Chapter 1

A Second Generation Behavioral Finance

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Abstract

The first generation of behavioral finance, starting in the early 1980s, largely accepted standard finance's notion of people's wants as "rational" wants — mainly high expected returns and low risk. That first generation commonly described people as "irrational" — misled by cognitive and emotional errors on their way to their rational wants.

The second generation of behavioral finance describes people as "normal," neither "rational" nor "irrational." Normal people are people like you and me. Each of us has wants, although our wants vary — hope for riches, freedom from poverty, nurturing children and families, being true to values, gaining high social status, playing games and winning, and more. We apply knowledge and cognitive and emotional shortcuts as we pursue our wants. Sometimes, however, we are diverted from our wants by ignorance and cognitive and emotional errors. Our wants, even more than our knowledge, ignorance, and cognitive and emotional shortcuts and errors, underlie answers to important questions of finance, including portfolio construction, saving and spending, asset pricing, and market efficiency (Statman, 2017).

1. A Second Generation Behavioral Finance

The brains of the “rational” people, as described in standard finance, are never full; they are immune to ignorance and cognitive and emotional errors and able to process huge amounts of information quickly and correctly. The brains of normal people, however, are often full, like the brain of the student in the cartoon who raises his hand and asks, “Mr. Osborne, may I be excused? My brain is full.”

The rational people of standard finance can be described more comprehensively as immune to the entire range of making cognitive and emotional errors. Rational people never commit cognitive errors such as “hindsight” errors, that misleads them into concluding that they can see the future in foresight as clearly as they see the past in hindsight, and “confirmation” errors, that mislead them into looking for evidence confirming their views and overlooking disconfirming evidence. And rational people never commit emotional errors such as exaggerated fear and unrealistic hope.

We, normal people, pursue wants, using knowledge and cognitive and emotional shortcuts. Sometimes, however, we are misled by ignorance and cognitive and emotional errors. Wants vary; we share some and differ on others, and we rank differently the wants we share — hope for riches, freedom from poverty, nurturing children and families, being true to values, gaining high social status, playing games and winning, and more. We pursue wants because satisfying them brings three kind of benefits, utilitarian, expressive and emotional. These benefits are in all products and services, including financial products and services (Statman, 2011, 2017).

Utilitarian benefits are the answer to the question, What does something do for me and my pocketbook? The utilitarian benefits of a car are in ferrying us from one place to another, and the utilitarian benefits of investments are in increasing our wealth.

Expressive benefits convey to us and to others our values, tastes, and social status. They answer the question, What does something say about me to others and myself? An environmentally friendly electric car, like an environmental mutual fund, expresses environmental

responsibility, whereas a stately Bentley, like a hedge fund, expresses high social status.

Emotional benefits are the answer to the question, How does something make me feel? An electric car and socially responsible mutual funds make us feel virtuous, whereas a Bentley and hedge funds make us feel proud.

We do not go out of our way to commit cognitive or emotional errors. Instead, we do so on our way to the utilitarian, expressive, and emotional benefits that come when we satisfy our wants.

Rational people separate their roles as investors from their roles as consumers. As investors, rational people care only about utilitarian benefits, mainly high returns and low risk. As consumers, rational people also care about expressive and emotional benefits. For example, rational people who care about the expressive and emotional benefits of being true to their values begin by maximizing expected returns, thereby maximizing utilitarian benefits, and then proceed to derive expressive and emotional benefits by donating some of these returns to causes consistent with their values. Normal people, however, often commingle utilitarian, expressive and emotional benefits. For example, they might restrict investments to those consistent with their values, possibly sacrificing the utilitarian benefits of high expected returns for the expressive and emotional benefits of being true to their values.

We observe the interplay between wants, knowledge, and cognitive and emotional shortcuts and errors in behavioral portfolios, behavioral life-cycle of saving and spending, behavioral asset pricing, and behavioral market efficiency.

2. Behavioral Portfolios

Mean-variance portfolio theory prescribes portfolios on *mean-variance frontiers* to investors whose wants extend no further than the utilitarian benefits of high expected returns and low risk, measured by the variance of portfolio returns.

