



Doubt or Certainty: Impacts on Portfolio Management

*Doubt is not a pleasant condition,
but certainty is absurd.*
– Voltaire

EXECUTIVE SUMMARY

PART I: Investors must make decisions despite the presence of uncertainty.

PART II: Thinking they may know more than they do, most investors consistently make decisions that reduce their long-term rate of return.

PART III: Upon first glance, lump sum investing appears to be the optimal strategy.

PART IV: Deeper examination reveals that the superiority of lump sum investing is mixed.

PART V: When intelligently employed, dollar-cost-averaging can be beneficial to a value-based investment strategy.

PART VI: When intelligently employed, dollar-cost-averaging can be beneficial to a dispassionate investment strategy.



PART I

Investors must make decisions despite the presence of uncertainty.

Life presents the unanticipated with surprising frequency. For example, in the course of our Insights, we've quoted two foundational thinkers of the French Revolution—first Rousseau and now Voltaire—and yet Churchill only once, despite the fact that on the Hamiltonian-to-Jeffersonian scale, we'd land decisively with the Federalists; not averse to being revolutionary, but focused more on collective self-governance and less on kingly decapitation.¹ Before you turn to Wikipedia to decipher our pedantic references, let us save you some time by simply stating that, when it comes to investing, we lean more conservative than socialist. While imperfect, the free market tends toward more optimal outcomes than central planning. Instead of Voltaire, maybe we should have quoted a conservative-ish libertarian to make the same point. Echoing the French writer, Clint Eastwood's *Dirty Harry* said, "a man's got to know his limitations," but hopefully we're doing more than talking to empty chairs with this communique.

Voltaire's assertion hints at a reality of investment management. Our methodology is derived from sound logic and empirical evidence, and yet the subtleties of truth when contemplated by the blunt human mind do not easily present themselves. As such, we are occasionally making decisions while caped in uncertainty. One particularly veiled endeavor is market-

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timing: the attempt to reasonably approximate the near-moment, within weeks and maybe even days, when the value of an investment will rise or fall, and profitably transact around that moment. For example, a market-timer might contend that while Robert Shiller's cyclically-adjusted price-to-earnings ratio (CAPE) is currently at 30, almost double its historic mean and median, large cap domestic stocks won't trade down for another two months because of [defenseless rationale]. The market timer would wait until his [irrelevant ludicrousness] comes to fruition, and then he would sell or short US stocks. He is driven at least in part not by the prospective long-term rate of return but by a belief that he can effectively predict the moment when the market will re-price.

We find to be highly dubious the claim that market-timing can be consistently and successfully affected. The end result is very likely to be a denouement via guillotine while ironic wisps of *Liberte, Egalite, Franternite* flutter through the public square. On any given day, a market as broad as that of, say, US equities, consists of millions of individuals transacting for myriad reasons. Your Aunt Betty may be selling some stocks because she needs to pay for your Uncle Joe's funeral while your Aunt Catherine might be buying the same because she just inherited a bit of cash from recently-deceased Uncle Joe. How is it possible for the market-timer to know what all of the nation's aunts are up to? 🐼

¹ Apologies to the man of Monticello, who was not nearly as misguided as the French.



PART II

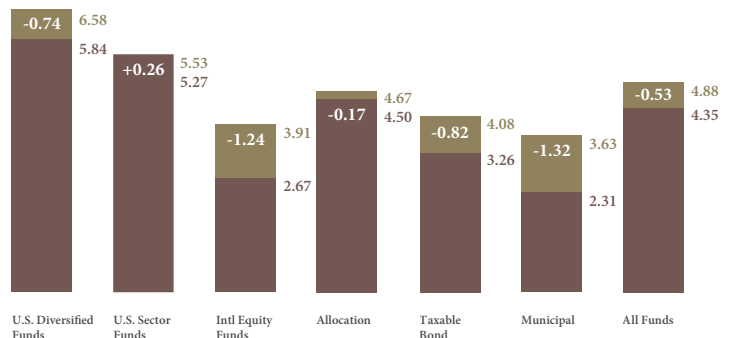
Thinking they may know more than they do, most investors consistently make decisions that reduce their long-term rate of return.

