Behavioral Finance: A Taxonomy of Money Mistakes
Thursdays, 11:45 – 1:00, Soc Sci 327

Professor John Forlines III -- jaf55@du.edu Office Hours: *By appointment and look for Announcements on Sakai for additional opportunities; I'll have some time on Thursdays prior to and after class and select Wednesday afternoons and Fridays throughout the semester -- email me and copy jangraham@jaforlinesfamilyoffice.com. Try to have an office hours session done before spring break so we can brainstorm essay/project topics. Office: SocSci 326, right next to classroom. For any additional questions regarding classes, due dates, homework assignments, etc., email* our TA-- Blake Hobson, at *ann.hobson@duke.edu*

Course Synopsis

The field of Behavioral Finance uses psychology to explain anomalies that we observe in the financial markets—apparent mis-pricings and inefficiencies that are not consistent with the classical economic models of rational behavior. In behavioral models, we recognize that individuals (and markets) may behave irrationally, sometimes for extended periods of time. We also acknowledge that, for structural reasons, there may be limits to arbitrage, so that the markets cannot automatically push prices back to their fundamental values.

Using some of the more popular and accepted theories of human behavior from the fields of psychology and decision-making, we will characterize some prevalent features of irrational behavior in the financial markets. We will discuss typical errors made by financial market participants as a result of behavioral biases and examine the extent to which irrationality can affect financial markets at the aggregate level ("bubbles"), how long irrationality may persist, and what factors will eventually cause these bubbles to burst ("crashes").

Course Structure

This class will meet in person just once a week. A substantial portion of the class material is online, via the Sakai platform. Students will be expected to work though the online material each week *prior* to the Wednesday class and come to class with questions and points for discussion. The online material is expected to take approximately 90 minutes to complete each week. Students are encouraged, but not required, to work through each week's online material in a single session.

Online Content

Your first step in accessing each week's online content is to go to the Resources tab on the course Sakai site, and download that week's PowerPoint file. For example, in week 1 you will download *Week1_Intro_Utility.pptx*. Within these PowerPoint files, you will find material to read, questions to answer, and videos to watch. Each week's PowerPoint file either contains directly, or provides directions on how to access, all of that week's content.

There are 5 types of online content:

(1) ***Reading Materials***: these are primarily papers that you can download from the Resources tab in Sakai. Some weeks have required reading; some do not. Required

readings are listed in the Course Outline below, as well as in that week's PowerPoint file when applicable. There is one required text that you need to **purchase** – "Devil Take the Hindmost" – please see instructions under *Required Reading* below.

(2) ***Flipbooks***: these are simply PowerPoint slides that you will read, which may also contain links to other media (such as URLs to a particular website). If you have questions about the material as you review it, please make a note and bring your questions to class.

(3) ***Questions***: Some of the slides may ask you to answer one or more questions. Please make a note of your answer, and bring your notes to class as those questions will be discussed in the class sessions.

(4) ***Surveys***: As with the questions, some of the slides may ask you to respond to one or more surveys. Please make a note of your answers, and bring your notes to class as those surveys will be discussed in the class sessions.

(5) ***Videos***: These videos are available under the "Course Videos" tab on Sakai. For example, in Week 1, you will view the "Week 1: Utility of Money" video. Once you've finished the video, please return to the PowerPoint slides to continue with that week's material.

If you have questions about accessing the online material, don't hesitate to email me. This is the first time that we have used Sakai/Warpwire to deliver the online content; so inevitably there will be some bugs. We will work with you to smooth those out, and appreciate your collaborative approach as we beta-test this method of content delivery.

Assignments and Grading

The course will be graded on the basis of six problem sets 30% (each worth 5%), final project (30%) and class participation during the in-class discussion sections (40%).

