Meir Statman - "Finance for Normal People: How Investors and Markets Behave," Oxford University Press

Student Manual

This student manual accompanies the Finance for Normal People book. Your instructor will assign some of the questions in this manual.

Some answers draw directly from the chapters. Others ask you to explore materials beyond the chapters, directing you to the Internet and youtube clips. Yet others are problems with accompanying excel sheets.

Chapter 1 – Normal People

1. What are the differences between "rational" people and "normal" people?

2. What are the differences between cognitive and emotional shortcuts and cognitive and emotional errors?

3. What are the differences between System 1 and System 2?

4. A person prefers a stock with $40 capital appreciation and $20 dividend over a stock with $60 capital appreciation. Is she rational? Is she normal-smart? Is she normal-foolish? Is she normal-knowledgeable? Is she normal-ignorant? Why?
5. Is recoiling from a rubber snake a cognitive or emotional shortcut? Is it a cognitive or emotional error? How is it related to the operations of System 1 and System 2?

6. Watch the elevator floor clip: https://www.youtube.com/watch?v=6Q3dHnkrLZI

   What does it teach us about the operations of System 1 and System 2?

7. What are the answers to the following 3 questions, and what do they teach us about the operations of Systems 1 and 2? What are the answers to each by System 1 and what makes System 1 so tempting and misleading in this case?

A. A bat and a ball cost $1.10 in total. The bat costs $1.00 more than the ball. How much does the ball cost? _____ cents

B. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes

C. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days

8. Can people be trained or educated to identify when System 1 misleads and use System 2 instead? Specifically, can people be trained or educated to react best in an earthquake? Can people be trained or educated to react best when an active shooter is on the scene?

9. Consider the following advice about what to do if you skid or lose traction on an icy road: "Stay calm. Black ice is often, although not always, patchy. Use the minimum amount of braking possible." Would you be able to follow this advice? Refer to the operations of System 1 and System 2. How is an Automatic Braking System (ABS) related to the operations of System 1 and System 2?

10. Read "Can These Apps Stop You From 'Drunk Texting'?"
    http://www.wsj.com/articles/can-these-apps-stop-you-from-drunk-texting-1453774275?cb=logged0.2734328790102154

    What does it teach us about methods for overruling System 1 and prompting use of System 2?

11. Watch the Candid-Camera elevator clip:
    https://www.youtube.com/watch?v=BgRoiTWkBHU
    What does it teach us about the operations of System 1 and System 2?

12. Watch the CFP commercial: https://www.youtube.com/watch?v=yJFrkNY4n1g

    What does it teach us about the operations of System 1 and System 2?

13. Read the introduction to Malcolm Gladwell's book, Blink.
http://www.oknovels.com/blink-power-thinking-without-thinking

    Read also Eric Jaffe's column "Challenging Gladwell's Blink"
https://www.psychologytoday.com/blog/headcase/201006/challenging-gladwells-blink,

    and Graham Bowley and Colin Moynihan's article "Knoedler Gallery Heads to Trial in Sale of a Fake Rothko,"

    http://www.nytimes.com/2016/01/25/arts/design/knoedler-gallery-heads-to-trial-in-sale-of-a-fake-rothko.html?_r=0

    What do they teach us about operations of System 1 and System 2?

14. Here are two examples of System 1 intuition replaced by System 2 knowledge, indicating that we can learn and transform ourselves from ignorant to knowledgeable:

    a. Miasma – the theory that diseases are caused by "bad air". Replaced by germ theory of disease.

    b. Phlogiston – The theory that combustible goods contain a substance called "phlogiston" which entered air upon combustion. Replaced by knowledge about oxidation

    Please list additional examples, including ones where knowledge is still developing and debated, such as the causes of 2008 Great Recession.

15. Here are some example of financial-facts knowledge:

    a. Knowing the benefits of diversification

    b. Knowing how to calculate compounding interest rates

    c. Knowing the difference between mutual funds and exchange traded funds (ETF)

    What are some additional examples of financial-facts knowledge?

16. Which of the following are examples of exclusively-available, narrowly-available, or widely-available information? What additional information would you need to classify each example as exclusively-available, narrowly-available, or widely-available information?

    1. The Chair of the Federal Reserve Bank decided to raise interest rates

    2. The FBI is about to raid the home of a CEO accused of fraud

    3. A hedge fund manager decided to buy a stock

4. An analyst at a brokerage firm decided to downgrade a stock
5. A company sent the SEC a report detailing transactions of its shares by insiders
6. The SEC published the report on its website two days after the company sent its report
7. Report about new software that would make driverless cars safer appeared in *Communications of the ACM*, the magazine of the Association of Computing Machinery
8. Report about the same software appeared a month later in *The Wall Street Journal*
9. Report about the same software appeared on CNBC, two months later

Chapter 2 - Wants for utilitarian, expressive, and emotional benefits

1. Can you tell the difference between satisfying wants and committing cognitive or emotional errors? How would you do that?
   a. Do you regard buying a Super Bowl ticket for $5,000 as satisfying wants or committing cognitive or emotional errors? What does your answer depend on?
   b. Do you regard spending all your income now and failing to save for retirement as satisfying wants or committing cognitive or emotional errors? What does the answer depend on?

2. A person prefers a stock of a company that contributes to cleaning the environment and has an expected return of 8%, over a stock of a company that pollutes the environment and has an expected return of 10%. Is she rational? Is she normal-smart? Is she normal-foolish? Discuss with reference to cognitive and emotional errors, wants, and tradeoffs among wants.

3. A day-trader trades 40 times a day, earning a 4% annual return, whereas investors who buy and hold a broadly diversified index fund earn 6%. Is he rational? Is he normal-knowledgeable? Is he normal-ignorant? Is he normal-smart? Is he normal-foolish? Discuss with reference to cognitive and emotional errors, wants, and tradeoffs among wants.

4. Look at advertisements in *Money* magazine, commercials on CNBC, or other places where financial companies promote their products and services. What wants do they address and aim to satisfy? Describe each advertisement and commercial. For example, Vanguard had the following advertisement on its website:

"At Vanguard, the only bottom line that matters is *yours.*" It shows a mother reading a book to a toddler. This advertisement addresses our want for investing in our children and families.

5. The following is a list of wants, arranged alphabetically. They are answers to "why is wealth important to you?" How would you rank them by their importance to you? Why? Which of these wants are easy to admit to others and yourself, and which are more difficult? Why? (e.g. Is it easier to admit that wealth is important to you for educating your children than for increasing your social status?)

   a. Allowing me to meet interesting people
   b. Buying the things I really want
   c. Educating my children
   d. Having an impact on causes I care about
   e. Helping my children become successful
   f. Helping the less fortunate
   g. Increase my social status
   h. Leaving a legacy
   i. Opening new opportunities and experiences
   j. Providing financial security
   k. Serving as a barometer of my success

6. We have been nurtured as children and want to nurture our children and families. How did your parents nurture you with financial resources, and how do you nurture or hope to nurture your children and family? Did you parents pay all your college expenses? Did they expect you to work during your college years? Do you expect an inheritance when the time comes? How did your parents invest in you beyond money (e.g. teaching to read, teaching to ride a bicycle or drive a car?)

   Read the views about paying for children's college education in http://www.wsj.com/articles/SB10001424052702304815004579417262095065046

   What is your view?

7. People everywhere want to increase their social status, but status symbols vary by culture from one country to another and from one group in a country to another. Luxury

cars can be a main status symbol in one country, while university degrees, fancy weddings, or charitable contributions, can be more important status symbols in others.

What are status symbols in your social group? What are status symbols in your country? What do you know about status symbols of other groups in your country and in other countries?

8. How do we use investments to satisfy wants for high social status? Look up on the Internet and elsewhere items about investment in movies, theater, art, stamps, musical instruments, private banking, qualifying as an "accredited investor." Which of these investments appeal to you and which do not? Why?

   Read:

   http://www.hec.edu/Knowledge/Finance-Accounting/Financial-Markets/Is-it-profitable-to-invest-in-wine

   http://www.cheatsheet.com/personal-finance/why-invest-in-stocks-when-you-can-buy-a-case-of-wine.html/?a=viewall

   http://www.bordeaux-traders.com/wine-investment/why-invest-in-wine/

   https://www.gsb.stanford.edu/insights/research-art-good-investment

   http://www.forbes.com/sites/kathryntully/2012/10/05/is-art-an-asset-or-an-investment/#2bcc58793b35

   http://www.marketplace.org/2010/12/30/business/considering-housing-consumption-not-investment

   http://www.wsj.com/articles/SB10001424127887323949904578538012957595402

9. Wants are likely related to personality, measured by the "Big 5" personality traits. They are:

   a. Openness to experience

   b. Conscientiousness

   c. Extraversion

   d. Agreeableness

   e. Neuroticism

   For example, a preference for familiar investments might be related to conscientiousness, and a willingness to consider unfamiliar investments might be related to openness to experience. Wants are also likely related to your "moral foundations." These are related to political leanings toward liberalism and conservatism. There are 5 psychological foundations of morality:

a. harm/care

b. fairness/reciprocity

c. ingroup/loyalty

d. authority/respect

e. purity/sanctity

The want for fairness might be related to fairness/reciprocity, and wants for socially responsible investing might be related to harm/care.

Go to http://www.yourmorals.org/ and assess your own personality and moral foundations. How are they related to wants?

