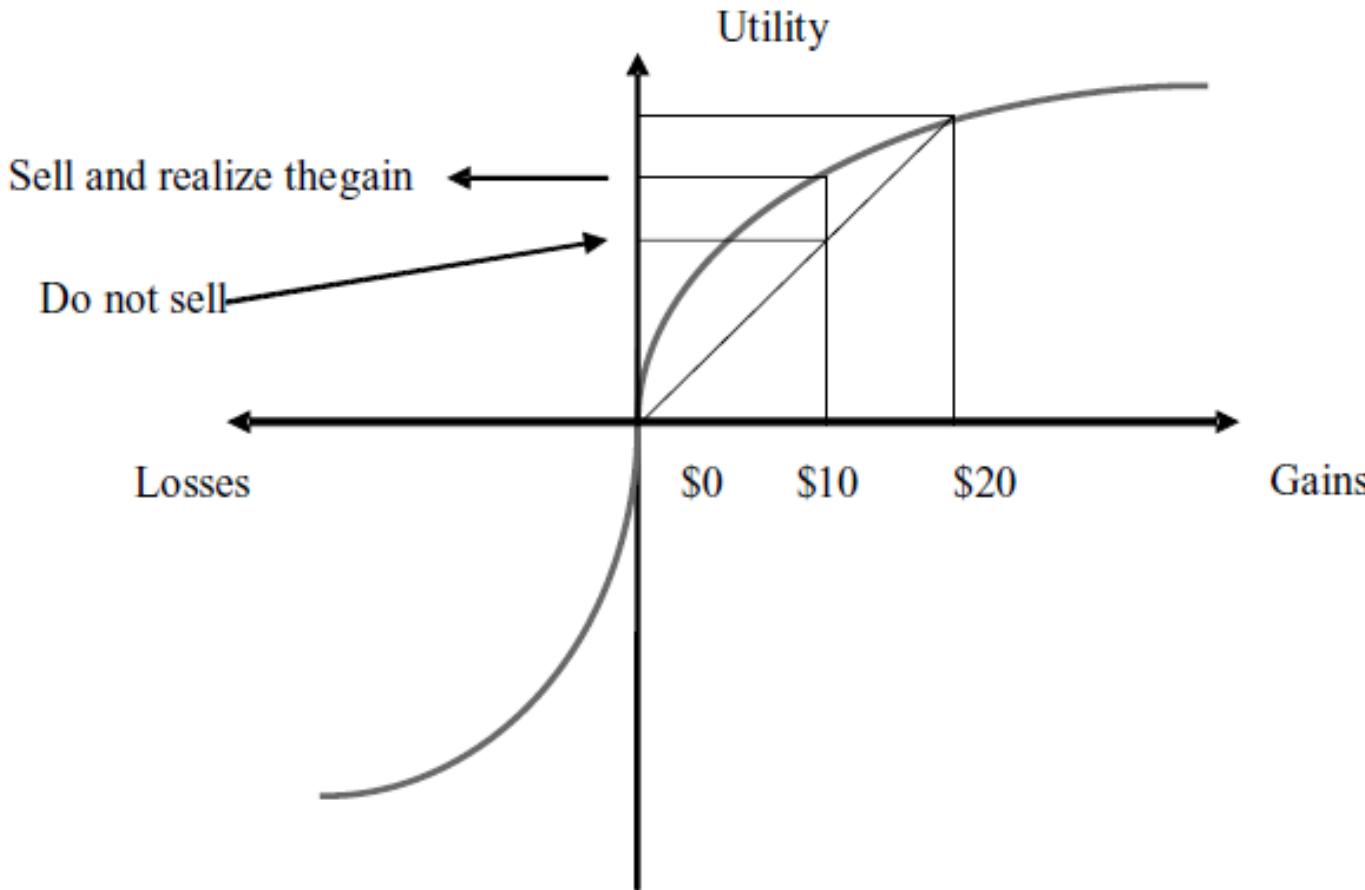
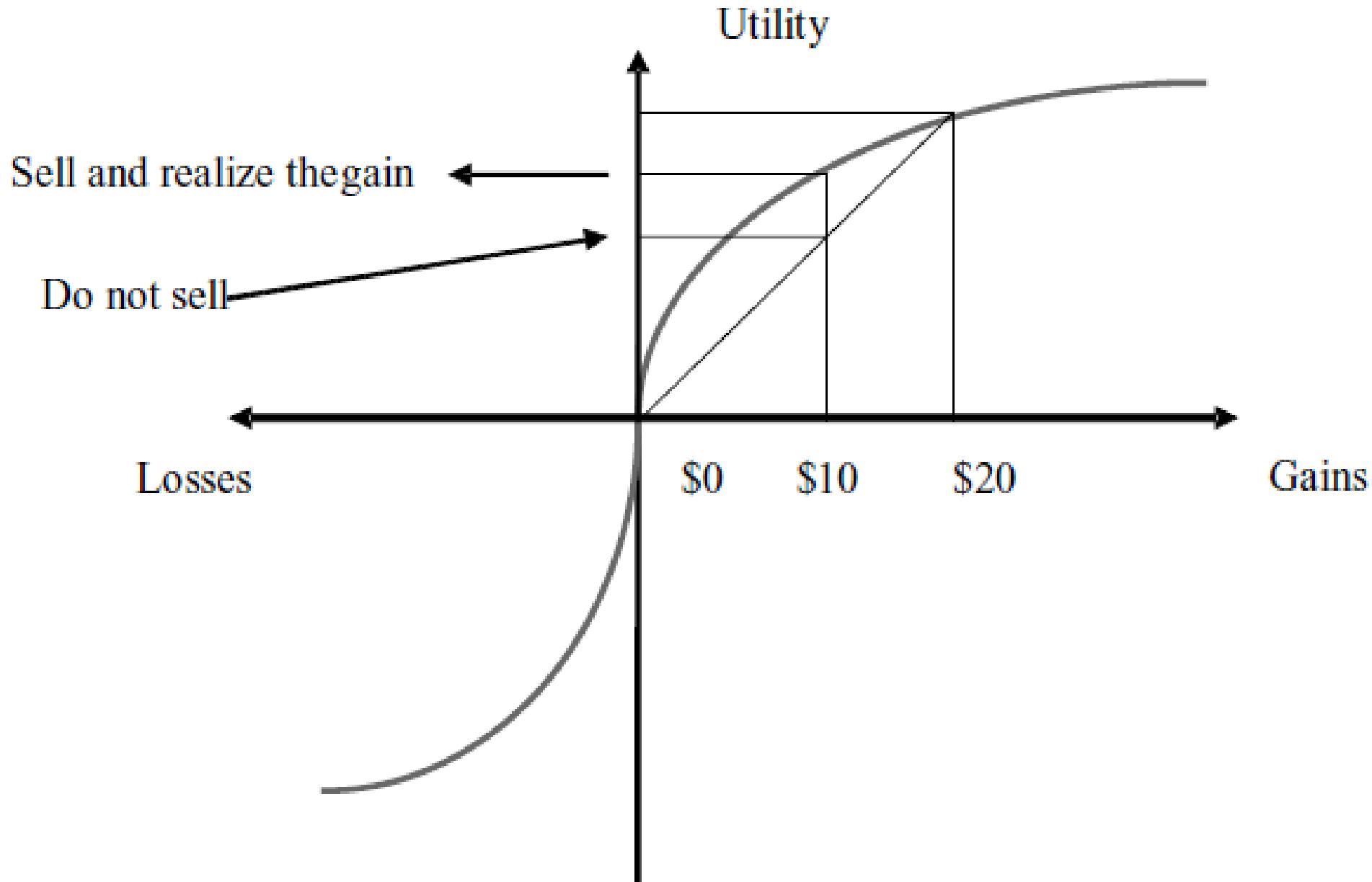


Figure 2. Prospect theory, mental accounting, and the disposition effect: Realize a gain.

Assume that an investor purchased one share at \$50 and the price is now \$60. Suppose that in the next month the price could go either up \$10 or down \$10 (with equal probability). The investor must choose between selling the stock now and realizing a paper gain of \$10, or keeping the stock in his portfolio. This figure shows the utility gain (loss) of the two alternatives.

Source: Frazzini (2006, Figure 2)

NOW LET'S FOCUS ON GAINS



Source: Frazzini (2006, Figure 2)

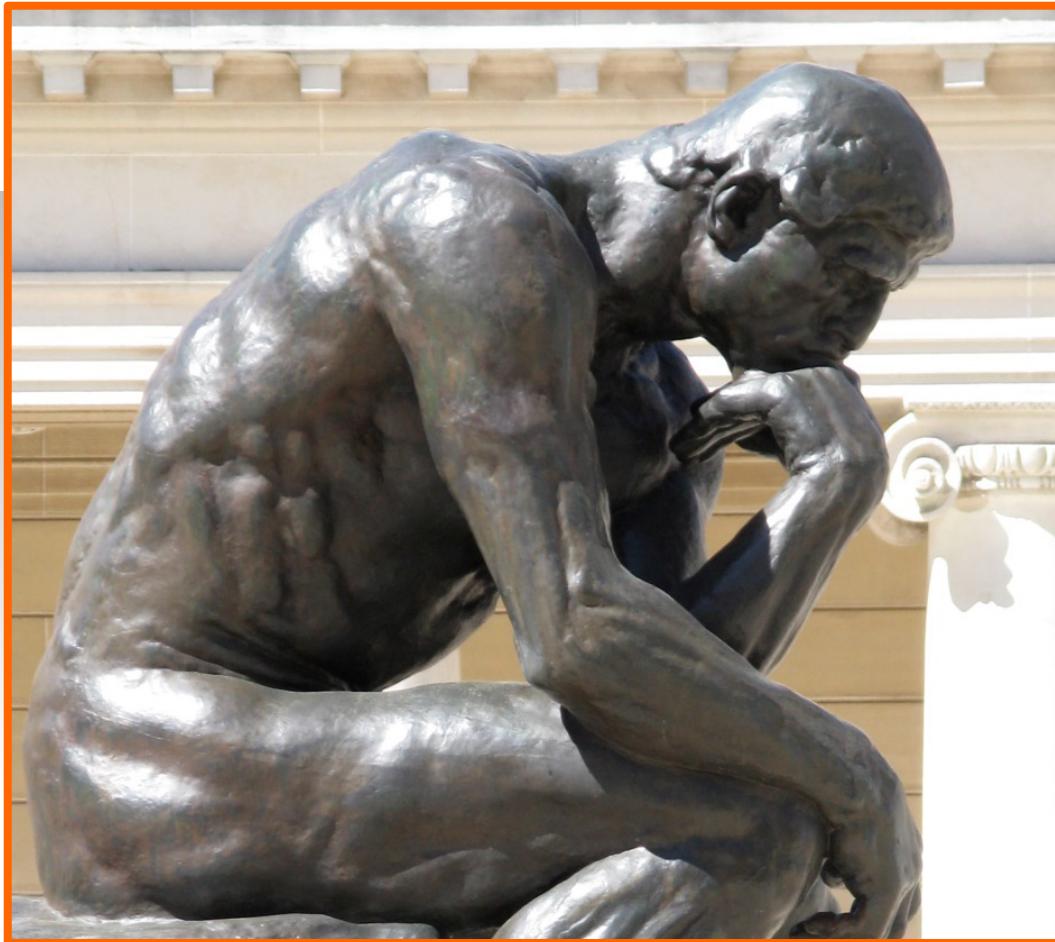
NOW LET'S FOCUS ON GAINS

Greater expected welfare from selling a winning investment than holding it!

The opportunity for the gain to reverse and fall back to your benchmark is so psychologically painful that you don't care as much about the possibility of further gains

Risk-averse over gain region

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

LOTTERY QUESTION

Suppose you have a one-time opportunity to take part in a lottery that is determined by flipping a fair coin (i.e., there is a 50% chance of “heads” and a 50% chance of “tails”).

There is no cost to enter this lottery. If the coin flip results in “heads”, you will lose \$50, and if the coin flip results in “tails”, you will win money.

For YOU TO BE WILLING to take part in this coin flip, what is the minimum amount of money that you would need to win if the coin flip is “tails”?

(Please note that there is no right or wrong answer for this question. Just enter the minimum amount YOU WOULD NEED to win if the coin flip is “tails”, keeping in mind that you will lose \$50 if you instead flip a “heads”.)

ENTER DOLLAR AMOUNT HERE: _____

SIMPLE SURVEY LOSS-AVERSION QUESTION

Used by Tversky and Kahneman (1992)

How much potential gain do you need to offset a \$50 loss?

In surveys, most common response is needing a \$100 gain to compensate for \$50 loss (i.e., twice the gain to compensate for a loss)

WHAT IS NATURAL BENCHMARK?

Key to loss aversion is the benchmark around which losses and gains are measured

Crucial to identify this natural benchmark if you wish to test for effects of loss aversion on individuals as well as markets

LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

Personal Connection with Asset

Corporate Finance Decisions

Explanation for Momentum Strategy

Importance of Endowment

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Effects of Loss Aversion (Part 1): Loss Aversion & Tax Incentives for Stock Trades



LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

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LOSS AVERSION

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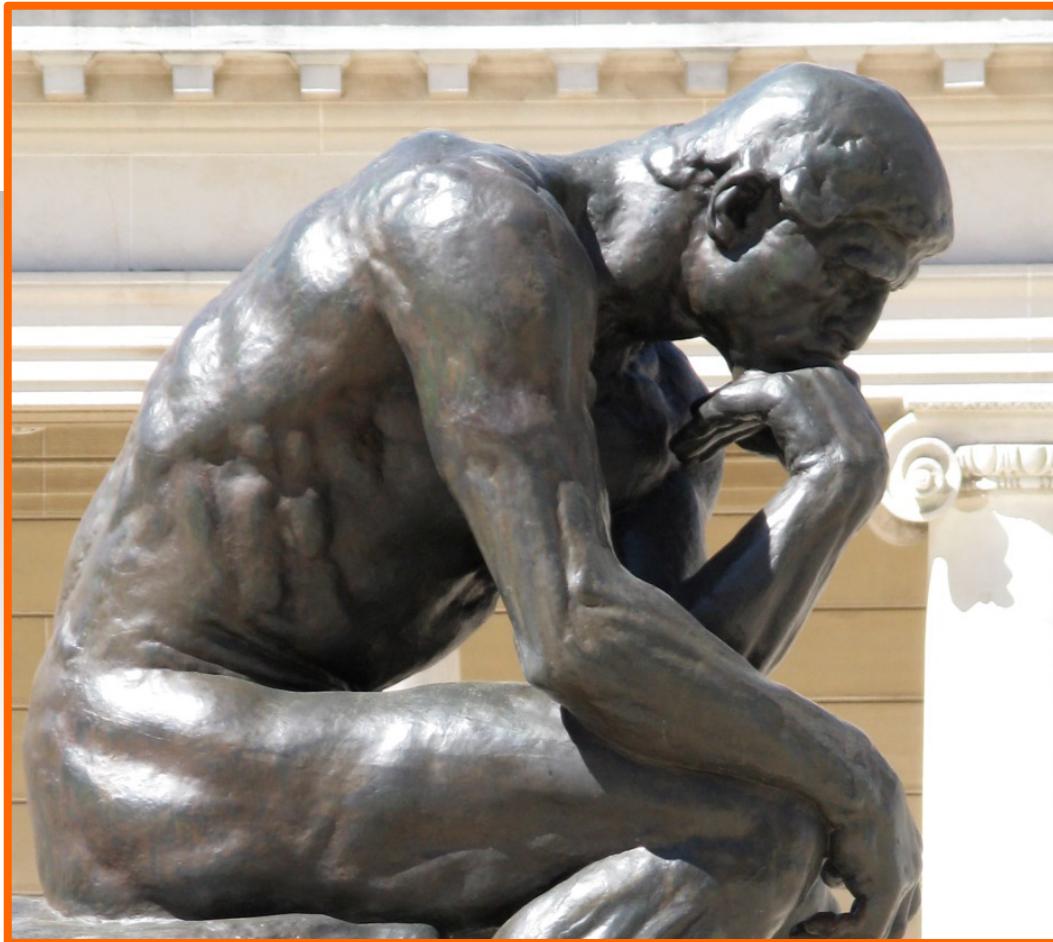
Personal Connection with Asset

Corporate Finance Decisions

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PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: LOSS AVERSION AND STOCK TRADING

What is a natural benchmark for an investor in a stock (or any asset)?