The “investor gap” is one example of the struggle to market time. The gap is the tendency for investors to realize, because of ill-timed buy and sell decisions, actual returns (IRR) that are lower than the time-weighted returns (TWR) generated by their investments. For instance, over the past ten years ending 2016, the time-weighted returns of open-end domestic and foreign stock mutual funds, as well as taxable and municipal bond funds, exceeded the actual returns realized by investors by between 0.75% and 1.25%. Over the five years ending 2015, alternative strategy funds had a negative gap of over half a percent. The Managed Futures and Long/Short Equity sub-strategies had negative gaps of near 4% and 3%, respectively. Ouch! That could be enough to take a low-return (but also lower risk and lower correlation) strategy such as managed futures down to a near 0%.

True, over shorter time frames, the investor gap may disappear. For example, from 2012 to 2014, US equity mutual fund investors enjoyed a 19.31% annualized IRR compared to a 18.73% TWR for the average fund. However, the negative gap re-emerged as soon as the data was expanded to the trailing five-year period ending 2014. Predictably, a significant chunk of the “negative” portion of the investor returns gap occurs during pivot years when big gains turn into big losses and vice versa. Bear markets and the dramatic snapbacks that follow are the worst environments for the average (aka, “finicky”) fund investor. Providing further proof of poor market-timing on behalf of investors is the positive investor returns gap generated by target-date funds, a characteristic likely due to the fact that these products are often held in automatic contribution 401(k) accounts, and therefore purchases and sales are not subject to investor whims. The target-date funds are bought at regular intervals with steady, paycheck-by-paycheck contributions. 🐼

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Ten-Year Returns Gap



■ Average 10-Yr Total Return (%)
 ■ Asset-Weighted 10-Yr Investor Return (%)
 Returns Gap (%) in white numerals

Source: Morningstar, Inc. Data as of December 2015.



PART III

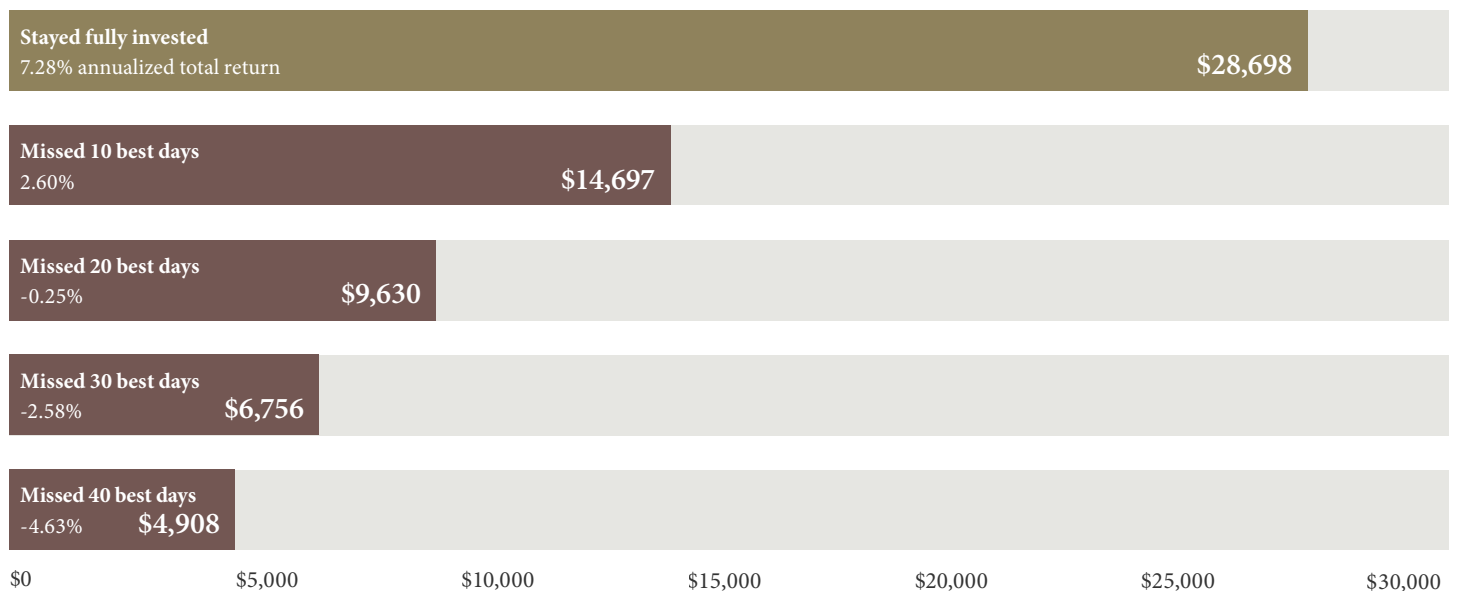
Upon first glance, lump sum investing appears to be the optimal strategy.

