

# onRisks

## The neglected variable affecting portfolio choices in the 21st century

February 2016

### Author

Shlomo Benartzi, Ph.D.  
Professor, UCLA  
Anderson School  
of Management

Chief Behavioral  
Economist,  
Allianz Global  
Investors Center for  
Behavioral Finance

In the digital age, people have far more access than ever before to their investment accounts, allowing them to monitor the latest market changes with great ease. In this paper, we discuss how this variable—“monitoring frequency”—affects judgment and portfolio choices. We argue that the ease of portfolio monitoring on smartphones is likely to increase a behavioral tendency known as “myopic loss aversion,” where investors focus too much on short-term losses. We then ask an important question: Should financial advisors and plan sponsors incorporate the frequency of market monitoring into their portfolio recommendations? We conclude with suggestions for ways to use digital design to minimize myopic loss aversion.

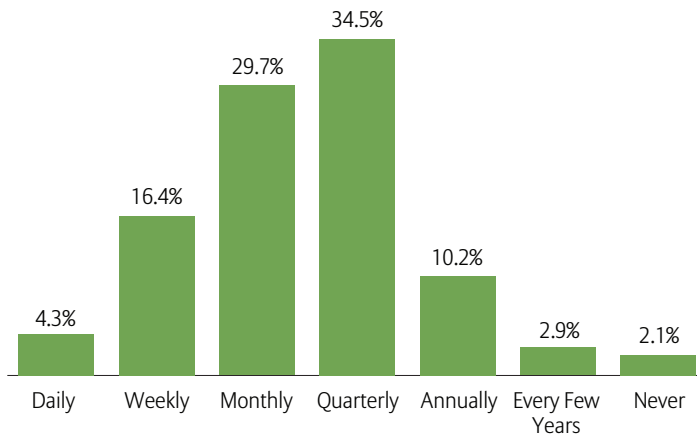
### The current state of investment monitoring

We live in an age obsessed with investment performance. Plan sponsors hire and fire fund managers based on the returns they achieved in the last couple of years. Individuals, meanwhile, keep close track of how much money they make or lose in the market. This white paper will investigate a largely neglected variable of all this monitoring, which is how frequently people check their investments. We will argue that, especially in the digital age, the frequency of monitoring can have a large impact, influencing both how people feel about the market and their ensuing behavior. As a result, it’s crucial that financial institutions monitor the monitoring done by their clients. After reviewing new survey data on investment tracking,

we will look at how financial institutions can design investment products that fit the monitoring patterns of their clients. In addition, we examine how financial institutions can improve how they communicate investment performance to clients.

Let’s begin with the survey data. In October 2015, we commissioned a survey of 1,050 adults with retirement savings accounts and asked them how, and how often, they checked their portfolios. Not surprisingly, we found a wide variation in the method and frequency of monitoring. As shown in Figure 1 (see next page), while 15% of subjects check once a year or less, roughly 20% check at least once a week. The most common frequency is quarterly, with 34.5% of people getting updates every few months.

Figure 1: Portfolio monitoring frequency



Source: Allianz Global Investors Center for Behavioral Finance survey, October 2015.

Furthermore, it's clear that the digital world is reshaping the ways in which people monitor their accounts. According to our survey, nearly 80% of people check their accounts on a computer, 30.6% check on a smartphone and 21.9% check on a tablet. By comparison, slightly over half review their paper statements and only 12.6% get updates in person from their financial advisors.<sup>1</sup> The key question, of course, is how these technological shifts might influence investor behavior.

The digital world is reshaping how people monitor their accounts

Does monitoring impact risk-taking?

To understand why technology might affect investor behavior, it's useful to revisit a classic study by Paul Samuelson.<sup>2</sup> More than half a century ago, Samuelson proposed the following bet on the flip of a coin to one his MIT colleagues: If the coin landed on heads, they would win \$200; however, if it landed on tails, they would lose \$100.

Samuelson's colleague rejected the offer—as do most people—to take the bet, exhibiting a phenomenon known as *loss aversion*. However, given the 50-50 odds, the expected value of the bet

comes out sharply in favor of acceptance.<sup>3</sup> There is also little “risk” in this bet for many people, as the maximum loss is no more than the cost of a nice dinner. Nevertheless, the prevalence of loss aversion is rooted in a simple psychological fact: Losses tend to hurt more—often *much more*—than gains feel good. As a result, the pain of potentially losing \$100 exceeds the pleasure of gaining \$200. And so people reject the bet on the flip of a coin, even

though they should probably say “yes.”