Given this, how should loss aversion affect the types of stocks that are sold?

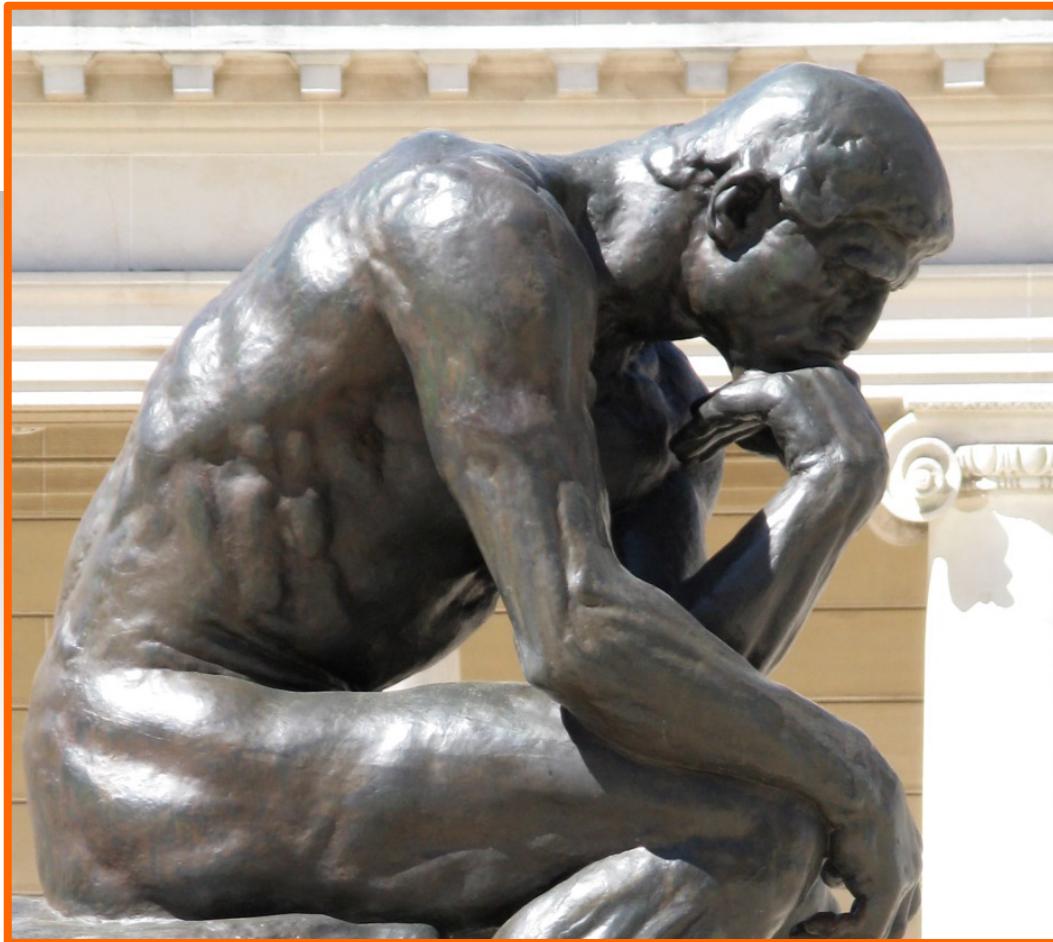
DISCUSSION OF QUESTION: LOSS AVERSION AND STOCK TRADING

What is a natural benchmark for an investor in a stock (or any asset)?

Given this, how should loss aversion affect the types of stocks that are sold?

Odean (1998) finds that individual investors are more likely to sell stock investments that have gone up than those that have gone down

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: LOSS AVERSION AND STOCK TRADING

Generally, will this loss-aversion induced trading be bad or good for investors? Why?

DISCUSSION OF QUESTION: LOSS AVERSION AND STOCK TRADING

Generally, will this loss-aversion induced trading be bad or good for investors? Why?

Potentially trading against **MOMENTUM** effects

TAX costs could be important as well

MOTIVATIONS FOR SALE OF STOCK

Odean (1998) finds loss aversion appears to be a key determinant of stock sales

Do taxes play any role in the sale decision of individual investors (i.e., any lock-in effect)?

MOTIVATIONS FOR SALE OF STOCK

One way to test for this is to compare the trades of households in **taxable accounts** with the trades of households in **Individual Retirement Accounts** (IRAs) that do not assess capital gains taxes following sales

Would expect the NET “loss aversion” effect to be smaller in taxable accounts

MOTIVATIONS FOR SALE OF STOCK

Ivković, Poterba, and Weisbenner (2005) test for tax-motivated trading by individual investors by comparing the trades of individuals that *hold both taxable and tax-deferred accounts*

Use data on thousands of individual investors from an anonymous discount brokerage used by Barber and Odean (2000)

Are there differences in the sensitivity of stock sales to past performance since purchase across stocks purchased in *taxable and tax-deferred accounts*?

SPECIFICATION FOR SALE OF STOCK REGRESSION

Notes: Sample restricted to stock purchases of at least \$10,000. The specification is:

$$\text{SELL}_{it} = \alpha_i + \beta_{1,it} * \text{GAIN}_{it-1} + \beta_{2,it} * \text{LOSS}_{it-1} + \varepsilon_{it}$$

where $\text{GAIN} = \max(\text{percentage price change}, 0)$, $\text{LOSS} = \min(\text{percentage price change}, 0)$. Standard errors, which are shown in parentheses, allow for heteroskedasticity as well as correlation across observations of the same household. ***, **, * denote significance at the 1-percent, 5-percent, and 10-percent level, respectively.

Source: Ivković, Poterba, & Weisbenner (2005, Table 3 caption)

EVIDENCE FOR BOTH LOSS AVERSION & TAXES

TABLE 3—REGRESSION OF MONTHLY HAZARD RATE OF SELLING STOCK ON CUMULATIVE RETURN ON STOCK ENTERING THE MONTH, PURCHASES $\geq \$10,000$ (FIGURES 3A AND 3B)

Months since purchase	Probability of selling stock in taxable account			Probability of selling stock in taxable account relative to selling stock in tax-deferred account		
	Constant: baseline	GAIN	LOSS	Constant: baseline	GAIN	LOSS
1 month	23.4*** (0.8)			2.7** (1.4)		
2 months	11.4*** (0.4)	21.7*** (2.6)	9.7*** (2.2)	1.0* (0.6)	-19.4*** (4.6)	0.7 (3.6)
3 months	8.7*** (0.3)	11.6*** (1.8)	8.2*** (1.5)	0.1 (0.5)	-8.9*** (3.2)	-2.5 (2.5)
4 months	6.7*** (0.3)	5.8*** (1.3)	6.4*** (1.2)	-0.5 (0.4)	-6.2*** (2.4)	-1.6 (2.0)
5 months	5.5*** (0.2)	4.7*** (1.1)	5.0*** (1.0)	-0.7* (0.4)	-5.4*** (2.2)	-2.5 (1.7)
6 months	5.4*** (0.2)	0.7 (0.8)	4.6*** (0.9)	-0.5 (0.4)	-6.6*** (1.8)	-0.6 (1.7)
7 months	4.6*** (0.2)	1.3* (0.8)	2.7*** (0.9)	-0.4 (0.4)	-4.5*** (1.6)	-2.8** (1.4)
8 months	3.7*** (0.2)	0.8 (0.5)	2.1*** (0.8)	-0.6* (0.4)	-5.5*** (1.5)	-3.2** (1.4)
9 months	3.4*** (0.2)	-0.2 (0.3)	0.4 (0.8)	-0.7** (0.4)	-3.5*** (1.2)	-3.8*** (1.4)
10 months	3.1*** (0.2)	0.2 (0.4)	1.1 (0.7)	-0.8** (0.4)	-1.9 (1.3)	-2.1 (1.3)
11 months	2.9*** (0.2)	-0.4 (0.3)	0.9 (0.7)	-0.6** (0.3)	-1.9** (0.8)	-2.4** (1.1)
12 months	2.9*** (0.2)	-0.1 (0.3)	0.8 (0.7)	-0.6* (0.3)	-1.2* (0.7)	-3.6*** (1.1)

Source:

Ivković, Poterba, & Weisbenner (2005, Table 3)

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5 months	5.5*** (0.2)	4.7*** (1.1)	5.0*** (1.0)	-0.7* (0.4)	-5.4*** (2.2)	-2.5 (1.7)
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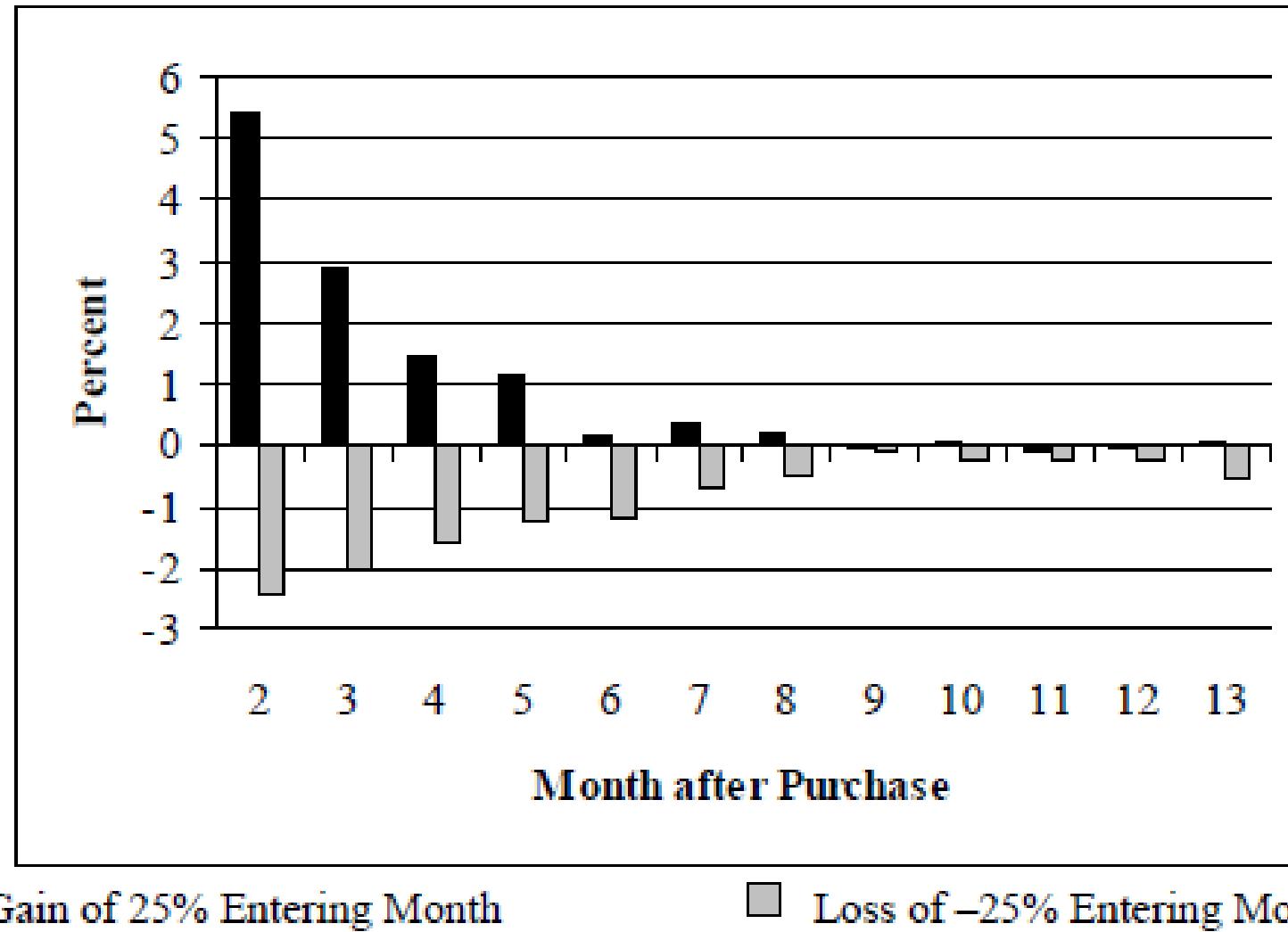
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1 month	23.4*** (0.8)			2.7** (1.4)		
2 months	11.4*** (0.4)	21.7*** (2.6)	9.7*** (2.2)	1.0* (0.6)	-19.4*** (4.6)	0.7 (3.6)
3 months	8.7*** (0.3)	11.6*** (1.8)	8.2*** (1.5)	0.1 (0.5)	-8.9*** (3.2)	-2.5 (2.5)
4 months	6.7*** (0.3)	5.8*** (1.3)	6.4*** (1.2)	-0.5 (0.4)	-6.2*** (2.4)	-1.6 (2.0)
5 months	5.5*** (0.2)	4.7*** (1.1)	5.0*** (1.0)	-0.7* (0.4)	-5.4*** (2.2)	-2.5 (1.7)
6 months	5.4*** (0.2)	0.7 (0.8)	4.6*** (0.9)	-0.5 (0.4)	-6.6*** (1.8)	-0.6 (1.7)
7 months	4.6*** (0.2)	1.3* (0.8)	2.7**** (0.9)	-0.4 (0.4)	-4.5*** (1.6)	-2.8** (1.4)
8 months	3.7*** (0.2)	0.8 (0.5)	2.1*** (0.8)	-0.6* (0.4)	-5.5*** (1.5)	-3.2** (1.4)
9 months	3.4*** (0.2)	-0.2 (0.3)	0.4 (0.8)	-0.7** (0.4)	-3.5*** (1.2)	-3.8*** (1.4)
10 months	3.1*** (0.2)	0.2 (0.4)	1.1 (0.7)	-0.8** (0.4)	-1.9 (1.3)	-2.1 (1.3)
11 months	2.9*** (0.2)	-0.4 (0.3)	0.9 (0.7)	-0.6** (0.3)	-1.9** (0.8)	-2.4** (1.1)
12 months	2.9*** (0.2)	-0.1 (0.3)	0.8 (0.7)	-0.6* (0.3)	-1.2* (0.7)	-3.6*** (1.1)