Our inability to precisely time the market becomes particularly relevant when a client receives a cash windfall through an event such as an unexpected bonus, a severance or an inheritance. They now have a pool of cash awaiting investment. How should we structure the purchases?²

One option is to employ lump sum investing (LSI). Simply put, invest all the cash immediately. On average, markets rise, and since we cannot time the market, we should just assume that each day

the market will appreciate in value. Indeed, if it were the case that every day the markets rose a little, then investing all at the first moment would be the logical decision. Any delay would result in missing a period of positive return. For example, we have \$300 and want to purchase shares of Christian Dior that are currently priced at \$10, will rise to \$15, and then \$20. If we invest the entire \$300 up-front, we end up with thirty shares that increase to \$600 in value at the end of the cycle, generating a portfolio that is 200% of its original value. If we were to invest the \$300 in thirds, one chunk

\$10,000 invested in the Dow Jones Industrial Average (12/31/01–12/31/16)



Data is historical. Past performance is not a guarantee of future results. The best time to invest assumes shares are bought when market prices are low.

² For this illustration, we will assume the investment portfolio consists of US stocks, but know that the example applies across traditional investments.



at each price interval, we would initially purchase ten shares, then six and two-thirds shares (\$100 divided by \$15), and finally five shares (\$100 divided by \$20). We would end up with twenty-one and two-thirds shares for a total value of \$433, or a portfolio that is only 144% of the original value.

Over long periods of time, LSI does indeed work better than market timing.

Over long periods of time, LSI does indeed work better than market timing. For example, let's assume that we are decent at market timing, and, over the course of any 50-year period between 1926 to 2016, we make purchases of the US stock market after it falls by 20%, and sell after it rises by 50%. We buy low-ish and sell high-ish. Averaging the returns of these different 50-year slices yields an annualized result of almost 8.7%; not shabby, but by staying fully invested at all times the LSI investor averaged a return of 11.2% across those 50-year periods.³ Over that entire 1926-2016 time period (not breaking it down into 50-year increments), and altering the strategy slightly (buy in after a 14% fall and sell out after a 64% rise), the market-timer earns 7.5%; still less than the all-in-all-the-time LSI investor's 9.8%.

Another example: \$10,000 invested in the S&P 500 in January 1997 ended up being \$43,082 at the end of 2016, but if this money was invested in equal monthly increments of \$41.67 over the course of 240 months, the investment only grew to \$22,121 by the end of 2016. Over this 20-year time period, having less invested in the bear markets of 2001-2002 and 2007-2009 would have helped, but the benefit was more than outweighed by being out of the S&P 500 during the rallies. 🐼

³ This example assumes the CRSP total cap-weighted market, and that the market-timer earns the one-month t-bill rate when he is out of the market.



PART IV

Deeper examination reveals that the superiority of lump sum investing is mixed.

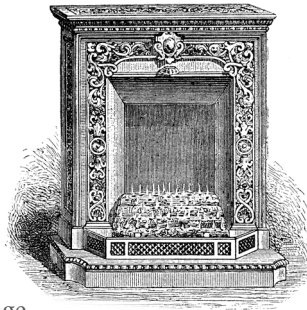
Clearly, timing via LSI is the way to go because the numbers prove it, right? It would be, if we were investing a chunk of money which would not be touched for the next half-century or so. Does this describe most of our clients' situations? No.