Behavioral portfolio theory describes portfolios on *behavioral-wants frontiers* and prescribes them to investors whose wants extend beyond the utilitarian benefits of high expected returns and low risk, to expressive and emotional benefits of satisfying wants such as for high social status or sincere adherence to values. Portfolios are on the behavioral-wants frontier when they satisfy investors' wants for utilitarian, expressive and emotional benefits, free of ignorance and cognitive and emotional errors.

Mean-variance portfolios tend to be "unpalatable" to normal investors. Such investors proceed to make portfolios palatable by constraints on allocations, such as minimum allocation to US stocks and maximum allocation to international stocks. But why are portfolios that promise to deliver the highest expected return at each specific variance deemed unpalatable?

We find the answer in an analogy between investment portfolios and "food portfolios" we know as diets. Stigler (1945) considered 77 food items, from wheat flour to sirloin steaks and strawberry preserves and found that the lowest cost diet consists of only 5 food items. A moderately active man weighing 154 pounds would have satisfied all his nutritional needs at a cost of \$39.93. The diet consisted of 370 pounds of wheat flour, 57 cans of evaporated milk, 111 pounds of cabbage, 23 pounds of spinach, and 285 pounds of dried navy beans.

Stigler's diet is on the *nutrition-cost frontier* of foods, analogous to the mean-variance frontier of investments. It provides the necessary nutrition at the lowest cost. Similarly, a portfolio on the mean-variance frontier of investments provides the necessary expected return at the lowest variance of returns. But normal diners want more than diets on the nutrition-cost frontier of foods and normal investors want more than portfolios on the mean-variance frontier of investments.

Stigler compared his minimum cost portfolio of foods to the portfolio of foods that dietitians described as providing the cheapest combination of foods that satisfy nutritional requirements. That food portfolio would have cost \$100 in 1939, more than double the cost of Stigler's food portfolio, placing it below the nutrition-cost frontier of foods.

Why do diets proposed by dietitians as cheapest, cost so much more than Stigler's diet? The answer, wrote Stigler, is that dietitians consider not only the utilitarian benefits of high nutrition and low cost but also the expressive and emotional benefits of palatability, variety, prestige, and culture. Primarily on such grounds, he noted, can we explain dietitians' recommendation to include meat and sugar in minimum cost diets. The same is true for portfolio recommendations by investment consultants.

The dietitians' recommended food portfolio is on the *behavioral-wants frontier*, accounting for diners' wants for the full range of food benefits — utilitarian, expressive, and emotional. This is true even if these portfolios are below the *nutrition-cost frontier* of diners who want only the utilitarian benefits of food. Similarly, investment portfolios on the behavioral-wants frontier are optimal for investors who want the full range of investment benefits, utilitarian, expressive, and emotional.

Some argue that mean–variance portfolios optimized without constraints are unpalatable because imprecise estimates of investment parameters lead to unpalatable extreme allocations to stocks, bonds, gold, or other investments. Yet as Green and Hollifield (1992) demonstrated, extreme allocations are inherent in mean–variance efficient portfolios constructed with precise estimates. Constraints make portfolios palatable.

A central feature in behavioral portfolio theory rests on the observation that investors view their portfolios as sets of distinct mental account layers in a portfolio pyramid. Each mental account corresponds to a particular want, associated goal, and their utilitarian, expressive and emotional benefits.

One mental account might correspond to wants for “downside protection” whose utilitarian benefits include protection from consumption constrained by poverty, and whose expressive and emotional benefits include financial independence and freedom from fear of poverty. Another might correspond to wants for “upside potential” whose utilitarian benefits include consumption enabled by riches, and whose expressive and emotional benefits include high social-status and pride.