10. All products and services have "personalities," reflecting utilitarian, expressive, and emotional benefits the provide, and wants they satisfy. Think about Apple, Lenovo, Harley Davidson, Hyundai, Neiman-Marcus, and K-mart. For example, Apple laptops and Lenovo laptops provide the same utilitarian benefits but Apple is likely to seem "up to date" and perhaps "upper class" in its expressive and emotional benefits, whereas Lenovo is likely "down to earth" and perhaps "tough." Now think of the following investments: individual stocks, stock mutual funds, bond mutual funds, index funds, hedge funds, gold, and real estate. What is the personality of each investment? Which descriptors, such as from the list below are most closely associated with each investment?

Down-to-earth

Daring

Reliable

Upper class

Outdoorsy

Honest

Spirited

Intelligent

Charming

Tough

Wholesome

Imaginative

Successful

Cheerful

Up-to-date

11. Search for discussions about "day trading" on the Internet and elsewhere. For example:

    http://www.tradingacademy.com/ptw.aspx?CampaignID=70140000000NkNQ&CampaignCode=GMAD35G00SP&ef_id=1502c140-e11a-02e8-0253-000033cf93ad&src=goppc&gclid=CLqWsvXc_MsCFUiPfgodnPMKjg

    http://www.sec.gov/investor/pubs/daytips.htm

    http://techcrunch.com/2013/11/02/12-or-13-things-i-learned-about-life-from-day-trading-millions-of-dollars/

    https://www.youtube.com/watch?v=bMORAZvPWtY

    What utilitarian, expressive, and emotional benefits does day trading provide? What wants does it satisfy? Why does day trading appeal or not appeal to you and people you know?

12. Read https://www.psychologytoday.com/blog/positively-media/201208/video-games-problem-solving-and-self-efficacy-part-1

    How is the article related to our wants for demonstrating our competence? What are ways we seek to demonstrate our competence in the investment area and in other areas (e.g., sports, cooking, wood-working.)

13. What do the following tell us about our want for being true to our values? Do you separate your wants for profits from your wants for being true to your values? Do you understand and empathize with those who do not do not separate their wants for profits from their wants for being true to their values? Read, for example:

    https://www.bogleheads.org/forum/viewtopic.php?t=13299

    http://gofossilfree.org/what-is-fossil-fuel-divestment/

    http://bdsmovement.net/activecamps/divestment

    http://www.campaign2unload.org/

    http://www.nytimes.com/2015/12/08/business/dealbook/gun-shares-have-done-well-but-divestment-push-grows.html http://www.morningstar.com/advisor/t/65920341/getting-religion-with-faith-based-mutual-funds.htm

http://www.kiplinger.com/article/investing/T041-C009-S002-5-religion-funds-for-faith-based-investors.html

http://www.wsj.com/articles/SB10001424052702304106704579135321491814430

14. How do our wants for fairness reflected in investment discussions? What are your views about fairness in the context of investments?

    Discussions about high frequency trading are an example of discussions about fairness in the context of investments. Here are some examples. Search the Internet and elsewhere for additional ones. What are your views about fairness in the context of investments?

    Read, for example:

    http://www.thetradingmesh.com/pg/blog/mike/read/6965/hft-and-the-fairness-of-financial-markets

    https://www.youtube.com/watch?v=dydgO_7aw4E

    Discussions about insider trading are another example of discussions about fairness in the context of investments. Here are some examples. Please search the Internet and elsewhere for additional ones. What are your views?

    http://dealbook.nytimes.com/2011/04/11/why-is-insider-trading-wrong/?_r=0

    http://www.bloombergview.com/articles/2015-06-03/insider-traders-made-some-easy-money-on-stock-offerings

    http://nypost.com/2015/10/05/supreme-court-rejects-insider-trading-case-in-setback-for-bharara/

    http://www.nytimes.com/2016/01/20/business/supreme-court-agrees-to-hear-insider-trading-case.html

    Discussions about executive salaries are an example of discussions about fairness in the context of corporations. Here are some examples. Please search the Internet and elsewhere for additional ones. What are your views?

    http://rooseveltinstitute.org/beyond-fairness-skyrocketing-ceo-pay-bad-our-economy/

    http://sevenpillarsinstitute.org/case-studies/the-ethics-of-executive-compensation-a-matter-of-duty

    http://billmoyers.com/2015/04/21/clintons-executive-pay-comments-show-still-focused-fairness/

15. Consider investing in funds A and B. How would you split $100 between the two?

	Fund A	Fund B
Fund Segment	S&P 500 Index Fund	S&P 500 Index Fund
Fund Manager	Mustafa Sagun	William R. Andersen
About the Fund		
Size	$77.49 Million	$75.35 Million
Inception Date	02.10.1998	18.02.2005
Annual Expense Ratio	0.70%	0.64%
Trading Activity (Annual Turnover Ratio)	1.98%	2.03%
Fund Facts	The investment seeks to replicate the total return of the S&P 500 index, before fees and expenses. The fund invests primarily in common stocks issued by companies in the Standard & Poor's 500 Composite Stock Price index.	The investment seeks to replicate the total return of the S&P 500 index, before fees and expenses. The fund invests primarily in common stocks issued by companies in the Standard & Poor's 500 Composite Stock Price index.
Top Five Stock Holdings		
1	Exxon Mobil CP	Exxon Mobil CP
2	General Electric CO	General Electric CO
3	Microsoft Corporation	Microsoft Corporation
4	Chevron Corp	Chevron Corp
5	AT&T Inc.	AT&T Inc.

16. How do our wants for paying no taxes reflected in investment discussions? Below are some examples. Please search the Internet and elsewhere for additional ones.

http://ideas.time.com/2012/09/18/the-rich-havent-always-hated-taxes/

http://www.thefiscaltimes.com/2015/03/03/7-Taxes-We-Hate-Most

17. What are principal-agent conflicts and how are they related to conflicts over wants among people?

    Here are some examples. Please search the Internet and elsewhere for additional ones.

    http://www.forbes.com/sites/timworstall/2013/03/01/solving-the-principal-agent-problem-apple-insists-that-executives-must-hold-company-stock/#7f42929b7728

    http://smallbusiness.chron.com/examples-agency-problems-financial-markets-70962.html

    https://www.cfainstitute.org/learning/foundation/research/Documents/principal-agent_problem_in_finance.pdf

    https://en.wikipedia.org/wiki/Dennis_Kozlowski

Chapter 3 – Cognitive shortcuts and errors

Framing shortcuts and errors

1. Surgeons get better at surgery when they perform many surgeries. Automobile mechanics get better at fixing cars when they fix many cars. Students get better grades when they study hard. Framing trading as equivalent to surgery, car fixing, and studying is a framing shortcut. Why can it lead to a framing error? Why might traders not get better at trading even when they perform many trades?

Frames in mental accounting

2. Do you distinguish money earned with effort from money you receive as a gift?

   Does "easy come, easy go" describe your behavior?

   Do you use mental accounts to keep track of spending and control it? How do you use them?

Framing and the winner's curse

3. What is the winner's curse and how is it related to framing?

   The winner's curse can occur in a "sealed first-price auction," also known as a "blind auction," and as "first-price sealed-bid auction." How is this type of auction different from an "English auction," also known as "open ascending price auction"? How does an English auction protect bidders against the winner's curse?

Framing in money illusion

4. Consider two women, Ann and Barbara, who graduated from the same college a year apart. Upon graduation, both took similar jobs with publishing firms. Ann started with a yearly salary of $50,000. During her first year on the job there was no inflation, and in her second year Ann received a 2% ($1,000) raise in salary. Barbara also started with a yearly salary of $50,000. During her first year on the job there was 4% inflation, and in her second year Barbara received a 5% ($2,500) raise in salary.

As they entered their second year on the job, who was doing better in economic terms? Ann or Barbara? Why?

As they entered their second year on the job, who do you think was happier? Ann or Barbara? Why?

As they entered their second year on the job, each received a job offer from another firm. Who do you think was more likely to leave her present position for another job? Ann or Barbara? Why?

5. Suppose Adam, Ben, and Carl each received an inheritance of $200,000, and each used it immediately to purchase a house. Suppose that each of them sold the house a year after buying it. Economic conditions, however, were different in each case:

   When Adam owned the house, there was a 25% deflation—the prices of all goods and services decreased by approximately 25%. A year after Adam bought the house, he sold it for $154,000.

   When Ben owned the house, there was no inflation or deflation—prices had not changed during that year. He sold the house for $198,000.

   When Carl owned the house, there was a 25% inflation—all prices increased by approximately 25%. A year after he bought the house, Carl sold it for $246,000.

   Please rank Adam, Ben, and Carl in terms of the success of their house-transactions. Assign '1' to the person who made the best deal, and 3 to the person who made the worst deal. Why do we reach this conclusion?

   (Derived from Eldar Shafir, Peter Diamond and Amos Tversky, "Money Illusion," *Quarterly Journal of Economics*, 112 (1997): 341-374.)