Source:

Ivković, Poterba, & Weisbenner (2005, Table 3)

STOCK SALES IN TAXABLE ACCOUNTS

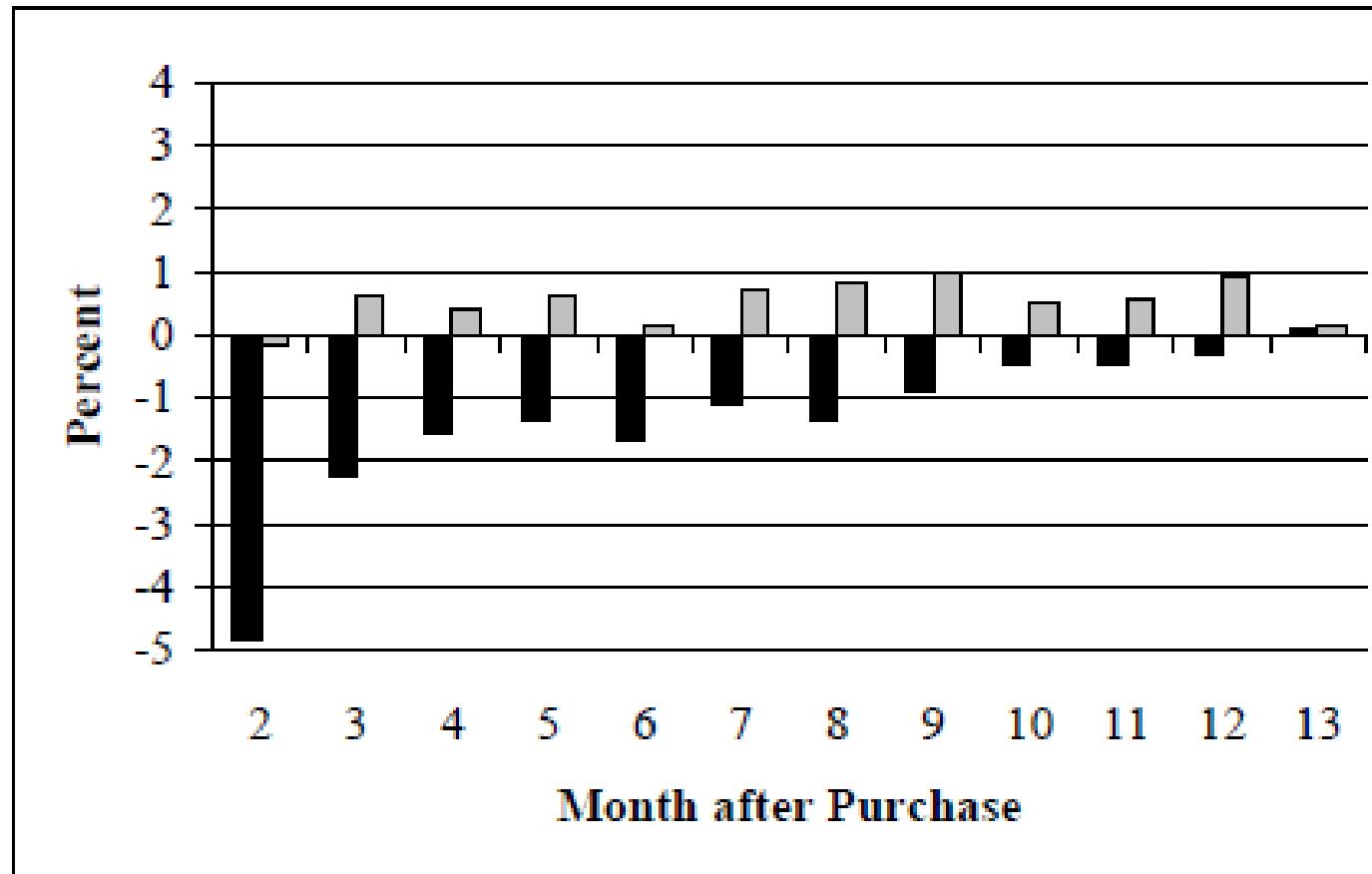
Figure 3a: Added Likelihood of Sale in Taxable Accounts With Respect to Stock with Zero Appreciation Since Purchase Date, Purchase at least \$10,000



Source: Ivković, Poterba, & Weisbenner (2005, Figure 3a)

STOCK SALES IN TAXABLE *RELATIVE* TO TAX-DEFERRED ACCOUNTS

Figure 3b: Added Likelihood of Sale in Taxable Accounts *Relative* to Tax-Deferred Accounts With Respect to Stock with Zero Appreciation Since Purchase Date, Purchase at least \$10,000



■ Gain of 25% Entering Month

□ Loss of -25% Entering Month

Source: Ivković, Poterba, & Weisbenner (2005, Figure 3b)

MULTIPLE MOTIVATIONS FOR SALE OF STOCK

Loss aversion a strong factor in stock sales

Evidence also for a **tax lock-in** effect from capital gains taxes by comparing trades of households in their *taxable account* relative to their *tax-deferred account*

LOSS AVERSION

Loss Aversion and Tax Motivation for Stock
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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Effects of Loss Aversion (Part 2): Personal Connection to Asset



LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

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PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: LOSS AVERSION AND EMOTION

With what asset may an individual have
the strongest personal connection?

DISCUSSION OF QUESTION: LOSS AVERSION AND EMOTION

With what asset may an individual have the strongest personal connection?



Source: Mount Pleasant Granary (2013)

LOSS AVERSION AND HOUSING MARKET

Would expect loss aversion and benchmark to purchase price to be very strong for real estate (particularly owner-occupied housing)!

Would also expect strong loss aversion effects for collectibles (where an owner also has a strong personal connection with the asset)

LOSS AVERSION AND HOUSING MARKET

Genesove and Mayer (2001) study the effect of loss aversion on the Boston condominium market

Controlling for usual determinants of house prices, the seller's original purchase price also matters for listing price and sale likelihood

LOSS AVERSION AND HOUSING MARKET

Genesove and Mayer (2001) find that if the house has fallen in value since purchase:

The owner has a higher list price

It takes longer for the house to sell

Effect is twice as large for owner-occupants compared to investors

LOSS AVERSION AND HOUSING MARKET

Results imply loss aversion could have a big effect on the liquidity of the housing market following a sharp decline in prices

Prospective buyers don't care what the current owner paid for the house, just care about current market conditions

LOSS AVERSION AND HOUSING MARKET

Owners may psychologically be very reluctant to sell a house for less than paid, even if that price is far above the current market

Loss aversion likely has an effect on the rental market for homes as well

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTIONS

Do you find it useful to have someone to blame?

If so, might this affect to whom you attribute the loss or gain in a stock investment versus a mutual fund holding?

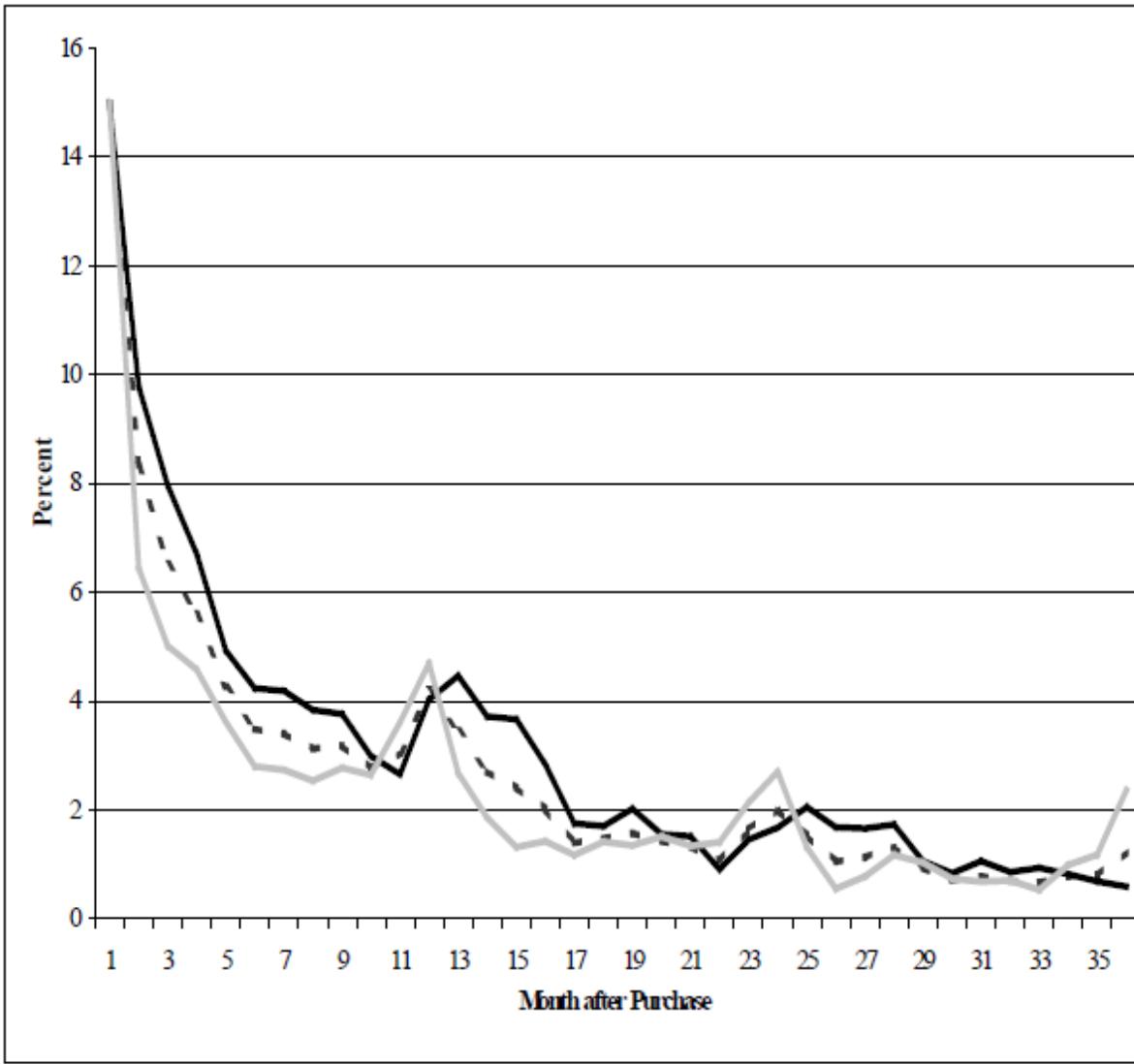
HAVING SOMEONE TO BLAME AFFECTS TRADING?

Ivković, Poterba, & Weisbenner (2005) and Ivković & Weisbenner (2009) examine various factors that influence individuals' decisions to sell stock and mutual fund holdings, respectively

Use data on 60k+ individual investors from an anonymous discount brokerage over the period 1991-1996 used by Barber and Odean (2000)

Find a striking difference in relation between likelihood of sale and past performance across different types of investments

STOCK SALES IN TAXABLE ACCOUNTS



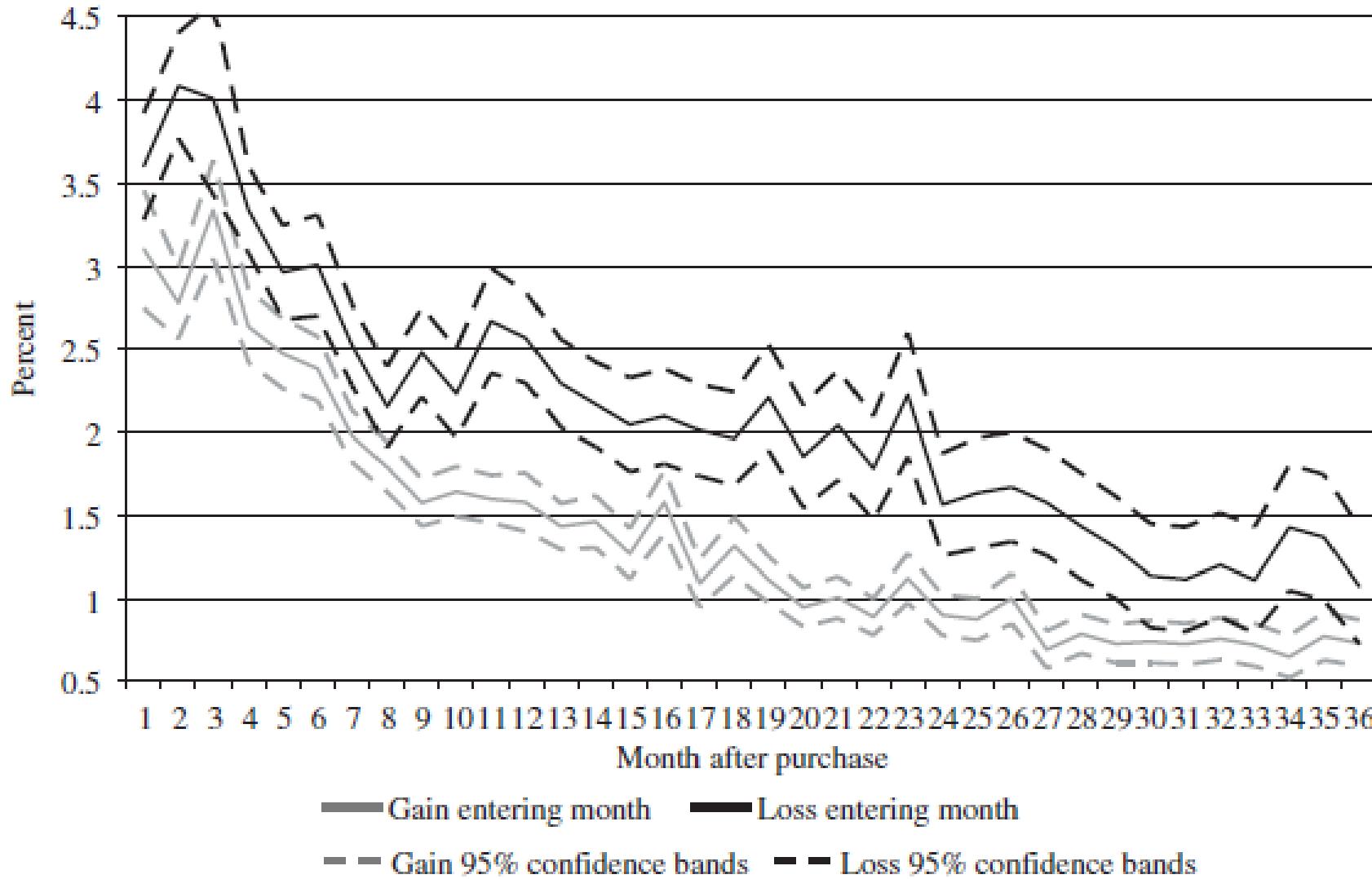
— · — Unconditional

— — GAIN entering month

— — LOSS entering month

Source: Ivković, Poterba, & Weisbenner (2005, Figure 1)

MUTUAL FUND SALES IN TAXABLE ACCOUNTS



Source: Ivković & Weisbennner (2009, Figure 1)

HAVING SOMEONE TO BLAME AFFECTS TRADING?