Therefore, it's important to drill down through the long-term averages into to the ups-and-downs that ultimately result in the long-term average. Why? An anecdote: a man from Brazil is travelling to Chicago for work, and must decide what to pack. He looks at the temperature table and sees that sometimes it's 30-degrees and other times 90-degrees. On average, it's 60-degrees, so I'll pack accordingly, he thinks. Unless he's travelling in May or September, he's likely to be woefully unprepared. It's like that joke about the economist: he sleeps with his feet in the oven and his head in the freezer because on average it's just right.

The market is similar. The long-term positive average return is arrived at by aggregating periods of negative and positive returns. Historically, a typical market cycle in US stocks lasts a little over 5 years with a 135% gain, a 30% loss, and a cumulative full cycle return of 65%, or about 10% compounded annually. The typical decline within a market cycle wipes out

more than half of the preceding bull market advance. The 2000-2002 market loss wiped out the entire total return of the S&P 500 in excess of cash all the way back to May 1996, and the historic 2007-2009 loss wiped out the excess return back to June 1995.

It's like that joke about the economist: he sleeps with his feet in the oven and his head in the freezer because on average it's just right.



Now imagine that the Christian Dior stock starts at \$10, then falls to \$5 and then rises to \$20. The investor who invests all his cash up-front still ends up with a portfolio that is 200% of its original value. However, the second investor initially buys ten shares, then twenty shares when the security falls to \$5, and then five shares when the security rises to \$20. Ultimately, the second investor ends up with thirty-five shares, or a total portfolio value of \$700, which is 233% of the original value. In this instance, the dollar-cost-averaging (DCA) investor is better off.

Here's a real-life example: if an investor had DCAed into an S&P 500 index fund throughout the "lost decade" of the 2000's, his total return would have been around 25% cumulatively, versus the slight negative return suffered by the LSI gentleman who made an upfront investment on January 1st of 2000. The latter would have been better off by splurging on Yves Saint Laurent haute couture as opposed to stock. 🐼



PART V

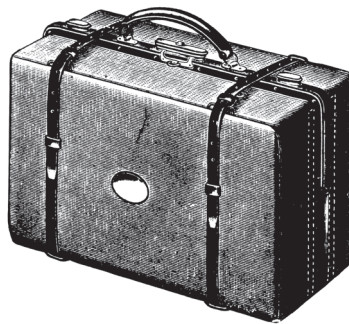
When intelligently employed, dollar-cost-averaging can be beneficial to a value-based investment strategy.

So, a potential problem with the LSI strategy is that while the market's long-term journey is one of steady appreciation, the path is winding. A market that is up 10% over the course of a year will not appreciate by 0.8% per month.

Rather, it may be up 3% one month, then down 2%, then up 4%, eventually finishing up 10%. On the way to their destination, the LSI investor will curve with each bend in the road. As demonstrated, a DCA approach can at times outperform LSI. So, are we with a consistent and transparent methodology able to predict and exploit the instances of DCA superiority, and are there other reasons to prefer the DCA approach? Yes and yes.

During the DCA period, the DCA investor is holding more cash relative to the LSI investor. Therefore, the DCA investor will outperform if they are making fewer purchases when stocks are priced to deliver below-average long-run returns and making more purchases when stocks are priced to deliver above-average long-run returns. Both stipulations are important, because an investor who achieves superior downside capture by being

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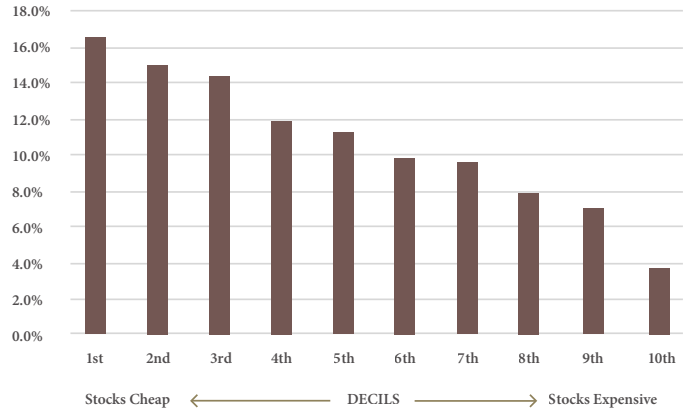
cautious at a market top may undo their advantage if they have inferior upside capture by being overly cautious at the nadir.