Good portfolio practice, whether mean–variance or behavioral, calls for replacing ignorance with knowledge and correcting cognitive and emotional errors. The task is often difficult. One example involves misperceptions of benefits of portfolio diversification. Diversification reduces the risk of portfolios, measured by the variance of returns, while leaving expected returns unchanged. Yet ignorance leads many to misperceive the benefits of diversification. Reinholtz *et al.* (2016) found that investors afflicted by low financial literacy believe that diversification *increases* the volatility of portfolios. This is because the returns of familiar securities, such as the stocks of Apple or IBM, seems more predictable than the returns of a portfolio, such as an S&P 500 portfolio, that is diversified among 500 mostly unfamiliar stocks. Moreover, financial literacy does not necessarily imply knowledge. People possessing *high* financial literacy believe that diversification *increases* the expected returns of portfolios, when in truth it leaves expected returns unchanged. Consequently, investors afflicted by low financial literacy might fail to diversify because they misperceive diversification as adding risk to their portfolios, and those possessing high financial literacy might choose risky diversified portfolios because they misperceive them as offering high returns.

3. Behavioral Life-Cycle of Saving and Spending

Standard life-cycle theory says that our sole reason for saving is want for spending. The ideal outcome is a simultaneous last breath of life and last dollar of spending. We want “smoothed” spending during our life-cycle. More precisely, we want smoothed marginal utility of consumption and leisure during our life-cycle. The theory predicts that we spend “permanent income” each year, an amount that exhausts our life-cycle wealth during our life-cycle, even as our current income, current capital, and future income fluctuate from year to year.

Behavioral life-cycle theory says that our reasons for saving consist of wants for the full range of utilitarian, expressive, and emotional benefits of wealth. These come from spending on necessities such as food and shelter, discretionary items such as recreation and travel, and luxuries such as expensive cars and jewelry. It says, moreover,

that mere wealth *owning*, rather than spending, also yields expressive and emotional benefits. Indeed, some spending inflicts expressive and emotional costs. Think about a person who paid \$100 for dinner and leaves with regret and a sense that he had been played for a fool, because he could have made a better meal at home for a fraction of that price.

Even those who want to match spending to “permanent income” find it difficult. We must muster self-control if we are to accumulate sufficient but not excessive retirement savings during our working years, and we must muster it again if we are to refrain from spending our savings too fast or too slowly during our working years and in retirement.

Behavioral life-cycle theory says that we reconcile conflicts between our wants for spending and saving by the cognitive and emotional shortcuts of framing, mental accounting, and self-control. We frame current income, current capital, and future income into separate mental accounts and set self-control rules that restrict dips into other than designated mental accounts. This includes, for example, restrictions against dipping into our children’s education mental account for today’s vacation spending. Standard life-cycle theory, in contrast, says that we have no use for framing, mental accounting or self-control rules for resolving conflicts between wants for savings for tomorrow and spending it all today.

Self-control is rarely easy to muster and some fail to muster it at all. Wants for spending it all today overwhelm wants for saving for tomorrow when self-control is weak. National Football League (NFL) players enjoy very large income spikes that amount to substantial life-cycle wealth even if lasting only a few years. That wealth can provide substantial smoothed life-cycle spending, but wants for spending it all today overwhelms wants for saving for tomorrow. Carlson *et al.* (2015) found that bankruptcy filings of NFL players begin soon after the end of their careers and continue at substantial rates through at least the following 12 years.

The cognitive and emotional shortcuts of framing, mental accounting, and self-control turn into errors however, when we fail to adapt them in retirement, as income diminishes and it is time

to dip into capital. One extremely wealthy man, a retired executive, wrote: "I've struggled with boundary issues between income and capital. I've actually taken on a couple of board of director assignments so that I feel justified spending for what I consider extravagant." Another wrote: "During my career I was a very conscientious saver and investor. I always maxed out my 401(K) contribution and put a large percentage of my salary and bonus into a deferred compensation program. I have had a difficult time changing my mindset from a saver to a spender."

4. Behavioral Asset Pricing

Useful asset pricing models associate expected returns of investment assets, such as stocks and bonds, with factors or characteristics, such as risk and liquidity. These models allow us to estimate expected returns once we know the factors or characteristics and their associations with expected returns. In that, investment asset pricing models are like pricing models of meals, cars, movies and virtually every other product and service.