Hindsight shortcuts and errors

6. Search the Internet and elsewhere for forecasts of returns of stocks, bonds, gold, and other investments, made in foresight earlier. How accurate are they when judged today, with hindsight? What do they teach us about hindsight shortcuts and errors? See, for example:

   http://www.barrons.com/articles/stocks-could-rise-10-in-2016-according-to-market-strategists-1449899461

   http://247wallst.com/investing/2015/12/15/2016-stock-market-outlook-from-14-top-wall-street-strategists/2/

7. The price of a share of Plum at the beginning of 2015 was $20 and its price at the end of 2015 was $23. The return of the S&P 500 Index during 2015 was 1%. Imagine that investing in the S&P 500 Index is the alternative to investing in Plum shares. What would

have been the price of a share of Plum at the beginning of 2015 if investors have seen in foresight at that time what they see in hindsight at the end of 2015?

Anchoring and adjustment shortcuts and errors

8. Valuation of a house by comparable houses (comps) is a good example of the use of anchoring and adjustment shortcuts. Read:

   http://www.zillow.com/wikipages/All-About-Comps/

   Select a house, your own or another one. Go on Zillow.com and describe how Zillow valued it.

9. The S&P 500 Index increased at an annualized rate of 5.836% during the 90 years from the end of December 31, 1925 to the end of December 31, 2015. The S&P 500 Index does not include dividends and their reinvestment.

   Suppose that you invested $1,000 in the S&P 500 Index at the end of December 31, 1925. You would have had $162,820 by the end of December 31, 2015 if you spent all dividends when you received them during the period. 1,000 x (1+0.05836)**90=$162,820.

10. Now suppose that you invested $1,000 in the S&P 500 Index at the end of December 31, 1925, and reinvested the dividends during the entire 90-year period, rather than spend them. The annualized rate when dividends and their reinvestment are included during the period was 9.980%.

    What is your guess (not calculation) of the amount you would have had at the end of December 31, 2015? Now calculate the amount. How similar is the calculated amount to your guessed amount?

Representativeness shortcuts and errors

11. Imagine that you toss a coin 20 times in a row. Write down your guess of a typical sequence of heads and tails (Mark H for heads and T for tails).

    Now toss a coin 20 times in a row and write down the outcome of each toss as H or T.

    Compare the number of “reversals” in the guessed toss and the actual toss. A reversal is H followed by T, or T followed by H. For example, HHHTTH has 2 reversals.

How does the number of reversals in your guessed sequence differ from the number of reversals in your actual sequence? What does the difference tell you about what we see as representative of a random sequence?

12. Gallup conducted monthly surveys of the expectations of individual investors. In the accompanying excel sheet “Gallup Students” you have the mean stock returns *expected* by individual investors during the *following* 12 months. You also have the *actual* returns of the S&P 500 Index during the *preceding* and *following* 12-month periods.

    a. Find, using regression, the association between the mean stock returns expected by individual investors during the following 12 months and the actual return during the *preceding* 12 months. What association do you see? How strong is the association? (What is the R-Squared?). Draw the regression line and scatter diagram.

    b. Find, using regression, the association between the mean stock returns expected by individual investors during the following 12 month and actual returns during the *following* 12 months. What association do you see? How strong is the association? (What is the R-Squared?). Draw the regression line and scatter diagram.

    c. What do the results of a. and b. tell us about what influences the return forecasts of individual investors, and how accurate their return forecasts are? How are your finding related to the hot-hand and gambler’s fallacies?

13. Which of the following is more likely, a or b? Why?

    a. A war between the U.S. and Iran

    b. Neither the U.S. nor Iran intended to attack the other, but Israeli Air Force jets blew up nuclear facilities in Bushehr, Fordow, and Natanz. Iran responded with a barrage of Hezbollah rockets in northern Israel and Hamas rained rockets on Tel Aviv. American embassies were torched in Paris and Berlin, and the American ambassador in Japan was assassinated, drawing the U.S. into a war with Iran.

14. A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day, and in the smaller hospital about 15 babies are born each day. As you know, about 50% of all babies are boys, but the exact percentage varies from day to day. Sometimes it is higher than 50%, sometimes lower.

    For a period of 1 year, each hospital recorded the days on which more than 60% of the babies born were boys. Which hospital do you think recorded more such days?

a. The larger hospital

b. The smaller hospital

c. About the same (that is, within 5% of each other)

15. Examine the series of daily prices of Peach's shares in the accompanying excel sheet "Peach Students." Graph daily prices on Y axis and days on X axis. Does the series look random or does it seem to represent a pattern?

    Now convert the daily prices of Peach's shares into daily returns. (Daily return is (P2-P1)/P1 – 1, where P1 is the price on one day and P2 is the price on the following day.) Graph daily returns on the Y axis and days on the X axis. Does the series look random or does it seem to represent a pattern?

    What do the two graphs teach us about representativeness shortcuts and errors? What do they teach us about framing shortcuts and errors?

Availability shortcuts and errors

16. Morningstar assigns 1-star ratings to the bottom 10% of mutual funds, 2 stars to the 22.5% of funds above them, 3 stars to the 35% funds above them, 4 stars to the 22.5% above them, and 5 stars to the top 10% funds.

    Look through 12 issues of *Money* magazine. What are the proportions of fund advertisements with 1, 2, 3, 4, or 5 stars? What does it tell us about availability shortcuts and errors?

17. Look at the testimonials at http://www.topstockpicks.com/testimonials/

    What do they tell us about availability shortcuts and errors?

Confirmation shortcuts and errors

18. We commit confirmation errors when we search for confirming evidence but overlook disconfirming evidence, and when we assign much weight to confirming evidence but little weight to disconfirming evidence.

    Consider a hypothesis that one day's stock market gains and losses are generally reversed on the following day, such that a positive return on one day is likely to be followed by a negative return on the following one, and a negative return on one day is likely to be followed by a positive one on the following day.

Confirming evidence are positive hits and negative hits. Disconfirming evidence are false positives and false negatives.

	Tomorrow is a gain	Tomorrow is a loss
Today was a loss	positive hit	false positive
Today was a gain	false negative	negative hit

Look at the series of daily returns in column B of the accompanying excel sheet “Orange Students.” The return on Day 1 was a loss (-1.51) so we forecast that we would have a gain on Day 2. The realized return on Day 2 turns out to be a loss (-1.37%) so that observation belongs in the “false positive” cell. Next, the return on Day 2 was a loss (-1.37%) so we forecast that we would have a gain on Day 3. The realized return on Day 3 was positive (1.65%) so that observation belongs in the “positive hit” cell. Please continue for all the days.

Do we have more confirming evidence than disconfirming evidence for the hypothesis? How statistically significant is the difference between confirming and disconfirming evidence? (Use the Chi-Squared test. See, for example, http://stattrek.com/chi-square-test/independence.aspx?Tutorial=AP

19. Read http://www.jasonzweig.com/turnaround-tuesday-dont-forget-black-tuesday/

    Look at the S&P 500 series of daily returns in excel sheet “Melon Students.” Is the proportion of positive returns to all returns higher on Tuesdays than on other days of the week? How statistically significant is the difference between the proportion of positive returns on Tuesdays and on other days? Use the Z-score test you can find at http://vassarstats.net/propdiff_ind.html

    Now check if the mean daily return on Tuesdays is higher than the mean daily return on other days. Is the difference between mean returns statistically significant? Use the t-statistic test you can find at http://www.quantitativeskills.com/sisa/statistics/t-test.htm

Confidence shortcuts and errors

20. What are the 3 types of confidence and what are the differences between them?

21. Overplacement and underplacement:

    a. Do you think that your skills at juggling 3 oranges places you above or below average among amateur jugglers of 3 oranges?

    b. Do you think that your skills at driving a car place you above or below average among drivers of your age?

    c. Do you think that your GPA places you above or below average among students in your program?

    d. Do you think that your skills at selecting investments with high returns place you at above or below investors of your age and level of formal education?

    Rank the tasks of juggling, driving, achieving high GPA, and selecting investments with high returns, by their difficulty, from easiest to most difficult. How is task-difficulty associated with tendencies for overplacement and underplacement?

22. Overestimation and underestimation:

    a. What is your estimate of the return of the S&P 500 in the following 12 month?

    b. What is your estimate of the total number of ATM machines currently in use in the U.S.? (To the nearest 1,000)

    c. What is your estimate of the current average ATM withdrawal amount in the U.S.? (To the nearest $10)

    d. What is your estimate of the number of residents in Shanghai, China? (To the nearest 100,000 residents)

    e. What is your estimate of the number of residents in Tel Aviv, Israel? (To the nearest 100,000 residents)

    f. What is your estimate of the number of residents in Brussels, Belgium? To the nearest 100,000 residents)

23. Overprecision and underprecision:

    What are the upper and lower bounds of a 90% confidence interval for each of the following? (A 90% confidence interval is one where the true value is within the interval in 9 out of 10 cases)

a. What is your estimate of the upper and lower bounds of a 90% confidence interval for the return of the S&P 500 Index in the following 12 month?

b. What is your estimate of the upper and lower bounds of a 90% confidence interval for the total number of ATM machines currently in use in the U.S.? (To the nearest 1,000)

c. What is your estimate of the upper and lower bounds of a 90% confidence interval for the current average ATM withdrawal amount in the U.S.? (To the nearest $10)

d. What is your estimate of the upper and lower bounds of a 90% confidence interval for the number of residents in Shanghai, China? (to the nearest 100,000 residents)

e. What is your estimate of the upper and lower bounds of a 90% confidence interval for the number of residents in Tel Aviv, Israel? (to the nearest 100,000 residents)

f. What is your estimate of the upper and lower bounds of a 90% confidence interval for the number of residents in Brussels, Belgium? (to the nearest 100,000 residents)

24. Consider traveling to a job interview for a job you would really like to have. On average, it takes 30 minutes to get there (including time necessary to park your car and find the office where the interview is to be conducted). The lower bound of a 99% confidence interval of travel time is 20 minutes, and the higher bound is 80 minutes. How long before the interview time do you begin to drive?