Ivković, Poterba, & Weisbenner (2005) and Ivković & Weisbenner (2009) find a striking difference in relation between likelihood of sale and past performance of the investment

On average, investors **more likely to realize gains than losses for stocks** but **more likely to realize losses than gains for mutual funds** (in taxable accounts)!

Thus, while loss aversion effects seem to be important for stock trading, it is much less so (or not at all) for mutual fund trades by individuals!

HAVING SOMEONE TO BLAME AFFECTS TRADING?

Chang, Solomon, and Westerfield (2016) attribute the difference in “loss aversion” effects across these two types of investments to “having someone to blame”

For stock investments, the individual is likely to blame/credit themselves for performance

For mutual funds, it is easy for the individual to credit/blame the mutual fund manager for the bad picks he/she made in the fund

HAVING SOMEONE TO BLAME AFFECTS TRADING?

The ability to blame someone else removes the loss-aversion psychology from mutual fund selling decisions

The lack of loss-aversion effects allows mutual fund sales in taxable accounts to more reflect tax incentives (hold winners and sell losers)

WE ALL LIKE TO TRANSFER BLAME ... BUT ...



Source: Hoeller (2015)

WE ALL LIKE TO TRANSFER BLAME ... BUT ...

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Effects of Loss Aversion (Part 3): Corporate Finance Decisions



LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

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LOSS AVERSION

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PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: LOSS AVERSION AND TAKEOVER OFFERS

Suppose you want to take over two firms:
Firms A and B

Firm A: stock price has fallen recently and is far below its 52-week high

Firm B: stock price has risen recently and is just below its 52-week high

Which firm's shareholders will require you to offer it a higher premium to buy its shares? Firm A, Firm B, or will each require the same premium?

DISCUSSION OF QUESTION: LOSS AVERSION AND TAKEOVER OFFERS

Suppose you want to take over two firms:
Firms A and B

In Firm A, stock price has fallen recently and is far below its 52-week high

In Firm B, stock price has risen recently and is just below its 52-week high

The past all-time or past 52-week high is economically *not relevant today* but could be very relevant for loss-averse shareholders!

If loss aversion is important, may be tougher to acquire **Firm A**

LOSS AVERSION AND TAKEOVER OFFERS

Baker, Pan, and Wurgler (2012) study the effect of reference points on mergers and acquisitions

Offer prices for target firms are sensitive to the target's past 52-week high stock price

LOSS AVERSION AND TAKEOVER OFFERS

An offer's chance of success jumps discontinuously when the offer price exceeds the past 52-week peak

The market responds more negatively to the *bidder* when a takeover offer is influenced upwards because of a peak price of the target

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTIONS: LOSS AVERSION AND FIRM STOCK SALES

CEO may also have personal benchmarks that effect decision-making of the firm

What would be a relevant benchmark for the CEO?

How would this affect the likelihood that the CEO's FIRM sells stock to raise cash for the firm?

DISCUSSION OF QUESTIONS: LOSS AVERSION AND FIRM STOCK SALES

CEO may also have personal benchmarks that affect decision-making of the firm

What would be a relevant benchmark for the CEO?

How would this affect the likelihood that the CEO's FIRM sells stock to raise cash for the firm?

LOSS AVERSION AND FIRM STOCK SALES

Baker and Xuan (2016) find that the stock price when a CEO joined the firm is a relevant benchmark for making FIRM equity issuance decisions

This benchmark is not important when the CEO is replaced (the new CEO does not have that same personal attachment to past prices)

Suggests a firm with past poor stock returns may need to fire the current CEO if they wish to raise cash by selling equity

LOSS AVERSION

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LOSS AVERSION

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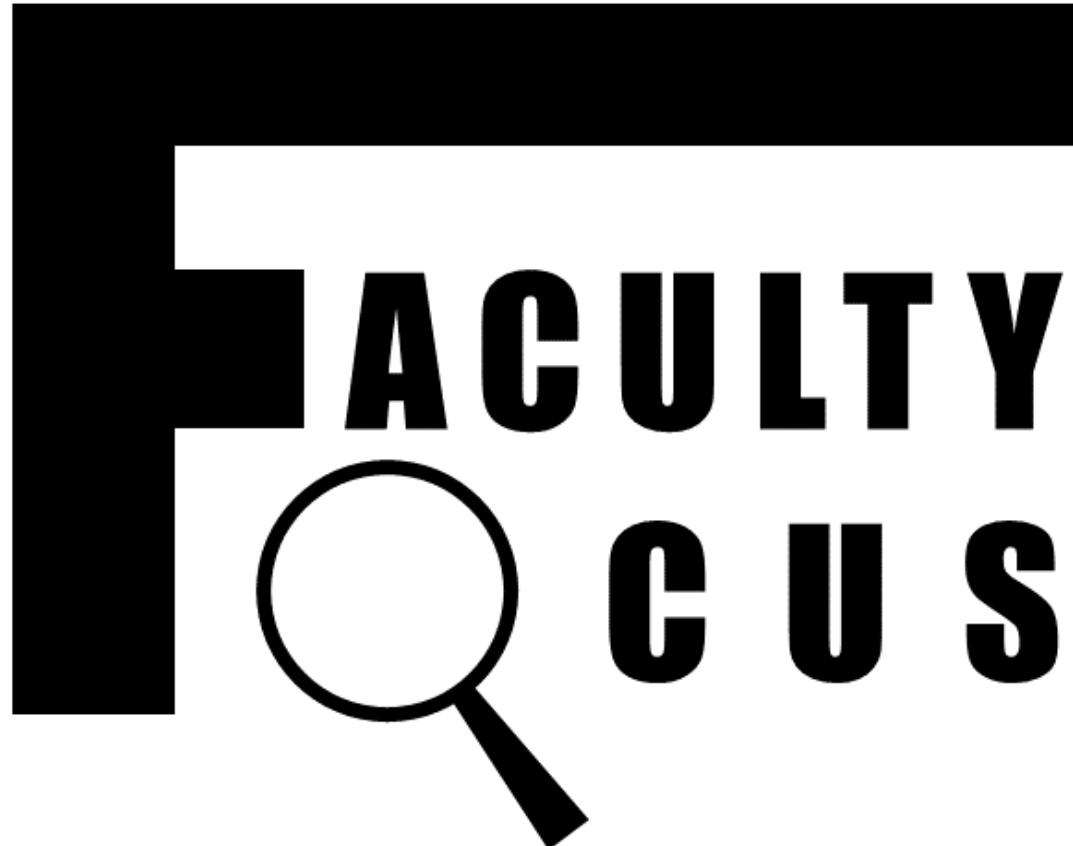
Corporate Finance Decisions

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**STAY TUNED ...
FACULTY FOCUS EPISODE!**

w / Scott Weisbennner



***STAY TUNED ...
FACULTY FOCUS EPISODE!***



Source: Xuan (n.d.)

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Effects of Loss Aversion (Part 4): Explanation for Momentum?



LOSS AVERSION

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LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

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Importance of Endowment

PAUSE, THINK, AND ANSWER!



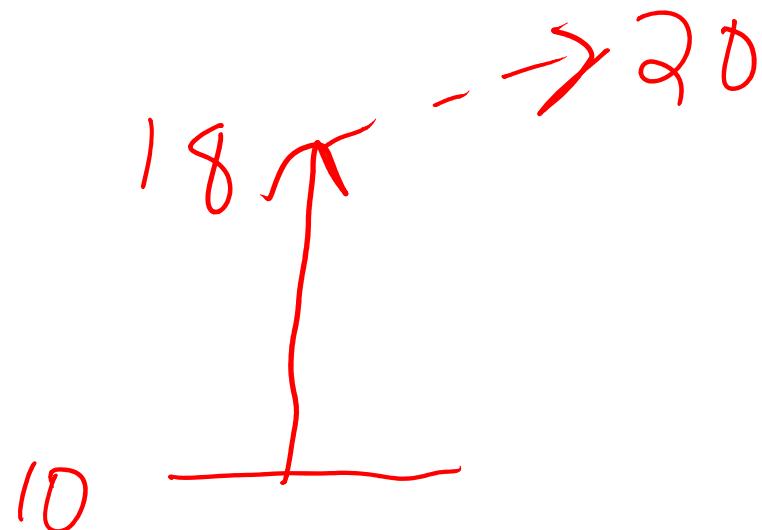
Source: Haklai (2012)

QUESTION: LOSS AVERSION AND MOMENTUM?

Could loss aversion on the part of investors help explain (or at least contribute) to return anomalies like momentum/drift strategies?

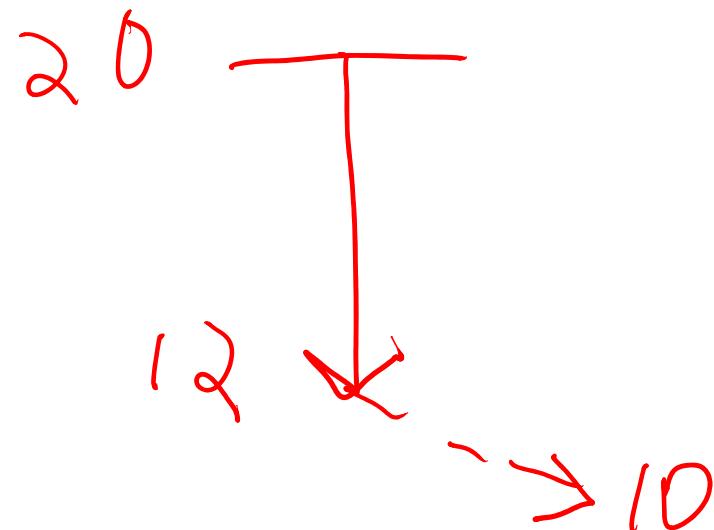
DISCUSSION OF QUESTION: LOSS AVERSION AND MOMENTUM?

Could loss aversion on the part of investors help explain (or at least contribute) to return anomalies like momentum/drift strategies?



DISCUSSION OF QUESTION: LOSS AVERSION AND MOMENTUM?

Could loss aversion on the part of investors help explain (or at least contribute) to return anomalies like momentum/drift strategies?



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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Effects of Loss Aversion (Part 5): Importance of Endowment



LOSS AVERSION

Loss Aversion and Tax Motivation for Stock Trades (sales)

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Importance of Endowment

LOSS AVERSION

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Corporate Finance Decisions

Explanation for Momentum Strategy

Importance of Endowment

ENDOWMENT EFFECT

Forms benchmark from which to measure psychological losses and gains

Given loss aversion, economic transactions can be framed (by changing the endowment)

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION

I

Could be the MOST important question of course!

Do you prefer coffee or chocolate?

DISCUSSION OF QUESTION

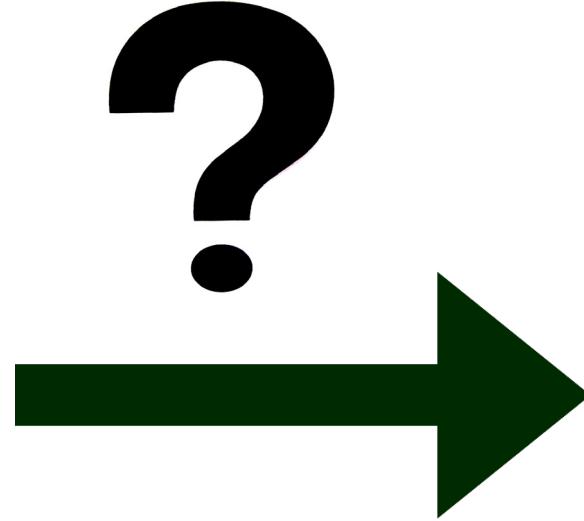
I

Could be the MOST important question of course!

Do you prefer coffee or chocolate?

ENDOWMENT EFFECT EXPERIMENT

I



**89% choose
COFFEE MUG**

Sources:

Right: Pixabay (2012)

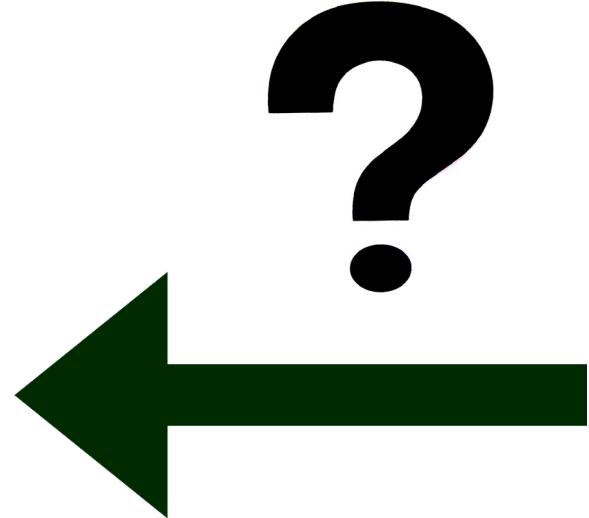
Left: Allispossible.org.uk (2007)

Lower middle: Durán (2006)

Upper middle: Neutrality (2005)

Source: Knetsch (1989)

ENDOWMENT EFFECT EXPERIMENT



10% choose
COFFEE MUG

Sources:

Right: Pixabay (2012)

Left: Allispossible.org.uk (2007)

Lower middle: Durán (2006)

Upper middle: Neutrality (2005)

Source: Knetsch (1989)

ENDOWMENT EFFECT EXPERIMENT



**56% choose
COFFEE MUG**

Sources:

Right: Pixabay (2012)

Left: Allispossible.org.uk (2007)

Lower middle: Durán (2006)

Upper middle: Neutrality (2005)

Source: Knetsch (1989)

ENDOWMENT EFFECTS VERY IMPORTANT IN FINANCIAL CONTEXTS!