The characteristics of meal pricing models reflect diners' wants for the full range of meal benefits — utilitarian, expressive and emotional. The utilitarian benefits of meals include nutrition, the expressive benefits include prestige and display of discerning taste, and the emotional benefits include enjoyment of taste and aesthetics. The nutrition in fast food meals might equal that of Michelin-star restaurants, but the prestige and aesthetics of Michelin-star meals exceed those of fast food meals. We are not surprised to learn that prices of Michelin-star meals exceed fast food prices.

Behavioral asset pricing theory draws on Lancaster's (1966) consumer theory. Lancaster turned his focus away from products, such as meals, to their characteristics, including utilitarian nutrition but also expressive and emotional aesthetics and social connections. We derive benefits from a meal, he wrote, as it "possesses nutritional characteristics but it also possesses aesthetic characteristics, and

different meals will possess these characteristics in different relative proportions.” The same characteristic, such as esthetics, may be included in many products “so that goods which are apparently unrelated in certain of their characteristics may be related in others.” Roses do not substitute for chocolates by utilitarian nutrition but they substitute for chocolates by expressive gratitude and emotional affection.

Utilitarian benefits in investment asset pricing models include low risk and high liquidity. Expressive and emotional benefits include the virtue of acquiring and holding socially responsible mutual funds, the prestige of hedge funds, and the thrill of trading. Wants for investments with high utilitarian, expressive and emotional benefits are likely to be associated with high prices and low expected returns.

The returns of low-risk stocks can be expected to be lower than those of high-risk stocks if investors are willing to accept lower expected returns for the utilitarian, expressive, and emotional benefits of lower risk. The returns of low-risk stocks can however be expected to be *higher* than those of high-risk stocks if investors are willing to accept lower expected returns for the emotional benefits of *hope* of attaining high returns with high-risk stocks, as they are willing to accept lower expected returns for the hope of winning a lottery.

The returns of stocks of virtuous companies can be expected to be lower than those of shunned companies if investors are willing to accept lower expected returns for the expressive benefits of shunning stocks of tobacco and other maligned companies. The returns of investors who trade frequently can be expected to be lower than those of investors who trade rarely if the former are willing to accept lower expected returns for the emotional thrills of frequent trading.

Meal pricing models reflect not only diners’ wants for utilitarian, expressive, and emotional benefits but also diners’ cognitive and emotional errors. Diners’ words and functional magnetic resonance imaging (fMRI) brain scans reveal that they perceive identical

wines as more pleasant when told that their prices are high rather than low.

Cognitive errors reflected in investment asset pricing include underestimation of intangible capital such as high employee morale that costs much in high employee wages and perks today but enhances future profits by more than its cost. Emotional errors reflected in investment asset pricing include affect that misleads investors into favoring stocks of admired companies exuding positive affect over stocks of spurned companies exuding negative affect, even when the expected returns of admired companies' stocks are lower than the expected returns of spurned companies' stocks.

We can present the association between the characteristics of a meal and its expected price in a meal pricing model as follows:

- The expected price of a meal is a function of:
 1. Wants for utilitarian benefits such as high nutrition and great convenience.
 2. Wants for expressive and emotional benefits such as great prestige and pleasing esthetics.
 3. Cognitive and emotional errors such as inferring wine quality from its price.

Similarly, using stocks as an example of investment assets, we can present the association between the expected return of a stock and the characteristics that determine it in an asset pricing model as follows:

- The expected return of a stock is a function of:
 1. Wants for utilitarian benefits such as low risk and high liquidity.
 2. Wants for expressive and emotional benefits such as the virtue of socially responsible funds, the prestige in hedge funds, and the thrill of stock trading.
 3. Cognitive and emotional errors such as a belief that stocks of admired companies are likely to yield higher returns than stock of spurned companies, and that frequent trading is likely to yield higher returns than rare trading.