Articles and Books

Required Reading

"Devil Take the Hindmost", Edward Chancellor, Plume 2000, Chapters 1, 3, 5, 7, & 8. [*Please purchase a copy. Cheap 2nd hand copies are available on Amazon. Be aware that when you purchase 2nd hand books, they sometimes take a few weeks to arrive; so don't wait until you need it – in Week 12 – to order it!*]

Barberis, N and R Thaler, 2003, A Survey of Behavioral Finance, *Handbook of the Economics of Finance* Chapter 18 [*provided on Sakai under "Resources"*]

Kahneman, D & A Tversky, 1979, Prospect Theory: An Analysis of Decision Under Risk, *Econometrica 47, 263-291* [*provided on Sakai under "Resources"*]

Hirshleifer, D, 2001, Investor Psychology and Asset Pricing, *Journal of Finance 56, 1533-1597* [*provided on Sakai under "Resources"*]

"Human Compatible: Artificial Intelligence and the Problem of Control", Stuart Russell, Viking 2019

Optional Reading (Books)

"Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing", Hersh Shefrin, Oxford University Press 2007 (earlier additions are also fine)

"Fooled by Randomness: The Hidden Role of Chance in Life and in the Markets", Nassim Nicholas Taleb, Random House 2008 (earlier editions are fine)

"Thinking Fast and Slow", Daniel Kahneman, Farrar, Straus and Giroux 2013

Course Outline

SECTION 1: INTRODUCTION

To understand how behavioral models can explain financial market anomalies, we must first consider how to categorize "anomalous" behavior. In the first few classes, we will review standard models of expected utility and consumer preferences as discussed in the typical introductory economics college course, as well as some general models of "non-expected utility" and how these models seek to reflect *actual* human choices.

In addition to individuals' preferences, behavioral models highlight systematic errors that people make when assessing probabilities. We refer to these biases as "judgment errors" or "errors in beliefs". Before examining the different biases, we will review some basic lessons from standard probability theory

Week 1. Jan 6 - Jan 9: Expected Utility

Review the Week 1 material online, by downloading the "Week 1.pptx" PowerPoint file under the "Resources" tab on the course's Sakai site, and following the instructions.

Topics:
- Classical Utility Theory
- Rational Preferences and Risk Aversion
- Expected Utility Axioms

Please Note: Jan 9 is our First Class

HOMEWORK 1 (DUE IN CLASS ON JAN 16)

Week 2. Jan 10 – Jan 16: Non-Expected Utility

Download Week 2.pptx to review the Week 2 material online.

Required Reading: "Prospect Theory" by Kahneman & Tversky

Topics:
- Bounded Rationality & Subjective Expected Utility
- Regret Theory
- Prospect Theory & the Disposition effect

Jan 16: Class

Homework 2 (DUE IN CLASS ON JAN 23)

Week 3. Jan 17 – Jan 23: Problems with Probability, Part 1

Download Week 3.pptx to review the Week 3 material online.

Topics:
- Bayes Theorem & conditional probabilities
- Correlation / Causation errors
- Invisible correlation errors
- Frequency vs probability:
- The Independent Events fallacy

Jan 23: Class

Week 4. Jan 23 – Jan 30: Problems with Probability, Part 2

Download Week 4.pptx to review the Week 4 material online.

Topics
- Probability weighting & the weighting function
- Relative vs Absolute probabilities and ignoring base rates: health examples

Jan 30: Class

HOMEWORK 3 (DUE IN CLASS ON FEB 6)

SECTION 2: BELIEFS, BIASES & HEURISTICS

In this section of the course we will examine the errors that individuals routinely make when assessing the likelihood of events. These systematic biases, or errors of judgment, can have significant impact on both individual and market-wide investment behavior.

Week 5. Jan 31 – Feb 6: Availability

Required Reading: "Investor Psychology" by Hirshleifer, pp 1- 6 (Introduction) and Section I: Judgment & Decision Biases

Download Week 5.pptx to review the Week 5 material online.

Topics:
- Under-weighting the probability of less recent events
- Over-weighting recent but rare events
- Impact of imagination and vividness
- Signal vs noise
- Additional impact from frequency and timing
- Lotteries & Insurance
- The Conformity bias
- Availability and the Markets
- Availability bias and regulation
- The Dangers of the anecdote

Feb 6: Class

Week 6: Framing Part 1: Feb 7 – Feb 13

Download Week 6.pptx to review the Week 6 material online.

Topics:
- What is framing?
- Loss aversion and the endowment effect
- Mental Accounting & House Money
- Anchoring
- Preference reversals
- House money effect

Feb 13: Class

HOMEWORK 4: DUE IN CLASS ON FEB 27

(NO CLASS ON 2/20, ENJOY NEW ORLEANS!)