Several Examples:

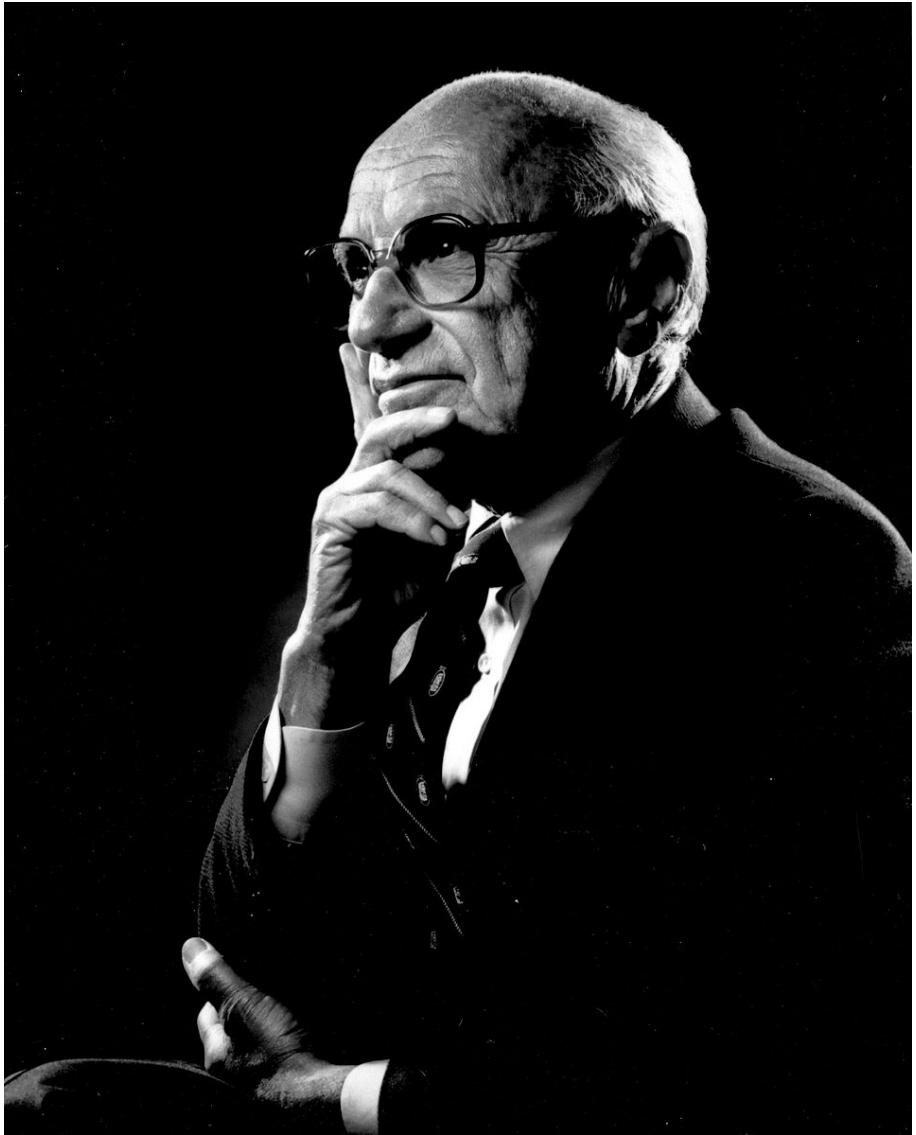
Withholding of taxes in U.S.

Sticker-price on cars in dealer lot

Credit Cards

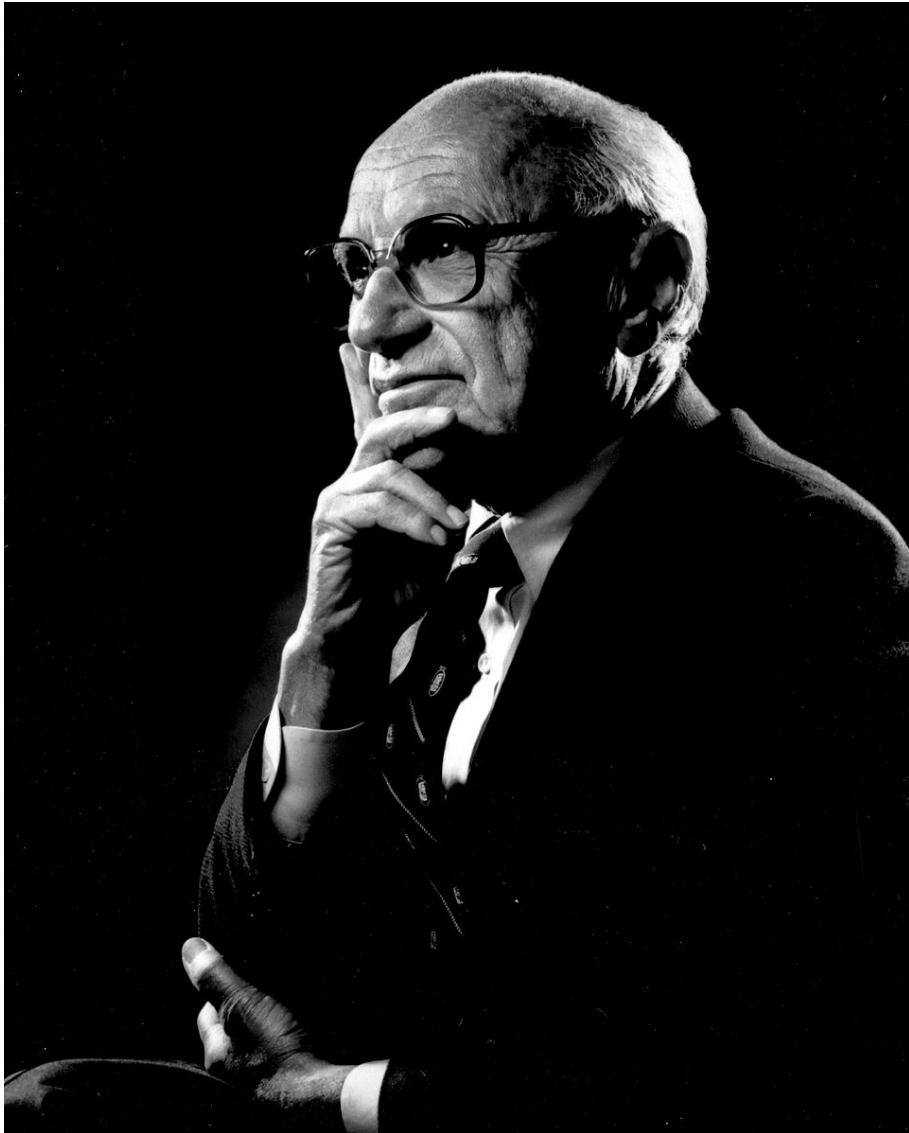
Annuities

EVER HEARD OF ...



Source: Friedman Foundation for Educational Choice (2004)

EVER HEARD OF ... MILTON FRIEDMAN



Source: Friedman Foundation for Educational Choice (2004)

“If you put the federal government in charge of the Sahara Desert, in 5 years there’d be a shortage of sand.”

Milton Friedman (2016)

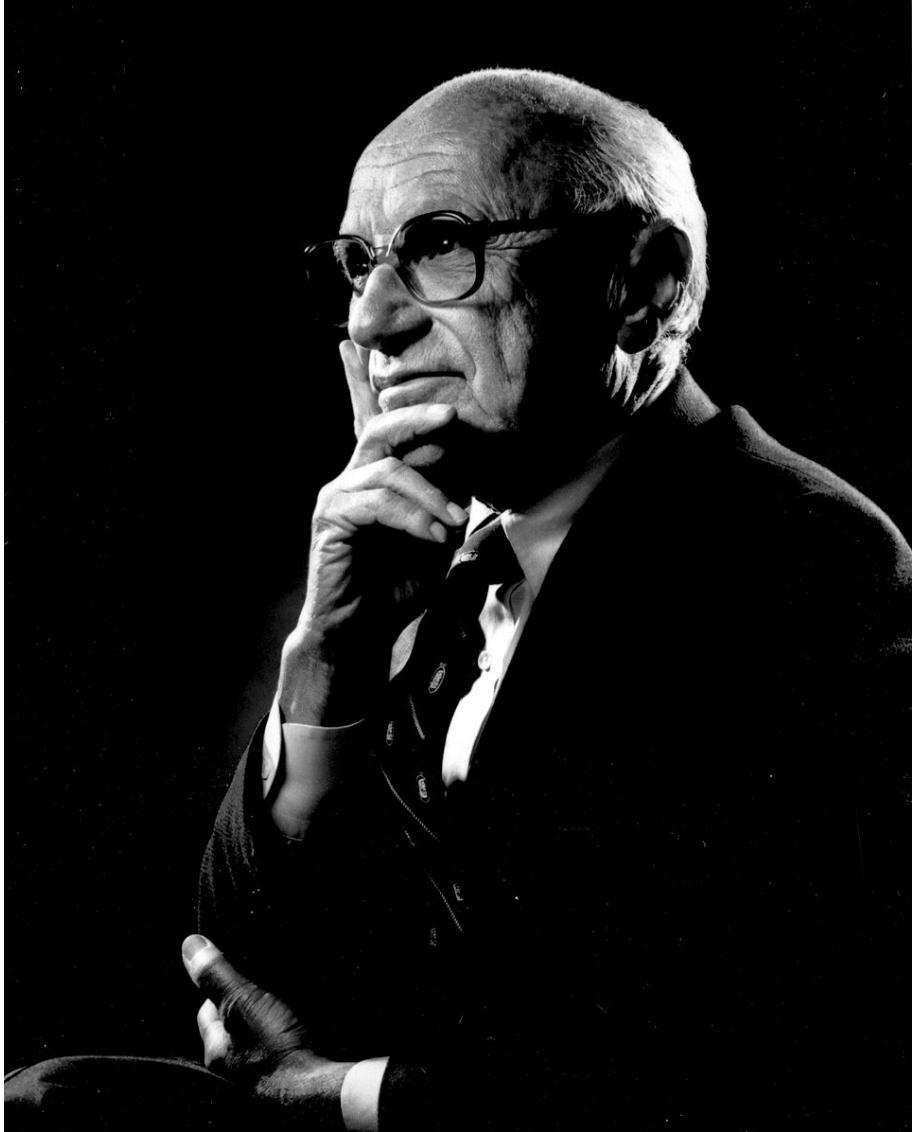
“Nothing is so permanent as a temporary government program.”

Milton Friedman (2016)

“I am favor of cutting taxes under any circumstances and for any excuse, for any reason, whenever it’s possible.”

Milton Friedman (2016)

WOULDN'T IT BE IRONIC IF ...



Source: Friedman Foundation for Educational Choice (2004)

WITHHOLDING TAXES IN U.S.

Milton Friedman reportedly lamented advocating for withholding tax system in U.S. (started in 1943) as it made it easier for the government to grow (Formaini (2002))

Think in terms of psychological gains and losses of withholding vs. no withholding system

WITHHOLDING TAXES

Benchmark?

Emotion on Tax Day?

NO WITHHOLDING TAXES

Benchmark?

Emotion on Tax Day?

OTHER POTENTIAL ENDOWMENT EFFECTS

Government regulations / financial companies
try to shift perceived endowment point
(psychological anchor)

Credit Cards

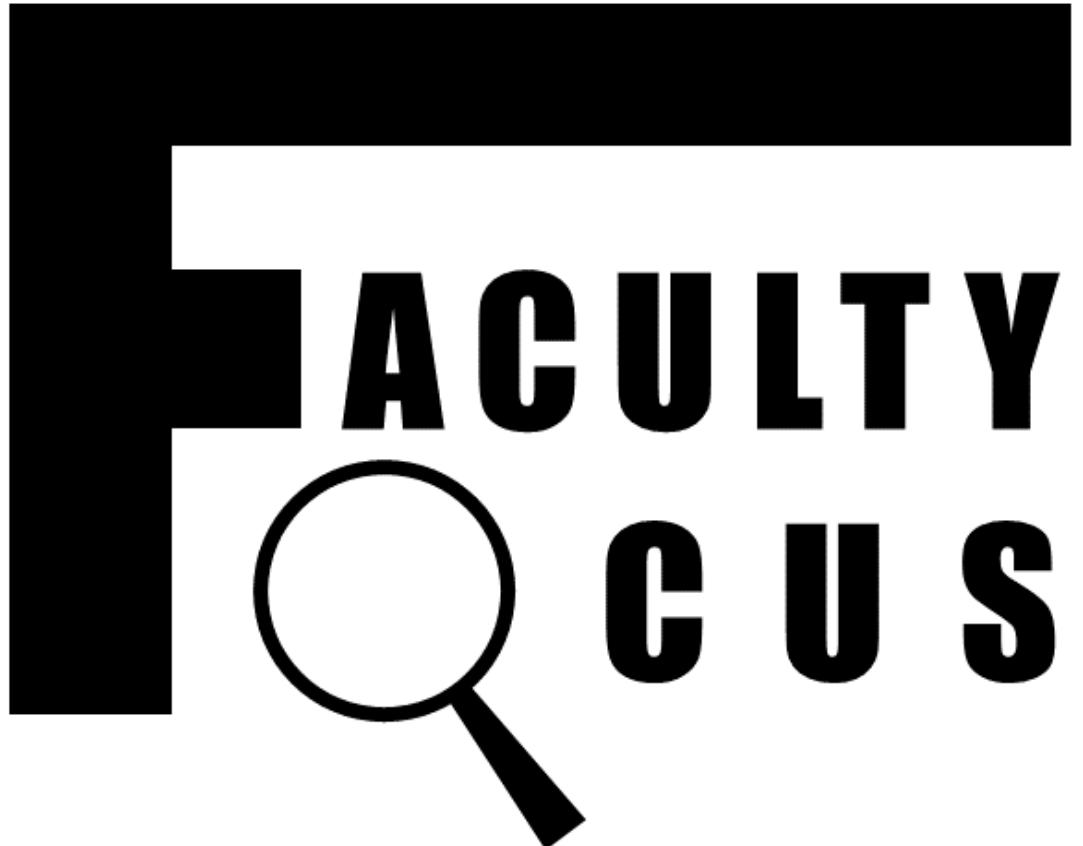
Current Wealth vs. Future Wealth
(disclosures required by Credit CARD Act of 2009)

Annuities

Current Wealth vs. Future Consumption

**REMEMBER MODULE 2 ...
FACULTY FOCUS EPISODE!**

w / Scott Weisbennner



REMEMBER MODULE 2 ... FACULTY FOCUS EPISODE!



Source: Image from College of Business,
University of Illinois at Urbana-Champaign/Grant Czadzeck

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Emotion and Financial Decisions



EMOTION AND INVESTING

Key to behavioral biases is emotion

If behavioral biases (emotion) are a detriment to performance, then ...

“Are Psychopaths the Best Investors?”

Shiv, Loewenstein, Bechara, Damasio, and Damasio (2005, *Psychological Science*)

YOUR FINANCIAL ADVISOR?