Some diners and some investors are “normal-ignorant,” succumbing to cognitive and emotional errors. Others are “normal-knowledgeable,” having learned to overcome their cognitive and emotional errors but sometimes willing to sacrifice utilitarian benefits for expressive and emotional ones. Yet others are rational, immune to cognitive and emotional errors and caring only about utilitarian benefits. Rational and knowledgeable diners can potentially eliminate by arbitrage the effects of ignorant diners on meal prices, and rational and knowledgeable investors can potentially eliminate by arbitrage the effects of ignorant investors on investment asset prices.

Consider arbitrage in investment markets. Imagine normal investors who are willing to sacrifice the utilitarian benefits of the high expected returns of stocks of tobacco companies so as to avoid their expressive and emotional costs. The shunning of tobacco stocks by a group of investors decreases the demand for them, pressing down their prices and pushing up their expected returns. The higher expected returns attract rational investors who buy tobacco shares, potentially eliminating the effect on expected returns of investors who shun such stocks. Knowledgeable investors with no preference against stocks of tobacco companies might join rational investors or even do the arbitrage work on their own.

As we consider arbitrage and the likelihood that it would eliminate the effects of normal investors on expected returns, we note that most arbitrage opportunities are risky rather than risk-free, such as where one buys an asset and simultaneously sells it at a higher price. It is optimal for investors to increase their holdings of tobacco stocks if they are absolutely certain that their tomorrow's returns would be higher than those of other stocks, but investors can rarely be absolutely certain about tomorrow's returns or even longer-period returns. As investors increase the proportion allocated to tobacco stocks they reduce diversification in their portfolios, thereby increasing their portfolios' risk. This limits the willingness of rational and knowledgeable investors to allocate high proportions of their portfolios to tobacco stocks, thereby limiting their effect on prices and expected returns. Transaction costs and other impediments hamper

arbitrage even when it is risk-free. Therefore, prices and expected returns in markets with hampered arbitrage are likely to reflect wants for expressive and emotional benefits in addition to wants for utilitarian benefits, and prices and expected returns are also likely to reflect cognitive and emotional errors.

Behavioral asset pricing models, like standard asset pricing models, are factors or characteristics models that begin with theoretical rationales for factors and characteristics or strive to identify theoretical rationales for factors and characteristics found empirically. Behavioral asset pricing models and standard asset pricing models differ in the breadth of theoretical rationales. Theoretical rationales in behavioral asset pricing models encompass wants for utilitarian, expressive and emotional benefits and the presence of cognitive and emotional errors, whereas theoretical rationales in the standard asset pricing model are limited to wants for utilitarian benefits.

Both behavioral and standard asset pricing models are in effect works in progress in finance, manifested in two ways. First, the list of factors is expanding as the one-factor model consisting of the market factor alone was expanded into the three-factor model consisting of the market, small-large, and value-growth factors, later expanded further to include the momentum factor, and expanded more recently to include the profitability and investment factors. Second, the identification of the theoretical rationales for factors is incomplete. The theoretical rationale for the small-large and value-growth factors might be wants for the utilitarian benefits of low risk, fitting within standard asset pricing models, or wants for utilitarian, expressive and emotional benefits and the concurring cognitive and emotional errors, fitting within behavioral asset pricing models.

We must also know more if we are to distinguish wants for utilitarian benefits from wants for expressive and emotional benefits and from cognitive and emotional errors. Yet distinctions between choices motivated by particular wants and errors are more important conceptually than practically. Errors can be as persistent as wants — investors motivated to trade by cognitive and emotional errors affect asset prices no differently from investors motivated to do the same by

wants for utilitarian benefits or wants for expressive and emotional benefits.

How many factors would behavioral asset pricing models contain? A long list of factors would make models comprehensive but also cumbersome. A short list would make them less cumbersome but also less comprehensive. Behavioral asset pricing models are evolving over time, as we weigh the tradeoffs between the benefits of comprehensive models and their drawbacks. And behavioral asset pricing models are also evolving over time as empirical evidence and theory favor the addition of some factors and the omission of others.

5. Behavioral Efficient Markets

For those who look to the Nobel Prize committee for guidance on market efficiency, the decision to award the 2013 Nobel Prize in economics to both Eugene Fama and Robert Shiller might be puzzling. “If you’ve been wondering whether it’s possible to regularly beat the stock market averages,” wrote Rattner (2013), “you didn’t get any guidance from the Nobel Prize committee this year.”