We've already discussed Samuelson's research and loss aversion in the first *OnRisks* paper. However—and this is a big caveat—what happens if the bet can be played multiple times? While Samuelson's gamble was a one-off affair—the coin was only flipped a single time—real-world evaluations of risky choices are often replayed over many rounds. In this context, we argue that the appeal of the gamble depends in large part on how frequently a person gets updates on the results.<sup>4</sup>

To watch this process at work, let's play Samuelson's bet twice. As you can see in Figure 2, there are four

Figure 2: Possible hedonic outcomes when playing Samuelson's bet twice

First Round	Second Round	Hedonic Experience
+200	+200	😊
+200	-100	😞
-100	+200	😞
-100	-100	😞

Source: “Myopic Loss Aversion and the Equity Premium Puzzle” by Shlomo Benartzi and Richard H. Thaler, 1995.

possible outcomes on the two coin flips: A player can either win-win, win-lose, lose-win, or lose-lose. Unfortunately, given the impact of loss aversion, a player who checks the results after each round would only experience a positive hedonic experience in one of the four scenarios. The reason is that in the win-lose and lose-win cases, our loss-averse player focuses on the painful loss, even though the aggregate outcome is a net gain of \$100.

However, there is a very easy way to improve the hedonic experience of Samuelson's gamble: Don't check after each round. Instead, the gambler should wait until both coin flips are complete and only get an update on the aggregate outcome. As shown in Figure 3, by checking less frequently, the player can triple the odds of having a positive experience. The win-lose and lose-win cases are no longer painful, as our player only observes the aggregate outcome, which is a net gain of \$100.





---

The appeal of Samuelson's gamble depends largely on how frequently a person gets updates on results

---

The same lesson applies to the world of investing. When people get frequent updates on their portfolios, they increase the likelihood of getting news of a short-term loss—just like that gambler checking after every coin flip. However, because these losses have an exaggerated impact on our behavior, frequent checking can lead us to abandon our long-term investing plans. This phenomenon is known as “myopic loss aversion,” and it results from a mismatch between the time horizon of an investment and the frequency of our account evaluations. In general, the greater the mismatch, the more likely we are to overreact to short-term losses, counting our recent gains and losses instead of staying focused on the final

Figure 3: Possible hedonic outcomes if investors do not check after each round

First Round	Second Round	Total	Hedonic Experience
?	?	+400	
?	?	+100	
?	?	+100	
?	?	-200	

Source: Benartzi and Thaler, 1995.

outcome. (To use academic terms, investors reset their “reference points” too frequently.)

Daniel Kahneman, the Nobel Prize-winning psychologist, has a pithy description of human behavior that helps explain situations like this: *What you see is all there is* (WYSIATI).<sup>5</sup> In the context of myopic loss aversion, WYSIATI can explain, at least in part, why people can be so influenced by hourly, daily or weekly losses, even if their retirements are decades away. Because losses are what they see, and losses loom larger than gains, losses assume a disproportionate weight in financial decision-making. Instead of focusing on their ultimate goals, people continually recount their gains and losses, and so they seek to avoid the stock market.

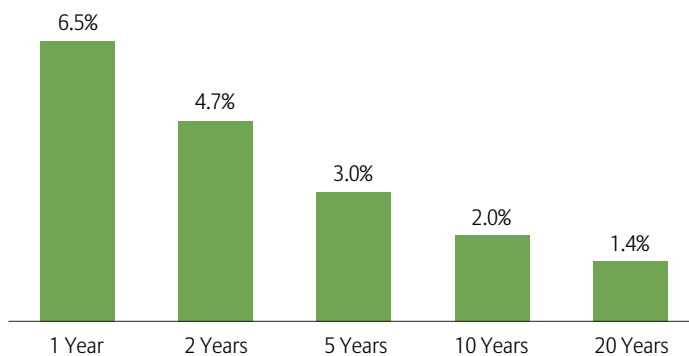
---

Because the loss is what people see, it assumes a disproportionate weight in financial decision-making

---

The frequent recounting of gains and losses could have a dramatic impact on financial markets. In our original paper on myopic loss aversion, my colleague Richard Thaler and I explored the relationship between monitoring frequency and the equity risk premium.<sup>6</sup> As shown in Figure 4, if investors were able to focus on 20-year returns,

Figure 4: Implied Equity Premium for Different Evaluation Periods



Source: Benartzi and Thaler, 1995, based on the real returns of stocks (using the CRSP indices) and the real returns of five-year bonds for the 1926–1990 period.

they would expect equities to provide a risk premium of just 1.4% per year. However, as they monitor performance more frequently, the risk premium they demand goes up significantly. Those who focus on five-year returns expect a premium of 3% and those who recount their gains and losses annually expect a premium of 6.5%.