Source: Pixabay (2013)

ROLE OF EMOTIONS IN FINANCIAL DECISIONS

Consider this experiment:

Start with \$20

20 sequential and independent rounds of gambles

For each gamble, pay \$1 for a 50/50 chance of receiving back either \$0 or \$2.50

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTIONS

What is the expected payoff per gamble?

How many times out of 20 would you do the gamble?

Should whether you won or lost *last* round affect whether you gamble the *next* round?

DISCUSSION OF QUESTIONS

What is the expected payoff per gamble?

$$\$1.25 - 1 = \$0.25 \text{ payoff}$$

How many times out of 20 would you do the gamble?

If gamble each of the 20 rounds, have expected wealth of \$25

Only 13% chance of losing money (i.e., ending up with less than \$20) if gamble all 20 rounds!

DISCUSSION OF QUESTIONS

Since all the gambles are **independent** of each other, what happened *last* round should not affect your gambling/investment decision for the *next* round!

ROLE OF EMOTIONS IN FINANCIAL DECISIONS

Three groups of participants:

Psychopaths

“Normal” folks

Individuals also with brain lesions,
but, unlike psychopaths, emotions
are fine for this group!

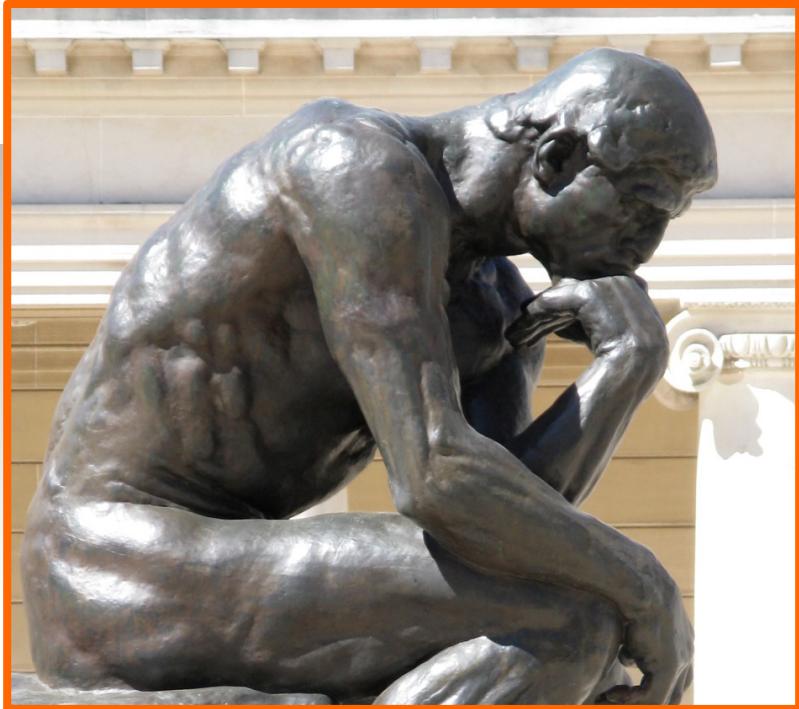
CONSIDER THREE POTENTIAL BEHAVIORAL BIASES IN DECISIONS

Loss Aversion

House-Money Effect

Representativeness

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION

Do you expect people to be more likely to gamble if they WON the last round or if they LOST the last round under these behavioral biases:

Loss Aversion

House-Money Effect

Representativeness

DISCUSSION OF QUESTION

Do you expect people to be more likely to gamble if they WON the last round or if they LOST the last round under these behavioral biases:

Loss Aversion

DISCUSSION OF QUESTION

Do you expect people to be more likely to gamble if they WON the last round or if they LOST the last round under these behavioral biases:

House-Money Effect

DISCUSSION OF QUESTION

Do you expect people to be more likely to gamble if they WON the last round or if they LOST the last round under these behavioral biases:

Representativeness

PARTICIPATION IN GAMBLE

	Psychopaths	“Normal”	Brain lesions, emotions OK
% time invest			
% time invest if WON last round			
% time invest if LOST last round			

Source: Shiv et al. (2005, Table 1)

PARTICIPATION IN GAMBLE

	Psychopaths	“Normal”	Brain lesions, emotions OK
% time invest	84% (\$25.70 wealth)		
% time invest if WON last round	84%		
% time invest if LOST last round	85%		

Source: Shiv et al. (2005, Table 1)

PARTICIPATION IN GAMBLE

	Psychopaths	“Normal”	Brain lesions, emotions OK
% time invest	84% (\$25.70 wealth)	58% (\$22.80 wealth)	
% time invest if WON last round	84%	62%	
% time invest if LOST last round	85%	41%	

Source: Shiv et al. (2005, Table 1)

PARTICIPATION IN GAMBLE

	Psychopaths	“Normal”	Brain lesions, emotions OK
% time invest	84% (\$25.70 wealth)	58% (\$22.80 wealth)	61% (\$20.07 wealth)
% time invest if WON last round	84%	62%	75%
% time invest if LOST last round	85%	41%	37%

Source: Shiv et al. (2005, Table 1)

YOUR FINANCIAL ADVISOR?



Source: Pixabay (2013)

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Local Investments



ANY SKILL IN HOUSEHOLD INVESTMENTS?

Presented evidence at beginning of this module that, on average, individual investors don't "beat the market" with their stock investments

This suggests, on average, households' stock picks are uninformed

Performance made worse by trading a lot

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: ANY SKILL IN HOUSEHOLD INVESTMENTS?

Any parts of household's stock portfolio
that *a priori* are more likely to reflect good
information (and thus perform better)?

DISCUSSION OF QUESTION: ANY SKILL IN HOUSEHOLD INVESTMENTS?

Any parts of household's stock portfolio
that *a priori* are more likely to reflect good
information (and thus perform better)?



Source: Pixabay (2015)

DISCUSSION OF QUESTION: ANY SKILL IN HOUSEHOLD INVESTMENTS?

Any parts of household's stock portfolio
that *a priori* are more likely to reflect good
information (and thus perform better)?

Ivković and Weisbenner (2005) consider
the geography of investment decisions for
individuals in their stock portfolios

Is there an informational advantage behind
the local holdings in a household's stock
portfolio?

Or do local holdings simply reflect a familiarity
bias?

LOCAL BIAS IN INVESTMENT CHOICES

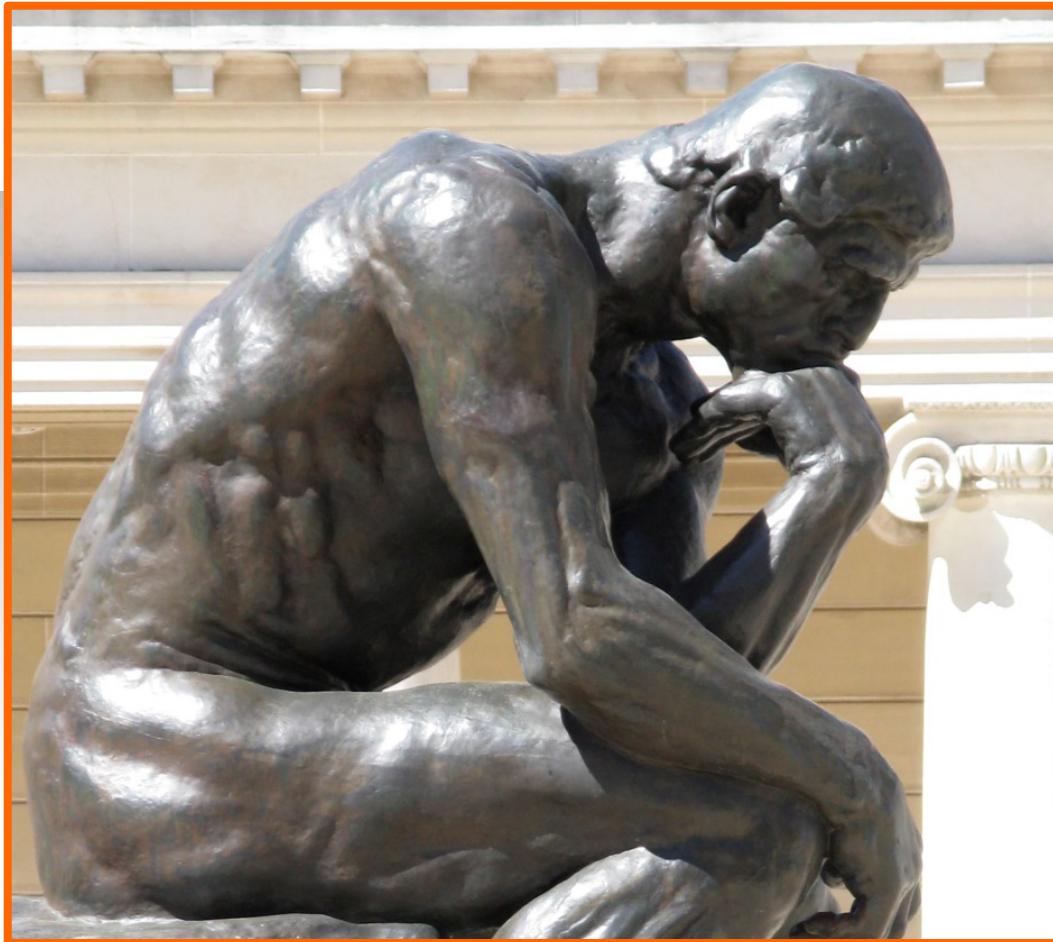
Ivković and Weisbenner (2005) analyze the sample of individual investors used in Barber and Odean (2000)

Look at investments of households in the stock of firms headquartered within 250 miles of the household (i.e., “local”) vs. investments in more distant companies

On average, households allocate about one third of their portfolio to local stocks

If they were just investing in the market, households would, on average, have about one-eighth of their portfolio in local stocks

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION: WHERE MORE LIKELY TO FIND A LOCAL INFORMATIONAL ADVANTAGE?

Would you expect individual investors to be more likely to have a local informational edge with small companies or large companies?

PERFORMANCE OF LOCAL/NONLOCAL HOLDINGS

Table IX
**Regression of Monthly Portfolio Returns from February 1991 to December 1996, Local
 versus Nonlocal Investments**

	All Stocks			S&P 500 Stocks			Non-S&P 500 Stocks		
	Local	Nonlocal	Difference	Local	Nonlocal	Difference	Local	Nonlocal	Difference
Market	1.14*** (0.06)	1.07*** (0.03)	0.07* (0.04)	1.06*** (0.06)	1.03*** (0.03)	0.03 (0.03)	1.26*** (0.08)	1.15*** (0.06)	0.11* (0.06)
Small minus big	0.24*** (0.09)	0.15*** (0.05)	0.09** (0.04)	-0.14** (0.07)	-0.17*** (0.05)	0.03 (0.03)	0.84*** (0.11)	0.84*** (0.08)	-0.00 (0.06)
High minus low	-0.09 (0.07)	-0.10** (0.05)	0.01 (0.03)	-0.08 (0.08)	-0.09* (0.05)	0.01 (0.04)	-0.11 (0.07)	-0.12*** (0.05)	0.01 (0.04)
Up minus down	-0.08 (0.06)	-0.07** (0.04)	-0.01 (0.03)	-0.11* (0.06)	-0.12*** (0.04)	0.01 (0.03)	-0.05 (0.09)	0.03 (0.05)	-0.07 (0.05)
p-value of regression	0.000***	0.000***	0.006***	0.000***	0.000***	0.511	0.000***	0.000***	0.305
Alpha	0.10 (0.13)	0.02 (0.09)	0.09 (0.07)	0.22* (0.15)	0.16* (0.09)	0.06 (0.07)	-0.06 (0.18)	-0.26 (0.17)	0.20** (0.10)
Raw return	1.53*** (0.39)	1.36*** (0.34)	0.17** (0.08)	1.48*** (0.35)	1.37*** (0.31)	0.11 (0.07)	1.61*** (0.53)	1.36*** (0.49)	0.25** (0.11)

***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Ivković & Weisbrenner (2005, Table 9)

PERFORMANCE OF LOCAL/NONLOCAL HOLDINGS

Table X
Average Monthly Returns of Zero-Cost Portfolios (Local Minus Nonlocal) from February 1991 to December 1996, Formed with Respect to Household Portfolio Locality

	All Stocks		S&P		Non-S&P	
	Raw		Raw		Raw	
	Return	Alpha	Return	Alpha	Return	Alpha
All households	0.17** (0.08)	0.09 (0.07)	0.11 (0.07)	0.06 (0.07)	0.25** (0.11)	0.20** (0.10)
Households by locality						
Household locality below median	0.00 (0.09)	-0.06 (0.09)	0.06 (0.10)	0.09 (0.11)	0.01 (0.18)	-0.06 (0.18)
Household locality above median	0.22** (0.09)	0.12 (0.08)	0.12 (0.08)	0.05 (0.08)	0.39*** (0.11)	0.28*** (0.10)

*** and ** indicate significance at the 1% and 5% levels, respectively.

Source: Ivković & Weisbenner (2005, Table 10)

ARE ALL HOUSEHOLDS BAD INVESTORS?

Wealthy people (say brokerage account in excess of \$25,000 or \$100,000) have sufficient resources to hold many stocks, yet some concentrate portfolio in one or two stocks

Does this reflect really strong information or does it instead reflect overconfidence fueled by no real information?

Do these “concentrated” households have good information about local companies they invest in?

ARE ALL HOUSEHOLDS BAD INVESTORS?

Ivković, Salm, and Weisbenner (2008)
study this

Use sample of individual investors from
1991-96 that invest through a discount
brokerage (as used in Barber and Odean
(2000))

LOOK AT PARTS OF HOUSEHOLD PORTFOLIOS

Breakdown investments by locality status (stock is local to investor or far away) and by S&P 500 status (member of S&P 500 or not member of S&P 500)

Also consider investors that concentrate stock portfolio in a few holdings vs. those that do not

Also consider all investors and just big investors (brokerage account at least \$100,000)

Where do you expect there to be the strongest info behind the stock position (if any)?