Rattner placed Shiller in one corner, claiming that he “argues that markets are often irrational and therefore beatable”. He placed Fama in the opposite corner, describing him as “the father of the view that markets are efficient”, whose “followers believe that investors who try to beat the averages will inevitably fail”.

The efficient market hypothesis is central to standard finance and many believe that behavioral finance refutes it. Indeed, many believe that refutation of the efficient market hypothesis is the most important contribution of behavioral finance. Yet discussions are unfocused when they fail to distinguish between two versions of efficient markets and their corresponding efficient market hypotheses, the *price-equals-value market hypothesis* and the *hard-to-beat market hypothesis*. Discussions are lacking when they fail to explain why so many investors believe that markets are easy to beat.

Evidence gathered in both standard and behavioral finance contradicts the *price-equals-value market hypothesis* but it is consistent

with the *hard-to-beat market hypothesis*. Behavioral finance also answers a question standard finance usually fails to ask — why so many investors believe that markets are easy to beat when, in truth, they are hard to beat. The answer combines investors' wants and their cognitive and emotional errors.

Price-equals-value markets are markets where investments prices always equal their intrinsic values and the price-equals-value market hypothesis is the claim that investment prices always equal their intrinsic values. Hard-to-beat markets are markets where some investors are able to beat the market, earning consistent excess returns, but most are unable to do so. Excess returns generally correspond to above-average returns. More precisely, they are returns in excess of returns that can be expected according to a correct asset pricing model.

Price-equals-value markets are impossible to beat because excess returns come from exploiting gaps between prices and intrinsic values, gaps absent in price-equals-value markets. But hard-to-beat markets are not necessarily price-equals-value markets. It might be that prices deviate greatly from intrinsic values, taking them far from price-equals-value efficiency, but deviations are hard to identify in time or difficult to exploit for excess returns. In other words, markets may be crazy, but this does not make you a psychiatrist.

Warren Buffett illustrated the distinction between price-equals-value markets and hard-to-beat markets and the confusion that arises when they are lumped into efficient markets. Buffett was considering buying bonds of Citizens Insurance, established by the state of Florida and backed by state taxes to cover hurricane damage. Berkshire Hathaway, his company, received three bids from sellers of Citizens Insurance bonds, one at a price that would yield 11.33%, one at 9.87% and one at 6.00%. "It's the same bond, the same time, the same dealer. And a big issue", said Buffett. "This is not some little anomaly, as they like to say in academic circles every time they find something that disagrees with their [efficient market] theory". (Varchaver, 2008).

Buffett referred to "efficient market", but the term price-equals-value market would have been more precise. The story of the Citizens

Insurance bonds is, as Buffett noted, an anomaly, contradicting the claim that the market for these bonds is a price-equals-value market. The intrinsic value of each Citizens Insurance bond is identical to the intrinsic value of every other Citizens Insurance bond, since all of them are identical in every feature. The fact that the bonds were selling at different prices contradicts the claim that the market for these bonds is a price-equals-value market since three different prices cannot all equal one intrinsic value. Two of the prices, and perhaps all three, must diverge from intrinsic value.

Yet Buffett cautioned investors not to jump too fast from evidence that markets are not price-equals-value to the conclusion that markets are easy to beat. When asked “What advice would you give to someone who is not a professional investor”, Buffett said: “Well, if they’re not going to be an active investor — and very few should try that — then they should just stay with index funds. Any low-cost index fund They’re not going to be able to pick the right price and the right time”.

Hard-to-beat markets are not impossible to beat. Investors with exclusively-available information find it easy to beat the market, and investors with narrowly-available information find it hard but not impossible to beat the market. Yet, on average, investors with nothing more than widely-available information find it impossible to beat the market. Such investors are beaten by the market more often than they beat it. Indeed, investors with exclusively-available and narrowly-available information gain their market-beating returns by emptying the pockets of investors who attempt to beat the market with widely-available information alone.