25. Compared to other students at your university— same age and sex as you—what do you think are the chances that the events below will happen to you?

For each event specify your chances

100% less (no chance) than average

80% less than average

60% less than average

40% less than average

20% less than average

10% less than average

Average

10% more than average

20% more than average

40% more than average

60% more than average

80% more than average

2 times the average (100% more than average)

3 times the average

5 times average

1. Liking your post-graduation job
2. Owning your own home
3. Having a drinking problem
4. Attempting suicide
5. Divorced a few years after married
6. Graduating in top third of class
7. Heart attack before age 40
8. Contracting venereal disease
9. Being fired from a job
10. Getting lung cancer
11. Living past 80
12. No night in hospital for 5 years
13. Having a mentally gifted child
14. Weight constant for 10 years .
15. Marrying someone wealthy

Now mark each event as positive or negative. What can you say about the association between the chances that an event will happen to you and whether it is positive or negative?

Next, mark each event as relatively common or relatively rare. What can you say about the association between the chances that an event will happen to you and whether it is relatively common or rare?

Chapter 4 – Emotional shortcuts and errors

1. What do the following articles advise us about using emotions or avoiding them when making financial choices? Search the Internet and elsewhere for additional discussions of emotions as help or hindrance in making financial choices. What are your own views about emotions as help or hindrance in making financial choices? Do you have personal experience with emotions as help or hindrance in making financial choices, or know of the experiences of others?

   http://www.forbes.com/sites/katestalter/2016/01/16/when-investing-your-emotions-arent-necessarily-wrong/#7d3a05c02002

   http://www.financialexpress.com/article/markets/investing-set-aside-your-emotions-and-its-elementary/5116/

   http://www.coastwisegroup.com/investment-blog/231-the-psychology-of-stock-investing

2. Read the following:

   http://www.princeton.edu/main/news/archive/S21/79/44O45/index.xml?section=topstories and watch the associated videos. Watch also https://www.youtube.com/watch?v=J9i-9_QuetA

   What do the article and video clips tell us about our ability to read emotions and intentions in faces? Can people mislead us by their facial expressions, such as to create a false impression of trustworthiness? Reading emotions in faces is a System 1 operation. How can we use System 2 to confirm or overrule System 1 conclusions?

   What are some instances where you inferred correctly intentions from facial expressions and when you inferred intentions incorrectly?

3. Do the Balloon Analogue Risk Task (not the automatic one) – see below

   http://www.millisecond.com/download/library/BART/

Assess your anger by the following scale

http://www.psychologistworld.com/stress/angertest.php

Read the following article.

https://www.researchgate.net/publication/271194697_The_effect_of_anger_and_anxiety_traits_on_investment_decisions

What did you learn about the association between anger and financial choices? Does it correspond to your experience or the experiences of others you know?

4. The appraisal-tendency framework (ATF) distinguishes *cognitive appraisals* from *appraisal tendencies.* Cognitive appraisals shape appraisal tendencies. People experience cognitive appraisals of anger after being cut off in traffic by bad drivers. Appraisal tendencies activated by the cognitive appraisals of anger shape future perceptions and behavior. Appraisal tendencies lead angry people to take more risk in future settings even if these settings are unrelated to driving, such as taking more risk in investment settings.

   How do you prevent yourself from letting cognitive appraisals of anger lead to appraisal tendencies of anger? What is the role of self-control? What are the roles of rules (e.g., count to 10 before you speak in anger)?

Regret

5. Why is regret described as a "cognitive emotion"? Why are fear, sadness, and disgust not described as cognitive emotions? How susceptible are you to regret? How strongly do not agree with the statement: "Whenever I make a choice, I feel bad if another alternative has done better than the alternative I have chosen."

   Strongly disagree Strongly agree

   1 2 3 4 5 6 7

   What are some examples of instances where regret or pride taught you good lessons for future choices and behavior?

   What are some examples of instances where regret or pride taught you poor lessons for future choices and behavior?

Self-control

6. Self-control is described as a conflict between emotion and cognition, or as a conflict between the utilitarian, expressive and emotional benefits of having something now and

the utilitarian, expressive and emotional benefits of having it later, or between judgments derived from System 1 and judgments derived from System 2.

How do you exercise self-control in diets and in spending and saving? How do people you know exercise self-control in diets and spending and saving?

7. Please make the following choices and explain them:

   a. Do you prefer to receive $1,000 right now or would you rather wait a month and receive $1,050? What are the reasons for your choice?

   b. Do you prefer to receive $1,000 a month from now or would you rather wait two months and receive $1,050? What are the reasons for your choice?

   c. Do you prefer to receive $7,600 today or $1,000 at the end of each year for 15 years? What are the reasons for your choice?

8. Please make the following choices:

Which would you prefer if both were free, a or b?

a. Dinner at a fancy French restaurant

b. Dinner at a local Greek restaurant

If you prefer the French restaurant, which would you prefer, c or d?

c. Dinner at the French restaurant on Friday in 1 month

d. Dinner at the French restaurant on Friday in 2 months

What are the reasons for your preference?

If you prefer the French restaurant, which would you prefer, e or f?

e. Dinner at the French restaurant on Friday in 1 month and dinner at the Greek restaurant on Friday in 2 months

f. Dinner at the Greek restaurant on Friday in 1 month and dinner at the French restaurant on Friday in 2 months

What are the reasons for your preference?

If you prefer the Greek restaurant, which would you prefer, g or h?

g. Dinner at the Greek restaurant on Friday in 1 month

h. Dinner at the Greek restaurant on Friday in 2 months

What are the reasons for your preference?

If you prefer the Greek restaurant, which would you prefer, i or j?

i. Dinner at the Greek restaurant on Friday in 1 month and dinner at the French restaurant on Friday in 2 months

j. Dinner at the French restaurant on Friday in 1 month and dinner at the Greek restaurant on Friday in 2 months

What are the reasons for your preference?

9. Imagine you must schedule two weekend outings in a city where you once lived. You do not plan on visiting the city after these two outings.

   You must spend one of these weekends with an irritating, abrasive aunt who is a horrendous cook. The other weekend will be spent visiting former work associates whom you like a lot.

   Suppose one outing will take place this coming weekend, the other the weekend after. Do you prefer a or b? Why?

   a. This weekend with friends and next weekend with abrasive aunt

   b. This weekend with abrasive aunt and next weekend with friends

10. Suppose you win ten dinner prize certificates, each of which can be used (once) to receive a "dream restaurant night." On each such night, you and a companion will get the best table and an unlimited budget for food and drink at a restaurant of your choosing. There will be no cost to you: all payments, including gratuities, come as part of the prize. The certificates are available for immediate use, starting tonight, and there is an absolute guarantee that they will be honored by any restaurant you select if they are used within a two-year window. If they are not used up within this two-year period, however, any that remain are valueless.

    The questions below concern how many of the certificates you would ideally like to use in each year, how tempted you would be to depart from this ideal, and what you expect you would do in practice:

    (a) From your current perspective, how many of the ten certificates would you ideally like to use in year 1 as opposed to year 2?

    (b) Some people might be tempted to depart from their ideal allocation in (a). Which of the following best describes you (please mark only one):

    — I would be somewhat or strongly tempted to keep more certificates for use in the second year than would be ideal;

    — I would have no temptation in either direction (skip to d);

— I would be somewhat or strongly tempted to use more certificates in the first year than would be ideal.

(c) If you were to give in to your temptation, how many certificates do you think you would use in year 1 as opposed to year 2?

(d) Based on your most accurate forecast of how you think you would actually behave, how many of the nights would you end up using in year 1 as opposed to year 2?

Why did you choose as you did?

Mood (Optimism and pessimism)

11. Assume you are the vice president of product development in a company. You are evaluating 3 new product proposals. For each proposal you have an estimate of

a. Research and development costs.

b. Average annual sales in first five years after product introduction.

You have made it a practice to ask two persons in research and development, A and B, in whom you have equal confidence, to give you independent estimates of research and development costs. You also ask two persons in marketing, X and Y, in whom you have equal confidence, to give you independent estimates of sales. These estimates are given below for the three proposals. In order to make a financial analysis of each proposed product, you must make your own estimate of research and development cost and sales, in the case of each proposal. Your estimate may be based on the estimates provided to you, but your estimate does not have to be the average of the estimates given to you.

	Research and Development Costs (in thousands of dollars)		Sales (in thousands of units)		Enter Your Estimate	
Project No.	A's Estimate	B's Estimate	X's Estimate	Y's Estimate	Research & Development Cost Estimate ($)	Sales Estimate
1	$167	$272	594 units	194 units	,000	,000 units
2	274	783	901 units	396 units	,000	,000 units

3	529	433	113 units	609 units	,000	,000 units

To what extent do you agree or disagree with the following statements:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree Nor Disagree	Somewhat Agree	Agree	Strongly Agree
Research and development people typically overestimate R&D costs	1	2	3	4	5	6	
Research and development people typically underestimate R&D costs	1	2	3	4	5	6	
Marketing people typically overestimate sales	1	2	3	4	5	6	
Marketing people typically underestimate sales	1	2	3	4	5	6	

Affect

12. Imagine that you are about to study abroad and have received a good-bye gift from a friend.

It is a wool coat, from a nearby department store. The store carries a variety of wool coats. The worst costs $50 and the best costs $500. The one your friend bought you costs $55.