One way to think of it is that long-term investors who can resist monitoring the stock market are engaging in a “mental arbitrage.” They would have accepted a risk premium of just 1.4%, but because many investors are tempted to count their gains and losses frequently, they end up enjoying a much higher risk premium.

### The impact of technology

In the 21st century, the gap between our investment horizons and our portfolio evaluations is likely growing; myopic loss aversion might be getting worse. This is for an obvious reason: We have far more access to our financial information and are able to review our accounts—using all sorts of gadgets and devices—at nearly any time.

This represents a huge shift from only a decade or two ago, when most of our account updates arrived via paper statements issued on a quarterly

or annual basis. As a result, we were relatively insulated from ephemeral market swings. The digital age, however, has stripped away this insulation—investors are hyperaware of every market bump, swing and correction.

To understand the potential impact of these new technological trends, let’s return to Samuelson’s coin flip. In today’s digital age, we aren’t just

getting updates on our investment “gambles” once a year—we might be getting updates 5,040 times over the course of the account, assuming 20 years of checking the stock market every day. Or we might end up learning about the results of our market “coin flip” a few hundred thousand times, which is 20 years of checking our accounts on mobile phones several times a day. (The average American checks their smartphone more than 150 times per day;<sup>7</sup> it seems reasonable to assume that a few of these glances might involve financial updates.)

This suggests that technology might be altering the ways in which we perceive financial risk, as more frequent updates lead to a parallel increase in the possibility of a short-term loss. And since “what we see is all there is,” these losses can lead us to seek out the safest investments. As Uri Gneezy and Jan Potters have demonstrated, there is a direct and causal relationship between the frequency with which investors evaluate their returns and their willingness to accept risk, with greater frequency leading to greater sensitivity to losses.<sup>8</sup>

---

Technology might be altering how we perceive financial risk

---

But this increased access to financial accounts also raises a new question, which is whether or not all financial evaluations are created equal. Put another way, does every glance at our retirement accounts lead us to count our gains and losses and reset our reference points? Or does the increased frequency of market updates also lead to a dilution of their psychological impacts?

One hypothesis is that, in the 21st century, we might “see” market performance but not fully process its details. In a sense, we habituate to the constant updates, which means the bad news comes with reduced emotional impact. Let’s say, for example, that we’re playing Samuelson’s gamble a few thousand times and that we get updates on every coin flip. It seems unlikely that we’d mentally record the outcome of every single gamble. Rather, people might engage in a more superficial interaction with the results, neglecting to fully reset after each update. This principle might also apply to investment accounts. While there is likely a correlation between the frequency of evaluations and the resetting of reference points, this correlation is no longer one-to-one. It’s a far more complex relationship, possibly shaped by recent market trends. We might not mentally book a single loss, but what happens if several losses occur in a row?

In the 21st century, there are likely three distinct clocks that influence financial decision-making:

- a person’s long-term investment horizon (potentially several years or decades);
- a reference-point period in which he or she mentally books gains and losses (often significantly shorter than our investment horizon); and

- his or her superficial monitoring frequency (often an extremely short amount of time).

It’s important to note that, while we can track how often people monitor the market, and we can estimate their ideal investment horizons, it’s extremely difficult to know when people mentally book gains and losses and reset their reference points. Despite this uncertainty, it seems highly likely that there is a correlation between the clocks, as investors who get frequent market updates—often using mobile devices—are more likely to count their losses and reset their reference points, which can lead to increased myopic loss aversion.

### Helping investors focus on the long term

Here are a few action items for those who are trying to help plan participants and individual investors think longer term:

#### 1. Monitor the monitoring

Measure how often people check on their portfolios, especially as new apps and digital displays are introduced, such as the Apple Watch. Consider the time spent on the site or number of clicks within the app to differentiate between people who are mentally booking their gains and losses versus those who are engaging in superficial account glancing. These are the neglected variables affecting portfolio choices in the 21st century. Of course, technology is not affecting everyone’s monitoring the same way, so it is important to slice the data by demographic groups.