Why then do so many amateurs trade when they are more likely to be beaten by professionals than beat them? One part of the answer is ignorance, another is cognitive and emotional errors. And a third is expressive and emotional benefits.

Many amateur investors are ignorant of evidence that their returns are, on average, lower than those of passive index-fund investors. Moreover, some believe, wrongly, that they have narrowly-available information when all they have is widely-available information. Some believe that they have to “play” by trading or selection

of investments in undiversified portfolios if they want to win. Some account for returns “in their heads” or neglect to exclude contributions when calculating returns. Some fail to compare their returns to market returns. Some do not realize losses, counting them as no losses. And some attribute to skill what properly belongs to luck.

Framing errors are one critical kind of cognitive errors. The consequences of faulty framing are evident in a study of trading around the time of CEO interviews on CNBC, by Kim and Meschke (2014). Knowledgeable investors who consider buying shares of companies touted by CEOs know that they are not alone in watching the interviews. They also know that they are the slow runners in the trading race if they lack exclusively or narrowly available information. Therefore, they refrain from trading. Many investors ignorant of such information nevertheless trade. Investors who buy stocks soon after CEO interviews typically lose, buying at high prices that soon fall below their pre-interview levels. Moreover, interviews that draw much attention also draw much short-selling, suggesting that investors possessing human-behavior and financial-facts knowledge and perhaps exclusively or narrowly available information knowledge anticipate the behavior of investors lacking such knowledge and win the trading race against them.

Yet not all investors commit framing errors. Investors with only widely-available information who refrain from trading commit no framing errors. But some who avoid framing errors trade nevertheless because they commit the overplacement variety of overconfidence errors. They know that the tennis player on the other side of the net might be number-one-placed Novak Djokovic and the trader on the other side of the trading net might be an insider employing narrowly-available information, but are overconfident in their skill at beating them. I never played against Djokovic, they say, so my chance of winning must be 50–50. A survey of amateur traders by Fidelity (2012a) reveals that 62% expected to beat the market during the following 12 months and 29% expected to match the market. The survey does not say whether the remaining 9% expected to lag the market or merely demurred from answering the question.

High past returns lead to emotional errors as they imbue investors with a positive mood and imbue investments with positive affect. Brokerage records and matching monthly surveys explored by Hoffmann and Post (2017) show that high past returns are associated with increased return expectations combined with decreased risk perception and risk aversion. Stock market declines, however, induce fear and negative mood and color investments with negative affect, misleading investors into expectations of low returns combined with high risk. Analysis of Gallup/UBS surveys and Michigan Surveys of Consumer Attitudes by Amromin and Sharpe (2013) revealed that investors who believe that the economy will do poorly expect low returns along with high risk. This finding is difficult to reconcile with the standard finance view that expected returns increase to compensate investors for increased risk.

Wants affect behavior even in the absence of cognitive and emotional errors. Many amateur investors and some investment professionals choose to play beat-the-market games because such games, like tennis, satisfy wants for expressive and emotional benefits — It is fun to play against Djokovic even if we lose. A Fidelity (2012b) survey found that 78% of traders trade for reasons beyond profits; 54% enjoy “the thrill of the hunt”, 53% enjoy learning new investment skills, and more than half enjoy engaging in social activities, sharing news of their investing wins and losses with friends and family — yet tending to share news of wins more often than losses.

The decision of the Nobel Prize committee to award the prize to both Fama and Shiller says, in effect, that Warren Buffett and others who possess exclusively and narrowly available information can beat the market consistently, but amateur investors possessing only widely available information cannot.

6. Conclusion

The lessons of behavioral finance guide us to know our wants. They teach us about financial facts and human behavior, including making cognitive and emotional shortcuts and errors. They guide us to

balance our wants and correct cognitive and emotional errors on the way to satisfying our wants.

These lessons draw on what we know about us — normal people — including our wants, cognition, and emotions. They draw on the roles of these factors in behavioral portfolio theory, behavioral life-cycle theory, behavioral asset pricing theory, and behavioral market efficiency.

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