How generous do you think your friend is?

Not generous at all Extremely generous

0 1 2 3 4 5 6

How happy are you about the gift?

Not happy at all Extremely happy

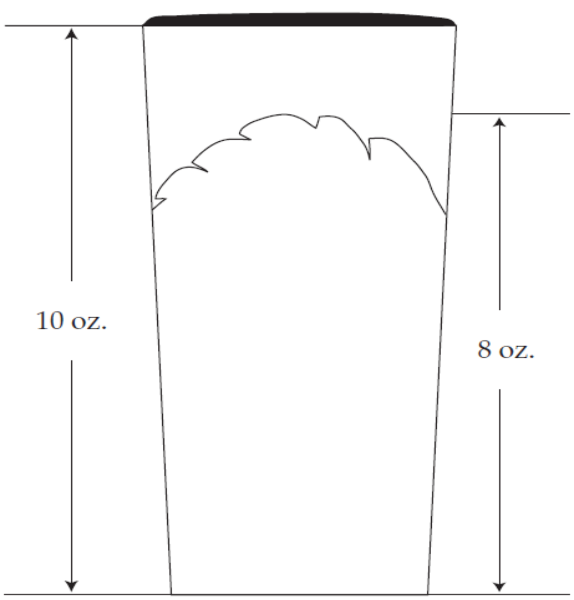
0 1 2 3 4 5 6

How expensive do you think the coat is?

Not expensive at all Extremely expensive

0 1 2 3 4 5 6

13. Imagine the following scenario: It is summer in Chicago. You are on the beach at Lake Michigan. You find yourself in the mood for some ice cream. There happens to be an ice cream vendor, A, on the beach. She sells Häagen Dazs ice cream by the cup. For each serving, she uses a 10 oz cup and puts 8 oz of ice cream in it, as in this illustration:



What is the most you are willing to pay for the ice cream? _______

Chapter 5 - Correcting cognitive and emotional errors

1. Do you choose generic aspirin or Bayer aspirin? Why? Do you choose generic acetaminophen or Tylenol? Why? Do you choose index funds that aim to match the market or active funds that aim to beat it? Why?

2. How do you know who's an expert?

   How do you know who are good plumbers?

   How do you know who are good physicians?

   How do you know who are good financial advisers or money managers?

3. For undergraduate students: Make a list of as many as possible objectives and benefits of an ideal internship.

   For graduate students and professionals: Make a list of as many as possible objectives and benefits of an ideal job.

4. Go to http://boards.fool.com/

   In the left column you'll see a box where you can place a ticker symbol of a stock. Choose one or more stock message boards (e.g. Facebook, Alphabet, Netflix)

   Look at messages from a year ago, where writers predicted what would happen to a company and its stock in the future. How much foresight did the writers demonstrate?

5. Read http://www.jasonzweig.com/lesson-from-buffett-doubt-yourself/

   What does the article tell us about confirmation errors and the systematic process needed to correct them?

6. Read http://www.jasonzweig.com/how-to-ignore-the-yes-man-in-your-head/

   Suppose that you chair a meeting at an investment company where a decision would be made on whether to invest in a particular stock or not. One member of the committee researched the stock and strongly supports investing in it. How would you design and manage the meeting to overcome confirmation errors with as little animosity among members as possible?

7. What is the current level of the S&P 500 Index?

   What is your best estimate of the level of the index a year from now?

   What is your 67% confidence interval around your estimate? (Pick a pair of S&P 500 Index values such that there is a 67% probability (a 2 out of 3 chance) that the values of the S&P 500 Index a year from today would be higher than the low value but lower than the high value.)

8. Whereas people with insufficient self-control are overly eager to indulge, people with excessive self-control are excessively reluctant to indulge. Reflect on your behavior and the behavior of others. Can you identify insufficient or excessive self-control in yourself and in others in financial choices and behavior and in choices and behavior outside of finance? What methods do you and people you know adjust self-control up when it is insufficient, and down when it is excessive?

9. Look up Stickk.com. What does it teach us about self-control and the benefits of commitment devices? Can you find other services offering commitment devices? How are they similar to one another and how do they differ? Would you consider using them to improve financial choices? Would you consider using them to improve other choices, such as diet? Why or why not?

10. In your experience, what hampers readiness for correction? Is it ignorance about facts, financial or otherwise? Is it ignorance about human behavior? Is it fear of change, such as a career change? Is it hunger, hampering self- control, as when using items from the mini-bar at a hotel? Is it the effort required to use System 2, as when foregoing reading a contract?

11. One example where exploiting trumps correcting is the experience of borrowers before the Truth in Lending Act (Regulation Z) was enacted, See: https://www.ccg-catalyst.com/why-is-there-a-truth-in-lending-act-aka-regulation-z/#sthash.3u3hKNvL.dpuf

https://www.ccg-catalyst.com/why-is-there-a-truth-in-lending-act-aka-regulation-z/

Additional examples include:

http://www.jasonzweig.com/fund-managers-lift-results-with-timely-trading-sprees/

http://www.jasonzweig.com/conflict-of-interest-moi/

http://www.jasonzweig.com/now-thats-performance-art/

How can we counter exploitation personally, and how can we counter exploitation through public policy?

12. What are the differences between correcting, nudging, and mandating and how are they related to the differences between libertarianism, libertarian-paternalism, and paternalism?

13. What are some examples of correcting, nudging, and mandating in finance and beyond it? (e.g., Correcting errors by teaching financial facts and human behavior, nudging toward healthy diets, mandating people away from illegal drugs)

Chapter 6: Experienced happiness, life-evaluation, and choices: Expected Utility Theory and Prospect Theory

1. Record your answers to the following questions every day for a week. Your answers are confidential and need not be disclosed to others. Reflect on your daily *life evaluation* and *experienced happiness.* Do your answers indicate that life evaluation can be described as *sustained happiness* that is largely constant over the days of the week, and experienced happiness can be described as *fleeting happiness* that varies day by day more than life evaluation?

   Assessing *life-evaluation* by Cantril's Self-Anchoring Scale: Please imagine a ladder with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you, and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?

   0 1 2 3 4 5 6 7 8 9 10

   Assessing *experienced happiness* by the following questions:

   a. Did you experience *happiness* during a lot of the day yesterday?

   Strongly No Strongly Yes

   1 2 3 4 5 6 7

   b. Did you experience *enjoyment* during a lot of the day yesterday?

   Strongly No Strongly Yes

   1 2 3 4 5 6 7

   c. Did you *smile* or *laugh* a lot yesterday?

   Strongly No Strongly Yes

   1 2 3 4 5 6 7

d. Did you experience *worry* during a lot of the day yesterday?

Strongly No Strongly Yes

1 2 3 4 5 6 7

e. Did you experience *sadness* during a lot of the day yesterday?

Strongly No Strongly Yes

1 2 3 4 5 6 7

Calculate your daily experienced happiness as the sum of a, b, and c, minus the sum of d and e.

2. Suppose that a friend tells you that she is sad because the stock market declined yesterday, reducing the value of her retirement savings. Her experienced happiness is low. How would you try to reframe the situation so as to increase her experienced happiness? How does reframing related to expected-utility theory and prospect theory?

3. Please answer the following question:

   Suppose that you are given an opportunity to replace your current investment portfolio with a new portfolio. The new portfolio has a 50-50 chance to increase by 50% your standard of living during your lifetime. Yet the new portfolio also has a 50-50 chance to reduce by X % your standard of living during your lifetime. What is the maximum X% reduction in standard of living you are willing to accept?

0% 3% 6% 9% 12% 15% 18% 21% 24% 27% 30% 33% 36% 39% 42%

4. Please answer the following question:

   Suppose that you desperately want to increase your standard of living by 50%. For example, imagine that your standard of living has declined because of war in your country and you desperately want to raise it back to its previous level by changing your investment portfolio.

   Now suppose that you are given an opportunity to replace your current investment portfolio with a new portfolio. The new portfolio has a 50-50 chance to increase by 50% your standard of living during your lifetime. Yet the new portfolio also has a 50-50 chance to reduce by X % your standard of living during your lifetime. What is the maximum X% reduction in standard of living you are willing to accept?

   0% 3% 6% 9% 12% 15% 18% 21% 24% 27% 30% 33% 36% 39% 42%

5. Suppose that you had a job paying $100,000 but lost it in a recession. You have been unemployed for one month. Would you be willing to take a similar job paying $70,000? Why or why not?

   Now suppose that you have been unemployed for one year. Would you be willing to take a similar job paying $70,000? Why or why not?

the process of reducing the aspiration level. How difficult is it? How demoralizing?

6. Consider a choice between a sure $5,000 loss and a 50-50 gamble for a $15,000 loss or a zero loss. Is the choice of the gamble consistent with variance aversion? Why or why not?

   Under what conditions or frames is the choice of the gamble consistent with loss-aversion? Under what conditions or frames is the choice of the gamble consistent with shortfall-aversion?