#### 2. Reevaluate the glidepath

A mismatch between the risk preferences of investors and their portfolio allocations poses greater risk in the 21st century than ever before, as short-term losses are more noticeable. We believe it is a valuable exercise for fiduciaries and

investment committees to debate whether the glidepath should be adjusted to reflect the frequency of monitoring. In particular, does more frequent monitoring call for a more conservative allocation to avoid investors panicking and selling when markets sneeze? We don't necessarily have the answers, but we feel these are important debates for investment committees to start engaging in.

### **3. Foster longer-term thinking**

One of the crucial tasks of financial advisors and plan sponsors is to help individuals focus on their long-term goals, even if they are monitoring their investments every hour on a smartphone. While these individuals who engage in a high frequency of monitoring might prefer an all-cash portfolio, effective communication can help foster longer-term thinking. From a behavioral perspective, the most intuitive and important information to convey to individuals is their projected retirement income, so this information should be prominently displayed.<sup>9</sup> Because this figure is relatively stable, it will smooth the emotional reaction to market volatility, but it will also discourage clients from seeking constant updates. (Sometimes, making information boring is a virtue.<sup>10</sup>)

### **4. Make the responsible choice *easier***

It has never been easier for investors to monitor market performance. We should make more responsible actions, such as raising savings rates,

just as easy. Ideally, the increased engagement triggered by constant account monitoring should actually be leveraged to encourage improved financial planning, and not investing paralysis.

### **Summary**

In the 21st century, technology has transformed the ways in which investors get information about their retirement accounts. The task for financial advisors and plan sponsors is to ensure that the newfound convenience of mobile access doesn't lead to increased myopic loss aversion. Whenever possible, investors should be reminded of their true investment horizon. To paraphrase Daniel Kahneman, what they see at the moment is *not* all there is.

---

The task for financial advisors and plan sponsors is to ensure that the newfound convenience of mobile access doesn't lead to increased myopic loss aversion

---

## Endnotes

1. The percentages add up to more than 100%, as individuals can use multiple methods to monitor their investments.
2. Paul A. Samuelson. "Risk and Uncertainty: a Fallacy of Large Numbers." *Scientia* 98.612 (1963): 108-113.
3. Benartzi, Shlomo, and Richard H. Thaler. "Myopic Loss Aversion and the Equity Premium Puzzle." *The Quarterly Journal of Economics* (1995): 73-92.  
  
Benartzi, Shlomo, and Richard H. Thaler. "Risk aversion or myopia? Choices in repeated gambles and retirement investments." *Management Science* 45.3 (1999): 364-381.
4. Benartzi, Shlomo, and Richard H. Thaler. "Myopic Loss Aversion and the Equity Premium Puzzle." *The Quarterly Journal of Economics* (1995): 73-92.  
  
Benartzi, Shlomo, and Richard H. Thaler. "Risk aversion or myopia? Choices in repeated gambles and retirement investments." *Management Science* 45.3 (1999): 364-381.
5. Kahneman, Daniel. *Thinking Fast and Slow*. Farrar, Straus and Giroux (2013): p. 85-88.
6. Benartzi, Shlomo, and Richard H. Thaler. "Myopic Loss Aversion and the Equity Premium Puzzle." *The Quarterly Journal of Economics* (1995): 73-92.
7. Kleiner Perkins Caufield Byers. *Internet Trends D11 Conference* (2013).
8. Gneezy, Uri, and Jan Potters. "An experiment on risk taking and evaluation periods." *The Quarterly Journal of Economics* (1997): 631-645.
9. While Congress is still debating the Lifetime Income Disclosure Act, several record-keepers have already started displaying projected retirement income on participant statements.
10. Looney, Clayton Arlen, and Andrew M. Hardin. "Decision support for retirement portfolio management: overcoming myopic loss aversion via technology design." *Management Science* 55.10 (2009): 1688-1703.

## About the Allianz Global Investors Center for Behavioral Finance

The Allianz Global Investors Center for Behavioral Finance is committed to empowering clients to make better financial decisions by offering them actionable insights and practical tools.

[befi.allianzgi.com](http://befi.allianzgi.com)

© 2016. Allianz Global Investors is an asset management arm of Allianz SE. The Center is sponsored by Allianz Global Investors U.S. LLC, a registered investment adviser, and Allianz Global Investors Distributors LLC.

WP-25 | AGI-2016-02-16-14559 | 01444

**Allianz**   
Global Investors

Center for Behavioral Finance