SUMMARY STATS FOR INVESTORS IN SAMPLE

	<i>All Households</i>			<i>Portfolio at Least \$25,000</i>			<i>Portfolio at Least \$100,000</i>		
	Portfolio Value (\$)	No. of Stocks	Herf. Index	Portfolio Value (\$)	No. of Stocks	Herf. Index	Portfolio Value (\$)	No. of Stocks	Herf. Index
Mean	45,604	3.9	0.62	119,130	7.0	0.43	322,035	11.7	0.33
(std. dev.)	(234,902)	(5.2)	(0.33)	(398,442)	(7.7)	(0.31)	(744,697)	(12.1)	(0.30)
Percentiles									
10 th	2,243	1.0	0.18	28,425	1.0	0.11	110,250	2.0	0.07
25 th	5,750	1.0	0.33	35,018	3.0	0.18	130,538	4.0	0.11
50 th	13,865	2.0	0.56	53,492	5.0	0.32	184,000	9.0	0.21
75 th	34,700	5.0	1.00	103,441	9.0	0.61	313,677	16.0	0.46
90 th	86,625	8.0	1.00	228,187	14.0	1.00	588,900	24.0	0.93
% of HHs holding two or fewer stocks		52.9			24.3			13.4	
% of holdings in S&P 500 stocks		53.2			56.7			59.3	
% of holdings in local stocks		14.7			13.1			11.1	
% of holdings in non-S&P 500, local stocks		7.6			6.3			5.1	
# HH-year observations	268,734			88,836			23,073		
# HH-stock-year observations	1,046,282			618,756			269,298		

Source: Ivković, Salm, & Weisbenner (2008, Table 1)

PERFORMANCE & PORTFOLIO CONCENTRATION

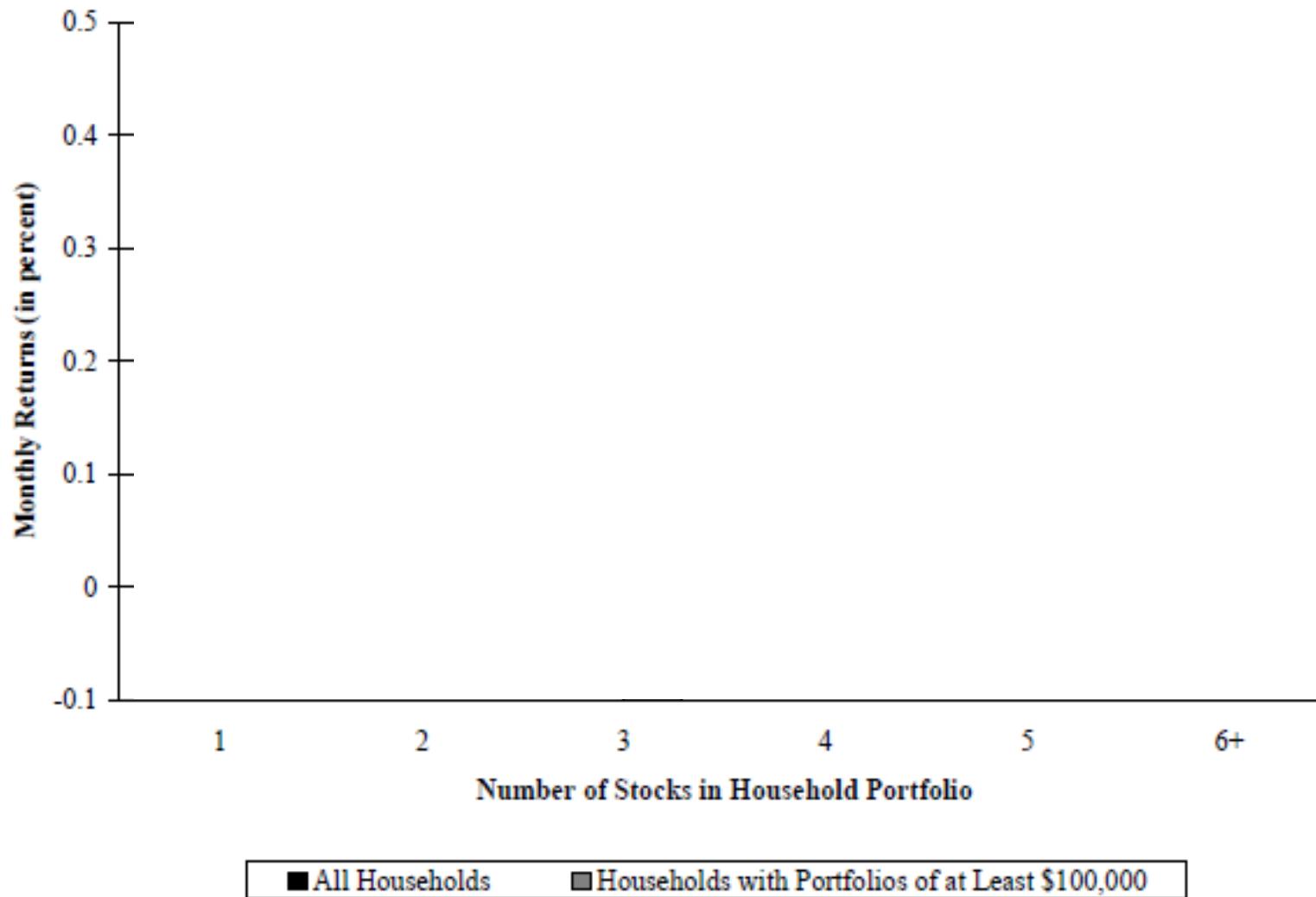


Figure 1: Monthly Risk-Adjusted Portfolio Returns by the Number of Stocks Held

Source: Ivković, Salm, & Weisbennner (2008, Figure 1)

PERFORMANCE & PORTFOLIO CONCENTRATION

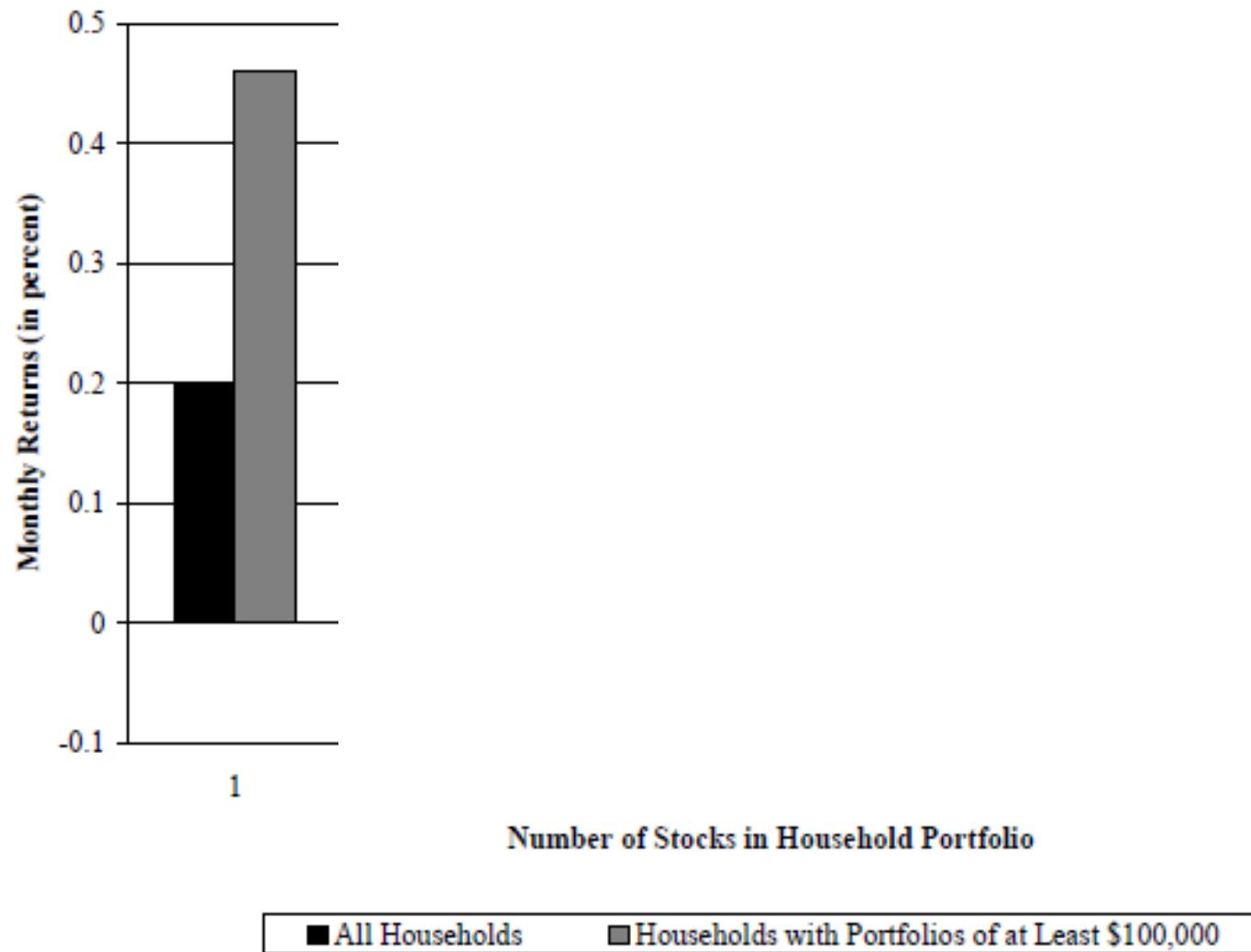


Figure 1: Monthly Risk-Adjusted Portfolio Returns by the Number of Stocks Held

Source: Ivković, Salm, & Weisbennner (2008, Figure 1)

PERFORMANCE & PORTFOLIO CONCENTRATION

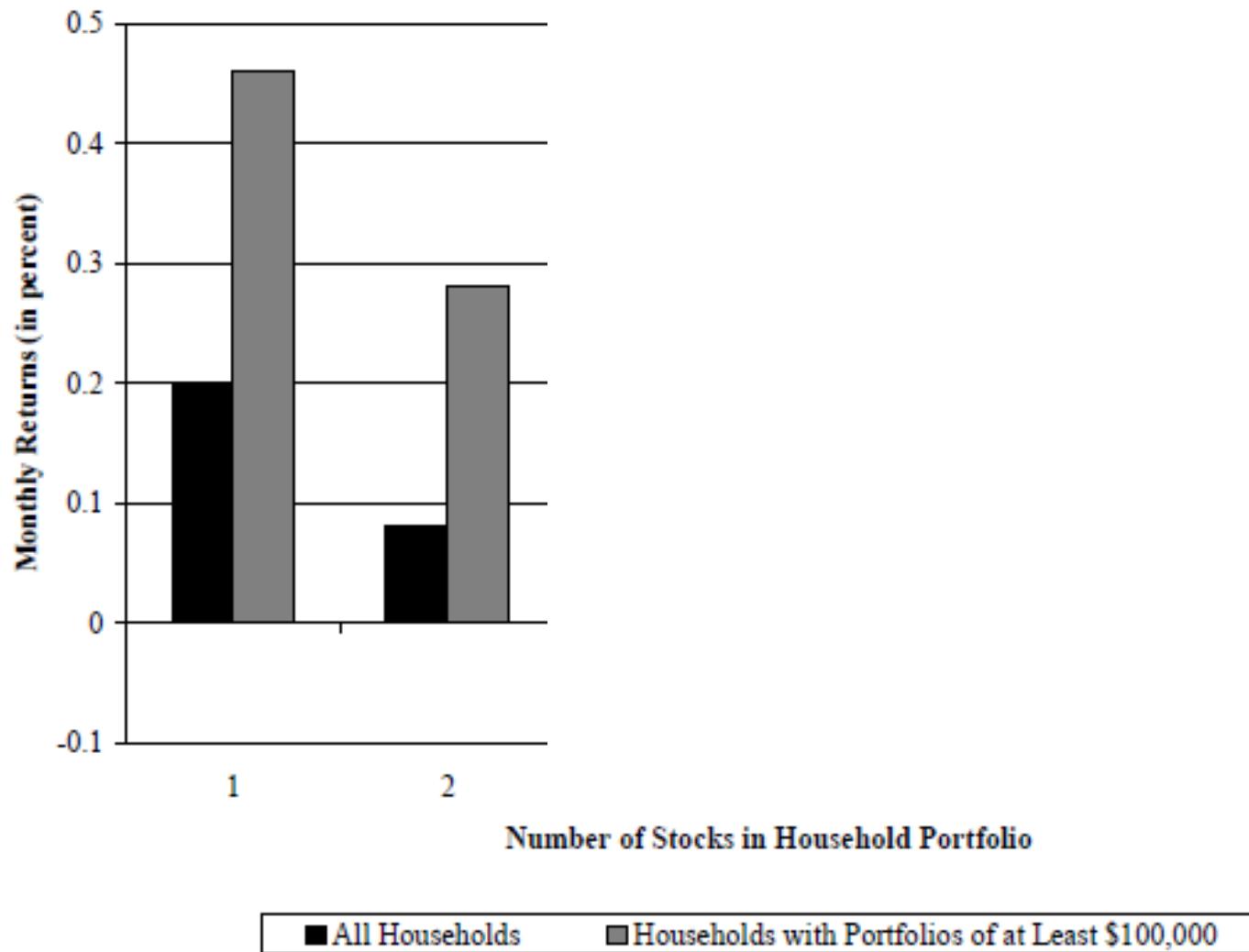


Figure 1: Monthly Risk-Adjusted Portfolio Returns by the Number of Stocks Held

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PERFORMANCE & PORTFOLIO CONCENTRATION

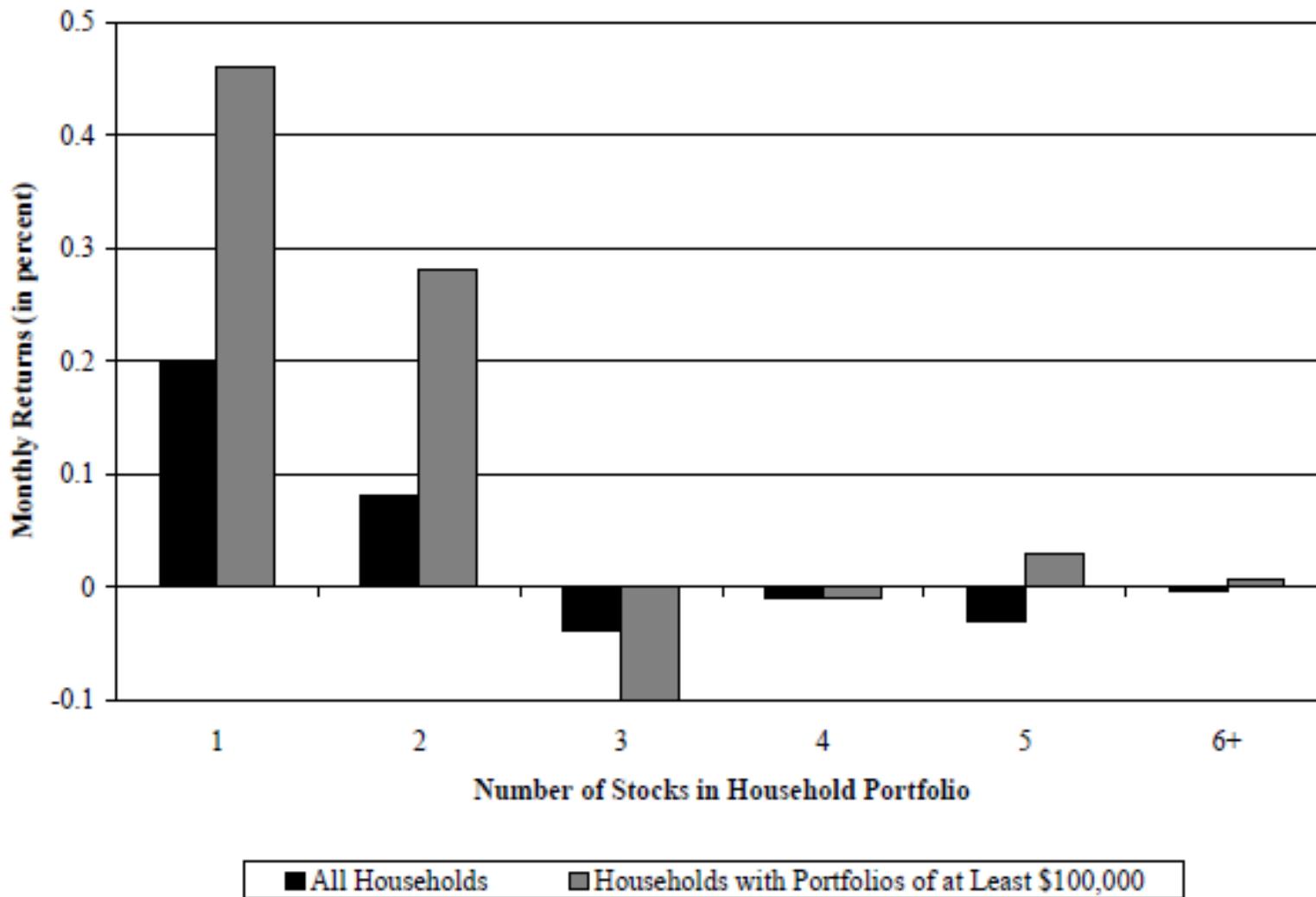


Figure 1: Monthly Risk-Adjusted Portfolio Returns by the Number of Stocks Held

Source: Ivković, Salm, & Weisbennner (2008, Figure 1)