7. Think of a lottery ticket priced at $10, offering an objective 1% probability to win the $500 prize. What is the expected value of the lottery ticket? What is the minimum decision weight consistent with a decision to buy the lottery ticket? What is the role of hope in decision weights in decisions to buy this lottery ticket? Decision weights in the context of lotteries are likely to vary among people. What underlies these differences?

8. We had 2 major stock market crashes in the last 100 years. This implies a 1% objective probability of a stock market crash in the next 6 months. Yet the average subjective estimate of that probability is 16%, consistent with a decision weight of 16. What is the role of fear in this decision weight? Decision weights of the objective probability of a stock market crash are likely to vary over time. What might underlie these variations. Decision weights of the objective probability of a stock market crash are also likely to differ among people. What might underly these differences?

9. The abstract of the article “Who Sold During The Crash Of 2008-9? Evidence From Tax-Return Data On Daily Sales Of Stock” says: “We examine individual stock sales from 2008 to 2009 using population tax return data. The share of sales by the top 0.1% of income recipients and other top income groups rose sharply following the Lehman Brothers bankruptcy and remained elevated throughout the financial crisis. Sales by top income and older age groups were relatively more responsive to increased stock market volatility.”

   Hoopes, Jeffrey L., Patrick Langetieg, Stefan Nagel, Daniel H. Reck, Joel B. Slemrod, and Bryan Stuart, “Who Sold During the Crash of 2008-9? Evidence from Tax-Return Data on

Daily Sales of Stock." (May 2, 2016). Available at SSRN: http://ssrn.com/abstract=2773682 or http://dx.doi.org/10.2139/ssrn.2773682

What possible reasons might underlie differences in behavior between people with high and low incomes, and between older and younger people?

Chapter 7: Behavioral Finance Puzzles: The dividend puzzle, the disposition puzzle, and the puzzles of dollar-cost averaging and time-diversification

1. What is the dividend puzzle? What makes it a puzzle?

2. Why does it seem that dividends are extras – like fruit picked off a tree that does not shrink the tree, whereas, in truth, they are more like a log that shrinks as we split it and burn some of its pieces in a fireplace?

3. Check what happens to the prices of 5 stocks on ex-dividend dates. For ex-dividend dates and amounts see: http://www.dividend.com/ex-dividend-dates.php

   For stock prices place the name of a company and/or ticker symbol in an Internet search engine.

   For example, the ex-dividend date of Charter Financial Group (CHFN) shares was Monday, May 9, 2016 and the amount of dividend was $0.05 per share. The ending price per share on Friday, May 6, the preceding trading day, was $12.68 and it *increased* to $12.71 at the end of May 9. This is an increase of $0.03 (0.23%) on top of the $0.05 (0.39%) dividend, for a total of $0.08 (0.63%)

   Note, however, the need to consider any general change in stock prices. The price of VTI, Vanguard Total Stock Market Index ETF shares, increased by $0.11 (0.11%) from $104.98 on May 6 to $105.09 on May 9.

   Still, 0.63% is much higher than 0.11%. What can possibly explain why CHFN's price *increased* on the ex-dividend day? Does it refute the general claim that the price of a stock declines on an ex-dividend day? Can frequent occurrences such as this mislead investors into a conclusion that, in general, payments of dividends can be views as picking fruit off a tree, rather than as splitting a log and burning some of its pieces in your fireplace?

4. The argument favoring using company cash to repurchase shares of a company rather than using that cash to pay cash dividends is that repurchases deliver cash only to those who want it, and are generally subject to lower taxes even when the rate of taxes on capital gains equals the rate on dividends, because only a portion of the money received by investors who sell shares consists of capital gains.

   Why would a company choose to pay cash dividends rather than repurchase shares of its stock?

5. What are dividend reinvestment plans (DRIPS)? What are their costs and benefits? How are DRIPS different from reinvesting dividends in mutual funds?

   Read http://financialhighway.com/dividend-reinvestment-plans-their-benefits-2/ and search the Internet and elsewhere for other articles on the topic.

6. What are the advantages and disadvantages of stock dividends compared to cash dividends, for companies and for shareholders?

   Read http://www.investopedia.com/ask/answers/05/stockcashdividend.asp

   http://www.bloomberg.com/news/articles/2016-07-19/china-s-curious-craze-for-stock-dividends-survives-market-slump

   http://budgeting.thenest.com/stock-dividends-vs-cash-dividends-21502.html and search the Internet and elsewhere for other articles on the topic.

   Do you agree or disagree with the views expressed in these and the other articles you find? Why or why not?

Disposition puzzle

7. Do you recall instances where you encountered the “disposition effect” in a reluctance to realize losses on investments or cut your losses in other settings, such as choices of major in college, jobs, careers, projects, and personal relationships? How did you overcome the disposition effect? How long did it take you to overcome the disposition effect? What were the stages of overcoming the disposition effect during that time?

   Read http://www.theglobeandmail.com/globe-investor/investment-ideas/let-it-go-learn-to-live-with-investment-regret/article18917000/ for the role of regret in choices.

Read http://www.businessballs.com/elisabeth_kubler_ross_five_stages_of_grief.htm and think of the analogy between coming to terms with a financial loss and coming to terms with dying.

8. "Grit" is defined as perseverance and passion for long-term goals. Angela Duckworth and her co-authors found that grit accounted for an average of 4% of the variance in success outcomes, including educational attainment, grade point average, retention in the United States Military Academy, and ranking in the National Spelling Bee. Grit is not asscoaited with IQ but is associated with the Big Five personality trait of conscientiousness. This suggests that achievement of difficult goals entails not only talent but also the sustained and focused application of talent over time.

   Duckworth Angela L., Christopher Peterson, Michael D. Matthews and Dennis R. Kelly, "Grit: Perseverance and Passion for Long-Term Goals," *Journal of Personality and Social Psychology*, 92 (2007): 1087–1101

   Perseverance, then, is useful. But perseverance can leads to resistance to overcoming the disposition effect, such as when we persevere in law school despites doubts about law as a career choice, only to discover years later that biology or acting would have been better choices. How can you balance the advantages of grit against the disadvantages of the disposition effect? Describe situations where you or others have encountered situations where grit had to be balanced against the disposition effect.

   Watch http://www.pbs.org/newshour/bb/what-quality-do-the-most-successful-people-share-true-grit/ before you answer.

Dollar-cost averaging

9. Search the internet and elsewhere for articles about dollar-cost averaging. What is your assessment of their reasoning? Here are some examples:

   https://pressroom.vanguard.com/nonindexed/7.23.2012_Dollar-cost_Averaging.pdf

   https://www.bogleheads.org/wiki/Dollar_cost_averaging

   http://www.theglobeandmail.com/globe-investor/investment-ideas/lump-sum-investing-vs-dollar-cost-averaging-the-nitty-gritty/article20707395/

   http://news.morningstar.com/articlenet/article.aspx?id=584313

   http://www.wsj.com/articles/SB946411790485566478

Time diversification

10. Search the internet and elsewhere for articles about time diversification. What is your assessment of their reasoning? Here are some examples:

    http://www.vanguard.com/pdf/icrtd.pdf?2210045172

    http://econlog.econlib.org/archives/2008/01/the_fallacy_of.html

    http://www.nytimes.com/2016/02/13/your-money/how-much-of-your-nest-egg-to-put-into-stocks-all-of-it.html?_r=0

    http://www.jasonzweig.com/dont-let-a-market-crash-hit-you-at-the-finish-line/

    http://www.jasonzweig.com/how-now-36000-dow-the-ominous-undertone-of-rallies/

Chapter 8 – Behavioral portfolios

1. What are the differences between mean-variance portfolio theory and its mean-variance frontier, and behavioral portfolio theory and its behavioral-wants frontier?

2. Nutraloaf is also known by its more descriptive name - Disciplinary Loaf. The New York State Department of Corrections and Community Supervision noted that the loaf provides all the appropriate nutrients required in an inmate's diet, and about 3,000 calories a day. A former inmate said, however, "I would taste it and just throw it away. You'd rather be without food than eat that." You can read more in:

   McKinley, Jesse. "State-Run Prisons Planning to Take a Punitive Recipe Off the Cookbooks." *New York Times,* December 18, 2014.

   http://www.nytimes.com/2015/12/18/nyregion/new-york-prisons-take-an-unsavory-punishment-off-the-table.html

   How does the Nutraloaf illustrate the differences between portfolios on the mean-variance frontier and portfolios on the behavioral-wants frontier?

3. Search for items on the Internet or elsewhere about Socially Responsible Investing (SRI), Environmental, Social and Governance (ESG) investing, hedge-fund, private-equity, and other "alternative" investing, including wine and art. What do they reach us about investors' wants? Do any of these appeal to you? Why or why not?