Let's examine a strategy which would potentially allow a DCA investor to outperform an LSI investor. We use Robert Shiller's oft-cited cyclically-adjusted price-to-earnings (CAPE) ratio (and certain variations thereof) to determine the relative value of US large cap stocks. Over a market cycle (trough-to-trough or peak-to-peak), the higher the CAPE, the lower are prospective returns and the lower the CAPE, the higher are these returns. For example, imagine a system that, as the investor makes periodic contributions to their portfolio, buys one share of US stocks when the CAPE is between 13 and 20, doubles the purchase amount when the CAPE is below 13, and halves the purchase when the CAPE is above 20.⁴ This easily executed and readily measurable rule would have led an investor to do a whole lot more buying in March 2009, when the CAPE was 13, than in mid-2007, when the CAPE peaked near 28. Simply stated, the investor determines the fair value of an investment, slots in a margin of safety, and then

⁴ There's a reason we use such a simple strategy. We avoid intricacy within our strategies because we understand the limits on our ability to predict the future course of market returns. We acknowledge that most of the value we add comes simply in convincing our clients to stay invested (providing beta) during periods when investing is frightening and painful (such as October 2008), and not by implementing tactical trades (providing alpha). We also realize that simple, traditional valuation metrics such as the CAPE ratio are imperfect, and provide very little insight into short-term market returns. Caveats aside, we firmly believe that value metrics are useful in forecasting long-term returns, and in securing long-term outperformance.



Median Ten-Year Total Returns from Historic P/E Deciles 1926 to Date



Yield Decile	1	2	3	4	5	6	7	8	9	10
Yield Ranges	below 10.6x	10.6x - 11.6x	11.6x - 13.3x	13.3x - 15.1x	15.1x - 16.8x	16.8x - 18.2x	18.2x - 19.8x	19.8x - 21.6x	21.6x - 25.1x	25.1x & above

Source: Leuthold Weeden Capital Management

buys more when the asset is cheap and less when it's expensive. Fortunately, value-based methodologies apply to more than just US equities. They're relevant for most assets that would be owned in an intelligently diversified portfolio. For example, an investor should buy more long-term bonds when the yield curve is steep and less when it's flat, and more high-yield when spreads are wide and less when they're tight

In today's market, value-directed DCA strategies are particularly relevant. It's quite likely they'll generate outperformance when the starting CAPE ratio of the US equity market is close to 30 and the yield on the 10-year US Treasury note is 2.15%. Such an environment is like starting in pole position at the Indy 500; there's not a whole lot of room to go anywhere but down. If you are one of our clients who recently received an inheritance, you won't be surprised with this Insights' contentions, as you've heard us advance the same in your meetings. If the market falls by 50% in the next few years, you'll likely hear the opposite: either cluster those DCA purchases into a few large clumps or embrace LSI. A quick aside: note that we don't put too fine a point on our strategy. We don't buy a little more at a CAPE of 15 and a little less at a CAPE of 17. We're not that good. We are like the baseball hitter who lets many pitches go past without swinging, because he knows he can't get good wood on the ball, but when the pitcher eventually hangs a slider, the batter swings for the fences. That's a core philosophy at Gryphon: *don't swing at everything. Wait for the fat pitch.* 🦁



PART VI

When intelligently employed, dollar-cost-averaging can be beneficial to a dispassionate investment strategy.

Another reason to employ DCA over LSI is derived from investor psychology (behavioral economics). Because a meaningful portion of the long-term returns our clients earn will not come from our investment management skill (alpha), but simply by being invested in risky assets instead of cash (beta), one of our chief missions is to steady our clients' emotions, helping them to avoid rash decisions.