Week 7: Framing Part 2: Feb 21 – Feb 27

Download Week 7.pptx to review the Week 7 material online.

Topics:
- Loss aversion and hedonic editing
- Money Illusion
- Visual framing
- The Compatibility Hypothesis

Feb 27: Class

Week 8: Representativeness: Feb 28 – Mar 5

Download Week 8.pptx to review the Week 8 material online.

- What is Representativeness?
- Base Rate Neglect
- Sample size neglect, conservatism & the Law of Small Numbers
- Gambler's Fallacy
- Non-Regressive prediction
- Conjunction effect & Sample Size neglect
- Law of Small Numbers
- Conservatism and the stock picker game

Mar 5: Class

Mar 12: ***NO Class (Spring Break)***

Week 9: Overconfidence: Mar 16 – Mar 19

Download Week 9.pptx to review the Week 9 material online.

Topics:
- Overconfidence and Planning Fallacy
- Overconfidence, over-trading & under-hedging
- Hindsight bias
- Self-attribution bias & self-fulfilling prophecy
- Belief Perseverance & Confirmation bias
- Corporate finance evidence of over-confidence
- Illusion of control and its implications
- Brief Introduction to the Winner's Curse
- Sunk Cost bias

Mar 19: Class

HOMEWORK 5 (DUE IN CLASS ON MAR 26)

SECTION 3: BEHAVIORAL DECISION-MAKING IN THE FINANCIAL MARKETS

In this section of the course, we discuss the impact of people's non-expected utility preferences and judgment errors on both individual investment behavior and aggregate market prices. We also address an important criticism of behavioral finance – the debate into why so-called "rational" traders cannot always trade against "irrational" traders and thus push prices back to fair value.

Week 10. How to Manage Your Investment Portfolio: Mar 20- Mar 26

Required Reading: Hirshleifer, Section II "Evidence of Risk & Mispricing Effects" and Section III "Asset Pricing Theories based on Investor Psychology"

Download Week 10.pptx to review the Week 10 material online.

Topics:
- Which assets should you invest in?
- Risk v return and diversification
- Do mutual funds add value?
- Indexing & ETFs
- Life cycle guide to investing
- Savings and retirement accounts
- Diversification
- Other suggestions for sensible money management

HOMEWORK 6 (DUE IN CLASS ON APRIL 2)
Class: March 26

Week 11. Financial Market Anomalies – Individuals: Mar 27 – Apr 2

Download Week 11.pptx to review the Week 11 material online.

- The Disposition Effect in the Financial Markets
- Money Management errors
- Thinking fast and slow
- Poor pensions and savings plans
- Market timing and stock picking strategies

HOMEWORK 7 (DUE IN CLASS ON APRIL 9)
Class: April 2

Week 12. History of Bubbles & Crashes: Apr 3 – Apr 9

Required Reading: "Devil Take the Hindmost", Chancellor, Chapters 1, 3, 5, 7, & 8

Download Week 12.pptx to review the Week 12 material online.

Topics:
- Tulipmania: Dutch Republic, 1630s
- South Sea bubble, 1720s
- The Railway Mania, 1840s
- The Crash of 1929
- The Dot-Com Bubble
- The house price bubble and credit crash
- *Let's Create Our Own Crash Scenario*

Class: April 9

Weeks 13 &14 Limits to Arbitrage: Apr 4 – Apr 16

Limited Arbitrage & Financial Anomalies-Markets Topics are covered in Weekly PowerPoints Only

Required Reading: Barberis & Thaler, "A Survey of Behavioral Finance"

Download Weeks 13 &14 .pptx to review the Week 14 material online.

Topics:
- Traditional Finance - redux
- Noise Traders & Rational Traders, problems with Incomplete information
- No perfect "substitute" security
  - Limited Patience
  - Limited liquidity
  - High transactions & borrowing costs
  - Herd behavior and contrarianism
  - The Noise vs Information paradoxes
  - Liquidity vs Efficiency
  - Opportunity vs profitability

Week 14: What Did You Learn?

Quick Class Project Overviews—4 PowerPoint slides max

Class April 16

LDOC Celebration on April 22

FINAL PROJECT SLIDES DUE APRIL 22

Project topics: (**Determined in Office Hours**):