   Here are a few examples:

   http://www.forbes.com/sites/feeonlyplanner/2013/04/24/socially-responsible-investing-what-you-need-to-know/#2835704f5863

   http://www.ibtimes.com/socially-responsible-investing-millennials-how-pick-retirement-funds-match-your-2133437

   http://www.investmentnews.com/article/20150408/BLOG09/150409926/why-its-time-to-believe-the-hype-behind-esg-investing

   http://www.cnbc.com/2014/08/20/are-you-rich-and-sophisticated-enough-for-private-funds.html

   https://www.questia.com/library/journal/1G1-437785803/conspicuous-production-wine-capital-and-status

4. The standard argument for investing in gold is its utilitarian benefits, mostly diversification benefits. Proponents usually mention the low correlation between the returns of gold and those of other investments, such a stocks. See for example:

   http://www.financemagnates.com/executives/insights/portfolio-benefits-investing-gold/

   In the excel file "Gold-Students" you have monthly returns of gold, bonds, and stocks. Calculate the correlations between the returns of gold and bonds, gold and stocks, and bonds and stocks. What do the correlations tell us about the relative benefits of diversification between stocks and gold and stock and bonds?

   What benefits do investors find in gold beyond its utilitarian diversification benefits? Discuss with reference to: http://www.jasonzweig.com/lets-be-honest-about-gold-its-a-pet-rock/

   http://www.politico.com/story/2009/12/right-wing-talkers-go-for-the-gold-030231

5. Imagine that your wealth consists of $100,000 in cash that you can allocate among three mutual funds, X, Y, and Z. Their expected returns are respectively 8%, 10%, and 6%, and their standard deviations are respectively 20%, 25%, and 12%. The correlation between the returns of X and Y is 0.8, the correlation between the returns of X and Z is zero, and the correlation between the returns of Y and Z is also zero. How much of the $100,000 would you allocate to each of the 3 funds. (Answer by your intuition, not by an optimizer.)

6. The correlation between the returns of large stocks and small stocks is 0.79. An annual return gap is an absolute value of the difference between the annual returns of two investments (i.e. without regard to which is higher and which is lower).

   Think about the gap between the returns of large stocks and small stocks in a typical year. What is your estimate of the typical return gap?

   a. Higher than 6 percentage points?

   b. Between 3 and 6 percentage points?

   c. Between 1 and 3 percentage points?

   d. Lower than 1 percentage point?

   The excel file "Gaps-Students" includes annual returns of large capitalization stocks and small capitalization stocks during 1926-2014. Calculate the actual return gap for each year from 1926 through 2014.

What are the mean and median actual annual return gaps?

What is the greatest actual annual return gap and what is the smallest?

How similar are actual mean and median return gaps to your estimate of typical return gaps?

The estimated return gap between the returns of two assets is:

$$\text{Estimated Return Gap} = 2\sigma\sqrt{\frac{(1-\rho)}{2}}$$

Where σ is the average of the standard deviations of the returns of the two investments, and ρ is the correlation between the returns of the two investments.

7. Examine your investment portfolio. By what rationale and process did you form your portfolio? For example, did you plan particular allocations to stocks, bonds, and other investments in the portfolio as a whole, or does the portfolio reflect an eclectic accumulation of investments? Did you consult about the allocations in your portfolio with a financial adviser, friends, family, and colleagues, questionnaire of a mutual fund, or elsewhere? Do you think of one portion of your portfolio as dedicated to one goal, such as retirement, and other portions as dedicated to other goals, such as education or down payment for a house?

8. Search the Internet and elsewhere for items on core and satellite portfolios. Examples include:

   http://www.vanguard.com/pdf/icrcs.pdf

   https://blogs.cfainstitute.org/investor/2012/08/02/simple-safe-and-cost-effective-using-a-coresatellite-approach-in-your-401k-2/

   How are core and satellite portfolios related to behavioral portfolios? What are the advantages and disadvantages of constructing portfolios as core and satellite portfolios compared to constructing them as a whole, with no distinctions between core and satellite?

9. Please answer the following questions:

   Job question: Suppose that you are the only income earner in the family, and you have a good job guaranteed to give you and your current family income during your lifetime. Now you are given an opportunity to take a new and equally good job. The new job has a 50-50 chance to increase by 50% your standard of living during your lifetime. However, the new job also has a 50-50 chance to reduce by X% your standard of living during your lifetime. What is the maximum X% reduction in standard of living you are willing to accept?

0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70%

Portfolio question: Suppose that you are given an opportunity to replace your current investment portfolio with a new portfolio. The new portfolio has a 50-50 chance to increase by 50% your standard of living during your lifetime. Yet the new portfolio also has a 50-50 chance to reduce by X % your standard of living during your lifetime. What is the maximum X% reduction in standard of living you are willing to accept?

0% 5% 10% 15% 20% 25% 30% 35% 40% 45% 50% 55% 60% 65% 70%

Are these questions about variance-aversion, loss-aversion, or shortfall-aversion?

Are these questions about variance-aversion, loss-aversion, or shortfall-aversion?

Is your X% number in the job question different from your X% number in the portfolio question? Why or why not?

What can be the personal circumstances or rationales of people choosing *higher* X% numbers that you did?

What can be the personal circumstances or rationales of people choosing *lower* X% numbers that you did?

Chapter 9: Behavioral life-cycle of saving and spending

1. In what ways is behavioral life-cycle theory similar to standard life-cycle theory and in what ways is it different?

2. Search the Internet and elsewhere for information about the ways young athletes and actors are different in saving and spending behavior from people in other professions such as teachers, engineers, or policemen. What do advisers do to help young athletes and actors? Discuss with reference to standard life-cycle and behavioral-life cycle theories and the roles of self-control and outside-control by advisers.

   How is the problem confronting retired people with accumulated savings similar to the problem facing athletes? How can advisers help retirees solve this problem?

   Read for example: http://athletewealth.com/

   http://www.wsj.com/articles/SB10001424052702304117904579501340429887148

   http://www.investmentnews.com/article/20150615/FREE/150619958/7-risks-for-retirement-income-planning

   http://www.cnbc.com/2015/01/30/3-biggest-challenges-facing-retirement-savings.html

3. Search the Internet and elsewhere for the ways poverty affects self-control and influences saving and spending decisions. What can be done to help the poor now and in retirement?

   Read for example:

   https://newrepublic.com/article/89377/poverty-escape-psychology-self-control

   http://theconversation.com/its-not-a-lack-of-self-control-that-keeps-people-poor-47734

   http://www.theatlantic.com/business/archive/2013/11/your-brain-on-poverty-why-poor-people-seem-to-make-bad-decisions/281780/

4. Search the Internet and elsewhere for items about commitment saving programs. What are some examples of successful programs and unsuccessful ones? Commitment savings programs are nudges toward voluntary savings. Would shoves into mandatory savings be more effective? Read, for example:

   http://www.poverty-action.org/study/psychology-savings-commitment-savings-programs-philippines https://www.povertyactionlab.org/evaluation/cares-commitment-savings-smoking-cessation-philippines

http://wol.iza.org/articles/products-and-policies-to-promote-saving-in-developing-countries.pdf

http://econ.worldbank.org/external/default/main?theSitePK=469382&contentMDK=22975610&menuPK=574960&pagePK=64165401&piPK=64165026

http://www.virginia529.com/soar/

5. Search the Internet and elsewhere for comparisons between Defined-Benefit Pension Plans (DB) and Defined-Contribution Retirement Savings Plans (DC). What are the advantages and disadvantages of each?

   Read, for example:

   http://www.njspotlight.com/stories/14/05/27/explainer-the-debate-over-defined-benefit-vs-defined-contribution-pensions/

   http://pensionretirement.com/which-is-better-defined-contribution-vs-defined-benefit-pensions/

   http://blog.independent.org/2013/08/06/defined-benefit-or-defined-contribution-which-is-the-better-way-to-structure-government-pensions/

   http://www.ncpers.org/files/2011_ncpers_research_series_top_ten.pdf

6. Search the Internet and elsewhere about financial literacy, programs promoting it among children and adults, and assessments of its effectiveness. What are differences between financial literacy, financial comprehension, and behavior demonstrating financial comprehension?

   Read, for example,

   https://www.treasury.gov/resource-center/financial-education/Pages/commission-index.aspx

   http://www.cnbc.com/2016/01/28/us-schools-get-failing-grade-for-financial-literacy-education.html

   http://www.usatoday.com/story/money/personalfinance/2014/04/08/financial-literacy-college-students/7296185/

   http://money.usnews.com/money/blogs/alpha-consumer/2014/08/07/5-things-to-know-about-financial-literacy http://usatoday30.usatoday.com/money/perfi/basics/story/2012-04-23/millenials-financial-knowledge/54494856/1

http://www.slate.com/articles/business/moneybox/2015/01/financial_literacy_it_s_noble_but_way_less_important_than_actual_consumer.html

7. Search the Internet and elsewhere for items about dividend-capture funds.

   Read, for example:

   http://www.thestreet.com/story/11535525/1/7-best-choices-for-dividend-capture.html

   http://www.morningstar.com/cover/videocenter.aspx?id=356587

   http://www.bloomberg.com/news/articles/2007-04-15/funds-for-the-dividend-junkie

   http://blogs.wsj.com/moneybeat/2014/12/05/juicing-stock-returns-and-getting-squeezed/

   What are the objectives of dividend-capture funds? Why might some investors choose them? Would you choose them? Why or why not?

8. Search the Internet and elsewhere for items about covered call options.

   Read, for example:

   http://stansberryresearch.com/investor-education/selling-covered-calls/

   http://www.forbes.com/sites/baldwin/2012/07/17/covered-calls-what-works-what-doesnt/#498bbf4259b8

   What are the objectives of covered calls? Why might some investors choose them? Would you choose them? Why or why not?