For instance, let's consider gambling.⁵ A bettor may believe the New England Patriots will win the Super Bowl, or that a pocket pair of Queens at a no-limit Texas Hold-em table has the best odds of being the superior hand. Still, Vegas professionals rarely risk more than a few percent of their bankroll on any one bet. They know they are likely to win if the football game or poker hand is played out a thousand times, but that over any one individual instance, anything can happen. Tom Brady may tear his ACL in the first quarter or an opposing poker player may be dealt a pair of Aces. In order to realize the favorable odds, the professional must survive to the end of those 1,000 iterations. If they bet their entire bankroll on each game or hand, even if the odds were always in their favor, they'd eventually lose all their money after only one adverse outcome, and there'd be no chance for them to live to the 1,000th time.



One of our chief missions is to steady our clients' emotions, helping them to avoid rash decisions.

In investing, we are confident that over the long run the odds are in our favor, but we risk a major setback if we “wager” a client's entire bankroll just before a 50% market decline. Unlike the gambler, we wouldn't go entirely bankrupt, but we might incur a major

setback.⁶ Let's say our client received a large inheritance in October 2007 and we LSIed the proceeds into the S&P 500, then watched as the portfolio fell by half over the next 18 months. The client may be so scarred that they decide in March 2009 to sell all their remaining investments and resolve to never again fully invest. The emotional pain of loss is too much to bear. By instead implementing a DCA plan, we might have started to buy in October 2007, but rather than going all in at the top, a large portion would have been invested at cheaper and cheaper prices, levels where prospective returns were more robust. Our client still would have lost money, but less than with an LSI approach and hopefully less enough such that they would continue to be a confident long-term investor.

Now, imagine that instead of October 2007, we have another client who just received a cash inheritance in March 2009. They've

⁵ Gambling is a pursuit many perceive to be similar to investing. While there are similarities, we strongly distinguish between the two. We take on prudent risk through informed decisions. We don't make bets. We make investments.

⁶ One reason to guard against losses is the math of investing. Following a 20% decline, you need a 25% return to get back to even, after a 50% decline, you need a 100% return, and so on.



seen Bear Stearns sell for a pittance, Lehman Brothers go under, and Fannie and Freddie placed into conservatorship. It's not the Reign of Terror, but if you gave the Occupy Wall Street folks a few guillotines, it might have been. No matter how many price-to-earnings, price-to-books, and price-to-cash-flows we wave in our client's face, they are too afraid to fully invest the newly acquired inheritance. We may have a solution that, while not copacetic, is at least palatable: DCA. We convince them to begin buying in increments. True, they would have been better off LSling since the market had bottomed, but the DCA approach did lead to a much better outcome than not investing at all. It wasn't perfect, but given the constraints, it was optimal. If diligent use of DCA makes a client more comfortable with investing, and thereby increases from 0% to 50% the likelihood of beginning to buy US equities in March 2009, and their portfolio thus grows by an extra 10%, then DCA has increased their expected return by 5%.⁷ By using DCA, we are in a sense smoothing out the volatility of this client's emotions such that they are more likely to stay invested, and realize long-term appreciation.

Doubt is not a pleasant condition, but certainty is absurd. In investing, doubt is rational and prudent. Certainty is the bailiwick of the snake oil salesman. Yet, taken to an extreme, doubt becomes debilitating. We have a tool to cut unwarranted pessimism off at the head. It's not the guillotine, it's dollar-cost-averaging. In investing, value guides long-term returns. Perfectly efficient markets are the bailiwick of the academy.⁸ We have a tool to take advantage of that, too: dollar-cost-averaging. It's not perfect, and it isn't always better than lump sum investing, but when used appropriately, it works. 🐉

⁷ A 50% chance of realizing an extra 10% return.

⁸ Ok, so it's more nuanced than that, admits the author currently studying at Gene Fama's University of Chicago business school and whose firm utilizes Gene Fama's DFA funds.