LOOK AT PARTS OF HOUSEHOLD PORTFOLIOS

Look at what households are holding at the end of each month, and hold those stocks over the next month

Repeat on a monthly basis over the full sample of brokerage data 1991-1996

Report alphas of portfolio holdings (in %) with standard errors in parentheses

	All Stocks	S&P 500	Non-S&P 500	Local	Non-Local	S&P 500, Local	S&P 500, Non-Local	Non-S&P 500, Local	Non-S&P 500, Non-Local
<i>Panel A: All Households</i>									
Alpha, Concentrated	0.15 (0.13)	0.21 (0.13)	0.19 (0.22)	0.63 ** (0.30)	0.09 (0.14)	0.34 (0.24)	0.19 (0.14)	1.01 ** (0.52)	-0.10 (0.24)
Alpha, Diversified	-0.01 (0.08)	0.17 ** (0.09)	-0.31 * (0.17)	0.12 (0.19)	-0.00 (0.08)	0.30 * (0.17)	0.15 * (0.08)	-0.11 (0.29)	-0.32 ** (0.15)
Difference	0.16 * (0.09)	0.04 (0.08)	0.50 *** (0.20)	0.51 * (0.28)	0.09 (0.08)	0.04 (0.11)	0.03 (0.09)	1.12 * (0.67)	0.22 (0.15)
<i>Panel B: Household Portfolio at Least \$100,000</i>									
Alpha, Concentrated	0.41 * (0.23)	0.24 (0.19)	0.88 * (0.49)	1.28 ** (0.57)	0.25 (0.25)	0.47 (0.36)	0.24 (0.23)	2.09 ** (1.05)	0.23 (0.46)
Alpha, Diversified	-0.00 (0.08)	0.16 * (0.08)	-0.31 * (0.18)	0.11 (0.21)	-0.00 (0.07)	0.30 * (0.18)	0.14 * (0.08)	-0.11 (0.35)	-0.31 * (0.16)
Difference	0.41 ** (0.20)	0.08 (0.15)	1.20 ** (0.50)	1.17 ** (0.58)	0.25 (0.20)	0.17 (0.24)	0.10 (0.20)	2.20 * (1.24)	0.54 (0.39)

***, **, * denote significance at the 1 percent, 5 percent, and 10 percent levels, respectively.

Source: Ivković, Salm, & Weisbrenner (2008, Table 4)

VARIOUS ROBUSTNESS TESTS

Positive alpha of wealthy concentrated portfolios is larger for households that hold only common stock with the brokerage and for which the initial stock portfolio represents at least half of net worth

Does the effect simply reflect inside information?

Results robust to excluding stocks that had:

- Largest purchase or sale in \$

- Largest (smallest) return following a buy (sale)

- Largest # of purchases or sales during sample

PERFORMANCE & PORTFOLIO CONCENTRATION

Table 11: Household Stock Portfolio Sharpe Ratios and Information Ratios by Portfolio Concentration

The table presents cross-sectional distributions of Sharpe ratios in Panel A (ratios of returns in excess of the risk-free rate and the standard deviations of returns) and information ratios in Panels B and C (ratios of risk-adjusted returns and idiosyncratic standard deviations of returns based on the single-factor model and the four-factor model, respectively) of concentrated and diversified household stock portfolios. Concentrated (diversified) households are defined as those whose beginning-of-month portfolio contains one or two (three or more) stocks. The ratios are calculated for each of the 44,144 households that have at least 24 months of household portfolio returns as either a concentrated or a diversified household over the period from February 1991 to December 1996.

Distribution	<i>Concentrated Households</i>	<i>Diversified Households</i>	<i>Difference</i>
	Panel A: Sharpe Ratios		
Mean	0.121	0.168	-0.047 ***
95 th %	0.396	0.412	-0.017 ***
90 th %	0.328	0.358	-0.030 ***
75 th %	0.231	0.268	-0.037 ***
Median	0.125	0.173	-0.048 ***
25 th %	0.015	0.069	-0.054 ***
10 th %	-0.093	-0.031	-0.062 ***
5 th %	-0.164	-0.095	-0.069 ***

Source: Ivković, Salm, & Weisbennner (2008, Table 11)

STAY TUNED TO MODULE 4



UPCOMING ATTRACTIOnS!

Geography of Investment

Decisions for Mutual Funds

MODULE 4

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INVESTMENTS II: LESSONS & APPLICATIONS FOR INVESTORS

SCOTT WEISBENNER

Performance of Individual Investors

Changing Nature of Individual Investors?



NATURE OF INDIVIDUAL INVESTORS CHANGING?

French (2008) documents a sharp decline in the *direct* stock ownership of individual investors over the last 30 years

BIG TREND IN STOCK OWNERSHIP

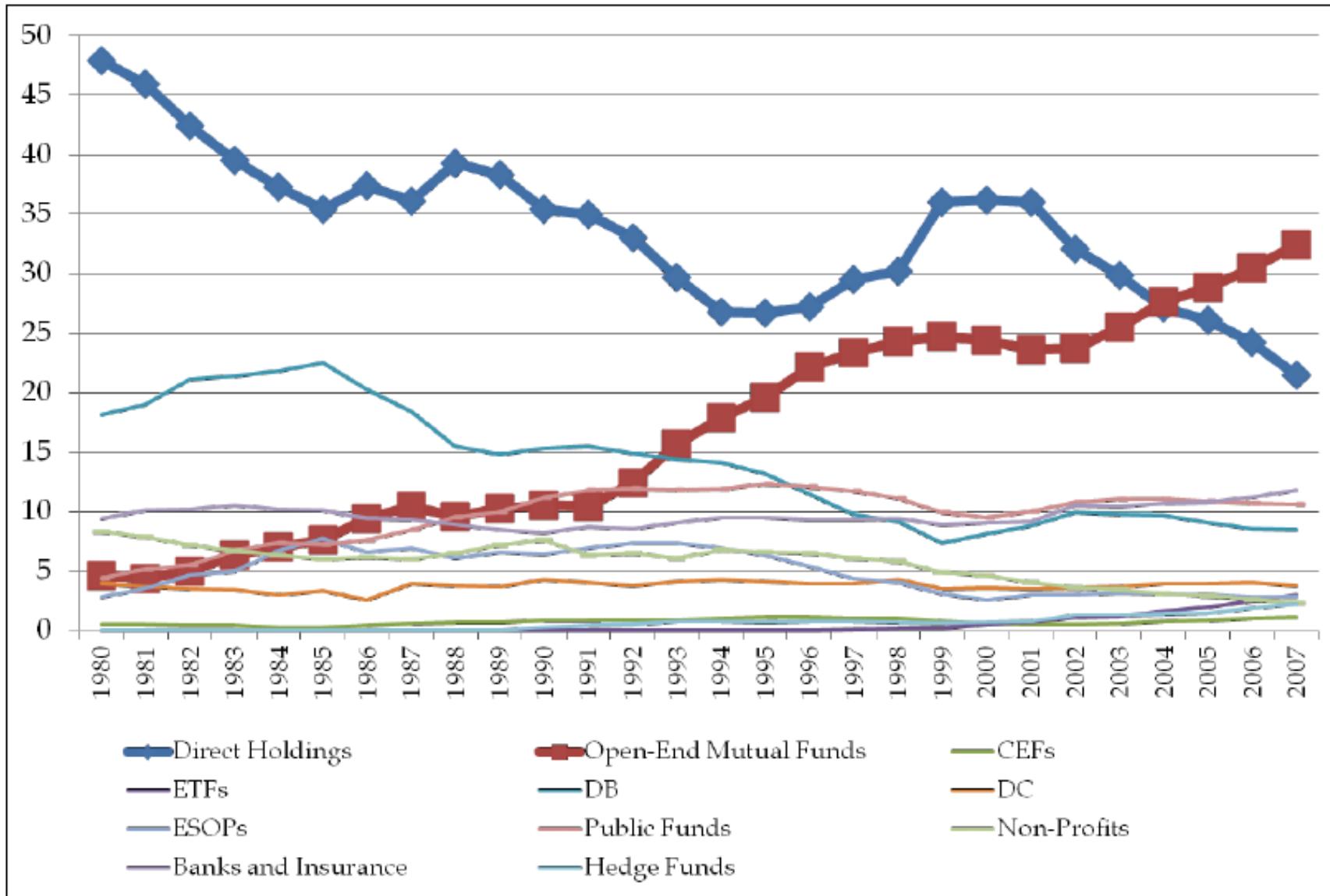


Figure 1: Rise in open-end mutual fund ownership in the U.S. (crimson line). Data come from French (2008), Table I.

NATURE OF INDIVIDUAL INVESTORS CHANGING?

Kelley and Tetlock (2013) analyze the orders from retail investors (i.e., individual investors) that are routed through two market centers over the period February 2003 to December 2007

Can then test whether the buy-sell imbalance of this order flow from individual investors in aggregate has any predictive power for stock returns (as well as news about firm earnings)

PAUSE, THINK, AND ANSWER!



Source: Haklai (2012)

QUESTION 1 OF 2: ORDER FLOW AND SUBSEQUENT RETURNS

Suppose there are a lot of buy orders for a stock coming from individuals (*but they are NOT based on any sound information*).

What is likely to be the predictive power of this flow of buy orders on the stock price in both the short-term and long-term?

QUESTION 2 OF 2: ORDER FLOW AND SUBSEQUENT RETURNS

Suppose there are a lot of buy orders for a stock coming from individuals (*but they ARE based on good information*).

What is likely to be the predictive power of this flow of buy orders on the stock price in both the short-term and long-term?

DISCUSSION

QUESTION 1 OF 2: ORDER FLOW AND SUBSEQUENT RETURNS

Suppose there are a lot of buy orders for a stock coming from individuals (*but they are NOT based on any information*).

What is likely to be the predictive power of this flow of buy orders on the stock price in both the short-term and long-term?



DISCUSSION

QUESTION 2 OF 2: ORDER FLOW AND SUBSEQUENT RETURNS

Suppose there are a lot of buy orders for a stock coming from individuals (*but they ARE based on good information*).

What is likely to be the predictive power of this flow of buy orders on the stock price in both the short-term and long-term?



TYPES OF ORDERS PLACED

When submitting an order to buy or sell a stock, you can place a market or limit order

Market order (aggressive):

Place an order to be executed at current market prices (emphasis is on the trade being made)

Limit order (passive):

Place an order to be executed at a specific price or better (may not be executed, could currently be “nonmarketable”)

Will particularly focus on market orders placed by individuals. Do these reflect good information?

ORDER IMBALANCES

Table I
Cross-Sectional Summary Statistics

This table presents time-series averages of daily cross-sectional summary statistics. Panel A contains daily means, standard deviations and percentiles. Panel B contains average daily cross-sectional correlation coefficients. Retail imbalances computed from market, executed limit, and nonmarketable limit orders are represented by *MktImb*, *XLimb*, and *NmLimb*, respectively. Buys and sells are measured in numbers of shares ordered. Imbalances are defined as buys minus sells divided by buys plus sells; they are missing on stock-days in which fewer than five orders occurred.

The order imbalance is by definition between -1 (all sale orders) and +1 (all buy orders)

Panel A: Average Daily Statistics

Variable	Mean	N	Std Dev	Pctl 5	Pctl 25	Pctl 50	Pctl 75	Pctl 95
<i>MktImb</i>	- 0.066	2,795	0.527	- 0.940	- 0.466	- 0.065	0.313	0.846

Source: Kelley & Tetlock (2013, Table 1)

ORDER IMBALANCES & SUBSEQUENT RETURNS

Table II
Predicting Returns Using Retail Order Imbalances

Panel A: Market, Nonmarketable Limit, and			Panel B: Market, Nonmarketable Limit, and		
Dependent Variable	<i>Ret[1,5]</i>	<i>Ret[6,20]</i>	Dependent Variable	<i>Ret[21,60]</i>	<i>Ret[61,240]</i>
Imbalance Measure	<i>Mkt</i>	<i>Mkt</i>	Imbalance Measure	<i>Mkt</i>	<i>Mkt</i>
<i>Imb[0]</i>	0.207** (0.012)	0.149** (0.026)	<i>Imb[0]</i>	0.087* (0.043)	0.146 (0.153)
Average R^2	2.30%	2.12%	Average R^2	2.54%	2.03%
Average N	2,688	2,680	Average N	2,668	2,615

Source: Kelley & Tetlock (2013, Table 2)

INDIVIDUAL INVESTORS REVISITED

Kelley and Tetlock (2013) find that retail orders (individuals) predict stock returns for the next 20 trading days

These effects are not reversed over the next year

Market orders by individuals also predict positive earnings surprise and negative news coverage of a stock within 20 trading days of the order

More buys predict less negative news coming out and more positive earnings surprises being announced

INDIVIDUAL INVESTORS REVISITED

Interesting area for future research:

Has there been a “survival of the fittest” when it comes to individual investors, with bad investors more likely to invest in mutual funds?

STAY TUNED TO MODULE 4

UPCOMING ATTRACTIIONS!

How useful is information provided by
Google and Amazon in predicting returns?

MODULE 4

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