9. What are managed payout funds? What benefits do they provide? How costly are those benefits? What are the similarities and differences between managed payout funds and dividend capture funds and covered calls?

   Read, for example:

   https://investor.vanguard.com/mutual-funds/managed-payout/#/

   http://www.advisorperspectives.com/articles/2015/07/28/are-managed-payout-funds-better-than-annuities

10. What are the differences between suitability standards and fiduciary standards governing the behavior of financial advisers in their work with clients?

    Read, for example:

    http://www.cnbc.com/2015/11/18/new-fiduciary-rules-whose-interests-come-first.html

    http://www.institutionalinvestor.com/article/3544744/asset-management-regulation/new-dol-fiduciary-rule-creates-opportunities-for-fund-industry.html?ArticleId=3544744#/.Vxkv8jArKM8

    http://www.nytimes.com/2016/04/07/your-money/new-rules-for-retirement-accounts-financial-advisers.html

11. Search the Internet and elsewhere for items about how economically prepared Americans are for retirement. Why are there such wide differences between the popular press reports emphasizing lack of preparation and academic literature showing wide a range of preparation? Which interest groups have interests in this debate, such as in promoting the conclusion that we have a retirement crisis?

    Read, for example,

    http://www.reuters.com/article/us-usa-economy-retirement-idUSKBN0OC23O20150527

    https://www.americanprogress.org/issues/economy/report/2015/01/26/105394/the-reality-of-the-retirement-crisis/

    http://www.reuters.com/article/us-column-sternadvice-retire-idUSBRE9B30HL20131204

    http://theweek.com/articles/451476/americas-retirement-crisis-might-not-bad-thought

Chapter 10 – Behavioral Asset Pricing

1. The prices of cars range widely, from low 5-figures to high 6-figures and even 7-figures. The price of a Toyota Corolla is approximately $17,000, that of a Rolls Royce Phantom is approximately $418,000, and that of a Lamborghini Veneno is approximately $4,500,000.

   Think about a pricing model of cars, associating car prices with its features and characteristics. What are some features and characteristics that account for the difference in price between a Toyota Corolla and a Rolls Royce Phantom, and between a Rolls Royce Phantom and a Lamborghini Veneno?

   Describe the utilitarian, expressive and emotional benefits of each features and characteristic.

   What do car manufacturers do to enhance the utilitarian, expressive, and emotional benefits of their cars?

   How do car manufacturers and car sellers exploit the cognitive and emotional errors of car buyers?

   Read, for example, http://www.realcartips.com/scams/

   http://money.usnews.com/money/personal-finance/articles/2014/01/17/6-car-buying-mistakes-to-avoid

2. We can choose factors and characteristics for asset pricing models by theory, empirical evidence, or a combination of both. The rationales for factors and characteristics in asset pricing models can be standard, limited to utilitarian benefits, or behavioral, extending beyond utilitarian benefits to expressive and emotional ones, and extending further to cognitive and emotional errors. The rationales for some factors, such as small-large and value-growth might be standard or behavioral. Sometimes, however, the rationale for factors is difficult to determine, even when there is a strong empirical association between a factor and returns. This is the case of the profitability factor. What are possible rationales for the profitability factor? Search the Internet and elsewhere for discussions about the profitability factor.

   Read, for example,

   http://www.forbes.com/sites/phildemuth/2014/01/20/whats-up-with-fama-frenchs-new-5-factor-model-the-mysterious-new-factor-v/#22f85b884f00

   https://www.ifa.com/articles/profitability_four-factor_model/

   http://blog.oup.com/2016/01/investment-facts-from-flukes/

http://www.slate.com/articles/business/moneybox/2014/11/duke_economist_campbell_harvey_most_research_on_why_investments_do_well.html

http://www.jasonzweig.com/have-investors-finally-cracked-the-stock-picking-code/

3. Risk-free arbitrage occurs when we buy an item at one price and simultaneously sell it or its perfect equivalent at a higher price. The binomial and Black-Scholes option pricing models are based on risk-free arbitrage. But the term arbitrage is used also when it is not risk-free. Closed-end fund arbitrage is one example.

   What are examples of arbitrage and why might it fail to eliminate the effect of wants and errors on securities prices?

   Search the Internet and elsewhere for items about risk-free and risky arbitrage, their effects and their limitations.

   Read, for example:

   http://www.clarityspring.com/6-hedge-fund-arbitrage-strategies-that-arent-arbitrage/

   http://www.valuewalk.com/2014/08/closed-end-fund-arbitrage/

   http://seekingalpha.com/article/697511-arbitrage-opportunity-in-the-closed-end-fund-space

4. Excel file “factors-Students” includes monthly factor returns of 5 factors, market, small-large, value-growth, profitability, and investment. Factor returns are returns minus Treasury-bill returns that proxy for the risk free returns. It also includes monthly returns minus Treasury-bill returns of four mutual funds:

   VISGX - Vanguard Small Capitalization Growth Index Fund

   VISVX - Vanguard Small Capitalization Value Index Fund

   VUVLX - Vanguard US Value

   VIGRX - Vanguard Growth Index Fund

   Examine the returns minus Treasury-bill returns of each mutual fund by the CAPM, 3-factor model, and 5-factor model. What are the betas of each factor according to each model? How do you interpret the betas? Are the betas consistent with the names of the funds? How are the betas similar or different across the 3 models?

Chapter 11: Behavioral efficient markets

1. What are the two versions of efficient markets and how do they differ? Are bubbles a violation of one or the other?

2. Rana Foroohar wrote about saving capitalism in the *Time* magazine issue of May 2016. (American Capitalism's Great Crisis Rana Foroohar Time magazine, May 12, 2016)

   In one part of the article she wrote:

   "The rise of finance has also distorted local economies. It's the reason rents are rising in some communities where unemployment is still high. America's housing market now favors cash buyers, since banks are still more interested in making profits by trading than by the traditional role of lending out our savings to people and businesses looking to make long-term investments (like buying a house), ensuring that younger people can't get on the housing ladder. One perverse result: Blackstone, a private-equity firm, is currently the largest single-family-home landlord in America, since it had the money to buy properties up cheap in bulk following the financial crisis. It's at the heart of retirement insecurity, since fees from actively managed mutual funds "are likely to confiscate as much as 65% or more of the wealth that … investors could otherwise easily earn," as Vanguard founder Bogle testified to Congress in 2014."

   In another part of the article she wrote:

   "Remooring finance in the real economy isn't as simple as splitting up the biggest banks (although that would be a good start). It's about dismantling the hold of financial-oriented thinking in every corner of corporate America. It's about reforming business education, which is still permeated with academics who resist challenges to the gospel of efficient markets in the same way that medieval clergy dismissed scientific evidence that might challenge the existence of God."

   How do the two paragraphs relate to the two versions of the efficient market hypothesis, price-equals-value and hard-to-beat? Do the versions of efficient market hypothesis in the two paragraphs complement or contradict each other?

3. How are the weak, semi-strong and strong forms of the efficient market hypothesis related to the exclusively-available, narrowly-available, and widely-available information forms?

4. "Why do active investors continue to play a negative sum game?" asked Kenneth French, referring to investors with nothing but widely-available information. What is

French's answer? Read the conclusion of French's article, "The cost of Active Investing" http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1105775

5. The Law of One Price is the hypothesis that identical items sell at identical prices. How is the Law of One Price related to the price-equals-value and hard-to-beat versions of the efficient market hypothesis? What might prevent the Law of One Price from being consistent with the evidence? Read, for example, http://www.forbes.com/sites/timworstall/2013/02/02/the-great-norwegian-diaper-shortage-of-2013-ricardos-iron-law-of-one-price/#6aa01811c522

   "Anomalies: The Law of One Price in Financial Markets," Owen A. Lamont and Richard H. Thaler

   Journal of Economic Perspectives, 17, no. 4, Fall 2003: 191-202.

   http://pubs.aeaweb.org/doi/pdfplus/10.1257/089533003772034952

6. The following article finds that dividends account for 60% of stock returns. http://seekingalpha.com/article/3922426-dividend-income-accounts-60-percent-equity-returns?page=2

   Shareholders receive cash from companies mostly in the form of dividends, but also in other forms such as cash paid to shareholders when a company is sold. How are dividends related to the intrinsic values of shares? How much of equity returns are likely accounted for by dividends in short periods, such as one year, and long periods, such as 100 years?

7. Search the Internet and elsewhere for "stock market forecasts." For example,

   http://www.barrons.com/articles/stocks-could-rise-10-in-2016-according-to-market-strategists-1449899461

   http://www.tradingeconomics.com/forecast/stock-market

   http://www.forbes.com/sites/trangho/2015/11/13/2016-stock-market-outlook-why-wall-street-expects-7-11-upside/#3994d9447cc1

   How accurate did forecasts turn out to be?

8. What is the joint hypothesis?

   You have the file "Factors-Students" from Chapter 10, and you calculated regressions of each of 4 mutual fund by the CAPM, 3-factor, and 5-factor asset pricing models. The “alpha” of each fund by each asset pricing model is its excess returns. (The estimated alpha of each fund by each asset pricing model is the intercept of the regression)

Look at the alphas of each fund by each of the asset pricing models. Are the alphas of each fund the same by the 3 models or are they different? What do the alphas tell us about market efficiency? How do they illustrate the joint hypothesis?